添付資料

(現地ワークショップ発表資料)

Joint Crediting Mechanism (JCM)

Global Environment Centre (GEC)

Global Environment Centre Foundation

Signing of MoC on the JCM between India and Japan

- On August 7, 2025, H.E. Mr. ONO Keiichi, Ambassador of Extraordinary and Plenipotentiary of Japan to the Republic of India, and Mr. Tanmay KUMAR, Secretary, Ministry of Environment, Forest, and Climate Change of the Republic of India, signed the **Memorandum of Cooperation between the Government of Japan and the Government of the Republic of India on the Joint Crediting Mechanism (JCM).**

- The Indian government has already announced **priority areas for decarbonization through international cooperation**, which include CBG, hydrogen and ammonia derived from renewable energy, transition of high-emission industries, and CCS, among others — areas where Japanese companies can contribute significantly.

- India is the 31st country to sign the JCM with Japan, and for India, the JCM with Japan marks the first bilateral cooperation under the Paris Agreement. The establishment of the JCM system is expected to serve as a model case for achieving rapid economic growth and addressing social and environmental challenges simultaneously, particularly in a major emitter, by leveraging market mechanisms to attract significant private capital.

Source: Press Release of the Ministry of the Environment, Japan (August 29, 2025) "Signing of the Memorandum of Cooperation on the JCM between Japan and the Republic of India to Begin Cooperation to Create Carbon Credits through Decarbonization Projects" https://www.env.go.jp/en/press/press_00320.html

Overview of MoC on JCM between India and Japan

- In order to pursue the Paris Agreement temperature goal and to enhance bilateral cooperation in addressing climate change, the Government of Japan and the Government of the Republic of India establish and implement the JCM.
- Both governments mutually recognize that a part of the JCM credits issued from emission reductions and removals under the JCM may be used towards the achievement of Japan's NDC as internationally transferred mitigation outcomes (ITMOs), and that the remaining JCM credits can contribute to achieving the NDC of the Republic of India, consistent with the guidance on cooperative approaches referred to in Article 6.2 of the Paris Agreement.
- Both governments ensure the transparency and environmental integrity of the JCM and maintain it simple and practical.

For the MoC, see: https://www.env.go.jp/content/000337221.pdf

Source: Press Release of the Ministry of the Environment, Japan (August 29, 2025) "Signing of the Memorandum of Cooperation on the JCM between Japan and the Republic of India to Begin Cooperation to Create Carbon Credits through Decarbonization Projects" https://www.env.go.jp/en/press/press_00320.html

Global Environment Centre Foundation

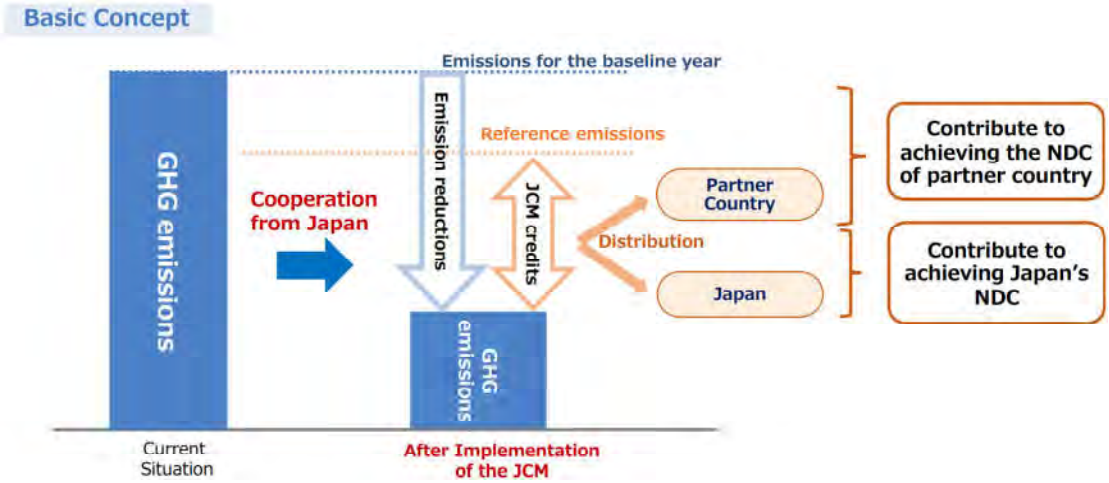
Overview of the JCM

- A mechanism established consistently with Article 6 of the Paris Agreement, under which companies and government of Japan and partner countries cooperate in terms of technology and funding to implement measures, and the resulting GHG reductions and removals are allocated in proportion to the contributions of each country. The Ministry of Economy, Trade and Industry, the Ministry of Foreign Affairs, the Ministry of Agriculture, Forestry and Fisheries, and the Ministry of the Environment of Japan are working together to operate the system as a unified government effort. To date, approximately 270 projects have been implemented in various fields, including energy and waste, and in April of this year, the designated implementation agency was established based on the law to accelerate the process.
- JCM partner countries: Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Vietnam, Laos, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar, Thailand, Philippines, Senegal, Tunisia, Azerbaijan, Moldova, Georgia, Sri Lanka, Uzbekistan, Papua New Guinea, United Arab Emirates, Kyrgyzstan, Kazakhstan, Ukraine, and Tanzania, with **India** becoming the 31st country to join.
- The Japanese government designated the JCM Implementation Agency (JCMA) in accordance with the revised Act on Promotion of Global Warming, Global Environment Centre (GEC) was designated as the JCM Implementation Agency (JCMA). https://gec.jp/jcm/agency/en/

Source: Press Release of the Ministry of the Environment, Japan (August 29, 2025) "Signing of the Memorandum of Cooperation on the JCM between Japan and the Republic of India to Begin Cooperation to Create Carbon Credits through Decarbonization Projects" https://www.env.go.jp/en/press/press_00320.html

Basic Concept of the JCM

- In partner countries mainly in the Global South, Japanese companies and the Japanese government collaborate on implementing mitigation measures in terms of **technology and financial investment. The part of the achieved GHG emission reductions or removals will be shared as JCM credits** between the partner countries and Japan.
- Japan has established the JCM with **31 countries** and over **290 projects** are currently being implemented.



Source: Presentation materials of from Ministry of the Environment Japan at the Seminar on the JCM Implementation in Thailand on 19 December 2024 , "Recent Developments of the Joint Crediting Mechanism(JCM)" https://gec.jp/jcm/jp/event/2024Thailand/S2-1_MOEJ_Mr.Sakaino.pdf, with updated information.

Benefits from the JCM

- The JCM offers **Social, Economic, and Environmental Benefits** to both Japan and partner countries.

Japan	Partner countries
• Exploring **New Business Opportunities**	• Exploring **New Business Opportunities**
• Enhancing **Corporate Value** → Attracting new investment	• Enhancing **Corporate Value** → Attracting new investment
• Acquiring **JCM Credits** → **Contribute to NDC (Reduction & Absorption Target)** → Utilizing them for emission offset ※ *Generating revenue from their sale*	• Diffusion of superior decarbonization technologies and products • Contribute to NDC (Reduction & Absorption Target) of partner countries
• **Enhancing Presence** through contributions to global decarbonization	• **Solving Social, Economic, Environmental issues** such as air pollution and infrastructure development

Source: Presentation materials of from Ministry of the Environment Japan at the Seminar on the JCM Implementation in Thailand on 19 December 2024 , "Recent Developments of the Joint Crediting Mechanism(JCM)" https://gec.jp/jcm/jp/event/2024Thailand/S2-1_MOEJ_Mr.Sakaino.pdf

Variety of JCM projects

Renewable Energy

Solar power

Solar power, FARMLAND Co., Ltd., Chile

Floating Solar PV,TSB Co., Ltd.,Thailand

Hydro power

Hydro Power Plant, Toyo Energy Farm Co., Ltd., Indonesia

Biogas

Biogas Power Generation, ITOCHU Corporation, Philippines

Geothermal power

Binary Power Generation Project at Geothermal Power Plant, MHI, Ltd., Philippines

Source: Presentation materials of from Ministry of the Environment Japan at the Seminar on the JCM Implementation in Thailand on 19 December 2024 , "Recent Developments of the Joint Crediting Mechanism(JCM)" https://gec.jp/jcm/jp/event/2024Thailand/S2-1_MOEJ_Mr.Sakaino.pdf

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Variety of JCM projects

Energy efficiency

Consumer sector

Energy saving at convenience stores, Panasonic, Indonesia

High-efficiency refrigerator, Mayekawa MFG, Indonesia

Introduction of Amorphous High Efficiency Transformers in Power Grid , Yuko Keiso Co., Ltd. , ①Vietnam, ②Lao PDR

Industrial sector

Energy-saving of mobile communications base transceiver stations, KDDI Corp. Indonesia

Optimization in petroleum refining plant, Yokogawa Electric Corp. Indonesia

Introduction of High Efficiency Once Through Boiler to Garment Factory, Osaka Gas Co., Ltd., Thailand

Source: Presentation materials of from Ministry of the Environment Japan at the Seminar on the JCM Implementation in Thailand on 19 December 2024 , "Recent Developments of the Joint Crediting Mechanism(JCM)" https://gec.jp/jcm/jp/event/2024Thailand/S2-1_MOEJ_Mr.Sakaino.pdf

Variety of JCM projects

Waste

Waste to Energy Plant, JFE engineering, Viet Nam

Effective Use of Energy

Gas Co-generation System and Absorption Chiller, Kansai Electric Power, Thailand

F-gas

Development of a Fluorocarbon Collection and Destruction Model Project in Metro Manila, Philippines Utilizing Mixed Combustion Technologies , Marubeni Corporation, Philippines

Transport

CNG-Diesel Hybrid Public Bus, Hokusan Co., Ltd., Indonesia

REDD+

REDD+ project in Luang Prabang Province through controlling slash-and-burn, Waseda University,

Source: Presentation materials of from Ministry of the Environment Japan at the Seminar on the JCM Implementation in Thailand on 19 December 2024 , "Recent Developments of the Joint Crediting Mechanism(JCM)" https://gec.jp/jcm/jp/event/2024Thailand/S2-1_MOEJ_Mr.Sakaino.pdf

Global Environment Centre Foundation

List of Activities under Paris Agreement Art. 6.2 in India

- Indian Ministry of Environment, Forest and Climate Change publicize the ***Revised List of activities to be considered under bilateral/cooperative approaches in India under Article 6.2 Mechanism***.

The following list of activities will be considered for trading of carbon credits under bilateral/cooperative approaches under Article 6.2 mechanism. These activities will facilitate adoption/transfer of emerging technologies. The list of identified activities will initially be for first 03 years, and it may be updated/revised by NADAIPA (National Designated Authority for Implementation of the Paris Agreement).

I. GHG Mitigation Activities:

1. Renewable energy with storage (only stored component)
2. Solar thermal power plant
3. Off-shore wind
4. Green Hydrogen
5. Compressed bio-gas
6. Emerging mobility solutions like fuel cells
7. High end technology for energy efficiency
8. Sustainable Aviation Fuel
9. Best available technologies for process improvement in hard to abate sectors
10. Tidal energy, Ocean Thermal Energy, Ocean Salt Gradient Energy, Ocean Wave Energy and Ocean Current Energy
11. High Voltage Direct Current Transmission in conjunction with renewable energy projects

II. Alternate Materials

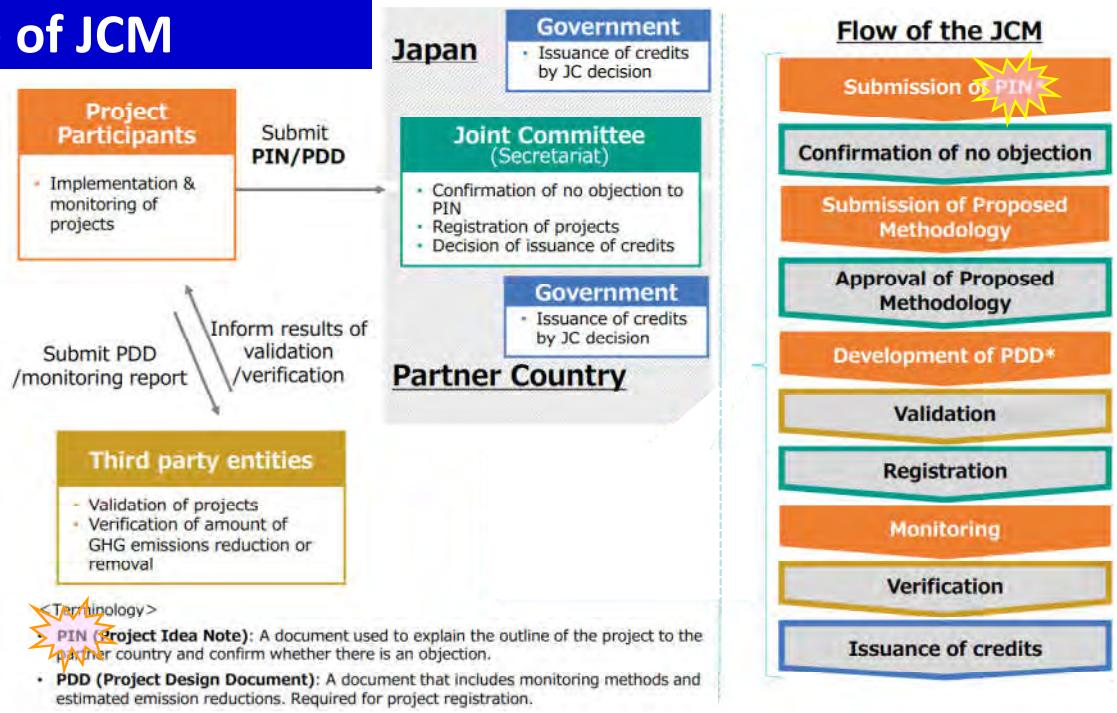
12. Green Ammonia

III. Removal Activities:

13. Carbon Capture, Utilization and Storage

Source: https://moef.gov.in/storage/tender/1755586097.pdf

Scheme of JCM



PIN (Project Idea Note) form has not been finalized yet, in the JCM between India and Japan.

Instead, Project Information Sheet (PIS) form is available, which is for an unofficial information sharing.

Source: Presentation materials of from Ministry of the Environment Japan at the Seminar on the JCM Implementation in Thailand on 19 December 2024 , "Recent Developments of the Joint Crediting Mechanism(JCM)" https://gec.jp/jcm/jp/event/2024Thailand/S2-1_MOEJ_Mr.Sakaino.pdf

Results of 1st Joint Committee of JCM India-Japan

- 1st Joint Committee (JC) Meeting was held on 22 Sep. 2025, at New Delhi and online.
- The meeting report is publicly available at: https://gec.jp/jcm/agency/in/JCM_IN_JC01_Mtg_Rep.pdf

Consideration of the Rule of Implementation (ROI):

- ☐ The JC discussed the draft Rule of Implementation of the JCM between India and Japan (RoI). The JC decided to proceed with the final approval process within each government with a view to adopting it virtually, at the earliest time.
- ☐ The JC instructed the Secretariat to develop the Manual of the JCM which describes project cycle procedures of the JCM in detail.
- ☐ The JC decided to share the project information sheet to the industries and request them to consider and submit the sheet. The JC instructed the Secretariat to publish the project information sheet form and receive submissions of project proposals.
- ☐ The JC emphasized the need for finalizing the PIN form. Accordingly, the JC instructed the Secretariat to facilitate further bilateral consultations to finalize the PIN form before its publication, noting procedures after receiving PINs will be described in the Manual.

Thank you for your attention!

