

## 添付資料

### 現地ワークショップ発表資料

1. アグリツリー:ソーラーシェアリング実証事業の紹介 (英)
2. エム・アイ・エス:環境配慮型ボイラーの開発 (英・越併記)
3. プロックスサプライ:ベトナム市場向け遮熱シートの紹介 (英)
4. サニックスホールディングス:排水の浄化とリサイクル (英)
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6. 兼松 KGK ベトナム:再エネ事業(太陽光・小水力)の紹介 (英・越併記)
7. カナデビアベトナム:バイオガス技術・実績の紹介 (英)

## 現地ワークショップ発表資料

1. アグリツリー:ソーラーシェアリング実証事業の紹介 (英)



# Agritree

2025 October 29th



## Company Overview



Company name: Agritree Co., Ltd.

Head office: 1-115 Imamitsu, Nakagawa-shi, Fukuoka prefecture

Founded: 2018 February 27th

Capital : 64,900,050JPY      Capital reserves:50,000,000JPY

Stake holder: Koji Nishi, HIS, ENEOS Innovation partners, Toyota Boshoku, Toyota Gosei

BOD:Koji Nishi, Masatoki Koichi

Industry: Solar power, agriculture

Business:Solar project development, consultant, EPC, O&M

# Climate change damage farms in Vietnam directly

## Flooding submerges over 44,500 hectares of crops in northern Vietnam



### Farm damage



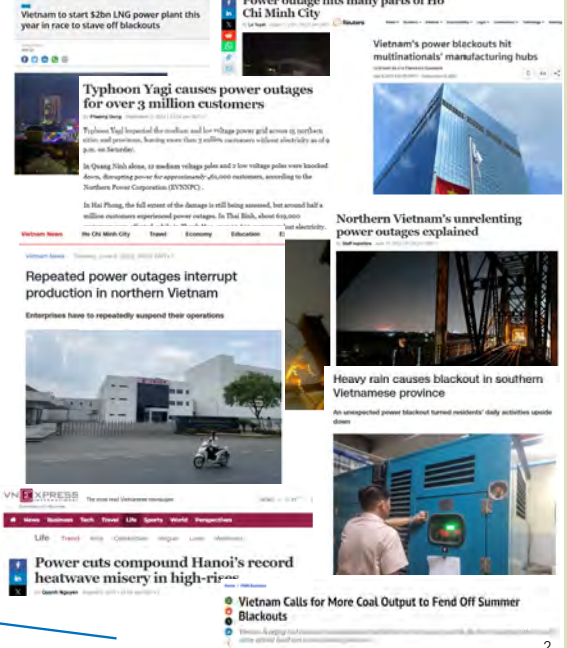
- Heavy rain
- Storm
- Drought

### Power shortage



- Peak season
- Industrial zone
- City center
- Rural side

### GCR



# Solar Sharing, electricity power plant on farmland



Narrow panels to allow sunlight to shine through on the soil.

Install panel on top of the ground mounting structure.

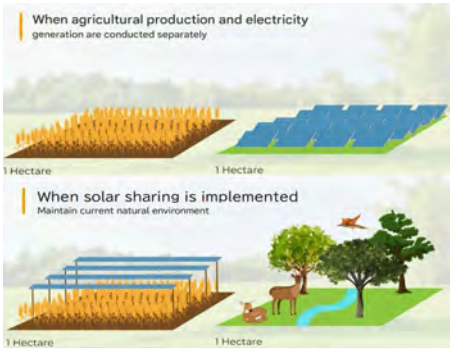
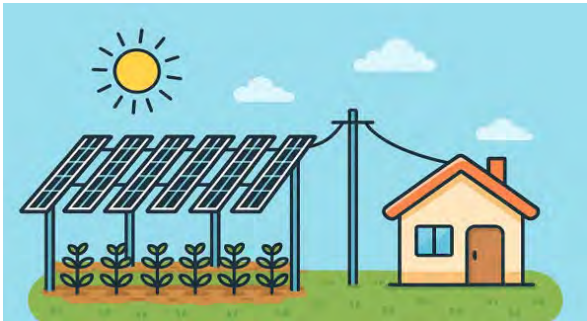
Build high enough to secure space for machineries to work.

3 meters tall



# Advantage and potential of Solar Sharing

Grow crops and generate electricity



- No new land necessary
- Maintain current status
- Maximize land usage

Strengthen community energy power source



Regions with unstable electricity supply

Generate your own community power source.

Community Microgrids

Rural areas where plenty of agricultural field already exist and ready to be used for Solar Sharing.

# Vietnamese farmers electricity consumption and price increase

Electricity price in Vietnam will continue to increase every year.



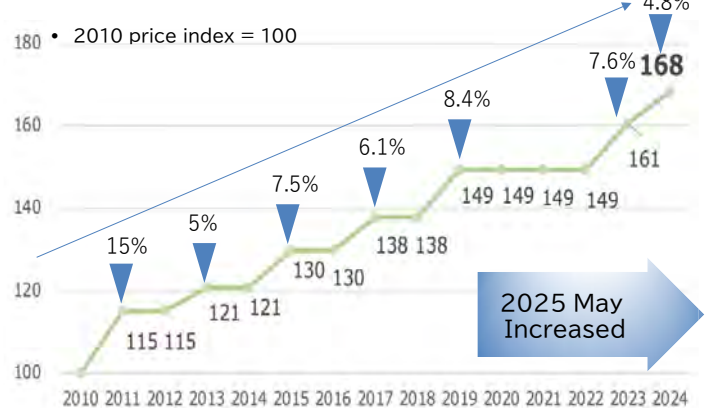
Electricity usage of interviewed farming companies

Farmer Name	Type of farm	Province	Electricity consumption kWh/1mth	Monthly electricity fee VND	Electricity average price VND/kWh
F1 Biotech	Labo-seed control	Lam Dong	167,514	339,480,000	2,020
BIM Foods JSC	Shrimp	Kien Giang	120,000	311,133,420	2,546
Tom Cong Loc Vang	Shrimp	Bac Lieu	96,093	190,957,500	1,986
Trong Duc Farm	Cacao	Dong Nai	94,182	176,196,570	1,867
Truc An Pharm	Shrimp	Bac Lieu	85,416	169,740,000	1,986
BIM Foods JSC	Shrimp	Lam Dong	70,000	176,308,938	2,546
Phuoc Lac	Tea	Lam Dong	107,143	155,566,710	1,451
Tang Vinh An	Tea	Lam Dong	50,000	69,508,530	1,392
Lambieng Farm	Large scale	Lam Dong	43,503	77,288,563	1,782
Individual farmer - Farmer Association	Tea	Lam Dong	9,000	15,556,671	1,697
Dang Gia Tinh	Chilled vegetable	Lam Dong	7,538	15,276,600	2,020
Thien Shinh Farm	Large scale	Lam Dong	6,800	15,480,288	2,275
Individual farmer - Farmer Association	Tea	Lam Dong	6,000	10,371,114	1,697
Son Dung	Tea	Tay Nguyen	4,700	12,445,337	2,648
Tien Yen	Tea	Tay Nguyen	3,600	9,334,003	2,546
Individual farmer - Farmer Association	Tea	Lam Dong	3,000	6,222,668	2,037
Trung Du Tan	Tea	Tay Nguyen	1,728	4,667,001	2,699
Agricultural extension and service center	fish, fruits, others	Tien Giang	628	1,331,101	2,122

EVN electricity price as of May 2025

EVN industrial price tier	Price phase by electricity amount			
	6kV	6kV-22kV	22kV-110kV	>110kV
Normal Time VND/kWh	1,987	1,899	1,833	1,811
Peak Time VND/kWh	3,640	3,508	3,398	3,266
Off-peak Time VND/kWh	1,300	1,234	1,190	1,146

EVN price increase 2010-2024



EVN price based on time used

• Normal time price index = 100

Industrial price	Off-peak	Normal	Peak	Normal	Peak	Normal	Off-peak
Time slots	AM4h30	AM4h30 - 9h30	AM9h30 - 11h30	AM11h30-PM17h00	PM17h00-20h00	PM20h00-22h00	PM22h00-
> 110kV	63	100	180	100	180	100	63
22kV-110kV	65	100	185	100	185	100	65
6kV-22kV	65	100	185	100	185	100	65
6kV	65	100	183	100	183	100	65

# Vietnam market: Direction of power development plan



VN government encourages self-consumption of solar power generation, and plans to install solar power in 50% of office buildings and homes by 2030.

In the phase 3 of the retail electricity market development, an electricity purchasing mechanism will be established.

Vietnam PDP8: National energy power source

Power source	2020 ratio		2022 ratio		2030 ratio		2050 ratio	
	Value	Ratio	Value	Ratio	Value	Ratio	Value	Ratio
Fossil fuels	30,412	22%	35,112	22%	68,509	11%	52,962	5%
Others	572	0%	570	0%	34,800	6%	96,892	8%
Renewable	54,969	39%	61,589	39%	247,396	41%	509,269	44%
Hydro	20,774	15%	22,999	14%	40,667	7%	36,016	3%
Wind	518	0%	5,059	3%	55,061	9%	130,050	11%
Solar	16,656	12%	16,568	10%	73,416	12%	168,594	14%
Solar	8,871	6%	8,908	6%	12,836	2%	168,594	14%
Roof-top	7,785	6%	7,660	5%	60,580	10%	0	0%
Biomass	365	0%	395	0%	4,836	1%	6,015	1%

Development plan of Vietnam electricity market and actions taken by Vietnamese government

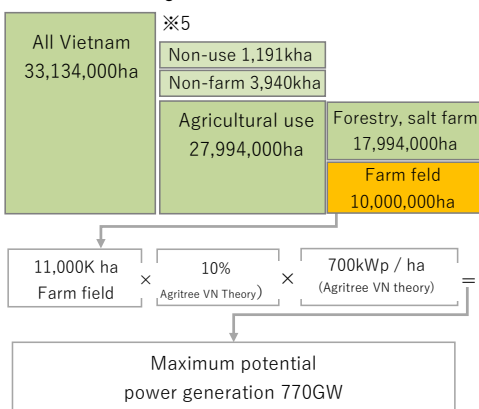
Phase 1	Phase 2	Phase 3	Incentive of investment
<b>Power generation market 2005~2014</b>  The business of EVN (Electric Power Corporation) was split up. Some power generation businesses were opened to private businesses. An environmental protection tax was introduced for power generation businesses that use fossil fuels such as coal mines.	<b>Wholesale Electricity Market 2015~2021</b>  Investment in solar power facilities is progressing towards the end of 2021, when the FIT system expires, with PV capacity increasing from 86MW in 2018 to 16,504MW in 2020. This will make it the No. 1 solar power facility in ASEAN and No. 8 in the world.	<b>Electricity retail market 2021~</b>  August 2022: PDP8 Power Development Plan announced Nov. 2023: Creation of a renewable energy generation pricing framework Jul 2024: Deregulation of direct electricity sales to meet large-scale electricity demand  Oct. 2024: Deregulation of self-generation and self-consumption rooftop solar power generation  2025 The Vietnam Electricity Regulatory Authority, under the Ministry of Industry and Trade, announced future trends, stating that "legislation regarding electricity prices and sales mechanisms will be further advanced in order to create a competitive electricity market."	<b>Corporate income tax</b> First 4 yrs : no tax Next 9 yrs : 5% Next 3 yrs : 10%  <b>Import tax</b> No tax on goods to produce equipment to become asset.  No tax on materials and goods that are not produced locally.  <b>Land lease</b> No tax for maximum 3 yrs during the construction. No tax maximum 15 years after the construction is complete.

