



Monthly Japanese Industry and Policy News
May (April 28 – June 1) 2023

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

Legislation and Policy News

G7 Digital and Technology Ministers' Meeting Held

On April 29 and 30, the Ministry of Economy, Trade and Industry, together with the Digital Agency and the Ministry of Internal Affairs and Communications, held the G7 Digital and Technology Ministers' Meeting in Takasaki City, Gunma Prefecture. The meeting is one of the ministerial meetings related to the G7 Hiroshima Summit, which will be held from May 19 to 21, and adopted a ministerial declaration and annexes as the outcome document.

At this meeting, discussions were held on the following six themes. The main points of the Ministerial Declaration are as follows. Regarding AI, which is attracting attention, Europe is considering strict regulations from the viewpoint of basic human rights, while Japan and the United States are aiming for flexible operation. Therefore, they argued that it is necessary to establish uniform standards through international organizations for the action plan announced separately from the ministerial declaration.

(1) Promotion of cross-border data flow and reliable free data flow (DFFT)
Agreed on the establishment of an international framework (IAP) for the realization of the DFFT and the G7 Vision and Priorities for the realization of the DFFT.

(2) Maintaining and promoting a free and open Internet
Formulation of a vision for future networks in the Beyond 5G/6G era, and agreement on the G7 action plan for building a safe and resilient digital infrastructure.

(3) Maintaining and promoting a free and open Internet
Agreed on the G7 action plan to maintain and promote a free, open, global, unbroken, reliable and interoperable Internet.

(4) Promotion of economic and social innovation and emerging technologies



Ensuring the interoperability of digital infrastructure, countering software vulnerabilities in digital supply chains, and utilizing governance methods that are friendly to innovative technological innovation.

(5) Promotion of responsible AI and AI governance

Agreed on an action plan to promote global interoperability of AI governance.

(6) Competition policy in the digital market

Agreed to share issues common to each country in drafting and enforcing existing laws and new legal systems in the field of digital competition, and to hold a digital competition summit this fall.

METI website:

<https://www.meti.go.jp/press/2023/04/20230430001/20230430001-summary.pdf>

Nishimura, METI Minister and Pannier-Runacher, Minister of Energy Transition of France sign joint statement on nuclear energy cooperation

On May 3, 2023, at a meeting between Yasutoshi Nishimura, Minister of Economy, Trade and Industry (METI), and Agnès Panier-Runachet, Minister for the Energy Transition of France, a joint statement was signed to further strengthen the cooperative relationship on nuclear energy between Japan and France.

Nuclear power will greatly contribute to securing a stable supply of energy on a global scale and achieving carbon neutrality. With this statement, the two countries commit to deepening mutual nuclear cooperation, with a focus on research and development.

Specifically, they agreed to accelerate exchanges, including support for research and development, as follows.

- Safe long-term operation of existing nuclear reactors and efforts to improve their safety
- Strengthening industrial cooperation for the decommissioning of the Fukushima Daiichi Nuclear Power Station
- Efforts that contribute to capacity building in countries considering the introduction of nuclear power generation
- Promote reprocessing policies that minimize waste and reduce the need for natural uranium.



- Efforts on next-generation innovative reactors, especially sodium-cooled fast reactors (SFRs)

According to METI, through this agreement, Japan and France have confirmed the importance of accelerating technical cooperation on the nuclear fuel cycle and building a robust nuclear power supply chain.

METI website:

https://www.meti.go.jp/english/press/2023/0503_001.html

METI names initiatives related to data integration “Ouranos Ecosystem”

The Ministry of Economy, Trade and Industry (METI) announced on April 29 that it has decided to name the initiative for data linkage, which links and utilizes data across companies and industries, as “Ouranos Ecosystem”. The METI is promoting cooperation between multiple information processing systems operated and managed by different organizations/companies. At this stage, data sharing between companies is becoming widespread. On the other hand, in order to solve social issues such as decarbonization, labor shortages, and intensifying disasters, and to achieve economic growth through reform of industrial structure, it is necessary to share and utilize data across companies, industries, and national borders.

In Europe, through initiatives such as Gaia-X and Catena-X, efforts are being made to securely link data while ensuring data sovereignty, interoperability between digital platforms, and open-source code. In the United States, along with the spread of data sharing and utilization by mega-platformers, the utilization of innovative technologies such as blockchain is progressing.

In implementing data linkage initiatives, it is important to coordinate domestic participation of companies/organizations and interoperability with overseas data linkage initiatives (preventing Galapagos=isolated). According to the METI, the name “Ouranos”, which means the god of the sky in Greek mythology, was chosen from the perspective of expressing a system in which various stakeholders participate and create new value together.

METI website (in Japanese):



<https://www.meti.go.jp/press/2023/04/20230429002/20230429002.html>

NATO may set up liaison office in Tokyo

According to reports by major Japanese media, Japanese Ambassador to the United States Koji Tomita gave a speech in Washington on May 9, saying that the North Atlantic Treaty Organization (NATO) is coordinating with the establishment of a liaison office in Tokyo. If realized, it will be NATO's first liaison office in Asia.

The media also reported that Ambassador Tomita said that "It's one of our efforts to strengthen cooperation (with NATO)". Non-NATO countries currently have liaison offices only in Ukraine and Sweden.

The Japanese government is strengthening its relationship with NATO, with Prime Minister Kishida becoming the first Japanese prime minister to attend the NATO Summit held in Spain in June last year. In the background of considering the establishment of a liaison office, it is believed that there are expectations that partner country Japan will contribute more to ensuring stability in the Indo-Pacific region, as NATO becomes more wary of China's growing influence.

On this matter, there is no official information from the Japanese Prime Minister's Office, the Ministry of Foreign Affairs, the Ministry of Defense, the Japanese Embassy in the United States, etc.

MOFA website (Reference/not source):

https://www.mofa.go.jp/erp/ep/page4e_001325.html

G7 Finance ministers and central bank governors meeting concludes

The G7 = finance ministers and central bank governors meeting of seven major countries held in Niigata City for three days ended on May 13 and adopted a joint statement stating that they stand ready to act as appropriate to maintain

The joint statement reaffirmed its unwavering support for Ukraine's aggression, said it would continue to impose economic sanctions on Russia, and would unite against any attempt to circumvent or undermine it.



There was also a discussion based on the lessons learned from the series of bank failures in the United States, and the risks of the digital age, such as the rapid outflow of deposits due to the spread of information via SNS. In addition, they plan to launch new partnerships including developing countries and emerging countries within the year, as it is necessary to urgently strengthen the supply chain of products that are important for clean energy.

