



September, 2024

Enabling a Circular Society through Integrated Waste Solutions



JFE Engineering Corporation

A conceptual illustration of a hand holding a globe. The globe is covered with a detailed, colorful illustration of a sustainable city. The city features a mix of modern architecture, green spaces, and renewable energy sources. In the foreground, there are large white storage tanks and a body of water with a bridge. In the background, there are wind turbines and hot air balloons. The overall theme is environmental sustainability and urban development.

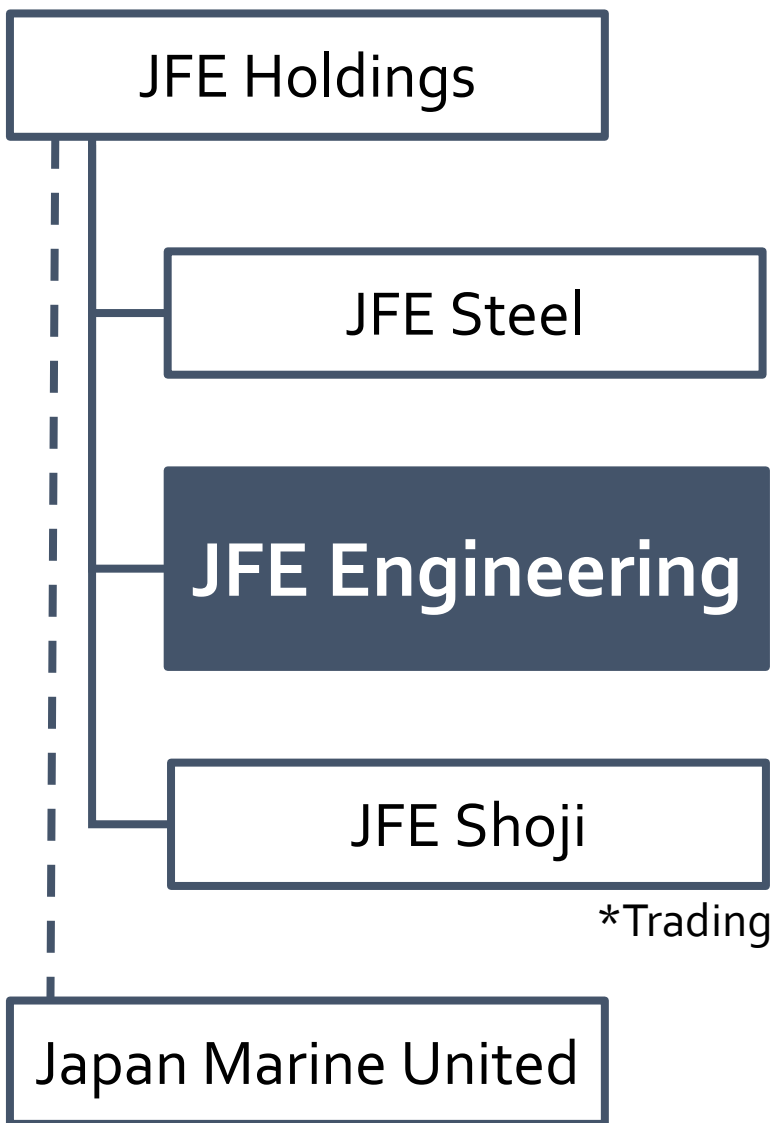
JFE Engineering at a glance

Waste Management Solutions

JCM Projects and Case Study

JFE group's efforts to Carbon Neutrality

JFE for sustainable cities and communities



Power Producer and Supplier Business

7.7%

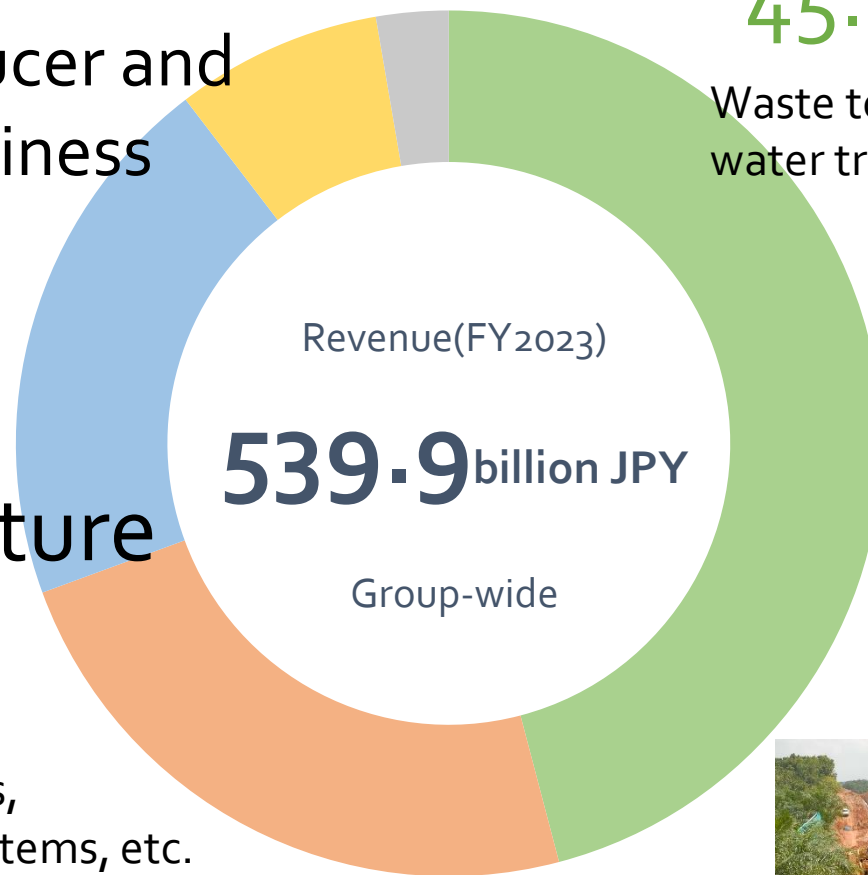
Infrastructure

20.2%

Bridges, port and harbor facilities, cranes, logistics systems, etc.



Others 2.7%



Environment

45.9%

Waste to energy plants, water treatment plants, etc.



Energy

23.5%

LNG terminal, pipelines, renewable energy, etc.



Small water purification machine for the people in Ukraine



Odesa (donation via City of Yokohama)

Type II × 1、Mizuhime × 10

Kherson Province (JICA)

Type II × 1、Mizuhime × 1



Type "Mizuhime"




Type II



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The background image shows a large landfill site. In the foreground, there is a massive pile of garbage, including plastic bags, bottles, and other debris. Two yellow bulldozers are visible in the middle ground, working on the waste. A person in a blue jacket and orange safety vest is standing on the right side of the pile, looking down. The sky is filled with many birds, likely seagulls, flying over the site. Several text boxes are overlaid on the image, highlighting various environmental and economic issues related to landfills.

CH₄ Emission

**Pest, Odor, Fire, Water &
Air Contamination**

Global Warming

Pollution

**Hazardous situations
for the communities
and local economies**

Land Availability

**Difficult to secure new
Landfill space**



Clean Authority of Tokyo, Meguro Waste Incineration Plant

[Capacity] 600 ton/day, 21.5 MW

[Site area] 29,000m²(approx.)

