

## JAPANESE INDUSTRY AND POLICY NEWS September-October 2022

### Legislation and Policy News

#### **METI and JAXA began providing hyperspectral sensors (HISUI) satellite data by the platform "Tellus"**

On October 12, Ministry of Economy, Trade and Industries (METI) announced that in collaboration with the Japan Aerospace Exploration Agency (JAXA), it released satellite data acquired by the hyperspectral sensor (HISUI) to the public from the same day.

The hyperspectral sensor (HISUI) developed by the Ministry of Economy, Trade and Industry together with the Japan Space Systems Development and Utilization Agency (J-spacesystems) was installed on the International Space Station in December 2019 under a partnership agreement with the Japan Aerospace Exploration Agency (JAXA). It was installed on the Exposed Facility of the Japanese Experiment Module "Kibo" on the International Space Station (ISS), and has been acquiring images since September 2020.

HISUI has high wavelength resolution (185 bands) and is a sensor that can identify substances in more detail than conventional sensors. For example, the number of types of minerals that can be identified from outer space has increased (from 10 types to 30 types), which is expected to lead to improved remote detection capabilities for oil resources and mineral deposits. In addition to petroleum and mineral resources, the data is expected to be used in various fields such as the environment, agriculture, forestry and fisheries, and disaster prevention.

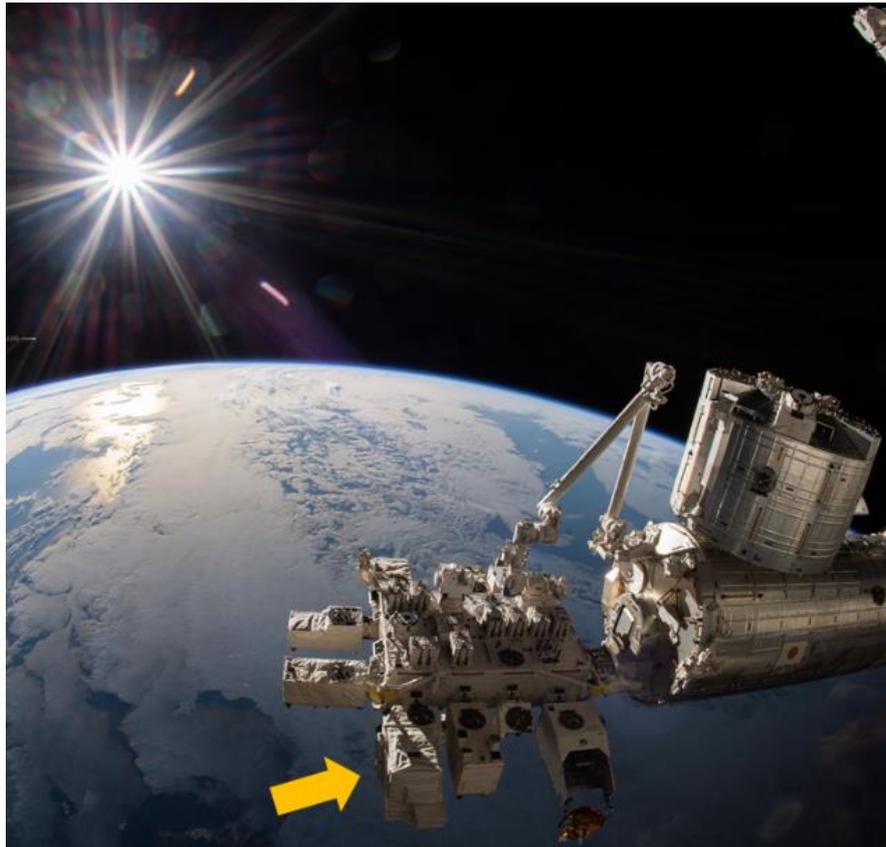
In addition, METI is currently conducting a "public offering of free satellite data users" for the purpose of supporting domestic companies to enter the satellite data utilization business. Among the satellite data (free or paid) installed in the satellite data platform "Tellus", the commercial satellite data will be provided for free that are usually charged, to people (about 250 cases) selected by public offering.

METI website (in Japanese):

<https://www.meti.go.jp/press/2022/10/20221012003/20221012003.html>

JAXA website (in Japanese):

[https://www.jaxa.jp/press/2022/10/20221014-1\\_j.html](https://www.jaxa.jp/press/2022/10/20221014-1_j.html)



HISUI (arrow) attached to the exposed facility on International Space Station (ISS) / Kibo Japanese experiment module  
Image from JAXA website (© NASA)

**METI and NEDO held the 9th Innovation for Cool Earth Forum (ICEF) 2022**

On October 5 and 6, the Ministry of Economy, Trade and Industry (METI) and the New Energy and Industrial Technology Development Organization (NEDO) held the 9th Innovation for Cool Earth Forum (ICEF) 2022 as a hybrid formula. Under the main theme of "Low-Carbon Innovation in a Time of Crises," experts from industry, academia, and government from around the world discussed actions to accelerate the creation of innovation toward carbon neutrality in 2050. About 1,600 people from 87 countries and regions participated.

ICEF is an international platform established in 2014 under the initiative of Japan. It aims to solve climate change issues through innovation in the energy and environmental fields. It is intended to invite the public and promote discussion and cooperation among academic, industry and government officials.

At the meeting, Mr. Nishimura, Minister of METI, delivered a video message, and Mr. Rahm Emanuel, Ambassador Extraordinary and Plenipotentiary of the United States of America to Japan, Dr. Fatih Birol, Executive Director of International Energy Agency (IEA), Mr. Francesco La Camera, Director-General of International Renewable Energy Agency (IRENA), Mr. Gerd Müller, Director General of the United Nations Industrial Development Organization (UNIDO) and 15 world leaders in energy and environment fields attended the session of 15.

In addition, young people under the age of 35 participated in discussions at each plenary and technical session. This year's main theme is "Low-Carbon Innovation in a Time of Crises", and the focus is on actions to accelerate the creation of innovation toward carbon neutrality in 2050. Discussions were held on policy innovations, carbon dioxide removal technologies, sustainable nuclear power systems, and innovations that support the stable supply of important metals and minerals.

