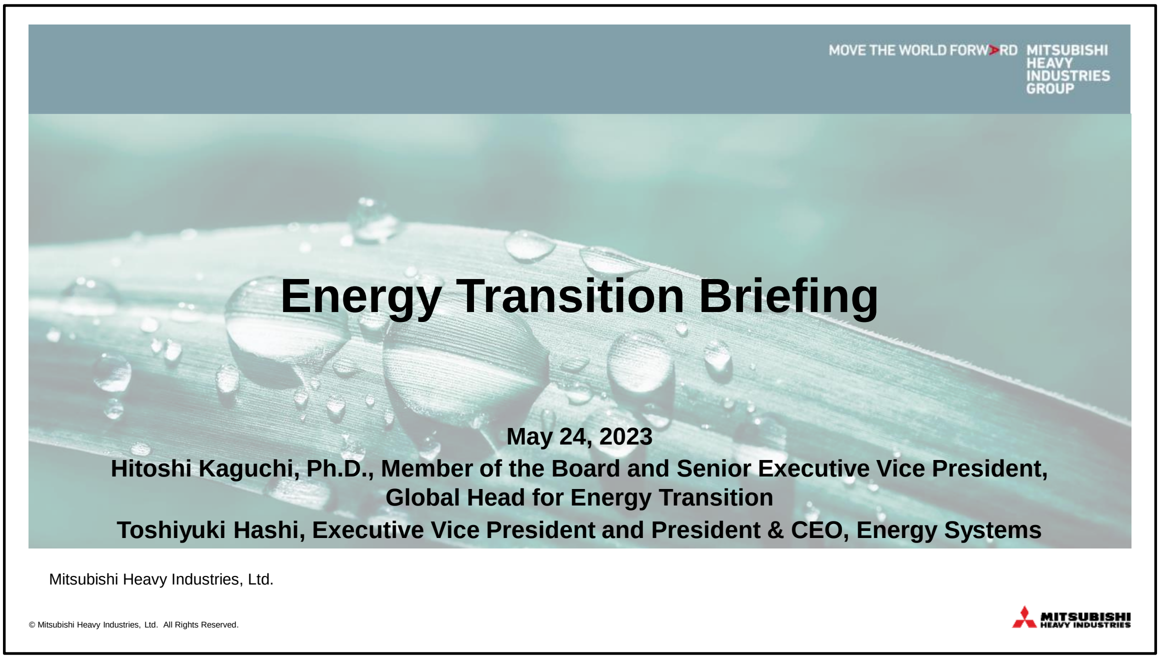

This is Kaguchi, Senior Executive Vice President of MHI. I have been given a special assignment by the President & CEO, Izumisawa, to promote Energy Transition initiatives across the entire organization, as well as to expand our growth areas.

On the topic of the Energy Transition, today we would like to provide an update on our activities over the past year and our outlook going forward.

Today's Agenda

1. Introduction
2. Decarbonizing Existing Infrastructure
3. Realizing a Hydrogen Solutions Ecosystem
4. Realizing a CO_2 Solutions Ecosystem
5. Key Takeaways

We will divide today's discussion into three sections.
Among these, Hashi, President & CEO of Energy Systems, will speak on the decarbonization of existing infrastructure, and I will talk about realizing hydrogen and CO2 solutions ecosystems.

MOVE THE WORLD FORWARD MITSUBISHI HEAVY INDUSTRIES GROUP

1. Introduction

Topics

Energy Transition accelerating globally

- Energy crisis precipitated by invasion of Ukraine
- IRA accelerating developments in US market
- Increased activity in APAC market as well

Strengthening MHI Energy Transition initiatives

- October 2021 Integrated Mitsubishi Power into MHI
- April 2023 Integrated Mitsubishi Heavy Industries Engineering into MHI

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To begin, I would like to briefly discuss some of my impressions from the past year. I strongly feel that the Energy Transition has accelerated considerably worldwide over the past year.

With the invasion of Ukraine and the resulting energy crisis, I myself wondered if the Energy Transition would slow down. However, I believe that it has in fact accelerated in many areas. The high cost of energy in Europe had momentarily halted projects looking to use renewable energy to produce green hydrogen. Contrastingly, there has been tremendous momentum to develop renewable energy, because, unlike imported fuels, renewables are an independent energy source available in each region. I feel that the Energy Transition, especially renewable energy, has accelerated sharply.

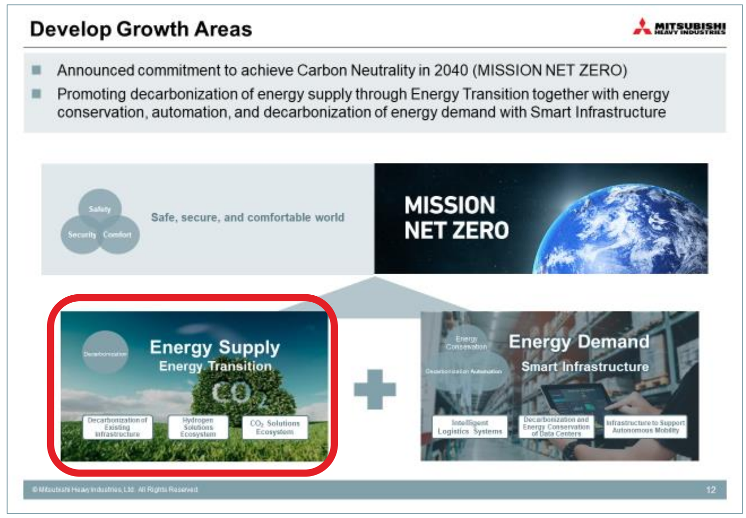
Another large development last year was the passing of the Inflation Reduction Act (IRA) in the United States in August 2022. The IRA created a very large number of incentives, which, due to their being guaranteed for over 10 years, have resulted in a burst of activity in a variety of projects. To provide specific examples, carbon capture and storage (CCS) will receive a tax incentive of $85/ton, and clean hydrogen production will receive $3/kg. Given this, there is even talk that it may be more economical to produce blue hydrogen while using CCS and to use the hydrogen in a gas turbine than it would be to use the natural gas as fuel in a gas turbine. Due to these kinds of policies, we are now in a phase where many diverse people are considering different projects.

The movement toward the Energy Transition has become active in APAC as well. Particularly in Singapore, the government is pursuing a decarbonization strategy and taking the initiative to propose a variety of projects. In fact, we have received inquiries from many companies in Singapore. Australia has a surplus of renewable energy, including solar and wind power, and although they are already a resource-rich country, they desire to transition from an exporter of coal and gas to one of green energy. As such, Australia has approached us to discuss various technical matters, and there is a lot of activity in this area.

Amid accelerating global developments in the Energy Transition, we have also revamped our corporate structure. In 2021, we integrated Mitsubishi Power, a subsidiary formerly responsible for our thermal power businesses, into MHI. In April of this year, we integrated Mitsubishi Heavy Industries Engineering into MHI as well. Energy Transition-related technologies are all interrelated, and we will proceed forward in these areas as a single team.

Content of Today's Briefing

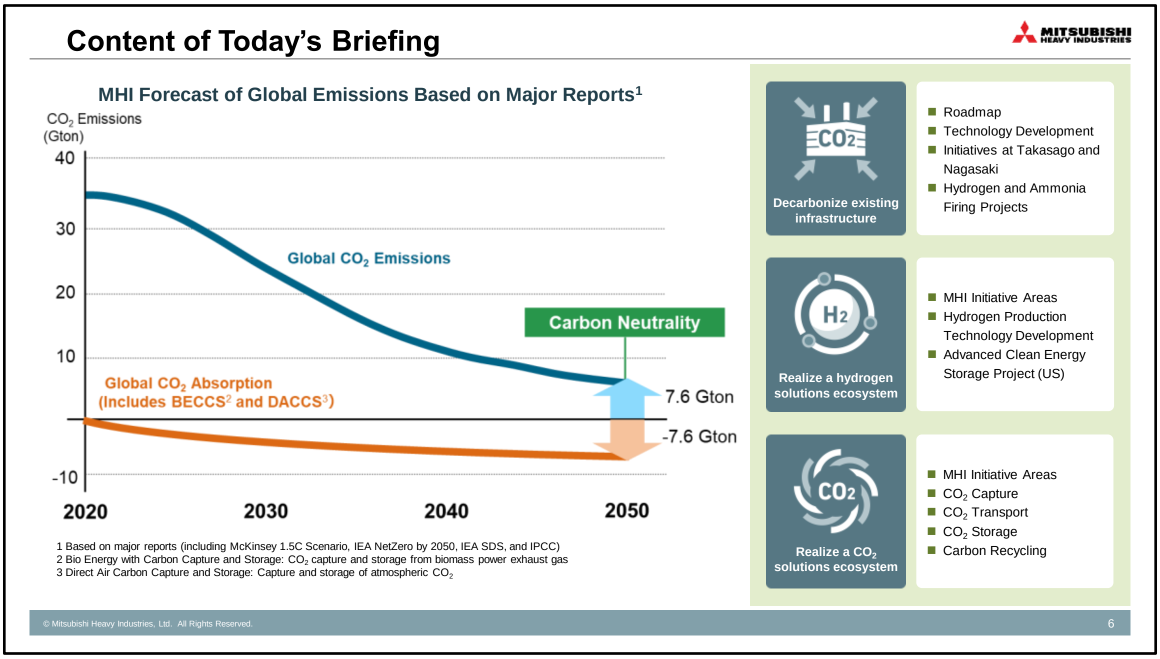
- Update on growth area development as discussed at the 2021 Medium-Term Business Plan Progress Briefing on April 5
- Share progress in Energy Transition initiatives seeking to decarbonize energy supply



Excerpt from 2021 Medium-Term Business Plan Progress Briefing (April 5, 2023)

This is a page from President & CEO Izumisawa's presentation on April 5.

In order to achieve the Energy Transition, decarbonization of both energy supply and demand are needed, but today we will focus on the energy supply side.

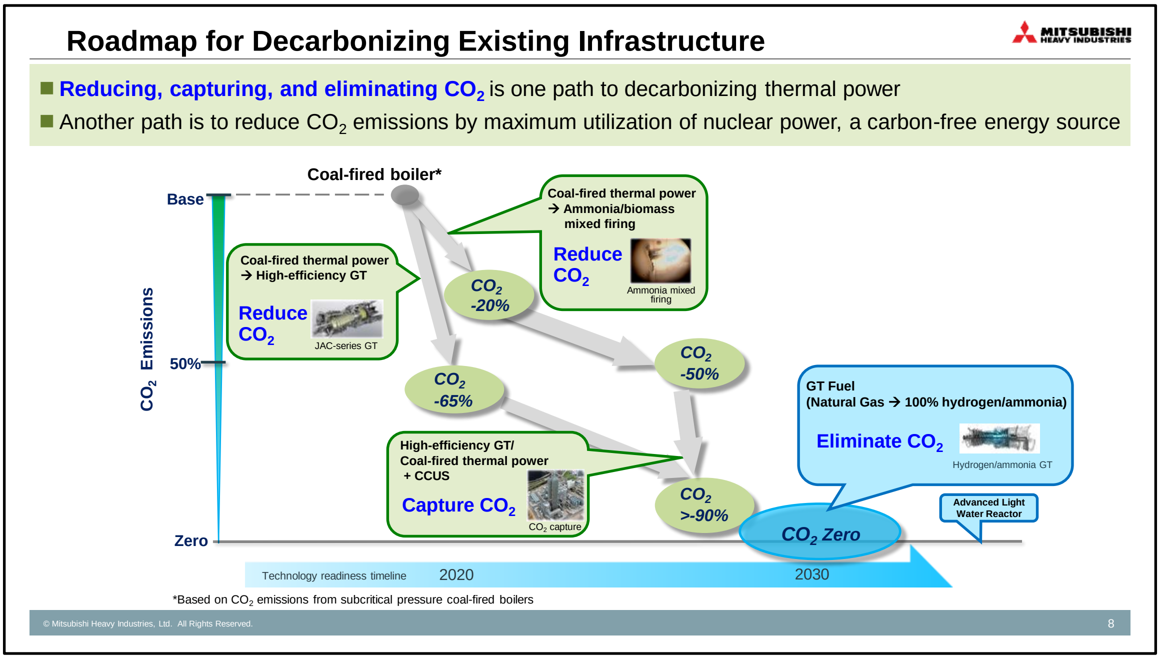


The left side of the page shows MHI's projections based on major reports including those by McKinsey and various scenarios published by the International Energy Agency (IEA). Currently, there are about 35 billion tons of CO2 emissions with very little CCS. In order to achieve Carbon Neutrality in 2050, the world will cut CO2 emissions by utilizing hydrogen and other means, but 7.6 billion tons of CO2 emissions will remain mainly in hard-to-abate industries, such as cement. As such, we project that there will continue to be a certain amount of demand for CO2 capture.