Emission level is lower than environmental standard

Waste Heat Reuse for Local Community

Close to waste generator and short transportation distance



Waste to Energy Reference



75 EUROPE



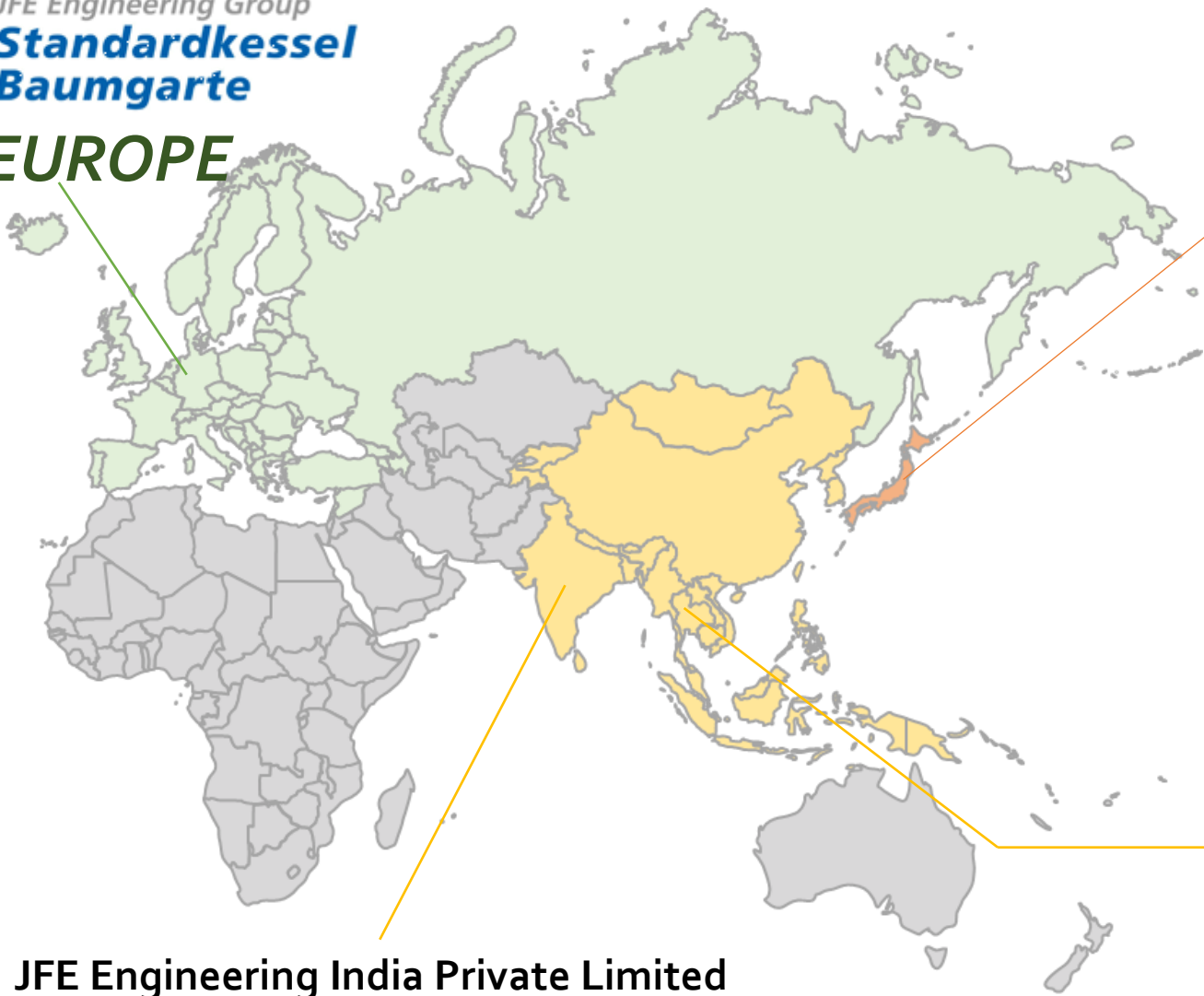
Japan

Technology Provider/EPC
over **184** Plants since 1968

O&M

Maintenance over **120** Plants
Operation over **100** Plants

ASIA
10



Integrated waste management

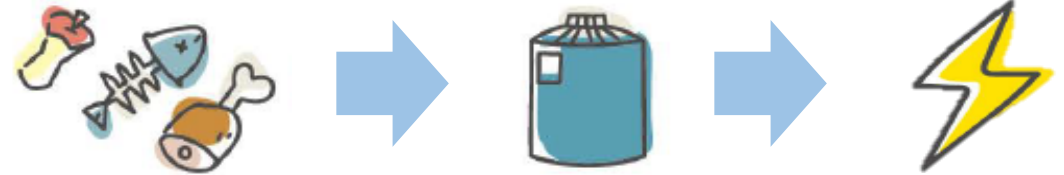
1

Waste to Energy
(Incineration)



