

Energy Company Business Overview and Initiatives for a Decarbonized Society

October 9, 2024

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Executive Officer

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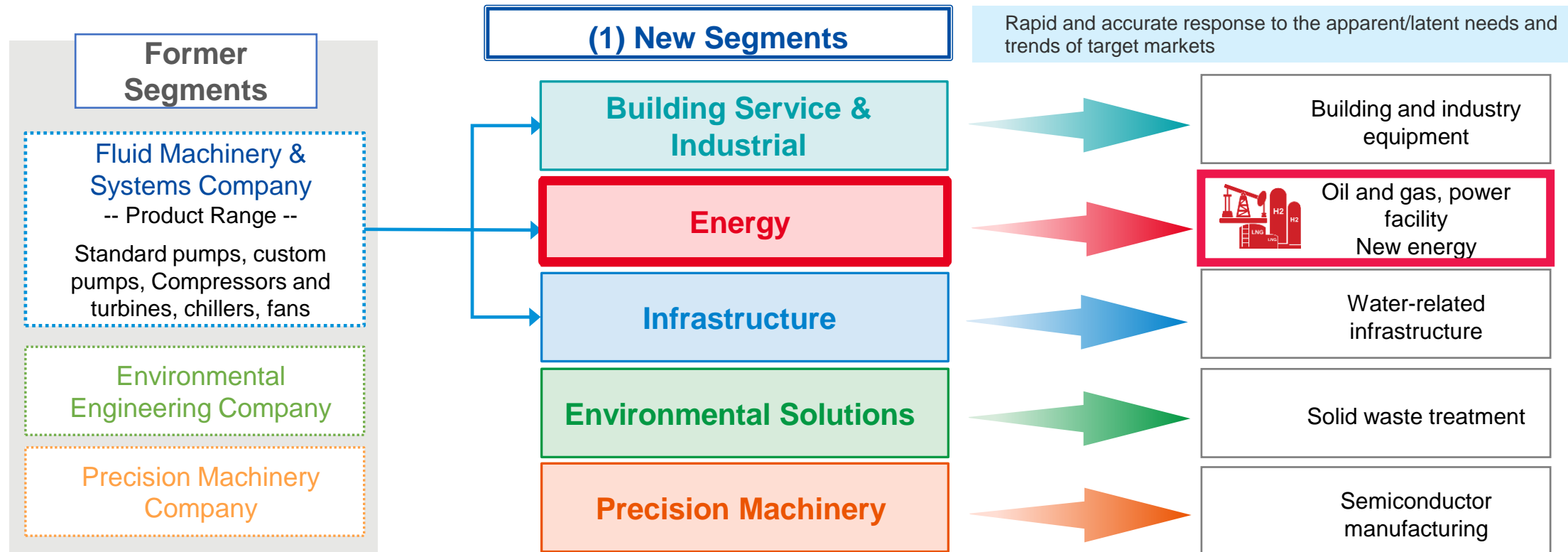
Chairman and CEO, Ebara Elliott Energy Holdings, Inc.

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Shift to Target Market-Based Structure

- To pursue customer-oriented value creation, in 2023 we shifted from a product-based structure to a target market-based structure
- We integrated the Custom Pump business and the Compressor & Turbine business to newly form the Energy Company



Energy Company Overview

■ Company Vision

Be the best solution provider in the energy sector by providing premier equipment and service, while actively leading sustainability efforts worldwide.

■ Major target markets

Oil and gas, electricity, hydrogen, ammonia, next-generation energy



■ Main products and services



Pumps

Provide products and services to energy-related facilities such as petrochemical plants and power plants. Supply the specialized pumps needed to realize a decarbonized society



Compressors and steam turbines

Used in Oil and gas, petrochemicals, LNG plants, new energy, and various other applications that require rotating machinery. Provide a broad product selection that response to customer needs.



Cryogenic pumps and expanders

Fulfill the role of transporting cryogenic temperature LNG, mainly at LNG liquefaction plants. Track record boasting the world's top share for deliveries in the cryogenic products domain, a field that requires advanced technology



Global services

Service and support function offering repairs and modifications, including parts, field services, and support for competitor products

Supporting the World with Energy Company Products and Services

Ability to provide solutions for various markets

- For water-related facilities
- For power plants
- For oil & gas plants (downstream)

Cryogenic pumps and expanders for LNG plants

Top global share



Oil & gas plant (downstream) compressors

Top global share



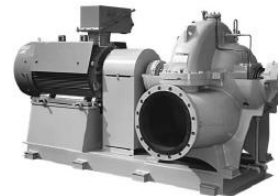
Custom pumps for oil & gas, chemical, and fertilizer markets

Over 54,000 units



Custom pumps for power plants

Over 16,000 units



Engineered compressors

Over 3,500 units

Engineered turbines

Over 1,400 units

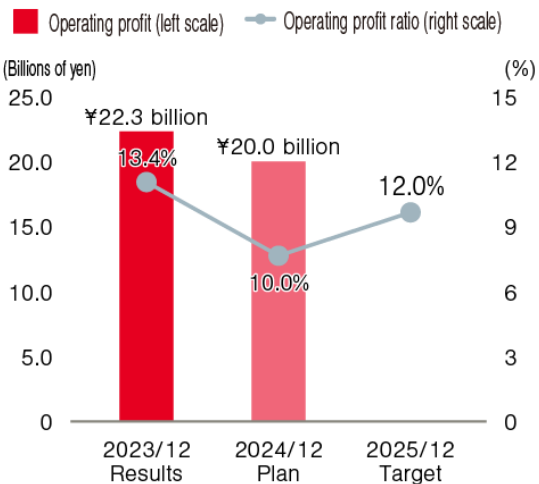
Energy Company Growth Strategy

■ Medium-Term Management Plan E-Plan 2025 Basic Policies

- 1** Establish new business models in the areas of sustainability and services to lead the shift to renewable energy and contribute to decarbonization
- 2** Make structural reforms to further improve profitability in existing business areas
- 3** Integrate Compressors & Turbines and Custom Pumps to deliver new value to customers and markets