Mr. MOTODA Tomoya
Senior Programme Officer
International Cooperation Division
Osaka Headquarters
Global Environment Centre (GEC)

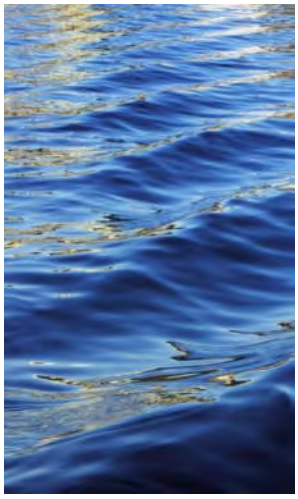
Maharashtra State - Osaka City

Collaboration Project to promote the introduction of decarbonization technologies towards achieving carbon neutrality

GEC

Global Environment Centre

January 2026



Profiles of GEC

Global Environment Centre (GEC)

Establishment : 1992

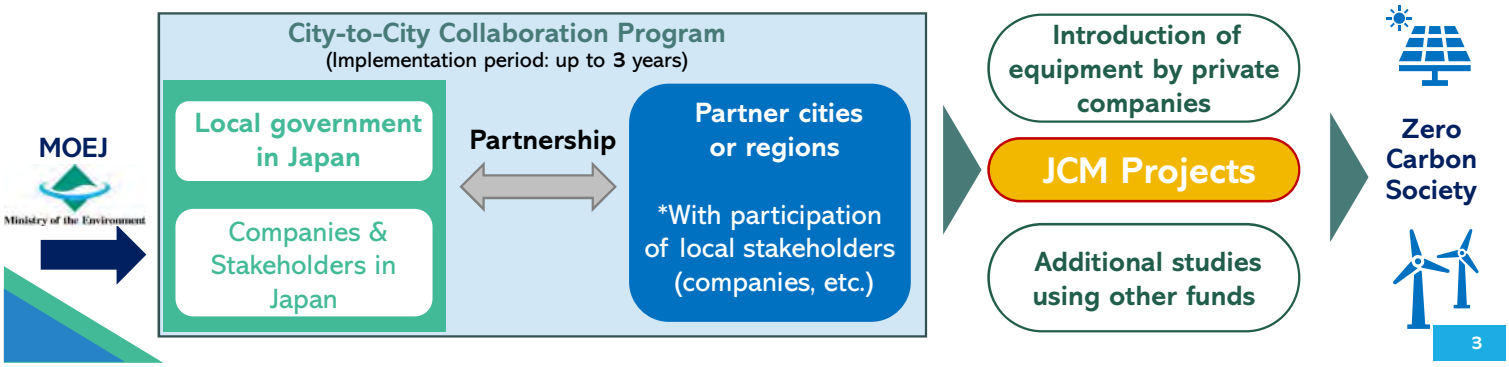
With the aim of supporting UNEP's activities by utilizing Japan's knowledge and experience in the field of environmental conservation.

Current GEC's activities :

- GEC was designated as **the JCM Implementation Agency (JCMA)** that carries out operation of the JCM, from project registration to credit issuance, including consultation with partner countries, on behalf of Japanese governments;
- Introduction of **decarbonization technology** into developing countries using the **Joint Crediting Mechanism (JCM)** and other mechanisms;
- Support of **UNEP-IETC (International Environmental Technology Centre) activities** related to **waste management**;
- Support for overseas business expansion by Japanese companies possessing excellent **environmental and energy saving technologies**; and
- Implementation of Japan International Cooperation Agency (JICA) training courses.

Outline of City-to-City Collaboration Program of Ministry of the Environment Japan (MOEJ)

- The City-to-City Collaboration Program is a support programme by Ministry of the Environment Japan (MOEJ) , which provides a package support for **the identification and development of zero-carbon projects** in collaboration with private companies, and for **the creation of institutional foundations and capacity building** in cities, through collaboration between Japanese cities and partner cities.
- Under this framework, **feasibility studies (FSs) can be conducted in partner cities to develop decarbonization projects in collaboration with Japanese companies having decarbonization technologies**. Through this, the dissemination of decarbonization technologies is expected in partner cities.
- Furthermore, by providing partner cities **with Japan's cities' policy and technical know-how and knowledge in decarbonization and other environmental fields**, contributions to realizing zero-carbon societies in partner cities will be promoted.



Partnership between Maharashtra State and Osaka City

Maharashtra Energy Development Agency (MEDA)

Maharashtra Energy Development Agency (MEDA) and Osaka city hold the joint meeting in 2024 and 2026 discussed **future collaboration in the energy field, including green hydrogen**.

Energy Department Govt. of Maharashtra

Osaka city visited **Energy Department** in 2026 to discuss **future collaboration in the energy field.**

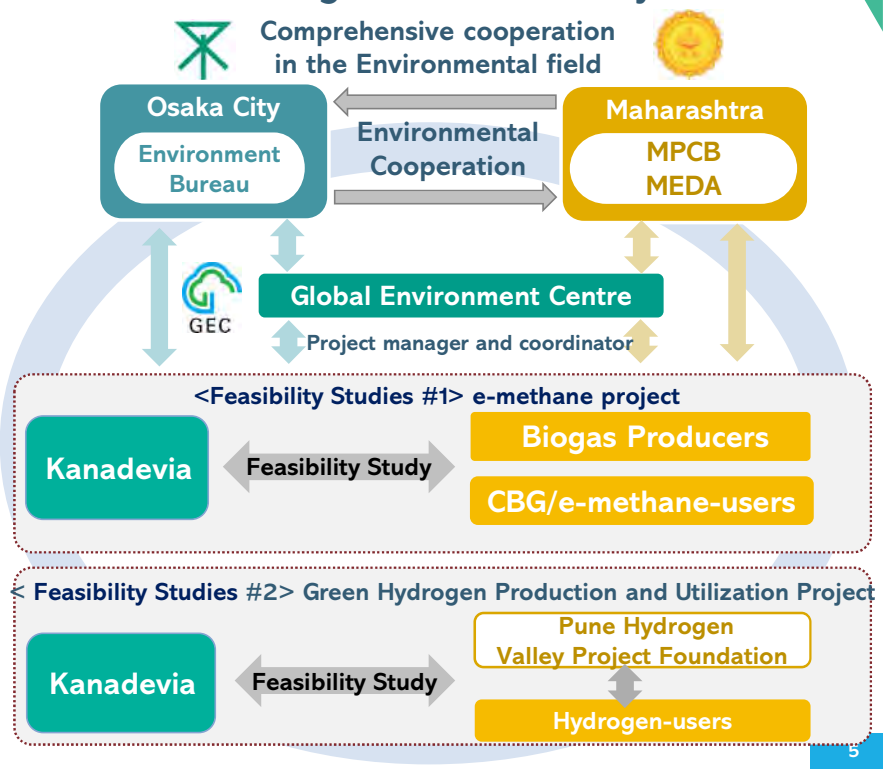
Maharashtra Pollution Control Board (MPCB)

Maharashtra Pollution Control Board (MPCB), India and Osaka City Environment Bureau **signed the MoU on collaboration in the field of environment conservation and energy** in June 2020, and it was renewed in January 2026.

Maharashtra State - Osaka City Collaboration Project to promote the introduction of decarbonization technologies towards achieving carbon neutrality

Project objectives

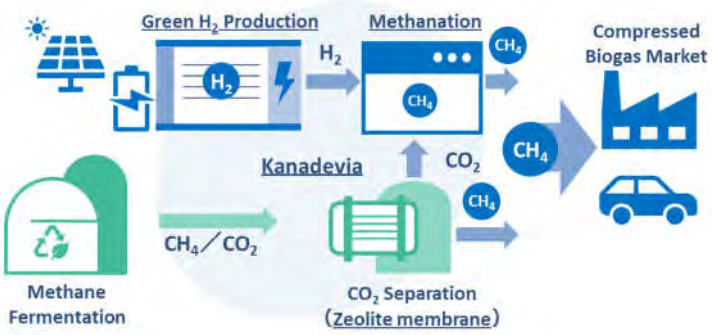
The project aims to **promote the introduction of advanced decarbonization technologies, including green hydrogen production and utilization technologies**, to support the realization of a carbon-neutral society in Maharashtra **under the partnership between Maharashtra State and Osaka City.**



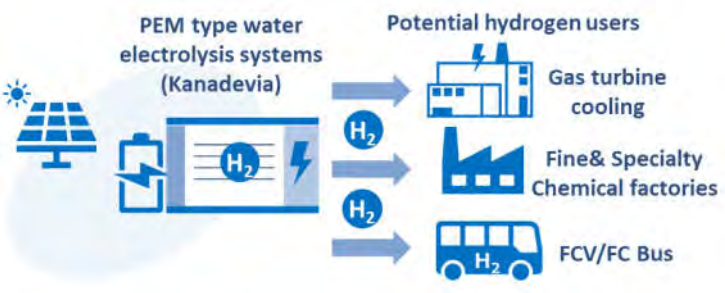
Activities FY2025 (1st year)

Feasibility Studies (FS) on the decarbonization projects

✓ <FS#1> e-methane project utilizing green hydrogen and biogas-derived CO_2



✓ <FS#2> Green Hydrogen Production and Utilization Project



Enhancing the partnership between Maharashtra State and Osaka City

✓ Policy dialogue between MPCB and Osaka City

✓ Joint meeting between MEDA and Osaka City

Holding the Workshop in Pune

Exploring new decarbonization projects

✓ Outreach on the proposed project to Japanese entities, to call their participation/involvement in the project

Contact

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Global Environment Centre (GEC)

Web: https://gec.jp/

JCM website: https://gec.jp/jcm/

GEC

2-110 Ryokuchikoen, Tsurumi-ku,
Osaka 538-0036, JAPAN

Kanadevia
Technology for people and planet

Contribution to Carbon Neutrality in Maharashtra State through Utilization of Green Hydrogen and e-methane

Kota Nakano,
Group Leader of Business Department, Decarbonization System Business Unit,
Carbon Neutral Solution Business Headquarters
Kanadevia Corporation

14th January, 2026
Kanadevia Corporation

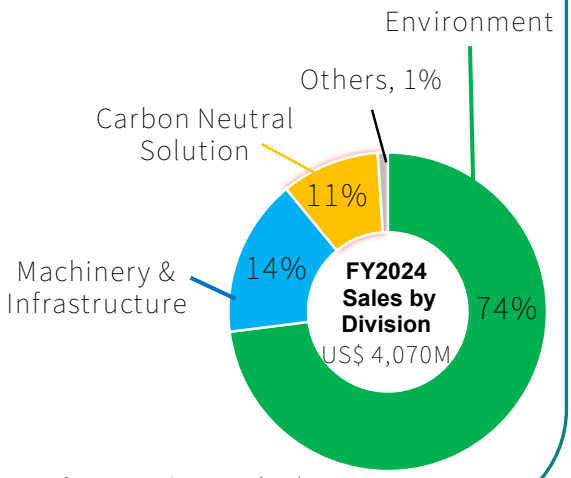
Workshop on Promoting the Dissemination of Decarbonization Technologies through the Partnership between Maharashtra State and Osaka City @ Pune, Maharashtra

Who is Kanadevia?

Kanadevia changed its company name from Hitachi Zosen in October 2024.

Company Profile

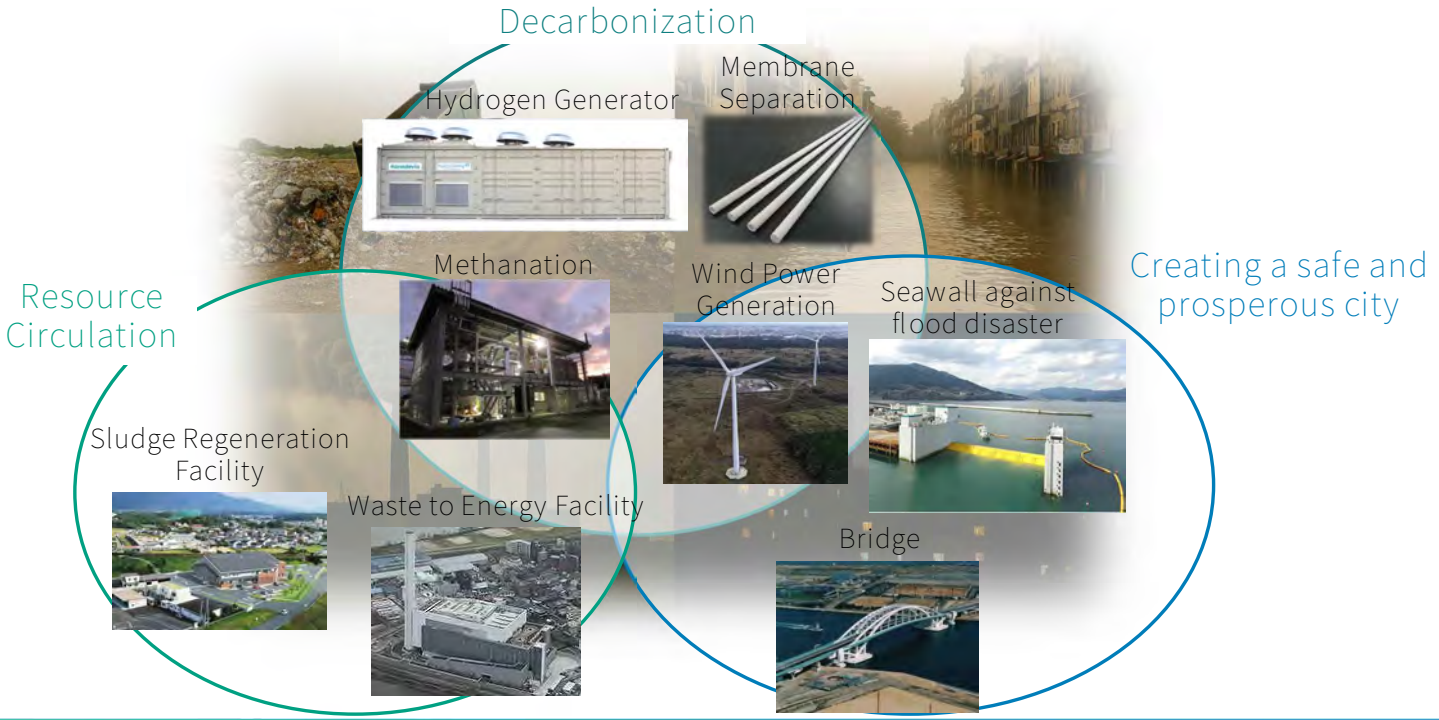
◆ Date of Founded	01st April 1881 @Osaka
◆ Date of Incorporated	29th May 1934
◆ President	Mr. Michi Kuwahara, Representative Director and CEO
◆ Location of Head Offices	Osaka and Tokyo, Japan
◆ Capital (JP¥ 45.4 billion)※	US$ 303 million
◆ Order intake (JP¥ 765.9 billion)※	US$ 5,106 million
◆ Net Sales (JP¥ 610.5 billion)※	US$ 4,070 million
◆ Employees	12,964
◆ International Operations	108 International Subsidiaries 4 International Branches



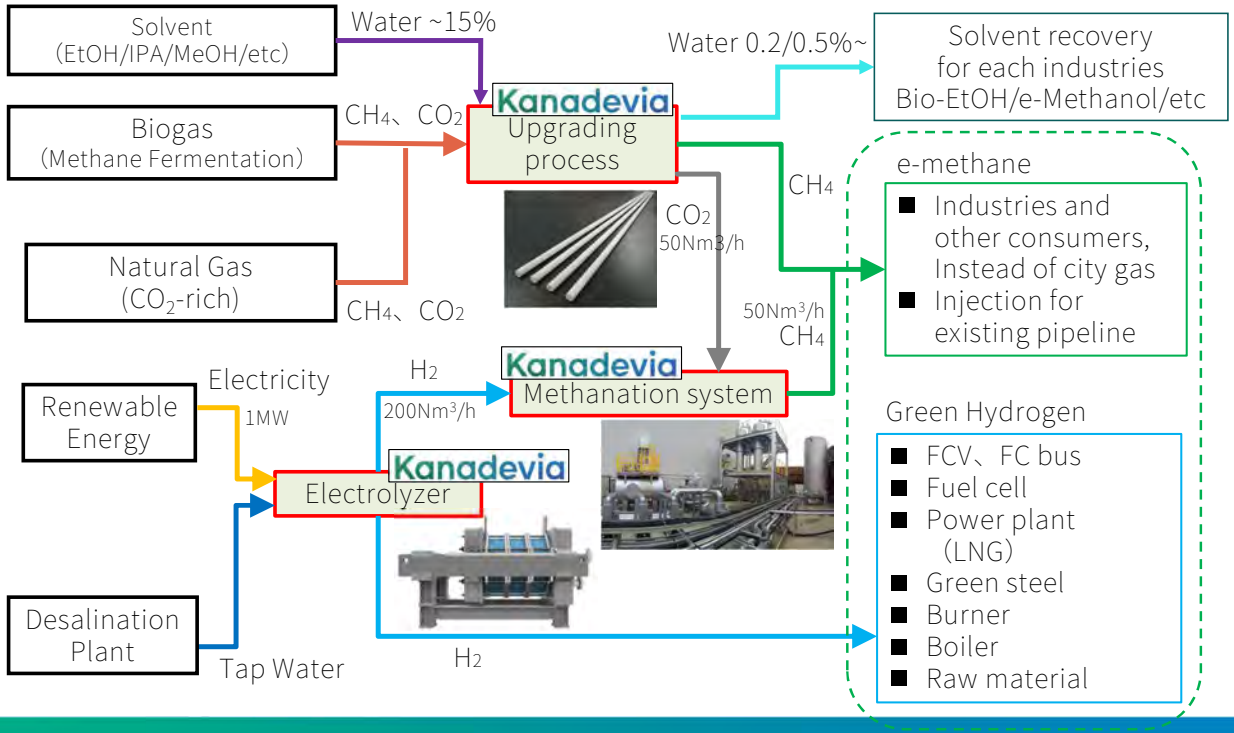
※As of 31st March 2025／US$=JP¥ 155.00

Kanadevia Solutions for the Urban Issues

"A Solution Partner Contributing to the Realization of a Sustainable, Safe, and Secure Society"



