



DECARBONIZATION REALIZATION IN THE PHILIPPINES

Business Catalog of Japanese Companies

Second Edition

August 2024

DECARBO

Introduction

The Philippines government has set a goal of 50% renewable energy in domestic supply by 2040. To achieve this goal, incentives such as feed-in tariffs (FIT) and the Green Energy Auction Program (GEAP) have been established to maximize the use of renewable energy.

The Japanese government has been supporting the decarbonization of ASEAN countries by launching the Asian Zero Emissions Community (AZEC) in March 2023. In January 2024, it was agreed to launch the AZEC Japan-Philippines High-Level Coordination Dialogue as a framework for local consultation between the Japanese public and private sectors and the Philippine government to promote decarbonization efforts.

This business catalog is prepared to introduce Japanese companies' products and services for decarbonization in the Philippines, such as the introduction of renewable energy and energy conservation in the industrial sector, to the Philippine government and businesses.

We hope that this catalog will contribute to the creation of new businesses and decarbonization in the Philippines.

August 2024
JETRO Manila Office

Decarbonization

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Renewable Energy

Wide range of Renewable Energy

- ④ CHODAI CO., LTD.
- ④ Marubeni Asian Power Philippines Corp.
- ④ RENOVA Inc.

Solar Energy

- ④ Advantec Philippines, Inc.
- ④ Sky Renewables Philippines, Inc.
- ④ TeaM (Philippines) Energy Corporation
- ④ Transnational Uyeno Solar Two Corporation

Biomass Power Generation

- ④ Sumitomo Heavy Industries, Ltd.

CHODAI CO., LTD.



Overview of Service

- CHODAI CO., LTD. is an engineering consulting firm with track record in developing various renewable energy projects including solar, wind, hydroelectric, biomass, and waste-to-energy power generation.
- We support everything from small-scale facilities for private consumption to large-scale facilities with equity participation.
- We provide support for planning, feasibility studies, detailed design, construction supervision, operational management, maintenance, and project fundraising. For small and medium-sized facilities, we offer zero-initial-cost service.
- We can assist in accessing a range of JP government support programs for equipment installation and project development.

Actual Result and Example

〈Mindanao Island, CARAGA Region, Mini-Hydropower Plant, 8MW〉

- Commissioned in 2018 with annual GHG reduction of 19,402 tons.
- 10% equity investment, technical consultant, facilitated two-step-loan from JBIC.
- Began in 2011, formed partnership, reviewed technical design, supervised construction, procured turbines from JP manufacturers, monitoring operations.
- Hosted numerous on-site tours for JP government officials and JP companies.

〈Solar Power Generation Projects〉

- Utility-scale solar farm, 390MW (under development).
- Remote island resort, (zero-initial-cost/under development for multiple projects).

〈Waste-to-Energy Projects〉

- Supplied steam turbine and provided plant engineering services in Thailand.
- Engaged in development activities in Vietnam, Saipan, and the Philippines.

〈Pipeline Investment Projects in the Philippines〉

- Negros Island: Mini-hydropower, 7MW (joint investment with a JP company).
- CARAGA: Mini-hydropower, 4MW (construction underway).
- CARAGA: Wind power, 72MW (construction, equipment procurement underway).
- Aurora Province: Biomass, 5MW (FS completed, commercialization underway).

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Marubeni Asian Power Philippines Corp.



Product and Service outline

- Marubeni Asian Power Philippines Corp., a power generation development company wholly owned by Marubeni Corporation, is actively engaged in developments of renewable energy generation projects aimed at realizing a low-carbon society.
- The company primarily focuses on developing/operating solar, hydro and wind power. Leveraging expertise accumulated from owning and operating power plants worldwide (Net Capacity :11,402MW), it has established an in-house system capable of comprehensive development covering technology, finance, and legal aspects.
- As a member of the industry association, Pilipinas Offshore Wind Energy Resource, formed by six domestic and international companies involved in renewable energy in the Philippines, the company contributes to activating the offshore wind power sector and provides advice to government agencies.

Actual Result and Example

- Operation Projects
 - San Roque Hydropower Project (435MW / COD: May 2003), Pangasinan Province, Luzon, engaged in development and maintenance/operations.
- Projects under development
 - Developing multiple solar / floating solar power projects (50MW to 150MW) in Luzon and Western Visayas.
 - Developing offshore wind power projects in two marine areas in Northern and Central Western Visayas, Philippines.

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Marubeni Asian Power Philippines Corporation

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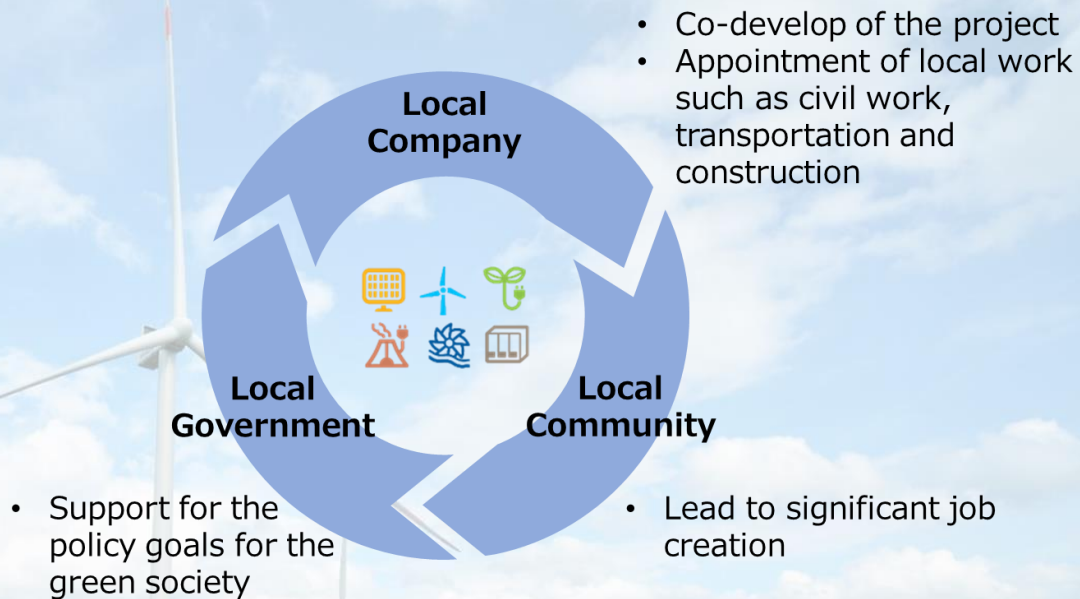
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RENOVA Inc.



Center: President Marcos
Right: RENOVA CEO Kiminami
LOI Sign Ceremony



Business outline

- Develop and operate multiple renewable energy power sources, including solar, wind, biomass, geothermal and hydro
- Green businesses such as storage batteries that contribute to the expansion of these renewable energy power sources and the other which contribute to decarbonization
- Not only "building power plants" but also "promoting business development" that can coexist with the local community and industry

Actual Result and Example

- Under developing
 - Kiangnan Hydroelectric [8.3 MW]
Under construction
 - Mabini Onshore Wind [50 MW]
JDSHA with Basic Energy Corporation
(Operation is scheduled to start by 2028.)
- Sourcing projects
 - Onshore Wind [250 MW]
 - Ground Solar [140 MW]
 - Ground Solar [40 MW]
etc.
- Other examples
 - Signing of LOI (Letter of Intent) on renewable energy project development with DTI (Department of Trade and Industry Philippines) in the presence of President Marcos
 - Established a local office in Manila, creating employment for 10 local employees

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ADVANTEC PHILIPPINES INC.



Net Zero Energy Building



Micro-Grid Smart City



Battery System



Solar System

Product and Service outline

- Engineering and Installation of Solar Power System, Battery System, Energy Management System and Emergency Back Up Ssystem
- Power Purchase Agreement (PPA)
- Micro-Grid Smart City Development, ZEB Planner

Actual Result and Example

- Solar System Installation to 3 Japanese Factories in Luzon Island. (125kW-700kW)
- PPA to PEZA Economic Zone 10 locators (409kW)
- PPA to public 13 facilities (City Hall, Public Hospital etc.) in 2 Mindanao.