Based on this projection, as the three pillars of MHI's Energy Transition initiatives, we are acting in the areas of decarbonizing existing infrastructure, realizing a hydrogen solutions ecosystem, and CO2 capture, storage, and utilization (CCUS).

Next, Hashi will speak on the decarbonization of existing infrastructure.

2. Decarbonizing Existing Infrastructure

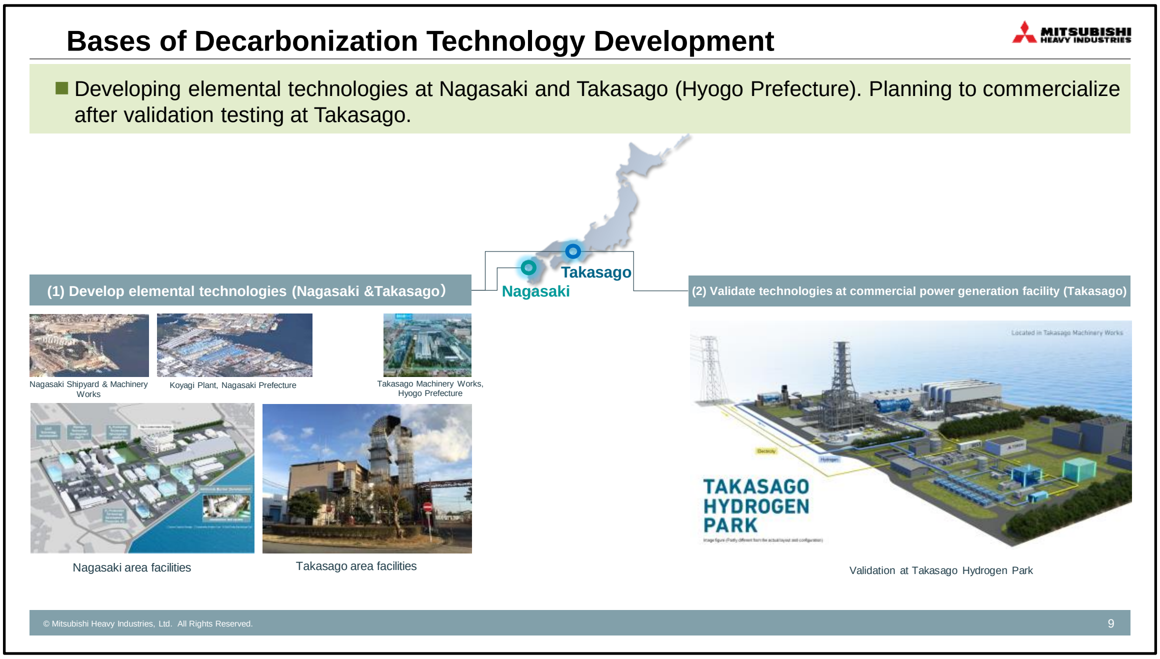


This is Hashi, President & CEO of Energy Systems. Allow me to speak about the decarbonization of existing infrastructure.

MHI proposes the decarbonization of existing thermal power plants as a way of contributing to Carbon Neutrality. This page shows CO2 emissions reductions as compared to a baseline of 100 equal to the emissions from a subcritical pressure coal-fired boiler. CO2 emissions from coal-fired thermal power will be reduced with mixed ammonia and biomass firing. Alternatively, CO2 emissions can also be reduced by replacing aging coal-fired thermal power systems with high-efficiency gas turbines.

Next, combining a gas turbine with a CCUS system can further reduce CO2 emissions. Other than gas turbines, CCUS can also be applied to coal-fired thermal power systems, and this is expected to be equally effective in reducing CO2 emissions. Additionally, we propose a path to Carbon Neutrality in the future through fuel conversions to hydrogen and other fuels.

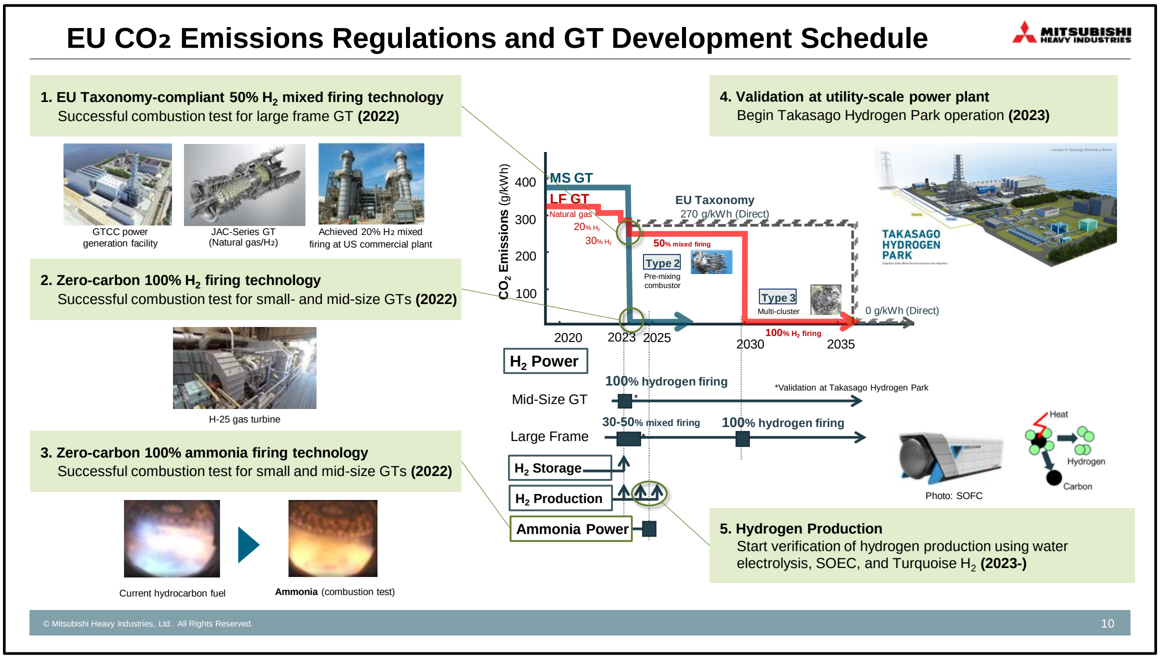
Although not on today's agenda, we also believe that there is a path to decarbonization by maximizing the use of nuclear power.



This page shows our bases of decarbonization technology development.

On the left is the location where mainly elemental technologies are developed, and on the right is the facility where those technologies are validated. Elemental development of decarbonization technologies for thermal power is underway in Takasago and Nagasaki, where our manufacturing facilities and technical research centers are located.

We are now preparing an environment in Takasago for the comprehensive, long-term validation of these elemental technologies under actual operating conditions on commercial-grade systems. We call this Takasago Hydrogen Park.
This process of fully validating new decarbonization technologies under actual power plant operating conditions before bringing them to market has led to the high reliability of our products, which is one of our strengths.



We are developing our main product, gas turbines, to comply with European CO2 emissions regulations, which are the most stringent in the world.

The left side of the page shows photos of hydrogen technologies, including hydrogen mixed firing and zero-carbon-emissions 100% hydrogen firing technologies – both of which comply which the EU Taxonomy – and ammonia firing technology. The right side of the page shows the status of hydrogen-fired gas turbine development. The dotted line on the graph represents EU Taxonomy CO2 emissions regulations, the red line shows the status of large frame gas turbine development. and the green line shows the status of small and mid-size gas turbine development.

In the area of large frame gas turbines, we have already completed 50% mixed firing combustion tests using conventional combustors. This meets the EU Taxonomy CO2 emissions standard of 270 g/kWh. We will continue to develop a new type of combustor and aim to achieve 100% hydrogen firing in large frame gas turbines by 2030.

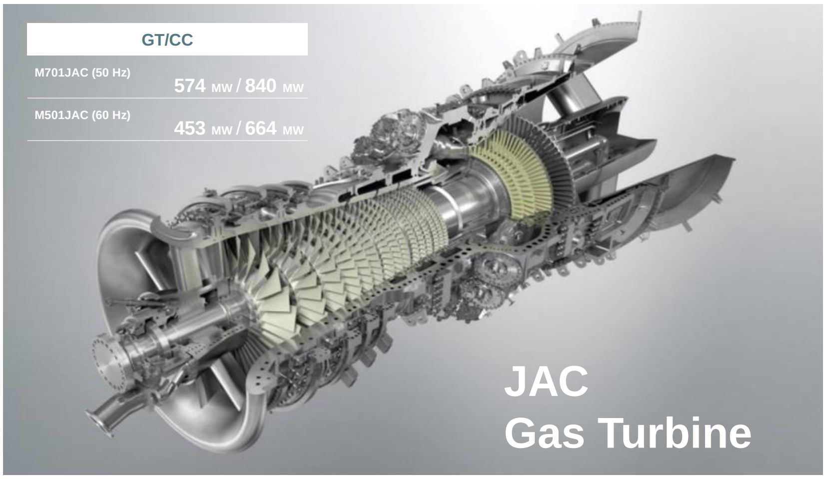
We are also developing technologies for small and mid-size gas turbines that are compatible with zero-carbon fuels such as hydrogen and ammonia. In 2022, we successfully conducted 100% hydrogen firing tests with combustors on their own. The validation of these combustion technologies is scheduled to begin this fiscal year on commercial-grade power generation facilities at Takasago Hydrogen Park.

Also at Takasago Hydrogen Park, in addition to water electrolysis, we will begin validation of hydrogen production technologies being developed in-house, such as Solid Oxide Electrolyzer Cell (SOEC) and turquoise hydrogen, which is produced through methane pyrolysis.

We will explain these topics in detail in Chapter 3.

