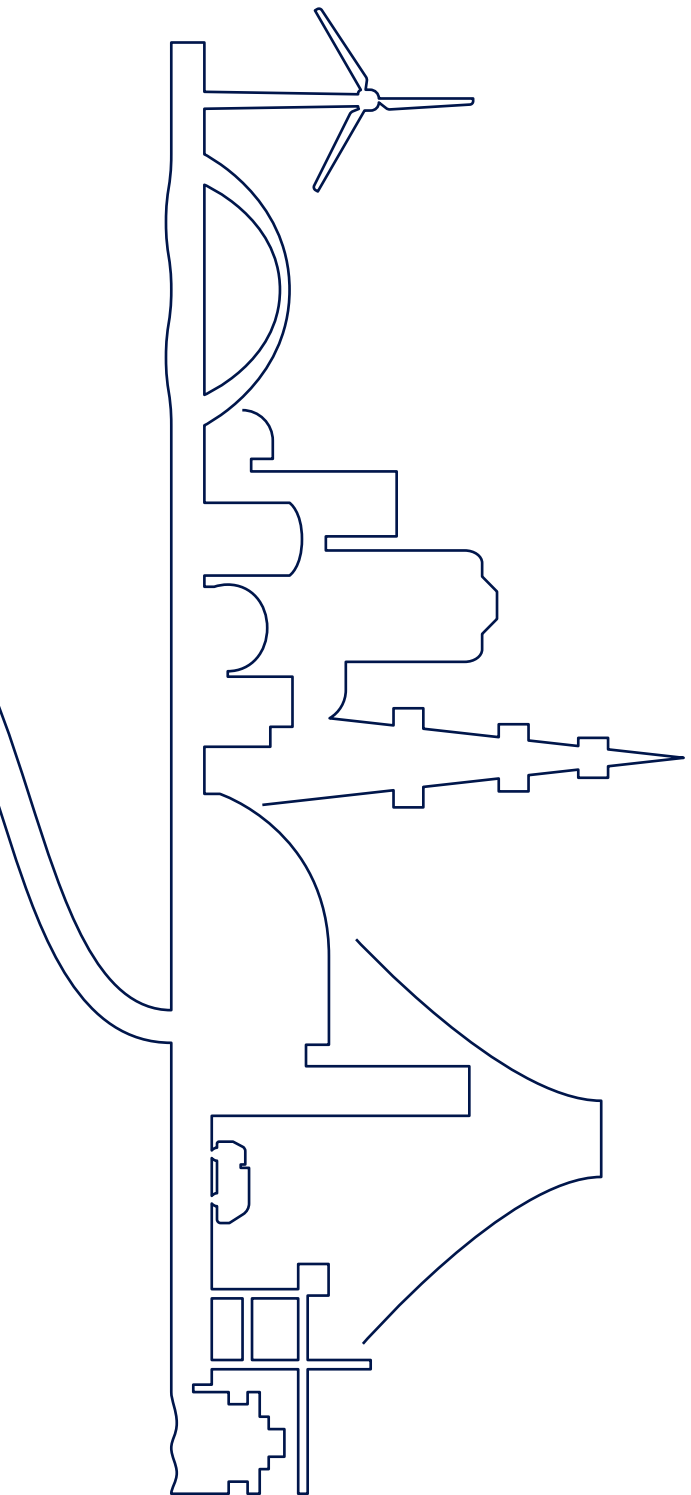


Environmental Solutions



JFE Engineering Corporation

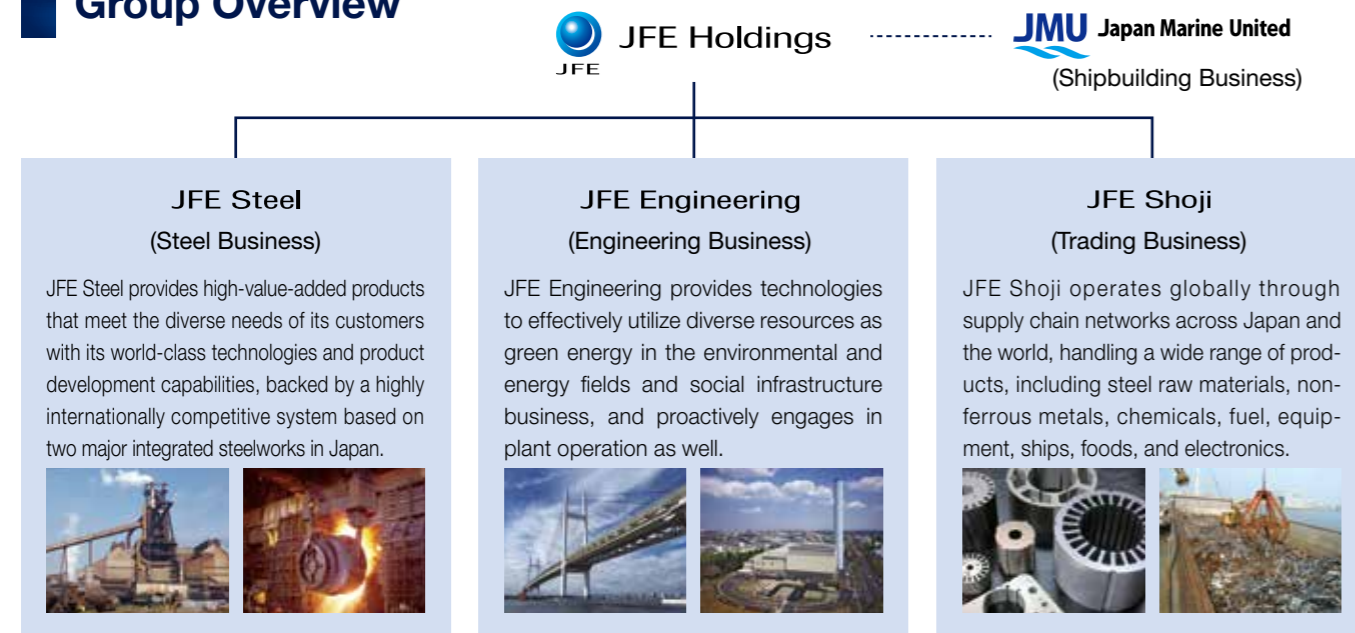
JFE Group

Contributing to society with the world's most innovative technology

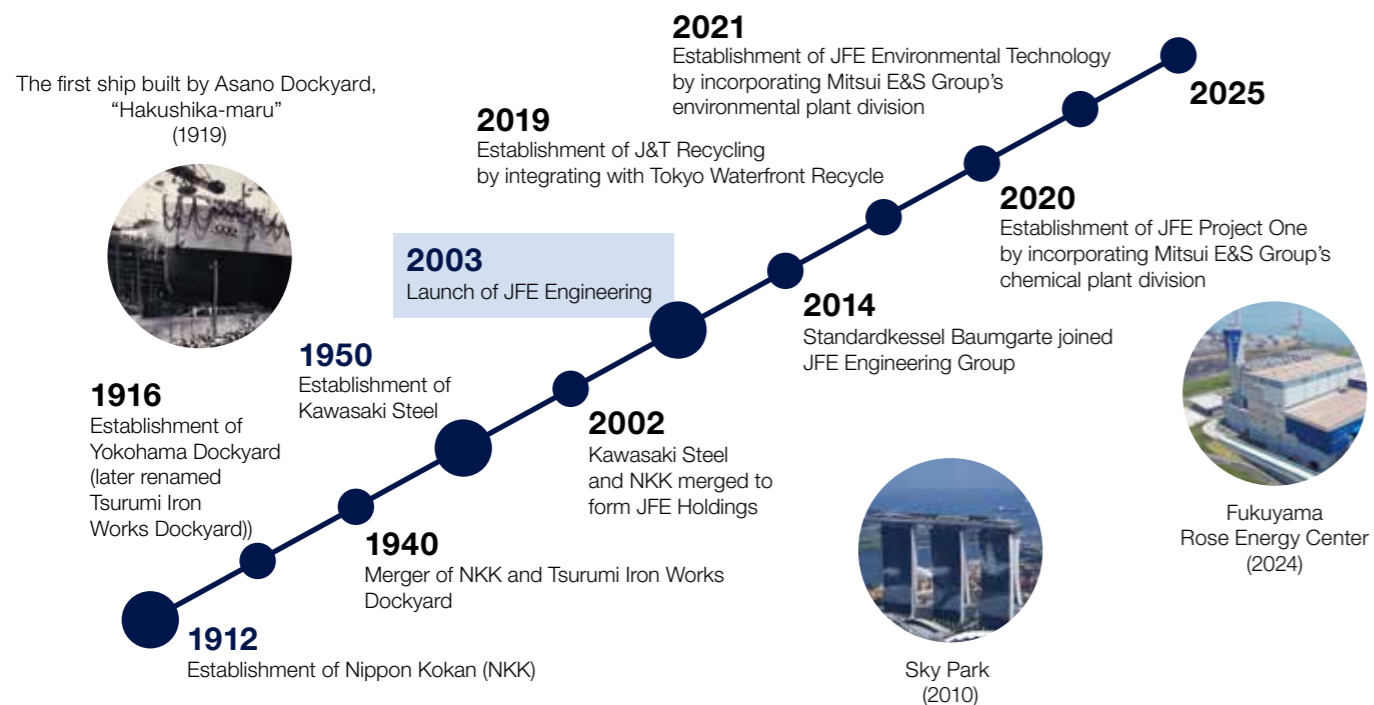
In 2002, the JFE Group was established as "JFE Holdings, Inc." through the merger of Nippon Kokan Ltd. (NKK) and Kawasaki Steel Corporation.

JFE is engaged in the production of "Steel" as core business worldwide, together with "Engineering" activities for the achieving safer and more convenient world, and global "Trading" activities to create value in diverse ways.

Group Overview



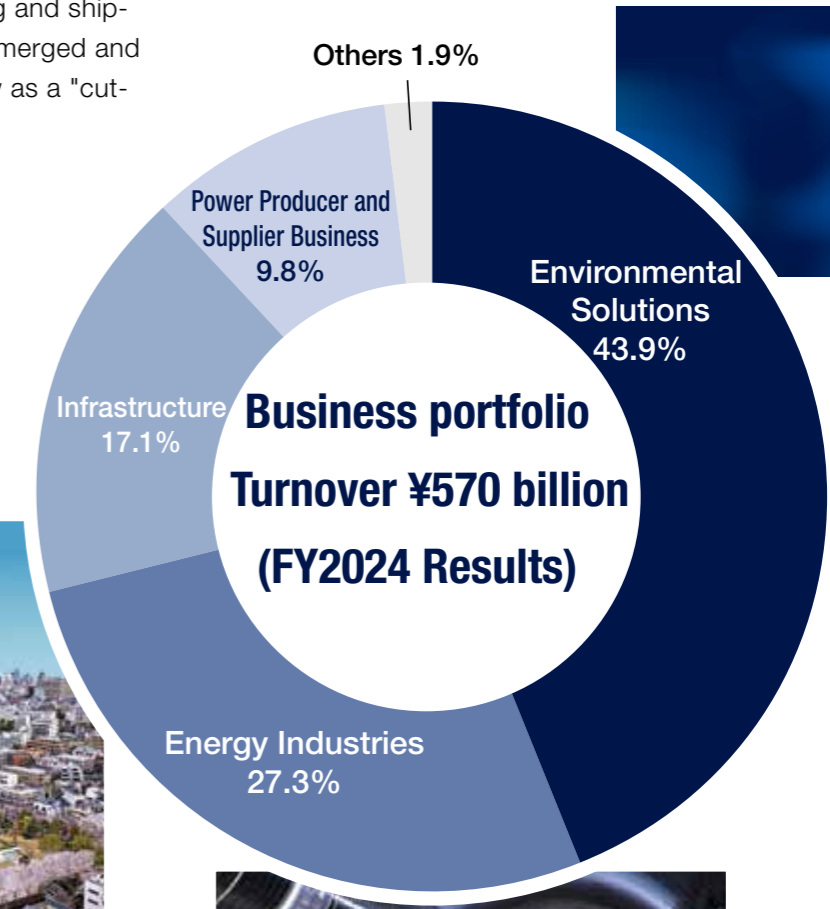
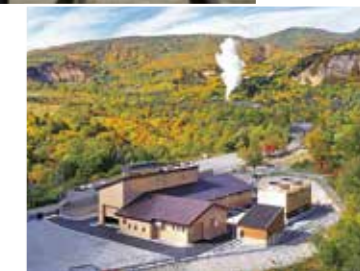
Company History



JFE Engineering is