Based on a series of discussions, the ICEF Steering Committee issued a statement, and released a draft and outline of a roadmap that recommends major innovative technology paths and methods that will contribute to achieving carbon neutrality in the short and long term. Hereafter, the roadmap will reflect public comments and will be officially announced at COP27 to be held in Egypt in November 2022.

The forum can be viewed on YouTube in both Japanese and English as below.

YouTube channel (English & Japanese)

<https://www.youtube.com/channel/UC7ouNL9NbvDomDTfiubi8iw/videos>



Forum sheens from METI website

### **METI held the 4th TCFD summit meeting**

On October 5, the Ministry of Economy, Trade and Industry (METI) held the 4th TCFD Summit 2022, gathering leaders of companies and financial institutions from around the world who are proactively working on the TCFD (\*) recommendations. At this summit, industry and financial leaders discussed how to further utilize the TCFD recommendations to encourage greater disclosure that will serve as a basis for sound investment decisions.

\*The TCFD "Task Force on Climate-related Financial Disclosures" is a committee chaired by Michael Bloomberg that was established by the FSB at the request of the G20 to consider how to disclose climate-related information and how financial institutions should respond.

The meeting shared the following key achievements:

- In order to realize GX (Green Transformation), it is important to accelerate the transition utilizing a wide range of technologies and energy sources, and to promote the creation and social implementation of revolutionary innovations.

- It is necessary to promote the identification and disclosure of opportunities, not just risks, which is very important for the shift to decarbonization.
- Financial institutions are expected to evaluate corporate initiatives and strategies from a medium- to long-term perspective, and companies are expected to strengthen their response to information disclosure that can withstand engagement.
- It is important to improve the credibility of the transition path envisioned by companies in order to expand the autonomous supply of private sector funds for transition finance.
- In addition to the disclosure of corporate information on new technologies and their development trends, government support and involvement in funding is also important.

Also at this conference, the TCFD Consortium issued a commentary on the TCFD recommendations, "TCFD Guidance 3.0," while the Ministry of Economy, Trade and Industry compiled and published the summaries of the discussions at the summit as a summary of the summit.

The TCFD Consortium was established in Japan in May 2019 for the purpose of discussing effective information disclosure and appropriate efforts by companies regarding TCFD. The Ministry of Economy, Trade and Industry, the Financial Services Agency, and the Ministry of the Environment participate as observers.

In Japan, from April 2022, the prime market (Tokyo Stock Exchange) will substantially require TCFD disclosure. Furthermore, based on the TCFD, the International Sustainability Standards Board (ISSB) was established by the International Financial Reporting Standards (IFRS) to create disclosure standards in accordance with the TCFD recommendations. Support for the TCFD is also accelerating, and as of September 22, 2022, the number of TCFD supporters has expanded to 3,819 institutions worldwide (up 1,290 from September 30, 2021) and 1,062 institutions from Japan (up 553).

TCFD summit website:

<https://tcf-summit.go.jp/indexEn.html>



First keynote speaker of the summit, Mr. Valdis Dombrovskis  
Executive Vice-President, European Commission

**METI held Hydrogen Ministerial Meeting, renewable energy/low carbon hydrogen to be produced at least 90 million tons by 2030**

On September 26, the Ministry of Economy, Trade and Industry (METI) and the New Energy and Industrial Technology Development Organization (NEDO) held the 5th Hydrogen Energy Ministerial Meeting in collaboration with the International Energy Agency (IEA).

As a result of the conference, a chairman's summary was compiled to accelerate and expand the progress of the "Tokyo Statement\*1" and "Global Action Agenda\*2." An additional global target of at least 90 million tons of low-carbon hydrogen (blue hydrogen) was shared with each country.

\*1 The "Tokyo Statement" was formulated as a chairman's summary at the first conference (2018). Importance of cooperating on items such as "technical cooperation, regulation, harmonization of standards, promotion of standardization and promotion of information sharing" and international joint research and development on hydrogen safety and supply chains toward the realization of a hydrogen society" were confirmed.

\*2 The "Global Action Agenda" presents actions that should be taken to realize the Tokyo Statement, and was formulated as a chairman's summary at the second conference (2019). They shared the goal of introducing 10 million fuel cell

systems and 10,000 hydrogen stations in 10 years.

In addition, "The increasing importance of hydrogen for energy security and climate change response", "Need to promote the participation of new countries and regions in hydrogen-related initiatives in order to increase the amount of hydrogen supply and demand", "Necessity for each country to take appropriate supportive measures to promote the use of hydrogen" and "Necessity to accelerate the construction of an international hydrogen supply chain" were shared.

The conference was held by onsite in Tokyo and online as part of Tokyo GX Week. The conference was attended by 30 countries, regions and international organizations, including 15 ministers responsible for coordinating hydrogen energy policies in their countries, including participation in video speeches.

METI website:

[https://www.meti.go.jp/english/press/2022/1007\\_001.html](https://www.meti.go.jp/english/press/2022/1007_001.html)



Ministerial meeting (Photo from METI website)

## **Publication of an international standard for the "truck platooning system" proposed by Japan**

On September 21, the Ministry of Economy, Trade and Industry announced that Japan's proposal would become an international standard for platooning technology, in which multiple trucks line up, share driving conditions in real time via communication, and automatically maintain distances between vehicles. This is expected to lead to the elimination of the shortage of logistics workers and the improvement of logistics efficiency.

Truck transport, which supports most of domestic logistics, is facing issues such as a shortage of drivers, an aging population, and soaring fuel costs. In addition, truck platooning reduces traffic accidents caused by driving errors due to fatigue, improves fuel efficiency by reducing air resistance and changes in vehicle speed, and suppresses speed drops when going from a downhill to an uphill. It is expected that traffic jams will be alleviated and drivers will be secured by reducing the burden on drivers. Against this background, development was promoted with the goal of realizing truck platooning, and in January 2018, the first public road demonstration experiment was conducted on the Shin-Tomei Expressway and other roads.

Platooning is a system in which multiple trucks line up under the supervision of a driver on an expressway, share driving conditions in real time through communication, automatically maintain the distance between vehicles, and coordinate lane maintenance and lane changes. It is a technology that runs in many countries around the world, including Europe and the United States.

The international standard ISO 4272 (ISO 4272:2022 Intelligent transport systems - Truck platooning systems (TPS) - Functional and operational requirements), which was issued this time, describes functions for forming/joining/leaving platoons (platoon operation management functions) and it defines the running function (platooning control function). By standardizing these functions, it will be possible to share platoon entry information even if vehicles from different manufacturers are mixed.