Coal-Fired Thermal Power → High-Efficiency GT

■ 65% reduction in CO_2 emissions is possible by simply replacing coal-fired thermal power with a Natural Gas-fired Gas Turbine Combined Cycle (GTCC) plant



High Efficiency

64% CC efficiency

- High pressure ratio compressor (25:1)
- Enhanced air-cooled combustors
- Advanced TBC*

Reliability

99.5% reliability

- Cumulative operation hours: >2 million
- Booked units: 108 (J-Series as of end April 2023)

Fuel Flexibility

Compatible with variety of fuels

- Fossil fuels (natural gas, oil)
- Clean fuels (hydrogen)

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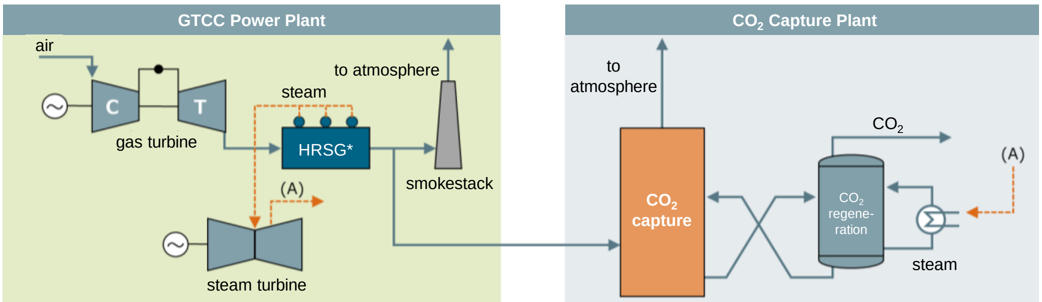
*TBC: Thermal Barrier Coating

This page shows our state-of-the-art JAC-Series gas turbine. As I explained earlier, simply replacing coal-fired thermal power with natural gas-fired gas turbine combined cycle (GTCC) systems enables a 65% reduction in CO2 emissions.
Our highly efficient and reliable JAC-Series gas turbines also meet the need for a lower-carbon alternative to coal-fired thermal power as a baseline power source.

High-Efficiency GTCC ＋ CO_2 Capture

■ By applying a CO_2 capture system to a GTCC plant, it is possible to capture over 90% of CO_2



- Awarded Front End Engineering Design (FEED) contract for CO_2 capture plant to be applied to a natural gas-fired GTCC power generation facility in Alberta, Canada
- Supporting customers' decarbonization efforts with both GTCC and CO_2 capture systems

https://www.mhi.com/news/220711.html

- Awarded FEED contract for GTCC power generation facility and CO_2 capture plant in Scotland
- Supporting commercial-scale CCS implementation, contributing to UK's achievement of Net Zero by 2050

https://www.mhi.com/news/22083001.html

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*Heat Recovery Steam Generator

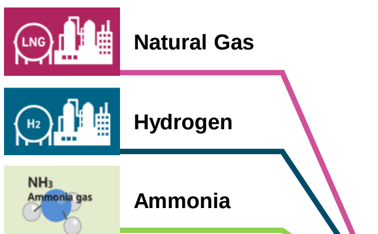
This page shows a solution combining a high-efficiency GTCC with a CO2 capture system.

On the left is a conventional GTCC power plant. Exhaust gas flows from the heat recovery steam generator to the CO2 capture system, which captures the CO2.

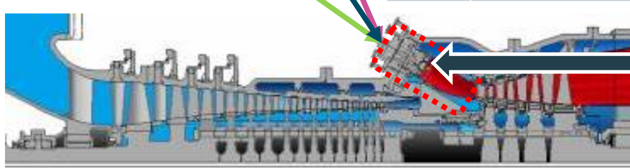
In addition to coal-fired thermal power replacement demand, the front-end engineering (FEED) of projects to install CCUS at GTCC facilities is underway in the US and Europe, where the drive to decarbonization is accelerating. We have also been awarded FEED contracts in Alberta, Canada and Scotland, responding to the need for further decarbonization.

Hydrogen- and Ammonia-Fired Gas Turbines

- Able to convert a natural gas-fired gas turbine to hydrogen or ammonia firing – and thereby achieve decarbonization – simply by replacing the combustors and adding a fuel supply system



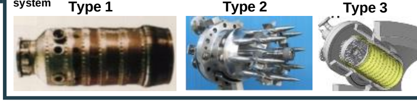
Type 1 (Diffusion)	**100% H_2**	**Development complete**	**Ready to apply to commercial facilities**
Type 2 (Pre-mix)	**30% H_2 mixed firing**	**Development complete**	
	50% H_2 mixed firing	2022: Successful combustion test for large frame GT	
Type 3 (Multi-cluster)	100% H_2 firing	Validating in lead up to 2025 commercialization	
Type 1 (Diffusion)	100% ammonia firing	Validating in lead up to 2025 commercial unit operation and commercialization	



Combustor Replacement

Convert to H_2/ammonia firing by replacing combustors and adding fuel supply system

Type 1 Type 2 Type 3



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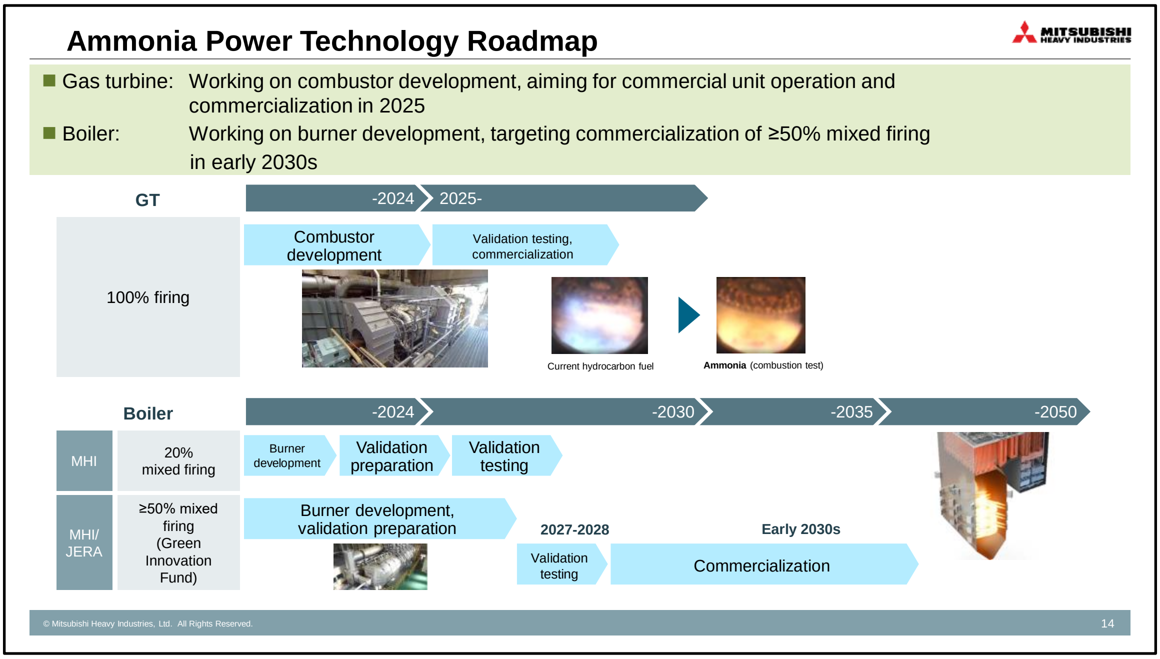
The diagram on this page shows a hydrogen- and ammonia-fired gas turbine. In the middle is a combustor with incoming natural gas, hydrogen, and ammonia. There are three types of combustors: for hydrogen, Type 1 (Diffusion), Type 2 (Pre-mix), and Type 3 (Multi-cluster); and for ammonia, Type 1 (Diffusion). Currently, these types of combustors have already been developed or are under development. Converting a natural gas-fired gas turbine to a hydrogen- or ammonia-fired gas turbine can be done relatively easily by keeping the compressor and the turbine parts where they are and replacing only the combustors. The lower right section of the page shows pictures of each of the combustor types used in hydrogen-fired gas turbines.

Since the 1970s, MHI has manufactured gas turbines that handle hydrogen-rich fuel in the form of oil refinery and steel mill off-gas. Using a large frame gas turbine combustor, we completed tests with 30%-vol (by volume) hydrogen in 2018 and 50%-vol in 2022. We plan to validate 30%-vol mixed firing in 2023 on a commercial-grade gas turbine at Takasago Hydrogen Park.
Using small- and mid-size gas turbine combustions, we completed 100% hydrogen firing in 2022. We plan to conduct a 100% hydrogen firing test during FY2023 using commercial-grade small- to mid-size gas turbines located at Takasago Hydrogen Park.
Commercialization of large frame gas turbines with 100% hydrogen firing is forecasted by 2030, and we aim to launch small and mid-size gas turbines with 100% hydrogen firing in 2025 or thereafter.

Ammonia, which is easier to handle than hydrogen as a carrier, is also effective. We have started development of a 40 MW-class gas turbine system that directly utilizes 100% ammonia as fuel. Validation is currently underway with the aim to operate on commercial-grade systems and launch during or after 2025.

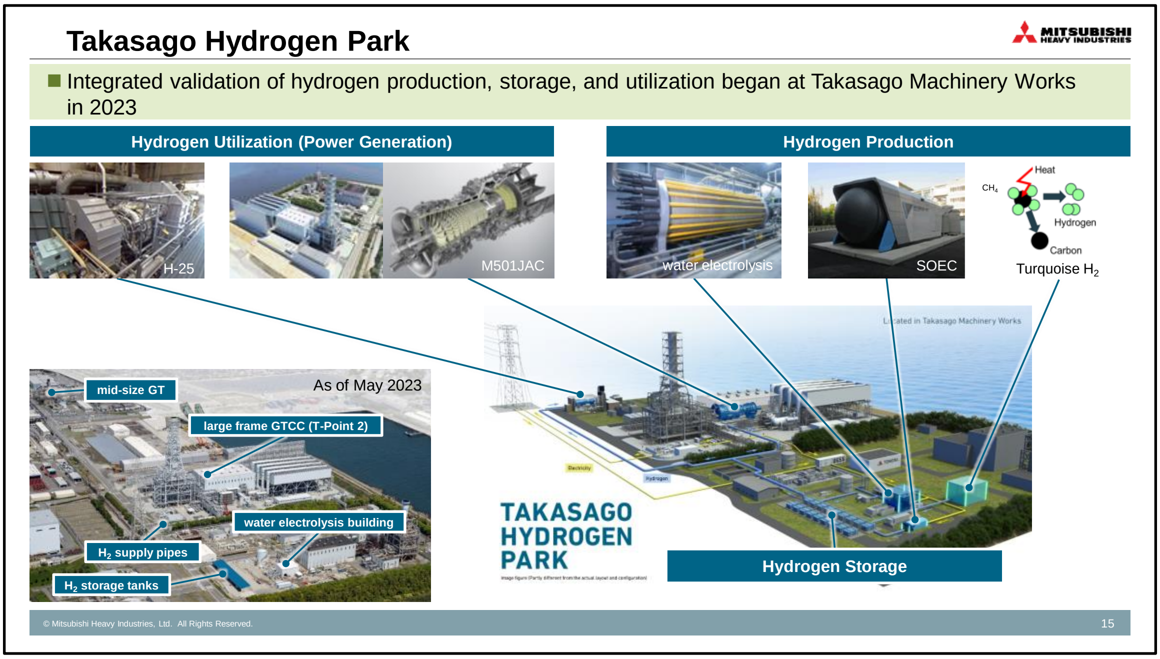


This page shows the roadmap for ammonia power generation technology. The upper half is related to gas turbines, and the lower half is about boilers.