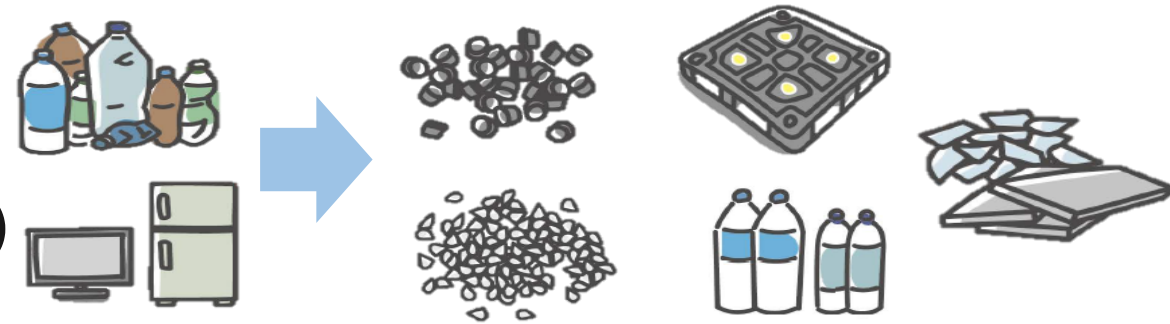
2

Food Waste Recycling
(Methane Fermentation)



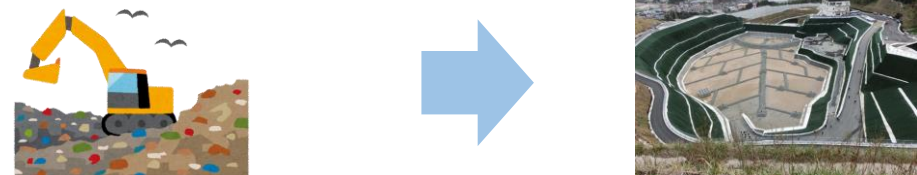
3

Material Recycling
(Plastic & Home Appliance Recycling)



4

Landfill Management



Recycle service network of JFE Engineering Group in Japan

JFE can provide solutions based on our experience in Japan.



Sapporo

- Food Waste Recycling

Sendai

- Baling Plastic
- Plastic Recycling Pallet
- RPF Production
- Food Waste Recycling
- Fluorescent Lamp Recycling

Gunma

- Solar Panel Recycling

Tokyo

- Incineration & Power Generation (ISW)

Chiba

- Incineration (ISW)
- Food Waste Recycling

Kawasaki

- PET Bottle Recycling
- Home Appliance Recycling
- RPF Production
- Incineration & Power Generation (ISW)

Yokohama

- Baling Plastic
- Food Waste Recycling
- Incineration & Power Generation (ISW)
- Fluorescent Lamp & Battery Recycling
- Waste Liquid Recycling