This standard was proposed by Japan in April 2019 to ISO (International Organization for Standardization)/TC204 (ITS intelligent transport



developing countries through the dissemination of excellent decarbonization technologies and the implementation of countermeasures to developing countries. It is quantitatively evaluated, and contributes and utilizes them to achieve Japan's NDC. Japan is discussing with related countries with the aim of increasing the number of partner countries to 30 by 2025.

For the moment, JCM partner countries are Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Vietnam, Laos, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar, Thailand, Philippines, Senegal, Tunisia, Azerbaijan, Moldova, and Georgia.

METI website:

[https://www.meti.go.jp/english/press/2022/0913\\_003.html](https://www.meti.go.jp/english/press/2022/0913_003.html)

## Survey and Business Data

### **The trade deficit in the first half of 2022 is the largest ever at JP¥ 11 trillion**

According to preliminary trade statistics for the first half of fiscal 2022 (April-September) released by the Ministry of Finance on October 20, the balance of trade, which is the amount of imports subtracted from the amount of exports, was in the red at JP¥ 11.075 trillion. It was the third straight year of deficits and the largest half-year deficit since 1979, when comparable data are available. Due to rising energy prices such as crude oil and record-breaking JP¥ depreciation, the value of imports ballooned, greatly exceeding the value of exports.

The official exchange rate announced by customs in the first half of 2022 is JP¥ 121.36 per dollar, but the current exchange rate is around JP¥ 149 per dollar (as of October 21). The import value is expected to increase further in the second half of 2022 and the trade deficit is likely to widen. The largest deficit so far was JP¥ 8.76 trillion in the second half of fiscal 2013. At that time, fuel imports for thermal power generation ballooned due to the long-term suspension of nuclear power plants after the Great East Japan Earthquake.

The import value in the first half of fiscal 2022 is JP¥ 60.5838 trillion, up 44.5% from the same period of the previous year. This is the third consecutive quarter of increase and the highest ever. The import value of crude oil, coal, and liquefied

natural gas (LNG) increased sharply by more than 2 to 3 times compared to the same period last year.

The value of exports increased by 19.6% to JP¥ 49.5763 trillion, a record high along with imports. Increased for four consecutive period. The supply of auto parts, which had been stagnant due to the COVID, started to move, and exports of cars to Europe expanded.

Looking at trade with the EU, Japan's exports to the EU reached a record high of JP¥ 4.6777 trillion, up 22.3% year-on-year for the third consecutive period. Sales of automobiles, semiconductor manufacturing equipment, and steel grew. On the other hand, imports from the EU amounted to JP¥ 5.5542 trillion, up 14.9% from the same period of the previous year. Vaccines and other pharmaceuticals performed well, while lumber and scientific optical equipment also expanded.

MOF website:

[https://www.customs.go.jp/toukei/shinbun/trade-st\\_e/2022/2022\\_414e.pdf](https://www.customs.go.jp/toukei/shinbun/trade-st_e/2022/2022_414e.pdf)

Exports by Principal Commodity  
by Area(Country)2022(Fiscal Year)  
(April-September)

(Unit:millions of YEN,%)

Commodity	E			U			
	Unit	Quantity	Percent Change	Value	Share	Percent Change	Contribution degree
<b>Grand Total</b>				4,677,656	100.0	22.3	22.3
<b>1 FOODSTUFF</b>				27,237	0.6	11.8	0.1
<b>2 RAW MATERIALS</b>				46,314	1.0	22.8	0.2
<b>3 MINERAL FUELS</b>				15,929	0.3	123.7	0.2
<b>4 CHEMICALS</b>				609,303	13.0	19.0	2.5
ORGANIC CHEMICALS				198,166	4.2	36.2	1.4
MEDICAL PRODUCTS	KG	2,847,944	53.7	71,833	1.5	24.3	0.4
PLASTIC MATERIALS	MT	160,402	-17.3	125,817	2.7	14.2	0.4
<b>5 MANUFACTURED GOODS</b>				408,353	8.7	30.5	2.5
IRON AND STEEL PRODUCTS	TMT	890	40.9	137,580	2.9	63.7	1.4
NONFERROUS METALS	MT	20,575	33.4	47,376	1.0	27.5	0.3
MANUFACTURES OF METALS				64,531	1.4	6.8	0.1
TEXTILE YARN, FABRICS				38,933	0.8	22.7	0.2
NON-METALLIC MINERAL WARE				53,203	1.1	15.2	0.2
RUBBER MANUFACTURED	MT	67,287	18.1	55,772	1.2	28.2	0.3
PAPER & PAPER MANUFACTURES	MT	15,509	1.6	10,720	0.2	11.2	0.0
<b>6 MACHINERY</b>				1,089,416	23.3	21.4	5.0
POWER GENERATING MACHINE	MT	52,679	8.2	139,495	3.0	20.3	0.6
COMPUTERS AND UNITS	TNO	648	-44.7	54,679	1.2	-3.2	-0.0
PARTS OF COMPUTER	MT	12,982	-8.6	96,604	2.1	-10.1	-0.3
SEMICON MACHINERY ETC	MT	4,596	127.5	157,120	3.4	259.0	3.0
METALWORKING MACHINERY				81,320	1.7	43.3	0.6
PUMP AND CENTRIFUGES				111,878	2.4	5.1	0.1
CONSTRUCTION MACHINES				128,529	2.7	4.8	0.2
MECHANICAL HANDLING EQUIP				28,246	0.6	8.8	0.1
HEATING OR COOLING MACHINE				40,670	0.9	39.1	0.3
TEXTILE MACHINES				6,672	0.1	17.8	0.0
BALL OR ROLLER BEARINGS	MT	22,304	-3.9	37,556	0.8	7.8	0.1
<b>7 ELECTRICAL MACHINERY</b>				789,665	16.9	11.3	2.1
SEMICONDUCTORS ETC (IC)	MNO	335	-4.8	105,851	2.3	16.6	0.4
AUDIO & VISUAL APPARATUS (VIDEO REC OR REPRO APP)	TNO	3,202	-22.8	44,601	1.0	21.7	0.2
(TV RECEIVER)	TNO	451	29.6	55,652	1.2	72.0	0.6
PARTS OF AUDIO, VISUAL APP.	TNO	80	-73.7	39,952	0.9	61.0	0.4
ELECTRICAL POWER MACHINERY				2,708	0.1	-48.8	-0.1
TELEPHONY, TELEGRAPHY				6,476	0.1	-11.7	-0.0
ELECTRICAL MEASURING				96,636	2.1	14.4	0.3
ELECTRICAL APPARATUS				18,783	0.4	1.7	0.0
BATTERIES AND ACCUMULATORS				131,003	2.8	-6.8	-0.3
				79,139	1.7	13.4	0.2
				51,861	1.1	52.6	0.5
<b>8 TRANSPORT EQUIPMENT</b>				993,437	21.2	28.0	5.7
MOTOR VEHICLES (CAR)	NO	215,102	27.5	606,547	13.0	51.5	5.4
(BUS&TRUCK)	NO	197,324	29.1	562,996	12.0	54.2	5.2
PARTS OF MOTOR VEHICLES	NO	17,777	12.3	43,550	0.9	23.2	0.2
MOTORCYCLES, AUTOCYCLES	MT	118,307	-12.4	222,249	4.8	-5.0	-0.3
AIRCRAFT	TNO	97	9.2	77,881	1.7	29.0	0.5
SHIPS	GT	80,510	-66.8	7,303	0.2	0.5	0.0
				9,768	0.2	-49.8	-0.3
<b>9 OTHERS</b>				698,003	14.9	27.2	3.9
SCIENTIFIC, OPTICAL INST				202,629	4.3	35.2	1.4
PHOTOGRAPHIC SUPPLIES				25,276	0.5	11.9	0.1

