

MOVE THE WORLD FORWARD  **MITSUBISHI
HEAVY
INDUSTRIES
GROUP**

MHI GROUP IN ASIA PACIFIC



MOVE THE WORLD FORWARD **MITSUBISHI
HEAVY
INDUSTRIES
GROUP**



MISSION NET ZERO

Mitsubishi Heavy Industries Group will contribute
to the realization of net zero for society as a whole.



MITSUBISHI HEAVY INDUSTRIES ASIA PACIFIC PTE. LTD.

"MISSION NET ZERO"
Special Site



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MHI Group at a Glance

Financial Capacity & Highlights

US\$ 1.86 BN

*Profit from Business Activities

US\$ 30.8 BN

*Annual Revenue

257 Domestic & Overseas
Companies
(As of September 30, 2023)

77,697 Employees
Worldwide
(As of March 31, 2024)

* Estimated at the approximate exchange rate of JPY151.4, as at March 31, 2024

Services & Solutions

Experts in Manufacturing & Engineering



Commercial Aviation
Systems



Energy Systems



GX Solutions



Integrated Defense &
Space Systems



Logistics, Thermal &
Drive Systems



Machinery
Systems



Nuclear Energy
Systems



Plants & Infrastructure
Systems

About MHI Group in Asia Pacific

Headquartered in Singapore, MHI Group in Asia Pacific supports the growth of markets in Australia, Indonesia, Myanmar, Philippines, Singapore, Thailand, Vietnam and other parts of the region.

Building on MHI's global outlook and deep local insights, MHI Group in Asia Pacific seeks to deliver innovative, integrated, and reliable solutions for energy and utilities, logistics and mobility, as well as urban development and infrastructure, to achieve MISSION NET ZERO and realize a safe, secure, and comfortable world.

Vision

Lead and advance the decarbonization and energy transition journey of our key stakeholders in APAC using our cutting-edge technologies and expertise to enrich people's lives.

Mission

Contribute to MISSION NET ZERO and build a safe, secure, and comfortable world by collaborating with partners to decarbonize existing infrastructure, develop net-zero solutions and value chains, and tailor solutions to local realities to address societal issues in the region.

Purpose

The MHI Group in Asia Pacific strives to:

- Drive the APAC energy transition with effective decarbonization solutions to meet diverse local needs and achieve a carbon-neutral world.
- Provide smart infrastructure solutions across industries to enhance quality of life, including data centers, logistics, mobility, cold chain, and manufacturing supply chain solutions.

40
Offices*

5,794
Employees**

US\$4.9 BN
in Revenue***

*Excluding the companies in China, Hong Kong, India, Korea, Taiwan and regional branches in Southeast Asia and Oceania

**Figures for 2024 are different from 2022 as it does not include employees and offices in India

***Revenue reflects South Asia, China, India and Oceania markets. Estimated at the approximate exchange rate of JPY151.4, as at March 31, 2024.



MHI Group in Asia Pacific

Headquartered in Singapore, the operations of MHI Group in Asia Pacific span a breadth of MHI global offerings, from energy to air conditioning, turbochargers and forklifts.

BANGLADESH

Bangladesh

- Mitsubishi Power Asia Pacific Pte. Ltd. Bangladesh Branch

THAILAND

Bangkok

- Mitsubishi Heavy Industries (Thailand) Ltd.
- Mitsubishi Heavy Industries Mahajak Air Conditioners Co., Ltd.
- Mitsubishi Power (Thailand) Ltd.
- Primetals Technologies Austria GmbH (Branch office in Thailand)

Chachoengsao

- Thai Compressor Manufacturing Co., Ltd.
- MHI Automotive Climate Control (Thailand) Co., Ltd.

Chonburi

- Mitsubishi Turbocharger Asia Co., Ltd

Pathumthani

- EGAT Diamond Service Co., Ltd.
- ABP Induction Limited.

Rayong

- Logisnext Manufacturing (Thailand) Co., Ltd.

Samutprakarn

- Nichiyu Asia (Thailand) Co., Ltd.

MALAYSIA

Kuala Lumpur

- Mitsubishi Heavy Industries, Ltd. (Kuala Lumpur Office)
- MHI Energy & Environment (Malaysia) Sdn. Bhd.
- Mitsubishi Power Asia Pacific Pte. Ltd. Malaysia Branch

Selangor

- TOYO CR SDN. BHD.