Meanwhile, the statement said illicit activities related to fundraising have enabled North Korea to launch an unprecedented number of ballistic missiles. The G7 plans to improve the ability related institutions to identify money laundering and illicit money exchanges through crypto assets.

MOF website:

https://www.mof.go.jp/english/policy/international_policy/convention/g7/g7_2023_0513_1.pdf

Commercialization of e-fuel in the first half of the 2030s, Ministry of Economy, Trade and Industry ahead of schedule

The Ministry of Economy, Trade and Industry (METI) will bring forward the goal of commercializing a "e-fuel" made from carbon dioxide (CO₂) and hydrogen to the early 2030s. Until now, 2040 was targeted, but it was announced that CO₂ emissions from current vehicles would be halved by 2035 at the ministerial meeting of the seven major countries (G7), and the EU would approve the use of e-fuel. That's the reason why the target year would be changed. The METI presents new goals at the public-private council for e-fuel promotion.

When e-fuel is burned, it emits CO₂, but if it reacts with hydrogen and offsets the CO₂ absorbed during manufacturing, it is possible to reduce emissions to virtually zero, leading to a reduction in CO₂ emissions from the vehicles currently owned. Therefore, the movement of utilization is spreading all over the world. The EU changed its policy from 2035 onwards to selling only cars that do not emit CO₂. Reflecting the intentions of Germany and other countries, the sale of vehicles using an internal combustion engine (ICE) is permitted only for the use of e-fuel.



The problem is the high cost. According to the METI, the production cost of e-fuel is JP ¥ 300 to 700 per liter, equivalent to two to five times the current gasoline price. After commercialization, the Ministry of Economy, Trade and Industry plans to mass-produce 10,000 barrels (1,590,000 liters) per day, leading to price reductions.

METI website (YouTube in Japanese):

<https://www.youtube.com/watch?v=UX-vwEaChgM>

METI introduces new regulations on Toys

On May 16, the Ministry of Economy, Trade and Industry (METI) announced that a cabinet decision was made to “Cabinet Order for Partial Revision of the Consumer Product Safety Law Enforcement Order”. This government ordinance newly designates entertainment goods made of magnets and toys made of water-absorbing synthetic resin as specified products under the Consumer Product Safety Law. As a result, the sale of so-called magnet sets that combine multiple magnets with strong magnetic force and water-absorbing toys that expand greatly by absorbing water will be prohibited.

Regarding entertainment products made of magnets (magnet sets), 11 accidents occurred that children accidentally ingested multiple magnets from 2017 to 2022, and the intestinal walls were pulled together by strong magnets, requiring laparotomy to remove them. Regarding water-absorbing synthetic resin toys (balls that swell with water), there were four accidents in 2021 in which infants swallowed these products by mistake, causing them to swell greatly in the intestines and requiring laparotomy to remove them. If an accident were to occur with these two products, the risk of an accident would be high and the damage would be serious. Therefore, it was decided to designate these two products as specific products to be subject to regulation, and to regulate the sale of products that do not conform to technical standards.

The METI instructs consumers that those who have already purchased a magnet set or a ball that inflates with water should not let infants touch the product, and that even if the two products are on sale, do not purchase them.

METI website (in Japanese):

<https://www.meti.go.jp/press/2023/05/20230516002/20230516002.html>



Prime Minister Kishida holds talks with executives of seven major semiconductor companies of the United States, Taiwan, and South Korea

On May 18, Prime Minister Kishida met with executives from seven semiconductor-related companies of the United States, Europe, South Korea, and Taiwan at the prime minister's official residence. It is unusual for the executives of the world's major semiconductor companies to gather together.

They exchanged opinions on business development in Japan, and the Prime Minister himself called for investment in Japan. Seven people attended, including Mark Liu Chairman of TSMC, Pat Gelsinger CEO of Intel, Sanjay Melotra CEO of Micron, Kye Hyun Kyun CEO of Samsung Electronics, Prabhu Raja President of Applied Materials, Dario Gill IBM Senior Vice President and Max Massu Mirgori Executive Vice President of IMEC. From Japan side, in addition to the Prime Minister, Minister of Economy, Trade and Industry Nishimura and Deputy Chief Cabinet Secretary Kihara were present.

According to media reports, Micron has announced that it will invest up to JP ¥ 500 billion in Japan and introduce equipment to the Hiroshima factory to manufacture cutting-edge products. Samsung explained the opening of a research and development base, and TSMC mentioned expanding investment in Japan. Intel said it plans to strengthen cooperation with Japanese material manufacturers and semiconductor manufacturing equipment manufacturers.

The Japanese government has put together a "semiconductor and digital industry strategy" in 2021, and is set to catch up with a total budget of about JP ¥ 2 trillion. In addition to supporting domestic manufacturers, it is actively inviting foreign companies. Japan used to boast a 50% share of the global semiconductor industry, but now lags behind the United States, South Korea, and Taiwan. The rise of China is also notable. Japan and Europe are focusing on attracting leading semiconductor companies.

METI website (in Japanese):

<https://www.meti.go.jp/press/2023/05/20230518001/20230518001.html>



G7 summit concluded

The G7 Summit was held in Hiroshima from May 19 to 21. In addition to the G7, the president Volodymyr Zelensky of Ukraine, as well as the leaders of India, Brazil, South Korea, Australia, Indonesia, Vietnam, the Comoros, and the Cook Islands also participated in this summit, making it the largest summit ever. During the summit, nine sessions were held, including working lunches and dinners, and individual talks between Prime Minister Kishida and each leader amounted to 18 times.

There were various evaluations of the conference from inside and outside Japan. But by the factors that; 1) Calling strongly for the prevention of the proliferation of nuclear weapons from Hiroshima, where the atomic bomb was dropped, 2) The face-to-face participation of President Zelensky and 3) Having been able to share information with the Global South major countries, there are many evaluations that Prime Minister Kishida achieved a certain result.

On the other hand, there was strong criticism from Russia and China, which were mentioned separately in the summit communiqué, and there is a view that the division of the world became clearer at this summit.

MOFA website for G7 summit

https://www.mofa.go.jp/ms/q7hs_s/page1e_000666.html

G7 Hiroshima Summit Leaders' Communiqué announced on the day before the final day

The communiqué of the leaders of the G7 summit, which was held in Hiroshima from May 19 to 21, was announced on May 20, taking into account the arrival of Ukrainian President Volodymyr Zelensky. The details of the communiqué were posted on the website of the Ministry of Foreign Affairs and were also reported by various media, but the main contents of the communiqué related to the environment, energy and digital fields are as follows.