(Notes) \* "Percent Change" means "Percent Change from the same term in the preceding year."  
 \* Figures with "\*" means "Multiplier to the same term in the preceding year."  
 \* "Contribution degree" means "Percentage of the Yen Change of that category of goods to Grand Total of the same term in the preceding year."  
 \* Quantity and value in the preceding year, used to calculate "Percent Change" and "Contribution degree", are the quantity and value of the current EU member states.

Source: MOF website

Imports by Principal Commodity  
by Area(Country)2022(Fiscal Year)  
(April-September)  
(Unit:millions of YEN,%)

Commodity	E			U			
	Unit	Quantity	Percent Change	Value	Share	Percent Change	Contribution degree
<b>Grand Total</b>				5,554,209	100.0	14.9	14.9
<b>1 FOODSTUFF</b>				645,965	11.6	16.2	1.9
FISH AND FISH PREPARATION	MT	24,136	9.3	34,070	0.6	39.1	0.2
MEAT AND MEAT PREPARATION	MT	236,144	37.4	131,456	2.4	38.4	0.8
CEREALS, CEREAL PREPARATION	MT	192,877	12.7	36,195	0.7	35.3	0.2
VEGETABLES	MT	188,114	21.1	38,191	0.7	34.0	0.2
FRUITS	MT	31,987	3.2	13,970	0.3	19.0	0.0
<b>2 RAW MATERIALS</b>				244,298	4.4	35.6	1.3
WOOD				105,297	1.9	125.3	1.2
ORE OF NONFERROUS	TMT	6	-29.1	11,442	0.2	13.7	0.0
IRON ORE AND CONCENTRATES	TMT	0	ZENZO	0	0.0	ZENZO	0.0
SOY BEANS	MT	-		-	-		-
<b>3 MINERAL FUELS</b>				49,756	0.9	33.4	0.3
PETROLEUM	TKL	-		-	-		-
PETROLEUM PRODUCTS (PETROLEUM SPIRITS)	TKL	506	-19.0	48,331	0.9	33.6	0.3
LNG	TMT	-		-	-		-
LPG	TMT	0	-57.1	17	0.0	-17.2	-0.0
COAL	TMT	-		-	-		-
(COAL N. E. S)	TMT	-		-	-		-
<b>4 CHEMICALS</b>				1,916,940	34.5	8.8	3.2
ORGANIC CHEMICALS				214,263	3.9	21.6	0.8
MEDICAL PRODUCTS	KG	9,018,622	15.3	1,353,073	24.4	4.2	1.1
<b>5 MANUFACTURED GOODS</b>				394,030	7.1	29.4	1.9
IRON AND STEEL PRODUCTS	MT	54,200	2.2	28,678	0.5	49.1	0.2
NONFERROUS METALS	MT	29,678	-25.4	114,357	2.1	16.1	0.3
MANUFACTURES OF METALS				60,608	1.1	21.0	0.2
TEXTILE YARN, FABRICS				29,724	0.5	21.3	0.1
NON-METALLIC MINERAL WARE				45,088	0.8	16.1	0.1
WOOD & CORK MANUFACTURED				68,366	1.2	125.3	0.8
<b>6 MACHINERY</b>				493,297	8.9	23.7	2.0
POWER GENERATING MACHINE	MT	22,943	9.2	96,191	1.7	25.1	0.4
COMPUTERS AND UNITS	TNO	219	24.5	33,389	0.6	27.7	0.1
PARTS OF COMPUTER	MT	348	46.8	4,426	0.1	30.7	0.0
<b>7 ELECTRICAL MACHINERY</b>				472,423	8.5	24.8	1.9
SEMICONDUCTORS ETC (IC)	MNO	1,065	30.9	98,949	1.8	57.4	0.7
INSULATED WIRE AND CABLE	MT	1,187	35.5	82,940	1.5	61.4	0.7
AUDIO AND VISUAL APPARATUS				6,952	0.1	31.2	0.0
ELECTRICAL POWER MACHINERY				25,113	0.5	20.2	0.1
TELEPHONY, TELEGRAPHY (TELEPHONE SETS)	NO	968	-12.5	44,720	0.8	33.0	0.2
ELECTRICAL MEASURING				37,493	0.7	-4.1	-0.0
				74	0.0	5.6	0.0
				80,754	1.5	3.9	0.1
<b>8 TRANSPORT EQUIPMENT</b>				616,743	11.1	-2.7	-0.4
MOTOR VEHICLES	NO	83,595	-13.9	445,337	8.0	1.0	0.1
PARTS OF MOTOR VEHICLES				62,046	1.1	8.6	0.1
AIRCRAFT				70,934	1.3	-33.4	-0.7
<b>9 OTHERS</b>				720,756	13.0	23.7	2.9
SCIENTIFIC, OPTICAL INST				222,727	4.0	22.8	0.9
CLOTHING AND ACCESSORIES				85,384	1.5	21.7	0.3
FURNITURE	MT	25,649	-12.1	35,290	0.6	18.3	0.1
BAGS				129,638	2.3	31.7	0.6

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Source: MOF website

## **Decarbonization of Japan in 2050, zero-emission power supply + CO2 removal technology are essential**

On October 5, the National Institute of Advanced Industrial Science and Technology (AIST) announced the results of a scenario analysis for Japan to achieve carbon neutrality in 2050. Using a mathematical model that can simulate the entire Japanese energy system, six cases with different condition settings were assumed.