Chugoku

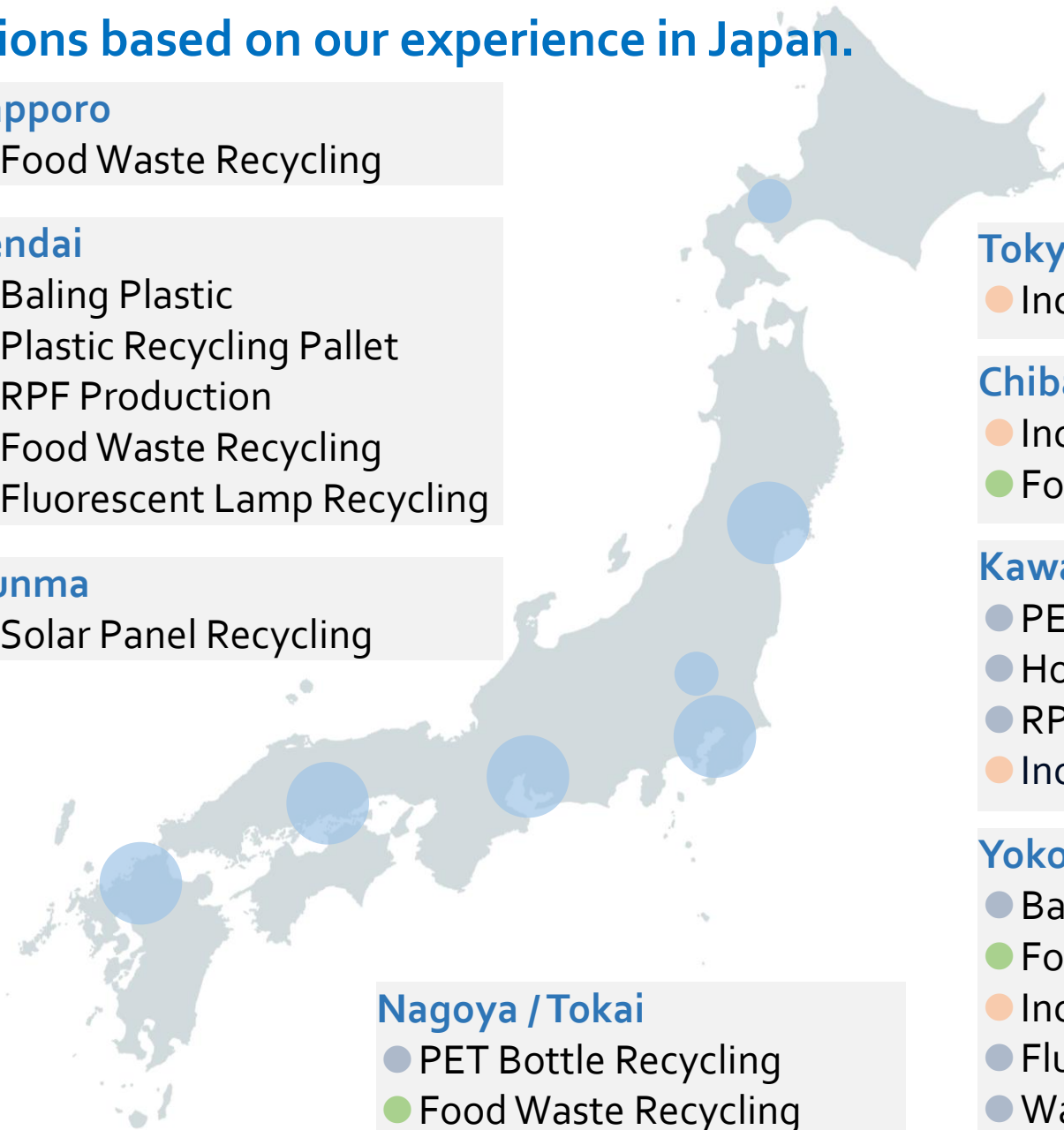
- Recycling Pellet & Pallet
- RPF Production
- Baling Plastic
- Incineration (MSW-RDF)

Kyushu

- Food Waste Recycling
- Incineration (ISW)

Nagoya / Tokai

- PET Bottle Recycling
- Food Waste Recycling



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JCM project achievements by JFE Engineering



Waste to Energy Project in Bac Ninh Province
- Registration in process

Yangon Waste to Energy plant by introducing power generation and avoidance of landfill gas emissions through combustion of municipal solid waste (MSW)
- Registered Project MM001, 16 Jan. 2020

Power generation by waste heat recovery in the PT Semen Indonesia (Persero) Tbk factory in Tuban
- Registered Project ID013, 10 Jul. 2018



Waste to Energy project in Bac Ninh Province

[Expected GHG Emission Reductions] 41,805 tCO₂/year (average)

[Capacity] 500 ton/day (MSW+ISW), 11.6 MW

[Ceremony of completion] January 2024



Ceremony of completion (11 Jan. 2024)



Ministry of the Environment

JCM subsidy



Equity(55%)



Equity(45%)