developing "cutting-edge engineering" as a world leader in each business field

Having originated from steel manufacturing and shipbuilding businesses, JFE Engineering has merged and evolved these technologies and know-how as a "cutting-edge engineering" company.

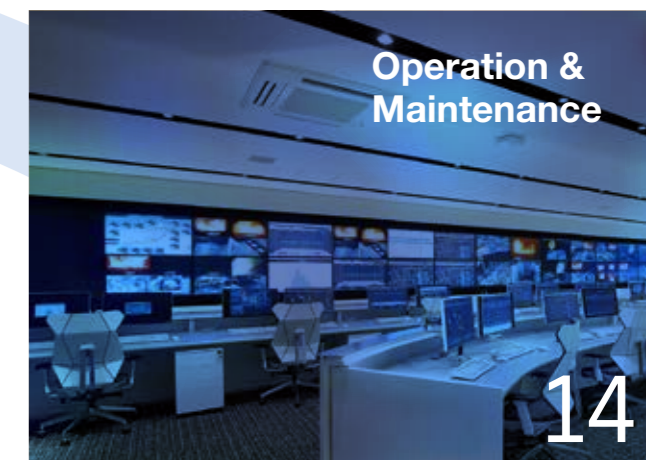
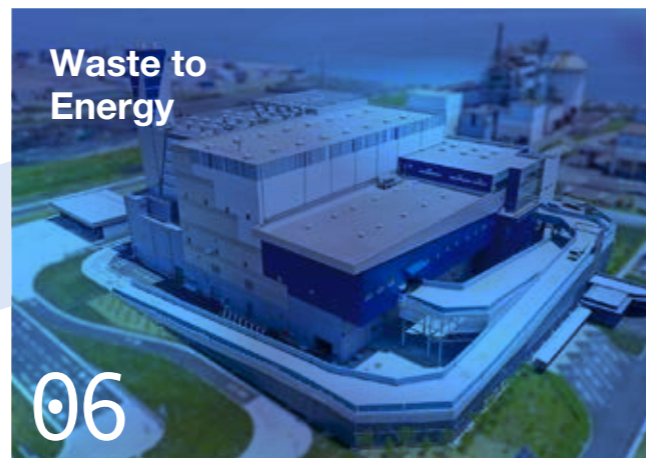
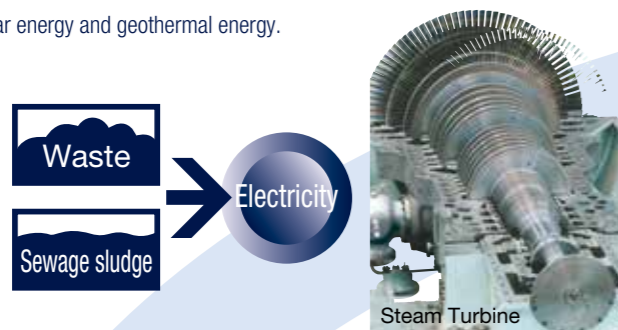


JFE Engineering's Environmental Solutions

Create, Care and Connect the Foundation of Life - Just For the Earth

Waste to Energy

Our advanced plant engineering technology creates environmentally friendly energy, from unutilized material such as municipal solid waste, sewage sludge, and also from renewable energy such as wood waste, solar energy and geothermal energy.