According to the study, in order to reduce energy-related CO2 emissions to zero by 2050, only zero-emission power sources that do not emit CO2 during power generation (renewable energy power generation, nuclear power generation, thermal power generation with CCS, hydrogen power generation) are not enough and the introduction of negative emission technology to remove atmospheric CO2 is inevitable.

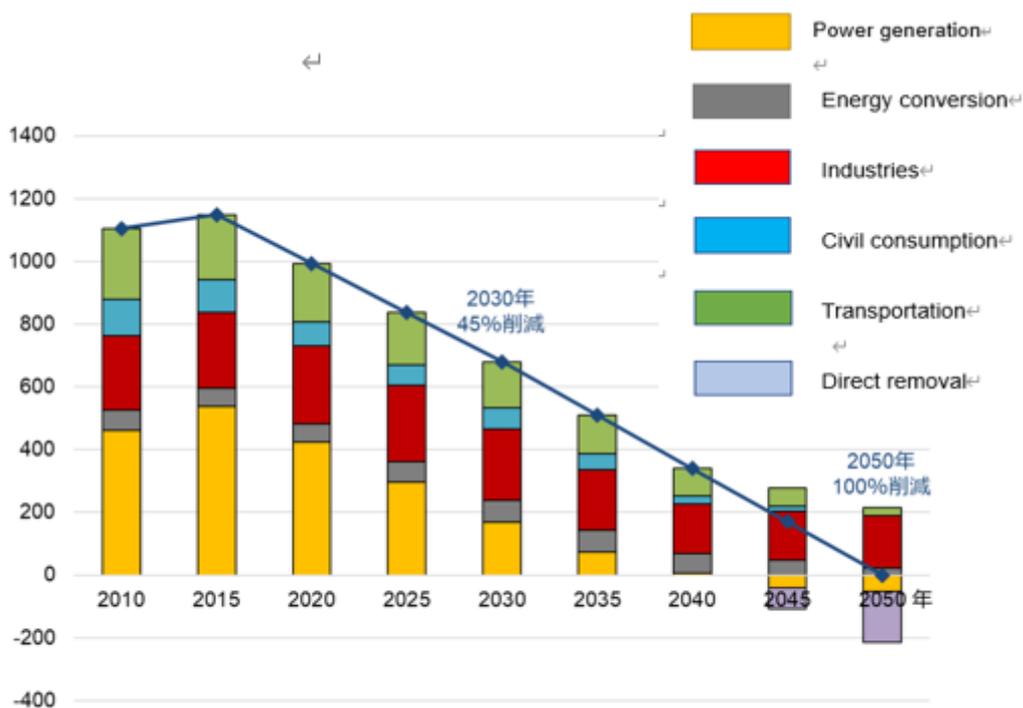
Of the six cases, simulations in the base case show that total CO2 emissions decrease almost linearly after 2015 and reach zero in 2050. Looking at the breakdown of emissions, CO2 emissions from the power generation sector will reach zero in 2040, and after that CO2 emissions will continue to increase due to the use of BECCS (a technology for capturing and storing CO2 generated by burning biomass) in the power generation sector. Even in 2050, CO2 will continue to be emitted mainly by the industrial sector. To offset this CO2 emissions, 215 million tons of CO2 will be removed by DACCS (Direct Atmospheric CO2 Capture and Storage Technology) or BECCS in 2050.

In the simulation results of power generation by power source in 2050 for six cases, all models consist of zero-emission power sources that do not emit CO2 during power generation in 2050. Looking at the breakdown, the share of renewable energy power generation is the largest, accounting for 49 to 62%. In addition, as the introduction of renewable energy power generation with fluctuating output increases, it is necessary to introduce adjustable power sources that can adjust the balance of power supply and demand. For this reason, hydrogen power generation using imported hydrogen as fuel is being introduced to play a role as a low-carbon adjustable power source. The proportion of hydrogen power generation in 2050 will account for 23-38% of total power generation.

This time, this institute analyzed the scenario focusing on the variable factors of CO2 emissions such as zero-emission power supply and negative emission technology. In the future, it will analyze various low-carbon and negative-emission technologies currently under development, as well as carbon-neutral scenarios that take into account socio-economic factors such as energy prices, economic growth rates, and population.

AIST website (in Japanese):

[https://www.aist.go.jp/aist\\_j/new\\_research/2022/nr20221005/nr20221005.html](https://www.aist.go.jp/aist_j/new_research/2022/nr20221005/nr20221005.html)



Changes in energy-derived CO2 emissions in the base model

## Company & Organization News

### Sony-Honda to launch EV in 2025

Sony-Honda Mobility, a new company established by the Sony Group and Honda to develop and sell electric vehicles (EVs), announced on October 13, that the first EV will be released in 2025. Pre-orders will start in the first half of 2025. Deliveries will begin in North America in the spring of 2026, with plans to start in

Japan in the second half of 2026. The production base is scheduled to be Honda's North American plant. Sales will be centered on the online market, and a network will be built to maintain direct contact with customers.

The concept of the high-value-added EV is condensed into 3A (Autonomy = Evolving autonomy, Augmentation = Expansion of body and space-time, Affinity = Cooperation with people, Symbiosis with society). In "Autonomy", it aims to install automatic driving functions (level 3) under specific conditions, and at the same time, it's working on the development of driving support functions (level 2+) under wider driving conditions such as urban areas.

"Augmentation" proposes a new HMI (Human-Machine Interface), and by linking with services provided in the cloud, realizes a personalized in-vehicle environment for each user, providing fun. It will expand the mobile space into an entertainment space and a moving space.

