



Monthly Japanese Industry and Policy News
April (March 31 – April 27) 2023

• This was compiled by “[Weekly Japanese Industrial and Policy News](#)”.

Legislation and Policy News

**METI releases roadmap for transition finance in automobile sector
summary**

The Ministry of Economy, Trade and Industry (METI) is formulating technology roadmaps for each sector toward the transition to decarbonization with the aim of promoting transition finance. The METI, in collaboration with the Ministry of the Environment and the Financial Services Agency, has compiled roadmaps for the steel, chemical, electric power, gas, petroleum, cement, and paper and pulp industries. Including this automobile, the roadmap for a total of eight economic and industrial fields, as well as the shipping and aviation fields, will cover approximately 80% of Japan's domestic CO2 emissions. Through the utilization of these roadmaps, it is expected that financing through transition finance, etc. in the hard-to-abate industry field will become more active in the future.

In the automotive field, the ratio of emissions from others, specifically emissions from driving by automobile users, stands out from direct and indirect emissions associated with business activities such as automobile manufacturing. The roadmap includes not only emission reductions in product manufacturing and energy source manufacturing and supply, but also measures that bring about changes in how automobiles are used.

METI expects companies to refer to this roadmap when considering climate change countermeasures using transition finance. In addition, it believes that in the financial institutions, the strategies and efforts toward decarbonization of the potential companies are eligible for transition finance when procuring funds.

METI website (in Japanese):

<https://www.meti.go.jp/press/2022/03/20230330005/20230330005.pdf>

**Hydrogen supply, 6 times to 12 million tons in 40 years for
decarbonization**



On April 4, the government held a ministerial meeting on renewable energy and hydrogen, and announced a proposal for a new introduction target for hydrogen, which is a promising next-generation decarbonized fuel. The government will consider a 15 JP¥ trillion investment plan for the public and private sectors over the next 15 years, with a view to increasing production to about 12 million tons by 2040, six times the current level. It intends to clarify the target and attract corporate investment toward decarbonization. The final decision will be made based on the opinions of industry and experts.

The government plans to use hydrogen and ammonia to cover about 1% of the electricity generated in fiscal 2030. Using it in steel manufacturing and aircraft is also considered. The current annual supply is about 2 million tons, and the government has set a policy of aiming for 3 million tons in 2030 and 20 million tons in 2050. Set a new target for 40 years and show the road to popularization.

The outline also describes the government's policy to support the construction of supply chains. Create a supply system that includes Asia, Australia, and the Middle East. It also includes a policy that Japan will lead the creation of global standards for environmentally friendly hydrogen production methods. Regardless of the production method of renewable energy, the government propose to create a standard for evaluating the amount of CO2 emitted during hydrogen production.

Prime Minister's office website (in Japanese):

https://www.kantei.go.jp/jp/101_kishida/actions/202304/04energy.html

IAEA publishes results of safety review of ALPS-treated water

On April 5, the IAEA (International Atomic Energy Agency) released a report on the safety review (2nd) of ALPS-treated water at TEPCO's Fukushima Daiichi Nuclear Power Station. The report was prepared based on the review conducted during the visit of IAEA staff and international experts to Japan from November 14 to 18, 2022.

The IAEA review is conducted by an IAEA task force consisting of IAEA staff and international experts, a specialized agency in the field of nuclear energy. The IAEA Task Force includes international experts from Argentina, Australia,



Canada, China, France, South Korea, the Marshall Islands, Russia, the United States, the United Kingdom, and Vietnam.

As in the previous review, this review focuses on (1) cross-cutting requirements and recommendations, (2) properties of ALPS treated water/effluent, (3) safety of release control systems and processes, (4) radiation impact assessment, (5) regulatory control and approval of releases, (6) ALPS-treated water and environmental monitoring, (7) stakeholder involvement, and (8) occupational radiation protection.

As for the content of the announcement, (1) TEPCO made significant progress in revising its plan in consideration of the points pointed out in the first review, (2) the understanding of the IAEA deepened, and (3) it was clarified that no additional mission was required to the Ministry of Economy, Trade and Industry and TEPCO. The ALPS-treated water is scheduled to be released into the ocean around this summer, but fisheries and others are strongly opposed to it.

METI website:

https://www.meti.go.jp/english/press/2023/0406_001.html

IAEA website:

<https://www.iaea.org/newscenter/pressreleases/iaea-issues-new-report-on-safety-of-japans-plan-to-discharge-alps-treated-water-from-fukushima-daiichi-site>

G7 environment ministers' meeting closes, agreement to reduce carbon dioxide emissions by 50% in automobile sector

The G7 climate, energy and environment ministers' meeting of seven major countries held in Sapporo ended after two days of discussions on April 15 and 16. According to the ministerial statement released, with regard to the decarbonization of the automobile sector, based on the number of vehicles owned by each country, including engine vehicles, G7 countries will reduce their carbon dioxide emissions by 50% by 2035 compared to 2000. They agreed to check the progress every year so that they can reduce it. Instead of the goal of introducing electric vehicles, which the US & Europe were seeking, they



decided to aim for decarbonization with a wide range of vehicles, including hybrid vehicles.