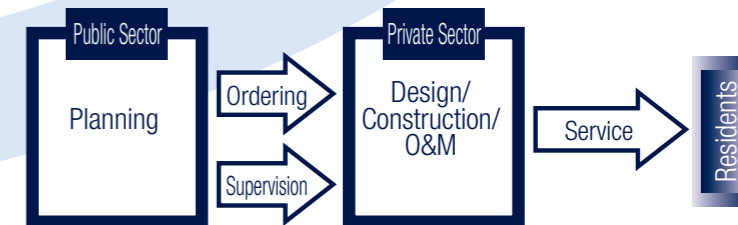
3R Reduce, Reuse, Recycle

Advanced recycling systems which make the maximum use of the total capabilities of the JFE Group are contributing to the creation of recycling-oriented society, while also reducing consumption of natural resources and decreasing environmental loads.



From public to private

"From public to private." Privatization of public services is accelerating. JFE Engineering has been involved in a large number of projects for Waste-to-Energy plants and waterworks and sewage facilities under arrangements such as PFI, DBO, etc.



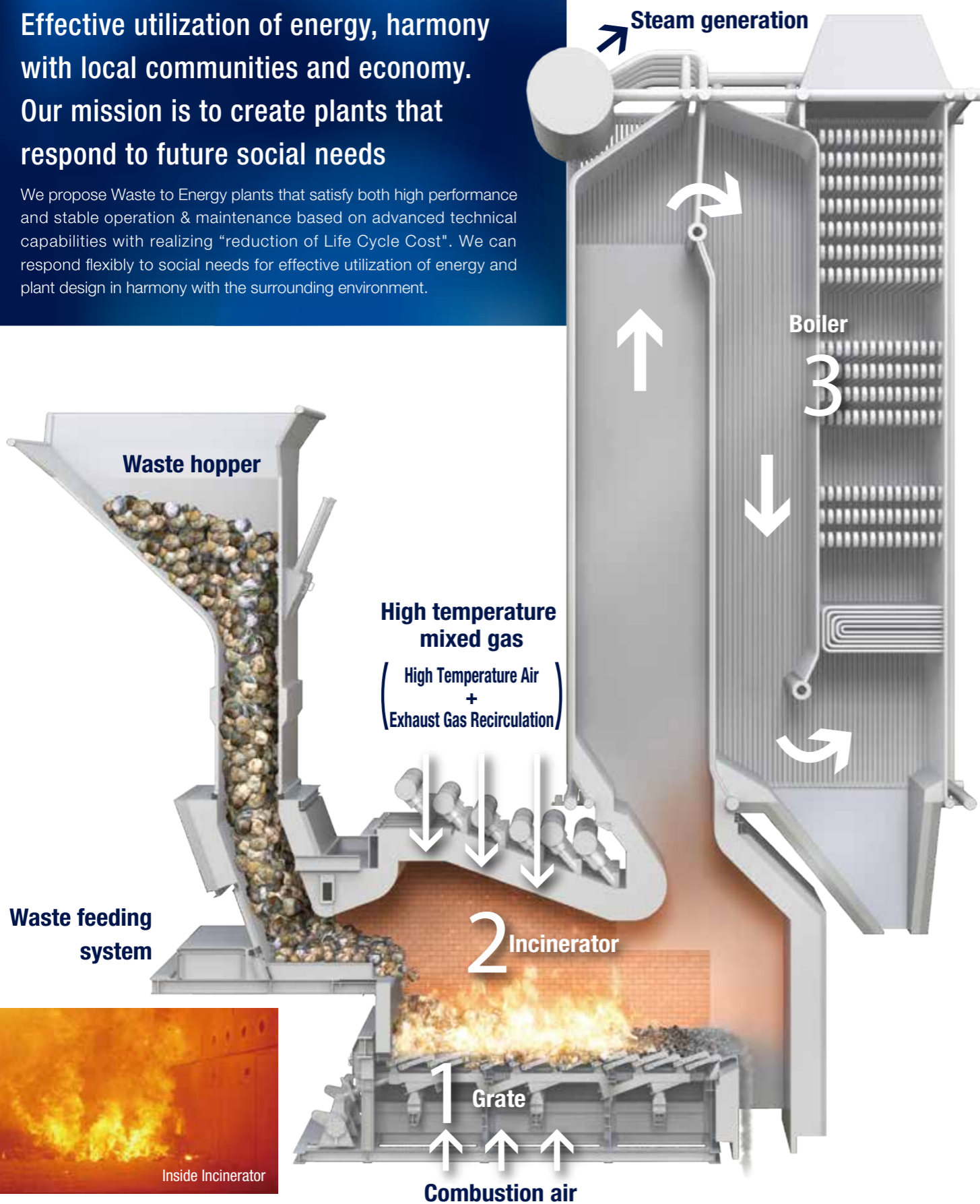


Waste to Energy

Effective utilization of energy, harmony with local communities and economy.

Our mission is to create plants that respond to future social needs

We propose Waste to Energy plants that satisfy both high performance and stable operation & maintenance based on advanced technical capabilities with realizing "reduction of Life Cycle Cost". We can respond flexibly to social needs for effective utilization of energy and plant design in harmony with the surrounding environment.



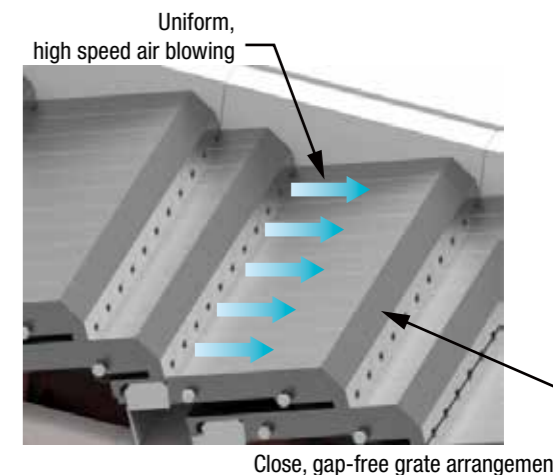
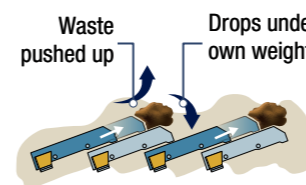
Grate Firing

Creating energy by maximizing waste use

This high efficiency combustion system developed by JFE Engineering greatly minimizes environmental impacts and realizes high waste heat recovery. We provide unique technologies based on extensive experiences and a proven track record gained in the construction in the world.