In the fields of climate change and energy, in order to achieve "carbon neutrality" by 2050 at the latest, G7 will increase the pace of transition to clean energy and take action toward economic transformation. Furthermore, regarding renewable energy, G7 needs to significantly accelerate the



development and introduction of next-generation technologies. It includes numerical targets to increase offshore wind power generation by 150 gigawatts to six times the current level and solar power generation to more than 1 terawatt, nearly three times the current level, by 2030.

Regarding coal-fired power plants, G7 will prioritize concrete efforts to phase out power plants that have not taken measures to reduce emissions, and will ask other countries to stop new construction as soon as possible. G7 will help emerging and developing countries, also known as the “Global South,” transition to a climate-resilient, circular economy in diverse and practical ways that take into account their respective circumstances.

In the environmental field, G7 has set a new goal to eliminate further pollution from plastic waste by 2040. In the automobile sector, the G7 decided to reduce carbon dioxide emissions by half compared to 2000 by 2035, based on the number of cars owned by each country, and to confirm the progress of the initiative every year. In the aviation sector, the introduction of alternative fuels called "SAF" made from plants and waste oil is also included in order to achieve the goal of reducing greenhouse gas emissions to virtually zero by 2050.

Regarding the digital field, while rapid technological innovation has strengthened society and the economy, it has been pointed out that international regulations have not caught up. On top of that, it emphasizes that systems for cutting-edge technologies such as AI and the Metaverse must be based on democratic values. It instructs relevant ministers of G7 countries to launch the "Hiroshima AI Process" to discuss generative AI, and includes discussions at a working group within the year. In addition, they confirmed that they will establish an international framework and cooperate with each other to create specific systems, based on the importance of cross-border distribution of highly reliable data, known as "DFFT," to improve the accuracy of AI.

MOFA website (G7 communiqué):

<https://www.mofa.go.jp/mofaj/files/100506875.pdf>

UK-Japan partnership agreements issued in renewable energy and semiconductor fields



On May 19, the Ministry of Economy, Trade and Industry (METI) announced that it had issued a joint statement on semiconductor partnerships with the UK's Ministry of Science, Innovation and Technology. In addition, on the previous day, on May 18, it announced that it had issued a joint statement with the Ministry of Energy Security and Net Zero (DESNZ) on a partnership to strengthen cooperation on renewable energy.

As for the former, 1) consider conducting joint research and development, particularly on semiconductor design, compound semiconductors, and advanced semiconductor material technology, 2) cooperate on sharing expertise, developing human resources, and accessing research facilities. 3) conduct public-private semiconductor industry dialogues, 4) dispatch expert missions to strengthen industry-academia-government collaboration toward the formation of joint projects; are main contents.

Regarding the latter, the main content is that both countries work to diversify supply sources through advances in offshore wind power and other clean energy technologies in order to reduce their dependence on fossil fuels. It also advocates strengthening partnerships in areas such as cooperation on offshore wind power generation and international standardization of perovskite solar cells.

At the G7 meeting held in Hiroshima from May 19 to 21, the G7 as a whole decided to increase the capacity of offshore wind power generation by 150GW by 2030 in order to expand renewable energy globally and reduce costs. They also reconfirmed that they would strengthen the capacity of solar power to 1 TW (1,000 GW) or more by 2030.

METI website:

<https://www.meti.go.jp/press/2023/05/20230519006/20230519006-1.pdf>

<https://www.meti.go.jp/press/2023/05/20230518003/20230518003-1.pdf>

METI implements export restrictions on semiconductor manufacturing equipment, etc.



On May 23, the Ministry of Economy, Trade and Industry (METI) promulgated revisions to the Ministerial Ordinance on Goods, etc. based on the Foreign Exchange Law. Twenty-three items, including advanced semiconductor manufacturing equipment, will be subject to export controls. After a two-month publicity period, it will come into force on July 23. The United States has severely restricted exports of cutting-edge semiconductor manufacturing equipment to China, and Japan is following suit.

Based on the Foreign Exchange Law, Japan controls the export of civilian goods such as weapons that can be used for military purposes. Prior approval is required for export. Although China and other specific countries/regions have not been named as subject to regulation, the 23 items to be added will require individual licenses, excluding those for 42 countries/regions such as friendly countries. The 23 items include manufacturing equipment for extreme ultraviolet (EUV)-related products and etching equipment for stacking memory elements three-dimensionally.

The United States has severely restricted exports to China of advanced semiconductor manufacturing equipment used in supercomputers and artificial intelligence (AI). Japan and the Netherlands, which have technology, were also requested to take similar measures. Chinese authorities announced on May 21 that the products of the US semiconductor giant Micron Technology pose a big risk to national security, and would stop procurement for critical information infrastructure. It appears to be aimed at countering the measures taken by the United States.

METI website (in Japanese):

<https://www.meti.go.jp/policy/anpo/law09-2.html#230523>

APEC trade ministers suspended joint statement

The Asia-Pacific Economic Cooperation (APEC) trade ministers' meeting was held on May 25 and 26 in Detroit, Michigan, in the Midwestern United States. Russia and China objected to the content condemning the invasion to Ukraine and postponed the adoption of a joint statement. The United States, which holds the presidency, released a summary of the chairman's remarks.



At the APEC summit held in Thailand in November last year, a summit declaration containing a description of the invasion to Ukraine was compiled. Most members strongly condemn the war in Ukraine that “it has a negative impact on the global economy.”

Instead, the US issued a Chair's Summary, which is compiled at the discretion of the Chair. The parts related to Ukraine remained unchanged from the statement in November last year. APEC is a framework for economic cooperation among 21 countries and regions surrounding the Pacific Ocean, including Japan, the United States, China, and Russia. From Japan, Minister of Economy, Trade and Industry Yasutoshi Nishimura attended.

METI website:

<https://www.apec.org/meeting-papers/sectoral-ministerial-meetings/trade/2023-apec-ministers-responsible-for-trade-statement-of-the-chair>

METI Minister holds ministerial meeting of Japan-U.S. Commercial and Industrial Partnership (JUCIP) with U.S. Secretary of Commerce

On May 26, in Detroit, Minister of Economy, Trade and Industry Nishimura and U.S. Secretary of Commerce Gina Marie Raimondo held the ministerial meeting of Japan-U.S. and Industrial Partnership (JUCIP).

At the meeting, the two ministers welcomed the expansion of cooperation between the two ministries in the fields of biotechnology and quantum technology, as well as Pacific Island countries, in addition to the areas of cooperation so far, such as semiconductors, export control, and digital technology. A joint statement was issued outlining the results and future direction of cooperation.

The two ministers also agreed to hold the 2nd Ministerial Meeting of the Japan-U.S. Economic Policy Consultative Committee (economic version "2+2") at an appropriate time as soon as possible to strengthen the economic security of both countries.