In addition, while not specifying the timing of phasing out coal-fired power generation, they agreed to phase out fossil fuels such as coal and natural gas if no measures are taken to reduce carbon dioxide emissions.

On the other hand, in the field of the environment, regarding important minerals such as rare metals, G7 countries should take the lead in collecting used electronic devices, increase the amount of recycling on a global basis, and further marine pollution caused by plastic waste. with a new goal of reducing to zero by 2040.

To promote the spread of renewable energy, the G7 as a whole aim to increase offshore wind power generation to 150 gigawatts by 2030, which is equivalent to 150 nuclear power plants. They are planning to expand to 1 terawatt, which is equivalent to 1,000 nuclear power plants, by popularizing type panels. These goals mean offshore wind power is seven times larger, and solar power is three times larger.

Japan, as the chair country, said that it was able to show various paths to decarbonization according to the circumstances of each country, and plans to reflect this in the discussions at the G7 Hiroshima Summit next month.

METI website:

https://www.meti.go.jp/english/press/2023/0417_002.html

WTO judges India's measures to raise tariffs on ICT products to be in breach of agreement

On April 18, the World Trade Organization (WTO) determined that India's measures to raise tariffs on ICT (Information and Communication Technology) products, which were being examined at the WTO based on Japan's petition, were inconsistent with the WTO agreement and advised India to rectify the measures.

Since 2014, India has raised tariffs to 20% on information and communication technology (ICT) products, such as mobile phones, base stations, and



transmitting and receiving devices for voice and images, which are committed to duty-free (0%) under the WTO Agreement. (The tariff rate differs for each item.) On May 10, 2019, Japan requested India to consult on the measure based on the WTO Agreement, and on May 23, 2019, Japan held consultations with India.

However, since bilateral consultations did not lead to a solution, the WTO Dispute Settlement Subcommittee (Panel) was established on July 29, 2020. The EU and Taiwan have also set up panels on India's tariff measures.

Parties can appeal to the WTO Appellate Body within 60 days of publication. If there is no appeal, the WTO decision will become final based on the content of the panel report.

The products covered this time are as follows. (1) Feature phone (HS85171219), (2) Smartphone (HS85171211), (3) Mobile phone base station (HS85176100), (4) Digital microwave communication equipment (HS85176290), (5) Printed circuit board assembly (HS85177010), (6) LCD module for smartphone (HS85177090). India has raised tariffs from 0% to 15-20%.

METI website:

https://www.meti.go.jp/english/press/2023/0418_001.html

Closing of the G7 Foreign Ministers' Meeting

The G7 Foreign Ministers' Meeting held in Karuizawa, Nagano Prefecture closed on April 18 after three days of discussions. In light of the moves of China and Russia, which are destabilizing the international order, the G7 strongly opposes attempts to unilaterally change the status quo by force or coercion, and expresses the G7's determination to uphold a free and open international order based on the rule of law. issued a statement.

At the outset of the joint statement, the two countries pledged to "take action together to uphold and strengthen a free and open international order based on the rule of law." It "condemned in the strongest possible terms" Russia's aggression against Ukraine and called for an immediate withdrawal of Russian troops and an end to third-party aid to Russia. It also made clear that G7 would continue to support Ukraine "as long as it is needed".



On China, it said, "We recognize the importance of engaging with China candidly and expressing our concerns directly." It expressed "serious concern" over the situation in the East and South China Seas, where China continues to aggressively advance into the seas, and reaffirmed the importance of peace and stability in the Taiwan Strait. It also strongly condemned the launch of ballistic missiles by North Korea.

It also included the importance of strengthening cooperation with emerging and developing countries and a free and open Indo-Pacific. Regarding nuclear disarmament, the joint statement clearly stated, "We reaffirm our commitment (involvement) toward the ultimate goal of a world free of nuclear weapons."

The Japanese government intends to link the results of this Foreign Ministers' Meeting to the G7 Summit, which will be held in Hiroshima on May 19-21.

MOFA website:

https://www.mofa.go.jp/ecm/ec/page24e_000391.html

International standard for drone traffic management system issued

The Ministry of Economy, Trade and Industry announced on April 27 that the international standard for the drone operation management system proposed by Japan was issued on April 26. In order to use drones safely, securely, and efficiently, it is necessary to manage flight plan information (when and what route to fly) and dynamic information (where it is currently flying). What has just been published is a standard for the structure of that function and definitions of terms. As a result, it will be possible to internationally standardize the role that the system should play, necessary information, and related terminology.