# Impact Metric: Market size and potential GHG reduction of Solar Sharing

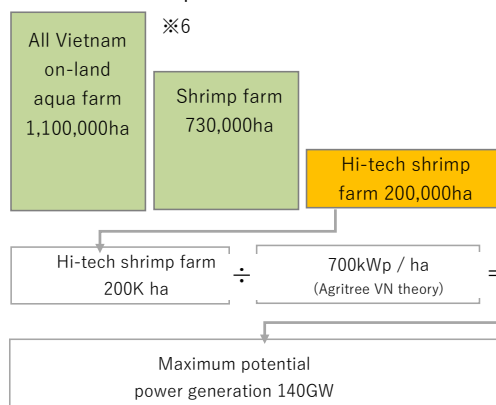


## Possible area to install Solar Sharing system in Vietnam

Potential area of agricultural field to install SS



Potential area of shrimp farm to install SS



**Maximum potential of 910GW of solar sharing in Vietnam agri-shrimp farm**

× VN typical solar power capacity factor **17%**

× 1 year **8,760 hours**

× Clean energy use **1,355,172,000MWh**

× Carbon emitted from national grid **0.7 tCO2/MWh**

|| GHG emission reduction per year **948,620,400 tCO2/year**

× Price of carbon credit ※9 **\$ 39.6/tCO2**

|| Potential carbon credit value **\$37.5billion /year**

※5 Policy Research Institute, Ministry of Agriculture, Forestry and Fisheries Japan

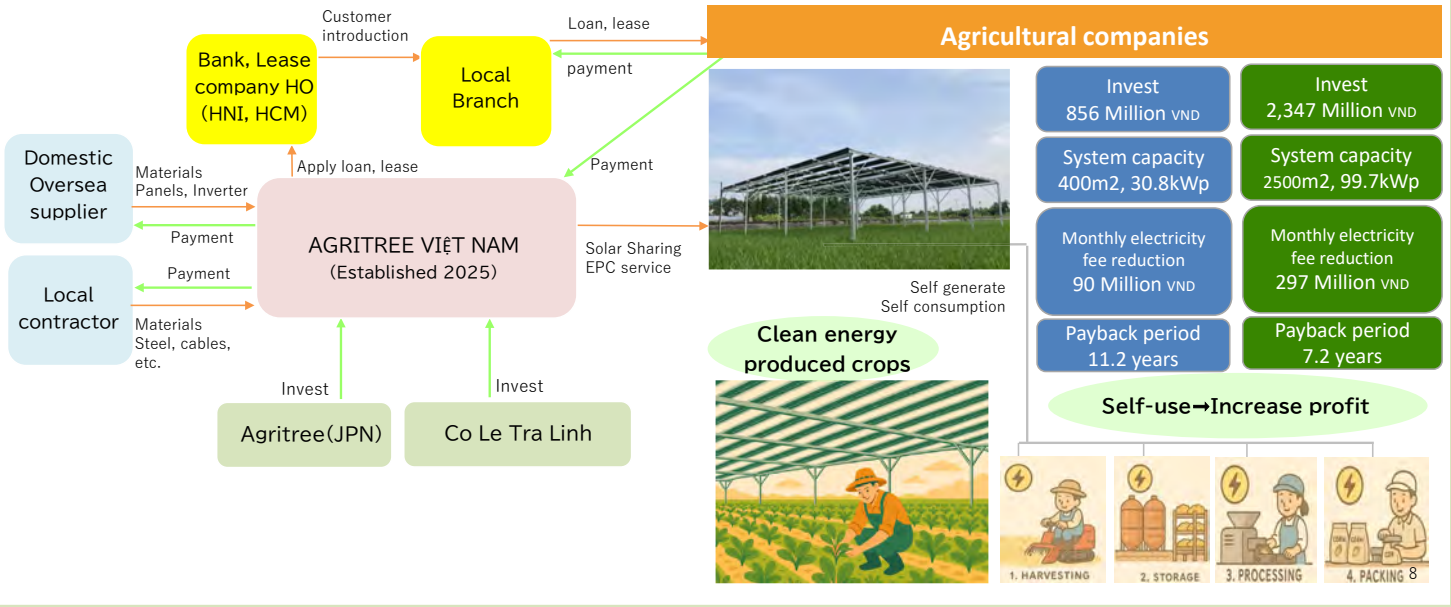
※6 General Statistic of Vietnam Office

※9 JPX renewable energy price as of 2025/04/10

# Solar Sharing, scheme for system investor



## Solar Sharing investment requires finance, energy demand, farmland

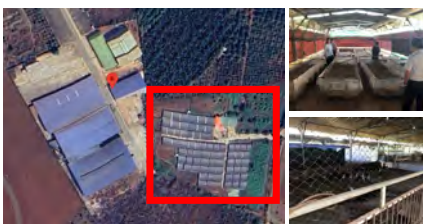


# Current problem of agrivoltaics in Vietnam. Need of guidelines.



In Vietnam, many solar power plant were built on farmland during FIT program period around 2015-2021. After visiting and interviewing farm owners, we find these solar power owners only makes income through electricity sales to EVN. They have no income or activity to produce agricultural products. Purpose of the land is not appropriately used as well as inefficiency of farmland usage. In order to develop sustainable agrivoltaics, we recognize that we must build guidelines that can sustain agricultural activities after solar sharing is built on top of the farm field.

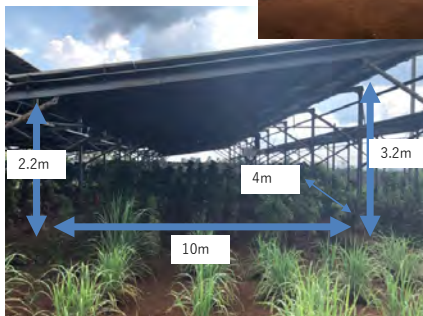
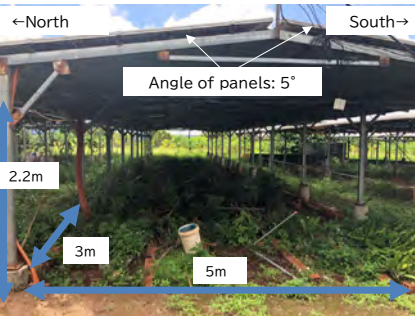
Pleiku case①



Pleiku case②



Binh Phuoc case③



All 3 sites plants same plants

Medicinal herb "Dinh Lang" planted under 70% of the rooftop area, as required by government policy for agricultural integration. planting is primarily to satisfy regulatory requirements. No actual cultivation or care (e.g., irrigation, fertilization) is provided



From planting, Ding Lang requires 7-8 years until harvest. Owners of these sites do not need to report to local authority about their agricultural integration for some years.

# Develop solar sharing guideline in Vietnam



## Current legal framework and positioning of New SS Guide Line

Category covered by legal system when constructing photovoltaics		Law Issued by National Assembly	Decree Issued by Cabinet (government)	Circular Issued by Ministry	
Structural equipment	Installation of structures and buildings	No. 50/2014/QH13, No. 62/2020/QH14 Law on construction	No. 06/2021/Nb-CP Conditions for Acceptance of construction work.	TCVN 12232-1:2018 Photovoltaic (PV) module safety qualification - Part 1: Requirements for construction	TCVN 7447-7-712:2019 Low voltage electrical installations - Part 7-712: Requirements for special installations or locations - Solar photovoltaic (PV) power supply systems
	Ground installation	No. 61/2024/QH15 Law on electricity		TCVN 2737-2023 Load, basic wind pressure, Wo	TCVN 9386:2012 Ground conditions and earthquake effects.
	Installation on an inclined surface	No. 72/2020/QH14 Law on Environmental Protection		TCVN: 2737-1995 loads and actions for design standards	
	Solar Sharing (Agri-Aqua)	No. 02/2025/TT-BCT Law On Electricity Regarding Protection Of Electricity Works And Safety In Electricity Field			<b>New SS Guide Line</b>
Electrical equipment	Water installation				
	PV Module			TCVN 10896:2015 Thin-film terrestrial photovoltaic (PV) modules - Design qualification and type approval	
Other Equipment					
	General		No. 58/2025/ND-CP Article 8. Time limit for solar power plant, wind power plant decommissioning		No. 1010/QĐ-EVN Recognition Procedure for Solar Power Plants. No. 25/QĐ-ĐTDL Testing and Monitoring Procedure.
Construction Management					
	Power generating power, safety	No. 61/2024/QH15 Law On Electricity Regarding Protection Of Electricity Works And Safety In Electricity Field	No. 02/2025/TT-BCT Protection Of Electricity Works And Safety In Electrical Sector	TCVN 7447-4-41:2010 Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock	
Maintenance	Maintain equipment		No. 06/2021/ND-CP Preparation of a Maintenance Plan & Implementation of Construction Work		

## 2025 Project in Vietnam – research sites

Total 8 Solar Sharing sites in Vietnam at 3 national universities and tea farm as partners.

**PHOTOVOLTAIC POWER POTENTIAL VIETNAM**

WORLD BANK GROUP  
ESMAP

Long term average of PVOUT, period 2007-2018

Daily totals: 2.6 3.0 3.4 3.8 4.2 4.6  
Yearly totals: 949 1099 1241 1387 1534 1680 kWh/kwp

**Hanoi, Vietnam National University of Agriculture**

Evaluation of crop growth, yields and environment under solar sharing system.  
Research the potential development of JCM methodology in reduction of methane gas emission from rice paddy field

SS area: 13.5m×13.5m each (2 sites)

Testing crops:

**Da Lat University**

Evaluation of crop growth, yields and environment under solar sharing system.  
SS area: 13.5m×13.5m

Testing crops:

**Bao Loc Tea farm, Tang Vinh An**

Evaluation of crop growth, yields and environment under solar sharing system.  
SS area: 9m×9m

Testing crops:

**Can Tho, Can Tho University**

Evaluation of crop/shrimp growth, yields and environment under solar sharing system.  
SS area: 13.5m×13.5m(crop field) 31.0m×12.0m(Shrimp pool)

Testing crops:

## 2025 Solar Sharing pilot model, total 8 sites



Can Tho CTU shrimp pool  
Power generation capacity: 24.75kWp  
Battery capacity: 40.96kW



Can Tho CTU crop field  
Capacity: 11.88kWp  
Battery capacity: 20.48kW



Hau Giang CTU rice paddy field  
Capacity: 55.4kWp  
Battery capacity: 81.92kW



Soc Trang CTU shrimp farm  
Capacity: 80.99kWp  
Battery capacity: 81.92kW



Ha Noi VNUA rice paddy field  
Capacity: 13.86kWp  
Battery capacity: 20.48kW



Ha Noi VNUA crop field  
Capacity: 13.86kWp  
Battery capacity: 20.48kW



Da Lat University crop field  
Capacity: 13.86kWp  
Battery capacity: 20.48kW



Bao Loc tea farm  
Capacity: 6.6kWp  
Battery capacity: 10.24kW



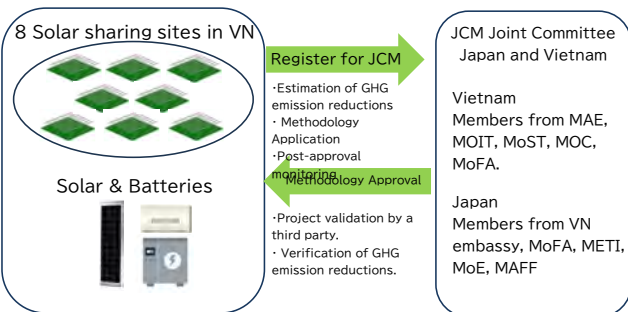
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## 2025 Solar Sharing pilot model aim to issue carbon credit through JCM

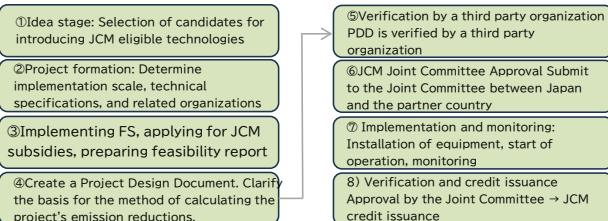


- ▶ The PIN has been submitted, which is the first step in the process of measuring and calculating the amount of GHG emissions reduced through renewable energy and energy conservation at the demonstration project site and issuing carbon credits.

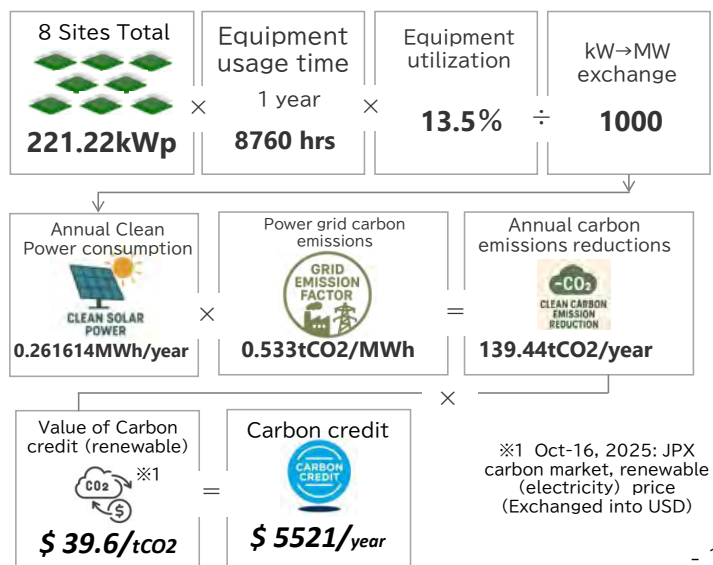
### JCM projects



### JCM project application procedure flow



### The annual carbon emission reductions proposed in the submitted PIN



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## 現地ワークショップ発表資料

### 2. エム・アイ・エス:環境配慮型ボイラーの開発 (英・越併記)



**MIS Corporation**  
**Introducing Our Solutions**  
***MIS – Giới thiệu các giải pháp môi trường***

**V1.1**

**MIS Corporation**  
**Tỉnh Fukuoka, Nhật Bản**

**October 29, 2025**  
**Ngày 29/10/2025**

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**4. MIS's Solutions / Giải pháp của MIS**

**- Various Usage of Biomass / Các giải pháp tận dụng Biomass – Sinh khối**

**- Hot Water Boiler System / Hệ thống nồi hơi nước nóng**

**5. MIS's Achievements in Vietnam/ Những thành tựu của MIS tại Việt Nam**

# 1. Company Profile / Hồ sơ Công ty

page 2

Corporate Name MIS Corporation  
(Japan)  
President Yasuyuki Nakamura  
URL <https://www.mis-r.co.jp/company.html>  
Phone +81-92-834-5131

Address 5423-10 Imazu Nishi-ku Fukuoka-city Japan  
Establish 2007  
Capital 9,700k yen  
Employee 15 people  
Patent "Combustion Equipment"  
Japan # 2020-34175