METI website:

https://www.meti.go.jp/english/press/2023/0527_001.html



IPEF Ministerial Meeting held

On May 27, the IPEF (Indo-Pacific Economic Framework) ministerial meeting was held in Detroit and Minister of METI Nishimura participated from Japan. At the same meeting, the "IPEF Supply Chain Agreement" was concluded in substance. They also confirmed progress in the areas of trade, clean economy, and fair economy, and agreed to accelerate negotiations toward an early agreement.

At the same time, they agreed to launch the "Hydrogen Initiative" with Japan and Singapore taking the lead. Minister Nishimura emphasized the significance of promoting concrete efforts to strengthen supply chains among reliable partner countries. In order to improve the usage environment, they announced to the countries concerned that that will promote concrete cooperation. Furthermore, the minister announced that as part of "Japan Week," Japan will implement training for inviting negotiators from IPEF member countries to Japan, with the aim of strengthening the supply chain.

MOFA website:

<https://www.mofa.go.jp/mofaj/files/100510680.pdf>

<https://www.mofa.go.jp/mofaj/files/100510681.pdf>

METI sets investment standards for securing resources

The Ministry of Economy, Trade and Industry and the Japan Energy and Metals National Corporation (JOGMEC) announced they will establish investment standards for countries that possess minerals essential for decarbonization and resources used for next-generation fuels. It was made clear at the Resource and Fuel Subcommittee of the Research Committee on Natural Resources and Energy held on May 29. Japanese companies lack the know-how to secure interests. The government will present a concrete plan by the end of the year, and the public and private sectors will expand the sources of supplies.

Investment standards are shown for each mineral and next-generation fuel. Important minerals such as lithium and cobalt used in storage batteries of electric vehicles (EV), synthetic fuel "e-fuel" that can reduce CO2 emissions, next-generation fuel "SAF" for aircraft, hydrogen and ammonia, etc. It urges companies to prioritize 24 countries such as the United States and Australia for



investment. In addition to the United States and Australia, there are also Argentina, Indonesia, the Democratic Republic of the Congo, and Namibia. Investment priority countries will also consider expansion.

For Australia, for example, he suggested building a supply network in areas such as hydrogen and ammonia. The development of raw materials for SAF and the construction of a stable supply network to Japan were also mentioned as specific plans. The Ministry of Economy, Trade and Industry will support investment with a view to support measures such as providing subsidies. It has been pointed out that companies tend to be cautious in their investment decisions, and that they are falling behind overseas companies as energy that will become the mainstay of decarbonization in the future is uncertain.

Video Recording of the Resource and Fuel Subcommittee on May 29 (YouTube in Japanese):

<https://www.youtube.com/watch?v=a7K8f4k5Xig>

Japanese government joins High Ambition Coalition (HAC) to combat plastic pollution

The Ministry of Economy, Trade and Industry (METI) announced that it would participate in the High Ambition Coalition to end plastic pollution (HAC) ahead of the intergovernmental negotiations held on May 26 in Paris, France, toward the establishment of a convention on measures to combat plastic pollution.

Japan has been leading the related discussions at the inter-governmental negotiations held in November last year, with the aim of having as many countries as possible formulate an effective and progressive treaty on measures to combat plastic pollution. Based on this position, it has decided to participate in HAC, which is attended by 54 countries and regions.

HAC is a national group that has set a goal of ending plastic pollution by 2040 and pursues sustainable plastic production and consumption, promotion of resource recycling, and proper management of plastic waste. Co-chaired by Norway and Rwanda, there are currently 55 participating countries, including Japan.



METI website (in Japanese):

<https://www.meti.go.jp/press/2023/05/20230526005/20230526005.html>

Stablecoin in Japan to be issued within the year

Stablecoins backed by fiat currencies such as the US dollar and JP ¥ will be issued in Japan. The revised Payment Services Act, which defines stablecoins as electronic payment methods, will go into effect on June 1, and banks are expected to issue them by the end of the year. Transactions of goods and payments can be completed at the same time, and it is likely to lead to more efficient payments between companies on a scale of JP ¥ 1,000 trillion annually.

Stablecoins are electronic payment instruments designed to prevent large fluctuations in price by backing assets such as legal currencies and international commodities. There are stable coins such as Tether and USD coin in the world, and they are used for international remittance.

In June 2022, Japan enacted the revised Payment Services Act to regulate stablecoins ahead of the rest of the world. From December 2022, the Financial Services Agency will implement procedures to revise the Cabinet Office Ordinance, etc. to allow the handling of stablecoins issued overseas, on the condition that sufficient asset preservation is ensured. The system would be revised in line with the enforcement of the revised law on June 1, 2023.

The revised law limits the issuers of stablecoins to three entities: banks, trust companies, and fund transfer companies, and obliges the operators responsible for distribution to register. For stablecoins issued overseas, the law would thoroughly protect users by obliging distributors who handle transactions in Japan to protect the assets.

MOF website:

https://www.mof.go.jp/about_mof/councils/meeting_of_cbdc/20230524siryou1.pdf

GX Power Supply Act enacted to enable nuclear power plants to operate for more than 60 years



The GX (Green Transformation) Decarbonized Power Supply Law, which includes the extension of the operating period of nuclear power plants to over 60 years, was approved and enacted at the plenary session of the House of Councilors on May 31. It aims to use existing nuclear power plants as much as possible to ensure a stable supply of electricity and reduce greenhouse gas emissions. It is a content that changes the nuclear policy after the Tokyo Electric Power Fukushima Daiichi Nuclear Power Plant accident in March 2011. After the accident, Japan set an operating period of 40 years in principle and 60 years at the longest. While maintaining that framework, it is possible to effectively operate for more than 60 years by excluding suspension periods due to reasons that operators cannot foresee, such as safety inspections and court orders. The provisions regarding the operating period will be deleted from the Nuclear Reactor Regulation Law and transferred to the Electricity Business Law under the jurisdiction of the Ministry of Economy, Trade and Industry. The government's Nuclear Regulation Authority will not change the system for safety reviews, but the system will be extended if the Ministry of Economy, Trade and Industry determines that it will contribute to decarbonization and the stable supply of electricity.

Regarding safety regulations, nuclear reactors that have been in operation for over 30 years will be obligated to evaluate their deterioration every 10 years and obtain approval. The Regulatory Commission will conduct additional inspections of the same items as special inspections for 40-year-old nuclear power plants that have been in operation for over 60 years.