Decarbonization Products



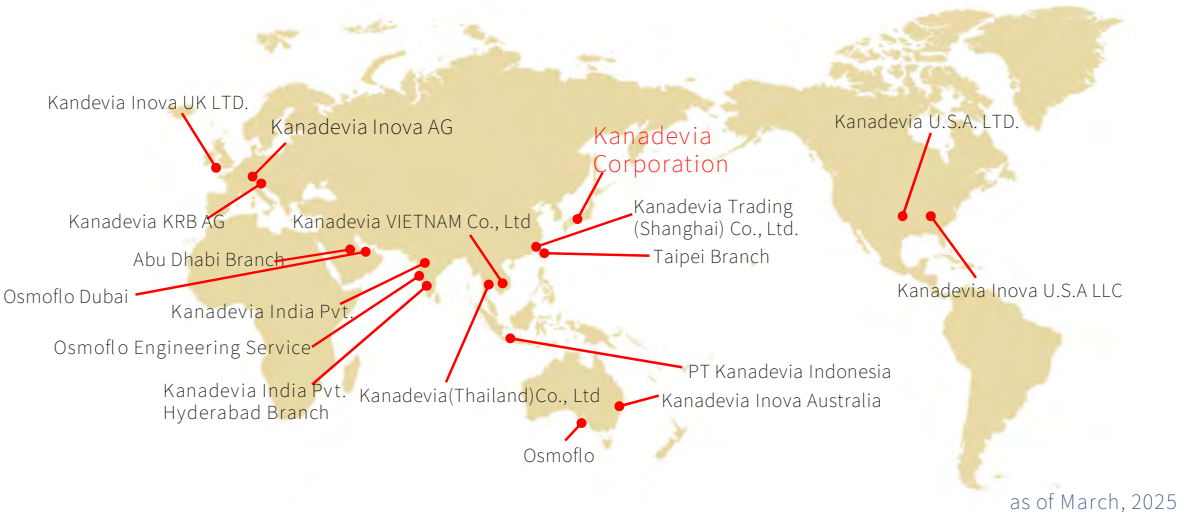
Global Network of Kanadevia Group

Kanadevia

Japan
2 Head Offices
8 Domestic Offices
7 Works Locations

Overseas office
Total 15 Overseas Offices

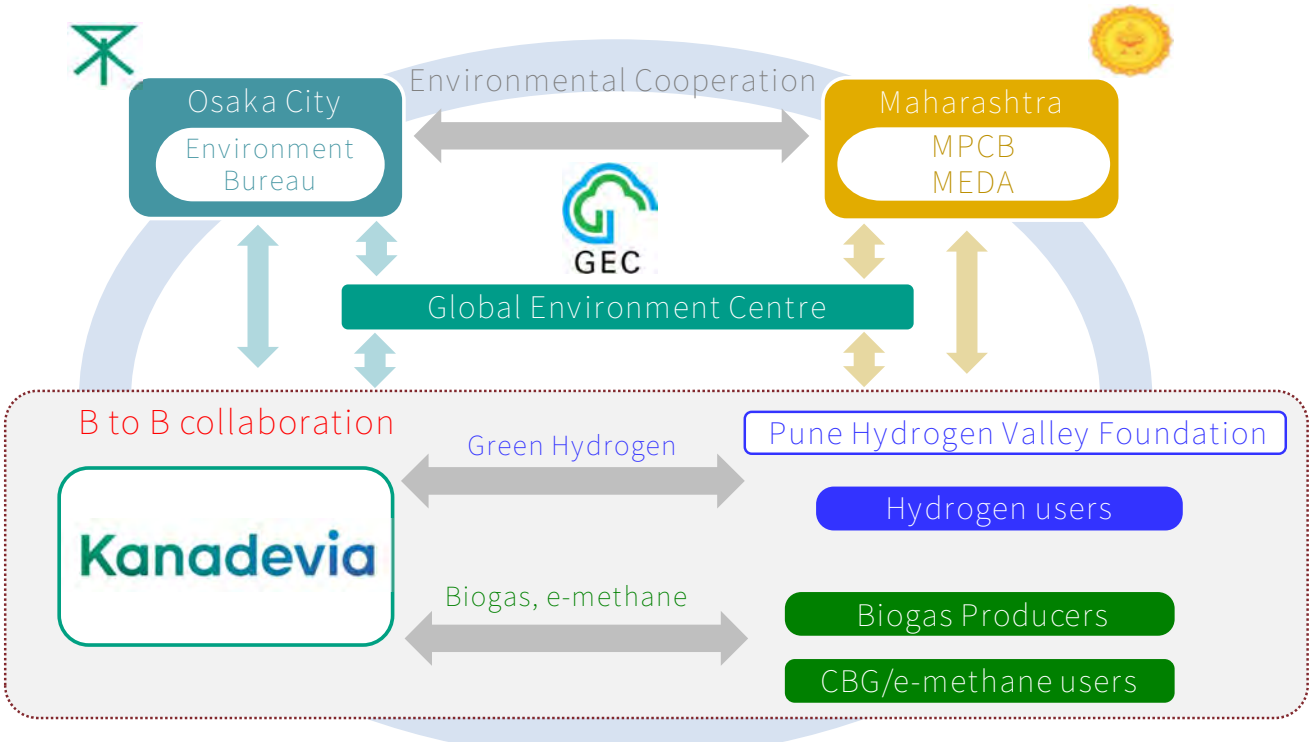
Overseas Subsidiaries & Affiliates
42 Overseas Subsidiaries & Affiliates



as of March, 2025

Maharashtra State - Osaka City Collaboration Project

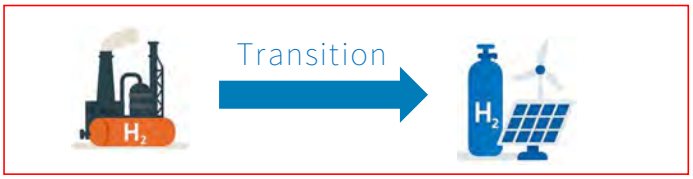
Kanadevia

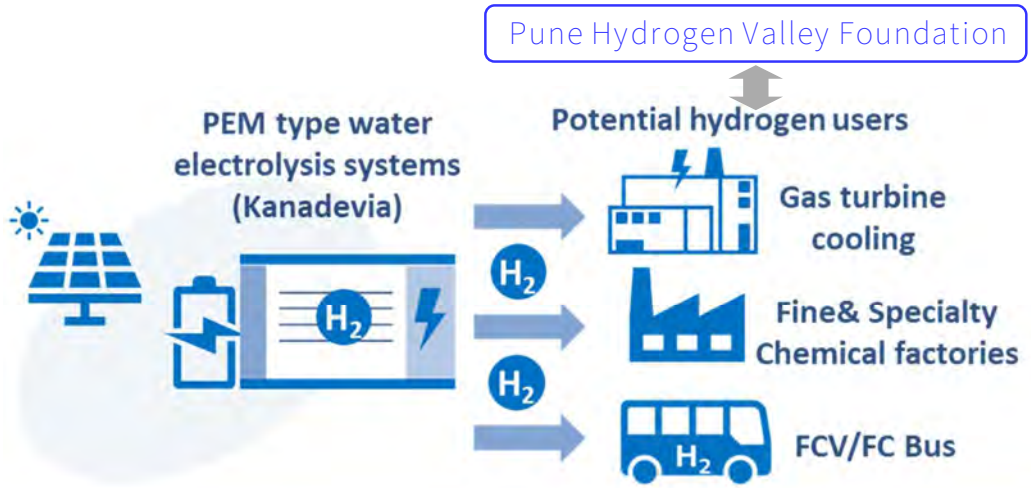


Green Hydrogen Production and Utilization Project

Kanadevia

- Transition from fossil fuel-derived hydrogen to green hydrogen

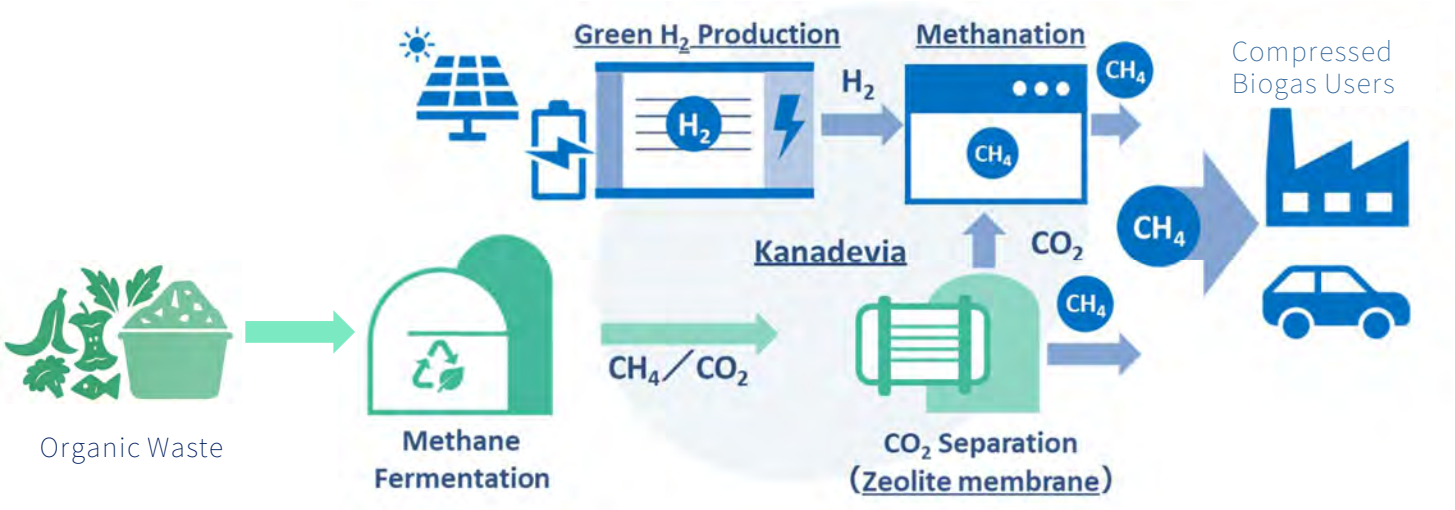


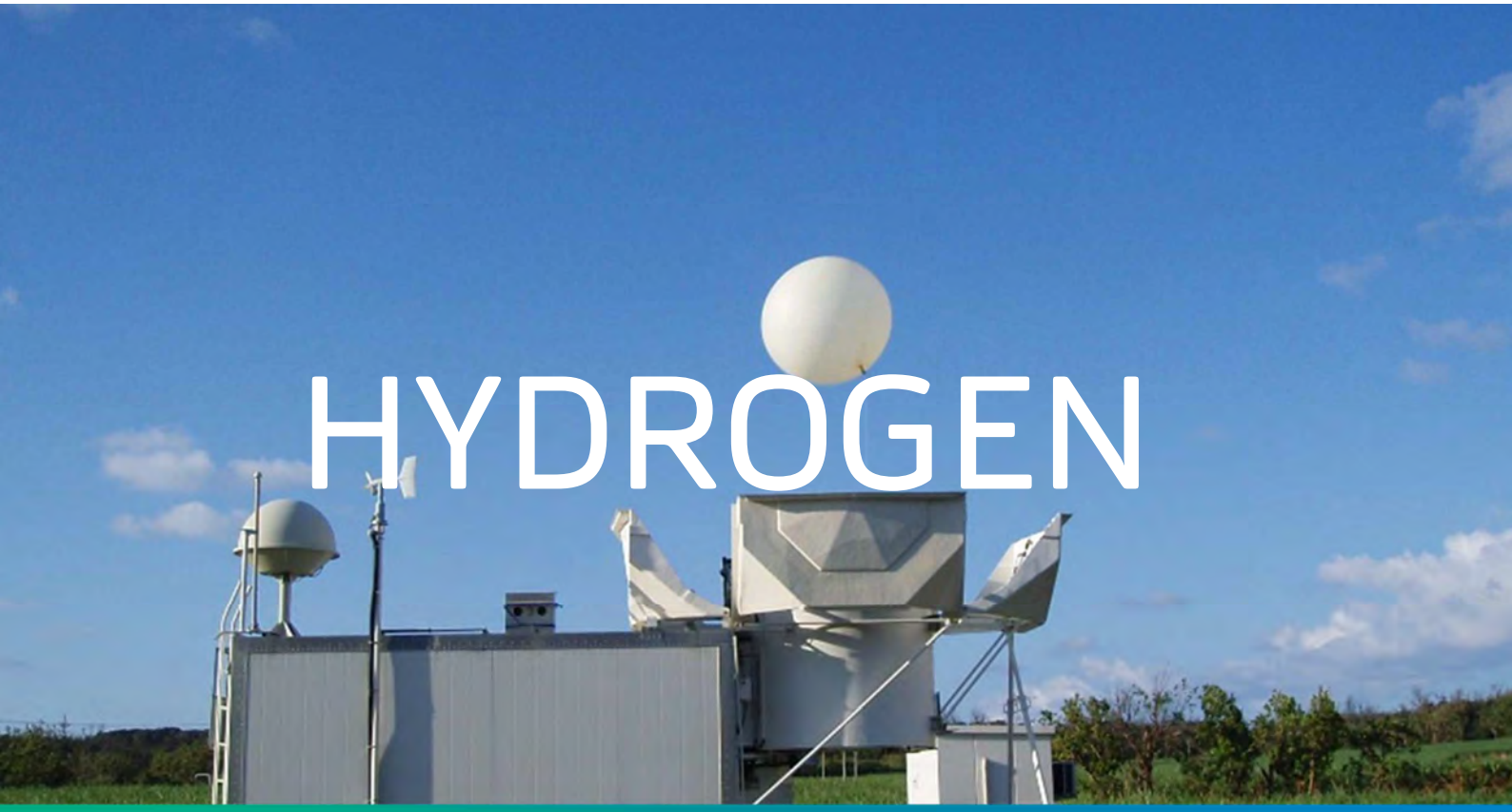


e-methane Project Utilizing Green Hydrogen and Biogas-derived CO_2

Kanadevia

- Expansion of CBG utilization and carbon dioxide energy conversion
- Effective utilization of green hydrogen to existing infrastructure





HYDROGEN

Kanadevia's Hydrogen Generation System – PEM

Anode reaction $2H_2O \rightarrow O_2 + 4H^+ + 4e^-$

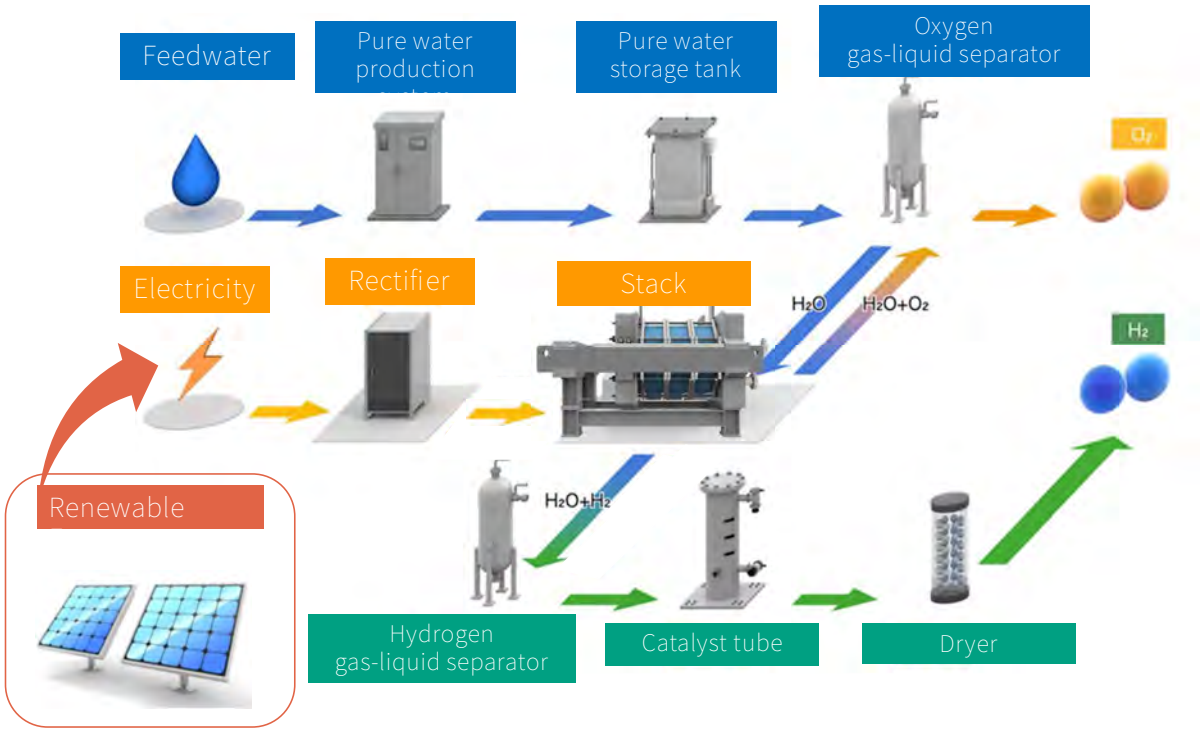
Cathode reaction $4H^+ + 4e^- \rightarrow 2H_2$