Financial Targets and Results

Operating Profit Ratio: **12.0% or higher**

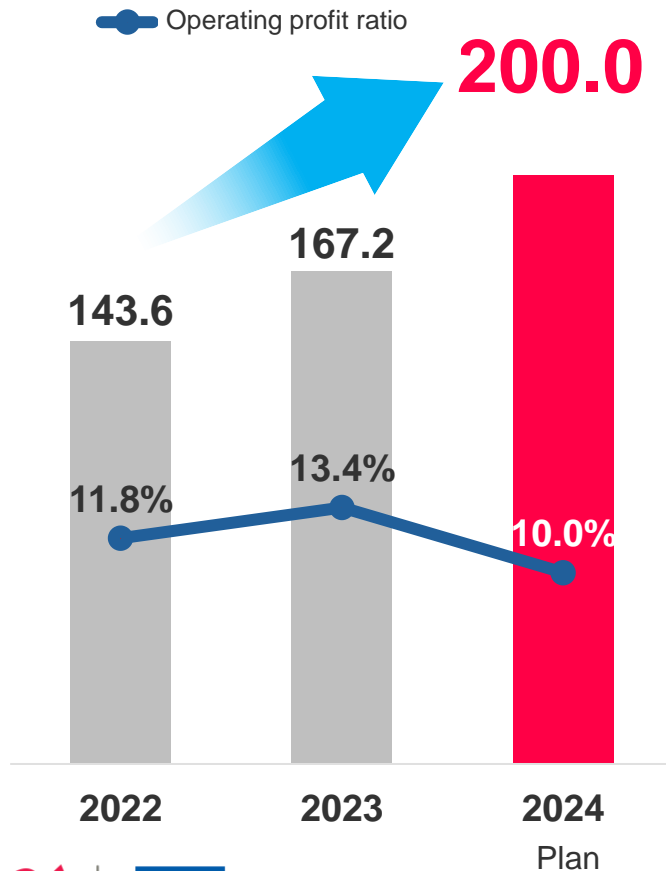


Non-Financial Goals, KPIs, and Targets

Related Materiality	2025 Outcome Goals	KPIs	2025/12 Targets	2023/12 Results	Measures and Future Initiatives
<p>1 Contribute to the creation of a sustainable society</p>	Reduce GHG emissions	Development and sales promotion of new pumps (ammonia pumps, injection pumps, etc.) for the decarbonization market	Achieve 100% of commercialization and sales targets	Completed product launch	Introduce products that reduce GHG emissions to the market and expand sales
		Development of new compressors for the decarbonization market	Achieve 100% commercialization	Continued product development	Promote R&D including resources

Energy Company Performance Trends

■ Trends in revenue (billions of yen)



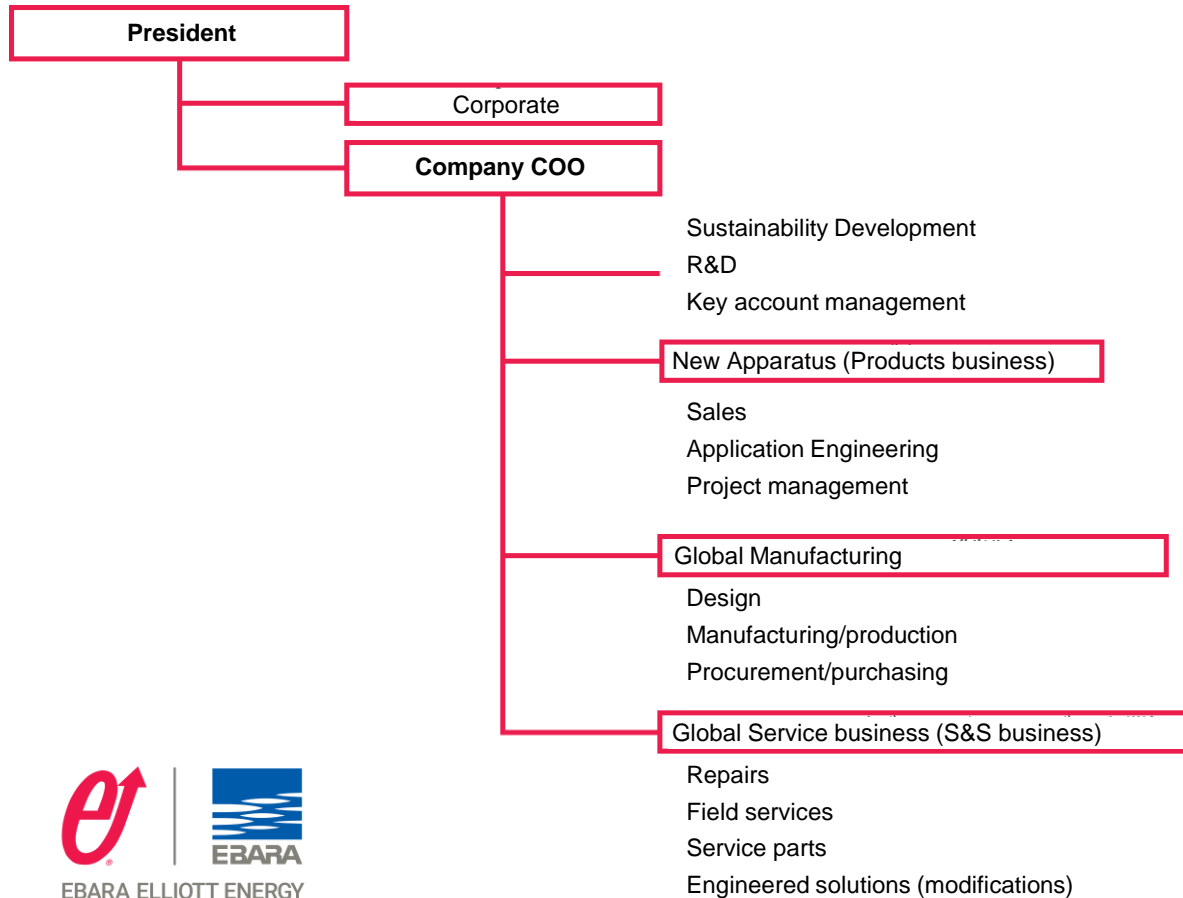
■ Highlights

- Products business and S&S business both recorded significantly increased revenue. New Apparatus (Products business) revenues increased thanks to the benefits of selective sales and our front-loading strategy and we captured strong S&S demand.
- Several large-scale orders received for compressors and cryogenic projects for North American LNG market
 - ⇒ Benefits of synergy from the integration of the Compressors & Turbines business and the Cryogenic business
- Orders received for 7 compressors, 3 steam turbines, and 13 custom pump units for a large petrochemical complex in Saudi Arabia
 - ⇒ Received praise from customers as a one-stop provider built on the company's various products and solutions
 - ⇒ Benefits of integrated synergy from transition to a function-specific organization focused on target markets
- In 2023, LNG accounted for 15% of Products business revenue
 - ⇒ Continue to address short and medium-term LNG demand while aggressively investing in sustainability domains and next-generation energy

Company Organization and Functions

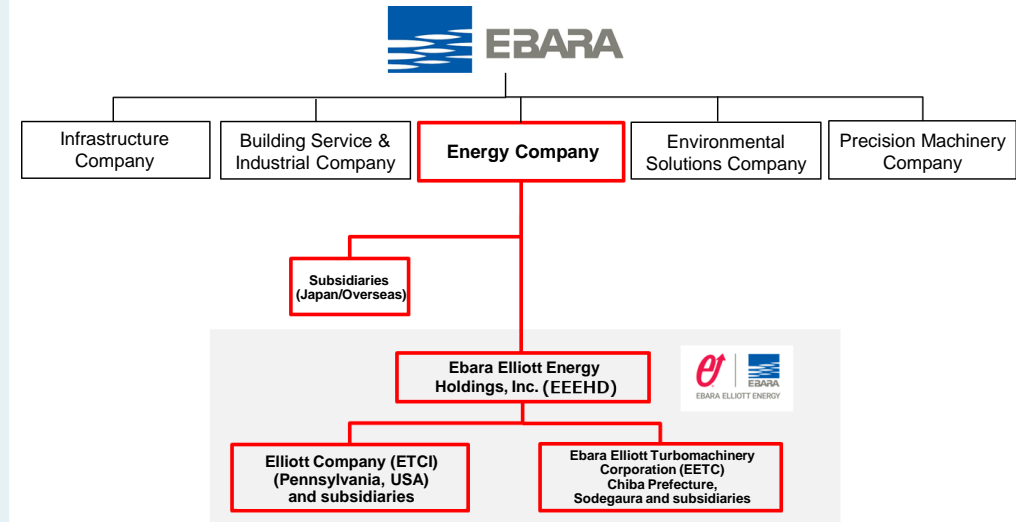
- Transitioned to a function-specific organization focused on target markets by integrating the Compressor & Turbine business and the Custom Pump business
- Provide comprehensive solutions by leveraging strengths of compressors and turbines for gases and pumps for liquids