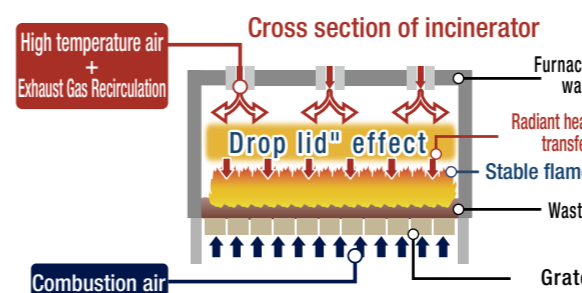
1 Hyper grate

Hyper grate is an original technology developed by JFE Engineering, and has excellent resistance to heat and wear. High mixing performance accelerates drying and burning of waste and uniform combustion air is supplied unaffected waste properties.

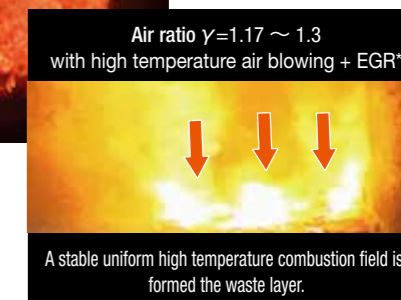
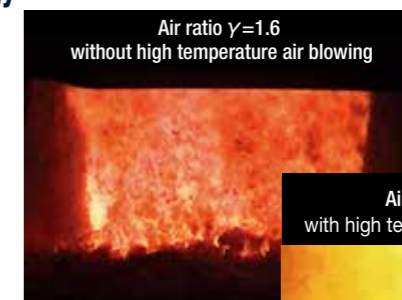


2 High Temperature air combustion technology

Uniform combustion field is formed above the waste layer by blowing high temperature mixed gas from the top of the incinerator. A stable flame can be maintained, achieving ideal low NOx, low CO combustion.



Combustion condition inside furnace



*EGR: Exhaust Gas Recirculation

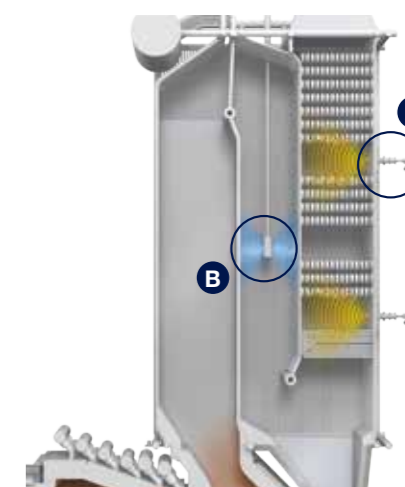
3 Shock Pulse and Shower Cleaning System

Energy recovery efficiency is improved by using a steam-free pressure Shock Pulse Sootblower and Shower Cleaning System that enables on-line boiler cleaning even during operation.

A Shock Pulse Sootblower



B Shower Cleaning System



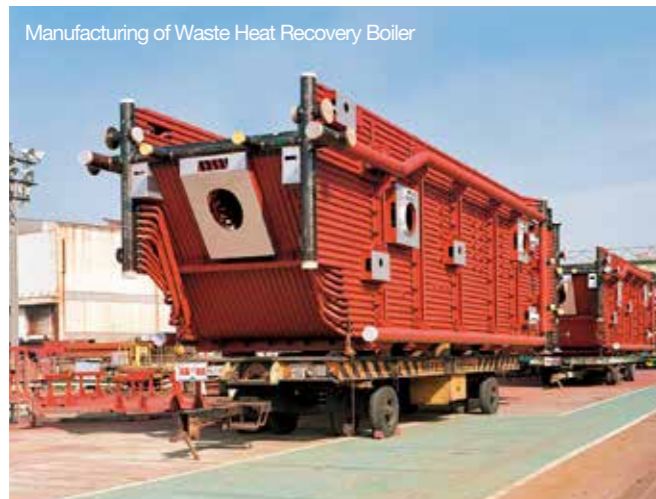
Boiler / Steam Turbine

Effectively utilizes the heat of exhaust gas. Enables high efficiency power generation

By taking advantage of the strength of in-house design/manufacture of the boiler, steam turbine and incinerator, we are capable to provide a design that maximizes total power generation.

1 Waste Heat Recovery Boiler

The boiler cools the high temperature combustion gas and simultaneously converts that heat to steam for power generation. High efficiency power generation is achieved by superheated steam with a high temperature of 450 degree C. JFE Engineering supplies self-standing boiler with a high degree of freedom of shape enabling maximum heat recovery under various site conditions.



2 Steam Turbine

JFE Engineering has an extensive track record of the steam turbine in the field of industrial power generation facilities for such as steel, textile and paper productions. The reliability due to the robust structure, and highly efficient and economical operation are evaluated at many facilities.



JFE's Domestic Track Record

Responding to the needs of clients, JFE Engineering's Waste to Energy plants are continuing to operate stably

Limpiar INABA (Tottori)



42,758 ton/day 185 facilities

(as of Sep. 2025)

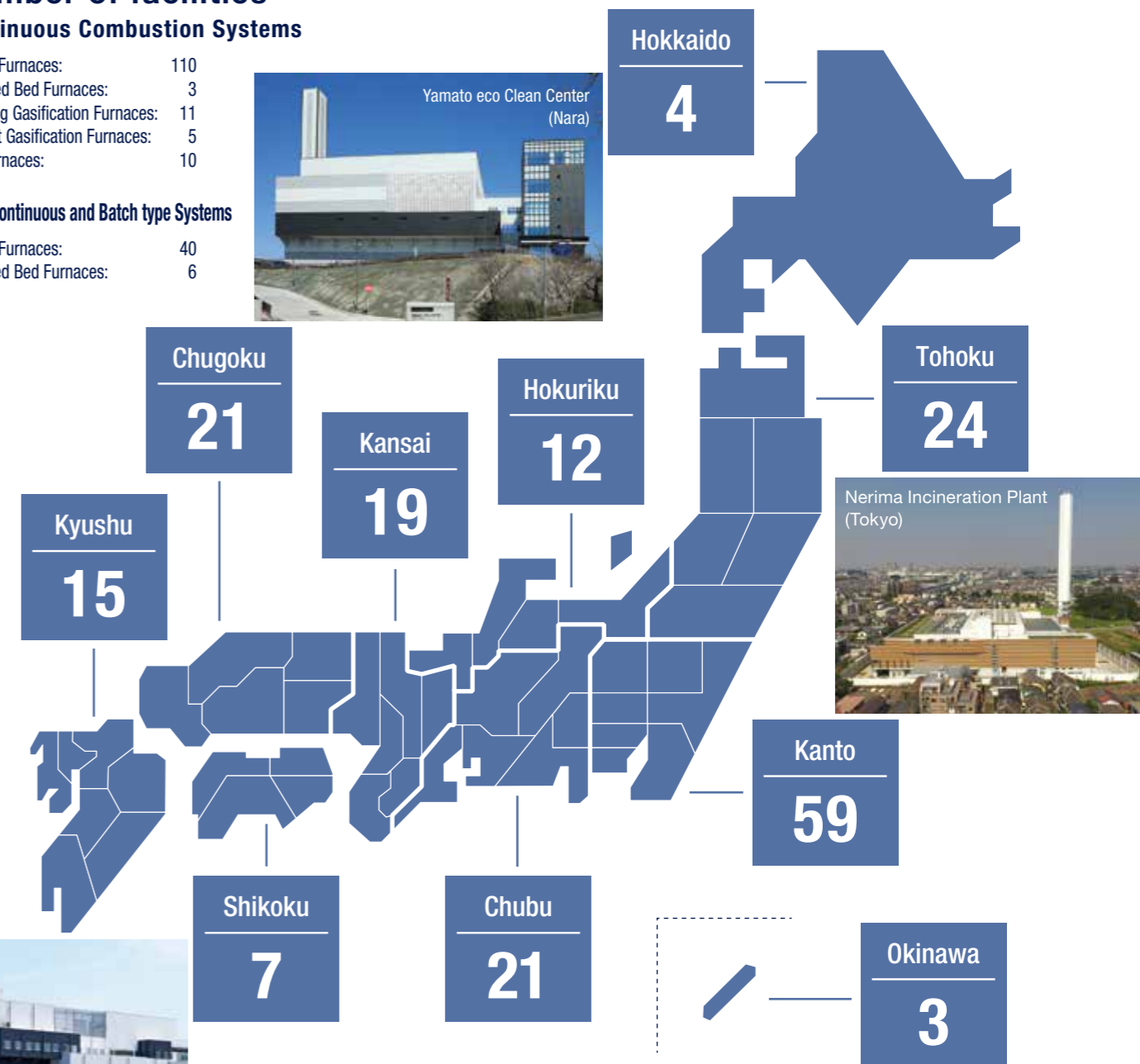
Number of facilities

Continuous Combustion Systems

Stoker Furnaces:	110
Fluidized Bed Furnaces:	3
Slagging Gasification Furnaces:	11
Convert Gasification Furnaces:	5
Kiln Furnaces:	10