Total Reaction

$$2H_2O \rightarrow 2H_2 + O_2$$

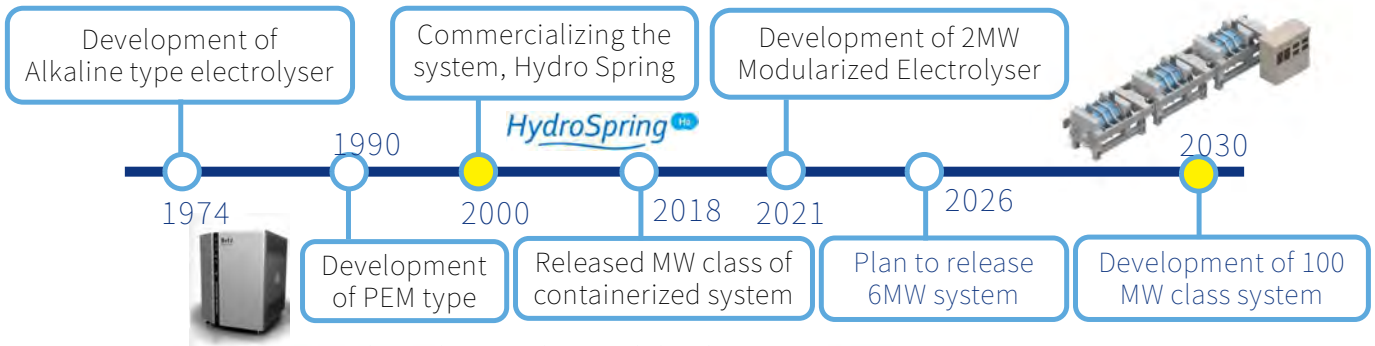
System flow

Kanadevia

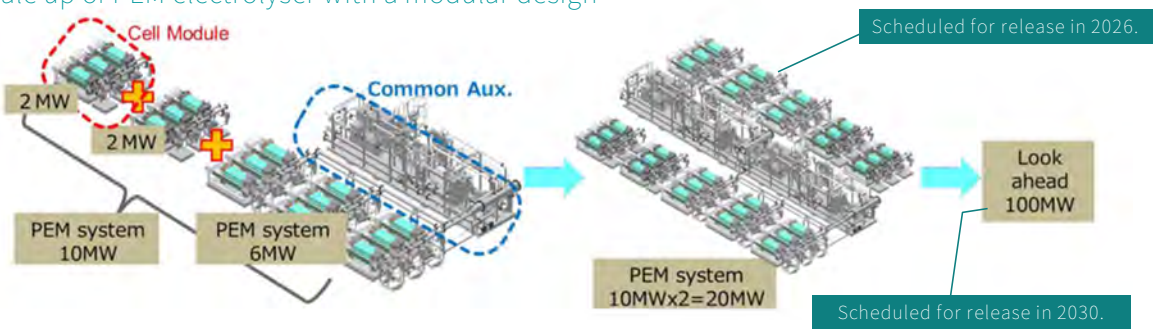


Technology Development of Electrolyzer System

Kanadevia



- Scale up of PEM electrolyser with a modular design



PtG activity - GI(Green Innovation) funding project

Kanadevia

Project Purpose

- The project aims to enter advanced overseas market by establishing a H2 production platform using surplus renewable energy
- The cost down target for 2030 is set at ¥65,000/kW ($485/kW). To achieve CD target, modular PEM system is being developed and demonstrated using a large-scale system near the consumer site (@ ¥134/USD)

Project Outline

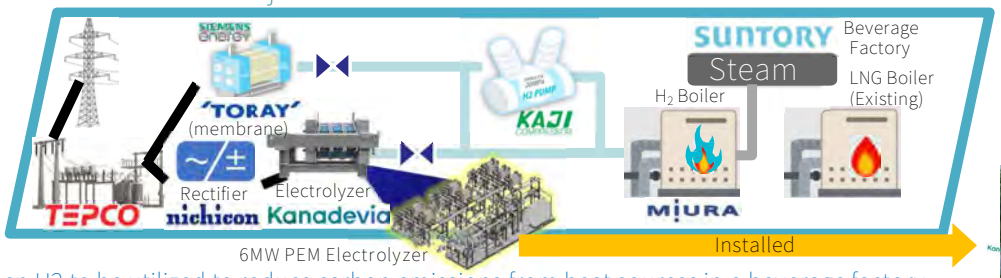
- ◆ Total fund amount : ¥14B (Subsidy:¥10B)
- ◆ Project period : 2021-2025 (5years)
- ◆ Demonstration location : Suntory HD Hakushu Factory (Yamanashi Pref. Japan)

Project Member

TEPCO, YAMANASHI, Hitz Hitachi Zosen, SIEMENS energy, TORAY Innovation by Chemistry, MIURA, nichicon, SUNTORY

Large scale demonstration plant _ Operation start in2025

GI funded Project scheme



Green H2 to be utilized to reduce carbon emissions from heat sources in a beverage factory.
Modular design is implemented to accommodate the expansion of plant capacity to 100MW

Mass production factory for electrolyzer stacks

Kanadevia

This project is adapted in METI's (Japanese government) GX supply Chain Construction Support Program.
Kanadevia is frontier to have electrolyzer production factory with GW capacity in Japan.

Stacks are manufactured in our factory

Image of electrolysis system

Exterior of mass production factory

General information
- ✓ Construction site : Yamanashi Prefecture, Japan
- ✓ Production models : Electrolyzer stacks of PEM type
- ✓ Capacity : More than 1GW per year
- ✓ Scheduled for completion : March 2029

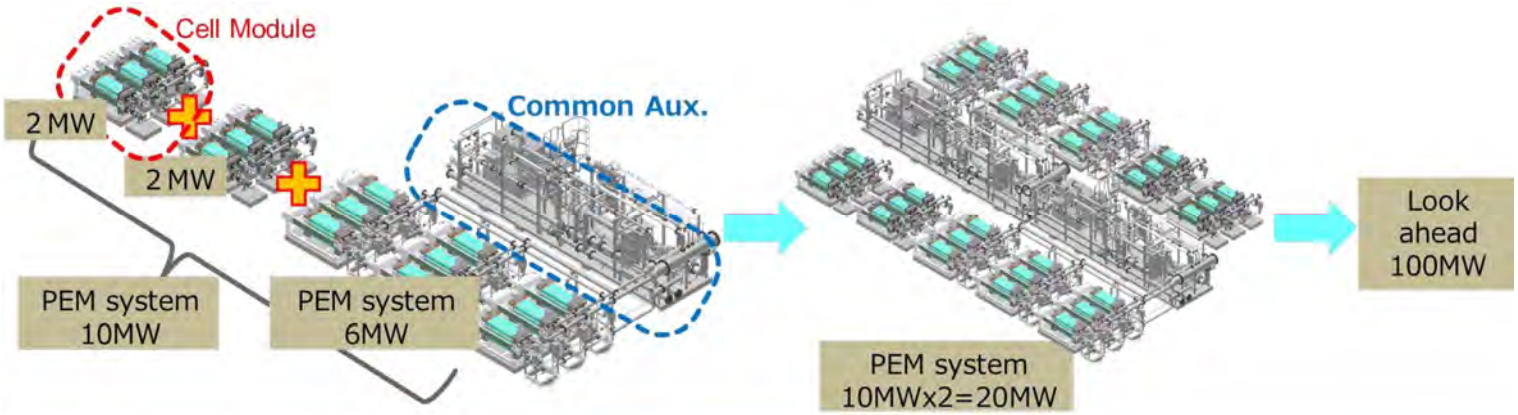
Modular design for enlargement of PEM system

Kanadevia

Scale up of PEM Electrolyser with a Modular Design

- 6MW H_2-system will be configured by combination of 3nos of 2MW Modular Unit (XL-125cells x 3 stacks)
- A common auxiliary equipment is designed to control 6MW to 10MW PEM system
- Production capacity of 100MW can be achieved by combining 10MW x 10 units

Schematic Image of Scale Up



Business model of Kanadevia Electrolyzer

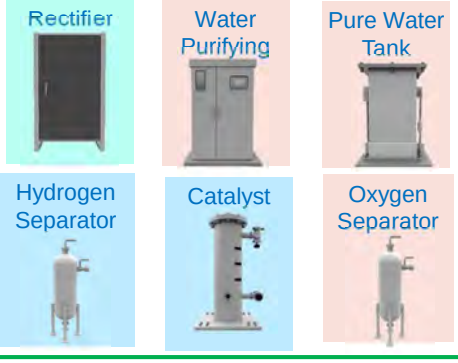
Kanadevia

Our Partner to procure and/or manufacture the equipment and assemble Electrolyzer.
Following are main equipment of Electrolyzer.

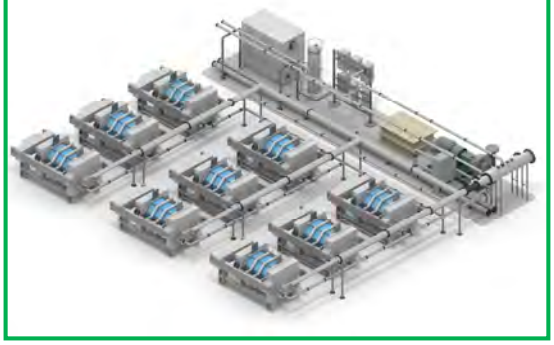
Manufacturing stack **by Kanadevia**

Advantage

Procurement and/or manufacturing **by Our Partner**



Final assemble **by Out Partner**



Advantage

- **Low power consumption.**
- **Voltage measurement of each cell for safety operation.**
- **Maintenance by remote monitoring system**

METHANE

Introduction of Kanadevia Methanation System

Kanadevia

HiMethz

- Enhance green H2 utilization in the form of CH4
  (Methane: usable in existing gas infrastructure (pipeline, etc.))
- Effective utilization of CO2 for carbon recycling

Methanation Catalyst
In-house production

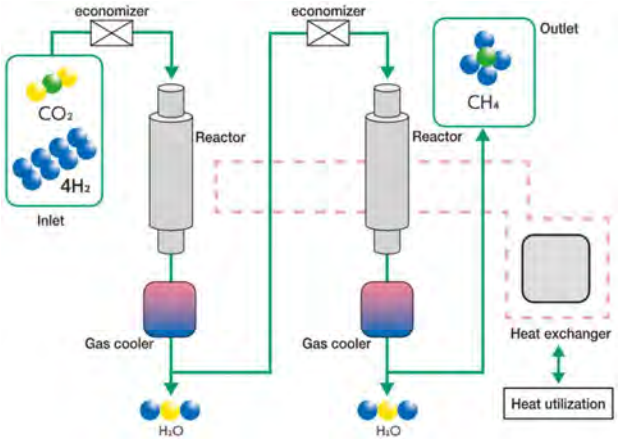
Catalyst Features

- High conversion ratio at the low temperature and low ambient pressure
- High energy conversion efficiency
- Convert carbon monoxide into CH4
- Long term durability

System Flow & Features of Catalyst (Himethz)

Kanadevia

<System Flow>



Reactor : Shell & Tube type

Feature of HiMethz

- Low reaction temperature : Catalyst reaction start from 200 degree-C
- High durability : 20,000 hours (about 2 years) or more
- Methane's purity can be ≧ 95%
- High conversion ratio : more than 99%　at ambient pressure
- High energy efficiency : Energy conversion efficiency is 75% - 80%. 90% or more efficiency can be achieved by reusing heat.

Development of Methanation System

Kanadevia

1995 Tohoku Univ.
0.1 Nm^3/h

1995 Tohoku Institute
of Technology 1.0 Nm^3/h

Catalyst development

1995 Tokyo Gas
1.0 Nm^3/h

Reactor Development

2012 NEDO 18 Nm^3/h
<Strategic next generation biomass>

2017 NEDO 12.5 Nm^3/h
<Leading R&D for hydrogen utilization>

2017-/NEDO PJ 8.0 Nm^3/h
<Technologies for effective use of carbon dioxide>

Completion image

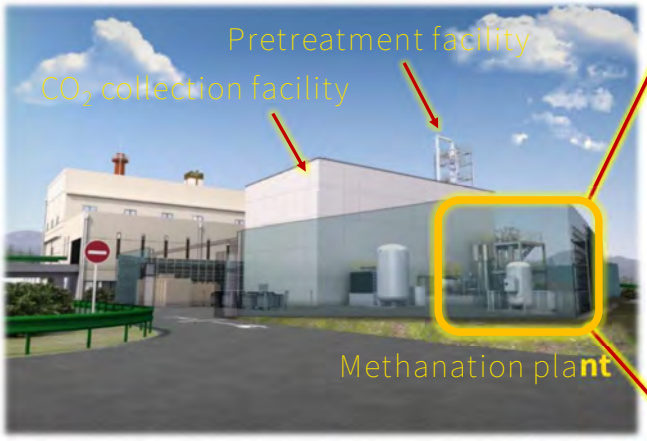
2018-/Ministry of the Environment
125.0 Nm^3/h
<Recycling of CO_2 recovered from a WtE plant>

Demonstration of Methanation, Odawara WtE Plant

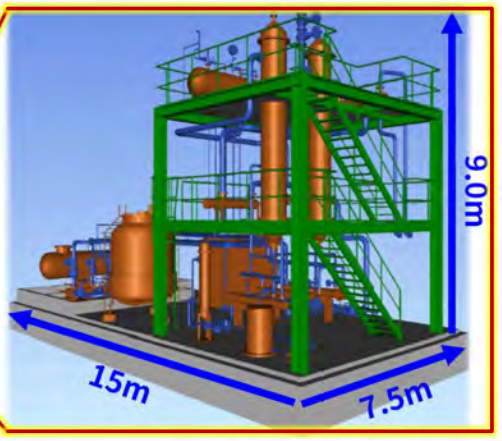
Kanadevia

- ”Demonstration project for building a carbon cycle model by recycling carbon dioxide recovered from an incineration plant” (FY2018-2022)
- Demonstration project for separating and recovering CO_2 contained in exhaust gas and converting it into Methane
- Methane production:125 Nm^3/h-CH_4=Largest demonstration machine in Japan

Introduction of a methanation system in the WtE plant

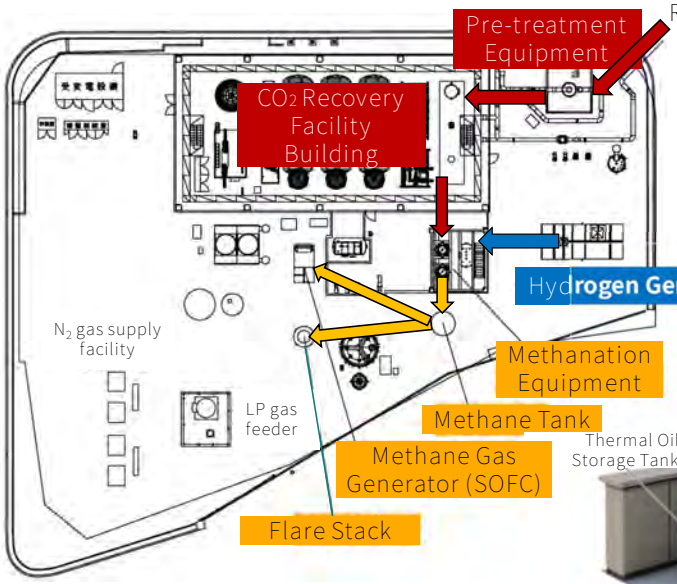


Schematics of the plant structure

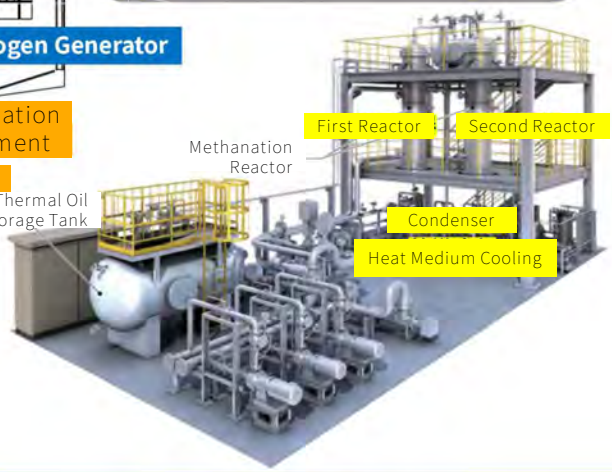


Demonstration Site/Plant Layout

Kanadevia



- Overall (installation area including incidental equipment)
  15.0 m x 7.5 m x 9.0 m
- Methanation Frame
  5.5 m x 5.0 m x 9.0 m