Cabinet secretariate website (in Japanese):

<https://www.cas.go.jp/jp/houan/230228/siryoku1.pdf>

IAEA reports comparison of analyzes of ALPS-treated water by institution

On May 31, the IAEA announced the results of interanalytical comparison in connection with the review on the safety of ALPS-treated water at TEPCO's Fukushima Daiichi Nuclear Power Station, which will start in 2021. This report presents the results of review activities conducted by the IAEA regarding corroboration and analysis of independent sampling data.



The report stated that 1) TEPCO had a high level of measurement accuracy and technical competence, 2) TEPCO's sampling procedures followed appropriate standards to obtain a representative sample, and 3) the analytical methods chosen by TEPCO for the nuclide analysis used were adequate and fit for purpose. Neither the IAEA nor participating third-party laboratories have detected any significant additional radionuclides. Based on the results of the review by the IAEA, the Japanese government will proceed with efforts to release the treated water into the ocean on the premise of safety.

- Participating analytical laboratories (IAEA side):

IAEA Marine Environment Laboratories, Radiometrics Laboratory (RML), Monaco; Terrestrial Environmental Radiochemistry Laboratory (TERC), Seibersdorf, Austria; Isotope Hydrology Laboratory (IHL), Vienna, Austria.

- Third-party analysis agencies:

Spiez Laboratory (LS – Labor Spiez), Switzerland; Institut de Radioprotection et de Sûreté Nucléaire (IRSN), France; Los Alamos National Laboratory (LANL), United States of America; Korea Institute of Nuclear Safety (KINS), Republic of Korea

METI website:

https://www.meti.go.jp/english/press/2023/0601_001.html

IAEA website:

<https://www.iaea.org/newscenter/pressreleases/iaea-report-finds-japans-measurements-of-the-treated-water-to-be-discharged-from-fukushima-daiichi-accurate-and-precise>

Survey and Business Data

Ammonia co-firing will spread pollution, Finnish private research institute estimates

The Finnish energy and environmental think tank Center for Research on Energy and Clean Air (CREA) found and compiled that co-firing with ammonia in coal-fired power plants would increase total emissions of PM2.5 (fine particulate matter) and its source materials. The report was announced on May 15. It pointed out that the higher the ratio of co-firing, the more it will increase, and "It will have a fatal impact on the atmospheric environment."



In Japan, JERA, which is equally owned by Tokyo Electric Power Company Holdings and Chubu Electric Power Co., Ltd., has started a demonstration test of ammonia co-firing at the coal-fired Hekinan Power Station (Aichi Prefecture). Ammonia does not emit carbon dioxide (CO₂) when burned, and is expected to help reduce environmental impact. The plan is to increase the co-firing rate to 20% in FY2023 and to 50% or more in FY2028.

CREA calculated the total emission of pollutants using literature and data, keeping in mind the co-combustion of the Hekinan Power Plant. Contaminants increased by 67% when the co-firing ratio increased from 0% to 20%, and increased by 2.7 times when the co-firing ratio increased to 50%. The report said that increased emissions of pollutants will affect human health and accumulate in oceans and land, "adding to the environmental problem". Japan plans to improve its technical capabilities for ammonia co-firing in order to ensure a stable supply of energy. There is criticism overseas that it will lead to the preservation of coal-fired power.

CREA website:

<https://energyandcleanair.org/publication/air-quality-implications-of-coal-ammonia-co-firing/>

University-originated start-up companies increased by 477 year-on-year

On May 16, the Ministry of Economy, Trade and Industry (METI) announced the number of university start-up companies as of October 2022. According to this, 477 companies increased to the previous year, bringing the total to 3,782 companies. Keio University led the increase in the number of cases, and the expansion of support in collaboration with venture capital (VC) was successful. On the other hand, about 120 companies were dissolved as a whole. No. of by university is follows; 371 by the University of Tokyo, 267 by the University of Kyoto, 236 by Keio University, 217 by the University of Tsukuba, and 191 by the University of Osaka.

There are also challenges for revitalizing university-launched startups. Advanced technology startups that make use of research results often take time to commercialize and implement them in society, making it difficult to raise large



amounts of funding from VCs. Changes in capital markets due to interest rate hikes mainly in the United States and Europe will also act as a headwind.

The five-year startup development plan launched by the Japanese government in November 2022 aims to start 50 companies per university. As the environment surrounding startups changes rapidly, deepening and evolving collaboration between industry, government, and academia is required.

METI website (in Japanese):

<https://www.meti.go.jp/press/2023/05/20230516003/20230516003.html>

Industry organization targets 30% of electricity in 2050 from wind power

On May 29, the Japan Wind Power Association announced a goal of 33% of domestic power demand in 2050 to be covered by wind power. It is estimated that there is a lot of room for introduction, mainly for offshore wind power, and the target for introduction in the same year is 140 million kilowatts, which is 30 times the cumulative introduction amount by 2022. The government's forecast for 2030 shows that solar power will account for a higher share of demand, but the association expects wind power to outperform wind power by two percentage points in 2050.

This was announced in the "JWPA Wind Vision 2023" announced by the association. The breakdown is 40 million kilowatts for fixed offshore wind power and 60 million kilowatts for floating offshore wind power, making up the majority of offshore wind power. In addition, the introduction of wind power generation has been estimated to have an economic ripple effect of JP ¥6 trillion on related industries and regions, and a cumulative job creation effect of 350,000 people. Compared to onshore wind farms, offshore wind farms have more room for installation, and the power generation capacity of each wind farm is relatively large. In the 6th Strategic Energy Plan, the government has set a goal of introducing 18 million kilowatts of onshore wind power and 5.7 million kilowatts of offshore wind power by 2030.

JAPAN WIND POWER ASSOCIATION website (in Japanese):

<https://jwpa.jp/information/7513/>



Patent information analysis indicates Japan's strong presence in the field of Green Transformation Technologies

On May 30, the Japan Patent Office announced the results of a survey summarizing trends in patent applications in countries and regions related to Green Transformation (GX) technology. The research was conducted based on the Green Transformation Technology Classification Table (GXTI) created independently by the Japan Patent Office. As a result of this survey, (1) looking at GX technology as a whole, Japan has the largest number of inventions developed internationally, (2) as to solar power generation, energy saving in buildings (ZEB, ZEH, etc.), secondary batteries, it became clear that Japan has strengths in this field.

Looking at the total number of GX technology inventions at GXTI, the number of applications filed by Chinese applicants has been increasing rapidly, and in 2013, exceeded that of Japanese applicants. On the other hand, looking at the number of internationally deployed inventions, the number of cases by Japanese applicants was the largest throughout the survey period. Considering the annual trends in the number of inventions and the number of internationally deployed inventions, it can be estimated that the majority of Chinese patent applications are filed only in their own country.