Semi-continuous and Batch type Systems

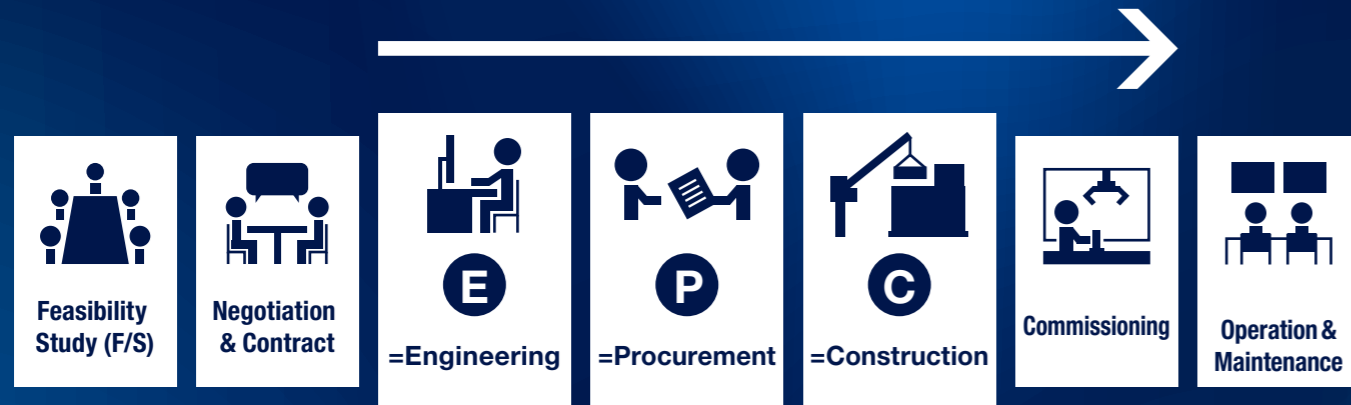
Stoker Furnaces:	40
Fluidized Bed Furnaces:	6



Engineering Procurement Construction

Stable and user-friendly design with superior performance by leveraging 60 years of experience and cutting-edge technology

We achieve high-quality and efficient facility development through the EPC method (Engineering – Procurement – Construction) in the construction of Waste to Energy plants.



Engineering

Forward-Looking Optimal Design

We design optimized Waste to Energy Plants based on customer needs and site conditions, offering comprehensive support from concept to detailed design. Our solutions incorporate the latest environmental technologies, energy-saving measures, work efficiency, and maintainability.



Procurement

High-quality, stable procurement of equipment and materials through group collaboration

We achieve stable procurement of equipment and materials as well as securing reliable construction partners by taking advantage of our close coordination with globally reliable manufacturers and group companies.

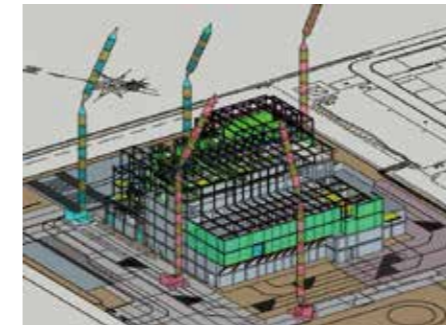


Construction

Reliable plant construction through integrated management of safety, quality and process backed by 60 years of experience

Under skilled site management technology and safety management, we comprehensively implement from construction planning to civil engineering, plant construction, and completion. We aim for smooth and reliable plant completion by managing schedules, costs, quality, and safety at a high level.

3D Construction Planning



Implementing optimal design and construction methods through 3D planning

Civil engineering/Building and Plant construction



Ensuring smooth and safe process management through our design and construction.



Commissioning/Performance Test



Smooth taking over and transition to operational services through actual operation with continuous adjustments and improvements



Open Top Installation Method/Large-Scale Modularization



Implementation of open top installation methods and large-scale modularization to shorten construction periods and enhance safety.

Completion



Final verification via multiple perspectives including performance, quality and safety so that the plant can be confidently handed over to the customer.

Operation & Maintenance



Operation & Maintenance

Establishment of Environmental Infrastructure for the Next Generation

Plant design and operation & maintenance based on a long-term perspective

We provide optional solutions for the various requirements of the clients based on its rich track record in construction, O&M of Waste to Energy plants and recycling plants.

Operation & Maintenance of Waste to Energy Plants

We have a track record of Long-term comprehensive operations at 33 plants, operations at 74 plants, and maintenance at 104 plants. Based on the extensive long-term experiences in operations & maintenance at over 100 plants, we achieve safe and stable plant management.

Plant Management

Achieving optimized plant management through DX solutions: automated operation & maintenance planning, operational data visualization, and digitized inspection records



Operations

Extensive experiences and specialized knowledge ensure the safe and stable performance of Waste to Energy plant



Central Control Room

Backup



Remote Monitoring & Operation Support



GRC (Global Remote Center)

Connecting Waste to Energy plants in real-time using digital technology, providing 24-hour monitoring, operation & maintenance support to achieve efficient maintenance and reduced manpower

Clean Ene Park South



Periodic Maintenance

Daily Maintenance



Maintenance

Providing high-quality services based on extensive maintenance experiences, responding to customer needs through maintenance services and long-term comprehensive operation.

Electric Power Trading

Contributing to a circular economy through local production and consumption of electricity from WtE plants



Utilities Management

Providing efficient management of utilities, including inventory management of chemicals and spare parts etc.



Long-term comprehensive operation of Waste to Energy Plants

Achieving Extended Facility Lifespan and Stable Operations

Long-term comprehensive operation of Waste to Energy Plants symbolizes JFE Engineering's purpose of "Create, Care, Connect the Foundation of Life." We are strengthening the foundation of sustainable social infrastructure by expanding the number of operational plants.

Long-term Comprehensive Operation

Local government concludes a multi-year agreement with a private company who has the necessary technical capabilities to ensure planned and efficient management of plants.

Benefit

- Leveling fiscal expenditures and reduction of Life Cycle Cost
- Business process optimization due to avoiding every year's contracts
- Safe and stable operation based on the extensive know-how of the private company

1 Plant Management

Leveraging expertise gained from the plant management experiences of 33 Waste to Energy plants in Japan, we develop and implement optimal management plans that balance economic efficiency and operational stability. Through close collaboration with our customers, we continuously improve quality of operation while contributing to sustainable society through harmonious coexistence with local communities.



2 Operation

We are responsible for the operation of Waste to Energy plants in Japan and have a record of operation at 74 plants including facilities of incineration, gasifying, RDF production, recycling and others.