SINGAPORE

- Mitsubishi Heavy Industries Asia Pacific Pte. Ltd.
- Mitsubishi Heavy Industries Engine System Asia Pte. Ltd.
- Mitsubishi Logisnext Asia Pacific Pte. Ltd.
- MHIEC Eco Creation Singapore Pte. Ltd.
- Mitsubishi Power Asia Pacific Pte. Ltd.
- MHI Capital Asia Pacific Private Ltd.
- Mitsubishi Heavy Industries Asia Pacific Pte. Ltd. (Ang Mo Kio Office)
- TuasOne Pte. Ltd.



VIETNAM**Hanoi**

- Mitsubishi Heavy Industries Vietnam Co., Ltd. Hanoi Head Office
- MHI Power Project Vietnam Co., Ltd.
- MHI Aerospace Vietnam Co., Ltd

Ho Chi Minh

- Mitsubishi Heavy Industries Vietnam Co., Ltd. Ho Chi Minh City Branch Office
- Primetals HCMC Liaison Office

Binh Duong

- MHI Engine System Vietnam Co., Ltd

PHILIPPINES**Metro Manila**

- Mitsubishi Heavy Industries Asia Pacific Pte. Ltd. Manila Representative Office
- Mitsubishi Heavy Industries Asia Pacific Pte. Ltd. Manila Branch
- TES Philippines, Inc.
- MHI Engine System Philippines, Inc.
- Mitsubishi Power Asia Pacific Pte. Ltd. Philippines Branch
- MHI Power Technical Services Corporation

Batangas

- Mitsubishi Power (Philippines), Inc.
- MHI Power (Philippines) Plant Services Corporation

INDONESIA**Jakarta**

- PT. Mitsubishi Heavy Industries Indonesia
- PT. Mitsubishi Power Indonesia
- PT. MHI Engine System Indonesia

Surabaya

- PT. Power Systems Service Indonesia

AUSTRALIA**Sydney**

- Mitsubishi Heavy Industries Australia, Pty. Ltd.
- Mitsubishi Heavy Industries Air-Conditioners Australia, Pty. Ltd.
- Mitsubishi Power Australia, Pty. Ltd.

Product Portfolio in Asia Pacific

This section highlights our key products available in the Asia Pacific region. Scan the QR code for more information on the featured product. Visit our website at <http://www.mhi.com> for our full range of technological solutions.



Automated Guideway Transit

The Automated Guideway Transit is a fully automated, driverless transport system. Vehicles are equipped with rubber tires that reduce noise and vibration to lower its impact on the surrounding environment. The system offers high flexibility in route planning for urban transit and acts as an alternative to conventional rail due to its ability to operate on steeper slopes and move around tighter bends. The Technical Service Business Unit in MHI-AP provides after-sales service support for the transportation system provided by MHI.

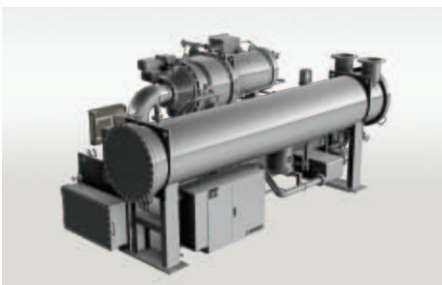


Battery Forklift

Mitsubishi Logisnext provides material handling solutions that are developed, designed, and manufactured in-house. Some of its products include electric and engine-powered forklift, Automated Guided Vehicles (AGV), telematics and other logistics equipment and systems.

Internal Combustion Pneumatic Tyre Truck

Mitsubishi Forklift Trucks' new Grendia model includes an innovative engine system that offers exceptional fuel efficiency and minimal emissions, exceeding global eco-standards. Prioritizing operator well-being and safety, each Grendia forklift features an Integrated Presence System (IPS) to reduce accident risks, along with LCD graphic displays and digital monitoring systems.



Centrifugal Chiller

A centrifugal chiller offers an excellent solution for energy saving, environmental protection, and cost reduction in various industries. From semiconductor and automotive manufacturing plants to chemical factories, hotels, hospitals, shopping malls, airports, district cooling systems, and sports facilities, centrifugal chillers play a critical role in supplying chilled water and maintaining consistent temperatures. They support technological advancements and ensure the comfort of modern society. The Refrigeration Systems Business Unit at MHI-AP sells centrifugal chillers in Singapore and provides after-sales service support to customers in Thailand, Malaysia, Indonesia, Vietnam, and Singapore.