Looking at the top 20 applicants for the number of internationally deployed inventions, 10 applicants are Japanese applicants. In terms of the number of highly cited internationally deployed inventions that are cited frequently in patent examinations in each country/region, The USA applicants had the highest number of 359, followed by Japanese applicants with 182. The number of internationally deployed inventions and the number of highly cited internationally deployed inventions suggest that Japan has strengths in the field of photovoltaic power generation, while the USA and Europe also have a strong presence.

METI website:

https://www.meti.go.jp/english/press/2023/0530_002.html

Company & Organization News



Mitsubishi Corporation, a joint venture with a Swiss company to buy and sell CO2 emission allowances

Mitsubishi Corporation announced on April 26 that it has started a joint business with South Pole of Switzerland, the world's largest trading company for carbon dioxide (CO₂) emissions allowances. It is an intermediary between companies with CO₂ capture, reuse and storage (CCUS) technology and companies that want to purchase emission allowances. They aim to handle more than 1 million tons of emission allowances by 2025.

The two companies set up a joint venture to broker the sale of allowances. The joint venture has concluded a long-term purchase of a total of 200,000 tons of emission credits from projects promoted by three companies, including One Point Five, which has a proven track record in CO₂ recovery. MOL (Mitsui O.S.K. Lines, Ltd.) and Boston Consulting Group (BCG) of the U.S. have been selected to participate in the joint venture as intermediaries for the emission allowances. Mitsubishi Corp. aims to develop new clients, particularly in Asia.

Emission allowances are certified by a third party. The price will be set at around \$200 (about JP ¥ 27,000) per ton. Although it is more expensive than forest-derived emissions allowances, which can be purchased for several thousand JP¥ per ton, Mitsubishi Corporation and others believe that there is a need for companies that actively work on decarbonization using new technologies.

Mitsubishi corporation website:

<https://www.mitsubishicorp.com/jp/en/pr/archive/2023/html/0000051164.html>

MHI concludes comprehensive license agreement for CO2 recovery technology with Italian company

Mitsubishi Heavy Industries, Ltd. (MHI) announced on April 27 that it has signed a comprehensive licensing agreement (GLA) with Saipem, an Italian company, for CO₂ recovery technology in a CO₂. In regions such as Europe and the Middle East, where demand is expected to further increase in the future, they will expand sales of CO₂ recovery plants for many projects and lead the creation of the global CCUS market.



Saipem is a major engineering company engaged in the design, procurement, construction, project management, etc., of plants centered on oil and gas. It has bases in more than 70 countries, advanced engineering technology, and an extensive delivery record.

Since 1990, the Mitsubishi Heavy Industries Group has been working with Kansai Electric Power Co. to jointly develop the "KM CDR Process" and "Advanced KM CDR Process" CO₂ recovery technology. Mitsubishi Heavy Industries has been a longtime partner in Saipem's urea technology and has built a world-class fertilizer plant. In this CCUS collaboration as well, they will realize a plant construction execution system that utilizes the strengths of both companies.

MHI website:

<https://www.mhi.com/news/230427.html>

Mitsubishi Corporation launches Japan's largest decarbonization fund

Mitsubishi Corporation announced on May 2 that it will launch the largest decarbonization fund in Japan jointly with Mitsubishi UFJ Bank and others. A total of \$1 billion (approximately JP ¥ 135 billion) will be invested in start-up companies with promising technologies such as floating offshore wind power generation and recycled aviation fuel (SAF).

Mitsubishi Corporation will create the Marunouchi Climate Tech Growth Fund through a management company jointly established with Mitsubishi UFJ Bank and South Korean private equity fund Pavilion Private Equity. In addition to Mitsubishi Corporation investing hundreds of millions of dollars, Mitsubishi Heavy Industries and other companies will also solicit investment, increasing the amount to 1 \$ billion by April 2024.

Investment destinations are expected to be mainly North American and European companies that are leading in environmental technology. Utilizing the trading company's network, they support business collaboration and increasing corporate value.



Mitsubishi Corporation website:

<https://www.mitsubishicorp.com/jp/en/pr/archive/2023/html/0000051198.html>

Belgian semiconductor imec establishes base in Japan

Belgium-based semiconductor research and development institute “imec” will establish a base in Japan. In collaboration with Rapidus, which is engaged in the domestic production of cutting-edge semiconductors, they will also promote personnel exchanges. The opening date of the base will be finalized in the future. Yasutoshi Nishimura, Minister of Economy, Trade and Industry, visited imec in Belgium on May 1 and made the announcement to Japanese press companies.

imec is a non-profit international research institute that leads the research and development of advanced technologies such as electronics and medicine. It has strengths in EUV (extreme ultraviolet) exposure technology used for ultra-fine processing.

Rapidus plans to mass-produce semiconductors with circuit line widths equivalent to 2 nanometers by 2027 and collaborate with the same organization for the Japan's first two-nano semiconductor. The Ministry of Economy, Trade and Industry and Imec confirmed that they will cooperate to expand the use of semiconductors in cutting-edge fields such as artificial intelligence (AI), automated driving, and life science.

Rapidus and imec signed an MOC on December 6, 2022 for a long-term collaboration, and this time agreement is a further step forward.

METI website (Reference):

https://www.meti.go.jp/english/press/2022/1206_004.html

UK Actis establishes renewable energy company “Nozomi Energy” in Japan

British private equity firm Actis announced on May 9 that it has established a renewable energy company "Nozomi Energy" in Japan. Going forward, through the new company, it aims to invest in onshore wind and solar power generation on a scale of 1.1 GW by 2027.



Actis has signed its first investment and seed asset for Nozomi, acquiring 100% of Hergo Japan Energy Corporation from Infrastrutture S.p.A. of Italy, a leading internationally active renewable energy developer and IPP. Hergo owns onshore wind power under development and photovoltaic power generation in operation (totaling over 230 MW). Actis explains that demonstrating renewable energy technologies in Japan and North Asia will be an effective means of achieving regional energy transitions, transitioning to a low-carbon economy, and achieving climate change goals in Japan.

As a leading investor, Actis has raised \$25 billion since inception and has over \$15 billion in assets under management. In the energy sector, it invests in the acquisition and construction of power generation and distribution businesses, supporting the world's transition to low-carbon energy. So far, it has invested in more than 70 renewable energy projects, and the total global renewable energy generation capacity is about 12GW. The goal is to add more 12.5 GW in the future.

Actis website:

<https://www.act.is/2023/05/09/actis-launches-500m-renewables-business-in-japan-and-makes-first-acquisition/>

NTT establishes new company for commercialization of NTT "IOWN", aiming to acquire global standard for 6G

NTT will establish a new company to commercialize the next-generation communication network called "IOWN", which is under development, aiming for sales of JP ¥ 200 billion in 2030.