This standard is the result of the "Energy-saving society realization project where robots and drones play an active role" promoted by the New Energy and Industrial Technology Development Organization (NEDO), a national research and development agency, since 2017, and has been internationally standardized by Japan which led the study at the Organization (ISO).

"ISO 23629-5 UAS traffic management (UTM)—Part 5:UTM Functional Structure" issued shares information of all drones flying within a certain airspace



and prevents collision accidents. It is an international standard related to UTM that has a role to support. However, the role that UTM should play, necessary information, and related terminology have not been internationally unified, which has been an issue in promoting smooth discussions.

In the future, by referring to this standard, stakeholders around the world will be able to use the same words with the same meaning, so it is expected that stagnation of discussions due to misunderstandings will be minimized. In addition, it is expected to accelerate the development of technology related to UTM itself and drones, as well as the development of related industries.

ISO website:

<https://www.iso.org/standard/78961.html>

Start of heatstroke warning alert operation, when heat index is 33 or higher

On April 26, the Ministry of the Environment and the Japan Meteorological Agency began operating a "heatstroke alert" that urges people to take preventive actions when a hot environment with an extremely high risk of heatstroke is predicted. "Heat Stroke Warning Alert" is a unit of 58 prefectural forecast areas (Hokkaido, Kagoshima, and Okinawa prefectures are divided into 58 nationwide), and the daily maximum heat index of 33 is calculated at any of the WBGT (Wet Bulb Globe Temperature) calculation points within the target area. It will be announced when it is predicted that the above will occur. The timing is 5 PM the day before and 5 AM of the day.

Alert announcement information and WBGT for each prediction point will be provided on the Ministry of the Environment heat stroke prevention website. It will also be distributed on the same site's "Heat Stroke Warning Alert Mail Delivery Service" and the Ministry of the Environment LINE official account. About 40,000 to 50,000 people are required to be transported by ambulance each year due to heatstroke, and the number of deaths exceeded 1,000 for three consecutive years from 2018 to 2020. In fiscal 2022, 85 days of the 183-day target period were announced in 46 of the 58 regions. The total number of presentations is 889.



The Heat Index (WBGT) is an index proposed in the United States in 1954 for the purpose of preventing heatstroke. The units are in degrees Celsius (°C), the same as temperature, but the values are different. An index that focuses on the exchange of heat between the human body and the outside air (heat balance), and incorporates three factors that have a large impact on the heat balance of the human body: humidity, the surrounding thermal environment such as solar radiation, and temperature.

Ministry of the Environment website:

<https://www.wbgt.env.go.jp/en/>

Survey and Business Data

Fiscal 2021 greenhouse gas emissions increase for the first time in four years

On April 21, the Ministry of the Environment and the National Institute for Environmental Studies announced Japan's greenhouse gas emissions and removals for fiscal 2021 (confirmed figures). Against the backdrop of an increase in energy consumption due to economic recovery from the COVID-19 pandemic, total emissions increased by 2% (21.5 million tons) from the previous fiscal year to 1.122 billion tons (CO₂ equivalent), the first time in four years increased.

On the other hand, compared to FY2013, the base year, it decreased by 20.3% (285.3 million tons), and decreased by 3.4% from FY2019, before the spread of the COVID-19 infection. In addition, this time, for the first time in Japan, 2,300 tons of absorption by mangroves, one of the blue carbon ecosystems, was recorded. In addition to mangrove forests, the Ministry of the Environment is proceeding with studies aimed at calculating and recording emissions and absorption amounts of blue carbon ecosystems for wetlands, tidal flats, seagrass meadows, and seaweed beds.

Looking at the emissions “before electricity and heat allocation,” which is the amount of energy-derived CO₂ emissions associated with power generation and heat generation recorded in the sector on the producer side, emissions from the energy conversion sector such as power plants account for the largest share at 40.4%, followed by the industrial sector at 25.3% and the transportation sector at 16.7%. When energy-derived CO₂ emissions are



allocated to each sector on the consumer side according to the amount of electricity and heat consumed, the industrial sector has the largest emissions at 35.1%, followed by the commercial and other sectors. 17.9% in the sector, followed by 17.4% in the transportation sector.

The share of renewable energy (including hydropower) in the power supply mix in FY2021 will be 20.3%, an increase of 0.4 percentage points from the previous year. Nuclear power was 6.9%, an increase of 3.0 points from the previous year. Thermal power (excluding biomass) was 72.9%, down 3.4 points from the previous year, but it must be said that this level is still high.