CO₂ Capture Solutions

MHI's CO₂ Capture Technology aims to achieve large-scale greenhouse gas emission reduction by employing the KM CDR PROCESS™ technology, developed by MHI Group and The Kansai Electric Power Co., Inc. The CO₂ capture plant utilizes MHI's proprietary solvents, such as KS-1™. The plant features several key components: a flue gas quencher, CO₂ absorption and regeneration, CO₂ compression, and various utilities. It has been successfully implemented in over a dozen projects globally, demonstrating its effectiveness and commercial viability.



Compressors and Mechanical Turbines

Compressors and turbines are types of "turbomachinery" that perform continuous energy conversion between fluid energy and mechanical energy using rotating impellers. Machines such as fans, propellers, gas turbines, pumps, water wheels, windmills, jet engines, and automobile turbochargers are also types of turbomachinery. Compressors compress and pressurize the air and gas necessary for production at facilities such as chemical plants, gas plants, and steelworks, as well as the steam turbines that drive these compressors. These products play a crucial role in the energy and petrochemical industries worldwide.

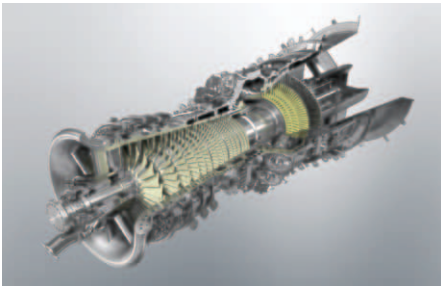


Electronic Road Pricing

The Electronic Road Pricing (ERP) system is a type of Road User Charging (RUC) system that enables the control of traffic demand by making the best use of a road network system. The next-generation ERP system is an advanced solution that uses global navigation technology to better manage traffic congestion, while providing a technology platform for developing useful value-added services that offer greater convenience to motorists.

Product Portfolio in Asia Pacific

This section highlights our key products available in the Asia Pacific region. Scan the QR code for more information on the featured product. Visit our website at <http://www.mhi.com> for our full range of technological solutions.



Gas Turbine

The gas turbine is the internal-combustion engine at the core of Gas Turbine Combined Cycle (GTCC) power plants. MHI Group has extensive experience in developing gas turbines and has integrated the latest technologies in aerodynamics, cooling design and materials to create a variety of highly efficient and reliable products. The state-of-the-art J-series gas turbines have consistently led the world, achieving the world's largest capacity and highest efficiency with a turbine inlet temperature of 1,600°C.



Generator Set

Mitsubishi Heavy Industries Engine System Asia (MHIES-A) specializes in offering a diverse array of engine and generator set configurations tailored to meet the specific needs of various applications. Their product lineup encompasses diesel generator sets, gas generator sets, and marine engines, ensuring robust power solutions across a wide spectrum of industries. Whether it's powering inland shipping operations, providing critical backup for data centers, or supporting continuous decentralized power plants, MHIES-A delivers reliable power security with precision-engineered solutions.



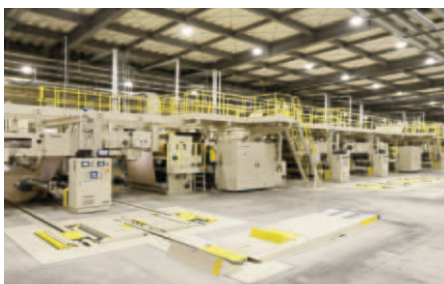
Marine Machinery

Mitsubishi Heavy Industries Marine Machinery and Equipment (MHI-MME) offers an extensive range of marine machinery products designed to meet the diverse needs of the marine industry today. Our products and services include boilers, turbines, MET Turbochargers (pictured above), steering gears, propellers, and fin stabilisers, as well as various energy-saving solutions for GHG reduction, such as propeller retrofitting and waste heat recovery systems. The Marine Machinery Business Unit in MHI-AP carries out commercial activities for both new buildings and after-sales, leveraging MHI Group's local networks to provide high-quality products and services for our customers.