<Function-specific Organizational Structure for Target Markets>



New Brand Identity | Ebara Elliott Energy

- ❑ In January 2024, Elliott Group Holdings, Inc. a business management company under the Energy Company, changed its name to Ebara Elliott Energy Holdings, Inc.
- ❑ Rebranded as Ebara Elliott Energy, embodying the integration of conventional Compressors & Turbines with Custom Pumps.



Global Base

- Build a strong global network by integrating Compressors & Turbines with Custom Pumps
- Optimize the service resources of Compressors and Turbines and Custom Pumps while advancing the development and expansion of the new S&S business.



New Sites/Flagship Base Expansion

(Details on next page)

- Established S&S base in Saudi Arabia (Started operations in 2Q/FY23)
- Relocated and expanded S&S site in Indonesia (Started operations in 2Q/FY24)
- Expanding S&S flagship site in Houston, Texas, USA (Planning to start operations in 2Q/FY25)
- Establishing S&S site in Abu Dhabi (Planning to start operations in 4Q/FY25)

Unprofitable Site Closure

- Closed certain S&S bases in Canada (Closed in 3Q/FY23)
- Closed S&S base in Guatemala (Closed in 1Q/FY24)

Compressors & Turbines:

■ Manufacturing site ■ Service center

■ Sales & service center

Pumps:

● Manufacturing site ● Service center

● Sales & service center



Global Bases – Integrated Synergy of Custom Pumps and Compressors & Turbines

■ Saudi Arabia Established S&S site

Established new service center in Dammam, Saudi Arabia through a joint venture between GAS Arabian Services* and Elliott Company, which operates under the Energy Company. Aiming to increase contact with customers and capture S&S demand in Saudi Arabia

- Started operations in 2Q/2023

*GAS Arabian Services: Provides products and services such as automation machinery, instruments, and field services, and provides project management services in fields such as Oil & Gas, petrochemicals, and water and desalination in Saudi Arabia



Photo of Saudi Arabia S&S site



Photo of Indonesia S&S site

■ Relocated and expanded new S&S site in Indonesia

Relocated new service center to Indonesia and upgraded facilities to leverage service resources for Custom Pumps and Compressors and Turbines and strengthen ability to capture S&S demand

- Mutually utilize technical knowhow for equipment, sales, Custom Pumps and Compressors and Turbines
- Started operations in 2Q/2024

Global Site – Integrated Synergy of Custom Pumps and Compressors & Turbines

■ Expanding S&S flagship site in Houston, Texas, USA

Improve S&S capabilities to expand the functionality of the Houston service center as a flagship site (Center of Excellence, COE) in the US region

- Expand existing building, modernize manufacturing equipment, and expand workshop to further capture S&S demand for Compressors and Turbines, Custom Pumps, and competitor products
- Operations planned to start: 2Q/2025



Composite image of completed S&S flagship site in Houston

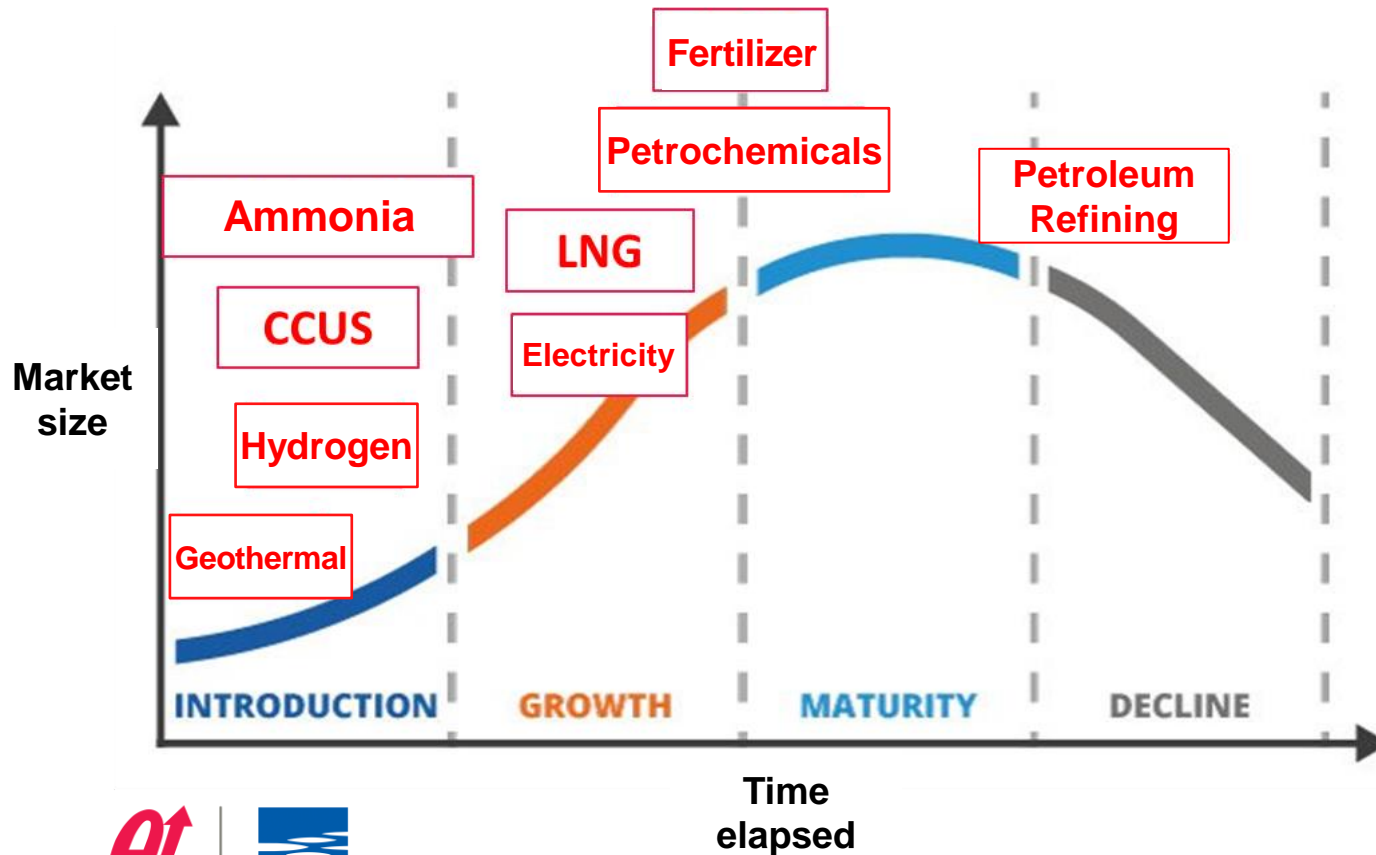
■ Constructing new S&S site in Abu Dhabi