## Products

- Biomass burner *Đầu đốt sinh khối*
- Biomass Boiler *Nồi hơi sinh khối*
- Decompressing Dryer *Máy sấy giảm áp*
- Crushing Granulator *Máy nghiền – tạo hạt (nhựa)*
- Hot Air Turbine Generator (under development) *Máy phát điện tuabin khí nóng (đang phát triển)*
- Bait Machine for Fishery Farm *Máy cho ăn dùng trong trang trại nuôi trồng thủy sản*
- Bait Machine for Ship *Máy cho ăn dùng trên tàu thủy*



# 2. Product Lineup / Danh mục sản phẩm

page 3

## Our Own Products

*Sản phẩm do MIS chế tạo*



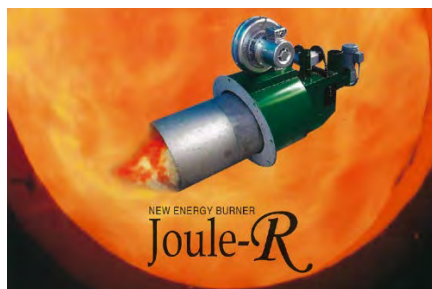
**MIS Dual Disk Dryer**  
*Máy sấy đĩa kép MIS*



**MIS Vacuum Dryer**  
*Máy sấy chân không MIS*



**MIS Hot Air Dryer**  
*Máy sấy khí nóng MIS*



## Our Alliance Products

*Sản phẩm đồng chế tạo với đối tác*



**Tomoe Steam Boiler**  
*Lò hơi Tomoe*



**Hagihara Compression Molding Machine**  
*Máy ép nén Hagihara*



**INNERGY(Spain) ORC Generator**  
*Máy phát điện ORC INNERGY (Tây Ban Nha)*

### 3. MIS's Business Policy

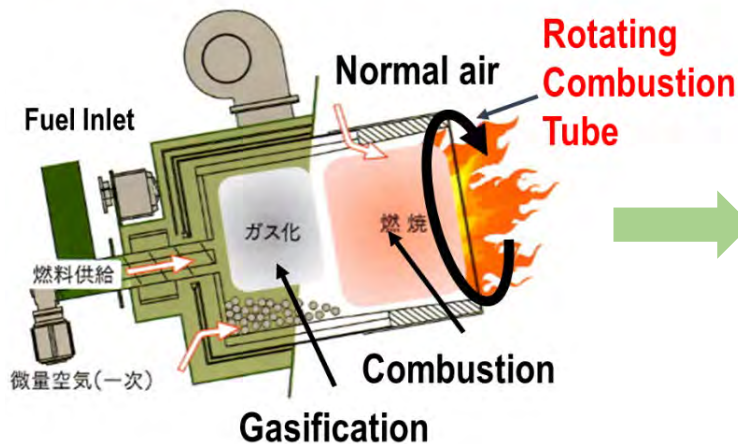
Our goal is **to reduce fossil fuel consumption and CO2 emissions** by utilizing our proprietary gasification and combustion equipment, supported by our patented technology.

Our combustion equipment, named **Joule-R Type**, is capable of efficiently combusting and recovering heat from a variety of organic waste materials, as well as fuels such as RPF and RDF, even if they are in powder form. As a result of our activities, we now have a customer base of over 60 companies.

Mục tiêu của chúng tôi là **giảm mức tiêu thụ nhiên liệu hóa thạch và lượng khí thải CO2** bằng cách sử dụng thiết bị khí hóa và đốt cháy độc quyền của chúng tôi, được hỗ trợ bởi công nghệ được cấp bằng sáng chế của chúng tôi.

Thiết bị đốt cháy của chúng tôi, được gọi là **Joule-R Type**, có khả năng đốt cháy và thu hồi nhiệt hiệu quả từ nhiều loại chất thải hữu cơ, cũng như các loại nhiên liệu như **RPF** và **RDF**, ngay cả khi chúng ở dạng bột. Nhờ các hoạt động của mình, hiện tại đang có hơn 60 doanh nghiệp quan tâm và sử dụng các sản phẩm của MIS.

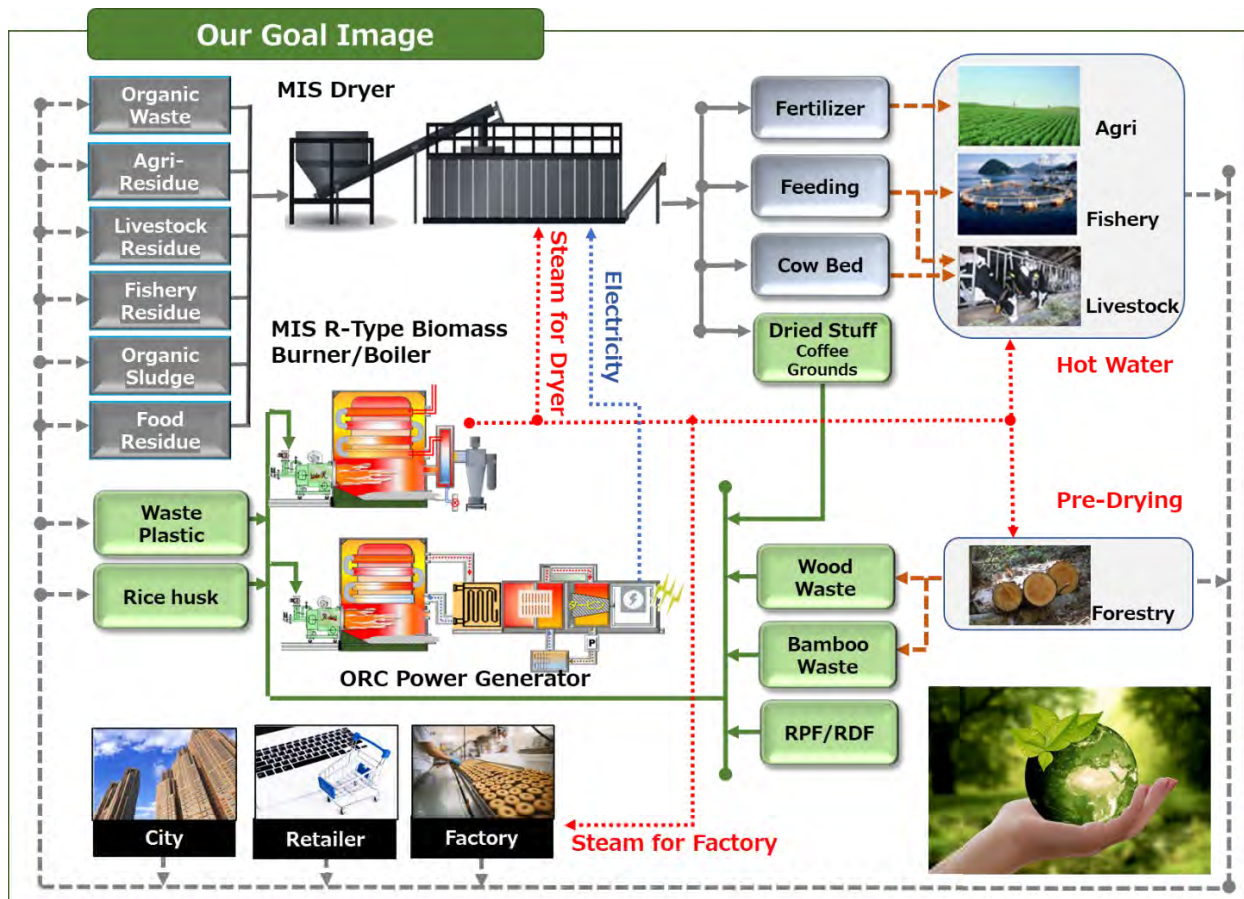
#### MIS Joule R-type Biomass Burner



RPF: Refuse derived paper and plastics densified Fuel / Nhiên liệu từ giấy và nhựa tái chế  
 RDF: Refuse Derived Fuel / Nhiên liệu có nguồn gốc từ rác thải

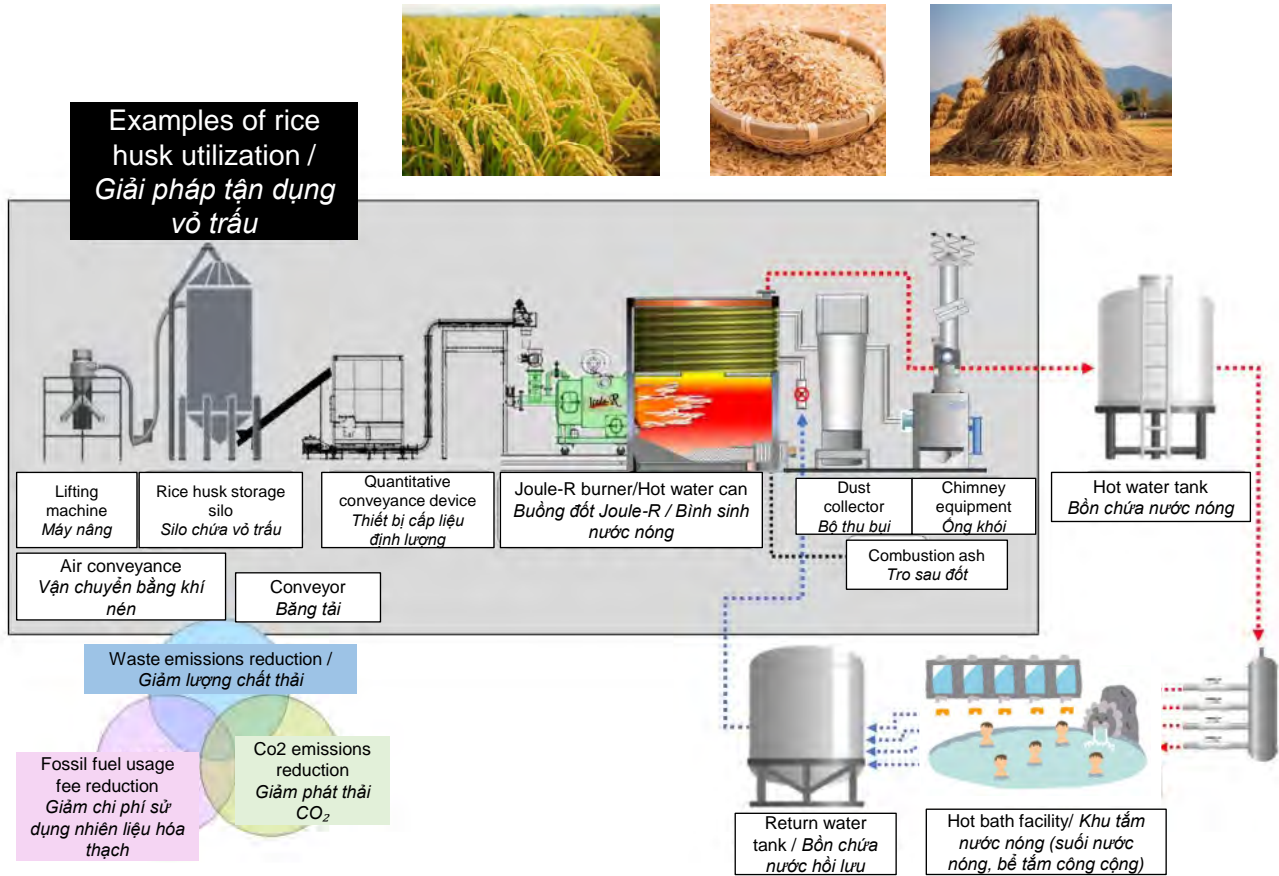
### 5. MIS's Solutions – Various Usage of Biomass /

#### Giải pháp tận dụng sinh khối



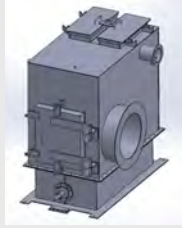
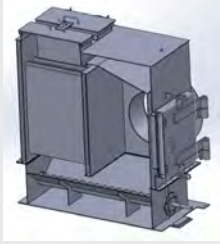
## 5. MIS's Solutions – Hot Water Boiler System

### Hệ thống nồi hơi nước nóng



## 6. MIS's Achievements in Vietnam





3D CAD modeling  
Mô hình 3D

Prototype production  
Sản xuất thử nghiệm



Finished product image  
Hoàn thiện sản phẩm

***Thank you for your Attention!***  
***Trân trọng Cảm ơn Quý vị đã chú ý lắng nghe!***

**MIS Corporation**



## 現地ワークショップ発表資料

### 3. ブロックサプライ:ベトナム市場向け遮熱シートの紹介 (英)




## Introduction of Thermal Barrier Sheets customized for the Market in Vietnam

ProX Supply Corporation

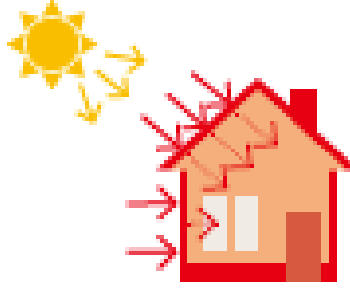
### Are you sure you can handle the heat?

- Considering a thermal barrier coating?
  - Considering installing new or additional air conditioning?
  - Considering heat retention?
  - Suffering from heat stroke?
  - Considering ways to reduce fuel costs?
- **If yes** to any of the above, we recommend that you take a look at our proposal.

# What is Thermal barrier sheet/material ?



- **Thermal barrier materials** are thinner than insulation materials (in sheet form) and **reflect (block) radiant heat with aluminum foil on the surface**. In summer, it reflects (blocks) hot heat from the outside and keeps the interior comfortable.