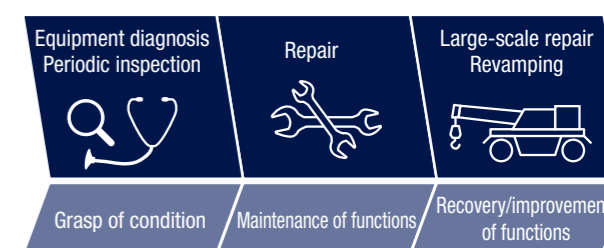
Training at the Challenge Center

We have a training facility to enhance skills and achieve stable operation.

- 1. Technical Skill Improvement**
Implementation of systematic training that integrates theory and practice to enhance specialized skills.
- 2. Sustainable Growth**
Providing continuous learning opportunities beginning with training programs to achieve steady skill development.
- 3. Connections**
Operators all over the world share their own know-how, contributing to further knowledge enhancement.

3 Maintenance

Since the 1960s, we have constructed extensive Waste to Energy Plants, allowing us to provide maintenance services by engineers with intimate knowledge of equipment structures. Our strength lies in our meticulous approach to supporting stable equipment operation, from regular inspections to the replacement of consumable parts.



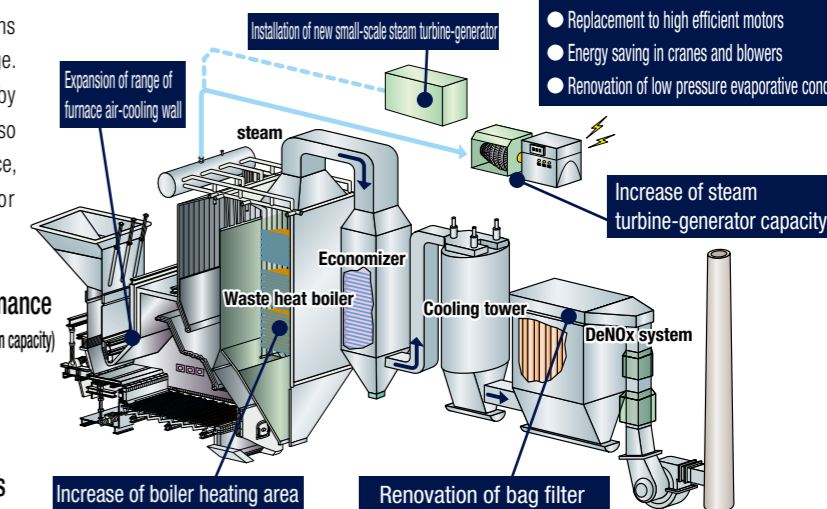
4 Extended lifespan (Revamping/Major renovation Work)

Conditioning renovation work to improve functions when plant performance has decreased due to age. In addition to extending the lifespan of facilities by renovating various types of equipment, we can also realize a higher level of environmental performance, for example, by improving energy saving or increasing power generation capacity.

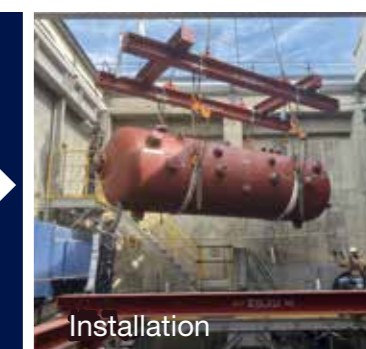
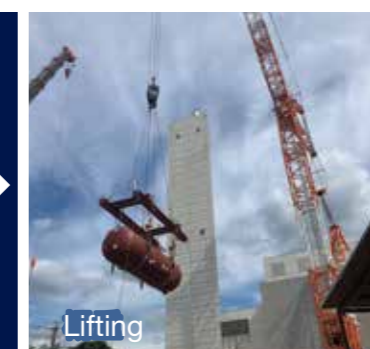
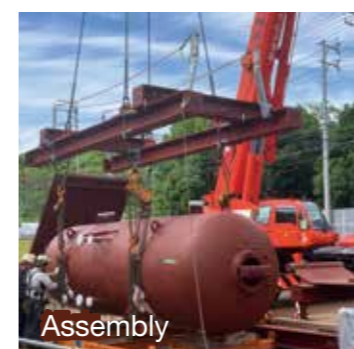
Example of Basic Renovation Work Menu

- Replacement to high efficient motors
- Energy saving in cranes and blowers
- Renovation of low pressure evaporative condenser

- ▶ Improvement of environmental performance (CO₂ emission reduction, energy saving, increase of power generation capacity)
- ▶ Reduction of financial burden (Reduction of Life Cycle Cost)
- ▶ Effective utilization of existing facilities (Extension of service life)



Boiler Steam Drum Installation work



Installation through machine hatches and roof openings allows for the renewal of large-scale equipment typically impractical during routine maintenance work

Operational results

as of 1st October 2025

Under Operation: 33 Facilities
Under Construction: 11 Facilities

We are responsible for the 33 Waste to Energy plants' operation throughout Japan. Since we have consistently handled everything from engineering, procurement, construction to operation and maintenance, we can provide effective solutions. Our proven track record in operations serves of Waste to Energy plant as solid backing and is utilized in the development of future facilities.



1 Tokachi Area Assoc:	292t/day	16 Association for broader area of Takaoka district:	255t/day	31 Hamada district integrated admin of a large region Assoc:	98t/day
2 M.O.E.(Fukushima Futaba No.2):	200t/day	17 Fukuisakai special district authority:	222t/day	32 Kurashiki City :	300t/day
3 Nasushiobara City:	140t/day	18 Wakasa wide-area administrative Assoc:	70t/day	33 West Okayama District Hygiene Facilities Union:	130t/day
4 Tatebayashi Hygiene Facilities Union:	100t/day	19 Hamamatsu City(West):	417t/day	34 Fukuyama City:	600t/day
5 Higashi-Saitama Resources and Environment Assoc (No.2):	297t/day	20 Suzuka City:	270t/day	35 Kure City:	230t/day
6 Ageo City:	300t/day	21 Ise Wide-Area Environment Assoc:	203t/day	36 Iwakuni City:	160t/day
7 Tokorozawa City:	230t/day	22 Yamabe-kenhokuseibu-Koiki-kankyo-eiseikumiai:	284t/day	37 Amagi,Asakura,Mii Environmental Facilities Assoc:	120t/day
8 ORIX Environmental Resources Management Corp.:	450t/day	23 Sennanseisou jimukumiai:	104t/day	38 South Greater Fukuoka Environment Assoc:	510t/day
9 Fujimi Public Assoc (Incineration):	288t/day	24 Inagawa-jiyoryukoiki-gomishori-shisetsukumiai:	235t/day	39 Chikushino.Ogori.Kiyama Cleaning Facilities Assoc:	250t/day
10 Fujimi Public Assoc (Recycling):	95t/day	25 Nishinomiya City:	280t/day	40 Omuta-Arao Cleaning Facilities Assoc:	156t/day
11 Inzaichiku-kankyouseibi-jigyokumiai :	156t/day	26 Ashiya City:	230t/day	41 Sasebo City:	110t/day
12 Funabashi City(South):	339t/day	27 East Tottori Pref. Wide Area Admin Management Assoc:	240t/day	42 Ken'ou-Kennan Clean Authority:	300t/day
13 Niigata City (Nitta):	330t/day	28 Central Tottori Hometown WideArea Local Public Body:	200t/day	43 Kumamoto City:	280t/day
14 Niigata City (Kameda):	420t/day	29 Yonago City:	270t/day	44 Urasoe City:	180t/day
15 Hotaka Area Business Union:	120t/day	30 Izumo City:	200t/day		