Constructing new S&S site in Abu Dhabi, UAE to further capture S&S demand in the Middle East region, where we have a strong track record for deliveries of Custom Pumps and Compressors and Turbines

- Provide optimal solutions to customers in the Middle East regions, which is expected to see market growth
- In the future, we plan to equip the facility with manufacturing, training, and parts delivery functions to establish it as a flagship site for Europe, the Middle East, and Africa
- Operations planned to start: 4Q/2025

Market Trends and Projections

- Although the stage differs depending on the target segment, growth for new business markets is expected to accelerate due to decarbonization



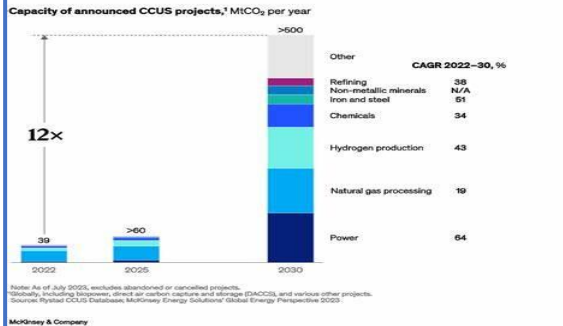
- Decarbonization aimed at achieving carbon neutrality will reduce demand for fossil fuels, but demand for LNG will increase over the short to medium term (2030)
- Petrochemical demand is increasing due to population growth in emerging economies
- New and renewable energy markets such as CCUS, hydrogen, geothermal, and ammonia are expanding
- New S&S demand due to lack of personnel, aging population, and aging equipment at customer facilities and plants

Sustainability and Decarbonization Trends and Outlook

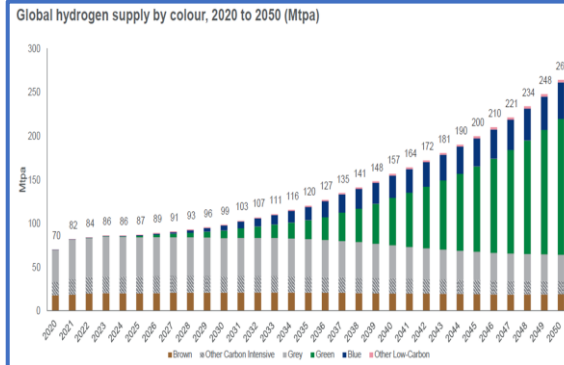
- Trend of decarbonization expected to expand in various fields in pursuit of a net-zero society

CO₂

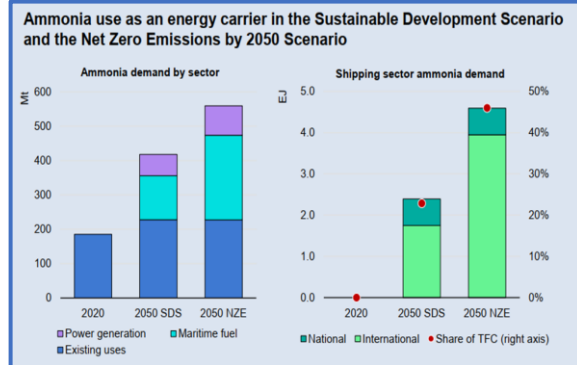
The CCUS market has seen a step change in planned projects over the last two years.



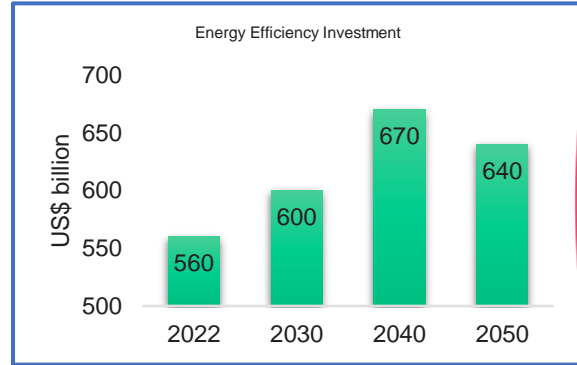
Hydrogen



Ammonia / E-Fuels



Energy efficiency



- In the short term, Europe and the US will lead investments in CCUS
- Government support such as the US Inflation Reduction Act (IRA) will accelerate investments
- Technology development is expected to further drive growth

- Green hydrogen and blue hydrogen may dominate the market in the future

- Trading volume trending upward for low-carbon products such as Ammonia, SAF, and methanol
- The acceleration of R&D is needed to drive innovation

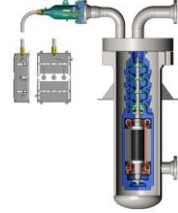
- Government policies expanding globally in response to demand for energy conservation
- Demand for energy conservation is trending upward
- Continuously expanding demand for energy conservation due to soaring fossil fuel prices

Energy Company Products that Contribute to the LNG Supply Chain

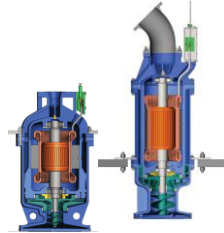
- Energy Company's strength lies in the ability to offer a comprehensive range of products for the LNG market
- In 2023, we received multiple large-scale orders for compressors and cryogenic pumps/expanders in the North American LNG market. We expect continued growth in orders received from the LNG market



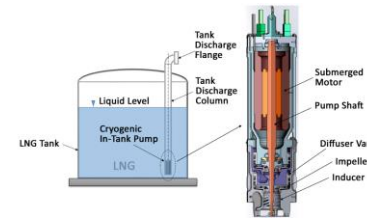
Single & Multi-stage Centrifugal Compressors