- **Insulation** does not reflect (block) heat, but rather slows the transfer of heat. The reason why rooms are hot in summer even with insulation is that heat slowly enters the room over time, and furthermore, the heat is retained due to the heat storage effect.

# Three elements of heat transfer

**対流**  
Convection

Heat transfer caused by moving gases and liquids



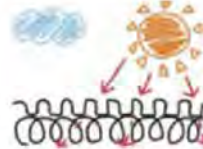
**伝導**  
Conduction

Heat transfer transmitted by bringing objects of different temperatures into contact with each other



**輻射**  
Radiation

Heat transfer caused by an object emitting energy in the form of electromagnetic waves

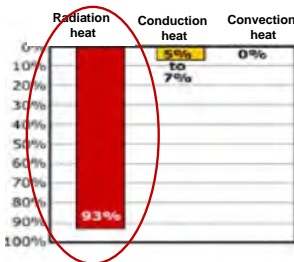


There are three types of heat transfer: **convection heat, conduction heat, and radiation heat**. In the graph below, the **radiation heat (red one) is the largest** in the roof, floor, and walls, accounting for **about 70%** of the total heat transfer.

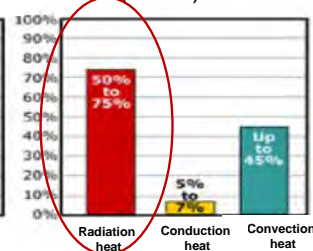


**When considering heat protection, blocking radiant heat is of utmost importance!**

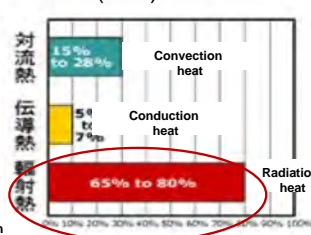
Heat transfer from roof (top)



Heat transfer from floor (below)

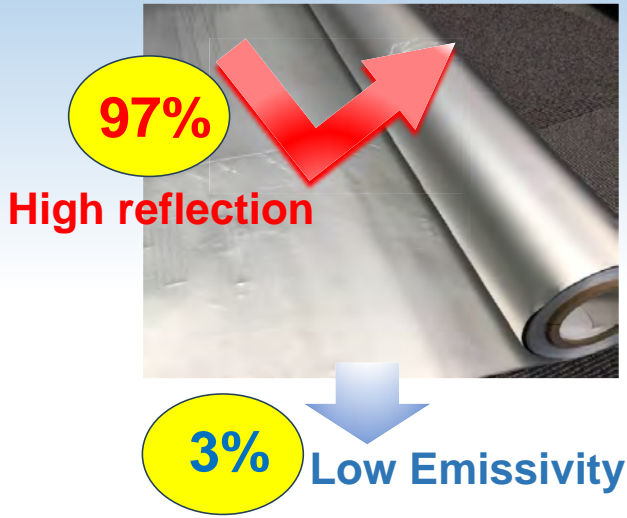


Heat transfer from wall (side)



# About ProX Thermal Barrier Sheet (1)

## Product strengths



- ✓ High heat shielding performance
- ✓ Thin and strong **0.2mm**
- ✓ High aluminum purity **99%**
- ✓ Corrosion-resistant coating
- ✓ Noncombustible
- ✓ **Durable/Sustainable**

# About ProX Thermal Barrier Sheet (2)

## Comparison with other products

	<b>ProX TB Sheet</b> Thin Coating Aluminum foil Surface emissivity(ε) = 0.03 Corrosion protection possible	<b>Company A</b> Thick Coating Aluminum foil Surface emissivity (ε) = 0.60 Corrosion protection possible	<b>Company B</b> No Coating Aluminum foil Surface emissivity (ε) = 0.03 Easily corroded
	<b>ProX TB Sheet</b>	<b>Company A</b>	<b>Company B</b>
Reflectance	97%	40%	97%
Emissivity	3%	60%	3%
With or without Corrosion Protection Coating	○ (Appropriate thickness)	△ ( Too thick )	× ( None )
durability	○	○	△
Waterproof, moisture-proof	○	○	○
	Coating layer, but still maintains high reflective and low radiative performance.	Thick coating layer reduces reflective and radiative performance	High reflectivity and low emissivity, but easy to corrosion since no coating layer



**This material greatly contributes to the comfort of your work/life environment!!!**

# Our products



Pro Supply Corporation  
プロックスサプライ株式会社

\*High-performance, lightweight, easy-to-install, cost-effective thermal barrier sheet!

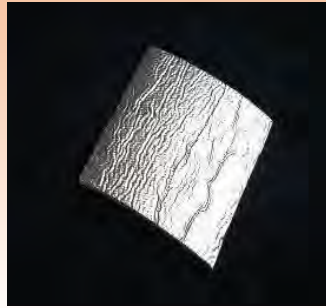


## 1. 【PRX-PRO】

Non-inflammables

Standard : T 0.23mm x W 1m x L 50m

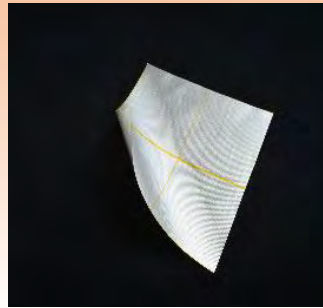
Applications : Under roofs, under ceilings, walls, outdoor walls, machinery and equipment, etc.



## 1. 【PRX-CH】

Standard : T 6mm x W 1m x L 35m

Applications : Dew condensation countermeasure, under roof, ceiling, ceiling lining, wall, refrigerator, etc.

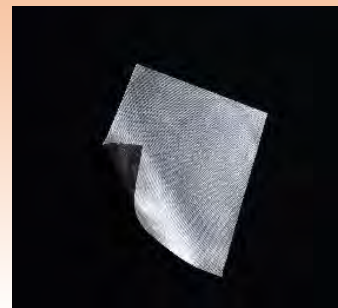


## 3. 【PRX - Air】

Standard : T 0.23mm x W 1m x L 50m

A moisture-permeable Thermal Barrier Sheets with a vast number of tiny holes.

Applications : Under roofs, inside walls, etc.



## 4. 【PRX - FABW】

Standard : T 0.23mm x W 1.45m x L 50m

A fabric Thermal Barrier Sheets

Applications : Curtains, roll screens, clothing, and more for your use!

## About ProX Thermal Barrier Sheet (3)

### 【Incombustibility】

- Certified by the Ministry of Land, Infrastructure, Transport and Tourism, Japan as a noncombustible material through performance evaluation testing (acquired in April 2019).

**Can be installed inside factories, warehouses, etc.**



Pro Supply Corporation  
プロックスサプライ株式会社



(PRX-PRO)



# About ProX Thermal Barrier Sheet (4)



ProX Supply Corporation  
プロックスサプライ株式会社

## 【Patented Construction Method】

- Developed a construction method using ProX Thermal Barrier Sheet when constructing thermal barrier construction in factories and warehouses and obtained a Japanese patent for this method.



【Patented construction method】  
ProX wire construction method

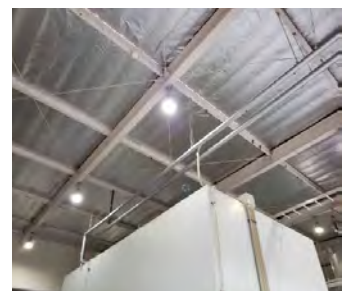
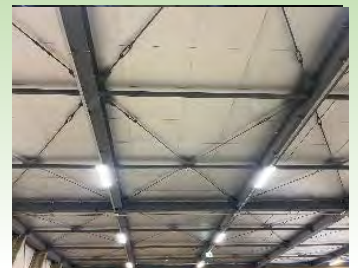
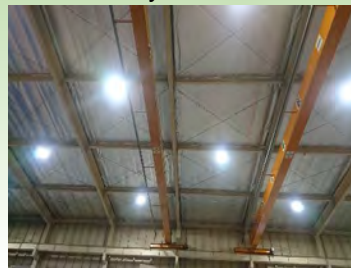
## Example of thermal barrier sheet installation (1)



ProX Supply Corporation  
プロックスサプライ株式会社

\*Widely used in construction-related, factory/warehouse, livestock breeding, machinery and equipment, etc!

Directly attached under the roof of steel structure



# Example of thermal barrier sheet installation (2)



ProX Supply Corporation  
プロックスサプライ株式会社

**For precision machine protection!**



**For inside of the ceiling! Increased effectiveness of air conditioning!  
For measures against heat stroke too!**



**For reduction boiler fuel costs!**



**For the wooden shed room**



**For drying furnace, environmental improvement for workers and energy-saving measures!**



**For a tent warehouse  
Prevents deterioration of products and improves the working environment!**



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## Contact



ProX Supply Corporation  
プロックスサプライ株式会社

**We can solve your “heat” concerns with Thermal barrier sheets!**

**ProX Supply Corporation**

Company: Prox Supply Corporation

12

## 現地ワークショップ発表資料

### 4. サニックスホールディングス:排水の浄化とリサイクル (英)

# Creating a society where “not wasting” is the norm

~Wastewater purification and recycling~

October 29, 2025

SANIX HOLDINGS

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0

## Index

- 1. Company Profile**
- 2. Our Businesses**
- 3. Resource Circulation Businesses**
  - 1. Wastewater purification and recycling**
  - 2. Waste plastic recycling**
- 4. Other businesses**
  - 1. Pest Control**
  - 2. Photovoltaic Systems**



# 1. Company Profile



IPPUDO in Ho Chi Minh

**We are from  
the Ramen Kingdom!**



# 1. Company Profile

Better Life For The Next Generation

# SANIX

- Since: 1975
  - Sales: JPY45,353mil\*
  - Employees: 2,054\*
  - 142 sites in Japan\*
- \*as of March 2025
- Group Companies
    - SANIX HOLDINGS
    - SANIX (Residential Environment Area)
    - SANIX ENGINEERING (Energy Area)
    - SANIX RESOURCE DEVELOPMENT GROUP (Resource Circulation Area)



## 2. Our Businesses

### Sales Proportion by business area

- Resource Circulation: 45%
- Residential Environment: 33%
- Energy: 22%

### Energy Area

Creating a society where “energy with low environmental impact” is the norm.



### Resource Circulation Area

Creating a society where “not wasting” is the norm.



### Residential Environment Area

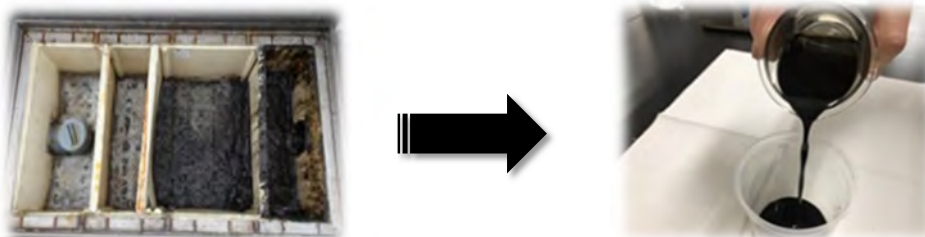
Creating a society where “connecting comfortable residential environments to the next generation” is the norm.”



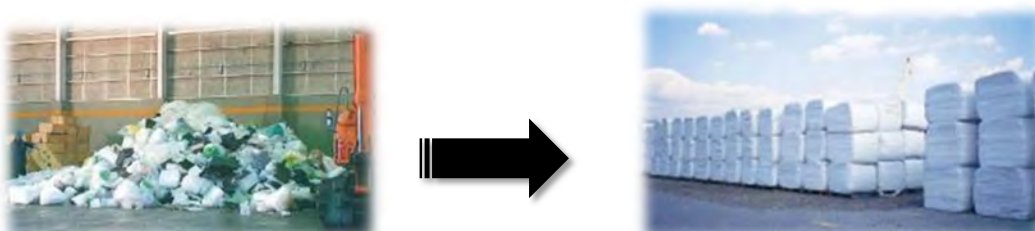
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## 3. Resource Circulation Businesses