Contact Point

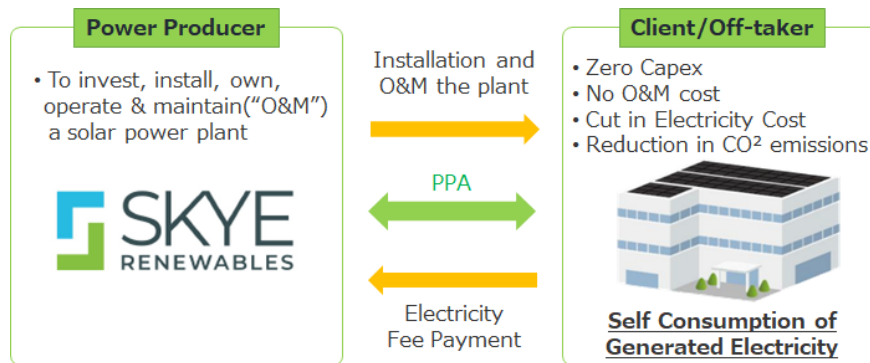
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Skye Renewables Philippines Inc.

Product and service outline

- Skye Renewables Philippines Inc. ("Skye") is a developer of renewable energy in South East Asia and an affiliate of Idemitsu Kosan Co. Ltd. and the British International Investment.
- Skye provides long term rooftop and offsite renewable power contracts to reduce a client's electricity costs and address their sustainability goals
- Skye has already developed >10,000kWp of capacity over 18 sites in the region since its founding in 2021



Sample projects

- Client: Honda Philippines Inc.
- Business: Motorcycle parts manufacturing
- Capacity: 1,057.32 kWp
- Energy Produced:
 - 14 Million kWh (over 10 year Contract)
 - 10,416 Metric tons of Co2 saved
 - 36.9 Million PHP in Electricity Savings
- Status: Operational



Client: Decathlon
Capacity: 225.06 kWp



Client: Fast-Koldstor
Capacity: 503.05 kWp



Client: AM-Europharma
Capacity: 115.2 kWp

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TeaM Energy Corporation



Product and Service outline

- Marubeni Corporation and JERA Co., Inc. have established a 50-50 joint venture, TeaM Energy Corporation, which supply electricity and International Renewable Electricity Certificates (I-RECs) to commercial and industrial customers as Retail Electricity Supplier.
- We also own and maintain/operate solar power generation facilities on the premises of commercial and industrial customers. These solar power supply green power under power purchase agreements with customers for up to 25 years. For customers, no upfront cost, fixed electricity rates based on consumption, high-quality solar PV components, and end-to-end project management.

Implementation Record (Distributed Solar Power)

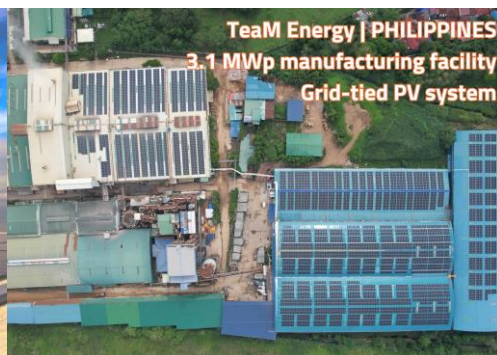
- Implementation Record
 - Coca-Cola Beverages Philippines INC
 - Type: Rooftop Solar Power Plant
 - Capacity: 1,521 kWp
 - Operation Start : March 2021
 - Mariwasa Siam Ceramics Inc
 - Type: Rooftop Solar Power Plant
 - Capacity: 3,146 kWp
 - Operation Start: June 2023
- Planned Implementations
 - Discussing with multiple commercial and industrial customers regarding the development of decentralized solar power plants.

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TRANSNATIONAL UYENO SOLAR TWO CORPORATION



Product and Service outline

- We offer end-to-end solutions from **design & engineering, procurement**, installation for solar rooftop and Ground Mounted Installations for Commercial, Industrial and Utility Scale segments. In addition, we also provide **operation and maintenance, and development** of solar PV systems.

Actual Result and Example

- A leading solar energy company with an extensive portfolio and strong track record in the C&I market with a professionally trained team.
- To date, there are **more than 43MW** of installed capacity of renowned multinational, Japanese and Filipino companies in the Philippines.
- We have installed several firsts in the country like the 1st ever solar photovoltaic carpark located in Laguna, Philippines, 1st eco-friendly airport located at Bohol-Panglao Airport, Philippines and the 1st solar powered Starbucks store in Asia located at Quezon City, Philippines.
- TUSC is an approved EPC of **Japan's Global Environment Centre Foundation (GEC)** for **Joint Crediting Mechanism (JCM)** projects in the Philippines. To name a few are the installations for Aikawa, Enomoto, Kanepackage, Fujisash, Daiki OM and HKT Philippines.

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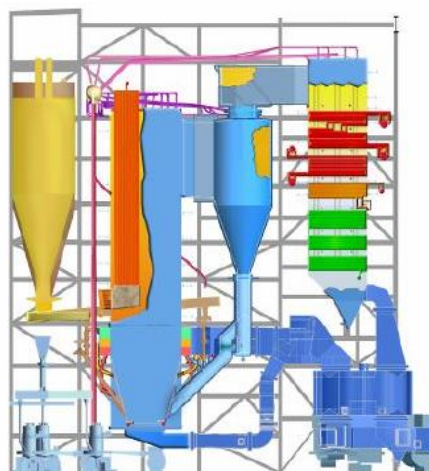
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SUMITOMO HEAVY INDUSTRIES, LTD.

Product and Service Outline

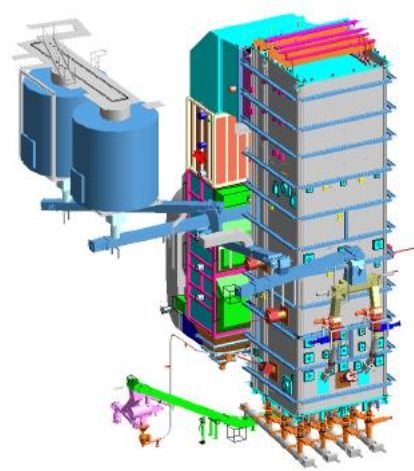
- Proven track records in installing BFB and CFB type boilers around the world using biomass fuels. Currently, our 300MWe biomass-only firing facility is undergoing its trial operation.
- Offers TMU services for the conversion of existing coal-fired boilers to biomass-fired boilers.
- In Southeast Asia, we conduct feasibility studies in collaboration with Electric Power Companies to convert coal-fired power plants to biomass-fired power plants.

<CFB Fuel Conversion>



A type of service that we provide to reduce coal usage by increasing the co-firing ratio of biomass fuels.

<Boiler Modification>



A type of service that we provide to existing PC boilers by converting them to BFB or CFB in order to utilize different biomass fuels thereby reducing coal usage.

TRACK RECORDS/ REFERENCES

No.	Country	Boiler Type	Year	Capacity (MWth)	Original Fuels	Current fuels
1	Bulgaria	CFB	2021	327	Bituminous Coal, Pet Coke	Agro Biomass 30%, Bituminous Coal
2	South Korea	CFB	2019	315	Coal, PKS	PKS, Demolition Wood, Wood Pellets
3	Finland	BFB	2018	110	Natural Gas	Various Biomasses
4	South Korea	CFB	2017	750	Coal	Coal, Wood Pellets
5	Thailand	CFB	2006	140	Coal, Lignite	Coal, Sludge 20%, Paper reject 20%, Bark
6	Finland	CFB	2002	81	Coal, Peat	Coal, Peat, Waste Wood

Note) SHI has more than 50 track record for this fuel conversion services.