Ministry of Environment website:

https://www.env.go.jp/en/press/press_01366.html

Japan's population will fall below 100 million in 2056, and will decrease by 30% to 87 million in 2070

On April 26, the National Institute of Population and Social Security Research released its "Future Population Projection," which predicts Japan's long-term population. If the number of children born per woman stays the same as it is now, the population will fall below 100 million by 2056, and the number of Japanese births will fall below 500,000 by 2059. If Japan cannot maintain the scale of our population, our national strength may shrink. The time has come to rush measures aimed at maintaining economic growth even in a society with a declining population.

Future population projections are revised once every five years based on the national census. In response to the COVID-19 disaster, this time it was revised for the first time in six years. Compared to the previous estimate in 2017, the timing for the population to fall below 100 million was delayed by three years. This is because the number of foreigners entering the country was estimated to increase to 160,000 from 70,000 in the previous census, taking the average from 2016 to 2019. However, looking at the Japanese population alone, the time when the population will fall below 100 million will be 2048, one year earlier.

The outlook for the fertility rate has been revised downward from 1.44 in the previous estimate to 1.36 under the medium-range scenario, reflecting the



declining birthrate. Based on that, the number of Japanese births in 2059 will be 496,000. In 2016, the number of people dropped below 1 million, and in 2022, it fell below 800,000. In 2050, the proportion of the population under the age of 14 will fall below 10%. In terms of the number of people, it will decrease from 15 million in 2020 to about 10.4 million.

On the other hand, the proportion of the population aged 65 and over will rise from 28.6% in 2020 to 38.7% in 2070. The number of elderly people will also reach 33.67 million in 2070. Although there will be a decrease of more than 2 million people compared to 2020, the population of the working generation is declining faster, and the proportion of elderly people in society as a whole will increase. The working-age population aged 15-64 is estimated to be 45.35 million in 2070. This is a 40% decrease from the 2020 result of 75.09 million. Over the next 50 years, 30 million workers will be lost, and Japan will face unprecedented challenges not only in terms of labor productivity and economic growth, but also in welfare measures.

IPSS(National Institute of Population and Social Security Research) website (in Japanese):

https://www.ipss.go.jp/pp-zenkoku/j/zenkoku2023/pp_zenkoku2023.asp

Company & Organization News

NEC establishes subsidiary in Europe for global growth in drug discovery business

NEC announced on March 31 that it has established a new subsidiary, NEC Bio B.V. (NB), in Hilversum, the Netherlands, for long-term growth in the drug discovery business. As part of its efforts to strengthen its healthcare and life science business, NEC announced in 2019 that it would enter the drug discovery business specializing in advanced treatments using cutting-edge AI and acquired Oncolmmunity AS, a Norwegian biotechnology company (now NEC Oncolmmunity AS, NOI).

Following the establishment of NB, NOI became a subsidiary of NB, and NEC Bio Therapeutics (NBT) was established in Mannheim, Germany as a subsidiary of NB. Going forward, NB will focus on optimizing the entire AI drug



discovery business, and NOI will continue to conduct cutting-edge research and development to utilize AI in pharmaceutical research. NBT will also lead clinical development and clinical strategy in the new drug pipeline. NB will focus on infectious diseases and oncology along with NOI and NBT.

NEC website:

https://www.nec.com/en/press/202303/global_20230331_01.html

Japan Automobile Manufacturers Association reaffirms direction with automakers' associations to achieve CN by 2050

The Japan Automobile Manufacturers Association (JAMA) announced on April 4 that it has reaffirmed its direction toward achieving carbon neutrality in road traffic by 2050, together with automobile manufacturers' associations in various countries. JAMA Chairman Akio Toyoda (Toyota Motor Chairman) has long said, "There is no single path to CN. For practical and sustainable CO2 reduction, it is necessary to provide customers with a variety of options." This recognition was shared with the automobile industry in each country.

In order to achieve carbon neutrality within this agreement, measures must be pursued to reduce CO2 emissions not only from new vehicles but also from vehicles in use. To that end, we need not only technologies that directly emit zero CO2, such as zero-emission vehicles (electric vehicles (EV/BEV) and fuel cell vehicles (FCV/FCEV)), but also carbon-neutral fuels. It states that it is important to advance various technologies such as internal combustion engine vehicles that use energy to offset CO2 emissions. It means that they questioned the trend that only BEV can realize CN.

The agreement is done unofficially by the Automobile Manufacturers Association of Europe (ACEA), Italy (ANFIA), USA (Auto Innovators), Canada (GAC), Japan (JAMA), France (PFA), UK (SMMT) and Germany (VDA).

JAMA website:

<https://www.jama.or.jp/english/news/release/2023/293/>

New electric power Octopus UK invests in Japanese renewable energy company



Octopus Energy, a new electric power company in the UK, announced on April 5 that it has invested in Yotsuya Capital, which is engaged in the development of renewable energy power plants. Octopus, which has its own customer management platform that utilizes artificial intelligence (AI), has strengthened its business base in Japan by partnering with Tokyo Gas.