### 1. Wastewater Purification and recycling Business

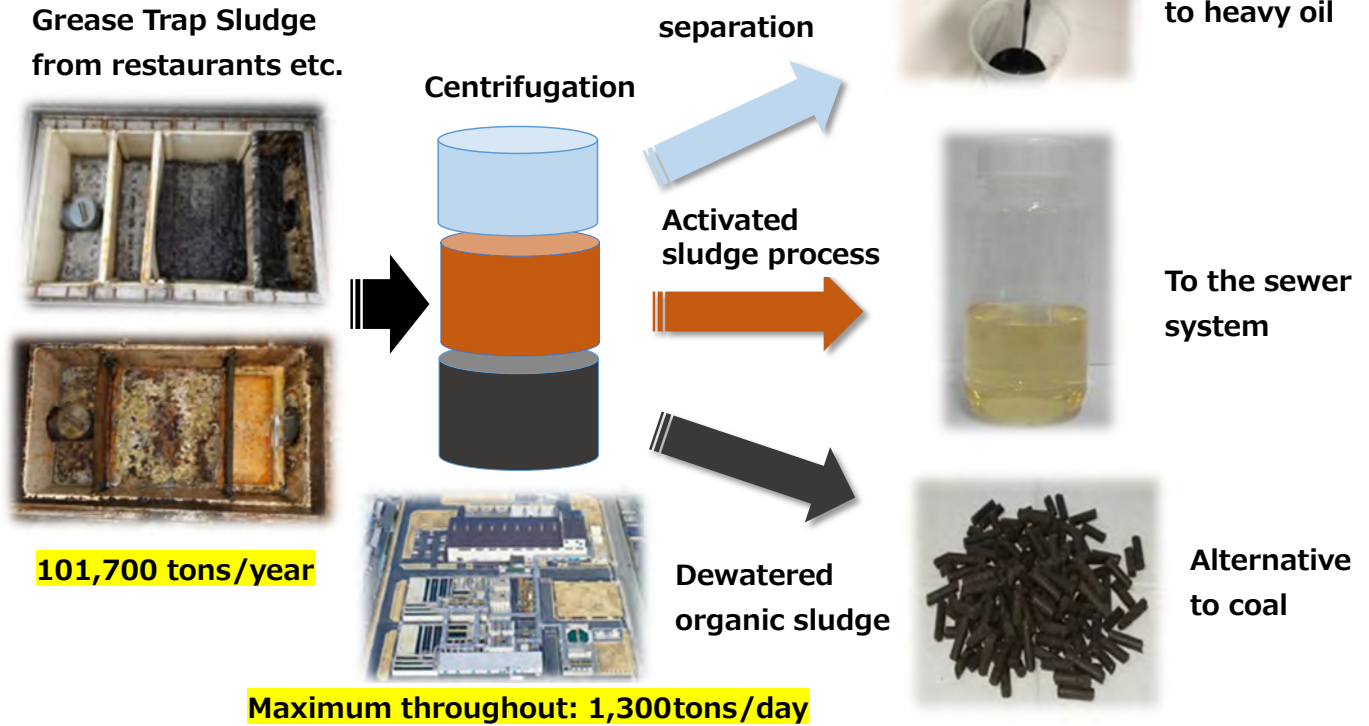


### 2. Waste Plastic Recycling Business

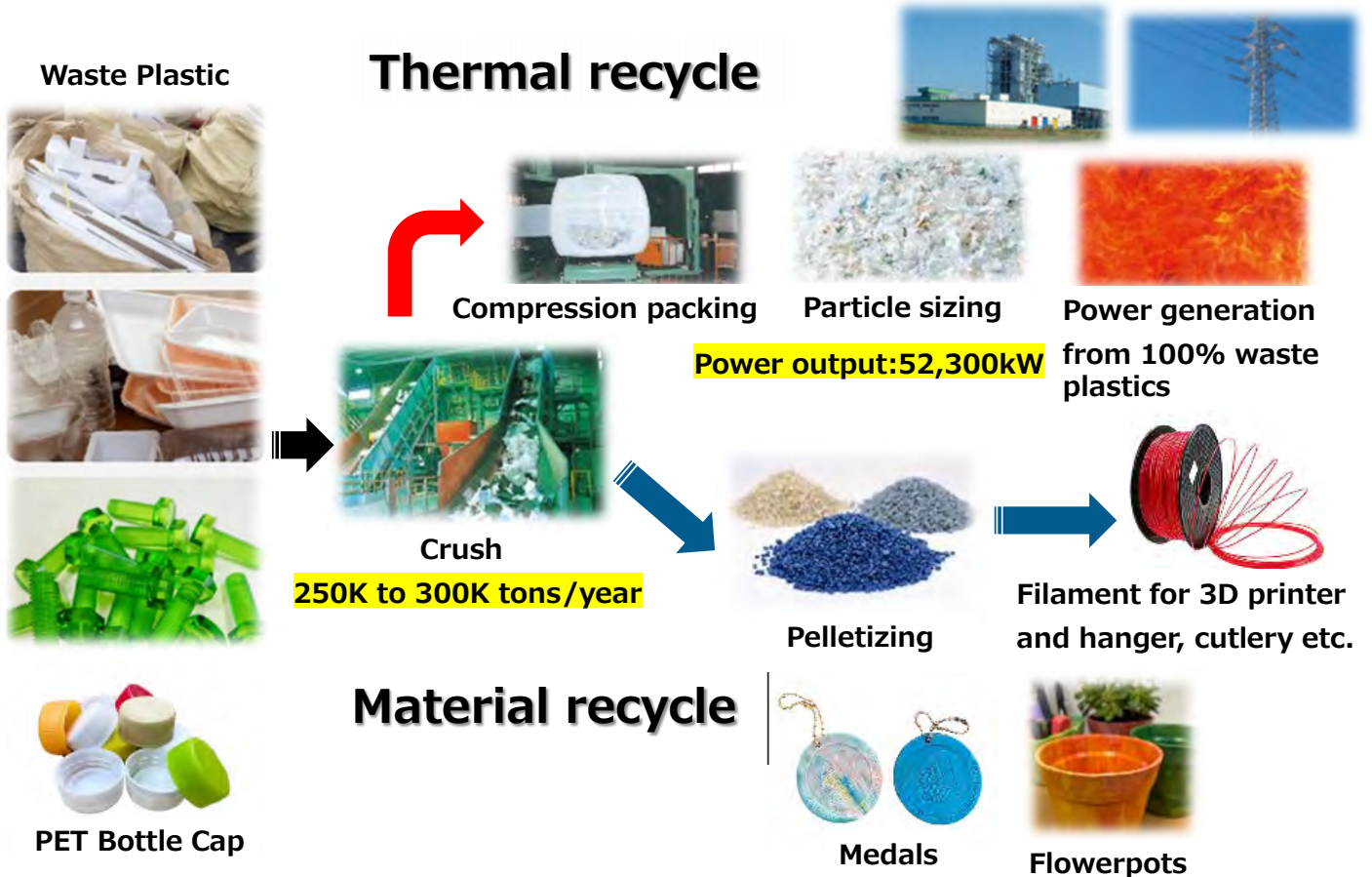


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## Organic sludge treatment



# 3. Waste Plastic Recycling



## Pest Control

Termite prevention and control



Other pests



Chemical application under the floor



Ventilation system under the floor (solar power)



# 4. Other Businesses: Energy Businesses

**EPC (Engineering, Planning and Construction) and OM (Operation and Maintenance) for Photovoltaic System**



## 現地ワークショップ発表資料

5. 日本工営:工業団地の脱炭素化に関する環境ソリューションの紹介 (英・越併記)

# Introduction to Environment Solutions for Decarbonization of Industrial Parks

*Giới thiệu về các Giải pháp Môi trường nhằm  
Giảm Phát thải Carbon tại Khu Công nghiệp*

Ngày 29/10/2025

International Environment Dept./ *Phòng Môi trường quốc tế*  
Nippon Koei



## Outline/ *Nội dung chính*

1. Recent Trends in Decarbonization Efforts among Asian Countries
2. Importance of Promoting Decarbonization in Industrial Parks
3. Findings from Industrial Park Hearing Surveys
4. Characteristics of Industrial Parks in Vietnam
5. Decarbonization Technologies Applicable around Hanoi City  
(Energy Efficiency, Renewable Energy, and Sustainable Fuels)
6. Role of City-to-City Cooperation Projects

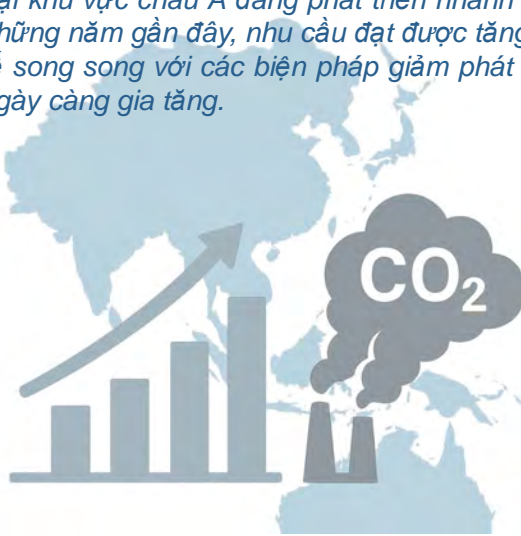


## Recent Trends in Decarbonization Efforts among Asian Countries

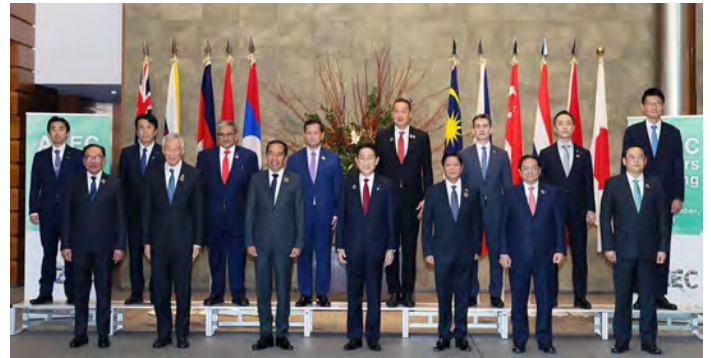
*Xu hướng gần đây trong nỗ lực giảm phát thải carbon của các quốc gia châu Á*

In rapidly growing Asia, there has been an increasing demand in recent years to achieve both economic growth and diverse approaches to decarbonization.

*Tại khu vực châu Á đang phát triển nhanh chóng, trong những năm gần đây, nhu cầu đạt được tăng trưởng kinh tế song song với các biện pháp giảm phát thải đa dạng ngày càng gia tăng.*



Established in 2023.  
A total of 11 countries joined.  
(Southeast Asian nations such as Vietnam, Indonesia, Thailand, and Philippines, as well as Australia and Japan)



[AZEC: Asia's Various Pathways to Net Zero Co-Created by Japan | The Government of Japan - JapanGov -](#)

## Importance of Promoting Decarbonization in Industrial Parks

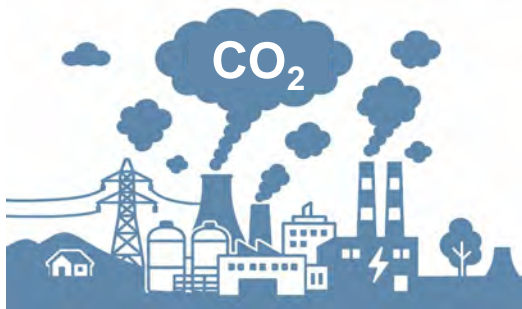
*Tầm quan trọng của việc thúc đẩy giảm phát thải carbon tại các KCN*

Collaborating with industrial park operators in areas with concentrated manufacturing and high energy use can accelerate efficient decarbonization.

*Hợp tác với các đơn vị vận hành khu công nghiệp tại những khu vực tập trung nhiều hoạt động sản xuất và có mức tiêu thụ năng lượng cao có thể thúc đẩy quá trình giảm phát thải carbon hiệu quả hơn*

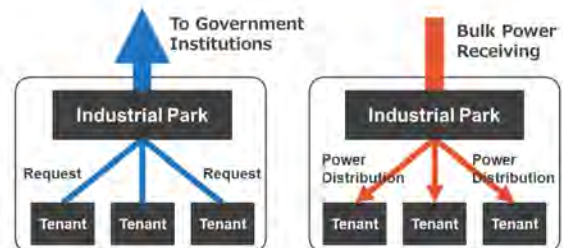
**Industrial Park as areas with concentrated manufacturing and high energy use**

**KCN:** là khu vực tập trung sản xuất và tiêu thụ năng lượng lớn



**Industrial Park Operator as entities with integrated management functions**

**Đơn vị vận hành KCN:** là tổ chức có chức năng quản lý tổng hợp trong KCN



Example 1:  
Aggregation and Suggestion of Tenant Requests

Example 2:  
Bulk Power Receiving and Distribution

# Findings from Industrial Park Hearing Surveys

## Kết quả khảo sát thực địa tại các khu công nghiệp

Hearings with industrial parks across Asia indicated that they can be broadly classified into four types based on location and demand scale.

Kết quả khảo sát tại các khu công nghiệp trên khắp châu Á cho thấy có thể phân loại chung thành bốn nhóm, dựa trên vị trí địa lý và quy mô nhu cầu năng lượng.



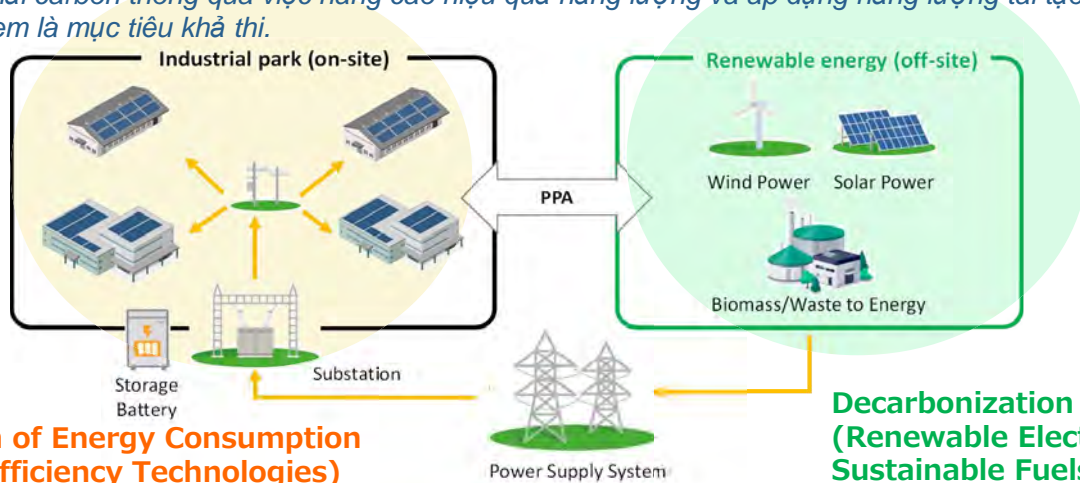
Industrial Park/Industrial Classification	Country of Industrial Park
1 Small-scale Industrial Park	Laos
2 Conventional Industrial Park (Inland Industrial Park)	Vietnam
	Vietnam
	Philippine
1,000 GWh/Year	
3 Electricity-intensive Industrial Park (Data Center, High-tech / Heavy industries)	Indonesia
	Malaysia
4 Fuel-intensive Industrial Park (Costal Industrial Complex)	Indonesia
	Thailand
	Malaysia

# Characteristics of Industrial Parks in Vietnam

## Đặc điểm của các khu công nghiệp tại Việt Nam

In Vietnam, several Conventional Industrial Parks have been identified where the scale of energy demand can be decarbonized through energy efficiency and Renewable Energy (RE), making it a feasible target.