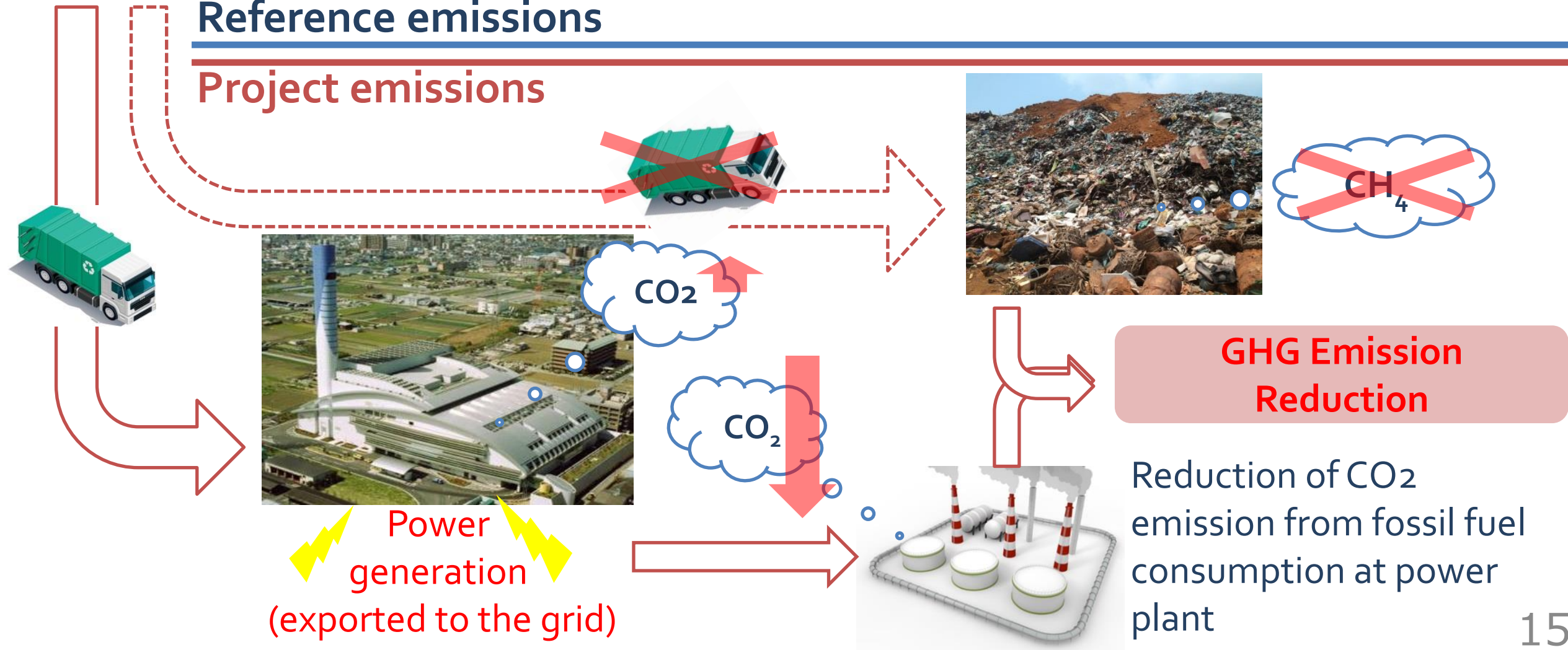
IFC Loan
+ Finland-IFC Blended
Finance for Climate Program

Financially supported as a Joint Crediting Mechanism (JCM) Model Projects by MOEJ, and IFC is providing a its financing package, Vietnamese local waste management company Thuan Thanh Environment and JFE are sharing the equity of the SPC.