Although the investment amount has not been disclosed, Yotsuya Capital plans to use the funds to develop solar power generation, aiming to build a new power plant with a total output of 250,000 kilowatts in Japan over the next five years. It will be Octopus' first investment in a renewable power generation business in Asia. The company has already deployed more than 3 million kilowatts of renewable power plants worldwide.

Octopus was founded in 2015. Using AI to make power plan proposals and customer management more efficient, the unique system "Kraken" is used as a weapon to supply power to over 3 million customers in the UK, and is breaking down the stronghold of major power companies. In recent years, the company has also been focusing on the Japanese business, and announced a partnership with Tokyo Gas in December 2020. Through a joint venture company established in Japan, they are developing a power retail business, and also handle power plan that are virtually 100% renewable.

Octopus Energy website:

<https://octopus.energy/press/octopus-energy-kicks-off-asian-renewables-push-with-first-japanese-solar-deal/>

Idemitsu concludes MOU with HIF to build “Synthetic Fuel” supply network for renewable hydrogen and CO2

On April 5, Idemitsu Kosan announced it formed a partnership with HIF Global (HIF), which manufactures carbon-neutral synthetic fuel (e-fuel) in South America, North America, Australia, etc. and both have signed a memorandum of understanding (MOU).

In the strategic partnership between the two companies will jointly consider three items, (1) Idemitsu will purchase synthetic fuels from HIF's overseas projects and supply them in Japan, (2) jointly invest in synthetic fuel manufacturing facilities in Japan and overseas, and (3) international



transportation of CO₂ captured in Japan to use them as raw materials for synthetic fuels.

In addition, Idemitsu will obtain a sample of synthetic gasoline manufactured by HIF, confirm its environmental impact and performance, and proceed with studies for practical application and spread in Japan. The Idemitsu Group's refineries and business sites will study synthetic fuel production, aiming to establish a domestic synthetic fuel production and supply system by the latter half of the 2020s.

Synthetic fuels (e-fuels) can utilize existing infrastructure such as storage tanks and pipelines for distribution. Since it can be used without modifying the engines of automobiles, ships, and aircraft, it is expected to be an early decarbonization measure.

Idemitsu website:

<https://www.idemitsu.com/en/news/2023/230405.html>

Sumitomo Corporation and others start construction of 500MW offshore wind farm in France

On April 6, Sumitomo Corporation announced that it had completed arranging project finance of approximately € 2.2 billion (approximately JP¥ 300 billion) for the Noirmoutier offshore wind power generation project in France, which is being jointly developed with Ocean Winds (Spain) and three other companies. Aiming for completion in the latter half of 2025, construction of the bottom-mounted offshore wind farm will begin in the same month.

Eoliennes en Mer Iles d'Yeu et de Noirmoutier (Noirmoutier), a company invested by Sumitomo Corporation, will construct, owned and operated an offshore wind farm with a total power generation capacity of approximately 500 MW in an area approximately 12 km off the coast of the Bay of Biscay in France. The total project cost is about JP¥ 350 billion. The project period after completion is scheduled for 25 years. The estimated annual power generation is equivalent to the power consumption of about 800,000 people, and the power will be sold under a long-term contract with the French state-owned power company.



In addition to this project, Sumitomo Corporation, together with Ocean Winds and Caisse des Dépôts et des Consignations, is planning to start construction on the Le Treport offshore wind farm around May 2023 in an area approximately 15km off the coast of the English Channel. Combined with this project, the total power generation capacity will be about 1 GW, which is expected to be equivalent to the power consumption of about 1.6 million people per year, and the equity power generation capacity is expected to be about 300 MW.

Sumitomo website:

<https://www.sumitomocorp.com/en/jp/news/release/2023/group/16580>

NEDO Releases "Ocean Wind Condition Observation Guidebook"

On April 6, New Energy and Industrial Technology Development Organization. (NEDO) announced that it has released the compiled "Ocean Wind Condition Observation Guidebook" that is establishing an offshore wind condition survey method. It is information necessary for business planning and wind turbine design of offshore wind farms, which had not been organized in Japan until now.

Currently, the most accurate method for observing wind conditions on the ocean is said to be observation using an offshore wind condition observation mast. However, installing a wind condition observation mast on the sea generally requires a long time for coordination with the local area and approval procedures, as well as a large construction cost. It is desired both in Japan and abroad to establish a method to observe from land.

On the other hand, with the current remote sensing technology, methods for observing turbulence components of wind speed and vertical distribution of wind speed offshore have not yet been established. In addition, even in deep water areas where floating offshore wind power generation is assumed, there is a need to establish an observation method using a floating wind condition observation system that mounts equipment on a buoy floating on the ocean.