Tại Việt Nam, một số KCN thông thường/ kiểu truyền thống có nhu cầu năng lượng đủ lớn để có thể thực hiện giảm phát thải carbon thông qua việc nâng cao hiệu quả năng lượng và áp dụng năng lượng tái tạo (RE) — điều này được xem là mục tiêu khả thi.



**Reduction of Energy Consumption (Energy Efficiency Technologies)**

Giảm tiêu thụ năng lượng

(Áp dụng công nghệ nâng cao hiệu quả sd năng lượng)

**Decarbonization of Energy (Renewable Electricity and Sustainable Fuels)**

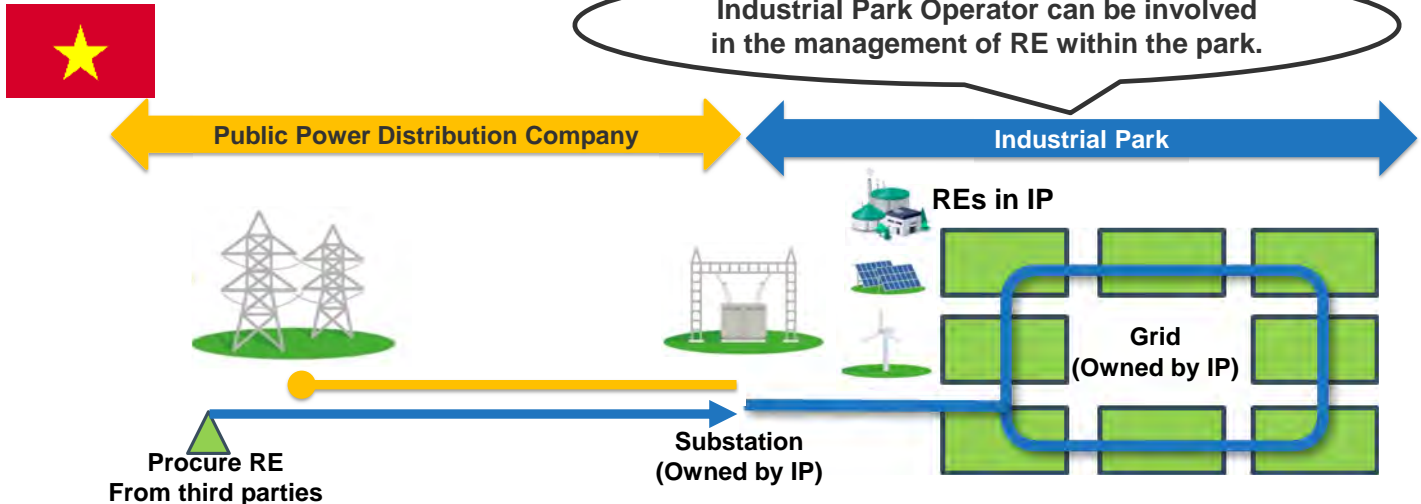
Giảm phát thải carbon từ nguồn năng lượng (Sử dụng điện tái tạo và nhiên liệu bền vững)

# Characteristics of Industrial Parks in Vietnam

## Đặc điểm của các khu công nghiệp tại Việt Nam

The feasibility of RE adoption depends on the entity responsible for power distribution. In Vietnam, several industrial parks operate and manage their own grids, which is a relatively rare situation in Asia.

Khả năng áp dụng năng lượng tái tạo (RE) phụ thuộc vào đơn vị chịu trách nhiệm phân phối điện năng. Tại Việt Nam, một số khu công nghiệp có vận hành và quản lý hệ thống điện riêng của mình, đây là trường hợp khá hiếm ở khu vực châu Á.

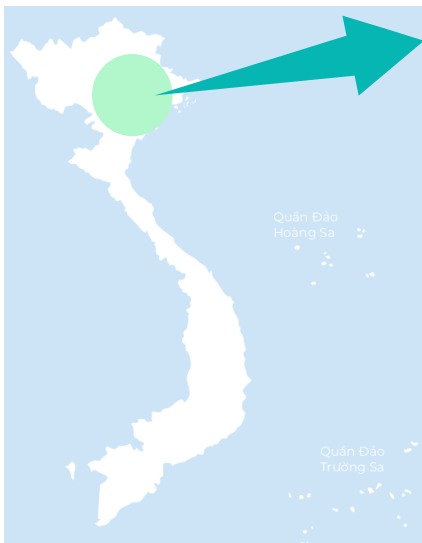


# Decarbonization Technologies Applicable around Hanoi City

## Các công nghệ giảm phát thải carbon có thể áp dụng tại khu vực Hà Nội (Energy Efficiency, Renewable Energy, and Sustainable Fuels)

Around Hanoi City, many conventional (inland) industrial parks host electronics and machinery factories, where demand for energy efficiency and renewable energy technologies is expected to grow.

Quanh Khu vực Hà Nội, có nhiều KCN truyền thống — nơi tập trung các nhà máy điện tử và cơ khí. Tại đây, nhu cầu áp dụng các công nghệ nâng cao hiệu quả năng lượng và năng lượng tái tạo được dự đoán sẽ tăng mạnh trong thời gian tới.



There is a high concentration of tenant companies engaged in electronics, machinery manufacturing.

Type	Technologies Introduced in this Workshop	Electronics	Machinery * Include Precision Equipment	Applicability potential
Energy Efficiency	Thermal Barrier Sheet	△	○	○
RE and Sustainable Fuels	Solar Power	○	○	◎
	Biomass Boiler	○	○	◎
	Sludge-derived Recycled Oil	△	△	△ *Availability of facilities
	Plastic Waste-derived Fuel	△	△	△ *Availability of facilities
	Biogas	○	○	◎

# Role of City-to-City Cooperation Projects

## Vai trò của các dự án hợp tác giữa các đô thị

For companies, the deployment of environmental technologies in industrial parks offers business opportunities, while for industrial parks, it provides an efficient pathway to achieve decarbonization.

Đối với các doanh nghiệp, việc triển khai các công nghệ môi trường trong các KCN mang lại cơ hội kinh doanh, trong khi đối với các KCN, đây là một con đường hiệu quả để đạt được mục tiêu giảm phát thải carbon.

### Local Governments such as Fukuoka Prefecture and Hanoi City



Thank you very much for your attention.

Trân trọng cảm ơn Quý vị đã chú ý lắng nghe.



#### Hanoi Office / Nippon Koei Vietnam International Co., Ltd.

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3rd Floor, Hoang Cau Skyline Building, 36 Hoang Cau, O Cho Dua Ward, Hanoi City  
**Phone (Hanoi Office):**  
(+84)-24-3724-6535



#### Ho Chi Minh Liaison Office

**Address:**  
3rd Floor, CJ Building, 2Bis-4-6 Le Thanh Ton, Sai Gon Ward, HCMC  
**Phone:**  
(+84)-28-2221-7650



## 現地ワークショップ発表資料

6. 兼松 KGK ベトナム:再エネ事業(太陽光・小水力)の紹介 (英・越併記)



# Technical Workshop for Zero Carbon Society In Hanoi City, Oct.29<sup>th</sup> , 2025



## 1. Company Outline

*Giới thiệu công ty*

## 2. Introduction of Joint Crediting Mechanism

*Giới thiệu khung thể chế và các dự án nhận hỗ trợ thiết bị từ Dự án JCM*

## 3. Our outlook in Vietnam

*Triển vọng của chúng tôi về lĩnh vực năng lượng ở Việt Nam*



29<sup>th</sup> October 2025

# 1. Company Outline / Giới thiệu công ty

- **Company Name:** Kanematsu KGK Corp.  
(Established in 1963, Tokyo, Japan)
- **Business Field:** Machine Tools Business, Industrial Machinery Business, Energy Solution Business
- **Consolidated Annual Turnover :** Appx.400 million USD (500 employees as of Fis 2024.)
- **Overseas subsidiaries:** 12 Branch Offices over 6 Countries



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# 1. Company Outline / Giới thiệu công ty

## Machine Tools/ Máy công cụ

Since 1963, we have been providing a wide range of lineup from CNC machines to the latest equipment for the electrical, mechanical, and automotive industries. We also contribute to solve various issues such as FA, IoT, DX, GX and so on.

*Từ năm 1963, chúng tôi đã cung cấp nhiều dòng sản phẩm từ máy CNC đến thiết bị hiện đại nhất cho ngành điện, cơ khí và ô tô. Chúng tôi cũng đóng góp giải pháp cho nhiều vấn đề khác nhau như FA, IoT, DX, GX, v.v.*



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# 1. Company outline / Giới thiệu công ty

## Industrial machines / Máy công nghiệp



### Food



### Plastic



### Non-woven



### Wood-Processing



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# 1. Company Outline / Giới thiệu công ty

## GX - Green Transformation / Chuyển đổi xanh

We contribute to the realization of a decarbonized society by providing optimal solutions, together with our partners using our global network.

*Chúng tôi góp phần hiện thực hóa xây dựng một xã hội không còn cacbon bằng cách cung cấp các giải pháp tối ưu cùng với các đối tác trong mạng lưới toàn cầu của chúng tôi.*



106MW Solar Project in An Giang Province, Vietnam

2019/2020 JCM Model Project

Nhà máy điện mặt trời 106MW tại tỉnh An Giang, Việt Nam

Dự án mẫu JCM 2019/2020



Compostable Plastic

Nhựa phân hủy sinh học

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## 2. Introduction of Joint Crediting Mechanism

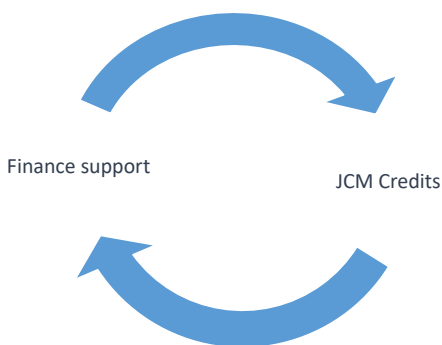
### Giới thiệu khung thể chế và các dự án nhận hỗ trợ thiết bị từ Dự án JCM

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## 2. Outline of JCM/ Tóm tắt về JCM

### Partner Countries



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By joining JCM financial program,  
 Khi tham gia Chương trình tài chính JCM, sẽ nhận được:

- ✓ - Investment cost will be partially covered  
 Được hỗ trợ 1 phần chi phí đầu tư
- ✓ - To be competitive  
 Có tính cạnh tranh
- ✓ - Creating and expanding our new business opportunity  
 Sáng tạo và mở rộng cơ hội kinh doanh của chúng tôi
- ✓ -Contribution to Sustainability  
 Đóng góp vào sự bền vững

Number of already selected project(s) using a similar technology in each partner country	Percentage of financial support
None (0)	Up to 50% (determined by GEC)
Up to 3 (1 - 3)	Up to 40% (determined by GEC)
Up to 7 (4 - 7)	Up to 30% (determined by GEC)
Up to 9 (8 – 9)	Up to 20% (determined by GEC)
More than 10 (10 and more)	Not applicable

EX) .HPP and WPP in Vietnam and Philippines  
 Ví dụ: Thủy điện điện gió ở Việt Nam và Philippin

EX) .Solar Power Plant in Vietnam.  
 Ví dụ: Dự án điện mặt trời tại Việt Nam

## OUR JCM MODEL PROJECTS

# GIỚI THIỆU CÁC DỰ ÁN KIỂU MẪU JCM CỦA CHÚNG TÔI ĐÃ ĐƯỢC LỰA CHỌN

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## GIỚI THIỆU CÁC DỰ ÁN ĐÃ ĐƯỢC LỰA CHỌN

Introduction of 0.8MW Solar Power System and High Efficiency Refrigerator to Food Factory (2018)  
/Thiết bị điện mặt trời + Máy lạnh hiệu suất cao ( Năm 2018)



Thái lan/ Máy lạnh hiệu suất cao và pin mặt trời  
0.8MW cho  
nhà máy sản xuất thực phẩm.  
THAI DELMAR CO.,LTD  
Công ty đối tác: THAI DELMAR CO.LTD  
Lượng giảm phát CO2 hàng năm : ~500 tấn/năm



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## GIỚI THIỆU CÁC DỰ ÁN ĐÃ ĐƯỢC LỰA CHỌN

49MW&57MW Solar Power Project in An Giang Province (2019,2020)  
*/Nhà máy điện mặt trời ( Năm 2019, 2020)*