Reference emissions

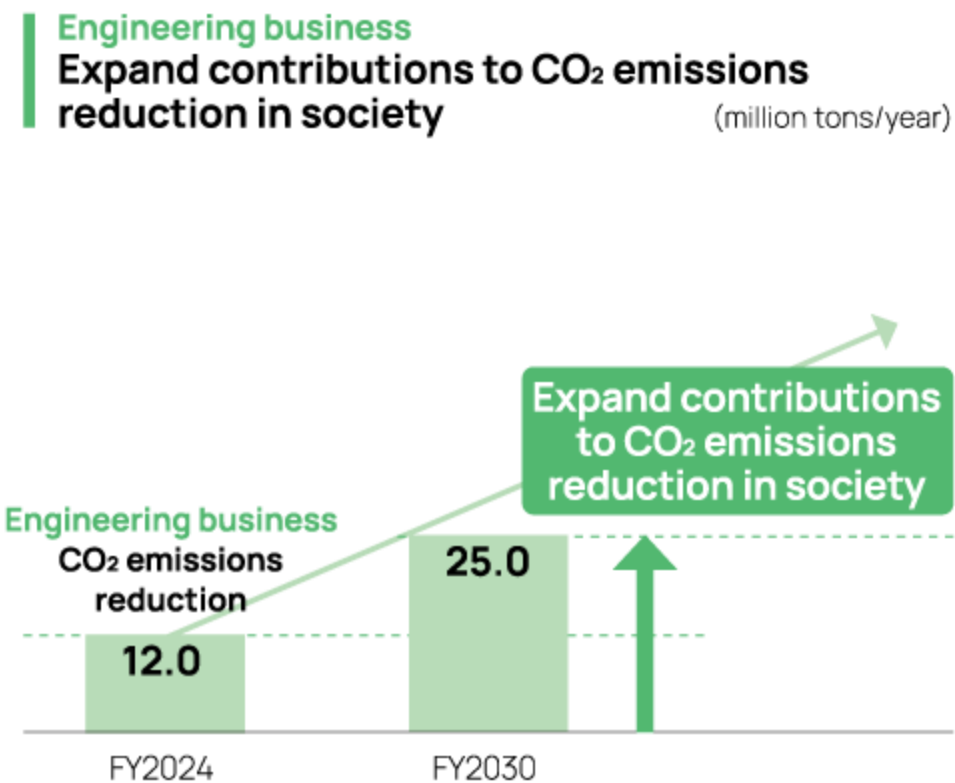
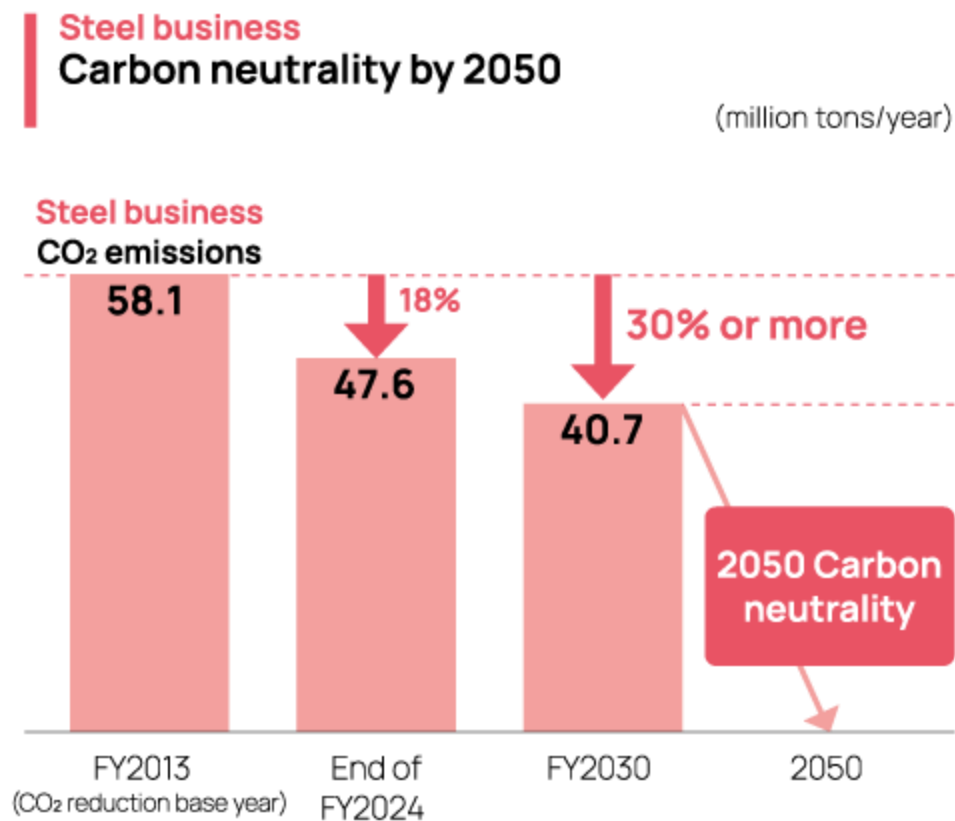
Project emissions