In order to solve these problems, NEDO is conducting measurements using a wind condition observation mast and a vertical lidar, which is a remote sensing device that irradiates a laser in the sky. By combining the two, they have



established a low-cost observation method for offshore wind conditions by accurately measuring wind speed, wind direction, and wind turbulence. This guidebook is intended for practical use by wind condition observers.

NEDO website (in Japanese):

https://www.nedo.go.jp/news/press/AA5_101630.html

Developing a turquoise hydrogen production base in central Japan by collaborating with Australia's Hazer

Chubu Electric Power and Chiyoda Corporation announced on April 11 that they have signed a memorandum of understanding with Australia's Hazer Group regarding the formulation of a development plan to produce convert hydrogen and graphite, a type of carbon, from methane, using Hazer's proprietary technology.

Hydrogen produced by thermal decomposition of methane is called "turquoise hydrogen". In addition, in this manufacturing process, a highly useful carbon material is produced as a by-product. The three companies will jointly consider a development plan for a base in Chubu that will produce carbon-free hydrogen (turquoise hydrogen) and carbon graphite (by-product solid carbon) by pyrolysis using the process developed by Hazer. They will formulate a development plan by 2024 and aim to start demonstration tests in the latter half of the 2020s.

The hydrogen production capacity of the turquoise hydrogen production facility under consideration is expected to range from 2,500 tons per year to a maximum of 10,000 tons per year. Ultimately, they aim to have a hydrogen production capacity of 50,000 to 100,000 tons per year. Chubu Electric Power will consider using the produced hydrogen in power plants, industry, and the mobility field.

Chiyoda corporation website:

https://www.chiyodacorp.com/media/230411_e_1.pdf

Japan Radio develops "6-axis vibration correction device with bridge" for offshore wind power generation facilities, to be launched in 2024



Japan Radio announced on April 11 that it had developed Japan's first 6-axis vibration correction device "offshore facility access gangway" for moving from a ship to an offshore wind power generation facility. Market launch is planned for 2024.

The device is a system for safely and efficiently transferring personnel from offshore wind turbine access vessels to offshore facilities such as fixed structures and floating structures. Utilizing technology to control swaying, which has been cultivated in driving simulators, it is possible to greatly reduce the swaying of bridges used for transferring to offshore facilities even if the hull shakes greatly. In addition, by adopting an electric actuator, it is possible to reduce the size and weight, making it easier to install on small vessels, including new and existing vessels.

By installing this product, it is expected that access to offshore wind power generation facilities will be easier, maintenance and repair of facilities will be quicker, and the operation rate of facilities will be improved. Regarding the basic design of this product, it has obtained basic design approval from the French classification society Bureau Veritas (BV), which has bases around the world and conducts inspections and tests in various industrial fields, as well as certifying standards set by public institutions.

Japan Radio website (in Japanese):

<https://www.jrc.co.jp/news/2023/0411-1>

JR West develops fuel cell trains, establishing bases for hydrogen supply and transportation at stations

On April 12, West Japan Railway Company (JR WEST) announced that it will set up a comprehensive hydrogen station that utilizes railway assets such as stations as a base for hydrogen supply and transportation, and considers the realization of hydrogen utilization through cooperation with local communities. At the same time, it announced that it will work on the development of fuel cell trains with the aim of replacing trains powered by diesel engines in the future.

In April 2021, the JR West Group established a long-term environmental target, "Zero Carbon 2050," aiming to achieve "substantially zero" CO2 emissions for



the entire group in 2050. As one of its efforts, the company aims to achieve "substantially zero" CO2 emissions from diesel railcars by replacing the diesel fuel with next-generation biodiesel fuel, and has started demonstration tests in 2022. Furthermore, the company plans to consider switching to next-generation vehicles that are carbon-free in the future.

In addition, East Japan Railway Company (JR EAST) and ENEOS are aiming for social implementation by 2030, and are developing hydrogen hybrid trains powered by hydrogen-fueled fuel cells and storage batteries, as well as hydrogen stations for these trains. JR East has developed a hydrogen hybrid train "HYBARI" and will start demonstration tests on commercial lines from 2022.

WEST JAPAN RAILWAY COMPANY (in Japanese):

https://www.westjr.co.jp/press/article/items/230412_00_press_h2o.pdf

Idemitsu to produce clean hydrogen from waste

Idemitsu Kosan announced on April 13 that it has started a joint study with H-Cycle, a US company, to commercialize domestic production of clean hydrogen using municipal waste and other waste generated in Japan as a raw material. . This initiative uses a gasification reforming furnace that utilizes HC's exclusive "plasma reforming" technology in Japan to convert waste into hydrogen with high efficiency, producing approximately 200 to 300 tons of hydrogen per day. The aim is to build an initial plant that will process waste to produce hydrogen in the early 2030s.