Việt Nam/Dự án Nhà máy điện mặt trời tại tỉnh An Giang ( Năm 2019, 2020)  
SAO MAI GROUP CORPORATION  
Công ty đối tác: Công ty cổ phần tập đoàn Sao Mai  
Lượng giảm phát thải CO2 hàng năm:  
~ 52,000 tấn/ năm

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## GIỚI THIỆU CÁC DỰ ÁN ĐÃ ĐƯỢC LỰA CHỌN

16MW Mini Hydro Power Plant Project in Binh Thuan Province/*Nhà máy thủy điện nhỏ 16MW tại tỉnh Bình Thuận*



Expected Co2 reduction : Around 16,190t/year  
*Lượng CO2 dự kiến giảm phát thải khoảng 16,190 tấn/năm*

✘Construction and installation will be completed by this year 2024.  
*Xây dựng và lắp đặt dự kiến hoàn thành trong năm 2024*



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# Our Business Outlook

For the energy field in Vietnam

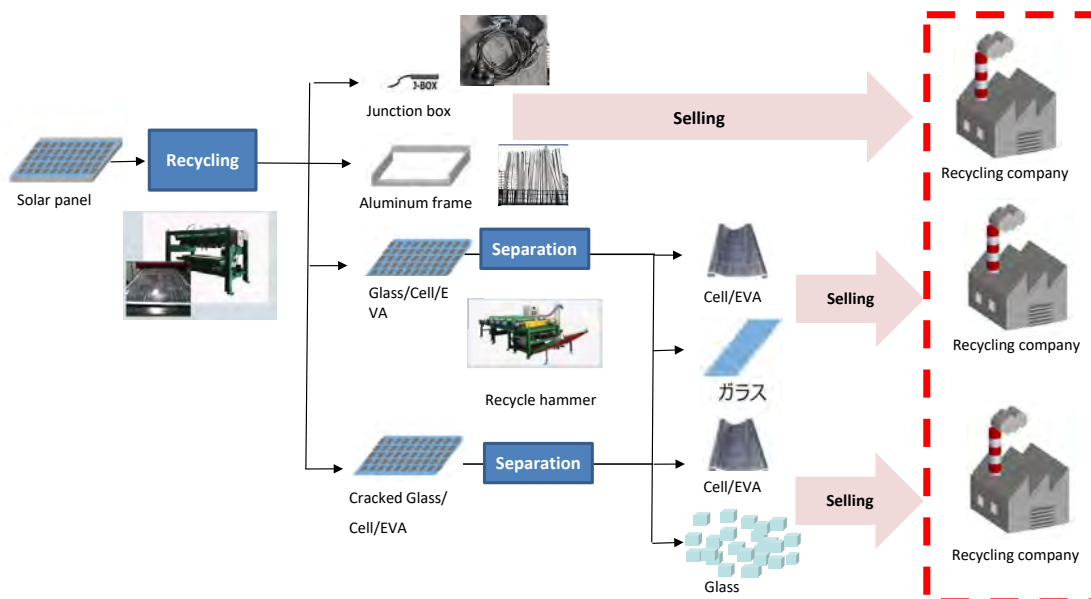
*Triển vọng kinh doanh về năng lượng*

*tại Việt Nam*

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## Solar Panel Recycling/ *Tái chế tấm quang năng*



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## 現地ワークショップ発表資料

### 7. カナデビアベトナム: バイオガス技術・実績の紹介 (英)

# Our Biogas / Anaerobic Digestion (AD) technologies

## A Sustainable and circular economy solution

29. Oct. 2025  
Kanadevia Corporation

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  - 2.3. Reference plants

# 1. Company Outline

## From HITACHI ZOSEN to KANADEVIA (From October 1<sup>st</sup>, 2024)



=

Kanaderu / “奏でる”  
(to play in harmony)

+

Via / “道”  
(way)

1881: Osaka Iron Works  
1943: Hitachi Zosen  
01/10/2024: Kanadevia

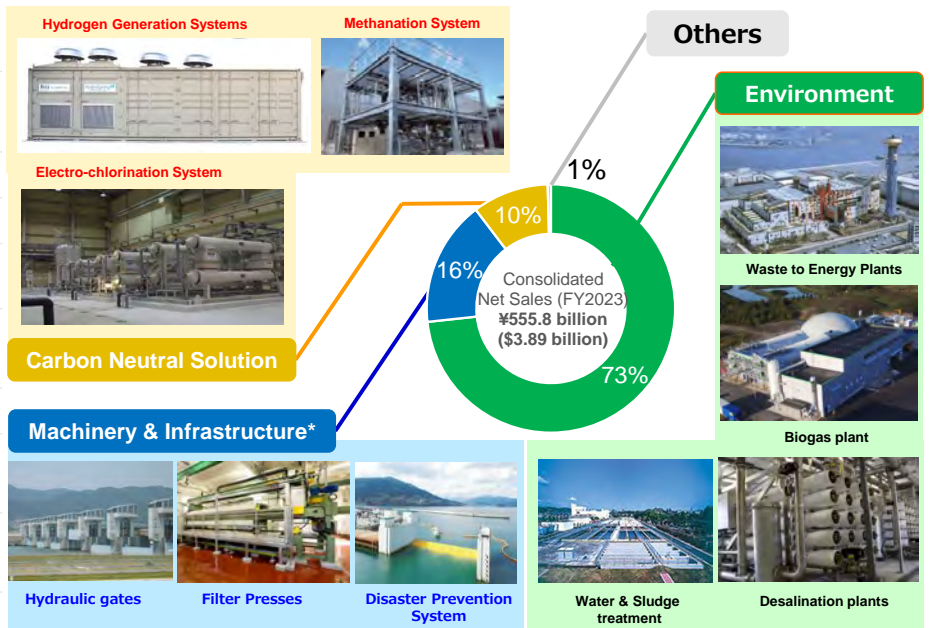
The brand concept of "striving for harmony between humanity and nature through the power of technology," we have chosen "Kanadevia" as our new identity, marking the beginning of a new chapter.

	Old	New
Trade name	HITACHI ZOSEN CORPORATION	KANADEVIA CORPORATION
Logo		
Email domain name	@hitachizosen.co.jp	@kanadevia.com
Company name in Vietnam	HITACHI ZOSEN VIETNAM CO., LTD.	Kanadevia VIETNAM CO.,LTD.

# Introduction of Corporate

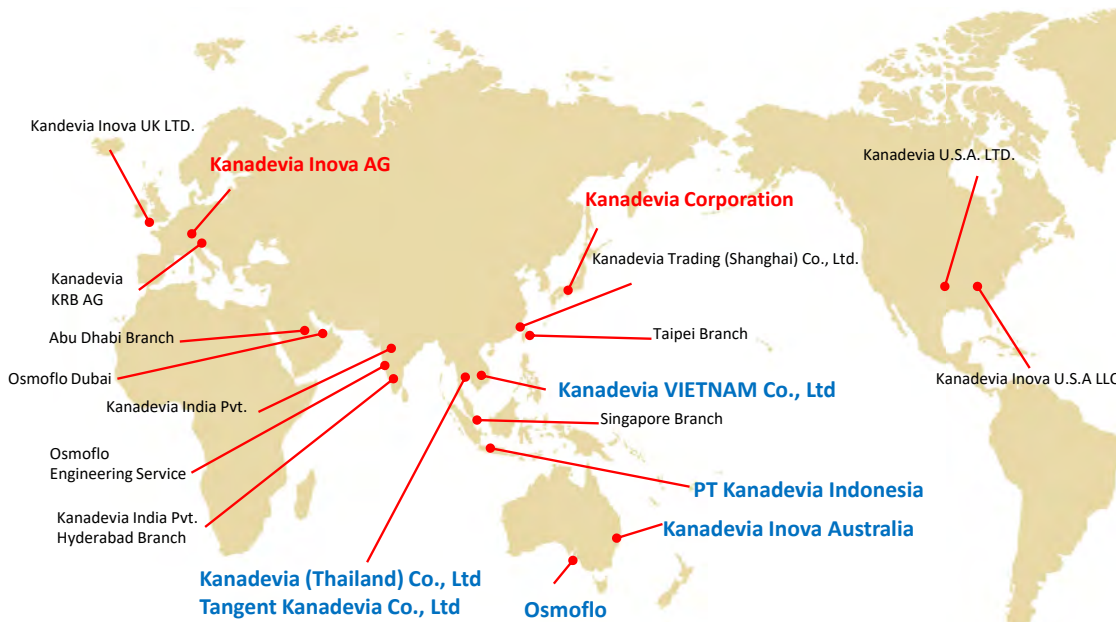
<b>Company's Name</b>	<b>KANADEVIA CORPORATION</b> (1/10/2024) HITACHI ZOSEN CORPORATION
<b>Founded</b>	1881 by Edward Hazlett Hunter (from UK)
<b>Incorporated</b>	1934
<b>Headquarters</b>	Osaka and Tokyo
<b>Stock market</b>	Listed on Tokyo Stock Exchange
<b>Offices</b>	162 (131 consolidated subsidiaries and 31 affiliates).
<b>Employees</b>	12,148 (consolidated)
<b>Paid-in Capital</b>	45.44 billion yen (≒ US\$ 318 million)
<b>Net Sales</b>	555.8 billion yen (≒ US\$ 3,89 million)
<b>Net Income</b>	18.9 billion yen (≒ US\$ 132.3 million)

(As of 31/03/2024) 1 JPY = US\$ 0.007







\* From April 2025, it is reorganized as Machinery Business HQ and Infrastructure Business HQ to enhance engagement toward each product

# Major Overseas Offices & Subsidiaries



as of March, 2025

KANADEVIA VIETNAM	
<b>Establishment</b>	2004
<b>Office</b>	<ul style="list-style-type: none"> <li>Ho Chi Minh city (Headquarter)</li> <li>Hanoi (Branch)</li> </ul>
<b>Employees</b>	Approx. 100
<b>Business field</b>	<ul style="list-style-type: none"> <li>Detailed engineering for Plant (CAD 2D drawing &amp; 3D model)</li> <li>Procurement</li> <li>O&amp;M business</li> <li>Business supports</li> </ul>

	Business fields	Detail	
	Environmental system	<ul style="list-style-type: none"> <li>▪ Waste to Energy Plants</li> <li>▪ Methane Fermentation Systems</li> <li>▪ Desalination Plants</li> <li>▪ Energy and Resource from Organic Waste, and Leachate Treatment System</li> </ul>	<ul style="list-style-type: none"> <li>▪ Eco-agriculture Systems / Waste to Biochar Plants (EFCaR)</li> <li>▪ Material Recycling Systems</li> <li>▪ Water, Sewage and Industrial Wastewater Treatment Systems</li> </ul>
	Carbon Neutral Solution	<ul style="list-style-type: none"> <li>• Hydrogen Generation Systems (HydroSpring)</li> <li>• Electro-chlorination Systems</li> <li>• SCR NOx Removal System</li> <li>• Nuclear Fuel Cycling-Related Equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Methanation Equipment (HiMethz)</li> <li>• Zeolite Membrane Separation System (HDS)</li> <li>• Pressure Vessels</li> <li>• Wind Power Generation</li> </ul>
	Machinery & Infrastructure	<p><u>Machinery Business</u></p> <ul style="list-style-type: none"> <li>- Electronic Control Equipment</li> <li>- GPS Remote Monitoring Systems</li> <li>- Food and Pharmaceutical Equipment (Sorting machine) / Sterilization systems / Filter Presses</li> <li>- Factory Automation / Film Manufacturing Equipment / Precision Casting Products</li> </ul>	<p><u>Infrastructure Business</u></p> <ul style="list-style-type: none"> <li>- Hydraulic gates</li> <li>- Shield tunneling machine</li> <li>- Marine Civil Engineering</li> <li>- Flap-Gate Type Seawall against flood disaster</li> <li>- Steel structure</li> </ul>
	Others	<ul style="list-style-type: none"> <li>- All-solid-state Lithium-ion Batteries</li> </ul>	

Remark: Red color text: technologies introduced into the Vietnamese market

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## 2. Our Biogas / Anaerobic Digestion (AD) technologies

## 2.1. Biogas / Anaerobic Digestion (AD)

### What is Biogas / Anaerobic Digestion (AD)

Biogenic wastes → Raw biogas / Methan gas and Natural Fertilizer

- ✓ Organic wastes
- ✓ Livestock waste, Agriculture waste
- ✓ Wastewater, Sludge

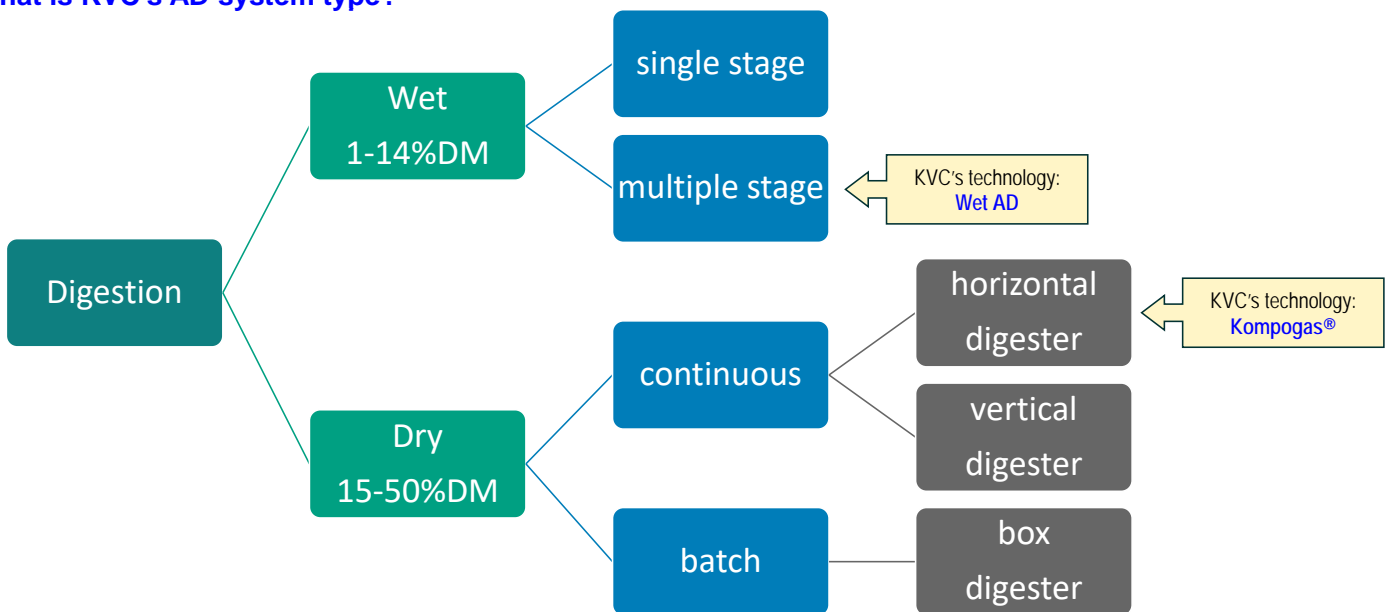
- This technology uses continuous anaerobic digestion to recycle biogenic waste, producing natural fertiliser and renewable energy in the form of green power and heat or biogas as the basis for alternative fuels
- By recycling organic waste into materials and energy, the process closes the environmental cycle cost-efficiently.