Ammonia, like hydrogen, is a clean fuel that does not emit CO2 when burned. Also, there are expectations for ammonia to be used an energy source mainly as a carrier of hydrogen suitable for transportation and storage.

We are developing a combustor for 100% ammonia firing in gas turbines with the aim of operating on commercial-grade systems and commercialization during or after 2025.

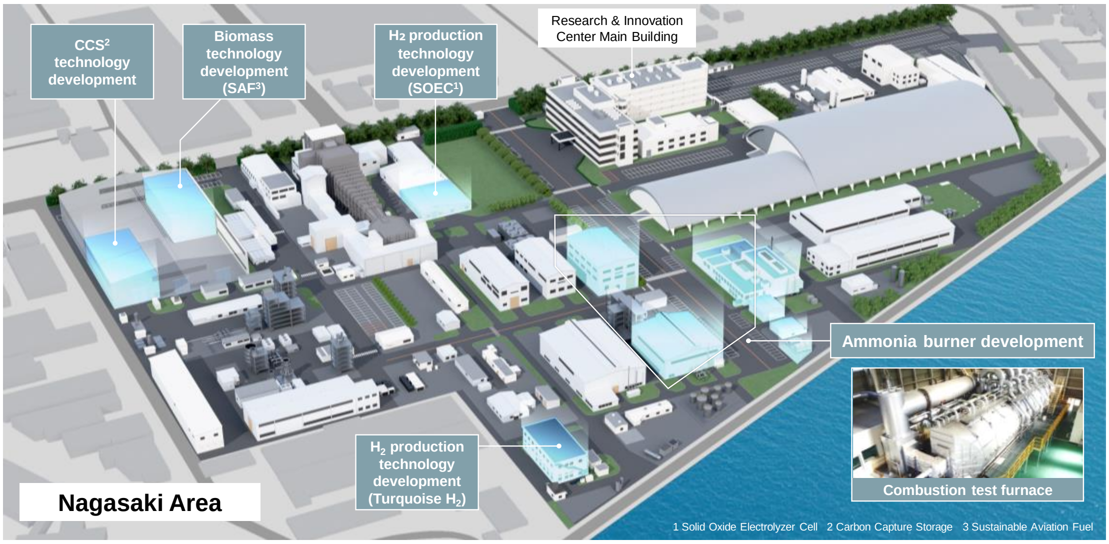
In the area of boilers, we are aiming to perform validation testing of 20% ammonia mixed firing in coal-fired units in the mid-2020s, and validation tests with a mix of 50% or higher on commercial systems in the late 2020s.



This page shows Takasago Hydrogen Park.
On the right is a bird‘s-eye view, and the photo on the left shows how much of the park was completed as of May 2023. In order to achieve early commercialization of hydrogen gas turbines, we are building Takasago Hydrogen Park – the world's first integrated validation facility for technologies ranging from hydrogen production to power generation – at Takasago Machinery Works, where the development, design, manufacturing, and validation of hydrogen gas turbines are based. As of May 2023, Takasago Hydrogen Park is in partial operation and is now preparing for full-scale operation.

In addition to employing a water electrolysis system, the hydrogen production facility will perform phased testing and validation of next-generation hydrogen production technologies, including turquoise hydrogen production, which pyrolyzes methane into hydrogen and solid carbon. We expect that this validation facility will contribute greatly to the widespread use of hydrogen and the commercialization of hydrogen power.

Development of Carbon Neutrality-Focused Technologies



1 Solid Oxide Electrolyzer Cell 2 Carbon Capture Storage 3 Sustainable Aviation Fuel

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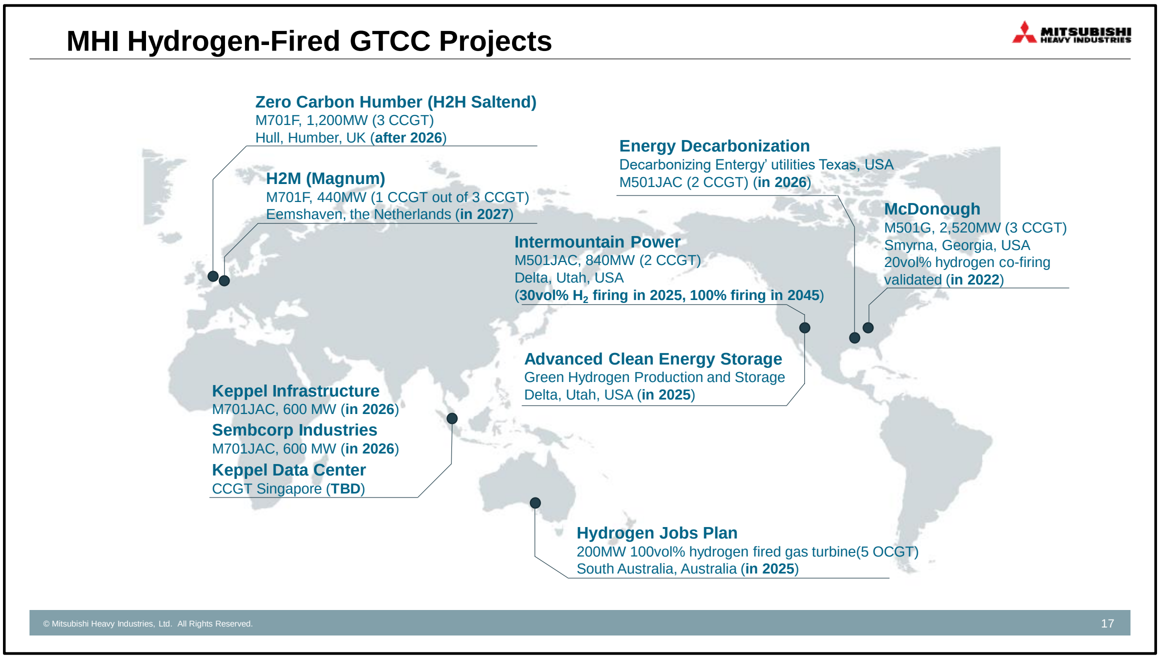
Nagasaki Shipyard & Machinery Works, our Research and Innovation Center, and other Nagasaki-area facilities are pursuing the development of a variety of Carbon Neutrality-focused technologies. Here, our engineering design, manufacturing, and development departments are working in close collaboration to develop these businesses with the aim of commercializing cutting-edge decarbonization-related product technologies.

This page shows research and development facilities in the Nagasaki area under the purview of our Research & Innovation Center.
These facilities are engaged in the development of a wide range of technologies that will contribute to decarbonization, including ammonia mixed firing burners, biomass power, hydrogen production, and CCS.



This page shows MHI's hydrogen-fired GTCC plant projects.
With our hydrogen-fired gas turbines, we are participating in project development around the world in regions which are leading in the use of hydrogen. We are collaborating with outside parties with the aim of commercializing our products.

As shown on this world map, we are participating in the development of a variety of hydrogen projects in North America, Europe, Singapore, and Australia. We will discuss Intermountain Power's hydrogen GTCC power generation project in Utah, US, in detail in Chapter 3.

MHI Ammonia-Fired GTCC and Boiler Projects

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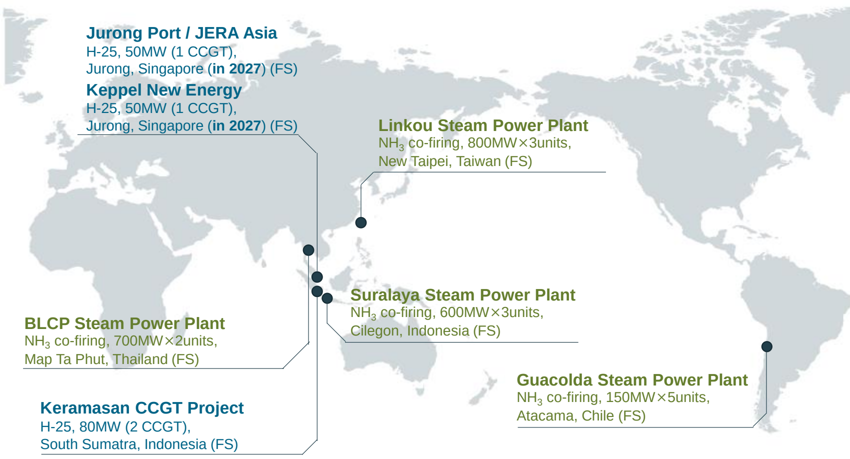

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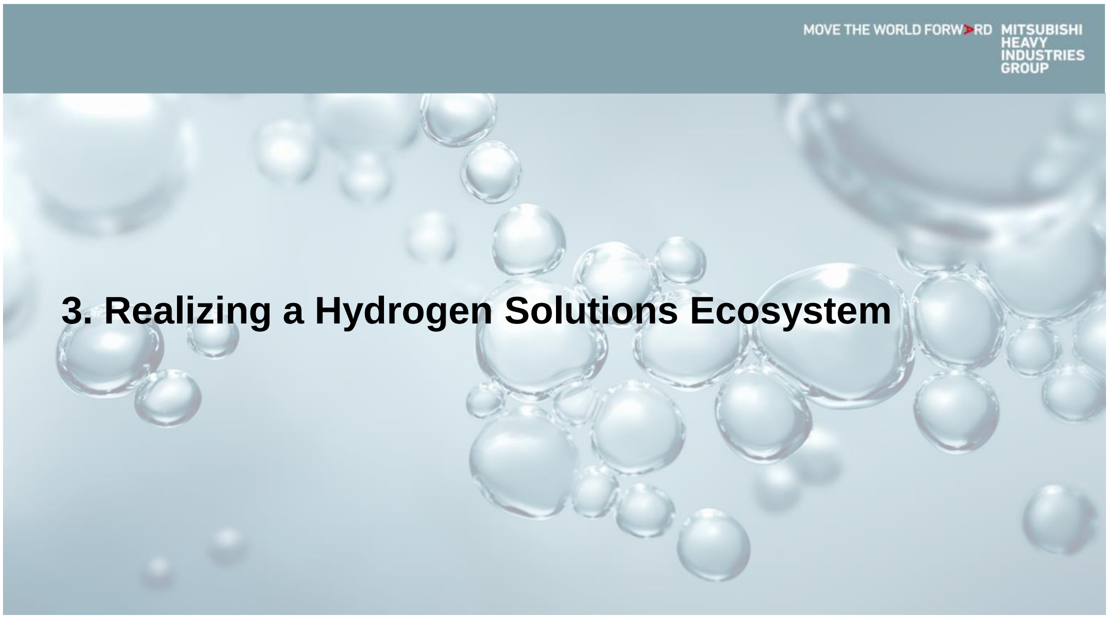
This page shows MHI's ammonia-fired GTCC and boiler projects. As with hydrogen, we are participating around the world in power generation projects that plan to utilize ammonia as a fuel.