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Energy Conservation

- ④ Epson Philippines Corporation
- ④ MELCO Factory Automation Philippines Inc.
(Mitsubishi Electric)
- ④ Mitsubishi Heavy Industries Ltd. Philippines
- ④ NYK IDEMITSU Green Solutions Co., Ltd.
- ④ Sumitomo Heavy Industries, Ltd.
- ④ Toyota Tsusho Philippines Corporation

Epson Philippines Corporation



Up to
85%

less **power** consumption
vs laser printers¹

Up to
85%

less **CO₂** generated
vs laser printers¹

Up to
59%

less **replacement** parts
vs laser printers¹

Product and Service outline

- Epson, which has been deeply involved in paper printing, believes that one way to combat the environmental impact is to promote the widespread use of printers that "do not use heat" to eject ink. Epson's Heat-Free Technology ejects ink without using heat, achieves both low power consumption and high productivity with a simpler printing process than laser methods. In addition, there are fewer replacement parts, which contributes to high productivity in offices while reducing the environmental impact.

Actual Result and Example

- We have a sales and service network throughout the Philippines, and our products have been widely adopted by central and local government agencies and private companies.
- We can offer both leasing (Click-charge) as well as outright purchase. When it's time to update your current printer or copier, we encourage you to consider switching to an inkjet printer, which has less of an environmental impact than a laser printer

*1. Tested by Keypoint Intelligence, please contact us for details

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Energy-Saving Solutions

~Discovering and reducing energy loss for decarbonation~

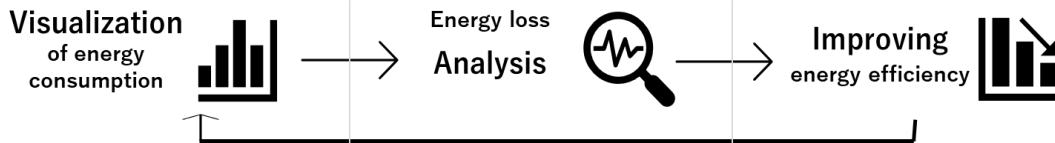
MELCO Factory Automation Philippines Inc. (Mitsubishi Electric)



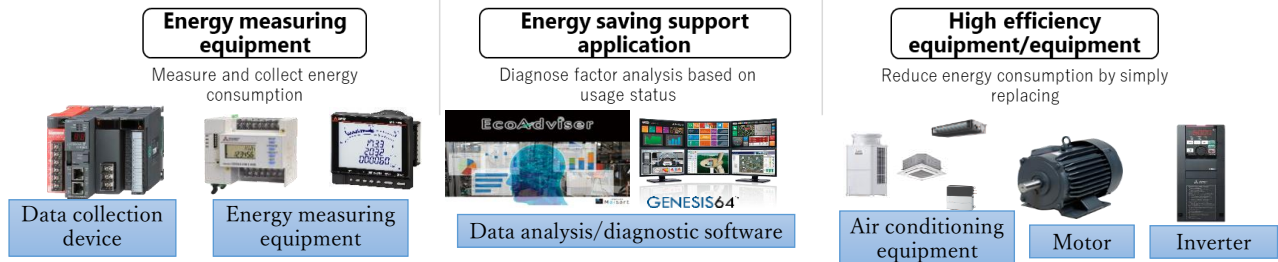
A Group Company of



<PDCA process for factory energy saving>



<Main equipment used for factory energy saving and operational improvement>



Product and Service outline

We support the reduction of CO2 emissions by promoting energy conservation in buildings, factories, etc. We have a variety of equipment and applications necessary for this purpose.

Actual Result and Example

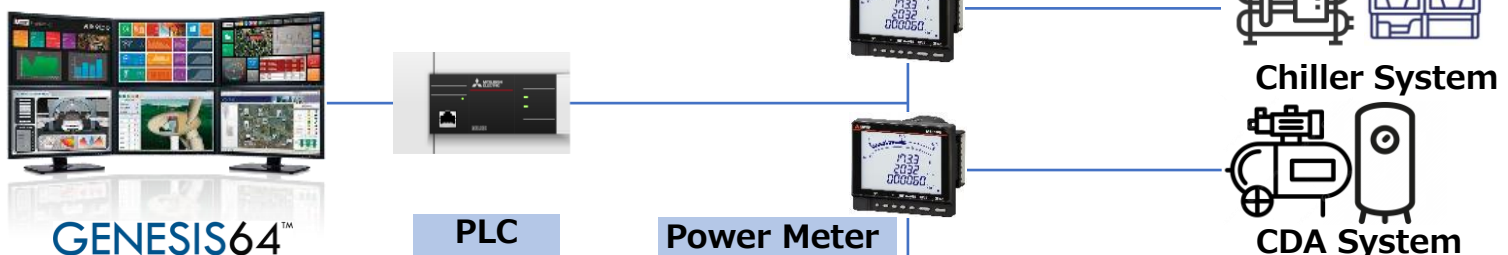
- CEBU MITSUMI, INC. uses our SCADA (GENESIS64) system as an energy monitoring and control system. Based on the data visualized by this monitoring system, CEBU MITSUMI implemented optimal control of the chiller and clean dry air (CDA) system. As a result, the system contributed to a reduction in energy consumption of approximately **3.7 million kWh (equivalent to approximately 24 million PHP)** in the 8 months following its introduction.

*CEBU MITSUMI website:

https://www.minebeamitsumi.com/english/corp/company/factories/philippines/1200049_7932.html

<System configuration>

MinebeaMitsumi
Passion to Create Value through Difference



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Low Carbon Solution for Industry

~EMS, High-Efficiency Power Generator, High-Efficiency Chiller, Waste Heat Power Generator, CO2 Capture Technology~

Mitsubishi Heavy Industries Ltd. Philippines

Product and Service outline

- ▶ Mitsubishi Heavy Industries (MHI) Group offers a wide range of technologies and solutions to realize decarbonization and low carbon society (energy transition, energy saving, electrification, CO2 capture, etc.), that meet customer needs.
- ▶ CO2 emission reduction has become an important managerial issue for each industry and factory in Philippines. Although, Implementation of rooftop PV system is progressing, it is not necessarily effective depending on conditions such as limitation of power generation capacity and output fluctuation.
- ▶ CO2 emission source is different for each industry and factory; therefore, it is the most important to analyze current conditions by each Scope and select appropriate solutions for CO2 reduction. MHI Group supports CO2 emission reduction on each Scope with the following solutions.

Scope-1 (direct emission) CO₂ capture unit

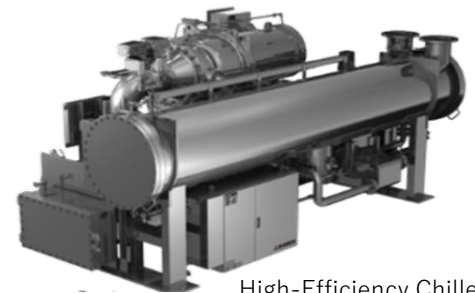
Scope-2 (indirect emission) Energy saving operation by EMS※1, high-efficiency chiller, high-efficiency power generator by gas engine, power generation by waste heat recovery with ORC※2, steam/hot water production with LHP ※3, and triple hybrid power generator (EBLOX).

- ▶ Furthermore, MHI Group offers solutions in view of future utilization of hydrogen and ammonia for in-house power generation.