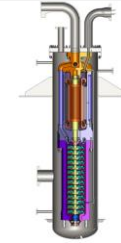
Single and Multi-phase Liquid Expanders



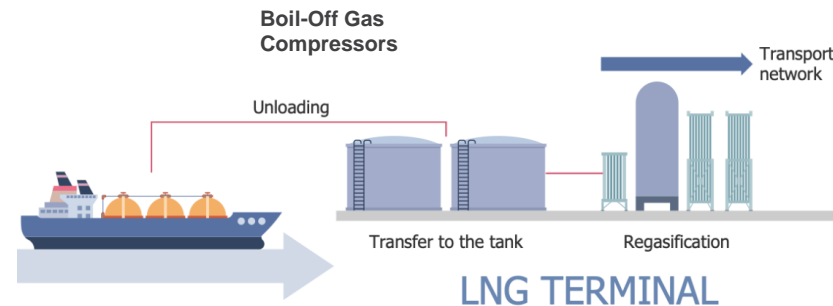
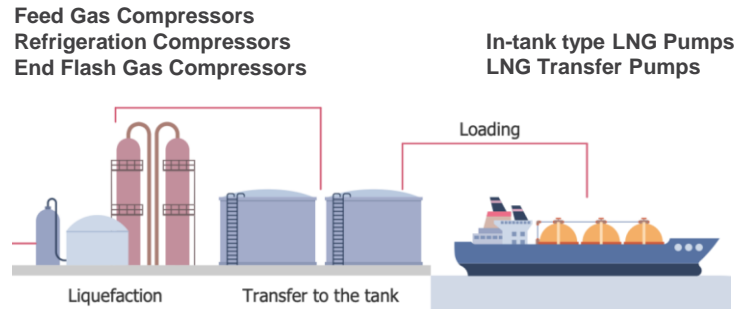
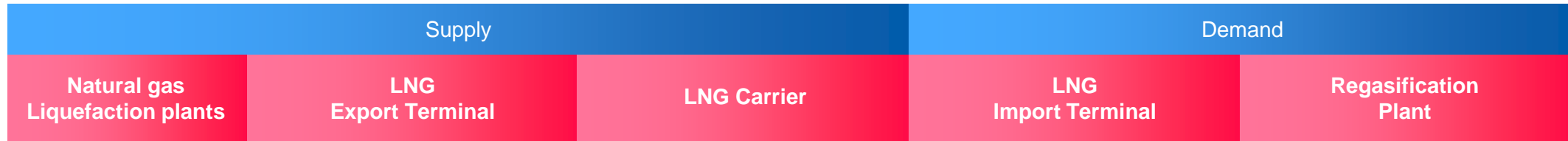
Marine LNG Pumps



In-tank LNG Pumps



Multi-stage LNG Booster Pumps



Liquid Expanders
2-Phase (liquid/Gas Expanders)

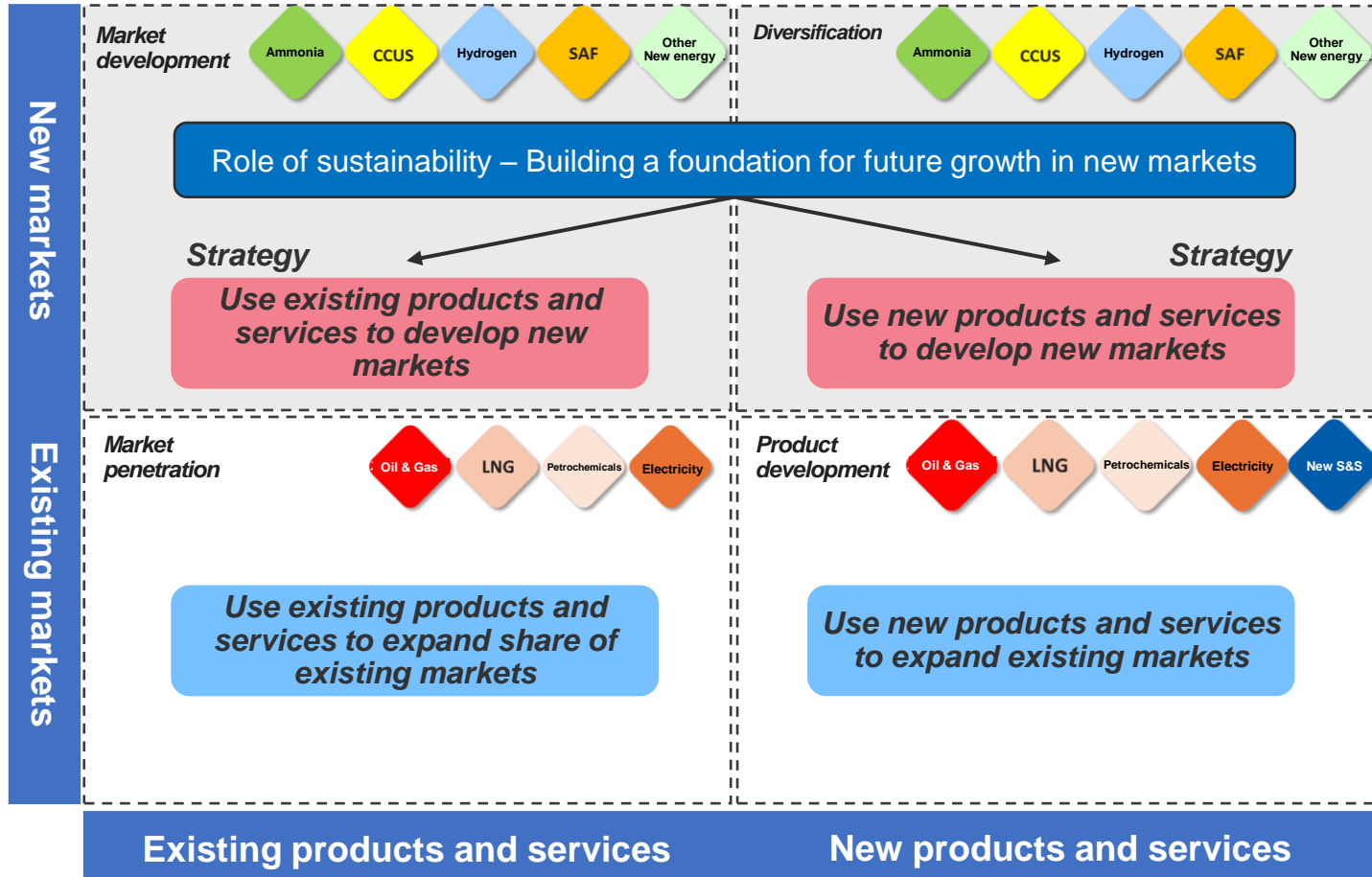
LNG Cargo Pumps
LNG Spray Pumps

LNG Receiving Terminal
In-tank type Pumps

LNG Booster Pumps

Sustainability Business Development Role and Strategy

- Established the Sustainability Business Development Team in 2023
- Team role: Establish a new business model for the sustainability and service fields
 - ✓ Build a foundation for future growth in new markets (hydrogen, ammonia, CCUS, SAF, etc.) and develop new businesses in new S&S fields



Main activities

- Ascertains customer needs in new markets, participates in projects from the early stages, and works with customers to build optimal solutions
- Develops products and builds business models for new markets and new S&S by gathering customer feedback (voice of customers, VOC) and making proposals for product differentiation to pioneer new markets
- Proposes solutions to solve customer problems and engages in joint development with customers
- Builds an ecosystem to lead sustainable growth (including M&A)
- Exhibits at trade shows and conferences and utilizes social media to increase Ebara Elliott Energy (EEE) brand awareness and presence in new markets to reach a wider customer base