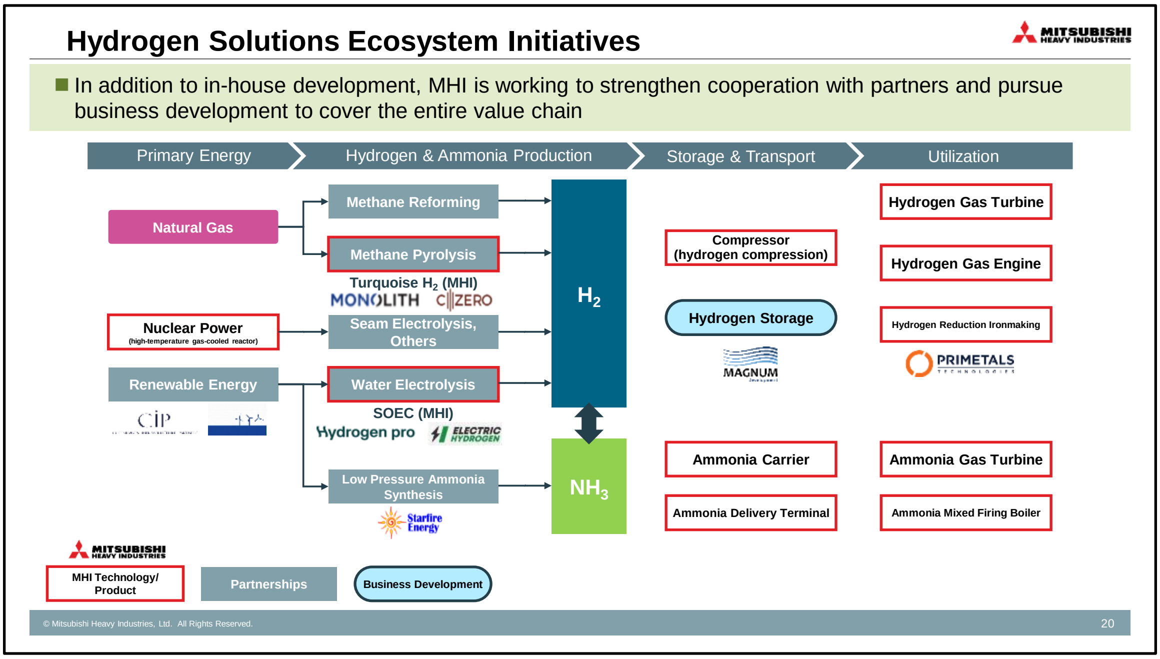
In Singapore, we are conducting a study with several power generation providers to commercialize an ammonia-fired GTCC power generation facility. Additionally, a number of power producers in various countries are planning to install ammonia mixed firing technology at their existing thermal power plants. In the last fiscal year alone, MHI concluded cooperation agreements with customers in Thailand, Taiwan, Indonesia, and Chile, and we have begun studies on ammonia mixed firing at their existing thermal power plants.

From this point on, Kaguchi will speak on the realization of the hydrogen and CO2 solutions ecosystems.



Now, I will explain our efforts to realize a hydrogen solutions ecosystem.

Hashi talked about hydrogen gas turbines, but I think supply chain-related issues, such as where the hydrogen will come from, are more of a challenge for the future. To this end, we are promoting not only products and technologies, but also a variety of initiatives.

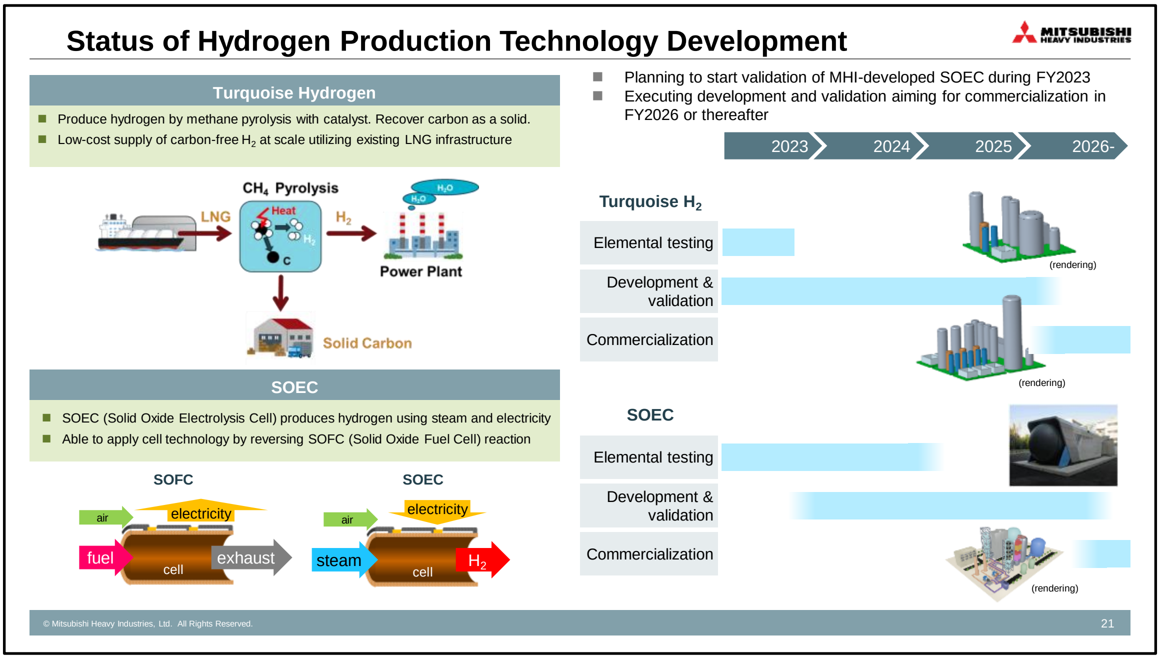


This page shows a simple diagram of energy sources as well as methods of producing, storing, and utilizing hydrogen. The items outlined in red are either undergoing in-house development or already exist as MHI products. Those outlined in gray are areas where we are considering partnerships, including licensing agreements, with startups and other companies.

In the hydrogen solutions ecosystem, I believe that ultimately green hydrogen generated from renewable energy will either be transported as it is or in other forms such as ammonia. Until then, it is possible to use turquoise hydrogen, which is produced by breaking down natural gas (methane) into hydrogen and solid carbon and storing the solid carbon. We are developing a variety of technologies in this area.

Next, while building a hydrogen value chain, if the hydrogen is used close to the production location, not much storage space will be needed. However, in cases where, for example, hydrogen is to be stored across seasons for the purpose of electricity generation, the storage of hydrogen will be the biggest problem. Takasago Hydrogen Park stores compressed hydrogen in gas cylinders, which require a considerable amount of space. Studies on underground storage as the easiest and most economical method are progressing, and I would like to share information on that topic later in my presentation.

On the hydrogen utilization side, we spoke at length about gas turbines, but other topics of note here include hydrogen gas engines, which Mitsubishi Heavy Industries Engine & Turbocharger is handling, and hydrogen reduction ironmaking, which is being developed by our subsidiary, Primetals Technologies.



Next, I will talk about hydrogen production. In general, alkaline water electrolysis is moving forward, but we are considering turquoise hydrogen and other technologies as more efficient future methods, which we are developing in-house. Major examples of these technologies are listed here.

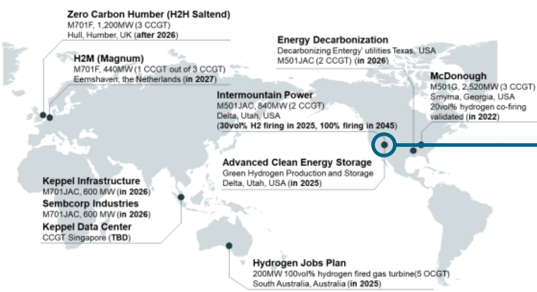
Turquoise hydrogen is a process that uses heat to break down natural gas into hydrogen and carbon black (solid carbon). It is possible to install the required equipment in a power plant, converting a gas turbine into a hydrogen burner utilizing existing natural gas infrastructure to achieve decarbonization. Elemental testing is underway now, which will be followed by validation testing, and we are considering commercialization in the late 2020s. This will eventually be validated at Takasago Hydrogen Park as well.

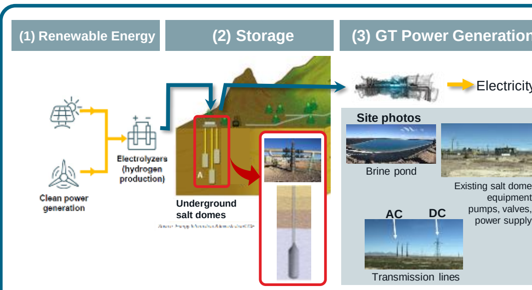
We are considering producing hydrogen efficiently by a Solid Oxide Electrolyzer Cell (SOEC) system, which reverses the reaction of a Solid Oxide Fuel Cell (SOFC) by passing steam through high-temperature ceramic cells and running electricity through them. We are currently developing this technology and plan to perform validation at Takasago Hydrogen Park.

Example of Hydrogen Storage + GT Project in US

Advanced Clean Energy Storage Project (Utah, US)

- Produce green hydrogen with abundant renewable energy from West Coast. Store green hydrogen in underground salt domes.
- When electricity is required, draw on green hydrogen to produce electricity with gas turbine, thereby stabilizing the power supply/demand balance in the medium to long term
- Final investment decision reached in June 2022. Start of 30% hydrogen mixed firing planned in 2025.





- Booked order for 840 MW H_2-fired M501JAC GTs
- Planning 30% H_2 mixed firing in 2025 and 100% H_2 firing by 2045

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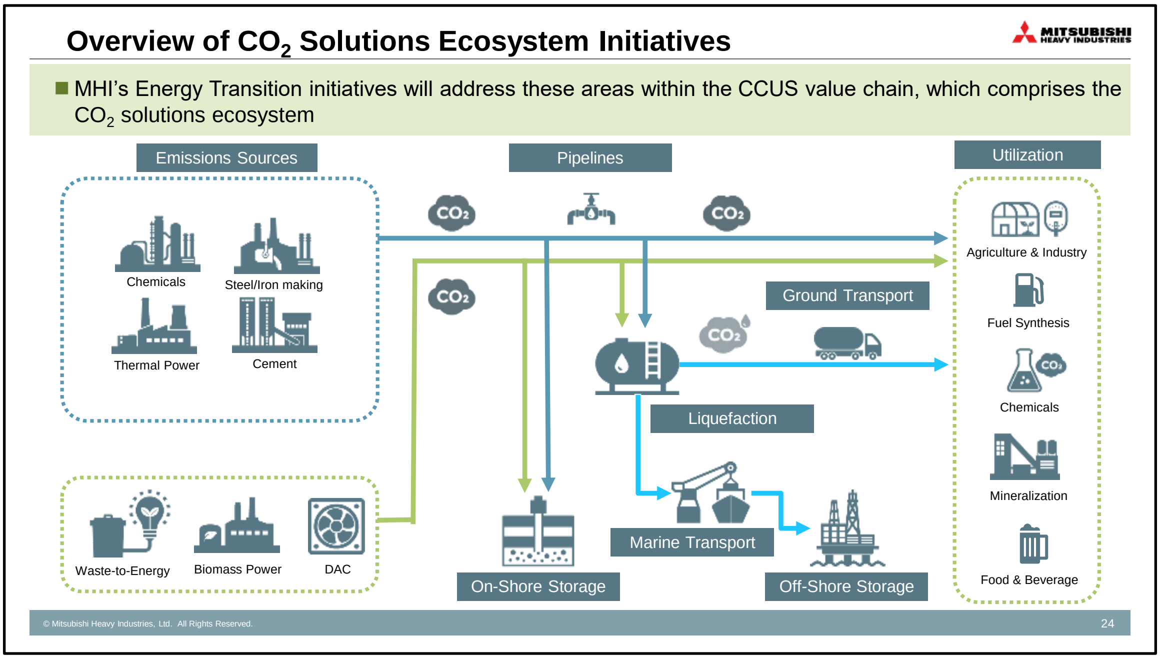
This page introduces the Advanced Clean Energy Storage Project, a project in the US, which is an example of our hydrogen solutions ecosystem initiatives.
The concept is for electricity generated with hydrogen to be sent to the Los Angeles area. The West Coast of the US is a leading region in terms of renewable energy such as wind power and solar. However, California in particular is hot in the summers, but in early spring, electricity demand is low, so there is a large surplus of electricity from February to June. This project will use the existing power grid to send that excess electricity to Utah, where it will be used to electrolyze water and produce hydrogen, which will be stored underground. A 220 MW capacity electrolysis system will be installed to produce 4 tons of hydrogen per day.
This project received a loan guarantee from the US Department of Energy (DOE) last June, and a final investment decision (FID) has been made. Construction began at the end of last year, and the project as a whole is currently around 40% complete.
To explain the method of underground storage depicted in the diagram to the lower right, a hole is drilled a few thousand meters deep into an underground salt dome. Water is then poured into the hole, and the salt is dissolved to create a cavity in which the hydrogen will be stored. Since the cavity is located at a very high depth of several thousand meters, the pressure is naturally higher. The hydrogen is compressed to around 200 to 300 atmospheres and stored. The idea is to have around 10,000 tons of storage space as a buffer and use the hydrogen accumulated in the spring during the peak summer months to level out the supply/demand curve. Two state-of-the-art JAC-Series gas turbines will be installed there to generate 840 MW of electricity. As the first project to balance energy throughout the year, I believe it will attract worldwide attention. There are only around three projects in the world with such a large water electrolysis system that have received FID. In this way, MHI is leading the world, and we intend to continue participating in this project.