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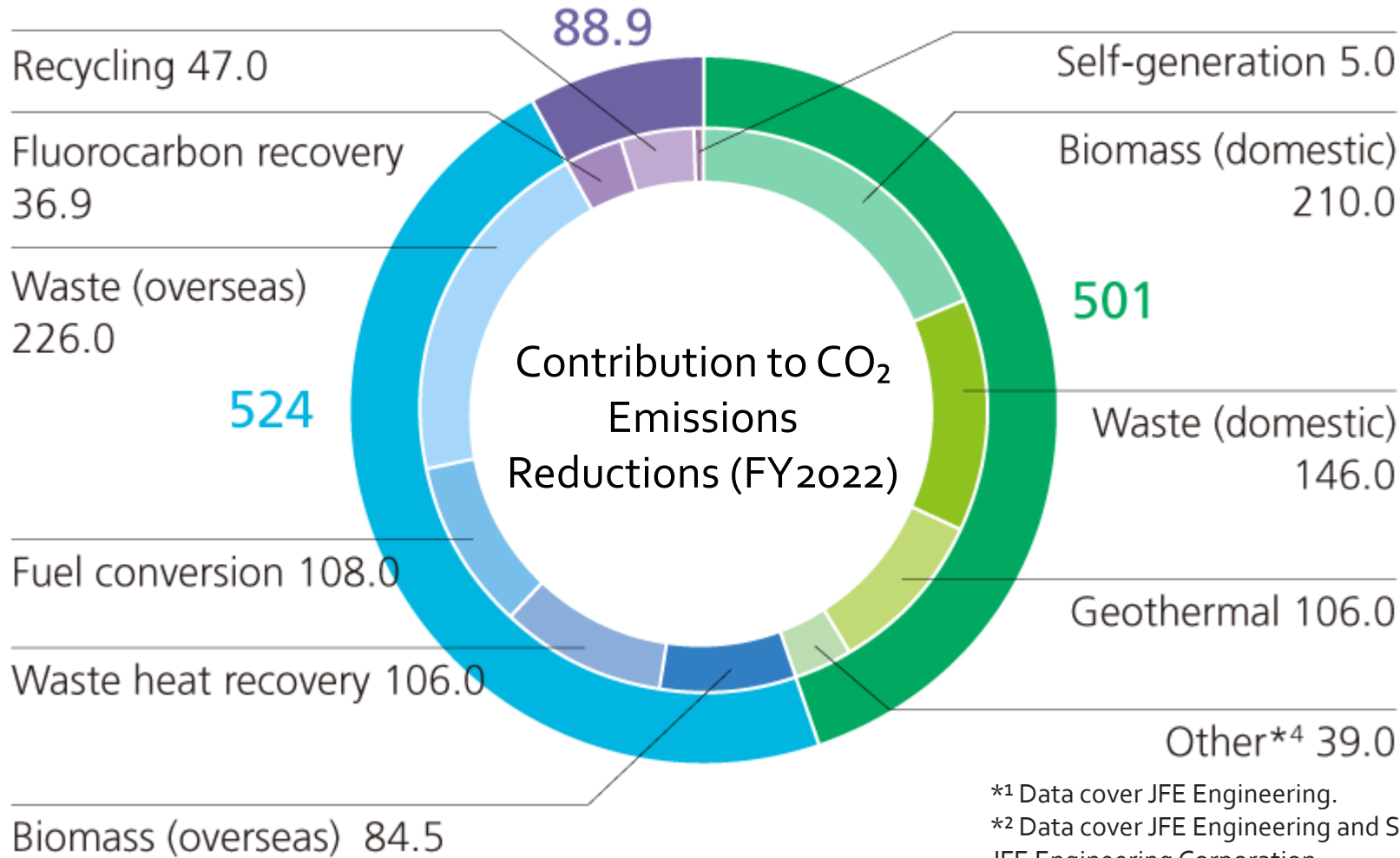
JFE Group's Activities for Carbon Neutrality



JFE Engineering's Contribution to Emissions Reduction

11,140,000 t-CO₂/y

■ Domestic plants*¹ ■ Overseas plants*² ■ Recycling*³



*¹ Data cover JFE Engineering.

*² Data cover JFE Engineering and Standardkessel Baumgarte GmbH (SBG), a German subsidiary of JFE Engineering Corporation.

*³ Data cover J&T Recycling Corporation and JFE Urban Recycle Corporation.

*⁴ Other includes solar, wind, digestion gas, sludge incineration, PPA, and energy service





Just For the Earth