※1 Energy Management System ※2 Organic Rankine Cycle ※3 Large Heat Pump



EMS (Energy Management System)



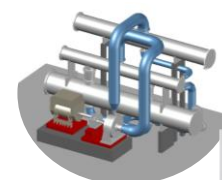
High-Efficiency Chiller



High Efficiency Power Generator (Gas Engine) / Compact CO₂ Capture Unit



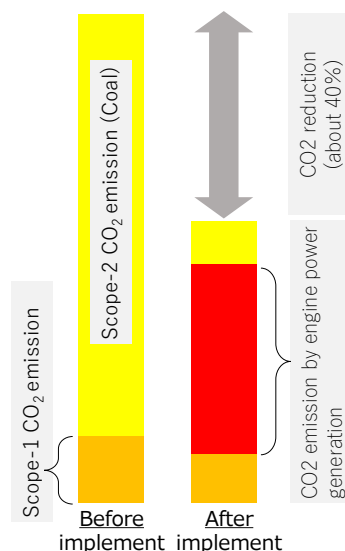
Waste Heat Power Generation (ORC)



Large Heat Pump (LHP) / Triple Hybrid Power Generator (EBLOX)

Experience and example

- MHI Group has been offering low carbon solutions that suit diverse needs of various customers .
- The figure on the right shows an example that our customer achieved around 40% of CO₂ emission reduction by applying our engine power generation.
- In addition to engine power generation, MHI Group can offer established and reliable technologies and solutions shown below. With these technologies, MHI Group realizes CO₂ emission reduction and economical efficiency improvement of customers considering their ICP※5, an increase of electricity consumption and an introduction of PV system in the future.



EMS : Control system used for thermal power plants which MHI Group constructed.

High Efficiency Power Generator/High-Efficiency Chiller : Has a major share in the Japanese market

CO₂ Capture : Has top market share in the world, and has constructed world's largest plant in the US

ORC : Abundant delivery records such as geothermal power plants, biomass power plants and waste heat recovery from factory furnace, etc.

LHP : Expanding as a means of heating and waste utilization in Europe.

※5 Internal Carbon Pricing

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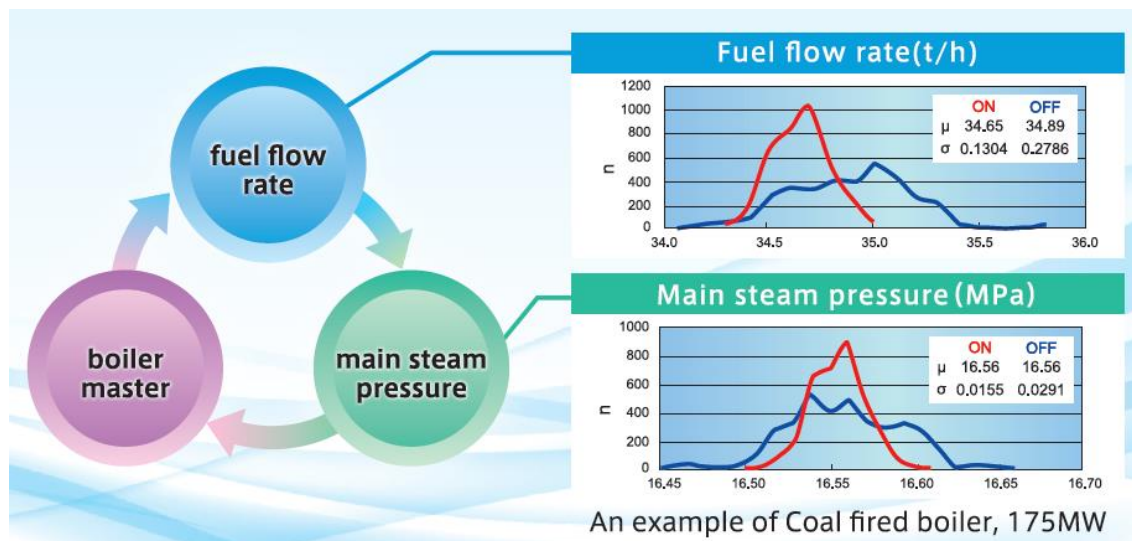
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ULTY-V plus AT

~ This equipment optimizes your boiler control ~

NYK IDEMITSU Green Solutions Co.,Ltd.



Housing : W 700mm D 720mm H 1700mm

Product and Service outline

- The equipment is applicable to various boiler types and fuel types which can be retrofit installed to your existing boiler control system.
- It optimizes fuel control by self-learning AI and stabilizes the plant controllability to reduce by 0.5 ~ 1.5% of fuel consumption and CO₂ emission.
- It can be implemented on a variety of boilers, such as supercritical (or ultra-supercritical) variable-pressure once-through boilers, subcritical boilers, circulating-fluidized-bed boilers.
- In terms of fuel types, it is compatible with boilers that burn coal and other fossil fuels and also boilers that use biomass, RPF, byproduct gas-heavy oil mixtures, etc.

Actual Result and Example

- As of end-June 2024, 118 units have been installed commercially in Asia.
- Winner of Innovative Power Technology of Asian Power Awards 2023 and Decarbonizing Industrial Machinery Awards by JPN government in 2022

<Planned introduction>

- An industrial power generator in Mindanao in 2024



**ASIAN
POWER
AWARDS
2023**



**Director-General of
Agency for Natural
Resources and Energy
Award of JFY 2021**

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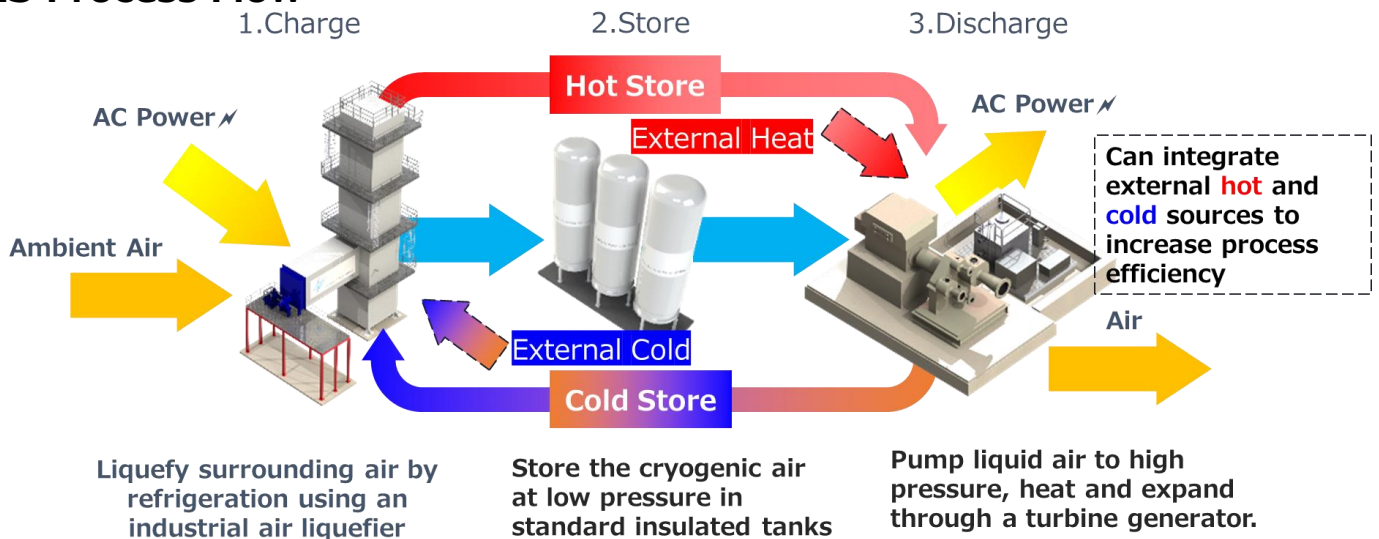
Liquid Air Energy Storage (LAES) System

~Utilizing ambient air to secure green sustainable power supply~

Sumitomo Heavy Industries. Ltd.

Product and Service Outline

■ LAES Process Flow



■ Special Features

1. 30~40 years product lifetime with no performance degradation and no major replacements/overhauls required
2. Utilizing only proven equipment and processes
3. Minimal site limitations
4. Integration with external sources of heat or cold such as LNG terminals to increase efficiency

■ Applications

1. Energy Shifting (Intra-day, Inter-day, Weekly storage)
2. Grid Stability Services from AC power (Capacity, Inertia, Frequency support, Voltage support, Reactive power, Spinning reserve)
3. Supporting decarbonization and energy security of off-grid and island grid operations

References



Heathrow (UK)
Startup : 2011
Capacity : 350kW,
2.5MWh
Pilot Demo



Manchester (UK)
Startup : 2018
Capacity : 5MW,
15MWh
Commercial Demo



Hiroshima (Japan)
Startup : 2025
Capacity : 4.99MW,
20MWh
Commercial Demo
(inc. LNG terminal integration)

World's first full spec LAES plant. Demonstrating added value gained with cold utilization from integration with LNG terminal*

*Project partner : Hiroshima Gas Co., Ltd.