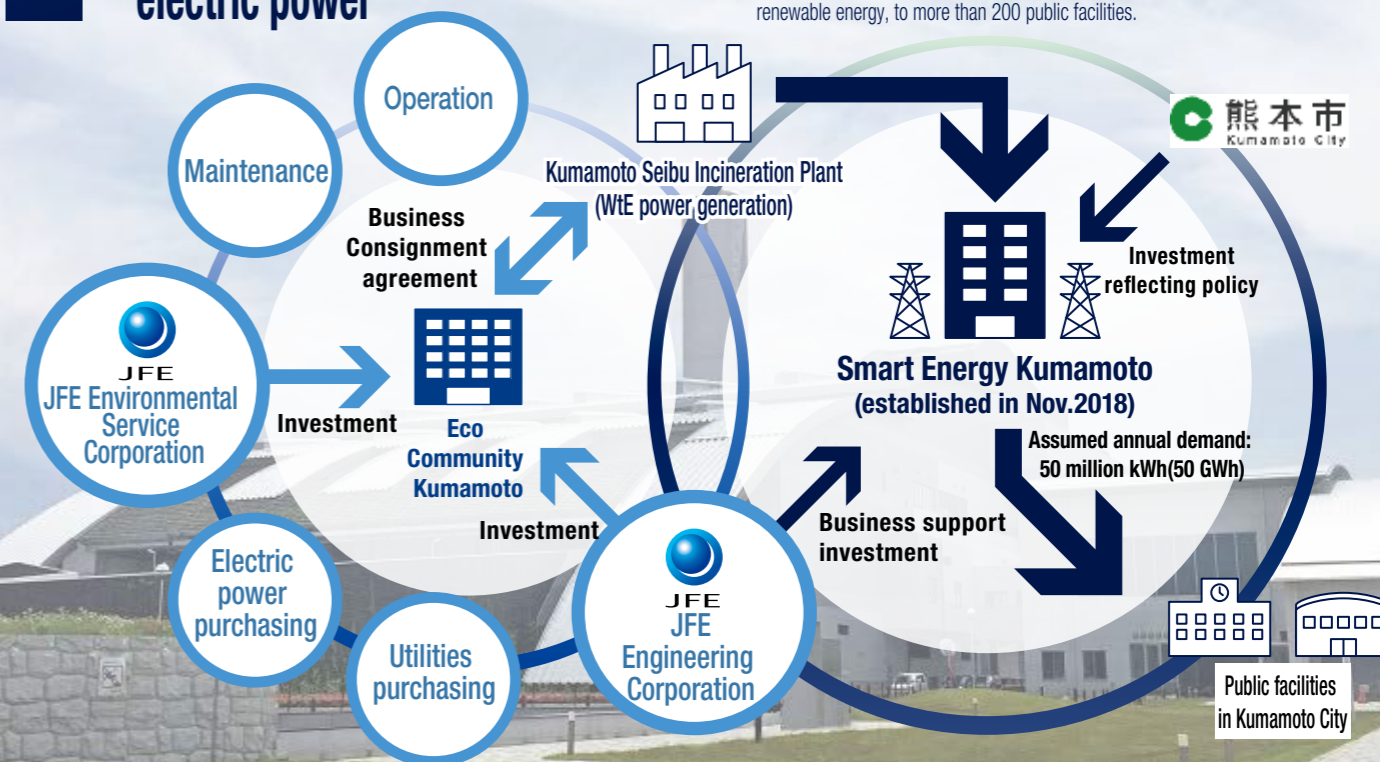
*Blue Text: Under Construction/In Preparation for Operation



12 Funabashi Nambu Incineration Plant 18 Wakasa Kouiki Clean Center 27 Limpiar INABA 30 Izumo Energy Center

Long-term comprehensive operation of Waste to Energy plants Locally produced and consumed electric power

We are involved in many Public-Private Partnership (PPP) projects in partnership with local governments, including long-term comprehensive operation of Kumamoto City Seibu Incineration Plant, and "locally-produced, locally-consumed" electric power. As an electric power supply business, Smart Energy Kumamoto, new company established with investment by Kumamoto City and JFE Engineering, supplies surplus electric power generated by the Waste to Energy plant, which is one type of renewable energy, to more than 200 public facilities.

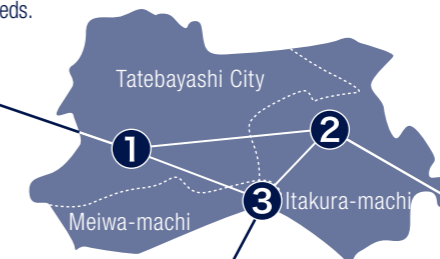


Integrated operation of incineration plant, recycling plant and final waste disposal site

We have been receiving orders for long-term comprehensive operation of the "Tatebayashi Clean Center," a waste incineration plant owned by the Tatebayashi Hygiene Facilities Union, including not only construction and operation of the plant itself, but also the operation of existing recycling plant and final waste disposal site located in the neighboring region. We are committed to the integrated operation of multiple plants across constituent municipalities based on our client' needs.



1 Tatebayashi Clean Center (incineration plant)



3 Meiwa Ecopark (final waste disposal site)



2 Itakura Recycling Center (recycling plant)

Development, DX Strategy & Carbon Neutral



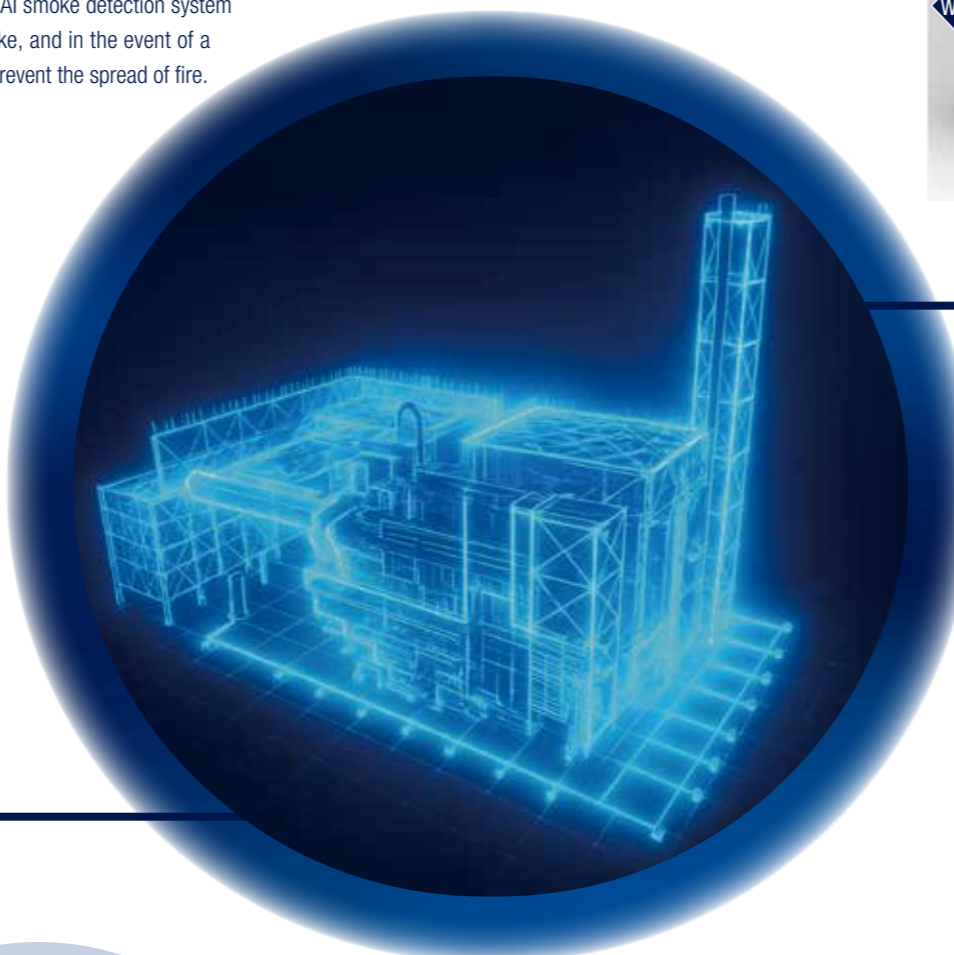
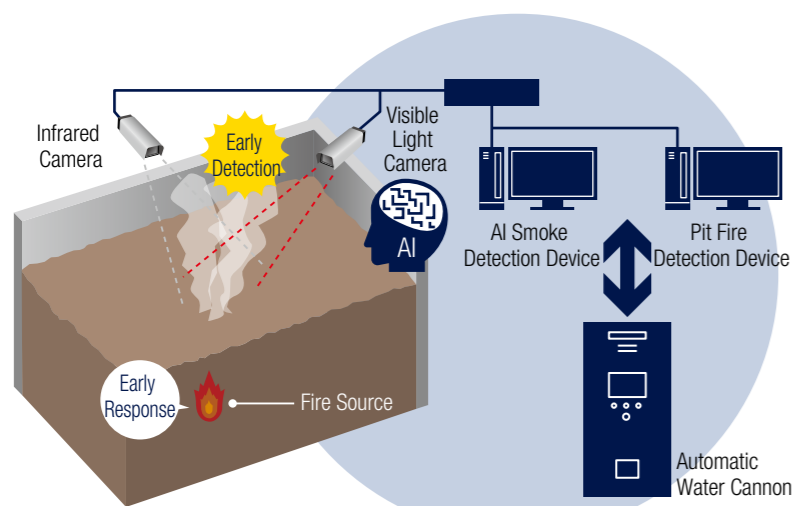
Digital Transformation (DX)