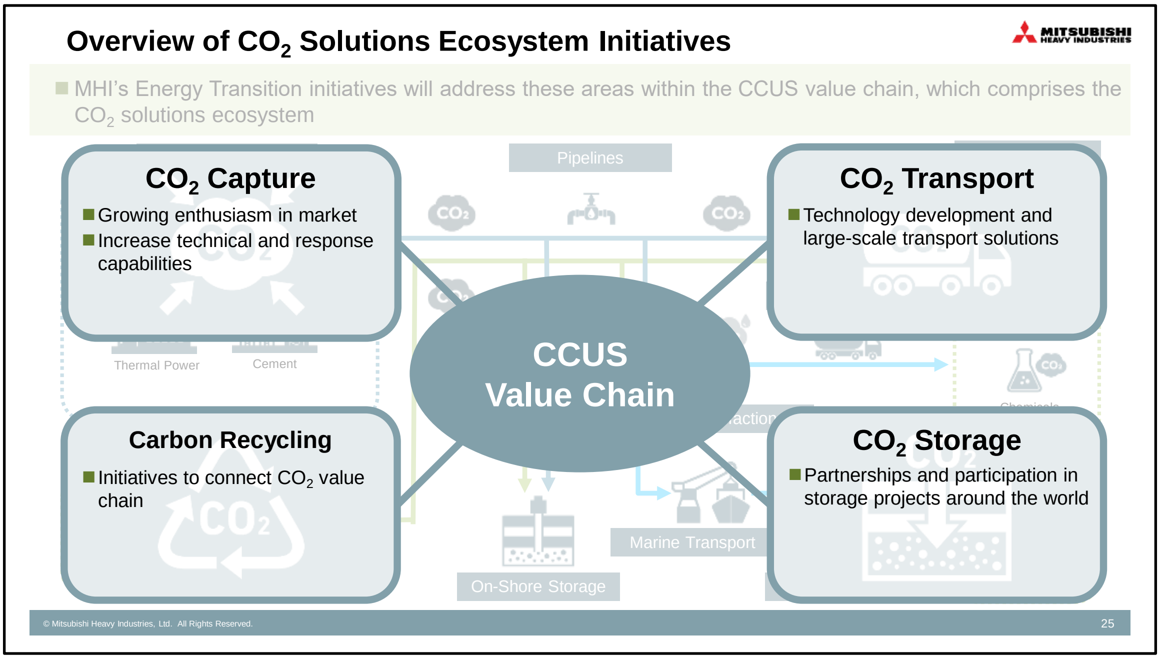
Next, I will talk about our efforts to realize a CO2 solutions ecosystem.



This page depicts the entire CCS value chain, which makes up the CO2 solutions ecosystem.

Simply put, CO2 is captured from an emissions source, transported to a storage site and buried or utilized, but many different configurations are possible.

On the next page, I will explain our initiatives in four areas.

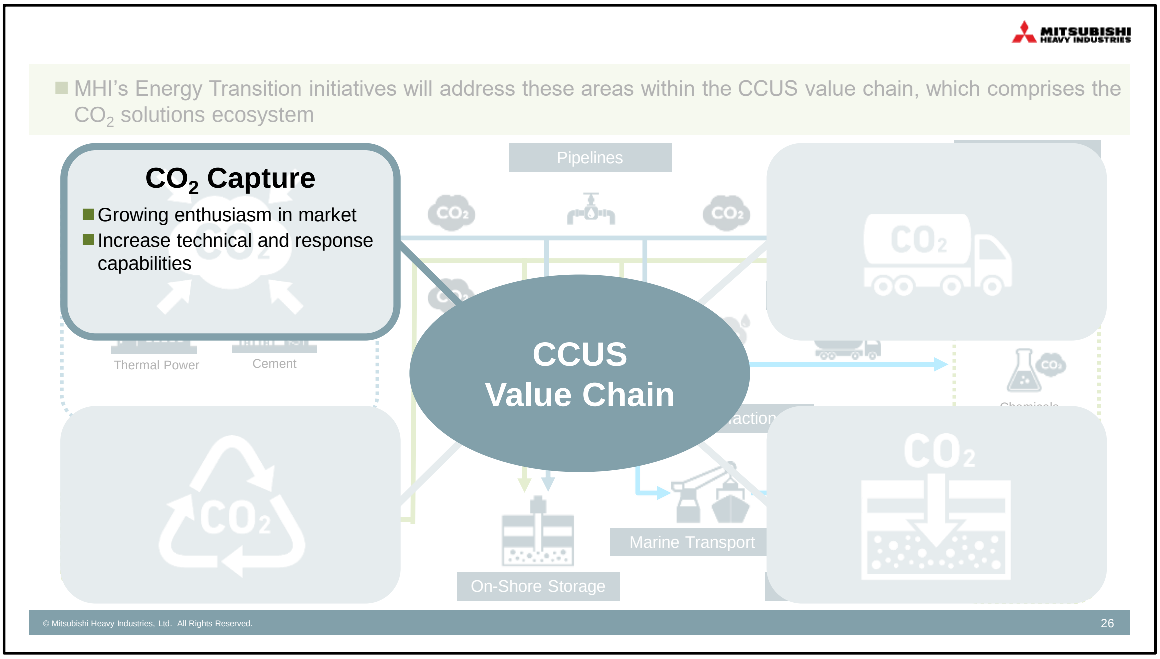


MHI is engaged in a variety of activities in these four areas.

The first is CO2 capture. One example is capturing CO2 emitted by coal-fired thermal power plants. The CO2 concentration in the exhaust gas is around 10% for coal-fired thermal power, and around 4% for gas turbines. The idea is to recover nearly pure CO2 from this exhaust gas.

Next is the transport of CO2. I think that, generally speaking, pipelines and marine/ground transport will be used.

Then there are CO2 storage and CO2 utilization, or carbon recycling.



First off is CO2 capture.

CO_2 Storage: Growing Enthusiasm in Capture Market

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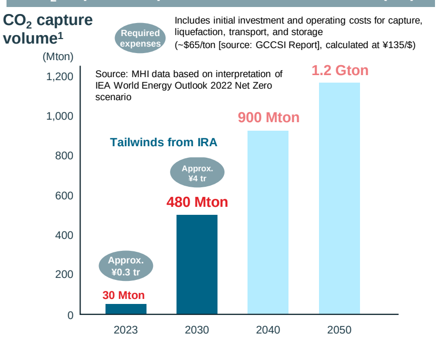
- Inquiries strong especially in Europe and US on back of IRA passing. Respond to further growth in CO_2 capture demand in US, aiming to expand business and maintain market share.
- In May 2023, US Department of Energy (DOE) Office of Clean Energy Demonstrations (OCED) announced 8 new grant recipient projects which will progress to FEED stage. Due to high customer rating of our technology, 3 of these projects plan to use MHI CO_2 capture systems.

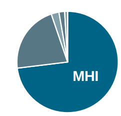
CO_2 Capture Required for Net Zero Scenario (US)



1 MHI calculation of yearly CO_2 capture volumes assuming 300 days of operation/year

No.	Selected Contractor	Site Location
1	Duke Energy Indiana, LLC	Indiana
2	Entergy Services, LLC	Louisiana
3	Lehigh Hanson, Inc	Indiana
4	Navajo Transitional Energy Company, LLC	New Mexico
5	Southern States Energy Board	Arkansas
6	Taft Carbon Capture, LLC	Louisiana
7	Tampa Electric Company	Florida
8	University of Illinois at Urbana-Champaign	Illinois

Planning to use MHI CO_2 capture technology



MHI global market share of CO_2 capture from exhaust gas is over 70%[2]

DOE Carbon Capture Demonstration Projects Program

Sep 2022: Announcement of total $189M in funding for CCS FEED projects

2 Based on MHI study of CO_2 capture volume from installed commercial systems

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Earlier, I mentioned the IRA in the US. Under the IRA, there are now strong tailwinds for CCS, as it provides a tax incentive of $85/ton for captured CO2. The graph on the left side of the page shows the total projected amount of carbon capture. If around 480 million tons of CO2 were captured, multiplying that by an incentive of $85/ton yields a market size on the order of ¥4 trillion. If you calculate this based on, for example, an incentive of around $65/ton, you will see how much the dollar figure changes based on the incentive amount. This is only in the United States, and within the market of the size I just mentioned, we see great business opportunities to supply equipment.

As a new development, the DOE's Office of Clean Energy Demonstrations (OCED) will provide assistance for FEED on CCS projects. Eight projects were selected, as shown on the right side of the page. Three of these projects are planning to use our CO2 capture technology, which means that our technology has been recognized as quite promising.

In the area of CO2 capture from exhaust gas, MHI has a global market share of around 70% on an installed basis. A large plant in Petra Nova, Texas, which uses our CO2 capture technology and is a demonstration plant with a 5,000 ton/day capacity contributes a lot to our share, and we have a significant track record.