## 2.1. Biogas / Anaerobic Digestion (AD)

### What types of AD systems exist in the market?

### What is KVC's AD system type?

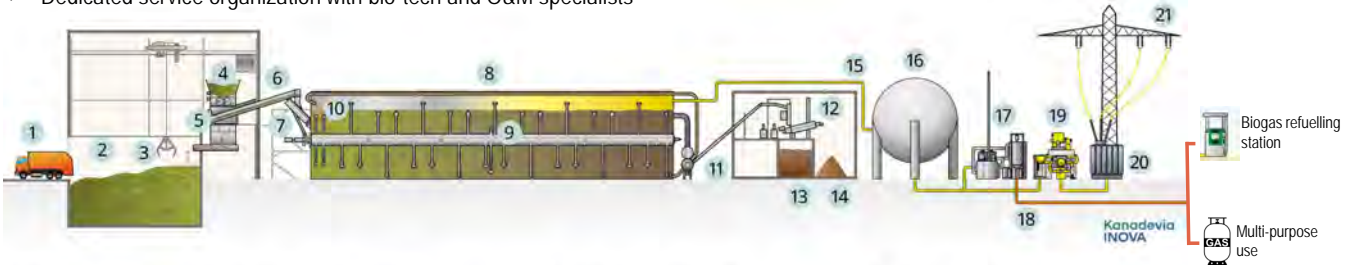


DM: Dry Matter

## 2.1. Biogas / Anaerobic Digestion (AD)

### (1) Dry Anaerobic digestion - Kompogas®

- ✓ Market and technology leader in dry Anaerobic Digestion (AD) (>75 reference plants, with >140 Kompogas AD modules)
- ✓ Mature technology, flexible component arrangements and largely automated processes guarantee long plant lifetimes, high efficiency and low maintenance costs.
- ✓ Dedicated service organization with bio-tech and O&M specialists



#### Pretreatment

- 1 Waste reception
- 2 Waste bunker
- 3 Waste crane
- 4 Shredder
- 5 Sieve

#### Anaerobic digestion

- 6 Conveyor
- 7 Feeding screw conveyor
- 8 Digester (Kompogas™)
- 9 Agitator
- 10 Inoculation pipe
- 11 Discharge system

#### Digestate treatment

- 12 Screw press (KOM+Press)
- 13 Liquid digestate
- 14 Solid digestate

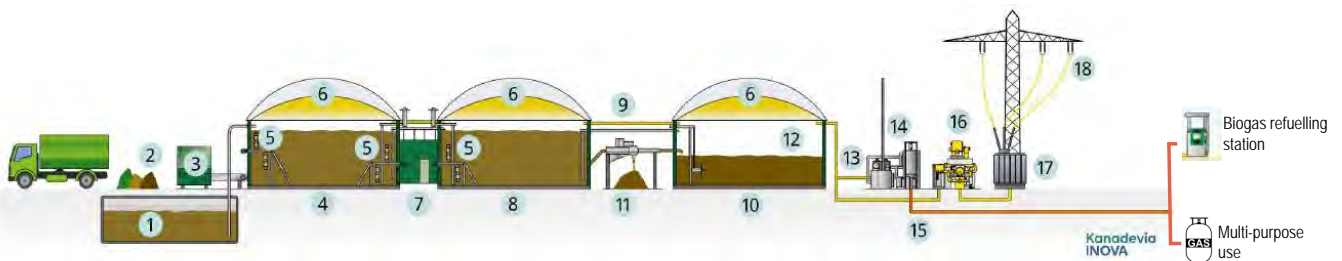
#### Energetic utilisation

- 15 Biogas piping
- 16 Gas storage
- 17 Biogas upgrading
- 18 Biomethane piping
- 19 Combined heat and power plant
- 20 Transformer
- 21 Grid connection

## 2.1. Biogas / Anaerobic Digestion (AD)

### (2) Wet Anaerobic digestion

- ✓ Developed wet Anaerobic Digestion (AD) technology in Italy which is one of the most famous biogas market
- ✓ >70 reference plants in Italy and abroad



#### Waste reception

- 1 Reception pit (CALIX)
- 2 Drive-in silo
- 3 Dosing feeder

#### Anaerobic digestion

- 4 Digester (COCCUS™)
- 5 Agitator (REMEX™)
- 6 Biogas storage
- 7 Pump room
- 8 Post-digester (COCCUS™)

#### Discharge

- 9 Separator
- 10 Digestate storage tank
- 11 Solid Digestate
- 12 Liquid digestate

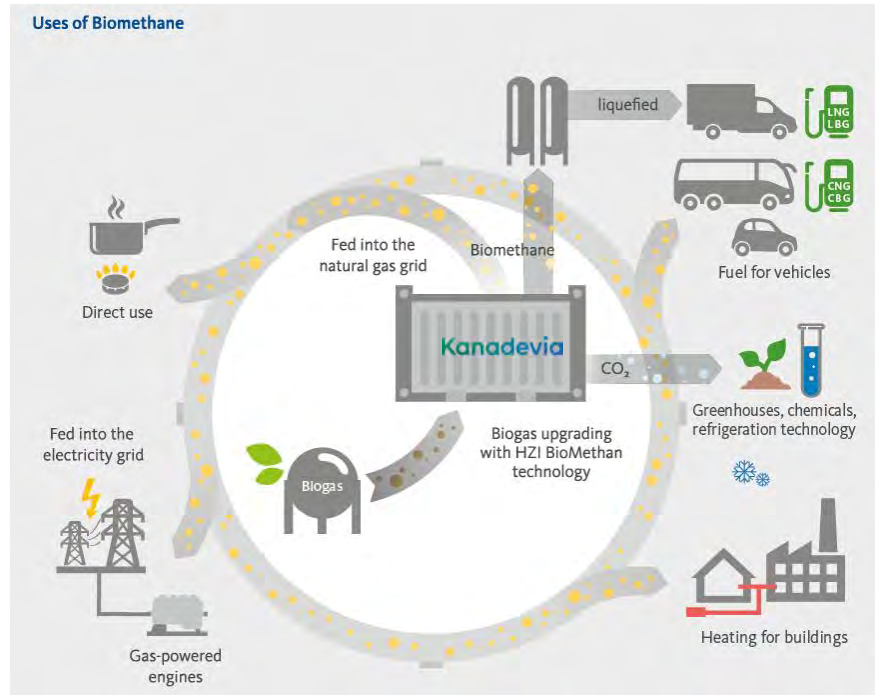
#### Energetic utilisation

- 13 Biogas piping
- 14 Biogas upgrading
- 15 Biomethane
- 16 Combined heat and power plant
- 17 Transformer
- 18 Grid connection

## 2.2. Purification of Biogas to Biomethane

### Gas upgrading - BioMethan®

- This technology convert raw biogases into high-purity biomethane that can be used as a versatile energy source.
- The high-purity biomethane can be used for several purposes: (i) LNG, CNG for vehicles, (ii) daily direct use, (iii) generation of electricity, (iv) heating for building.
- A by-product of the process is carbon dioxide, which can be used to generate additional revenues in the form of gaseous, liquefied or solid carbon dioxide deployed as an industrial product gas



## 2.2. Purification of Biogas to Biomethane

	Amine scrubbing	Zeolite membrane separation
Outline	Chemical absorption Uses a reagent that chemically binds to the CO <sub>2</sub> molecule and separates it from the gas	Physical permeation Membranes retain the methane while the carbon dioxide physically permeates through the membrane
Electrical demand	0.1 kW <sub>e</sub> -h/Nm <sup>3</sup>	0.23 kWh/Nm <sup>3</sup> for 2 stage, 0.26 kWh/Nm <sup>3</sup> for 3 stage
Heat demand	0.6 kW <sub>th</sub> -h/Nm <sup>3</sup>	N/A
Purity of biomethane	> 99 %	> 96%
Methane slippage	0.1 %	< 2.0 % for 2-stage, < 0.2 % for 3 stage
Outlet pressure	0.1 – 0.15 bar	> 10 barA
Standard sizes (Nm <sup>3</sup> /h biogas)	250, 500, 700, 1.000, 1.400, 2.000	Customize
Applicability and Achievement	<ul style="list-style-type: none"> <li>• More than 10 years of experience in the RNG sector</li> <li>• More than 60 plants in operation from low to transport-pressure grids</li> <li>• Modular units design to combine with add-on equipment (CO<sub>2</sub> recovery, CNG, LNG, Power-to-Gas)</li> <li>• Qualified and certified production chain</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration plant (India, 2025)</li> </ul>
Decision factors for technology choice	<ul style="list-style-type: none"> <li>• inexpensive heat source available</li> <li>• high biomethane purity required</li> <li>• high CO<sub>2</sub> purity required</li> <li>• fits to LNG requirements</li> </ul>	<ul style="list-style-type: none"> <li>• low &amp; predicable electricity costs</li> <li>• small and fluctuating biogas flow</li> <li>• high outlet pressure required</li> <li>• fits to CNG requirements</li> </ul>

## 2.3. Reference plants

### Jönköping, Sweden (2020)

Dry AD + Amine Scrubbing



Công suất Capacity	40,125 t/năm (khoảng 110 t/ngày) 40,125 t/y (approx. 110 t/d)
Loại chất thải Input materials	Chất thải có nguồn gốc sinh học (được tách tại nguồn): thực phẩm/ rác vườn, bùn và dầu mỡ Biological waste (separated at source): food/garden waste, sludge and grease
Số lượng bể No. of digester	2
Loại bể Type of digester	PF1500 thép PF1500 steel
Sử dụng khí Biogas Use of biogas	Tinh chế thành khí mê-tan sinh học (độ tinh khiết cao) → CNG upgrading into biomethane (high purity) → CNG
Diện tích đất Land area	0.75ha

## 2.3. Reference plants

### Boston KY, USA (2025)

Wet AD + Amine Scrubbing

- Type of waste: Spent stillage (whiskey mash) from the distilling process
- Wet AD digester: 9,000 m3 steel digester
- No. of digesters: : 8 x 9,000 m3 tanks
- Type of upgrader: A Series, XL Model, 6,900 Nm3/h
- Biomethane produced: up to 4,100 Nm3/a
- Electricity generated: 18.3 MW electrical generation capacity equivalent for boiler operations

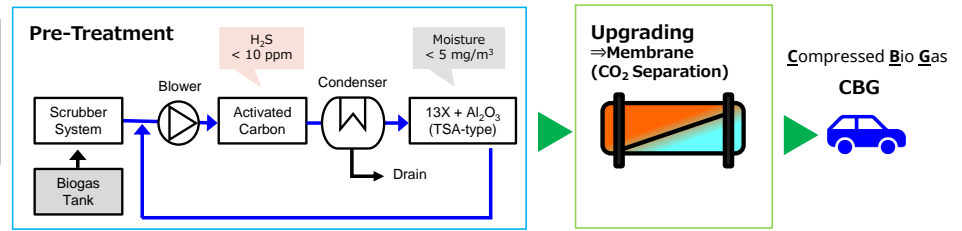


## 2.3. Reference plants

### India (2025)

#### Zeolite Membrane Demonstration

Feed : Cow Dung/Chicken dropping/Press Mud  
Capacity : 40Nm<sup>3</sup>/h  
CH<sub>4</sub> : 55-60vol%  
CO<sub>2</sub> : 38-42vol%  
H<sub>2</sub>S : 1,000ppm  
H<sub>2</sub>O : Saturated



**Membrane Module  
(10 pieces/module)**



**Membrane Module Assembly**

# Kanadevia

Technology for people and planet

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Homepage



YouTube