Develop New Businesses in New S&S Fields

- Using data from customer sites, we are developing services that contribute to the long-term, stable operation of plants and help customers maximize profits from their corporate activities through the use of our rotating machinery diagnostic technology
- For commercialization, we are entering into partnerships with plant owners and companies in other industries (we have plans to enter into partnerships with several companies)

Target markets

Petrochemicals

Refinery

LNG

Fertilizer/Urea

Power generation

Customer problems

◆ Maximize plant revenues

Long-term, stable operations

Reduce maintenance costs

CO₂ reductions

Solutions

Diagnosis based on equipment and plant data

Consulting

- ✓ Monitoring
- ✓ Signs of malfunctions
- ✓ Service life projections
- ✓ Optimal operations

Parts/Repairs/Modifications

Strengths

- Rotating machinery manufacturer
 - ✓ Strong track record
 - ✓ Knowledge and experience
 - ✓ Brand strength
- Global service network
- Provide diverse services



Sustainability Business Development Results

■ Main results

Order received for sustainable aviation fuel project

- Received a compressor order for the first sustainable aviation fuel (SAF) project in Thailand.
- This project involves a SAF production unit that uses 100% used cooking oil
- Through SAF production, it is possible to reduce greenhouse gas emissions by approximately 80,000 tons per year

Started efforts to commercialize remote monitoring and predictive diagnosis with four customers

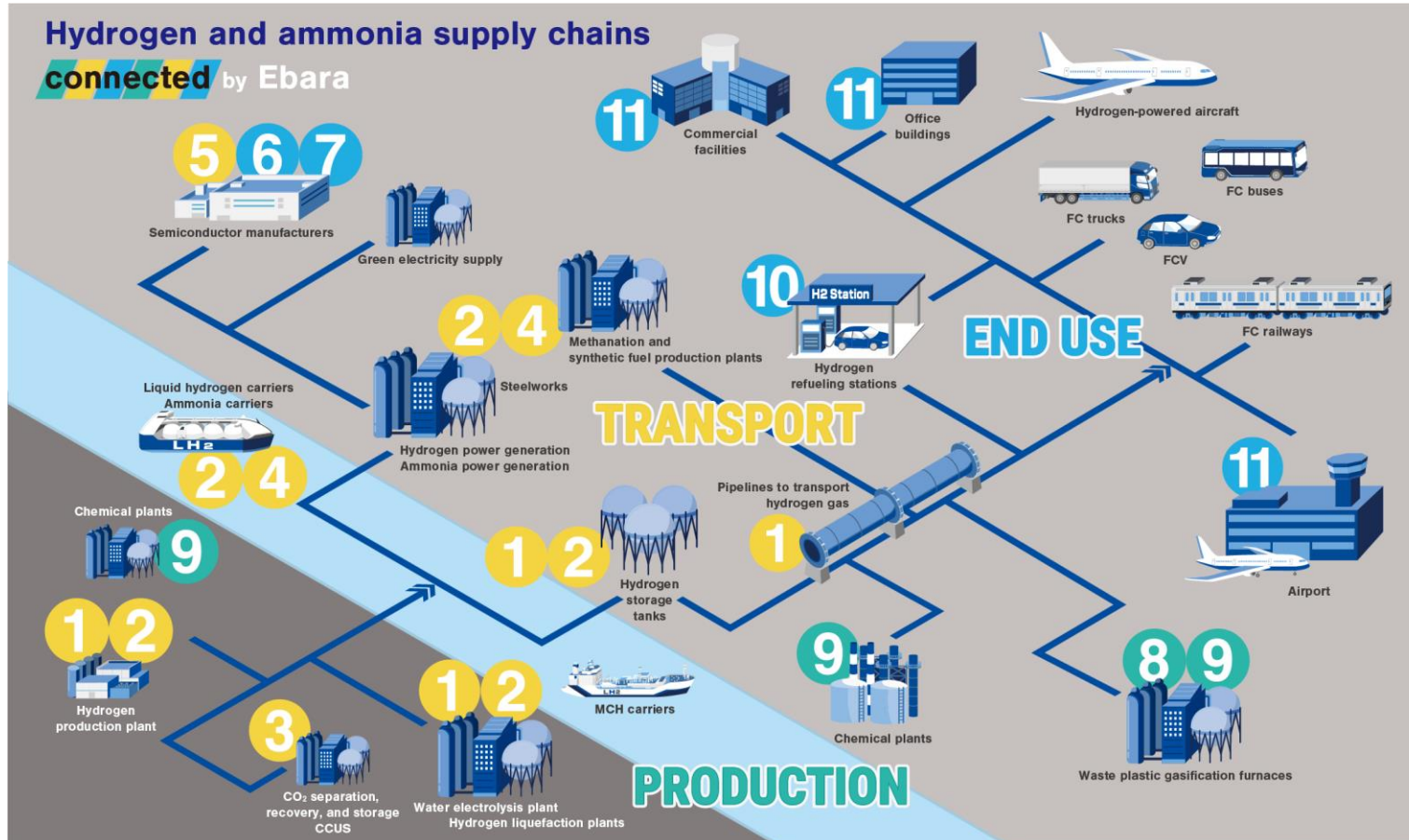
- To commercialize new S&S business, we have agreed to work on remote monitoring and predictive diagnosis with the cooperation of four customers. Through this work, we will demonstrate services that resolve customer problems (partially underway)

Currently evaluating joint development with two customers

- Ebara Elliott Energy (EEE) has approached over 40 existing and new customers to gather information on customer needs in new markets
- Among those, we are currently evaluating prospects for developing solutions jointly with two customers

Energy Company Hydrogen, CO₂, and Ammonia Solutions

- Working to decarbonize supply chains, we are steadily establishing new business models, including product development, in the sustainability field. We are leveraging the special fluid pressurized pumping technology and cryogenic temperature control technology cultivated through our work on pumps and compressors and turbines



<Red boxes are Energy Company products>

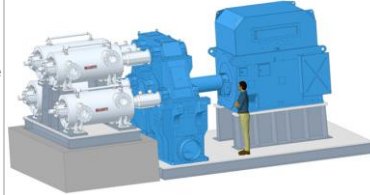


<p>Hydrogen gas compressor and return gas blower (RGB)</p> <p>1</p>	<p>Liquid hydrogen transport</p> <p>2</p>	<p>Large-scale CO₂ transport and compression</p> <p>3</p>
<p>Ammonia transport</p> <p>4</p>	<p>Pumps for semiconductor manufacturing</p> <p>5</p>	<p>Gas abatement through use of hydrogen as fuel</p> <p>6</p>
<p>Technology for the high-speed flow of hydrogen as fuel</p> <p>7</p>	<p>Hydrogen production from waste</p> <p>8</p>	<p>Turquoise hydrogen production</p> <p>9</p>
<p>Pumps for hydrogen refueling stations</p> <p>In development</p> <p>10</p>	<p>Hydrogen gas driven absorption chiller / heater</p> <p>11</p>	