IOWN replaces electronic to all-optical transmission from semiconductors to networks. There is no energy loss when converting signals from light to electricity, power consumption is reduced to 1/100 compared to existing communication networks, and communication capacity is 125 times higher than mobile phone communication standards such as 4G.

The new company plans to consolidate the several hundred personnel engaged in development at NTT Group's research laboratories and manufacture communications equipment related to "IOWN." As the race to develop



technologies such as generative artificial intelligence (AI), which consumes a large amount of power, is accelerating, it is essential to improve the power efficiency of information and communications networks. Commercialization requires collaboration with other industries, and we are working with semiconductor manufacturers such as Intel and Nvidia.

NTT website:

<https://group.ntt/en/newsrelease/2023/05/12/230512g.html>

IOWN website:

<https://www.rd.ntt/e/iown/>

Marubeni launches sales of low-carbon-emission methanol

Marubeni Corporation announced on May 10 that it has acquired marketing rights in Asia (excluding China) for low-carbon emission methanol "Circular Methanol." The methanol is manufactured by Anyang Shunli Environmental Technology Co., Ltd. (Shunli), which is owned by MFE Shanghai Environmental Engineering and Technology Co., Ltd. (MFES) in China. The product will be manufactured at the Shunli plant, which began commercial operation in September 2022, using Carbon Recycling International's technology to produce methanol from CO₂ and hydrogen.

Unlike methanol produced from natural gas or coal, it is possible to produce methanol in which the amount of CO₂ absorbed and used during the production process exceeds the amount emitted. The plant is the world's first commercial large-scale plant that synthesizes and manufactures methanol from only CO₂ and hydrogen, with an annual production capacity of 110,000 tons.

This product corresponds to a CCU that utilizes CO₂ recovered from exhaust gas and the atmosphere as a raw material for chemical products and fuel. Starting with this product, Marubeni will continue to promote sales of eco-friendly methanol for use in chemicals and fuels, and work to build a circular economy that will lead to a reduction in CO₂ emissions.

Marubeni website:

<https://www.marubeni.com/en/news/2023/release/00051.html>



Kubota and NIES start joint research to build a waste resource recycling system

Kubota and the National Institute for Environmental Studies announced on May 10 that they have started joint research aimed at creating a mechanism for the effective use of waste and resource recycling that will play a role in the "regional circulation and ecological sphere. They will work on a survey of the current status of various types of waste treatment, a survey of resources contained in waste, and a recovery test of valuable metals and phosphorus from waste at a demonstration plant.

The period is from April 2023 to March 2026. The name of the joint research is "Construction of a multilayer resource recycling system centered on self-sustained melting separation technology (DEEP RECYCLE SYSTEM).

Kubota supplies melting furnaces, which are used to treat waste and sewage sludge, to local governments and waste disposal companies. The company's melting furnace has a high resource recovery efficiency, and it can stably recover a high concentration of phosphorus used in fertilizer from sewage sludge. In addition, it is possible to recycle electronic devices and automobiles that were previously difficult to recycle and were incinerated or landfilled. Valuable metals can also be recovered from waste such as residues.

In addition, stable operation (self-sustained melting operation) using only plastic residue, which is difficult to recycle, is also possible. In addition to being able to reuse plastic without waste, it can also be used to recover waste resources.

KUBOTA website (in Japanese):

<https://www.kubota.co.jp/news/2023/management-20230510.html>

Hydrogen engine startup partners with Israeli company

Hydrogen engine development startup iLabo will accelerate the development of hydrogen engines in collaboration with domestic and foreign companies. By May 15, TPR, an engine parts manufacturer, and Aquarius Engines, an Israeli industrial engine manufacturer, had entered into capital and business alliance agreements, respectively. The funds raised from TPR will be used to expand the engine development facilities and jointly promote technological development.



They work with Aquarius on joint development of hydrogen engines and generators.

iLabo is developing a "hydrogenation conversion" technology that converts truck diesel engines into hydrogen engines. It has an engine bench for development that is a modified truck engine at its base in Yamanashi Prefecture, and plans to commercialize this technology in 2024. Diesel engines of truck emit more than 1.5 times more carbon dioxide (CO₂) than passenger cars, so decarbonization is required. The company's hydrogenation conversion has the advantage of reducing the total vehicle price and modification cost to about one-third of the fuel cell vehicle (FCV) truck price, and can decarbonize existing trucks.

Aquarius has developed a compact and lightweight free piston linear engine (FPLE) that does not have parts such as valves. FPLE is compatible with fuels such as gasoline, ethanol, liquefied petroleum gas (LPG), and biofuels such as methanol. They plans call for compatibility with ammonia and hydrogen by the end of 2024.

iLabo website (in Japanese):

<https://h2ice.co.jp/news/tpr>

Honda to enter F1 for the fifth time, with Aston Martin from 2026

Honda announced on May 24 that it will participate in F1 from 2026 and will supply power units based on the new regulations with the Aston Martin Aramco Cognizant Formula One Team. F1 has set a target of achieving carbon neutrality by 2030. From 2026 onwards, the use of 100% carbon-neutral fuel will be mandatory, and 50% of maximum power output will come from the engine and 50% from the electric motor.

Honda commented on the website that the new regulation change is in line with Honda's carbon-neutral direction and has great significance for the development of future technologies to realize it, so it has decided to participate in the new race.

Honda entered F1 for the first time in 1964. In the late 1980s and early 1990s, it built a golden age in combination with McLaren. Due to the deterioration of



business performance due to the Lehman Shock, the activities of the third period ended in 2008, but returned in 2015 with the supply of power units (PU) to McLaren. However, in 2021, when Red Bull Honda's Max Verstappen (Netherlands) won the overall victory, it withdrew again due to the concentration of resources on environmental technology.

Honda website:

https://global.honda/newsroom/news/2023/c230524eng.html?from=movie_area

SoftBank and NVIDIA collaborate on data center construction

SoftBank announced on May 29 that it will collaborate with US semiconductor giant Nvidia to build a data center. NVIDIA's CPU (Central Processing Unit) will be installed in SoftBank's data center. With the emergence of generative AI and other factors, the amount of data processed is expected to increase even further, and SoftBank is aiming to open data centers nationwide.

SoftBank plans to deploy "distributed AI data centers" in major cities nationwide. The specific timing is still unknown, but by developing data centers in various places, the aim is to handle huge amounts of data processing and prevent power consumption from being concentrated in urban areas.