Organic Rankine Cycle (ORC) System

Turboden, a Mitsubishi Heavy Industries Group Company, is an Italian firm and a global leader in the design, manufacture, and maintenance of Organic Rankine Cycle (ORC) systems. Turboden ORC system is based on an innovative closed thermodynamic cycle for the flexible and distributed production of electric and thermal power. This ORC technology is particularly suitable for distributed generation close to the point of energy use, utilizing turbogenerators that convert thermal energy into electrical power without the need for water or steam. Turboden's ORC systems exploit various heat sources to generate electricity and heat, such as renewable energies (like biomass and geothermal energy), traditional fossil fuels, waste heat from industrial processes, waste incinerators, engines, or gas turbines. The ORC system is compact, reliable, and easy to maintain.



Paper Converting Machinery

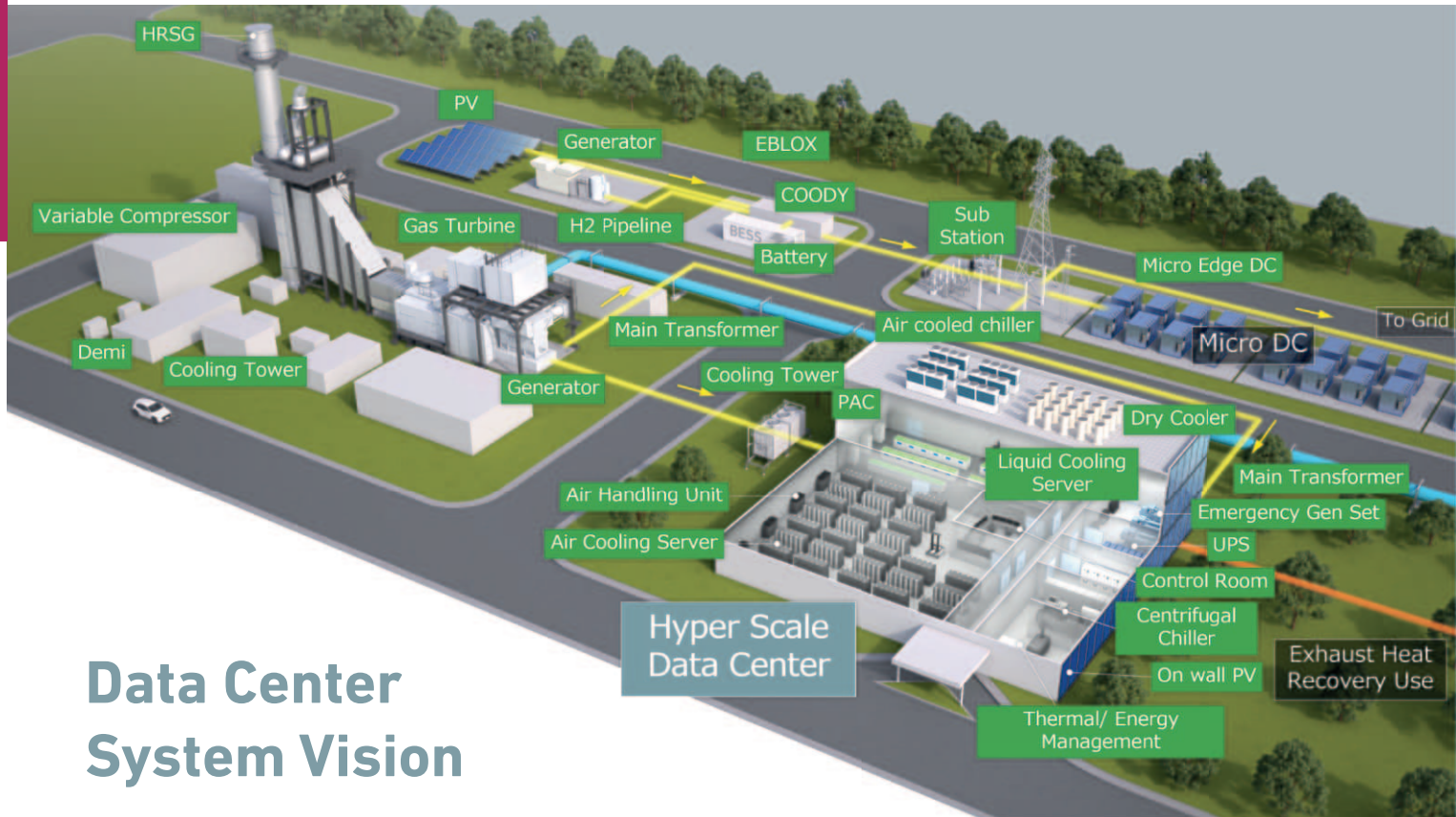
Mitsubishi Heavy Industries Machinery Systems (MHI-MS) has been developing and manufacturing corrugating machinery and box making machines since 1956. The corrugators efficiently convert rolled paper into large sheets of corrugated board. The box making machines then print on corrugated board sheets and shape them into corrugated board boxes. Corrugated box is an essential part of everyday life, providing an effective and renewable source of packaging and shipping material for a wide range of products. MHI-MS's paper converting machinery supports global logistics and packaging needs, ensuring the safe transport and protection of goods.