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TOYOTA TSUSHO PHILIPPINES CORPORATION**Product and Service outline**

- With plus static electricity charge in air conditioner, [heat exchange efficiency] will be lowering because the air flowing won't become an airflow following the turbulence design, so it will spend some amount of electric power (electric power loss about 20%). By installing [continewm] to the existing air conditioning equipment (AC), the static electricity charge will be decreasing and then the heat efficiency will improve, it can preserve the temperature faster and longer on the set temperature, and finally, the compressor burden is lowering and that is the idea.
- During installation there is no need to reconstruct the existing equipment, only cleaning will be carried out and the installation or removal is easy. Moreover, after installation, there will be only periodic cleaning without running cost. The product durability will be years and for indoor use, it can be around 10 years (but it is no longer applied if there is a heat or pressure burden and used while bending).

Actual Result and Example

<Japan> some selection

- Denso Co., Ltd
- Totsuka densi Co. Ltd
- Komatsu Co., Ltd
- Nippon mektron Co., Ltd
- Coca cola bottlers Japan Co., Ltd
- Toyota museum
- NTT east Japan Co., Ltd

<Overseas>

- Toyota Motor Europe (Belgium)
- PT. Toyota Motor Manufacturing Indonesia (Indonesia)
- PT. Toyota Tsusho Mechanical & Engineering Service (Indonesia)
- Toyota South Africa Motors
- Aisin Anqing Automotive Parts (China)
- Denso (Changzhou) Fuel Injection System (China)

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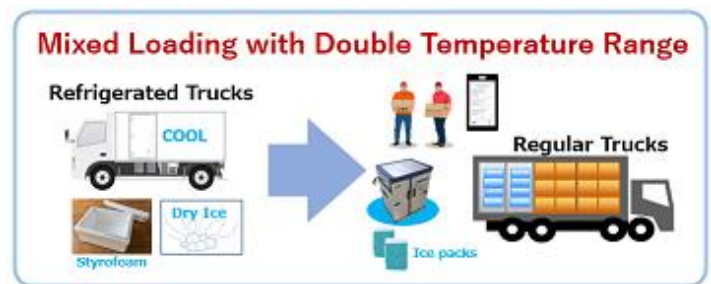
Transportation and Vehicles

- ④ 3Q Dash Technology, Inc. (Dai Nippon Printing Co., Ltd.)
- ④ NEC
- ④ Komatsu
- ④ Toyota Motor Philippines Corporation

Eco-friendly Cold Chain Solution

~Temperature-controlled delivery without the need for a power source~

3Q Dash Technolox, Inc. (Dai Nippon Printing .Co., Ltd.)

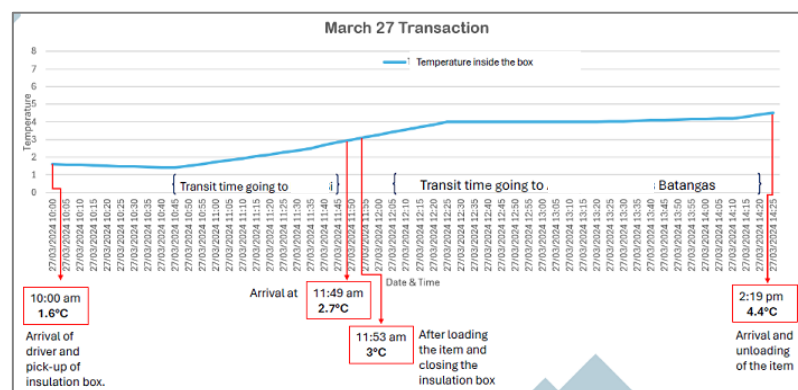
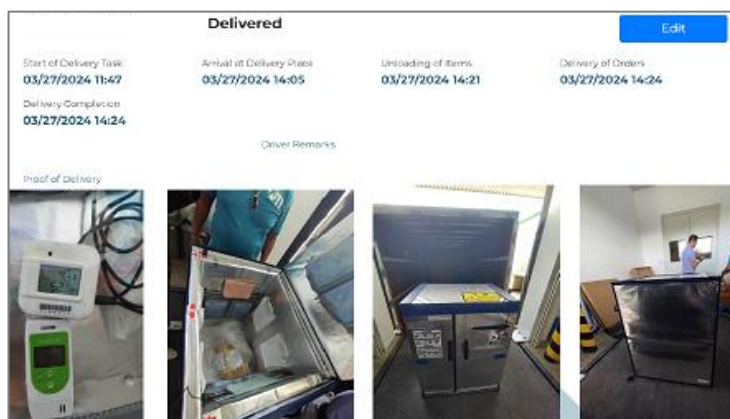


Product and Service outline

- Realize temperature-controlled delivery by regular trucks
- [Waste Reduction] Reduce use of Disposable Styrofoam
- [Reduction of CO2 emissions] Reduce use of Dry Ice
- Reduce separate arrangements of Refrigerated and Regular Trucks
- [Cost Reduction] Reduce disposable Styrofoam and Dry Ice
- Reduce separate arrangements of Refrigerated and Regular Trucks
- Reduce Operational Burden by digitalized delivery management

Actual Result and Example

- Since March 2024: In operation for pharmaceutical transportation (temperature 2°C-8°C, between Manila Airport and Batangas) on order
- April 2024 Test of frozen meat delivery
- May 2024 Test of industrial adhesives (frozen/refrigerated temperature range)
- June 2024: Test of leafy vegetables (controlled temperature range: 1°C to 4°C)
- July 2024: Test of delivery for chocolate confectionery (controlled temperature range: 18°C to 22°C)
- July 2024 Test of frozen food (controlled temperature of -18°C or lower)



Company:

Address:

Contact :

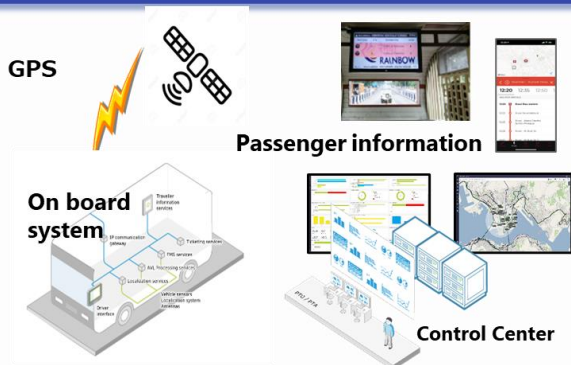
3Q Dash Technolox, Inc.

6TH Floor Electra House Bldg. 115-117 Esteban St. cor. V.A. Rufino St.,
Legaspi Village, Makati City, Metro Manila, Philippines 1229

LADRIDO ALFONSO M. EUGENIO (Nick Name: Gene)

☎ 092-0958-0801 | ✉ emladrido@3qdash.com.ph

AVL : Automated Vehicle Location



AFC : Automated Fare Collection



Product and Service outline

- AVL (Automated Vehicle Location)
 - GPS based location system, which can provide accurate ETAs for both passengers and Operators.
- AFC (automated Fare Collection)
 - Cashless payment solution, with Usage of IC card / QR code / credit card etc).

Actual Result and Example

- Ongoing project for metro AFC etc.

Contact Point

Contact :

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Alona Gonzales

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Website :

[Transport: Products & Solutions | NEC](https://www.nec.com/transport)

Kenshiro Oishi

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Abigail Valencia

✉ abigail.valencia@nec.com.ph

Hybrid Excavator HB365LC-1

~35t class excavator with low fuel consumption / low CO2 emission~

Komatsu Ltd.