This gasification and reforming furnace are a system that collects synthesis gas obtained by gasifying and reforming waste and melts the ash. Biomass raw materials such as garbage contained in waste offset CO2 emissions during hydrogen production, so it is a production method that emits less CO2 than conventional hydrogen production.

In this initiative, the gasification reformer will be installed as a waste treatment facility in each region in cooperation with local governments, and hydrogen will be produced at the same time as waste treatment. The clean hydrogen produced is expected to be used for industrial purposes, mobility applications



such as fuel cell vehicles, and as a raw material for synthetic fuels. High-concentration CO₂ generated in the manufacturing process will be utilized through CCS and CCUS (collection, storage and effective use of CO₂). In addition, the detoxified slag (detoxified black glass-like substance) that remains when the waste is melted at high temperatures will be recycled as roadbed materials and raw materials for concrete.

IDEMITSU website:

<https://www.idemitsu.com/en/news/2023/230413.html>

JOGMEC to collaborate with Indonesian state-owned company on CCS and hydrogen production

The Japan Energy and Metals National Corporation (JOGMEC) announced on April 17 that it will start discussions with Pertamina, the national oil company of Indonesia, to create businesses such as underground injection of CO₂ and production of hydrogen and ammonia. In the future, they will collaborate with Japanese companies to create and promote specific businesses related to enhanced recovery of oil/gas using CO₂ (CO₂-EOR) and production of hydrogen and ammonia accompanied by CCS (CO₂ capture and storage).

In August 2022, the two parties, together with PT Pertamina EP, a subsidiary of Pertamina, started joint research to verify CO₂-EOR and CO₂ underground storage effects in declining oil and gas fields in the onshore Jatibaran oil field in West Java, Indonesia. The collaboration this time also includes a joint research agreement for the implementation of CCUS (CO₂ Huff and Puff test) at the Sukowati field owned by Pertamina EP Cepu.

Indonesia is expected to have high potential for the underground storage of CO₂ and the production of clean energy such as hydrogen and fuel ammonia, so several Japanese companies are currently implementing various initiatives. The Japanese government is also currently working on the "Asia Zero Emissions Community (AZEC) Initiative," in which countries work together to decarbonize Asia, and is leading the way for the "Asia Energy Transition Initiative (AETI)," which presents a package of specific support measures to ASEAN countries.



JOGMEC website:

https://www.jogmec.go.jp/english/news/release/news_10_00032.html

JGC implements “Fry to Fly” project, used cooking oil utilization project to expand SAF

On April 17, JGC Holdings announced the company launched the "Fry to Fly Project," a project to improve the environment for recovering waste cooking oil discharged from homes and restaurants, which is used as a raw material for SAF, as a resource. The company promotes the project with local governments and organizations.

SAF produced from waste cooking oil can reduce CO2 emissions by about 80% compared to conventional aviation fuel. On the other hand, most of the waste cooking oil generated at home is discarded, and it is said that more than 100,000 tons of collected waste cooking oil is exported abroad every year. In this project, they aim to realize a world where aircraft fly with SAF that uses domestic resources such as waste cooking oil generated at homes and stores as raw materials.

Concrete initiatives will be decided based on proposals from participating companies, organizations, and local governments, and activities will be carried out. There are currently 29 participating companies and organizations, and the company is still looking for new members to participate. Updates on participating organizations and future activities will be announced on the project's special website. The project was started to overcome the current situation in which, while individuals and companies themselves are increasingly motivated to actively work on decarbonization, there are limited opportunities to link such intentions to concrete activities.

JGC HOLDINGS website (in Japanese):

<https://www.jgc.com/jp/news/2023/20230417.html>

“Possibility of melting of the East Antarctic ice sheet due to global warming” AIST warns against the risk of rising sea levels



On April 19, the National Institute of Advanced Industrial Science and Technology (AIST) announced it analyzed seafloor sediment cores off the coast of East Antarctica and found that during the past warm period 130,000 to 115,000 years ago, the East Antarctic ice sheet shrank significantly and the sea level rose at that time. It had made a significant contribution to the study reconstructed the changes in the East Antarctic ice sheet during the past warm period (the last interglacial) and examined whether future warming could shrink the East Antarctic ice sheet.

They found that there were two significant shrinkages of the East Antarctic ice sheet between 130,000 and 115,000 years ago. The contraction of these ice sheets would have been large enough to raise sea level by about 0.8m. While recent warming has accelerated the melting of the West Antarctic Ice Sheet, the East Antarctic Ice Sheet was previously thought to be stable against global warming. However, in recent years, melting of parts of the East Antarctic ice sheet has begun to be observed, and attention is focused on whether future warming will cause significant melting of the East Antarctic ice sheet.