Energy Company Hydrogen, CO₂, and Ammonia Products

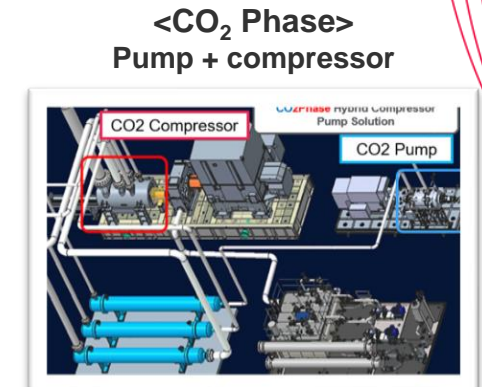
- Steadily expanding our product selection to build a decarbonized supply chain that contributes to carbon neutrality
- Advancing preparations for market launch of new solutions by leveraging advanced technology and experience

Initiatives for bringing new solutions to market

Market launch of developed products	<ul style="list-style-type: none"> System for CCS <ul style="list-style-type: none"> Pump and compressor packages
Accelerate development of products scheduled for market launch	<ul style="list-style-type: none"> Compressors for hydrogen and industrial gas Pumps for the ammonia market
Product development for future markets	<ul style="list-style-type: none"> Develop products for deep geothermal power generation Develop products for solar power generation

Product	H ₂ compressor (Flex-OP)	Leak-free ammonia canned pump	H ₂ compressor
Appearance			
Application	<ul style="list-style-type: none"> Hydrogen/ammonia plants Hydrogen mixed-source/single-source power generation Hydrogen transport (Pipeline) 	<ul style="list-style-type: none"> Ammonia conversion/single-source power generation Ammonia production plant 	<ul style="list-style-type: none"> Liquefied hydrogen plant Hydrogen mixed-source/single-source power generation Synthetic Fuel Plant (SAF)

Product	CO ₂ (injection) pumps	CO ₂ compressor
Appearance		
Application	<ul style="list-style-type: none"> CO₂ storage CO₂ transfer (Pipeline) 	<ul style="list-style-type: none"> CO₂ storage CO₂ transfer (Pipeline)



Energy Company Hydrogen and Ammonia Solutions

- To contribute to a decarbonized society through hydrogen, we are launching/expanding our selection of products that can broadly cover production, transportation, and use
- Currently developing a highly efficient and space-saving hydrogen compressor

Make

H2 manufacturing/generation

- Hydrogen compression during hydrogen production



Flex-OP

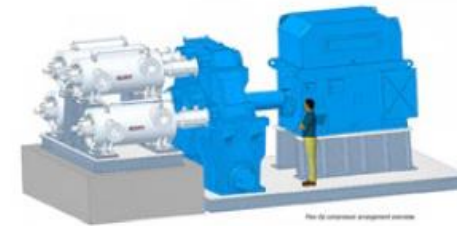
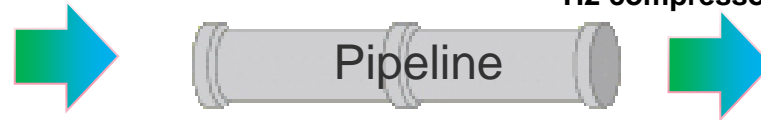
Transport

Compressed H2 transport

- H2 Gas transport (Pipeline)
- Liquefied hydrogen



H2 compressor



Flex-OP

Use

H2 Utilization

- Synthetic fuel (synthetic NH3/SAF)
- Hydrogen reduction ironmaking
- Thermal power generation (hydrogen)
- Thermal power generation (NH3)



H2 compressor



leak-free ammonia canned pump

Energy Company CO₂ Solutions

- Leveraging both pump and compressor technology to expand our selection of products that contribute to a decarbonized society in a wide range of fields
- Currently developing a highly efficient and space-saving industrial gas compressor

Collect

CO₂ separation and recovery

- CO₂ capture before and after combustion



Amine pump

Transport

Compressed CO₂ transport

Gas/Supercritical CO₂ transport



CO₂ compressor



Pipeline



Pump for liquefied transport

Store/Use

CO₂ storage

- Enhanced oil recovery (EOR)
- CO₂ underground injection (CCS)

CO₂ Utilization

- Waste heat recovery (heat pump)
- Synthetic fuel (methanation/SAF)



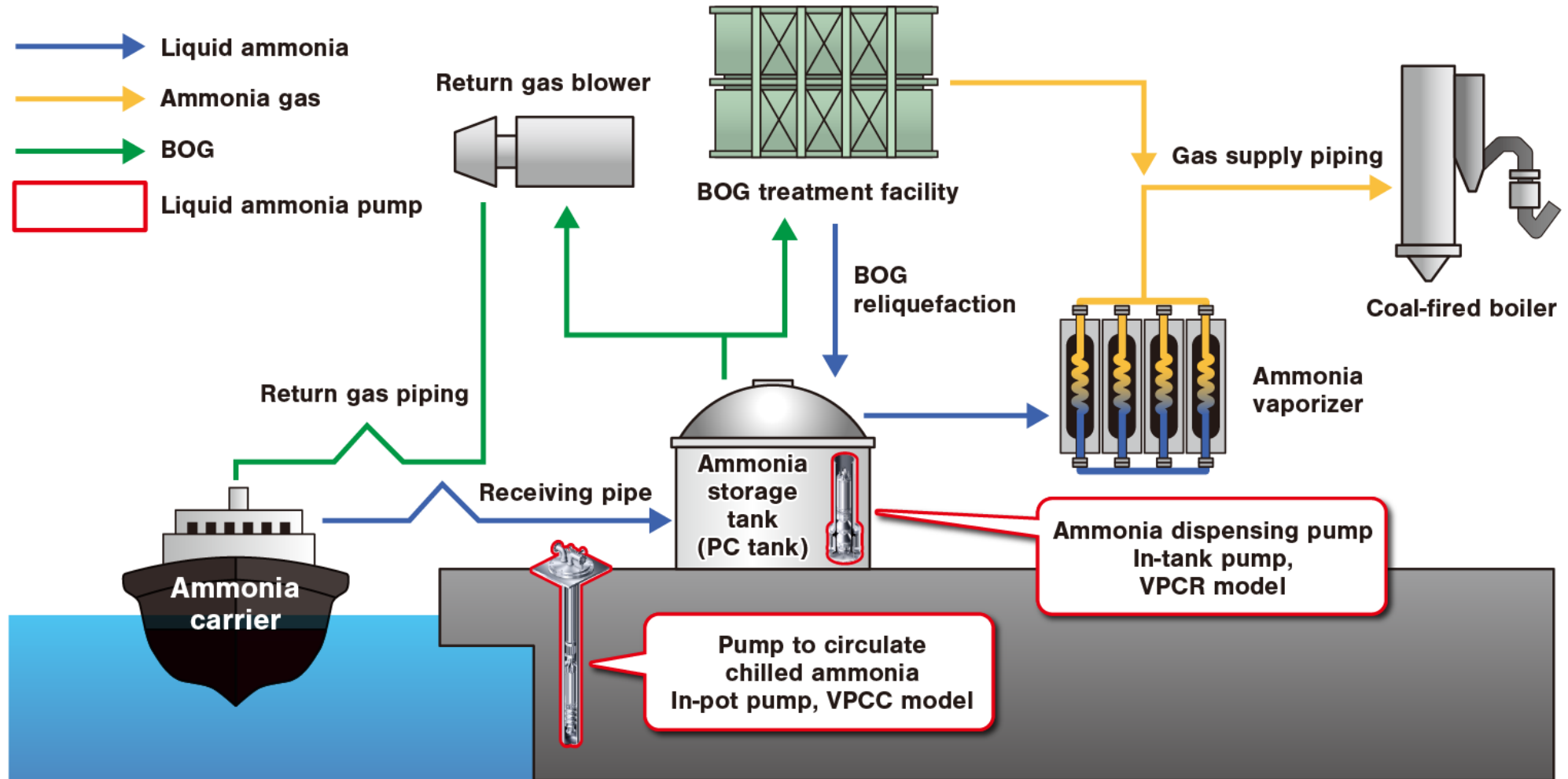
CO₂ compressor



Pump for liquefied transport

Ammonia Power Generation Usage Example (coal thermal power generation)