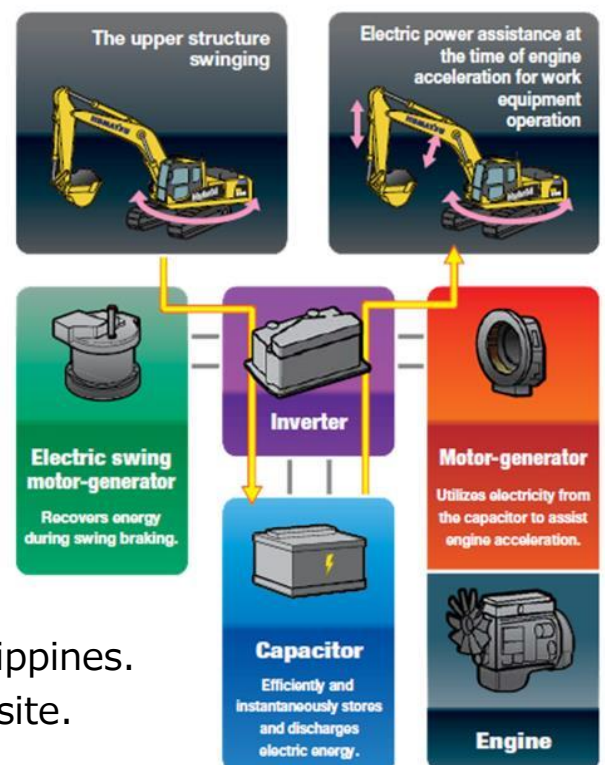
HB 365LC-1 HYBRID EXCAVATOR

Promotion
video



Product and Service outline

- **Reduced fuel consumption:** HB365LC-1 is equipped with Komatsu's unique hybrid system. While maintaining performance, **fuel consumption is significantly reduced by 20%** compared to our conventional machines.
- **Electric swing motor convert swing energy into electricity** and store it to capacitor. This electricity is reused to reduce fuel consumption.
- **Motor generator assists engine during acceleration**, and generates power when the capacitor power is depleted.
- Designed for quarry and heavyduty job, **arm and boom has been reinforced.**
- "KOMTRAX" enables user to **check machine operation and condition remotely.**
- No special investment is required. **You can reduce CO2 emission simply by replacing conventional model to hybrid.**



Actual Result and Example

- 16 units has been delivered to jobsite in Philippines. Fuel saving effect has been confirmed at jobsite.

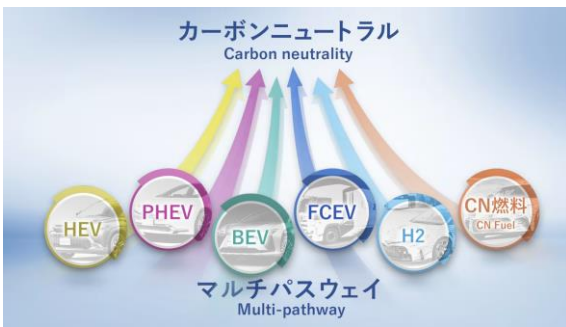
Contact Point

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All-Encompassing Electric Vehicle Strategy for CN (Carbon Neutral)

~Electrification designed to regional needs with Multi Pathway~

Toyota Motor Philippines Corporation



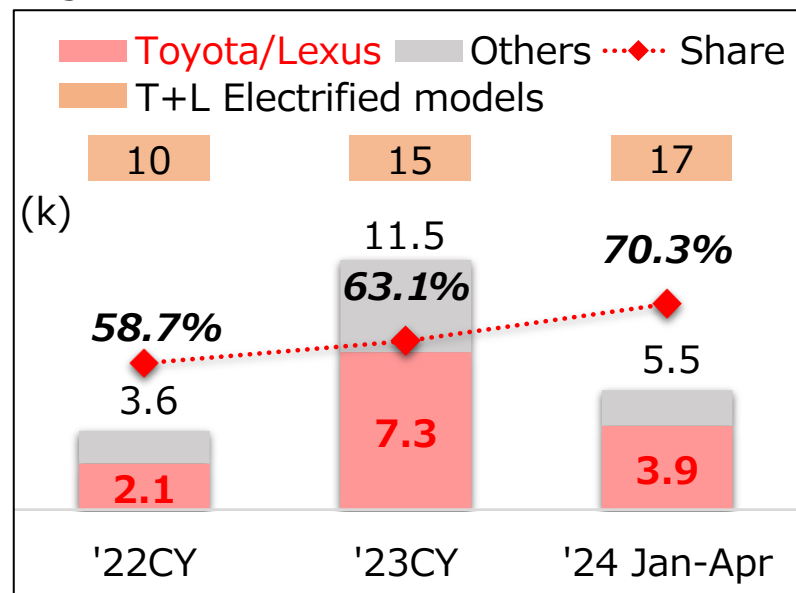
Product and Service outline

- Toyota is committed in realizing Carbon Neutral society through continuation of our multi-pathway approach. Taking full advantage of the diverse range of options including GAS, HEV, PHEV, BEV, FCEV, H2 Vehicle and CN fuel vehicles, we aim to achieve global carbon neutrality while leaving no one behind.
- In Philippines, HEV and BEV models are introduced to best cater to the customer characteristics and the local infrastructure. We are focusing on expanding the HEV model to steadily reduce CO2 immediately.
(Center photo: Latest HEV: Corolla Cross HEV / Right: BEV model RZ)

Actual Result and Example

- Industry leading electrified lineup with total of 17 models (15 HEVs and 2 BEVs).
- The electrified market surpassed 11.5K in '23CY. As of Apr '24 YTD, Toyota accounts for 70.3% market share in continuing electrification.
- By 2030, the goal is to achieve 30% of Toyota sales to be electrified.
(Jan-Apr '24: 2.6%)

Fig1. Electrified market



Contact Point

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Agriculture and Forestry Sector

- 📍 Green Carbon Inc.
- 📍 Sagri Co., Ltd.

Carbon Credit Project Development

~Creation of businesses focusing on agricultural and forest-based~

Green Carbon Inc.

Business Models



AWD in paddy fields Mangrove plantation

*Alternate Wetting and Drying



Product and service overview

- With a corporate philosophy of 'Saving the planet with the power of life', We are responsible for for agriculture and forests related carbon credit.
- We provide one stop service as carbon credit project developer.
- The company plans to be the first in the world to create credits for agriculture, utilizing the Ministry of the Environment's Bilateral Credit Mechanism (JCM), and will contribute to the fight against global warming.
- Also offer ESG consulting services to companies and create credits outside the agricultural and forest sectors.

Achievements and case studies

- 62,000 ha AWD project in Vietnam is on-going.
- In Japan, appr. 40,000ha is being owned, 100,000t of J-credit this year.
- Australia is as Research and development base to reduce methane gas emitted from rice farmers and cattle burping is being conducted in collaboration with various universities in the several Asian countries.
- Aiming to generate 10 million tons of carbon credit by 2026 to achieve 100 Million tons in 2030 through irrigated agriculture, cow burp, biochar, mangrove plantations, etc.

Contact Point

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<https://green-carbon.co.jp/>

English: Takato Senoo

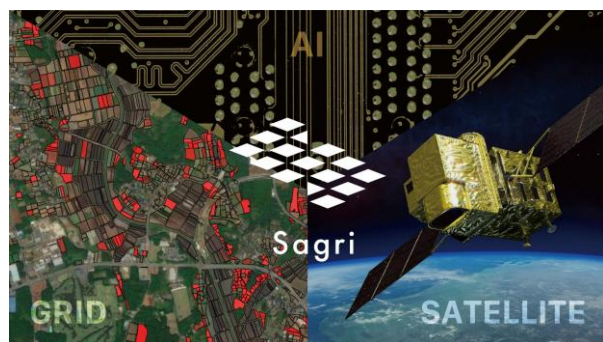
☎ +63 917 892 9790

✉ t.senoo@green-carbon.inc

Decarbonization of farmland using satellite and AI

~ Soil analysis, water detection and carbon credit generation

Sagri Co., Ltd



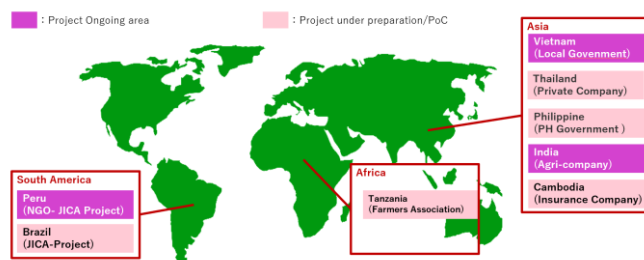
Product and Service outline

- Utilizing advanced technology in soil analysis and water detection, the farmland decarbonization opportunities will be seized from satellites and AI.
- This data will be available as GHG emissions tracking data that will be shared with stakeholders for large companies.
- These data can also serve as the basis for the generation of carbon credits via carbon farming, and the profit can be shared with farmers after the credits are sold to large Japanese corporations.