"Affinity" brings together the knowledge of customers, partners, and creators, and actively works to foster opportunities and places that openly participate in car manufacturing.

In March of this year, the Sony Group and Honda Motor agreed to lead innovation in the mobility industry by commercializing the joint development and sales of high-value-added EVs and the provision of services for mobility. In June, a joint venture agreement was signed to establish a new company for the EV business, Sony Honda Mobility, with a capital of JP¥ 10 billion.

Sony Honda Mobility website:

<https://www.sony-honda-mobility.com/en/>



Sony's prototype vehicles as of January 2022  
Photo from SONY website

### **To the first private moon landing, Japan's lunar lander to be launched in November**

Japanese space venture company "ispace" announced on October 12 that it will launch its own lunar lander from Cape Canaveral, Florida, USA between November 9 and 15. The rocket Falcon 9 of the American space company SpaceX, led by Mr. Elon Musk, will be used for the launch, and will challenge the landing on the moon around March next year. If it succeeds in landing on the moon, it will be the world's first private mission.

After launching into outer space, the lander will be operated from the Mission Control Center established in Tokyo. The antenna network owned by the European Space Operations Center (ESOC) of the European Space Agency in Germany will be used. Among ESOC antenna network, five antennas in Kourou (French Guiana), New Norcia (Australia), Cebreros (Spain), Malargüe (Argentina), and Goonhilly (UK) were used.

ispace is a space start-up company working on the development of lunar resources with the vision of "Expand our planet. Expand our future." They are active in Japan, Luxembourg, and the United States, and currently have more than 200 staff members. Founded in 2010, it ran HAKUTO, one of the five finalist teams in the Google Lunar XPRIZE race. As of July 2022, a total of over JP¥ 26.8 billion has been raised. It has developed a small lunar lander aimed at providing frequent and low-cost transportation services to the moon and a lunar rover for

lunar exploration.

ispace website:

<https://ispace-inc.com/news/?p=2370>



The assembled M1 flight model at the IABG Space Test Centre in Germany  
Image from ispace website

**Shimizu Corporation completes the world's largest SEP ship compatible with the construction of large offshore wind turbines**

Shimizu Corporation announced on October 6 that it has completed a self-propelled SEP ship (self-elevating work barge) "BLUE WIND" with the world's largest loading capacity and crane performance. From March 2023, it will be put into the offshore wind power generation facility construction work, which is said to have a market size of over JP¥ 5 trillion, and will start operation at the site.

According to the plan, the ship will be put into construction work after various tests, including jacking up and down of the hull and crane operation, as well as operation training, will be conducted in the Seto Inland Sea for about four months.

Shimizu Corporation invested about JP¥ 50 billion and ordered the construction of this SEP ship to Japan Marine United (JMU). In addition, it has established a system for operation management outsourced to Fukada Salvage Construction, which owns a large number of work ships.

The completed BLUE WIND has a total length of 142m, a total width of 50m, a gross tonnage of 28,000t, a crane with a maximum lifting capacity of 2,500t and a maximum lifting height of 158m. It is capable of working in sea areas with a depth of 10 to 65m. During work, the four legs are placed on the seabed and the hull is separated from the sea surface by jacking up to ensure working conditions that are not affected by waves.

All the components for a maximum of 7 x 8MW wind turbines and 3 x 12MW wind turbines can be installed at once in full size, demonstrating excellent performance especially in the construction of large wind turbines. In addition, it is possible to jack up and down the hull even in long-period waves (swells) of about 10 seconds, which are characteristic of the Pacific Ocean. It is expected to demonstrate a very high utilization rate compared to existing SEP vessels.

Based on the Japanese government's carbon zero declaration by 2050, offshore wind power generation construction projects will be in full swing throughout Japan as a trump card for renewable energy. In addition, there is a strong global demand for SEP vessels, and Shimizu Corporation has received requests from power generation companies in Japan and overseas to consider construction with BLUE WIND.

Shimizu Corporation announced in July 2021 that it will work with Norwegian Fred Olsen Ocean, which has been involved in many offshore wind power construction projects, to win EPC (engineering, procurement, and construction) orders for offshore wind power generation facilities in Japan. In September of the same year, a memorandum of understanding was signed with Heerema Marine Contractors of the Netherlands, a marine engineering and construction company, regarding the establishment of a cooperative system in the field of offshore wind power construction.

SHIMIZU CORPORATION website:

[https://www.shimz.co.jp/sep/index\\_en.html](https://www.shimz.co.jp/sep/index_en.html)



Photo from SHIMIZU CORPORATION website

### **Sojitz to build Green Hydrogen supply network in Europe**

On October 3, Sojitz announced it had signed a memorandum of understanding (MOU) with Rubis Terminal, a French petroleum product-related base company, and Leganosa, a Spanish infrastructure investment company, to jointly investigate a green hydrogen supply chain project in Europe.

Leganosa is promoting a green hydrogen production business in Galicia, northwestern Spain. The first phase, scheduled to start production in 2025, will supply green hydrogen to local customers around the state.

With this memorandum as an opportunity, the three companies will discuss the possibility of expanding the business as a second phase and the optimal transportation method for the purpose of exporting to major ports in northwestern Europe, where demand for hydrogen and ammonia is expected to increase.

The three companies will bring together their respective business experiences, networks with industrial customers, and technical knowledge to conduct surveys with the aim of building a green hydrogen supply chain for the realization of a decarbonized society.

Spain has high potential for solar power generation and wind power generation, and the ratio of renewable energy power generation to total power generation exceeds 30%. It is expected to be a production and supply area for green hydrogen.

Among them, Galicia, where Leganosa operates an LNG receiving terminal, has a geographical advantage in terms of access to major ports in northwestern Europe (Amsterdam, Rotterdam, Antwerp, etc.), making it is considered one of the best locations for a green hydrogen production and export base.