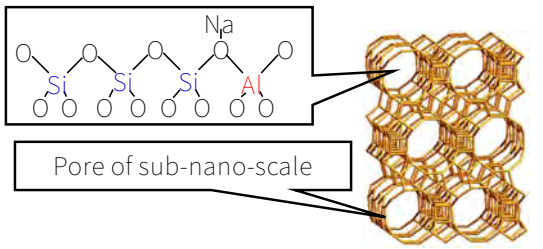
ZEOLITE MEMBRANE

Kanadevia Zeolite Membrane Separation System (HDS™)

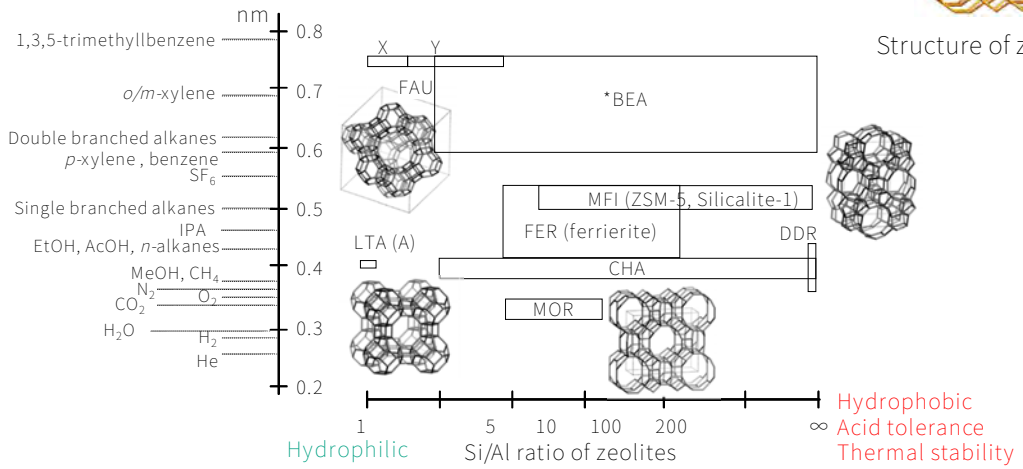
Kanadevia

About zeolite

- High mechanical and chemical stability
- Interstitial passage size can be artificially adjustable

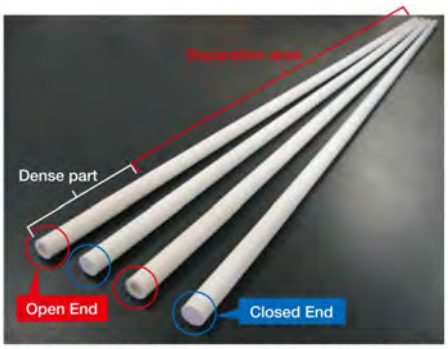


Structure of zeolite

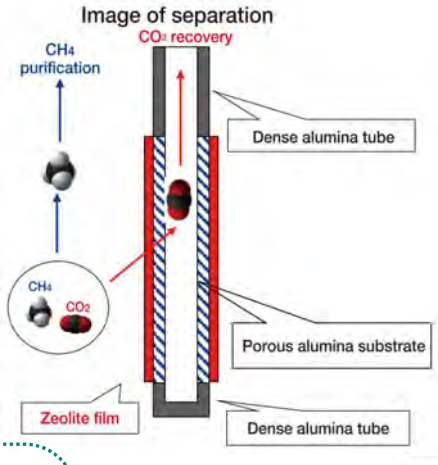


Demonstration Site/Plant Layout

Kanadevia



Appearance of Kanadevia zeolite membrane
(Outer diameter: 16 mm, Length: 1130 mm)



Zeolite membrane

Membrane Module
(10 pieces/unit)

Membrane module assembly

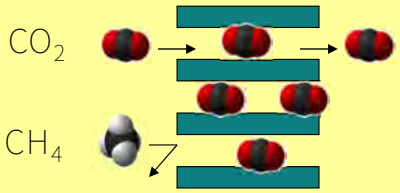
Purified CH_4 → CBG / Pipeline

Removed CO_2 → - To Methanation - Sales gas

Separation Mechanism of Zeolite Membrane

Kanadevia

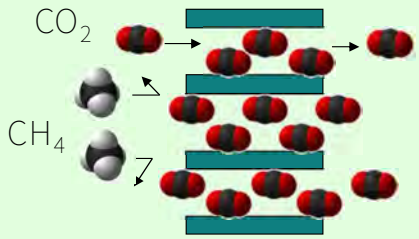
Molecular sieving
(using difference in molecular size and/or diffusivity)



Molecular size

CO_2 (0.33nm) < CH_4 (0.38nm)

Preferential adsorption
(using difference in strength of adsorption)

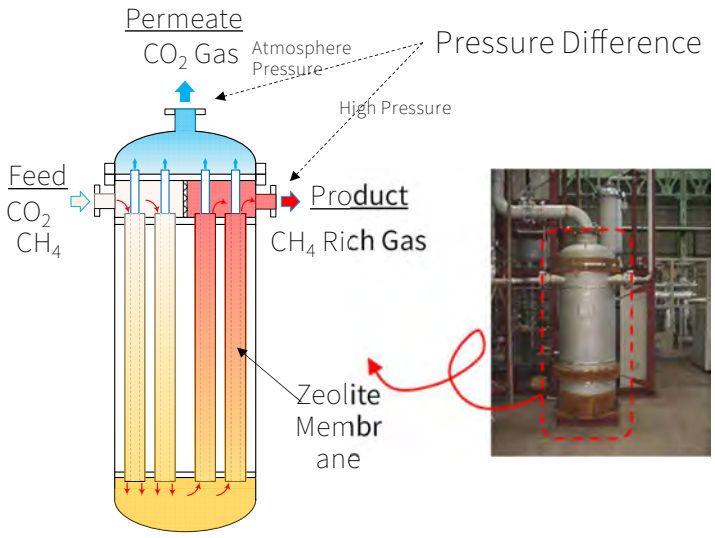


Strength of adsorption

$CH_4 < CO_2$

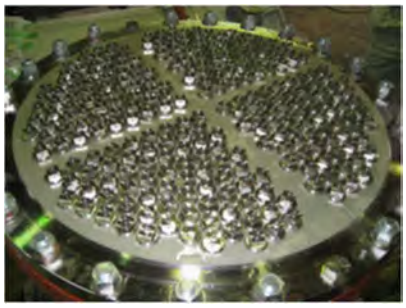
Demonstration Site/Plant Layout

Kanadevia



Shell & Tube Type

Module of Membranes
(Modules install in series)



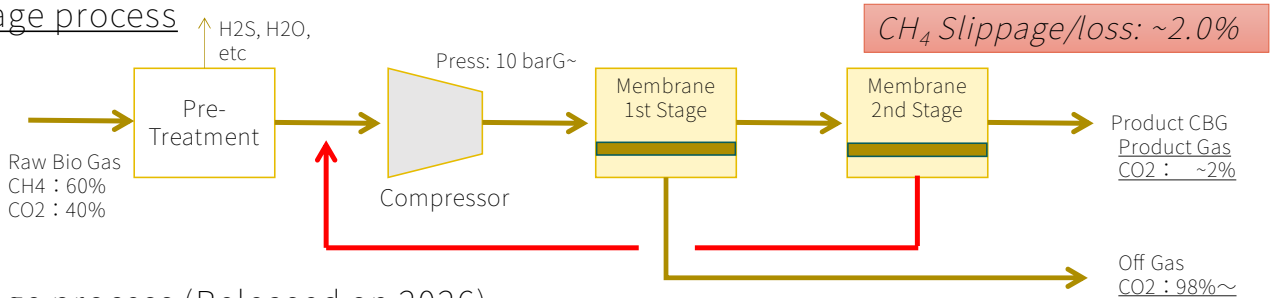
Compartment of Membranes in Module
(4 Compartments in series)

Biogas Upgrading system with Zeolite Membrane

Kanadevia

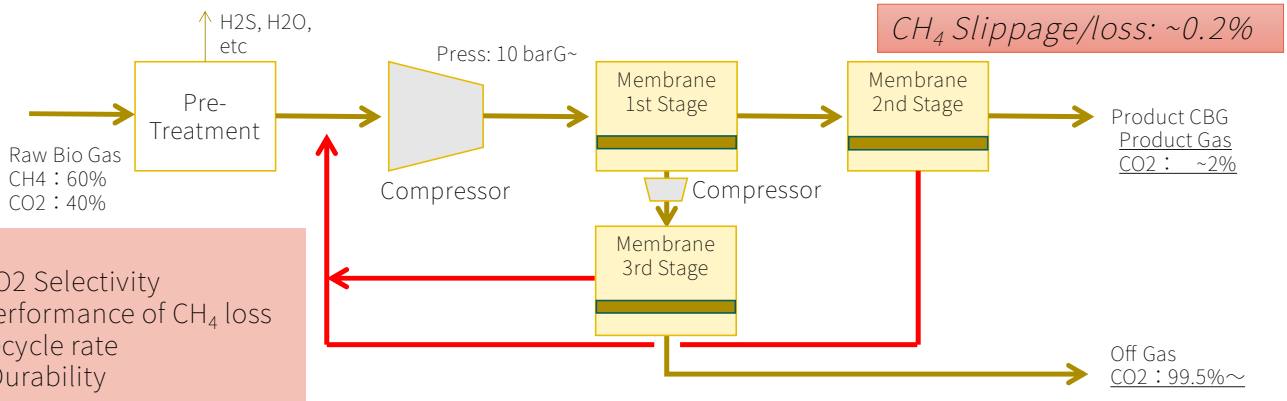
1) 2 stage process

CH_4 Slippage/loss: ~2.0%



2) 3 stage process (Released on 2026)

CH_4 Slippage/loss: ~0.2%



Features
- High CO2 Selectivity
- High Performance of CH_4 loss
- Low Recycle rate
- Good Durability

Project Idea (Flare Gas to Power)

Kanadevia

- Flare gas has been reduced every year but it is not utilized sufficiently as Power.
- Combination of Kanadevia's technologies can convert flare gas into Methane gas.

CO_2 : 70-80%
CH_4 : 20-30%

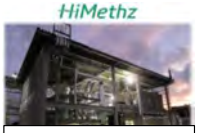
Zeolite membrane

CO_2 ~2%

CH_4

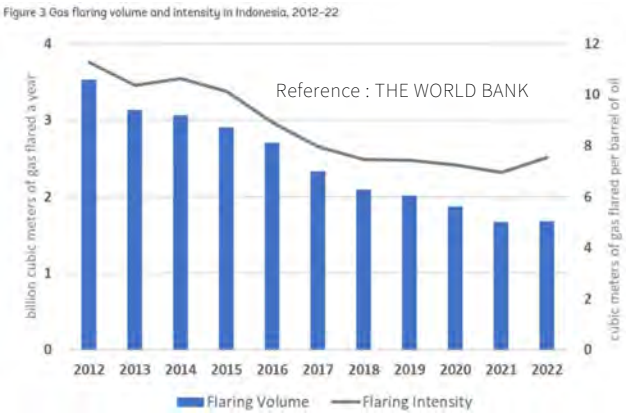
CO_2 98%~

HiMethz



Methanation

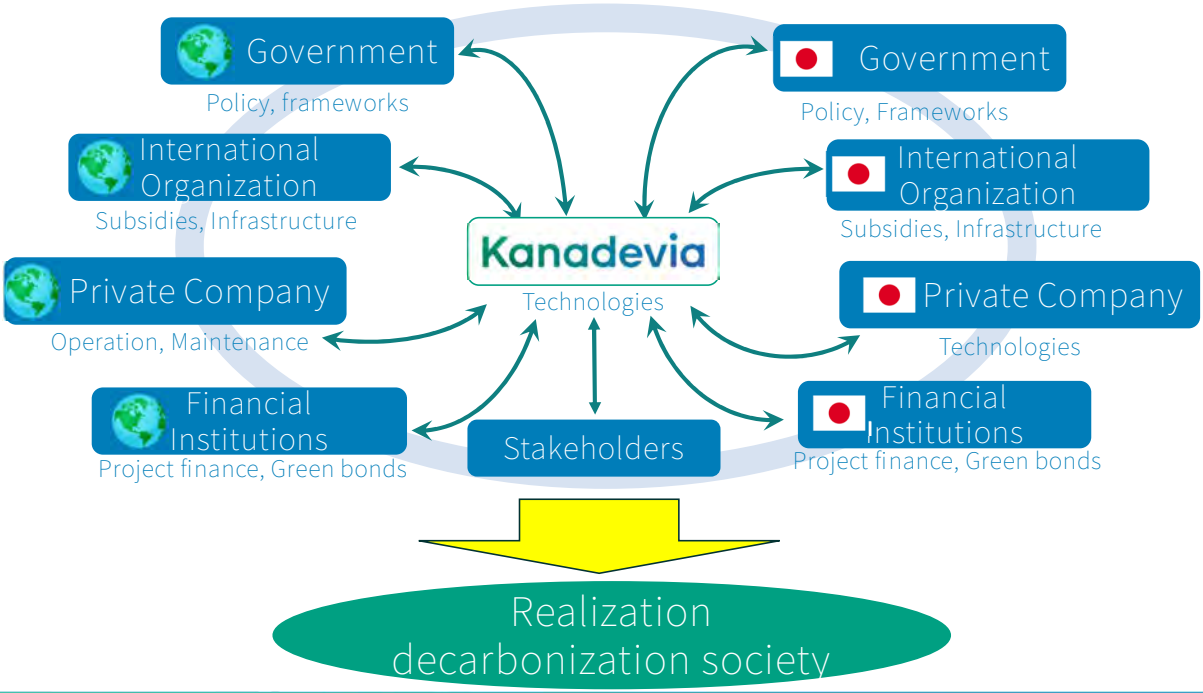
$GreenH_2$



Collaboration of All Sectors

Kanadevia

・The resolution of city and world issues can be achieved through the collaboration of all sector.



Kanadevia

Technology for people and planet

Introduction to Energy Conservation at Factories and JCM Projects

工場の省エネ、およびJCMプロジェクトの事例紹介

YUASA TRADING INDIA PRIVATE LIMITED
https://yuasa.in/
YUASA TRADING CO.,LTD.
https://www.yuasa.co.jp/

Jan 14 2026

Service Integrated Shosha Group
（複合専門商社グループ）

Contents
目次

Company profile – YUASA TRADING CO.,LTD.
ユアサ商事 会社概要

会社名	Company Name	ユアサ商事株式会社	YUASA TRADING CO.,LTD.
創業	Founded	１６６６年 (寛文６年) ３月	March 1666 **360th anniversary**
設立	Established	１９１９年 (大正８年) ６月２５日	June 1919
代表者	Representative Director	代表取締役社長 田村 博之	Hiroyuki Tamura, President and CEO
本社所在地	Address of Head Office	東京都千代田区神田美土代町７番地	7 Kanda-Mitoshirocho, Chiyoda-ku, Tokyo 101-8580, Japan
資本金	Capital	20,644百万円	20,644 million yen
上場証券取引所	Stock Exchange Listing	東京証券取引所プライム市場	The Tokyo Stock Exchange Prime Market
証券コード	Stock code	8074	8074
事業年度	Financial Period	4月1日から翌年3月31日(決算期３月)	From April 1 to March 31 of the following year (March 31 financial closing)
事業所数	Offices	国内32カ所、海外11か国31拠点	32 locations in Japan, 31 locations in 11 countries overseas
関係会社数	Group Companies	国内グループ会社24社、海外グループ会社18社	24 domestic group companies, 18overseas group companies
従業員数	Employees	2,891名(連結) 1,264名(単体)	2,891(Consolidated) 1,264(Non-Consolidated)