Once sea level rise is triggered, it will take hundreds of years or more to return to normal, so it will continue to affect society over the long term, and there are concerns about its impact. The results of this research are expected to contribute to improving the accuracy of future predictions of the Antarctic ice sheet and sea level changes, which have been considered to be highly uncertain.

National Institute of Advanced Industrial Science and Technology (AIST)
website (in Japanese):

https://www.aist.go.jp/aist_j/press_release/pr2023/pr20230419/pr20230419.html

First private moon landing failure

The lunar lander of the Japanese space company ispace tried to land on the moon in the early morning of April 26, but communication was lost almost immediately after landing. The company later announced that it had determined that it would not be possible to land on the moon. The company says that it was able to acquire valuable data and will make use of the experience for the next lunar lander launch plan scheduled for fiscal 2024.



According to the company, the lander, which was orbiting about 100 kilometers above the moon, gradually lowered its altitude at around 0:40 am on April 26 and aimed to land. However, at around 1:40 a.m., the scheduled landing time, communication with the ground control room in Tokyo was lost. Analysis so far has revealed that the lander was vertical to the lunar surface and prepared for final landing, but it ran out of fuel to slow down and rapidly accelerated its descent before losing communication. It is possible that the spacecraft was severely damaged when it hit the moon.

The lander is 2.6 meters wide, 2.3 meters high and weighs 340 kilograms. It was launched by a U.S. rocket in December last year, and has continued to fly smoothly, including entering lunar orbit in March this year. It carried seven cargoes, including an exploration robot developed by a Japanese company and others and a rover of the United Arab Emirates (UAE) space agency.

Regarding the lunar landing, several US companies are planning to launch landers this year, and the Japan Aerospace Exploration Agency (JAXA) is also planning to launch the probe "SLIM Slim" aiming for a lunar landing after this summer.

ispace website:

<https://ispace-inc.com/news-en/?p=4655>

Toyota's global sales in FY 2022 reach record high of 9.6 million units

Toyota announced on April 27 that its global sales volume in FY 2022 was a record high of 9.6 million units, up 1% from the previous fiscal year. Demand was driven by Asian regions such as Indonesia due to the economic recovery from the COVID-19 pandemic. Global production also increased by 7% to 9.13 million units, a record high, surpassing FY 2016 (9.07 million units).

Global sales surpassed the previous fiscal year for the second consecutive year, according to the announced sales, production and export results. By region, sales were strong in Indonesia (up 8%), Thailand (up 10%), and the Philippines (up 36%). In Southeast Asia, economic activity has been stagnant due to the COVID-19 in FY 2021, and economic stimulus measures and



postponed demand in each country have pushed up sales in FY 2022. Domestic sales also increased by 1% to 1.4 million units, surpassing the previous fiscal year for the first time in three years. On the other hand, sales in North America and China, which have large markets, decreased from the previous year.

Global production also increased by 7% to a record high of 9.13 million units. It is the second year in a row that it surpassed the previous year. Strengthening production capacity in North America and Asia contributed. Domestic production increased by 1% to 2.78 million units, surpassing the previous year's level for the first time in three years. However, it fell short of the 3 million unit line set by Toyota as a guideline for maintaining employment and technical capabilities for the third consecutive year.

TOYOTA website:

<https://global.toyota/en/company/profile/production-sales-figures/202303.html>

PwC Japan survey shows decline in number of patent applications for renewable energy in Japan

On April 24, PwC Japan Group announced the results of a survey of technology development trends in Japan and around the world related to green transformation (GX) based on investment information and the number of patent applications.

According to the report, in terms of the number of global patent applications in the GX field, Japan has the largest percentages for "solar power generation," "fuel cells," "energy saving in buildings," "electric mobility," and "rechargeable batteries." All of the major fields require a certain amount of investment, but among them, the investment growth rate of "hydrogen technology" and "electric mobility" is extremely high at almost 50% annually, and further growth is expected in the future.

In addition, Japan maintains a certain level of technological prowess in all technological elements. It is said that it has a strong presence in the "manufacturing process" driven by hydrogen production, chemical, steel and energy plant manufacturers.



In general, Japan is ahead in the field of mobility, and it can be seen that technological development is focused on the supply and use of hydrogen. On the other hand, the same survey analyzes that in Europe, technology development is progressing mainly in storage and transportation, which are necessary for full-scale social implementation.

In light of this situation, the Japanese government and Japanese companies are urged to build an ecosystem in which companies in the supply chain of the hydrogen industry cooperate, collaborate and coexist across national borders and industries, and develop storage. The report points out that there is a strong need to strengthen technical capabilities in transportation as well.

PwC website (in Japanese):

<https://www.pwc.com/jp/ja/knowledge/thoughtleadership/green-transformation.html>