CO_2 Capture: Increase Technical and Response Capabilities

MITSUBISHI HEAVY INDUSTRIES

- Pursuing further evolution of our world-leading CO_2 capture process. Performing validation testing with ArcelorMittal and other partners from diverse industries aiming to expand application of our process.
- Executing license partnerships with key players in the supply chain in order to respond to growing global business opportunities, strengthening, for example, regional and customer relationship-related capabilities

Improving Technical Capabilities

- With Kansai Electric Power Co., Inc, commercialized Advanced KM CDR Process™ which utilizes newly developed KS-21™ absorbent
- Confirmed superiority of KS-21™ absorbent during validation tests at the CO_2 Technology Centre Mongstad in Norway, one of the world's largest CO_2 capture testing facilities (Aug 2021)
- KS-21™ characteristics (comparison with previous KS-1™ absorbent)
    - Low volatility and high resistance to decomposition
    - Decreased amine emission levels through oxidation suppression
    - Decreased CO_2 compressor power requirements by increasing regeneration tower pressure

	KS-1™	KS-21™ *
Volatility	100	50-60
Thermal Decomposition Rate	100	30-50
Oxidation Rate	100	70
Heat Absorption	100	85

*Dependent on exhaust gas parameters

License Partnerships

- Beginning in April 2023, working with leading Italian engineering company, Saipem, as a project cooperation partner to expand sales of CO_2 capture plants, mainly in Europe and the Middle East

SAIPEM

About Saipem

- An Italian engineering company performing engineering, procurement, construction, and project management mainly in the oil and gas sector
- With bases in more than 70 countries, the company possesses advanced, innovative technologies and has a solid track record in completed deliveries
- MHI has had a cooperative relationship with Saipem for many years relating to the latter's urea technology, and we have built fertilizer plants together around the world

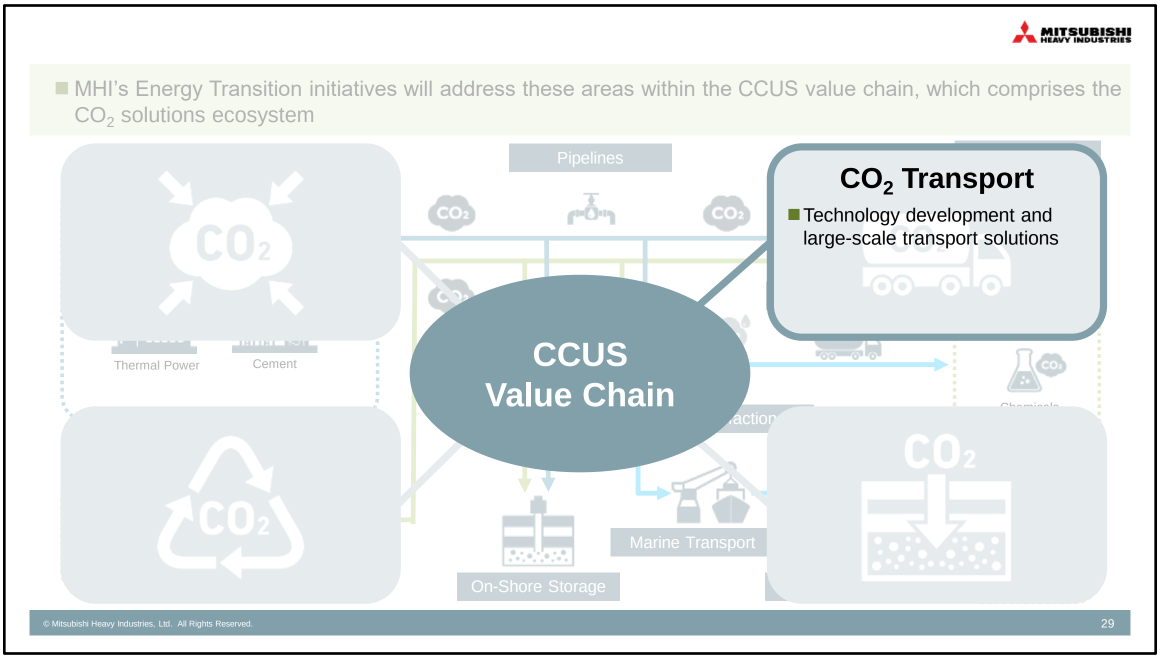
Validation Partnerships

Steel/Iron making	**ArcelorMittal and Others** Executed collaboration agreement (Oct 2022)
Cement	**Tokuyama** end Jun 2022 – end May 2023
Waste-to-Energy	**Yokohama City** Jan 2023 – Mar 2024
Gas Engines	**MHI** end Jul 2022 – end May 2023

MHI is working to improve our technical and response capabilities, as well as to increase efficiency and streamline our process. CO2 capture consumes considerable energy, because during the process, CO2 is absorbed by an amine-based absorbent, which is then reheated to separate out the CO2. We have pursued a variety of initiatives with Kansai Electric Power Co., Inc. including efforts to streamline the process and prevent decomposition of the amine absorbent as much as possible, and we are promoting our Advanced KM CDR Process, which uses the KS-21 absorbent. We have listed some figures – including thermal decomposition rate and heat absorption – comparing KS-21 with the previous generation of amine absorbent on this page, and the results are very promising.

Regarding enhancement of response capabilities, many CO2 capture projects are under consideration. MHI will not be able to handle all these plants by ourselves, so license partners will be very important. In April 2023, we signed a license agreement with Saipem, an Italian engineering company. We intend to continue to look for partners as licensees of our technologies to assist us in future international expansion.

Also, in order to respond to expanding decarbonization needs, we are working to capture CO2 in a variety of industries. We are currently performing validation testing in steelmaking, cement, waste-to-energy, and gas engines together with many partners using exhaust gas with diverse properties and are working to accumulate data.



Next, I will speak about CO2 transportation.

CO_2 Transport: Technology Development and Large-Scale Transport Solutions

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- As CCS market takes off, large-scale transport of CO_2 will become essential. MHI will contribute with marine transport vessel technologies.
- Held launch ceremony in March 2023 for liquified CO_2 (LCO_2) carrier demonstration test ship at Shimonoseki Shipyard & Machinery Works
- Executing feasibility studies (FS) (cumulative total projects: 20) on CO_2 transport and pursuing partnerships

After completion at end 2023, planning to transport CO_2 from Maizuru to Tomakomai starting in 2024

Launch ceremony (Mar 2023)

Flag	Japan	Class	ClassNK
Length o.a.	72.0 m	Breadth	12.5 m
Tank capacity	1,450 m^3	Draught	4.55 m

Partnerships on FS and Conceptual Design AIP[1]

Category	Partnership Candidates
CCS Providers	Including Equinor, INPEX, ITOCHU, and TotalEnergies
Marine Shipping Companies	Including Kawasaki Kisen Kaisha, Mitsui O.S.K. Lines, Nippon Gas Line, Nippon Yusen, and Sanyu Kisen
Classification Society	Including Bureau Veritas[2], ClassNK[3], and Det Norske Veritas[4]
Construction Partner	Including Nihon Shipyard

(Organization names presented in alphabetical order)

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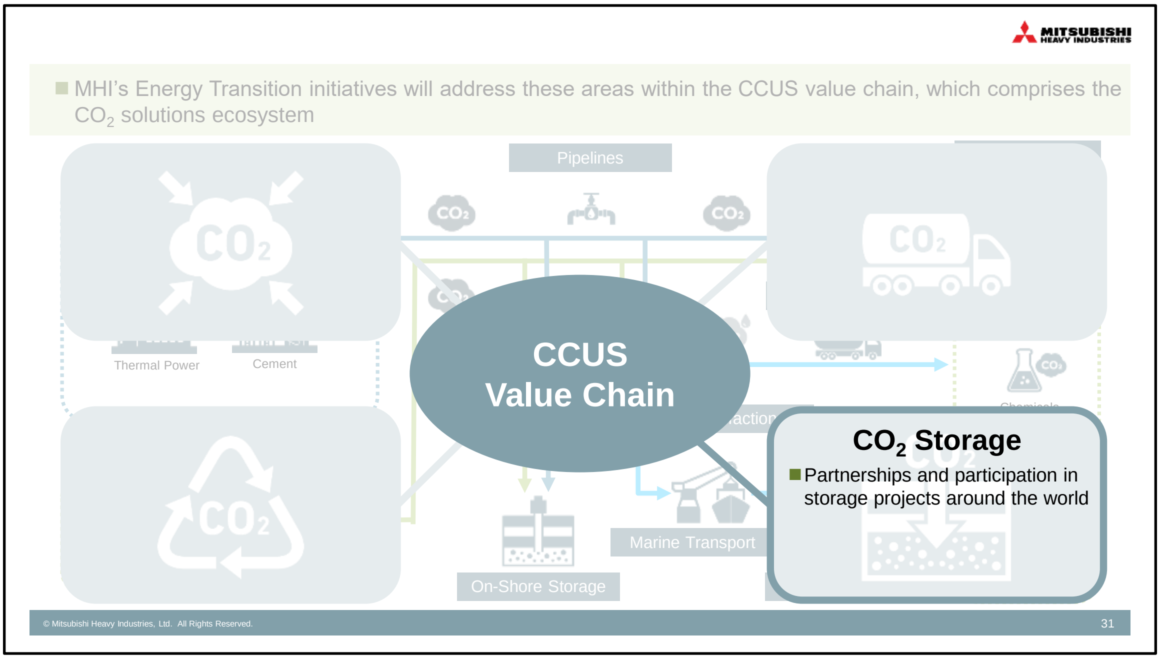
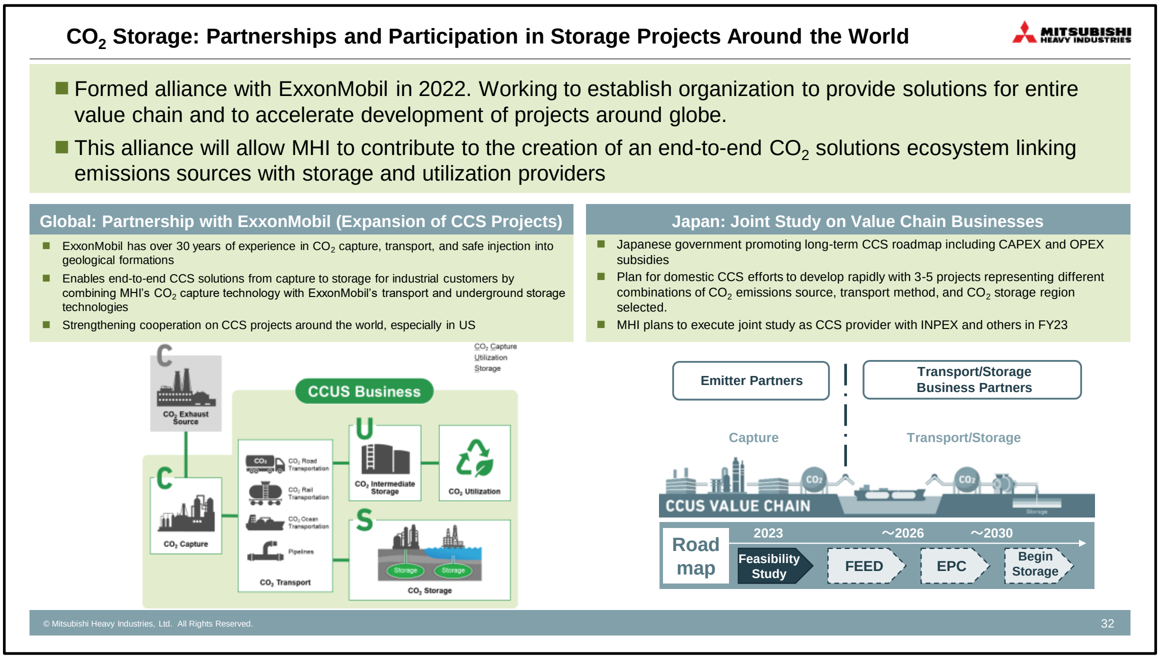
1 AIP: Approval in Principle 2 A French ship classification society 3 A Japanese ship classification society 4 A Norwegian classification society

There is a CO2 transport project in Japan which plans to liquefy CO2 and ship it from Maizuru, in western Japan, to Tomakomai in Hokkaido, which is in northern Japan. MHI held a launch ceremony for the liquefied CO2 carrier demonstration test ship which will be used in this project, and we are working to complete construction and deliver to the customer.