Sojitz corporation website:

<https://www.sojitz.com/en/news/2022/10/20221003.php>



Photo from Leganosa website:

## **Sumitomo Corporation collaborates with South Korean company on CCUS and hydrogen production**

Sumitomo Corporation announced on September 30 that it will start collaborating with Lotte Chemical of South Korea's Lotte Group in the field of hydrogen and ammonia. In August, the two companies agreed to conduct the world's first joint demonstration test in South Korea using a photocatalyst to decompose ammonia and produce hydrogen. In this joint demonstration, they will verify hydrogen production by ammonia decomposition using electrochemical technology of a photocatalyst reactor of Syzygy, a US company in which Sumitomo Corporation has invested. It will be installed and operational at LOTTE CHEMICAL's facility in the second half of 2023.

Sumitomo Corporation positions hydrogen and ammonia as one of the important energies in a decarbonized society. The company is engaged in diversified business development related to hydrogen and ammonia, such as local production for local consumption type business, large-scale value chain business that promotes mass production, transportation/storage, and utilization, and investment in new technology.

Of these, for ammonia, it will promote the ammonia bunkering business in Singapore, the design and development of ammonia-fueled ships, and the development of marine transportation and storage infrastructure. Through these activities, the company aims to secure a leading position in Japan by handling 300,000 tons of hydrogen, equivalent to about 10% of Japan's target hydrogen import volume, in 2030.

Lotte Chemical is a Korean general chemical manufacturer with 26 production bases in 22 countries around the world. In May, the company announced its "2030 Vision" and announced investment plans for hydrogen energy, battery materials, recycled plastics, etc., in addition to the existing general-purpose petrochemical business. In particular, hydrogen plans to produce, supply, and utilize 1.2 million tons of clean hydrogen by 2030 based on large-scale demand and supply networks, and eco-friendly technology.

In July, it signed an MOU with Itochu Corporation on collaboration in the hydrogen and ammonia fields. In the future, the two companies will jointly consider

ammonia trading, ammonia infrastructure utilization surveys for the Japanese and Korean markets, joint investment surveys for clean ammonia production facilities, and joint feasibility studies in the hydrogen field.

Since hydrogen and ammonia do not emit CO<sub>2</sub> when burned, they are expected to be energy sources that contribute to decarbonization in a wide range of fields such as transportation, power generation, and industry. In particular, Japan and South Korea are expected to create large-scale demand for hydrogen and ammonia in the future, such as by accelerating initiatives related to mixed combustion and mono-fuel combustion of hydrogen and ammonia in the power generation field.

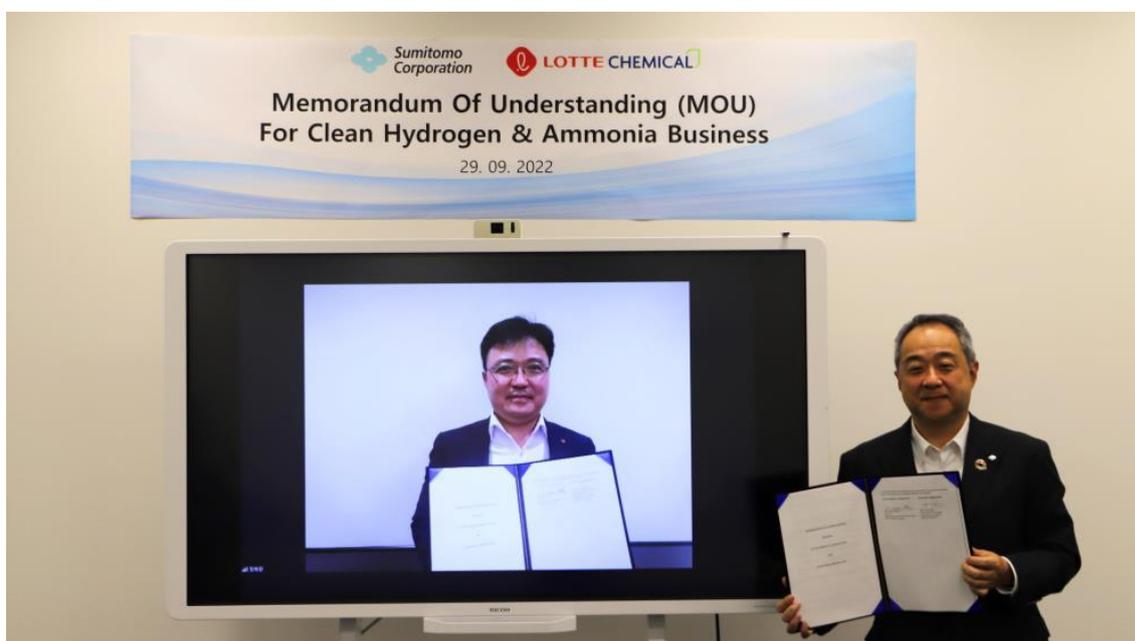


Photo of the MOU signing ceremony held on September 29, 2022  
From Sumitomo corporation website

### **Kao invests in U.S. venture aiming to supply alternative raw materials for palm oil**

On September 29, Kao announced that it joined one of the funding members of a U.S. venture company with Genomatica (Geno, California, U.S.A.) and Unilever (Unilever, London, U.K.) aiming to commercialize plant-derived raw materials to replace palm oil-derived raw materials.

Kao has made an additional investment to \$120 million (approximately ¥17 billion) that Geno and Unilever have already announced. The venture will provide responsibly sourced palm oil alternatives to stabilize and strengthen the supply chain in the estimated \$652 billion home and personal care market.

This initiative will utilize Geno's commercially proven biotechnology as a platform. Plant-based alternative raw materials with Geno's technology are expected to reduce CO2 emissions by up to 50% compared to palm oil-based raw materials. It responds to growing consumer needs for more sustainable products.

With Kao's investment, the venture will increase production capacity for palm oil alternative raw materials. Kao will use alternative raw materials in its own home care and personal care products, and will supply its derivatives to chemical business customers. In addition, by establishing a new supply chain that is traceable and highly transparent, it will further promote raw material procurement.

Geno has set a goal of reducing greenhouse gas emissions by 100 million tons over the next few years, and Kao's investment is a very important step toward achieving this goal.

Geno utilizes biotechnology to develop and scale up sustainable raw materials sourced from plants and waste as alternatives to fossil raw materials. The company's technology has replaced raw materials and materials used in cosmetics, carpets, home cleaners, apparel, etc. with more sustainable ones.

Over the past few years, they have collaborated with Lululemon, which aims to provide products using plant-based materials, achieved plant-based nylon production milestones in partnership with Aquafil, and plant-based HMD production milestones with Covestro, which aims for sustainable coating materials, and the practical application of plant-derived nylon 66 with Asahi Kasei.