Waste-to-Energy Plant

Mitsubishi Heavy Industries Environmental & Chemical Engineering (MHIEC) is a world leading engineering company in the field of Waste-to-Energy (WtE) system. It contributes to sustainable development by providing one-stop solutions for WtE plants, including investment, engineering, procurement, construction, operation, and maintenance. Its reliable technologies have delivered and constructed more than 200 plants since 1964.

Solutions for Data Center



Data Center System Vision

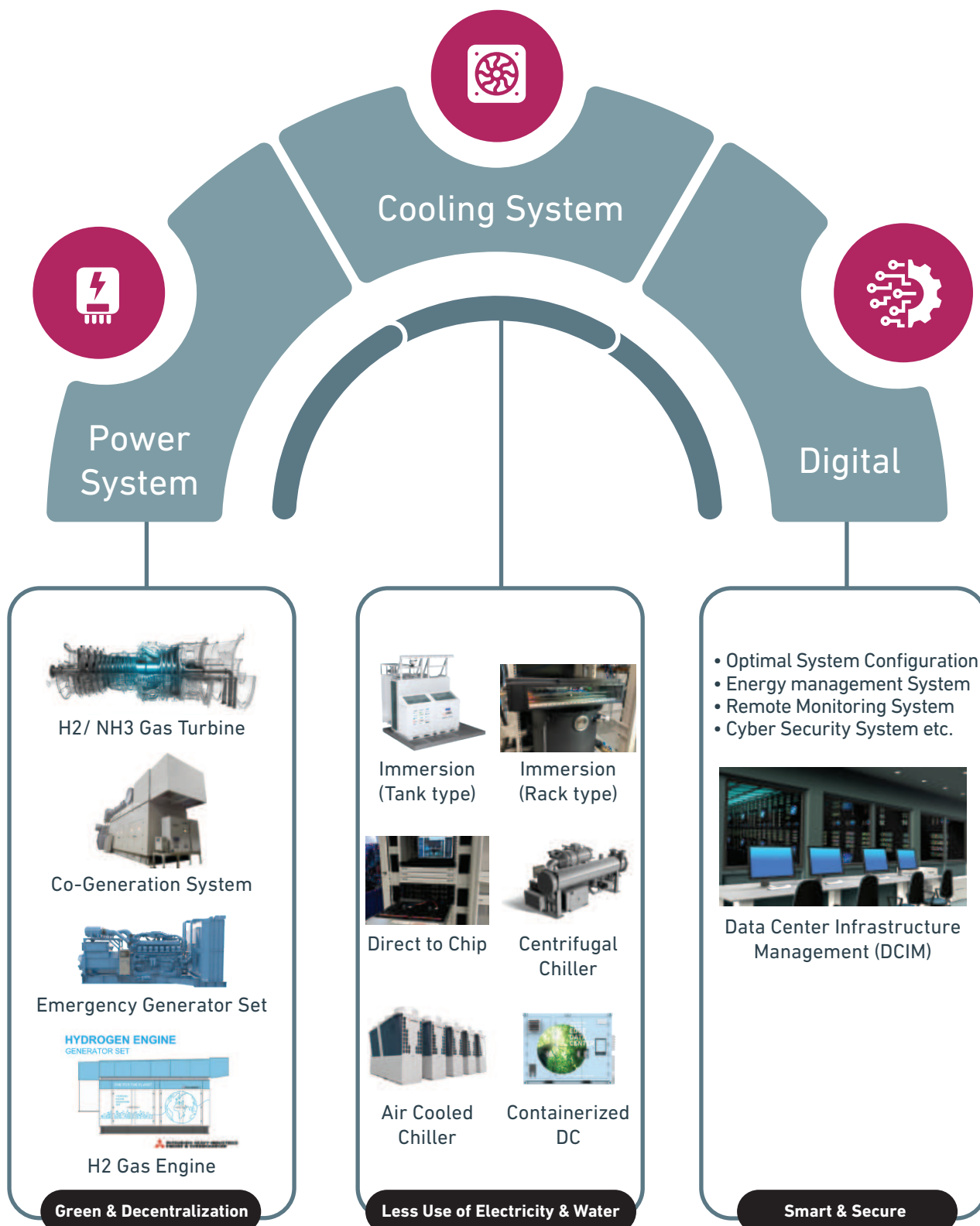
Data centres are known for its significant energy consumption due to the huge amount of energy required to power and cool servers.