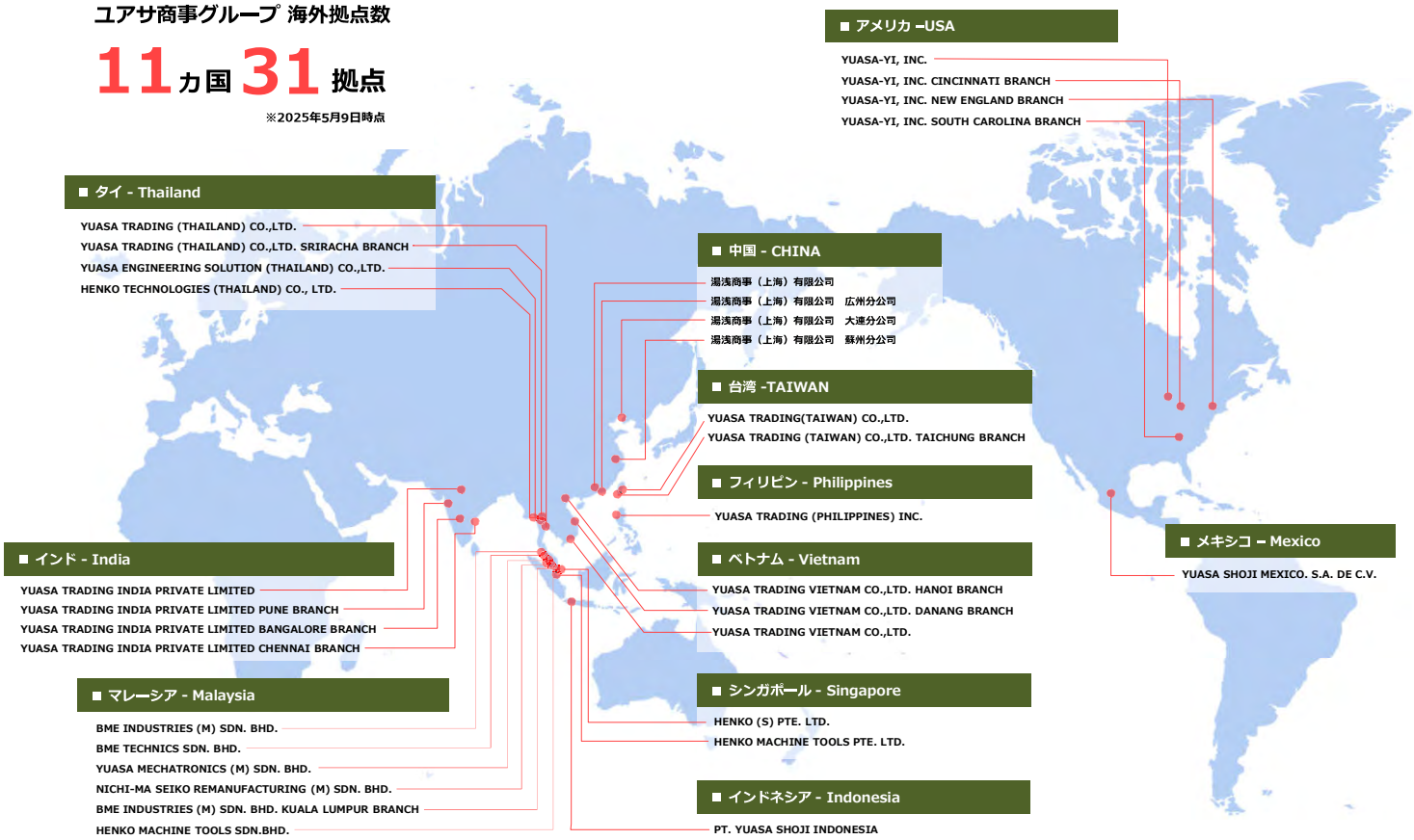
(2025年3月末 時点 at the time of March 31, 2025)

Yuasa Group Overseas Network
ユアサ商事グループ 海外ネットワーク

ユアサ商事グループ 海外拠点数

11カ国31拠点

※2025年5月9日時点



Company profile – YUASA TRADING INDIA PVT. LTD.
ユアサ商事インド 会社概要

Yuasa has been operating in India since 2010. We are a subsidiary of Japan. We provide products as a machinery trading company dealing in various machine tools. We can also provide spare parts and accessories necessary for your machines. We are committed to supporting our valued customers. We will continue to build trust with our products.

Managing Director
Akikazu Namai

ユアサは2010年からインドで事業を開始
当社は、日本の子会社です。各種工作機械などを扱う機械商社として製品を提供しています。
また、お客様の機械に必要なスペアパーツやアクセサリを提供することも可能です。私たちは大切なお客様を全力でサポートいたします。これからも製品とともに信頼を築いていきます。

24TH DEC, 2010

YUASA TRADING INDIA PRIVATE LIMITED

【Products】
Machine tools, Equipments, Special purpose machine,Automation,Measuring Equipments,
Turn key solutions, **Energy saving solutions**, Technical services,
Machine overhaul, Material handling equipments.

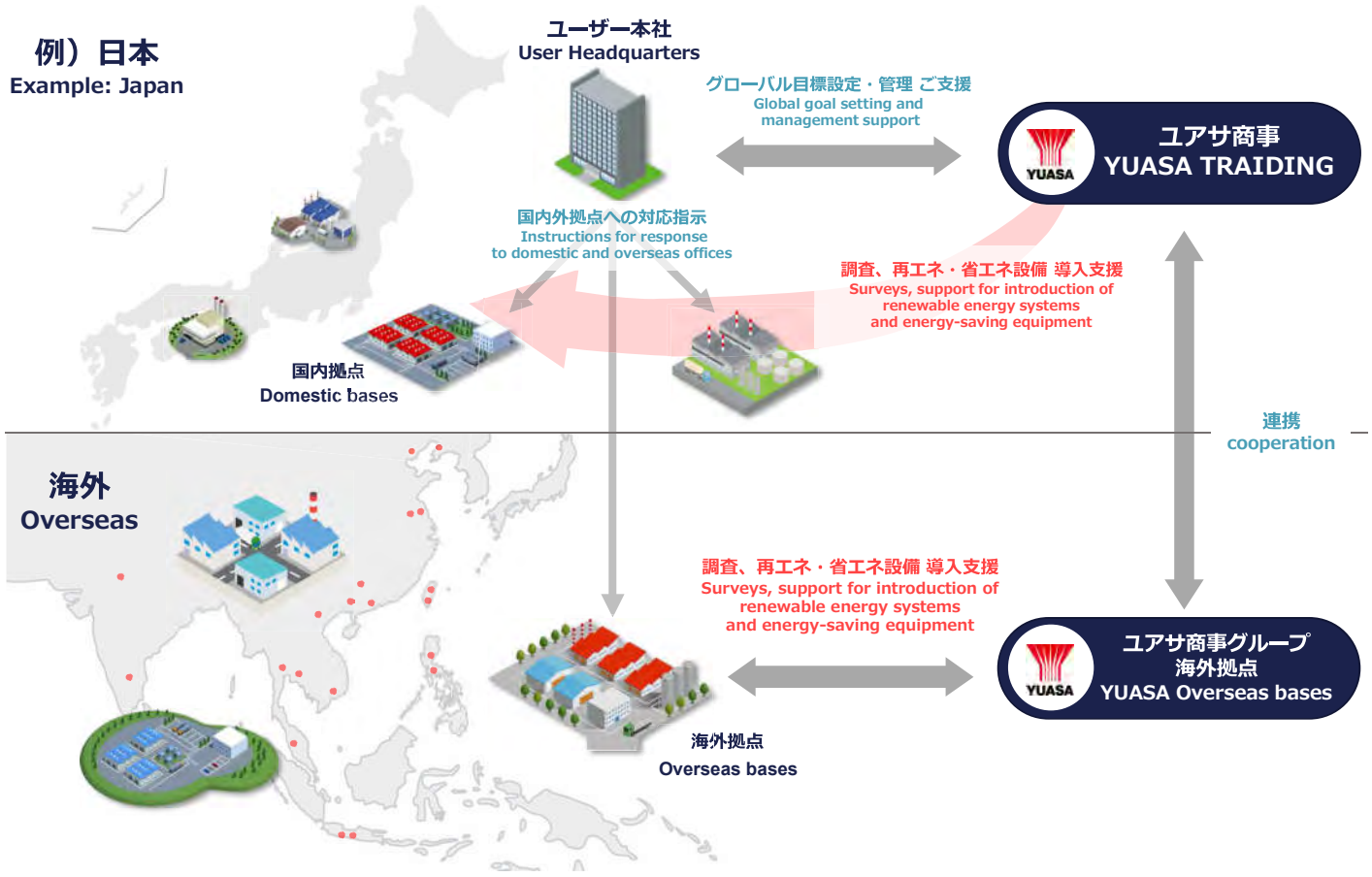
Energy-saving related business adoption record by industry

Industrial Sector	
■ Quarrying	■Lime manufacturing
■ Manufacture of aluminum and aluminum alloy stamped products	■ Aluminum and Alloy Die Casting Manufacturing
■ Manufacture of internal combustion engines for general use	■Manufacture of automotive parts and accessories
■Manufacture of transportation machinery and equipment	■ Power transmission equipment manufacturing
■Ball and roller bearing manufacturing	■ Shipbuilding and repair
■Manufacture of marine engines	■Manufacture of logistics and transportation equipment
■Manufacture of metal machine tools	■Metal heat treatment industry
■Manufacture of aluminum and aluminum alloy presses	■Manufacture of gelatin and adhesives
■ Manufacture of bolts, nuts, rivets, small screws and wood screws	■Manufacture of rubber products
■Chemical Industry	■Consumer electrical machinery and equipment manufacturing
■ Manufacture of chemical products not elsewhere classified	■ Manufacture of information and telecommunications machinery and equipment
■ Manufacture of watches and components	■Manufacture of medical machinery and equipment
■Manufacture of other electrical machinery and appliances	■Manufacture of pharmaceutical preparations
■ Personal computer manufacturing	■Furniture manufacturing
■Pharmaceutical Manufacturing	■ Plastic container manufacturing
■Manufacture of cork products	■Corrugated fiberboard manufacturing
■Manufacture of gas and oil appliances	■ Paper product manufacturing
■ Plastic products manufacturing not elsewhere classified	■ Paint manufacturing
■ Manufacture of photographic equipment and accessories	■Food Manufacturing
■Manufacture of processed paper products	■Frozen prepared foods manufacturing
■Grain and flour milling	■Manufacture of dairy products
■Manufacture of edible amino acids	■Livestock-like industries
■Manufacture of fish paste products	■Sake brewing industry
■Other bakery and confectionery manufacturing	

business department	
■ General Hospital	■ Plumbing and sanitary engineering
■ National University	■ Real estate leasing and management
■ Private Universities	■Airport
■ Office Building	■Automobile terminal business
■ Tenant Building	■Warehousing
■ Commercial facilities (station buildings)	■Harbor Transportation
■ Research Facilities	■Publishing
■ Golf Courses	■Telecommunications industry
■ Ryokan/Hotel	■Management consulting
■ Consumer's Cooperative Union	■Refuse disposal business
■ Financing	■Welfare and nursing care services for the elderly
■ Multiple Service Business	■Various service businesses
■ Cooperative financial services	■ Various retailers
■Construction	■ Wholesale of various types of products
■Heating and cooling equipment installation business	

Yuasa Trading has a track record of providing energy-saving consulting and construction services to over 500 companies over the past 10 years, and can provide support to a wide range of industries.

Image of Yuasa's support for global operations
ユアサのグローバル対応支援イメージ



Energy-Saving Products　Equipment Improvement　Introduction of renewable energy
省エネ商品紹介 - 設備改善 再生可能エネルギー導入

Product Name 商品名称

Introduction of renewable energy
再生可能エネルギーの導入

By introducing solar power generation equipment and storage batteries, renewable energy utilization rates can be enhanced, reducing carbon dioxide emissions while lowering energy costs. We provide comprehensive support from design and simulation through to construction.

太陽光発電設備や蓄電池の導入により、再エネ率を向上させ、CO2排出量だけでなくエネルギーコストも削減します。設計やシミュレーションから施工までトータルで支援可能です。

Roof placement 屋根置き

The most common installation method.Confirm load-bearing capacity before installation.。
最も一般的な設置方法。
事前に耐荷重の確認が必要。

- The initial costs are the most affordable. 初期費用は最も安価に設置が可能。
- Easy to install, excellent maintainability 施工がしやすく、メンテナンス性も◎
- Prior confirmation of roof loads on buildings is necessary. 建物の屋根荷重の事前確認が必須。

outdoor setup 野立て

When there is no space available on the roof,or to effectively utilize unused land within the site.
屋根に設置スペースがない場合や、敷地内に余っている遊休地の有効活用。

- The effective utilization of idle land has become possible. 使っていない土地の有効活用が可能。
- Wherever there is land, large-scale power plants can be built. 土地さえあれば、大規模な発電所を実現。
- When buildings are present in the vicinity, the impact of shadows must be considered. 周辺に建物がある場合、影の考慮が必要。

Solar Carport ソーラーカーポート

Preserve parking space while maximizing the use of the space above.When seeking to further increase the utilization rate of renewable energy.
駐車スペースは確保したまま、上部空間の活用。再エネ率をさらにUPさせたい時に。

- The installation method with the highest initial cost. 初期費用は最も高い設置方法。
- Protect your vehicle from rain, snow, and sunlight. 雨・雪・日差しから、車両を保護。
- According to the Building Standards Act,a building confirmation application must be submitted. 建築基準法に則り、建築確認申請が必要。

Product Overview - 製品概要

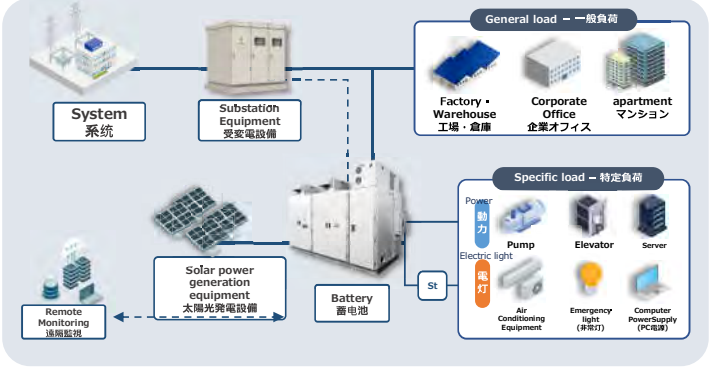
■ From design and simulation to construction, we provide comprehensive services.
設計・シミュレーションから施工まで対応可能

■ In the field of solar power generation equipment installation, we possess reliable technical expertise and extensive construction experience.
太陽光発電設備導入における確かな技術力と豊富な施工実績

■ Solar power generation equipment combined with storage batteries enhances the utilization rate of renewable energy.
太陽光発電設備と蓄電池を合わせて再エネ率UP

Panel Layout Diagram パネルレイアウト図 | Power Generation Simulation 発電シミュレーション | First-Year Income and Expense Simulation 初年度収支シミュレーション | Peak Cut Simulation ピークカットシミュレーション

Battery – 蓄電池



Introduction of solar power generation equipment in Samut Prakan Province
サムットプラカーンにおける太陽光発電設備導入

Solar Panel Capacity パネル容量	1,089.34kW
Annual electricity generation 年間発電量	1,189,559kWh
Implementation Plan 導入スキーム	Self-investment 自己投資
Reduction in carbon dioxide emissions CO2排出量削減効果	589.3 t-CO2/Year
※Carbon Dioxide Emission Factor ※CO2排出係数	0.4954kg-CO2/kWh

Introductory Photo - 導入写真

Introduction of Solar Power Generation Equipment at Kanazu Murata Manufacturing
金津村田製作所における太陽光発電設備導入

Facility Name 施設名称	Kanazu Murata Manufacturing Clean Energy Park 金津村田製作所クリーンエネパーク
Location 所在地	Fukui Prefecture 福井県
Forms of Utilization of Generated Electricity 発電電力の利用形態	For internal use only 自社利用
Solar power generation capacity 太陽光発電設備容量	638kW
Battery capacity 蓄電池容量	913kWh
Annual electricity generation 年間発電電力量	740,000kWh/Year
Annual CO2 Reduction 年間CO2削減量	368 t-CO2/Year
Renewable Energy Usage Ratio 再エネ率	13%

Energy-Saving Products Introduction Equipment Improvement Upgrade to a high-efficiency injection molding machine
省エネ商品紹介 - 設備改善 高効率射出成型機への更新

Product Name 商品名称

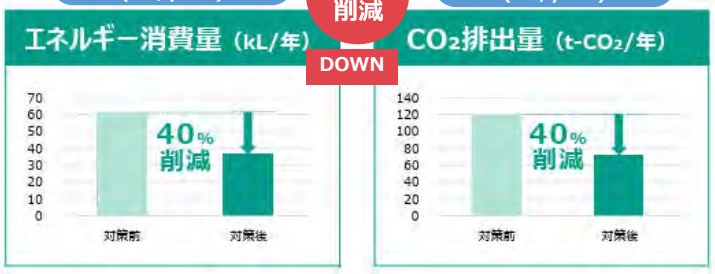
Upgrade to a high-efficiency injection molding machine 高効率射出成型機への更新

高効率射出成形機はエネルギー消費効率が高いため、導入することで、生産量あたりのエネルギー消費量を削減することができる。また、生産効率の向上、材料ロスの削減、品質の均一化等も期待できる。

High-efficiency injection molding machines are highly energy efficient, so their introduction can reduce energy consumption per production volume. They can also be expected to improve production efficiency, reduce material waste, and standardize quality.

Before hydraulic injection molding machines | **After Electric Injection Molding Machine**

Energy consumption (kL/year) — 40% 削減 — CO2 emissions (kL/year)



Before 更新前 / After 更新後 — Before 更新前 / After 更新後

Upgrade to a high-efficiency injection molding machine 高効率射出成型機への更新

■ There are two types of injection molding machines: electric types that use a servo motor as the drive source for the injection unit, and hydraulic types that use a hydraulic unit.