Flow diagram of liquid ammonia pump intake, storage, and discharge



「Successful Operation of Canned Motor Pump for Liquid Ammonia」

- EBARA CORPORATION (EBARA) announces the successful operation of its new leak-free canned motor pump for liquid ammonia*¹, which features a newly developed structure introduced in September 2023. The product was delivered to JERA Co., Inc.'s Hekinan Thermal Power Station for demonstration of fuel ammonia substitution, and it successfully operated using liquid ammonia on-site.

1. Background

Amid the global trend towards decarbonization, ammonia is expected to be effective in reducing greenhouse gasses not only as an energy carrier that can transport hydrogen cost-effectively and efficiently but also as a fuel that does not emit CO₂ during combustion. However, due to its toxic and odorous nature, safe handling of ammonia is essential. To contribute to the safer transfer of actual liquid ammonia compared to conventional products, EBARA developed this leak-free pump with a new structure in 2023*².

2. Overview

The delivered product features a design where even the motor part is immersed in liquid ammonia, allowing it to operate without leaking liquid ammonia externally. In this demonstration test, the product was installed in an outdoor environment at the power plant and operated using liquid ammonia under various patterns and loads. In all cases, the product achieved excellent results in terms of performance and functionality. During operation, it was quieter compared to conventional products, and there were no leaks of liquid ammonia, confirming not only the reliability of its design but also its safety and environmental benefits. The product will continue to be used in the demonstration tests for fuel ammonia conversion scheduled until June 2024.

3. Future Plan

The utilization of ammonia aimed at reducing greenhouse gasses (CO₂) is being planned globally, and the demand for leak-free pumps is expected to expand throughout the entire supply chain, including thermal power plants.

EBARA is one of the world's leading pump manufacturers and has extensive experience in handling low to cryogenic temperature liquids. We will use this experience to support the use of alternative fuels, such as fuel ammonia, throughout supply chains.

The EBARA Group aims to contribute to the achievement of the Sustainable Development Goals (SDGs) by addressing material issues identified in its long-term vision and executing the medium-term management plan to increase corporate value.



*1 Conducted by JERA Co., Inc. and IHI Corporation as part of a subsidy project by NEDO (New Energy and Industrial Technology Development Organization).

*2 "Development of a Canned Motor Pump for Liquid Ammonia" published on our website on November 20, 2023

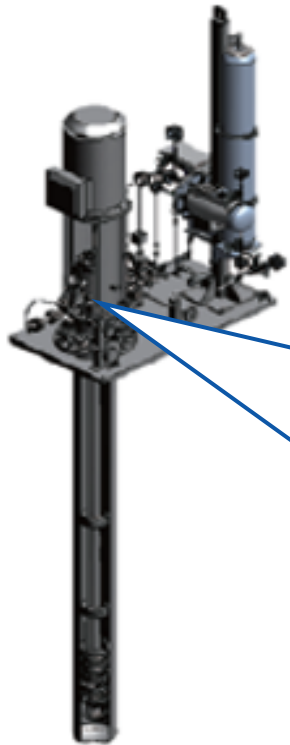


Picture of Test

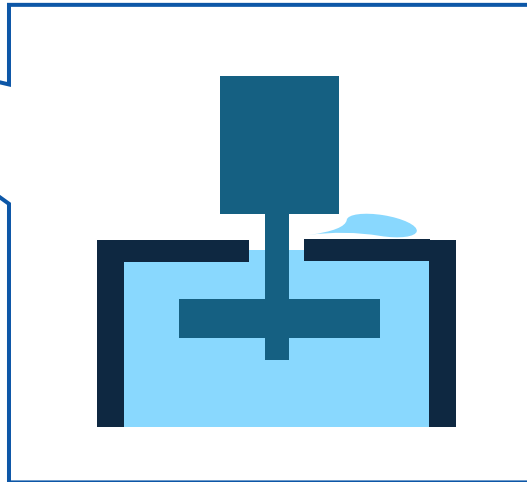
Features of Ammonia Pumps

- Ammonia has a strong odor and is toxic, so the prevention of leakage is critical
- We use a structure that minimizes the risk of leakage to ensure safe transport of liquid ammonia

■ Conventional pump



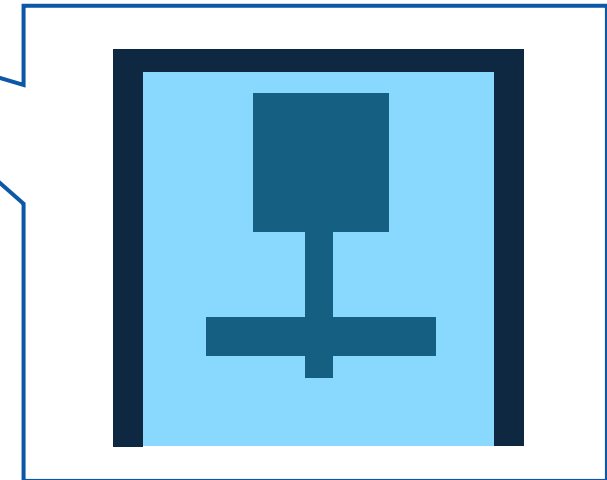
- Since the motor is placed in the atmosphere, there is a risk of leakage between it and wetted parts



■ Leak-free pump (uses canned motor)



- Leak-free operation achieved by embedding the motor inside the pump



Summary

▪ Megatrend: Decarbonization

- Short- and medium-term demand for LNG will increase
- New energy and renewable energy markets such as CCUS, ammonia, and hydrogen are growing

▪ Energy Company Strengths

- Superiority as a one-stop provider of various products and solutions to meet customer needs
- Strong global network through the integration of compressors & turbines with custom pumps
- Strong track record and wide range of critical equipment such as compressors, turbines, and custom pumps for LNG and petrochemicals
- Proximity to end users, EPC, and process licensors
- Providing comprehensive, quality services and support
- Excellent high-speed rotating machinery technology, cryogenic temperature technology, materials technology, and production technology

We will create new value required in the next-generation energy market and lead the building of a sustainable society as the “best solution provider.”

Disclaimer

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