Kao corporation website:

<https://www.kao.com/global/en/news/business-finance/2022/20220929-001/>



Product image from GENO website

### **Itochu to build green ammonia supply network in South Africa**

ITOCHU Corporation announced on September 2 that it will collaborate with Sasol, a major South African energy company, in the field of green ammonia. In the future, they will jointly consider research and development aimed at building a green ammonia supply chain in Bhabay, Northern Cape Province, South Africa.

The two companies signed an MOU on this initiative at TICAD8 (Tokyo International Conference on African Development) held in Tunisia on August 27 and 28. In the survey, they will consider export-type projects including fuel for power generation, fuel for ships, and other existing uses. In addition, the two companies will jointly consider financial support in cooperation with each financial institution, including a survey for joint business.

ITOCHU Corporation is strengthening its efforts to build a supply chain for a stable supply of ammonia. It is promoting the blue ammonia production and sales business project in Canada, the development of ammonia-fueled ships, the construction of an international value chain for marine ammonia fuel, and the use of blue ammonia as a fertilizer.

Sasol utilizes South Africa's solar and wind resources, as well as its abundant rare metal resources, to lead energy transitions toward decarbonization, and to provide clean energy such as green hydrogen and SAF (sustainable aviation fuel), which represent the world. It aims to build a fuel production base. Using this MOU

as a platform, the two companies aim to build a green ammonia supply chain that utilizes South Africa's competitive resources.

Itochu corporation website:

<https://www.itochu.co.jp/en/news/press/2022/220902.html>



Photo from SASOL website

### **Suzuki demonstrating biogas in India, car fuel from cow excrement**

Automobile and motorcycle manufacturer Suzuki announced on August 31 that it will start a biogas demonstration project in India which is refining automotive fuel from methane in cow manure.

India has a lot of cows, and their manure contains methane, which has 28 times the greenhouse effect of CO<sub>2</sub>. Using it as an automobile fuel reduces the release of this methane into the atmosphere. The company has signed a memorandum of understanding with the National Dairy Development Board (NDDB), an agency affiliated with the Indian government, to conduct a biogas demonstration project. With a view to establishing a joint venture company, the two companies will work toward commercialization of biogas in the future and demonstrate the feasibility of its widespread use.

Atmospheric CO<sub>2</sub> is incorporated into pasture through photosynthesis and

becomes feed for cattle. This manure is collected, biogas is artificially generated, and the fuel for automobiles is refined and used. The fuel is considered a carbon-neutral fuel because it is made from CO<sub>2</sub> in the atmosphere. Residue after biogas generation can be used as organic fertilizer, contributing to the Indian government's organic fertilizer promotion policy.

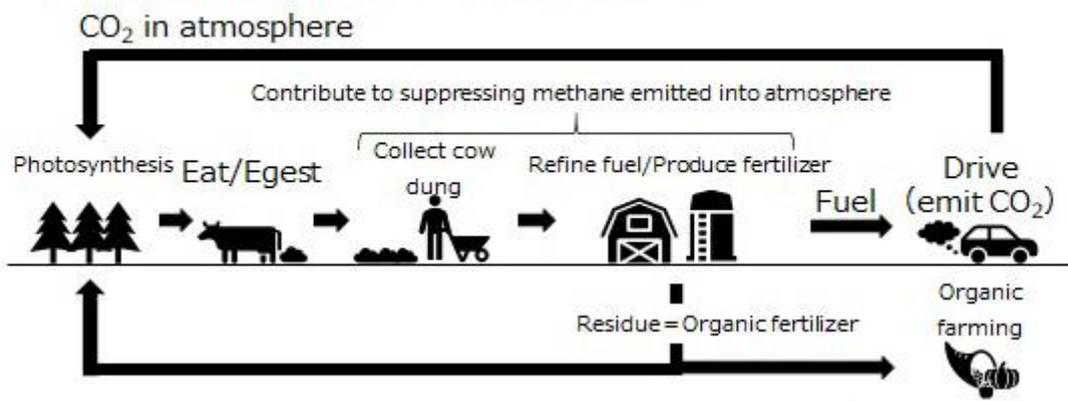
By expanding this initiative throughout India, the company will not only reduce atmospheric emissions of methane and spread carbon-neutral fuels, but also revitalize rural areas, create new jobs, recycle waste, and improve energy self-sufficiency. Suzuki currently produces about 1.5 million vehicles in India.

SUZUKI website:

<https://www.globalsuzuki.com/globalnews/2022/0831.html>

Image from SUZUKI website

### **Overview of Biogas Demonstration Project**



### **NIDEC collaborates with Norwegian storage battery company FREYR**

NIDEC announced on August 30 that it has signed a joint venture agreement with FREYR RBATTERY SA, a Norwegian semi-solid lithium-ion battery manufacturer. This collaboration will enable the supply of the company's BESS (Battery Energy Storage System) solution using Frey's batteries.

In addition to establishing a leading position in the BESS field for power transmission companies, the company expects to significantly reduce CO<sub>2</sub> emissions from the battery manufacturing process to the use of BESS solutions by customers. In addition to strengthening the partnership with the company, it

also plans to strengthen relationships with major suppliers of lithium-ion batteries.

FREYR is a lithium-ion battery manufacturer founded in 2018. It is listed on the New York Stock Exchange in 2021 and plans to start mass production from 2024. The company has innovative manufacturing technology in terms of quality and manufacturing processes, and is positioned as an indispensable company in the national battery strategy of the Norwegian government.

From 2024, the first mass production plant (currently under construction) plans to mass-produce 29 GWh of semi-solid lithium-ion batteries per year, and by 2030, it is expected to produce more than 200 GWh of batteries per year.

In the BESS market, NIDEC operates in 21 countries and regions, including Europe, South America, and Africa, and provides a total of 1.3 GW (121 projects as of 2022) of power storage systems. Most recently, in March 2022, the company received an order for a 129.8 MW power storage system in Scotland, UK, and plans to further expand this business mainly in EMEA, North America, and China.

NIDEC website:

<https://www.nidec.com/en/corporate/news/2022/news0830-01/>



Image of the new plant under construction in Northern Norway  
from FREYR RBATTERY SA website