Actual Result and Example

- Achieved over 100 customers in Japan
- With the branch in India and Singapore, Sagri has been working in India, Thailand and Vietnam before entering Philippines market. Our customers are agricultural companies, cooperatives and governments.
- In Philippines, Sagri plans to start the pilot of carbon credit with UPLB this year. Also, Sagri already agreed to start pilot test of soil analysis with Department of agriculture this year.

Sagri goes Global beyond ASEAN to save more farmers and planet!



Trusted by many partners

	Government agencies	Research institutions	Private Companies
Japan	MAFF Ministry of Agriculture, Forestry and Fisheries 農林水産省	JAXA HARU 農研機構	農林中央金庫 全農 ZEN-NOH
Global	JICA UNDP	岐阜大学 GIFU UNIVERSITY P.O.G.O.S.	C.P. GROUP leaf

Contact Point

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LinkedIn : <https://www.linkedin.com/in/kazuk18/>
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Waste Management



 Kubota Kasui Philippines Corp.

For Earth, For Life

Kubota



Septic Tank

- ✓ Mainly generated methane gas with 28 times of Global Warming Potential (GWP-100) against CO₂ due to Anaerobic Treatment
- ✓ GHGs Emission 200kg-CO₂Eq/capita·y
- ✓ Partly removed BOD but almost remained nitrogen

50% of GHGs
emission reduction



Significantly
improved
effluent quality

Kubota Johkasou

- ✓ Although generated CO₂ from electric consumption for aeration blower etc. since it applies Aerobic Treatment and also N₂O through denitrification process yet, GHGs emission becomes half.
- ✓ GHGs Emission 100kg-CO₂Eq/capita·y
- ✓ Complied with New Effluent Standard in the Philippines

Product and Service outline

- By replacing from septic tanks that have been installed in many Southeast Asian countries to Johkasou made in Japan, significantly reduced methane generation and reduced Greenhouse Gases.
- Complied with Class A of the new effluent standard in the Philippine (DENR Administrative Order 2016-08 and 2021-19)
- Good for hospitals, office buildings, train stations, public facilities, etc.
- Lower construction cost than centralized sewage treatment system especially in areas where not available sewage system and where difficult to connect sewer pipe.
- Lineup Membrane Bioreactor (MBR) system using Kubota Submerged Membrane Unit® (SMU). Also available 10-year warranty system (option).

Actual Result and Example

- More than 2,000 units installation records in Southeast Asian countries
- Major installation records in the Philippines;
 - Metro Manila: Sewage Treatment Plant 410m³/day
(the largest Johkasou in the Philippines)
 - Butuan: Airport 6m³/day/unit×3units

Contact Point

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<https://www.kubota-environmentaleng.co.jp/>

Finance Sector

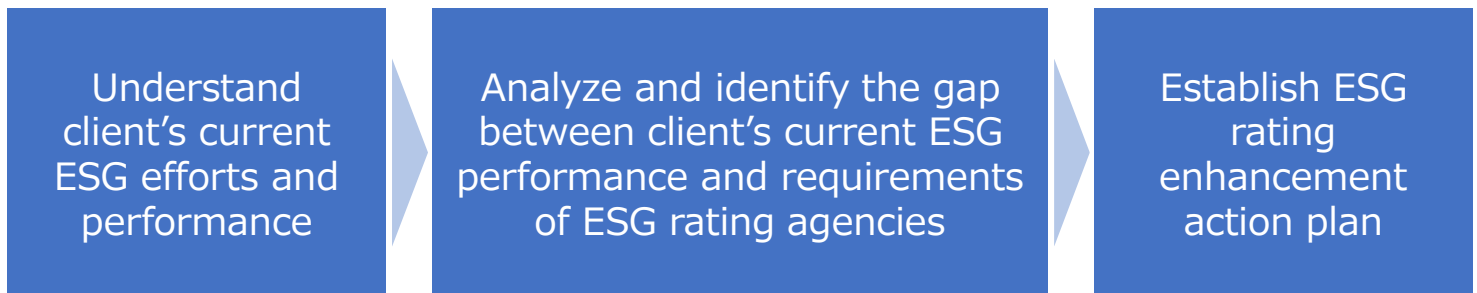
- 🕒 Mizuho Bank
- 🕒 Sumitomo Mitsui Banking Corporation



Product and Service outline

- ESG Rating offers a structural approach to measure corporates' ESG performance and is mainly used by investors to assess and engage with corporates
- Mizuho Bank assists corporate clients to comprehend and improve their performance under various ESG Rating models

(Process of ESG Rating Advisory Service)



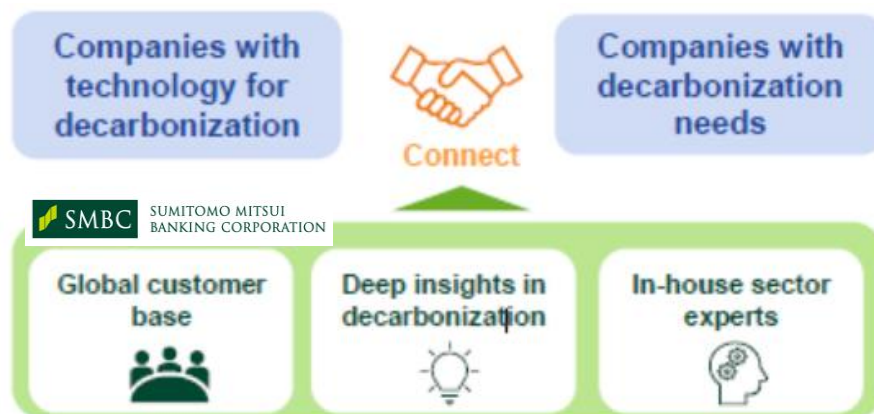
Actual Result and Example

- Mizuho Bank has provided ESG Rating Advisory to corporate clients in APAC exclude Japan
- ESG Rating Advisory solution is applicable to corporates which have sustainability strategy, track major non-financial dataset, in order to obtain ESG Rating from ESG rating agencies, or optimize their existing ESG Rating
- ESG Rating Advisory solution is only provided in English

Contact Point

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Sumitomo Mitsui Banking Corporation



Product and Service Outline

- To achieve a decarbonized society, we need to transition our energy sources from fossil fuels to renewable or sustainable energy. In addition to longstanding demands from shareholders, investors, NGOs, and governments, there is increasing pressure from trading partners to reduce GHG emissions.
- However, there are various challenges that need to be overcome in energy transition. These include technology, costs, and fuel procurement. Hence, it is important to collaborate with companies that have decarbonization technologies.

Actual Result and Example

- SMBC support our customers' decarbonization initiatives with SMBC Group's worldwide network.
- SMBC promotes business co-creation by introducing companies to energy-saving or renewable solutions for reducing GHG emissions.