射出成形機には、射出装置の駆動源にサーボモータを用いた電動式と、油圧ユニットを用いた油圧式の2つがある。

■ Electric systems consume less energy than hydraulic systems because they drive the motor only when and as much as needed.

電動式は必要なときに必要なだけモータを駆動させるため、油圧式に比べてエネルギー消費量が小さい。

■ Products have also been developed that can be connected to EMS to automate production management and production.

EMSに接続して、生産管理や生産の自動化ができるものも開発されている。

出所）[1]株式会社関東製作所「射出成形機特約」（閲覧日：2023年10月14日）
[2]株式会社日本製鋼所「中型全電動射出成形機」（閲覧日：2023年9月20日）

Energy-Saving Products Introduction Equipment Improvements Air Conditioning Equipment Replacement
省エネ商品紹介 - 設備改善 空調設備更新

Product Name 商品名称

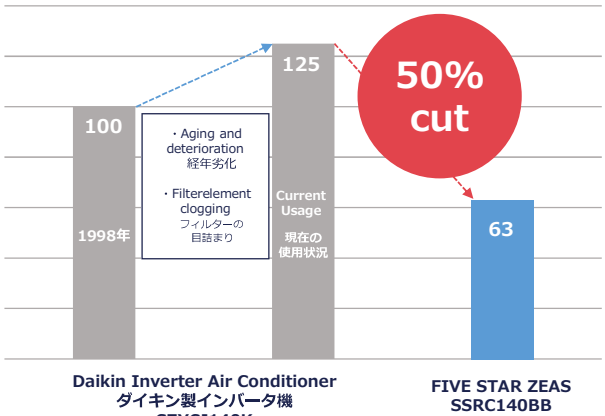
Air Conditioning Equipment Replacement 空調設備更新

The latest air conditioning equipment has seen significant improvements in energy efficiency, which will help reduce electricity consumption and lower electricity bills.

最新の空調設備は、省エネ性能が大幅に向上しており、消費電力量と電気代の削減に繋がります。

Even when using a variable frequency drive, power consumption can be reduced by approximately 50%.
インバータ機からの更新でも、消費電力量を50%以上削減

■ **Annual Electricity Consumption Comparison - 年間消費電力比較**



Reference Standards for Equipment Replacement– 機器更新の目安

The typical replacement cycle for commercial air conditioning equipment is 10 to 15 years.
業務用空調機の更新は10～15年が目安です。

■ **Increased risk of malfunction**
故障のリスクが高くなる

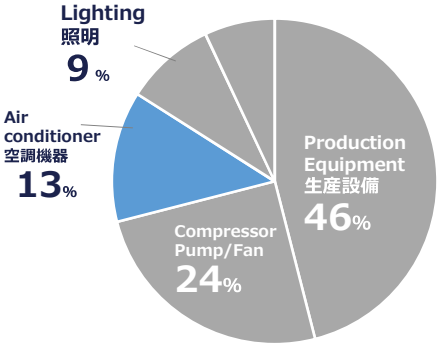
■ **Procurement of components will become difficult.**
部品の入手が難しくなる

■ **Poor cooling or heating performance of the air conditioner**
冷房・暖房の効きが悪くなる

■ **For the latest equipment, efficiency is relatively low.**
最新の機器に対し効率が悪い

Air conditioning equipment accounts for a significant portion of electricity consumption in manufacturing. Replacing it with energy-efficient models can substantially reduce electricity costs.

製造業における空調設備の電力消費比率は大きく、
省エネ性の高い空調設備への更新は電気料金削減に大きな効果をもたらします。



Source: Agency for Natural Resources and Energy Statistics
出典：資源エネルギー庁統計

Energy-Saving Products Introduction Equipment Enhancement Air Conditioning Control System ECO POWER FIT
省エネ商品紹介 - 設備改善 空調制御システム ECO POWER FIT

Product Name 商品名称

Air Conditioning Control System ECO POWER FIT
空調制御システム

By continuously monitoring the current of air conditioner and refrigeration compressors, their operational status is tracked in real time. At optimal intervals, the compressor is switched to fan mode for a set period every 30 minutes, achieving energy savings while maintaining comfort.

エアコン・冷凍機の圧縮機の電流を計測しながら稼働状況を常時監視し圧縮機を痛めないように最適なタイミングで30分に1回、制御し一定時間を送風状態にすることで快適性も維持しながら省エネを図ります。

The power consumption of air conditioners can be reduced by approximately 10% to 30%.
空調機の電力を約10~30%削減

Demand response capabilities can reduce peak electricity consumption.
デマンド制御機能でピーク電力をカット

- Installed on existing air conditioners that are already in use.
  既に稼働している既存の空調機に取り付ける事ができます。
- We support a wide range of models, from older versions to the latest releases.
  古い機種から最新の機種まで幅広く対応しています。
- It can still be used when replacing the air conditioner
  空調買い替え時にもそのままの使用が可能です。

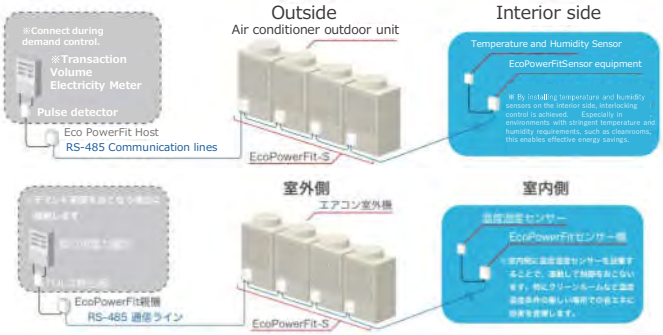
Product Overview - 製品概要

・Predict indoor conditions and switch to ventilation mode at the optimal time (±1°C from the set indoor temperature).
室内環境を予測し最適なタイミングで送風運転に切り替え（室内設定温度±1度）

・Through fully independent control, achieve a reliable demand control system capable of responding to various control conditions and faults.
完全個別制御で、多様な制御条件と障害に強いデマンドコントロールシステムを実現

- Compressor Protection Function 圧縮機保護機能
- Supports variable frequency drives インバーター対応
- Seasonal and Time-Period Control 季節・時間帯別制御
- 365 Days of Data Retention 365日間データ保持
- Temperature and Humidity Interlock Control 温度・湿度連携制御

System Basic Architecture – システム基本構成



Annual Energy Savings 年間省エネ量	Annual CO2 Reduction 年間CO2削減量	Annual Emissions Reduction 年間削減金額	Investment Amount 投資金額	Simple payback period (years) 単純回収年数
36,000kWh	20.5t-co2	US$4,680(702,000円)	US$26,666 (4,000千円)	5.7 years 5.7年

※ Air Conditioner Compressor Capacity (空調機コンプレッサ容量) : 7.5kW Expected (想定) 5 units 5台
※ Electricity unit price (電力単価) : 0.13USD/kWh 、Carbon dioxide equivalent factor (CO2換算係数) : 0.5703 kg-CO2/kWh、Rate (レート) : JP￥150円/1US$

Energy-Saving Products Introduction Equipment Improvement Next-Generation Energy-Saving Unit ECOMO
省エネ商品紹介 - 設備改善 次世代節電ユニット ECOMO

Product Name 商品名称

Next-Generation Energy-Saving Unit ECOMO 次世代節電ユニット ECOMO

An energy-saving device that reduces power consumption by improving electrical current flow. Utilizing the properties of natural minerals such as tourmaline, it achieves energy savings by minimizing electrical losses in wires and electronic equipment.

電気の流れを改善することで電気使用量を削減する節電ユニットです。
トルマリンなどの自然鉱物の特性を利用し、電線や電子機器の電力ロスを減らすことで省エネを実現します。

Product Overview - 製品概要

Patent acquired 特許取得済み
※Acquired in 2018
This product, named the "Power Improvement Device," has been patented. With a focus on energy management designated factories, it has been installed in over 1,000 facilities.
「電力改善装置」の名称で、特許取得済みの商品です。エネルギー管理指定工場を中心に1,000か所以上の導入実績。

Total energy-saving solution 全体の省エネ提案
To achieve energy savings through the power "transformer unit," the entire equipment can undergo energy-saving retrofitting. ※Applicable to 200V and 400V power transformers.
動力の「トランス単位」での節電を提案するため、設備全体を狙った省エネが可能です。※200V、400V動力トランス

5-15% reduction effect 5～15%削減実績
Electricity consumption is projected to achieve energy savings of 5% to 15% (based on past implementation cases). The payback period is approximately 3 to 5 years.
電力使用量のうち、5～15%の削減効果が見込めます（過去導入実績）。3～5年程度の投資回収が可能です。

※Implementation Track Record (Number of Business Locations) 導入実績(事業所数)
※Power transformers with secondary voltages below 600V
※２次側が600V未満の動力トランス

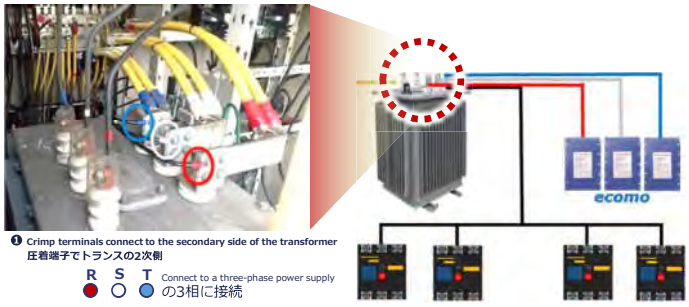
To date - 今まで

Typically, wires and electronic devices generate losses.
通常、電線と電子機器にはロスが生まれる

ecomo

The noise cancellation effect produced by ecomo's electrons and ferrite enables smoother current flow.
ecomoから発生する電子とフェライトのノイズ除去効果で電気の流れを潤滑にする

Installation Method - 設置方法



❶ Crimp terminals connect to the secondary side of the transformer
圧着端子でトランスの2次側

R S T Connect to a three-phase power supply の3相に接続

Annual Energy Savings 年間省エネ量	Crude oil equivalent 原油換算	Annual CO2 Reduction 年間CO2削減量	Annual Emissions Reduction Amount 年間削減金額	Investment Amount 投資金額	Simple payback period (years) 単純回収年数
181,800kWh	45.81kL	103.7t-co2	23,624USD (3,545,100円)	44,000USD (6,600,000円)	1.9年

※ Transformer Capacity (トランス容量) : 300kVA Estimated (Assumed)
※ Electricity unit price (電力単価) : 0.13USD/kWh 、Crude Oil Conversion Factor (原油換算係数) : 0.252 L/kWh、Carbon dioxide equivalent factor (CO2換算係数) : 0.5703 kg-CO2/kWh、Rate (レート) : JP￥150円/1US$

Energy-Saving Products Introduction Equipment Improvement Boiler equipment replacement
省エネ商品紹介 - 設備改善 ボイラー更新

YUASA

Product Name 商品名称

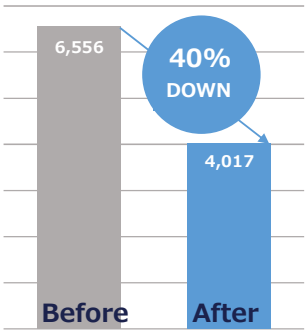
Boiler Replacement ボイラー更新

Outdated boilers suffer from low thermal efficiency and significant heat loss, leading to increased fuel cost pressures. By upgrading to the latest high-efficiency boilers equipped with latent heat recovery capabilities, previously wasted exhaust heat can be effectively utilized. Combined with optimized combustion control, thermal efficiency will achieve a dramatic improvement, significantly reducing fuel consumption and carbon dioxide emissions.

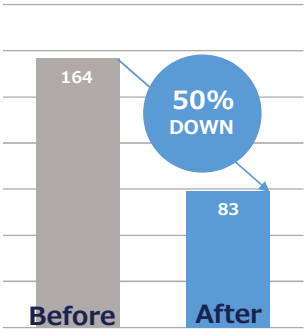
老朽化したボイラは熱効率の低下や放熱ロスが大きく、燃料費を圧迫します。潜熱回収機能を備えた最新の高効率ボイラへ更新すれば、これまで捨てていた排ガスの熱を有効活用。
燃焼の最適制御と合わせ、熱効率を飛躍的に向上させ、燃料消費とCO2排出量を大幅に削減します。

Achieving energy savings through the efficiency enhancement and gasification retrofitting of steam boilers
蒸気ボイラの高効率化及びガス化更新による省エネの実現

Carbon dioxide emissions (t-CO2/year)
CO2排出量(t-CO2/年)



Energy Costs(USD/year)
エネルギーコスト(USD/年)



※ Electricity rate: 0.13USD/kWh / Heavy oil A rate: 0.032 USD/ℓ / City gas rate: 0.042USD/Nm³
Exchange rate: 150yen/USD

Secondary Effects of Boiler Replacement (Efficiency Enhancement) in the Context of Energy Transition
「エネルギー転換を伴うボイラ更新（高効率化）」による副次的効果

- **By upgrading existing heavy oil boilers to gas-fired boilers (achieving greater efficiency),energy savings and reduced carbon dioxide emissions have been successfully realized.**
  既存A重油焚きボイラからガス焚きボイラへ更新することで(高効率化)、省エネとCO2排出削減を実現できた。
- **By implementing energy service solutions, we have achieved streamlined business processes and labor savings.**
  エネルギーサービススキーム活用による導入で、業務手間の削減や省力化が図れた。
- **With the energy transition, fuel reception operations for A-grade heavy oil-related auxiliary equipment are no longer required, reducing the burden on personnel and achieving labor and resource savings.**
  エネルギー転換に伴ってA重油関連付帯設備への燃料受入作業が不要となり、担当者の負荷が低減され、省人・省力化を実現できた。

Before

The pressure drop ratio is low, resulting in frequent boiler start-up and shutdown cycles.
ターンダウン比が小さく、ボイラの発停回数が多かった。


A Heavy Oil Combustion Boiler
A重油焚きボイラ


The furnace's combustion range (narrow)
缶ボイラの燃焼幅(狭い)

When steam usage is low (with a relatively high minimum combustion rate), cease operation.
蒸気使用量の少ないとき（最低燃焼量が高い）に停止していた

Frequent starting and stopping leads to excessive energy consumption.
発停の回数が多いことでエネルギー消費が大きい

After

As the speed ratio increases, efficiency during low-load operation is enhanced.
ターンダウン比が拡大に伴い、低負荷運転時の効率改善ができた。


Liquefied Natural Gas-Fired Steam Boiler
LNG焚き蒸気ボイラ


Boiler Combustion Range (Expanded)
ボイラの燃焼幅（拡大）

When steam usage is low (with a relatively high minimum combustion rate), cease operation.
蒸気使用量の少ないとき（最低燃焼量が高い）に停止していた

Frequent starting and stopping leads to excessive energy consumption.
発停の回数が多いことでエネルギー消費が大きい

Energy-Saving Products Introduction Equipment Improvement Compressor Replacement
省エネ商品紹介 - 設備改善 コンプレッサー更新

YUASA

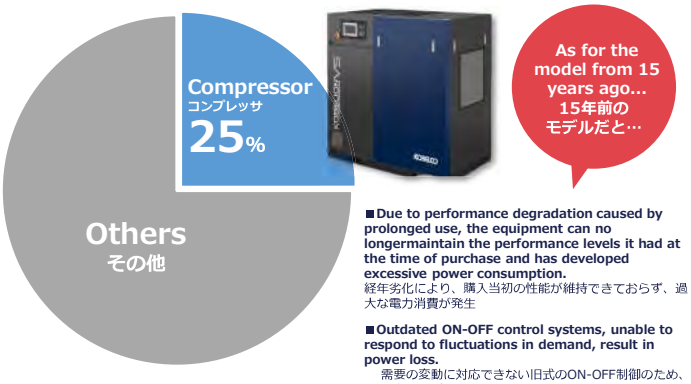
Product Name 商品名称

Compressor Replacement コンプレッサー更新

Compressors in factories consume significant amounts of electricity, and their efficiency has significantly declined due to prolonged use. By upgrading to the latest variable-frequency drive high-efficiency compressors, motor speed can be optimized based on air usage. Compared to traditional on-off control equipment, this approach substantially reduces unnecessary power consumption.