With increasing use of AI, data centres and data transmission networks are estimated to account for 1.0 – 1.5% of global electricity use, with electricity consumption doubling between 2022 and 2026.

To address the challenges of power conservation and provide sustainable solutions, MHI Group aims to provide comprehensive energy solutions that combine power supply, cooling, control, and monitoring systems into an integrated package for data centers.

Data Centre Customer

Design & Engineering



Solutions for Carbon Capture, Utilization, and Storage (CCUS) Value Chain

Carbon capture, utilization, and storage (CCUS) is an important tool for reducing and removing emissions. According to the International Energy Agency, CCUS accounts for 8% of cumulative emissions reductions in the Net Zero Emissions by 2050 Scenario (NZE Scenario).

MHI Group offers comprehensive solutions for the CCUS value chain, aimed at reducing CO2 emissions and repurposing captured carbon for use in industrial, agricultural, and other applications. We are also advancing carbon capture technologies to enhance our competitive edge to provide seamless execution and performance guarantees for carbon capture.

CO₂ Capture Plant



Liquefied CO₂ Carrier



CO₂ Compressor



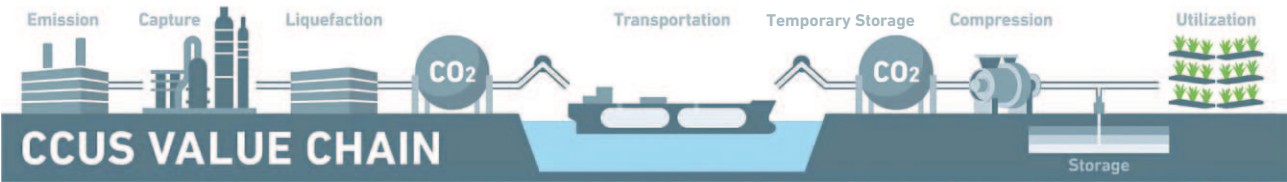
Liquefaction Equipment



CO₂ Storage Tank



Fertilizer Plant



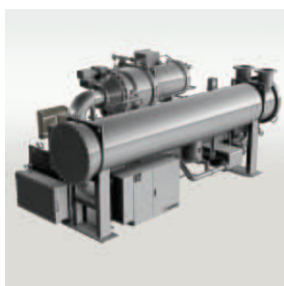
Solutions for Urban Development



Sustainable city development and energy efficient solutions are critical in helping countries achieve their decarbonization goals.

MHI Group provides a broad range of sustainable infrastructure solutions from chiller systems, logistics, transportation and waste-to-energy to maximize efficiency and productivity while tailoring customized solutions to meet the needs of individuals in their journey towards net zero.