<Case Study in the Philippines>

- Company : Renewable energy company and manufacturing company
- Collaboration : Introduction of solar power generation system
- Purpose : To reduce electricity consumption and CO2 emissions in plants

<Case Study outside of the Philippines>

- Company : Climate tech company and manufacturing company
- Collaboration : Calculating the GHG emissions of the manufacturing company and its entire supply chain
- Purpose : To set the company's KPIs through calculation and visualization of GHG

Contact Point

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- For any feedback or concerns about a product, procedure or our service, you may reach us via phone at +63 2 8880 -7100 or email to smbc_customersupport@ph.smbc.co.jp.
- Sumitomo Mitsui Banking Corporation – Manila Branch is an entity regulated by the Bangko Sentral ng Pilipinas (BSP). <https://www.bsp.gov.ph>

Consulting for decarbonization

- 🔊 Fujitsu Limited
- 🔊 Nippon Koei Co., Ltd.
- 🔊 Yuasa Trading (Philippines) Inc.

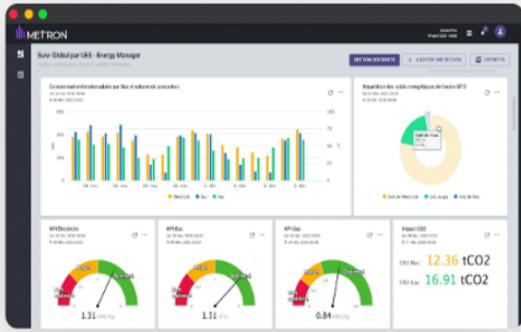
Fujitsu Energy Consumption Optimization

~Supporting Data Collection, Visualization, Analysis, and Optimization~

Fujitsu Limited

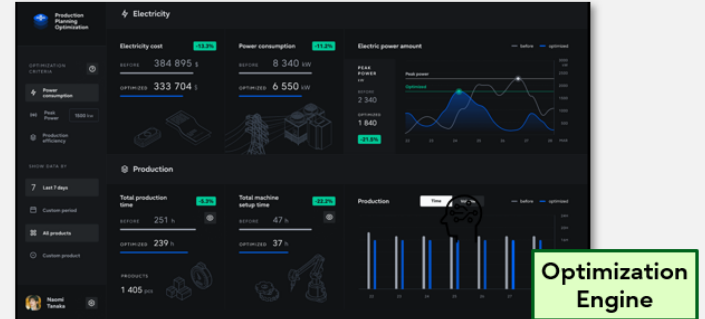
Contributing to Carbon Neutrality by Reducing GHG Emissions

A. Energy Visualization & Analysis



1. Understanding Energy Consumption in Factory Facilities
2. Monitoring, Analysis, and Improvement Proposals

B. Balancing Efficiency & Energy Use in Production



3. Rapidly Formulating Production Schedules that Balance QCD Maintenance/Improvement and Energy Cost Minimization

Product and Service outline

We provide an end-to-end energy consumption optimization service that supports data collection, visualization, analysis, and optimization for factories and offices in all industries.

- 1. Energy Visualization SaaS:** This SaaS service visualizes, manages, and analyzes detailed energy information used in factories and other facilities. By leveraging this service, you can grasp and analyze the balance between energy consumption reduction and production efficiency improvement.
- 2. Energy Optimization Consulting:** We support data collection methods, identification of energy hotspots, optimization of energy use, and development of energy roadmaps.
- 3. Production Schedule Optimization:** Utilizing Fujitsu's "Digital Annealer" technology, inspired by quantum phenomena, we can create optimal production schedules that balance energy consumption and productivity.

Actual Result and Example

Steam Network Optimization for Food Factories:

- Reduced steam consumption by approximately 9% per year
- Reduced CO2 emissions by approximately 1,200 tons per year
- Reduced workload by approximately 2 person-days

Production Schedule Optimization for Steel Pipe Processing Factories:

Based on simulation results, simultaneously reduced power consumption and total production time by approximately 5-8%

Contact Point

Fujitsu Limited
Email Address: fj-sxeco-contact@dl.jp.fujitsu.com

One-stop consulting services for decarbonization

- Decarbonization business proposals using JCM and public funds -

Nippon Koei Co., Ltd.



No.1 in sales
among civil engineering
consulting firms in Japan



Operations in
160 countries



Over **75 years**
in business

Product and Service outline

- Being established in 1946, as an “Engineering Consultant”, involved in various infrastructure project in developing countries (mainly in study/survey, design, Tender Management and Construction Supervision)
- We have been providing consulting services in the field of **climate change and decarbonization**, working with Japanese ministries and other public agencies since the earliest stages of the **JCM (Bilateral Crediting Mechanisms)**.
- We have local office and subsidiary (**Philkoei International, Inc.**) and can provide support in Japan and Philippines. Please contact us for business development, finding local partners, obtaining credits, etc.

Actual Results and Examples

- Founded in 1989, Philkoei International, Inc. has more than **200 professionals and engineers** serving both the public and private sectors
- Surveys, demonstration projects, and subsidized projects related to **JCM**
- **City-to-City Cooperation Program**: collaboration between cities in Japan and abroad, including cities in the Philippines, for decarbonization
- JCM model projects(**subsidy for initial costs of installing equipment**) : 30+ experience, including thermal/solar powers in the Philippines
- **Support for JCM projects** : methodology, project design document (PDD), project registration, monitoring report (MR), and credit issuance
- **Survey for obtaining carbon credits**, including JCM (multiple track record in the Philippines)
- F/S studies, pilot projects related to carbon credits



Contact Point

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Japan- Nippon Koei Co., Ltd.
Intl. Environment Dept,
Climate Change Group
✉ nk-jcm@n-koei.co.jp

YUASA TRADING (PHILIPPINES) INC.

“YUASA one-stop solution for achieving carbon neutrality”

1. Managing of CO2 emissions

2. CO2 reduction targets

3. Plan and Action

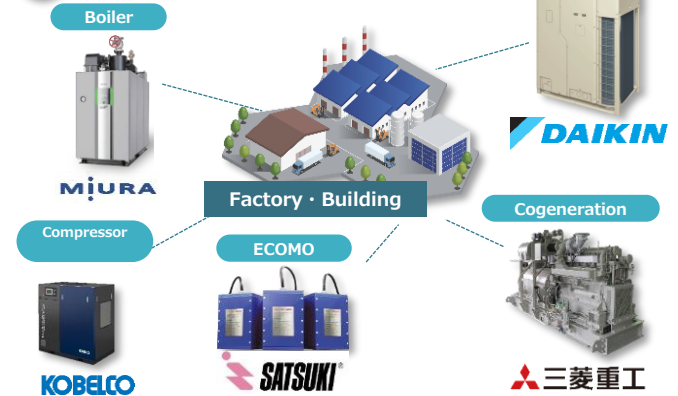
Energy saving(Co2) diagnosis



Diagnosis using a wearable camera! !



Energy saving equipment



Renewable energy(solar power equipment)

- Regarding self-consumption type solar power generation equipment, We can support you from design to installation.

Rooftop



Field



Carport



- Proposals for Storage battery systems

- ✓ As an emergency power
- ✓ Reducing electricity costs through peak cuts



- Choosing a deployment scheme

- ✓ PPA model
- ✓ Lease
- ✓ EPC

We can propose an implementation scheme tailored to your needs.

Product and Service outline

- Energy saving/CO2 reduction diagnosis: **A specialized Japanese team will conduct** an on-site survey using cameras.
- We can provide **one-stop** proposals for carbon neutrality.
- We can handle everything from detailed design and simulation to on-site construction.
- We can support equipment installation by **utilizing the JCM system**.

Actual Result and Example:JCM System Utilization Examples

partner country	Thailand
Business year	2016
Industry	Precision parts
Equipment	Air-con control System
Planned CO2 reduction amount	2,493 tCO2/year



partner country	Mexico
Business year	2023
Industry	Auto parts
Equipment	Solar power generation system
Planned CO2 reduction amount	392 tCO2/year



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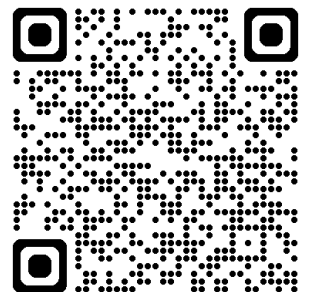
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