工場の消費電力の多くを占めるコンプレッサは、経年劣化により効率が著しく低下します。最新のインバータ制御式高効率コンプレッサへ更新することで、空気使用量に応じてモーター回転数を最適化し、従来のON/OFF制御機と比べ無駄な電力消費を大幅に削減。

In typical manufacturing plants, compressors account for 20 to 25 percent of total electricity consumption.
一般的な製造工場において、20~25%がコンプレッサの消費電力



■**Due to performance degradation caused by prolonged use, the equipment can no longermaintain the performance levels it had at the time of purchase and has developed excessive power consumption.**
経年劣化により、購入当初の性能が維持できておらず、過大な電力消費が発生

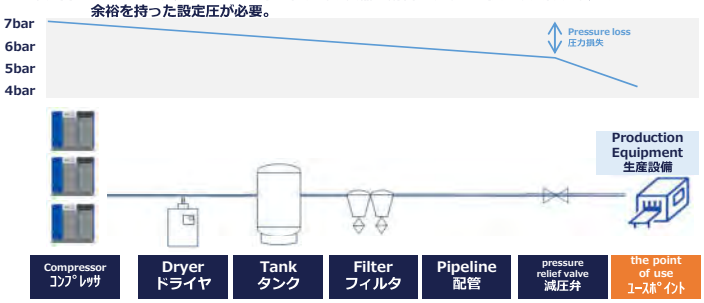
■**Outdated ON-OFF control systems, unable to respond to fluctuations in demand, result in power loss.**
需要の変動に対応できない旧式のON-OFF制御のため、電力ロスが発生

Source:
Energy-Saving Methods for Factory Compressor Equipment
出典：「工場における コンプレッサー設備の省エネ方法」

Variable Frequency Drive Equipment + Line Pressure Control + Number of Units Control Implementation
インバータ機＋ライン圧制御＋台数制御 導入

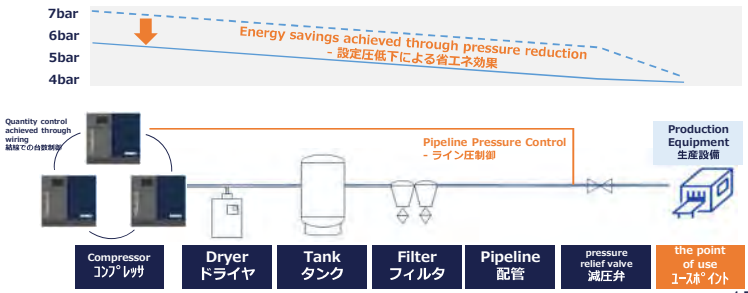
Before

Cruise control 3units : Pressure losses occur in the equipment and piping from the compressor to the point of use, necessitating the establishment of a pressure margin.
定速機3台：コンプレッサからユースポイントまでの機器、配管による圧力損失が変化するため、余裕を持った設定圧が必要。



After

2 fixed-speed units, 1 variable-frequency unit :
By monitoring terminal pressure through line pressure control and implementing capacity regulation, pressure settings can be established near the point of use.
定速機2台、インバータ機1台：ライン圧制御により末端圧を検知し容量制御することで、ユースポイント近くの圧力設定が可能に



Energy Conservation and CO2 Reduction Potential Diagnosis
省エネ・CO2削減ポテンシャル診断

By utilizing wearable cameras for energy-saving diagnostics, we can provide you with specific operational improvement and equipment upgrade solutions.
ウェアラブルカメラを活用した省エネ診断による、具体的な運用改善・設備更新のご提案が可能です。

Preliminary Consultation 事前ヒアリング → Field survey 現地調査 → Problem Identification and Proposal Development 課題発見・提案書作成 → Proposal for Improvement and Equipment Renewal 運用改善・設備更新 のご提案

Proposed Diagnosis Results (Example)
診断結果のご提案 (例)

- ✓ **Specific Operational Improvement Recommendations**
  具体的な運用改善のご提案
- ✓ **Proposal for Specific Equipment Replacement**
  具体的な設備更新のご提案
- ✓ **Simulation of Improvement Effects**
  改善効果のシミュレーション
- ✓ **Proposal for Energy Management**
  エネルギー管理に関するご提案

・Energy savings – エネルギー削減量
・Electricity cost savings – 電気料金削減額
・CO2 reduction amount – CO2削減量

Local side - 現地サイド

Wearable Camera
ウェアラブルカメラ

Headquarters side - 本部サイド

✓ Headquarters is reviewing the camera footage.
カメラの映像を本部側で確認

Energy Conservation and CO2 Reduction Potential Diagnosis Schedule and Preliminary Preparation Documents
省エネ・CO2削減ポテンシャル診断スケジュール、事前準備書類

Sample Diagnostic Schedule- 診断スケジュール 例

13:30-13:40	**1．Opening Meeting - オープニングミーティング**
	・Overview of Simplified Energy-Saving and CO2 Reduction Potential Assessment 簡易省エネ・CO2削減ポテンシャル診断概要説明 ・Introducing Our Team Members 弊社メンバー紹介
13:40-14:40	**2．Factory Overview Briefing – 工場概要のヒヤリング**
	・Factory Basic Data Verification (Pre-inspection Document Review and Q&A) 工場基本データ確認（事前準備書類の確認と質疑応答） ・Hearing Based on Energy Data Sheet エネルギーデータシートに基づくヒヤリング
14:40-14:50	**3．Preparation for breaks and webcams, etc.- 休憩及びWebカメラ等の準備**
	・Yuasa local staff and headquarters staff are being monitored via webcam. ユアサ現地側スタッフ、本社サイドスタッフはWebカメラにて確認
16:50-17:00	**4．Closing Meeting - クロージングミーティング**

Note: The schedule is subject to change based on progress. We appreciate your understanding in advance.
スケジュールは進捗状況により変更がございます。予めご了承願います。

Report Meeting - 報告会

・ **Explanation of the diagnostic report approximately one month later (duration: 1-1.5 hours)**
約1か月後に診断レポートのご説明（所要時間1-1.5時間）

・Explanation of operational improvements and equipment enhancement items, and discussion of future detailed review items
運用改善、設備改善項目のご説明と今後の詳細検討項目の打合せ

■Documents to prepare in advance
事前にご準備いただきたい資料

・Site Plan
構内配置平面図

・Factory Electrical Single-Line Diagram
電気単線結線図

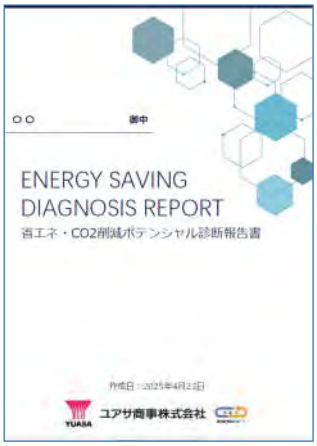
・Equipment and Machinery List
設備機器一覧

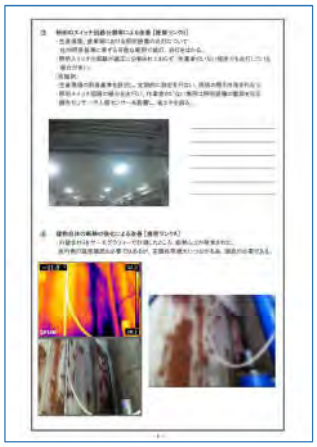
・Factory Air Conditioning Heat Source System Diagram
空調熱源系統図

・Factory energy data
(electricity, gas, oil, coal, etc.)
各種エネルギーデータ（電気、ガス、重油、石炭 等）

＊Please prepare as much as possible.

Diagnostic Report (Image)
診断報告書（イメージ）





Results of energy saving and CO2 reduction potential diagnosis
省エネ・CO2削減ポテンシャル診断 実績

Energy Efficiency Audit Results
省エネ診断 実績

JAPAN **77** cases

Thailand	**20** cases	Cambodia	**1** cases
Vietnam	**4** cases	United States	**7** cases
Philippines	**4** cases	Mexico	**4** cases
China	**5** cases		

Total 122 件

Energy-saving Diagnosis Required Materials
省エネ診断 必要資料

- Site Plan
- Equipment and Machinery List
- Factory Air Conditioning Heat Source System Diagram
- Factory Electrical Single-Line Diagram
- Factory energy data (electricity, gas, oil, coal, etc.)

- 構内平面図
- 設備機器一覧
- 工場の空調熱源系統図
- 工場の電気単線結線図
- 工場のエネルギーデータ（電気、ガス、油、石炭 等）

Energy Saving by Air-Conditioning Control System in Precision Parts Factories
空調制御システム導入による精密部品工場の省エネ

Representative Participant

YUASA TRADING Co., Ltd.

Partner Participant: Nidec Component Technology (Thailand) Co., Ltd.
Nidec Copal (Thailand) Co., Ltd.
Nidec Precision (Thailand) Co., Ltd.
Panasonic Automotive Systems Asia Pacific Co., Ltd.

Host Country	Thailand
Selected Year	2016
Type	JCM Model Project
Sector	Energy Efficiency

Expected GHG Emission Reductions

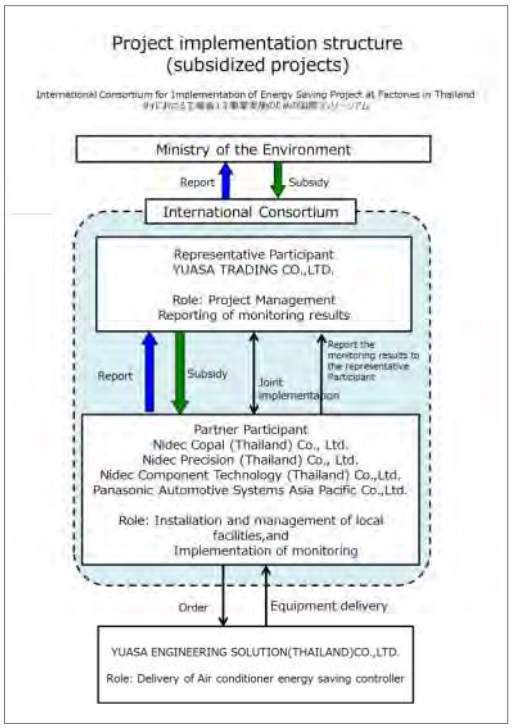
2,493 tCO2-eq./year

Related photos

Nidec Copal (Thailand) Co.

Air-conditioning control system

Working environment



This project introduces “Air conditioning control system” to air conditioners(total 529 units) in four precision parts factories. Air conditioning system constantly monitors operation status of the compressor equipped in the air conditioner outdoor unit and controls at the optimum programmed timing.
Controlling the compressor reduces electricity consumption as well as CO2 emission.

タイの精密部品メーカー4社の工場の空調機（合計529台）に空調設備制御機器を導入する。
空調制御機器は室外機にある圧縮機の稼働状況を常時監視し、圧縮機の運転をプログラミングされた最適のタイミングで制御する。これにより空調機の電力消費量を削減し、CO2排出量削減を達成する。

Joint Credit Mechanism (JCM Project) – Implementation Case in Thailand
二国間クレジット制度(JCM事業) – タイにおける導入事例

Introduction of Biomass Co-Generation System to Food Factory
食品工場へのバイオマスコージェネレーション設備の導入

Representative Participant

Fuji Foods Corporation　富士食品工業株式会社

Partner Participant: Thai Foods International Co., Ltd.

Expected GHG Emission Reductions

7,111 tCO2-eq./year

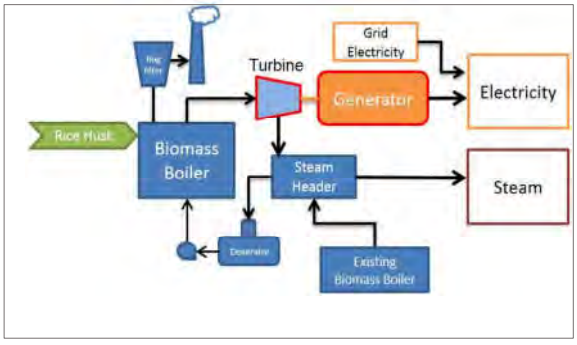
Host Country	Thailand
Selected Year	2017
Type	JCM Model Project
Sector	Renewable Energy

Yuasa Trading applies for subsidies and delivers some systems
ユアサ商事は補助金申請と一部システムを納入

Thai Foods International Co., Ltd.

Biomass boiler

GHG排出削減プロジェクトの概要



タイ国ナコンパトム県にあるThai Foods Internationalの食品工場に、バイオマスコージェネレーション設備を導入し、増産に伴い需要が増加する工場プロセスへ蒸気及び電力を供給する。もみ殻を用いたバイオマスコージェネレーション設備で発電した電力によりグリッド電力を代替し、CO2排出削減を行う。

This project supplies steam and electricity by introduction of biomass co-generation system to food factory Thai Foods International Co.,Ltd. in Nakornpathom,which has increasing demand of steam and electricity.
Electricity generated by biomass co-generation system fueled by rice husk will reduce grid electricity as well as CO2 emissions.

Joint Credit Mechanism (JCM Project) – Implementation Case in Vietnam
二国間クレジット制度(JCM事業) – ベトナムにおける導入事例

Introduction of High Efficiency Centrifugal Chiller to Rubber Products Factory
ゴム製品製造工場における高効率ターボ冷凍機の導入

Representative Participant

YUASA TRADING CO., LTD

Partner Participant: VIETNAM NOK CO., LTD.

Host Country	Vietnam
Selected Year	2017
Type	JCM Model Project
Sector	Energy Efficiency

Expected GHG Emission Reductions

289 tCO2-eq./year

Related photos

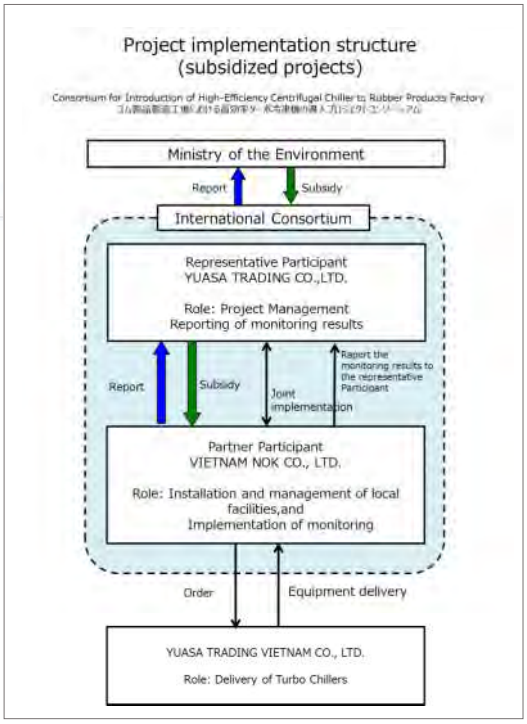
VIETNAM NOK CO., LTD.


High efficiency centrifugal chiller


Working environment

This project aims for saving energy by introduction of high efficiency centrifugal chiller to rubber products factory which is producing oil seals for engines and motors.
Electricity consumptions as CO2 emissions will be reduced by installation and operation of high efficiency centrifugal chillaer.

自動車のエンジンやギヤードモータなどに使用されるオイルシール等のゴム製品を製造する工場を対象に、既存のチラーを高効率のターボ冷凍機に更新する。
高効率のターボ冷凍機を導入することにより消費電力量を削減し、CO2排出削減を行う。



Joint Credit Mechanism (JCM Project) – Implementation Case in Mexico
二国間クレジット制度(JCM事業) – メキシコにおける導入事例

Introduction of 0.5MW Rooftop Solar Power System to Automotive Parts Factory (JCM Eco Lease Scheme)
自動車部品工場への0.5MW屋根置き太陽光発電システムの導入（JCMエコリース事業）

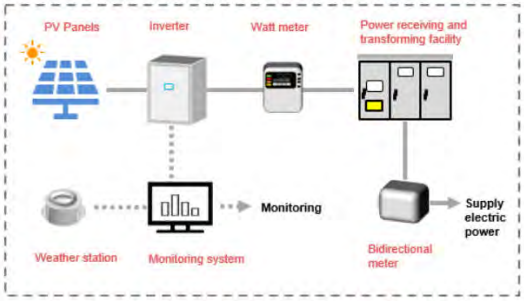
Representative Participant

BOT Lease Co., Ltd.（東銀リース株式会社）

Partner Participant: KUROTA MEXICO, S.A. DE C.V. ; BOT FINANCE MEXICO, S.A. DE C.V., SOFOM, E.N.R.

Host Country	Mexico
Selected Year	2023
Type	JCM Model Project
Sector	Renewable Energy

Yuasa Trading supports the project and delivers the solar power generation system.
ユアサ商事はプロジェクトサポートと太陽光発電システムを納入



Detailed Layout

https://gec.jp/jcm/projects/23pro_mex_01/

This project is to install a solar power system to an aoutomotive parts factory with the JCM Eco Lease Scheme.Electricity generated by the solar system is used for their self-consumption and reduces greenhouse gas (GHG) emissions by replacing part of the grid electricity.This is the first introduction of the JCM Eco Lease Scheme in Mexico.

JCMエコリース事業を活用し、自動車部品工場の屋根に0.5MWの太陽光発電システムを設置する。発電した電力を自家消費することで、工場内での消費電力の一部を再生可能エネルギーに置き換えることにより、グリッドからの電力消費量を削減し、温室効果ガス（GHG）排出量を削減する。
本件はメキシコで初のエコリース事業である。

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