District Cooling System



Mobility



Transportation

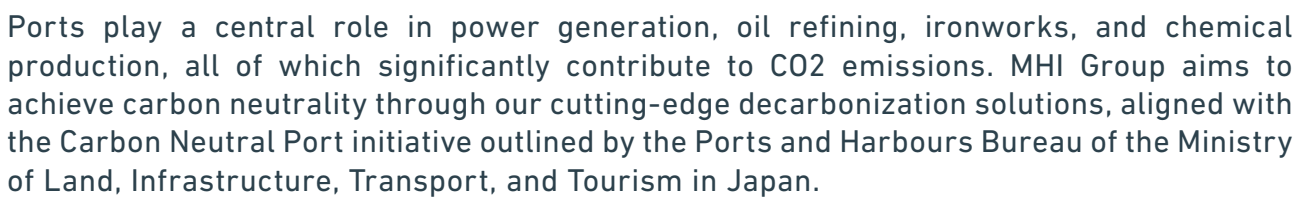


Warehouse Solutions



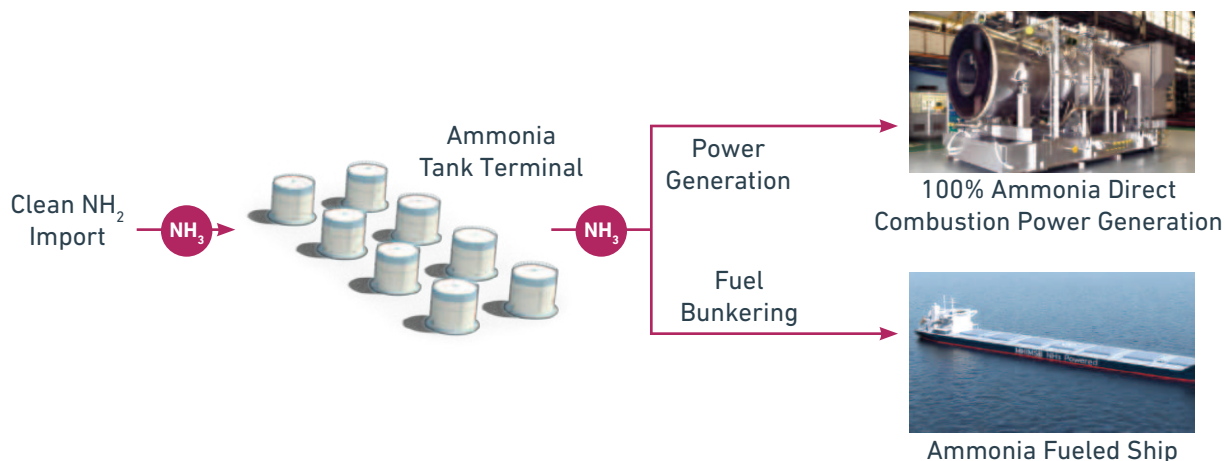
Waste-to-Energy





- Decarbonizing industries in coastal areas;
- Establishing essential infrastructure for receiving hydrogen and other sustainable energy sources;
- Decarbonizing port operations through smart and sustainable infrastructure solutions.

Ammonia utilization to decarbonize energy and maritime sector



We are exploring the use of ammonia - which can efficiently transport and store hydrogen in a liquid state - as a fuel to generate carbon-free electricity, and as the main bunkering fuel in future to decarbonize the maritime sector.

Decarbonization of Industries in Coastal Areas



Hydrogen Gas Turbine



Ammonia Gas Turbine



CO₂ Capture Plant



"CO₂MPACT"
Compact
CO₂ Capture System

Establishment of Infrastructure for Receiving Hydrogen, etc.



Ammonia/ Liquified
CO₂ Carrier



CCUS Value Chain

Decarbonization of Port Operations



Rubber-Tired Gantry Crane
(RTG)




Internal Combustion
Pneumatic Tyre Truck

Achievements



1. Turboden S.p.A., part of the Mitsubishi Heavy Industries (MHI) Group, successfully launched an operational 28.9 MWe binary geothermal plant at the Energy Development Corporation's (EDC) Palayan Bayan expansion project in the Philippines.
2. MHI and EGAT signed an MoU to conduct research on the introduction of hydrogen co-firing technologies for gas turbine power generation facilities in Thailand.
3. MHI establishes local subsidiary "Mitsubishi Heavy Industries Vietnam" to strengthen sales and service activities for social infrastructure and decarbonization solutions in the region.
4. Mitsubishi Power completed construction and commenced operations for the third M701 JAC unit out of four at a natural gas-fired power plant in Rayong Province, Thailand. The plant is a joint venture between Gulf Group and Mitsui & Co., Ltd.
5. Primetals Technologies deployed its new and operational LiquiRob robotics system at Siam Yamato Steel's plant in Map Ta Phut, Thailand.
6. MHI-AP and PTT Public Company (PTT) signed an MoU to jointly conduct a pre-feasibility study to explore using 100% ammonia for gas turbine power generation in Thailand.
7. MHI-AP signed an MoU with PTT Global Chemical Public Company Limited (GC) to jointly study the utilization of hydrogen, ammonia and CCS technology to decarbonize a large-scale petrochemical complex in Thailand.



“As the issues facing the world become more complex, we will provide realistic solutions tailored to local communities and customers. We will form strategic partnerships and serve as a hub for ecosystems to drive societal change.”

Seiji Izumisawa,
President & CEO,
Mitsubishi Heavy Industries, Ltd.
(During his presentation of the 2024 MTBP, 28 May 2024)



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