Since there are fewer pipelines in Japan than in some other countries, CO2 will need to be transported by ship, and the key will be how to do this on a large scale. We are currently pursuing development to increase scale.

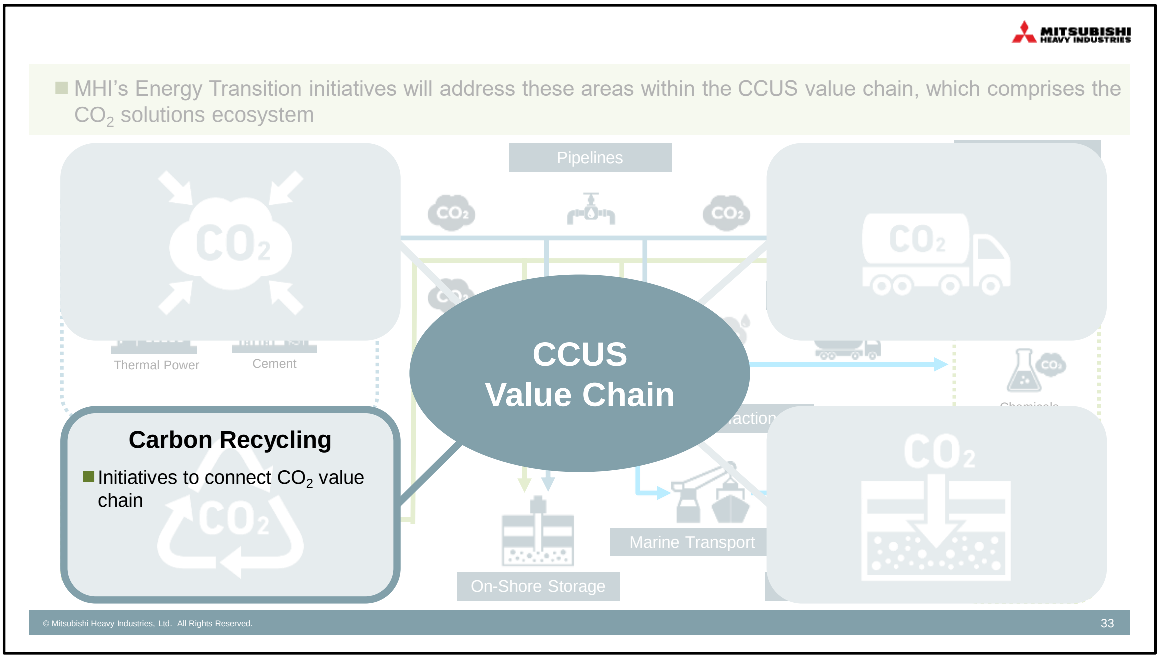


Next is CO2 storage.



Although MHI does not plan to participate in the storage business, in order to perform CCS, not only the capture process, but storage sites are also extremely important. In this area, major petrochemical companies have suitable storage sites. Energy companies find the storage portion of CCS to be a very attractive market, and late last year, we formed a technical alliance with ExxonMobil.

In Japan, the government has announced that several projects will be validated by 2030, and MHI has voiced our desire to participate. We intend to launch a CCS business in Japan by 2030.



Finally, I will discuss carbon recycling.

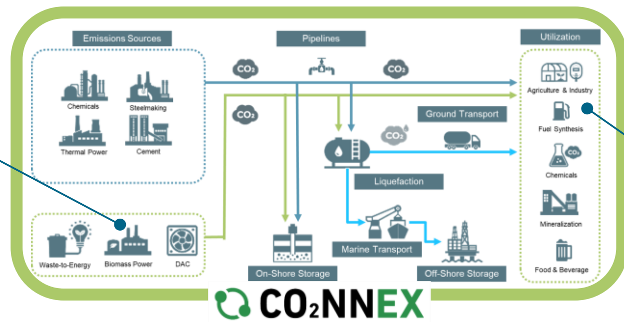
Carbon Recycling: Initiatives to Connect Value of CO_2

MITSUBISHI HEAVY INDUSTRIES

- Accurately measure, grasp, and visualize value of CO_2 within CCUS value chain, and support circulation and transactions of this value
- Contribute to carbon recycling market expansion with experience in such areas as fertilizer and methanol manufacturing, as well as through investments in start-ups in a wide variety of industries utilizing CO_2

Appropriately circulate CO_2 with high CN contribution value, such as that obtained from DAC or biomass

- CO_2 capture and utilization at biomass power plant in Hiroshima
- DAC technology development



Contribute to market expansion including through start-up investments in the areas of:

- Synthetic fuels (e-fuels)
- Biotechnologies
- Chemical synthesis
- Mineralization

and more

CO2NNEX is a digital platform which will connect all participants and CO_2 in the CCUS value chain.
CO2NNEX will accelerate carbon recycle ecosystem growth. (Jointly developing with IBM)

- Executing several proofs of concept within Japan
- Together with partners including Osaka Gas, working to apply CO2NNEX for e-methane, a sustainable fuel currently in development

CO2 is now thought of as a waste product, but with the future introduction of carbon taxes and other policies, it will become important to properly measure, track, evaluate, visualize, and, from the perspective of carbon taxes, demonstrate the capture and circulation of CO2 and its value.
When it comes to using synthetic fuels such as E-fuels, we will need to think of CO2 as a resource. It is then important to properly ascertain the nature of the CO2 and where it comes from. To that end, we are proposing a digital CCUS platform called CO2NNEX, and we are discussing its potential with various parties.
At this stage, rather than looking at this as a business, we like to think of CO2NNEX as a way to create a system based on approaches settled on during various partnerships.

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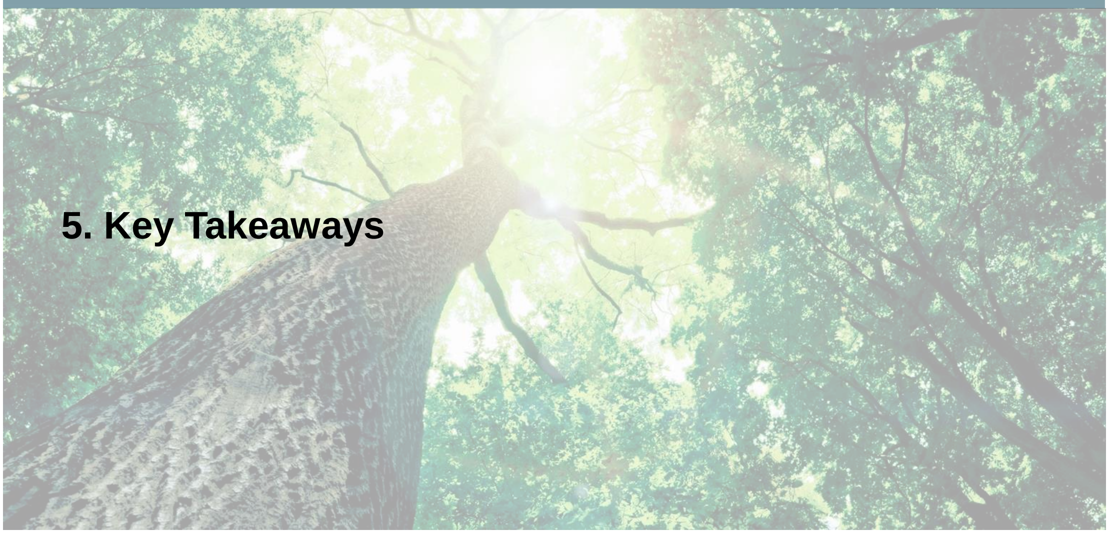
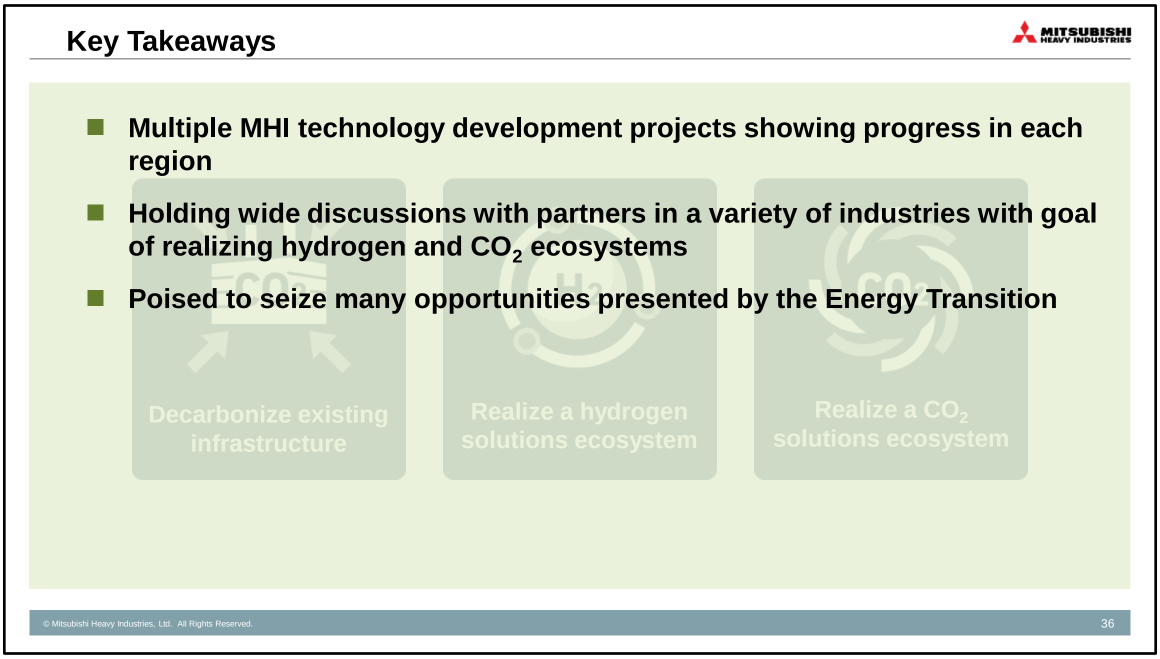
5. Key Takeaways





In summary, MHI's technology development is progressing steadily, particularly in the area of gas turbines.

Moreover, in the area of the hydrogen and CO2 solutions ecosystems, each project is very large, so it may be difficult to get off the ground without legislation and other arrangements in place. Right now, many parties are in the process of conducting a variety of studies, and we want to provide the right information and technology solutions to them.

The Energy Transition area is very important to MHI, and we intend to continue driving it forward.

This is the end of our presentation. Thank you very much.

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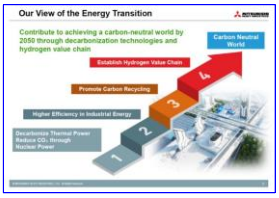
Past Briefings on the Energy Transition

Past Briefings on Business Strategy



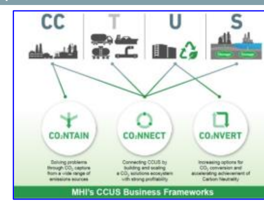
Energy Transition Strategy Briefing:
Energy Transition – New Frontier for MHI Group
(November 26, 2020)

Carbon Neutrality Briefing
(March 18, 2022)

2021 Medium-Term Business Plan Progress Briefing
(April 4, 2023)

Past Briefings on Individual Topics

Hydrogen Technology Virtual Tour
(June 14, 2021)



CCUS Briefing (October 12, 2021)