In addition to generative AI, the construction of the high-speed communication standard "5G" and the next-generation communication standard "6G" is expected to significantly increase the computing power required for data processing, and the "distributed AI data center" will serve as a receiver. By installing NVIDIA CPUs in data centers, it is possible to avoid delays during peak hours and reduce power consumption.

SoftBank website:

https://www.softbank.jp/en/corp/news/press/sbkk/2023/20230529_01/

Aichi Prefecture governmental agency develops turquoise hydrogen production technology by direct decomposition of methane

Aichi Prefecture announced on May 19 that it has developed a technology to generate "turquoise hydrogen" by directly decomposing methane, the main component of natural gas, through joint research with companies and



universities. Direct methane cracking produces solid carbon with no CO₂ emitted by the reaction. Storing the carbon as it is or using it for other purposes makes it carbon-neutral, and the hydrogen produced is CO₂-free hydrogen.

However, the generated carbon covers the surface of the catalyst, causing a problem that the ability to produce hydrogen decreases, making it difficult to stably produce hydrogen. They have changed from the conventional method of using fine metal particles as a catalyst to the method of using a metal plate, and have developed a device that easily removes the generated carbon from the surface of the catalyst. In the future, they plan to investigate the application of the produced carbon to thermally conductive materials as one of the industrial uses.

Aichi prefectural government website (in Japanese):

<https://www.pref.aichi.jp/press-release/20230519-h2.html>

Other Topics

"Fugaku" ranked second for the third consecutive period, supercomputer world ranking

RIKEN announced on May 22 that the supercomputer "Fugaku Fugaku" jointly developed with Fujitsu ranked second in the world ranking "TOP500" competing for calculation speed. The ranking is announced twice a year at an international conference of supercomputer researchers, and Fugaku has been second for three straight terms since last May.

America's state-of-the-art machine "Frontier" maintained the top position for the third consecutive term. Fugaku had held the top spot for four consecutive terms since June 2020, but lost the top spot in May last year. The calculation speed of Frontier is 119 ten quadrillion 4,000 trillion times per second, and Fugaku is 44 ten quadrillion 2,010 trillion times per second. The top 10 lineup remained unchanged.

On the other hand, Fugaku has maintained the top spot for the seventh consecutive year in two categories: HPCG, which measures the processing



speed of calculations used in industrial applications, and Graph500, which is an index of big data analysis capabilities.

FUJITSU website:

https://www.fujitsu.com/global/about/resources/news/press-releases/2023/0522-02.html?_gl=1*clxu0q*_ga*NjUzNjU0ODMxLjE2ODQ3NDY0NTk.*_ga_3XKLQLRH61*MTY4NDkyMjQ3MS4yLjEuMTY4NDkyMjUxNi4xNS4wLjA.

Small ammonia synthesis facility installs in Ukraine renewable energy project

Tsubame BHB, a venture company originating from Tokyo Institute of Technology (University), announced on May 23 that it will participate in the "Green Industrial Zone Project" promoted by Bucha, Ukraine. The project will produce hydrogen and ammonia from renewable energy such as solar and wind power, and sell them as electricity, fuel, fertilizer, etc. to the region. The total land area of the project is expected to be 3,000 hectares.

In this project, the company will examine the possibility of ammonia production using a small ammonia synthesis facility. The company has three models (500 tons/year, 3,000 tons/year, and 5,000 tons/year) of small ammonia synthesis equipment.

Ammonia currently on the market is manufactured using technology that was invented 100 years ago, and requires high temperature, high pressure, and large-scale plants. In contrast, Tsubame BHB's technology for low-temperature, low-pressure, small-scale production using an electrified catalyst is the only technology in the world that can provide ammonia efficiently and at low cost, and is required for this project. It is suitable for the amount of on-site ammonia production that is required. Through this initiative, the company hopes to contribute to the achievement of Ukraine's goal of energy independence and resilience.

Tsubame BHB website:

<https://tsubame-bhb.co.jp/en/news/press-release/2023-05-19-3709>

Toyota liquid hydrogen engine car completes 24-hour race



On May 28, Toyota's liquid hydrogen-fueled engine car completed the 24-hour endurance race. This was the first time for the team to participate in a race with liquid hydrogen, as it had previously competed with gaseous hydrogen. Expectations are rising for hydrogen, which does not emit carbon dioxide (CO₂) when burned, and Toyota will accelerate development toward commercialization.

The race was held at Fuji Speedway in Shizuoka Prefecture from May 27. Toyota introduced a liquid hydrogen engine vehicle "hydrogen engine Corolla". It was scheduled to be introduced in the race at Suzuka Circuit (Mie Prefecture) in March, but it caught fire during the test run just before, and was unable to recover in time. This time, it changed the design of the piping that caused the fire and participated.

Expectations are rising for hydrogen to reduce greenhouse gas emissions. In the case of hydrogen engine vehicles, engine parts and technologies used in existing gasoline vehicles can also be utilized. Hydrogen-powered cars will be allowed to participate in the French traditional endurance race "Le Mans 24 hours" from 2026, and Toyota is considering participating.

Toyota website:

<https://global.toyota/en/newsroom/corporate/39234866.html>

IBM, Google, etc. contribute JP ¥ 29 billion to universities in Japan and the United States in the field of semiconductors and quantum computers

On May 21, companies and universities in Japan and the United States announced that they would contribute more than \$210 million (approximately JP¥29 billion) in total to the education and technological development of semiconductors and quantum computers. In the field of semiconductors, US Micron Technology and Tokyo Electron will partner with 11 Japanese and US universities to jointly develop educational programs. In the quantum field, IBM and Google will contribute funds to the University of Chicago and the University of Tokyo, respectively.

In the field of semiconductors, Micron and Tokyo Electron will form alliances with Tohoku University, Virginia Tech, and 11 other universities in Japan and the



United States. Over the next five years, the companies plans to invest more than \$60 million in developing curricula for cutting-edge education. 5,000 students are expected to benefit each year. In the quantum field, IBM will invest \$100 million in the University of Chicago and the University of Tokyo over the next 10 years, and Google will fund both schools up to \$50 million over 10 years.

The governments of Japan and the United States plan to hold annual high-level dialogue on education. U.S. Secretary of State Brinken, who attended the signing ceremony, said that cooperation in science and technology between Japan and the U.S. is "one of the smartest investments that can be made for the national and economic security of our two nations."

IBM website:

<https://newsroom.ibm.com/2023-05-21-IBM-Launches-100-Million-Partnership-with-Global-Universities-to-Develop-Novel-Technologies-Towards-a-100,000-Qubit-Quantum-Centric-Supercomputer>

Micron website:

<https://investors.micron.com/news-releases/news-release-details/micron-launches-us-japan-university-partnership-workforce>