Engineering Revolution in Waste to Energy plants through AI and IoT

Through systems utilizing the latest technologies such as AI and VR, we enhance the safety and efficiency of Waste to Energy plants to achieve stable operations. By strategically utilizing accumulated operational data, we promote the engineering revolution to the next generation.

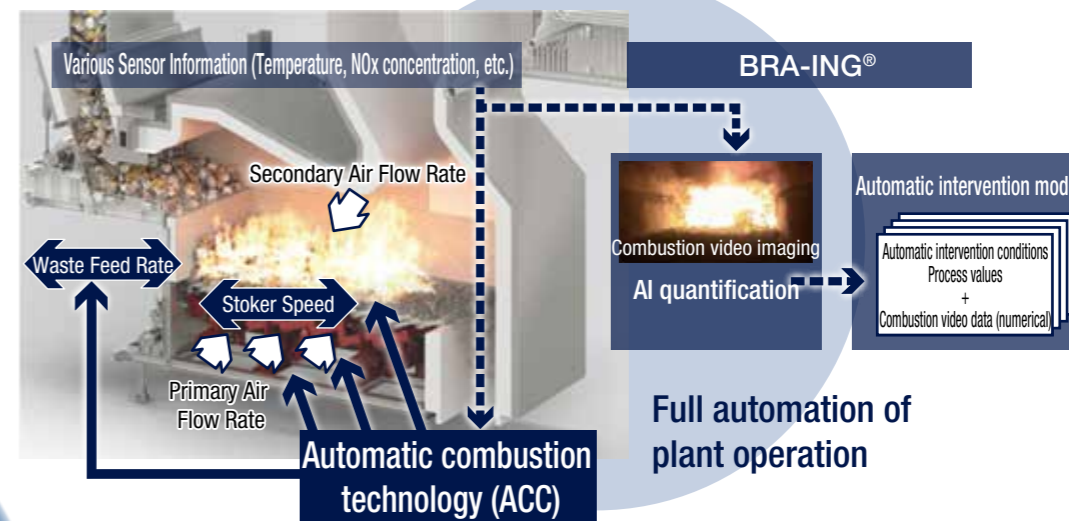
Early Detection of Smoke in the Waste Pit to Prevent Fire Spread

As a countermeasure against fires caused by lithium-ion batteries, we are developing an AI smoke detection system (Smoke AI) in addition to infrared detectors. This system enables early detection of smoke, and in the event of a fire, automatic water cannons linked to the detection system perform initial firefighting to prevent the spread of fire.



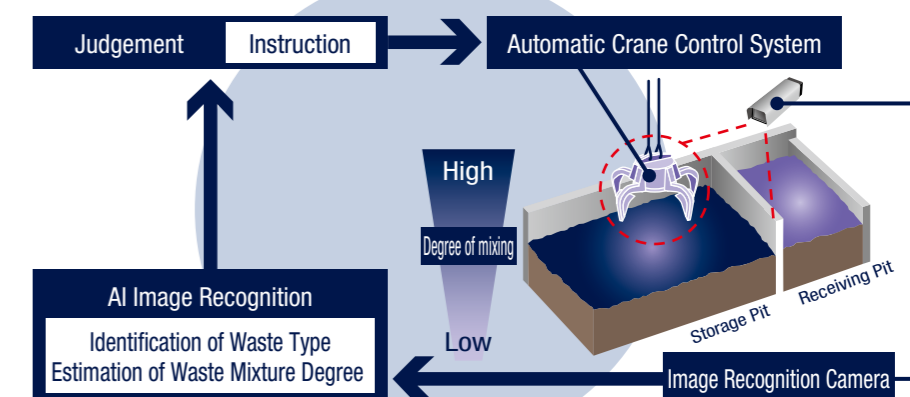
AI-Driven Operational Revolution in Autonomous Systems

By implementing the AI-Controlled Incineration System (BRA-ING®), optimal operations can be automatically maintained even when waste combustion conditions change suddenly, contributing to stable operations. BRA-ING® achieves fully automated incineration plant operation by automatically performing complex combustion improvement operations in place of human operators, based on sensor information and AI combustion image analysis results.



Evolution of Cranes with AI Waste Classification

By using AI image recognition technology to automatically judge waste types and mixing degree that were previously determined visually by operators, we thoroughly homogenize waste quality to stabilize power generation and contribute to labor-saving in plant operations.

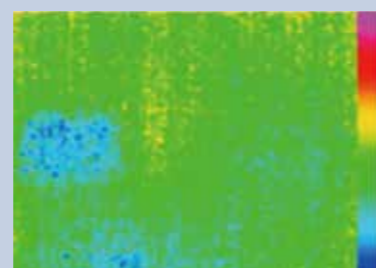


Safe Inspection by Drone

Using drones equipped with high-sensitivity cameras and thermal cameras to replace internal inspections of incinerators and boilers that were traditionally performed by humans. This achieves safety in dangerous operations and enables high-precision analysis, significantly reducing the manpower required for inspection work.



High-sensitivity camera images inside the incinerator



Thermal camera images inside the incinerator



Safety training through VR

Our virtual reality (VR) technology faithfully reproduces actual work environments, allowing users to safely experience hazardous situations through intuitive operations using their hands and feet. This enhances hazard prediction capabilities in the field, significantly reducing workplace accidents. Ensuring worker safety leads to fewer process delays, improving productivity. This innovative solution simultaneously cultivates safety culture and enhances operational efficiency.



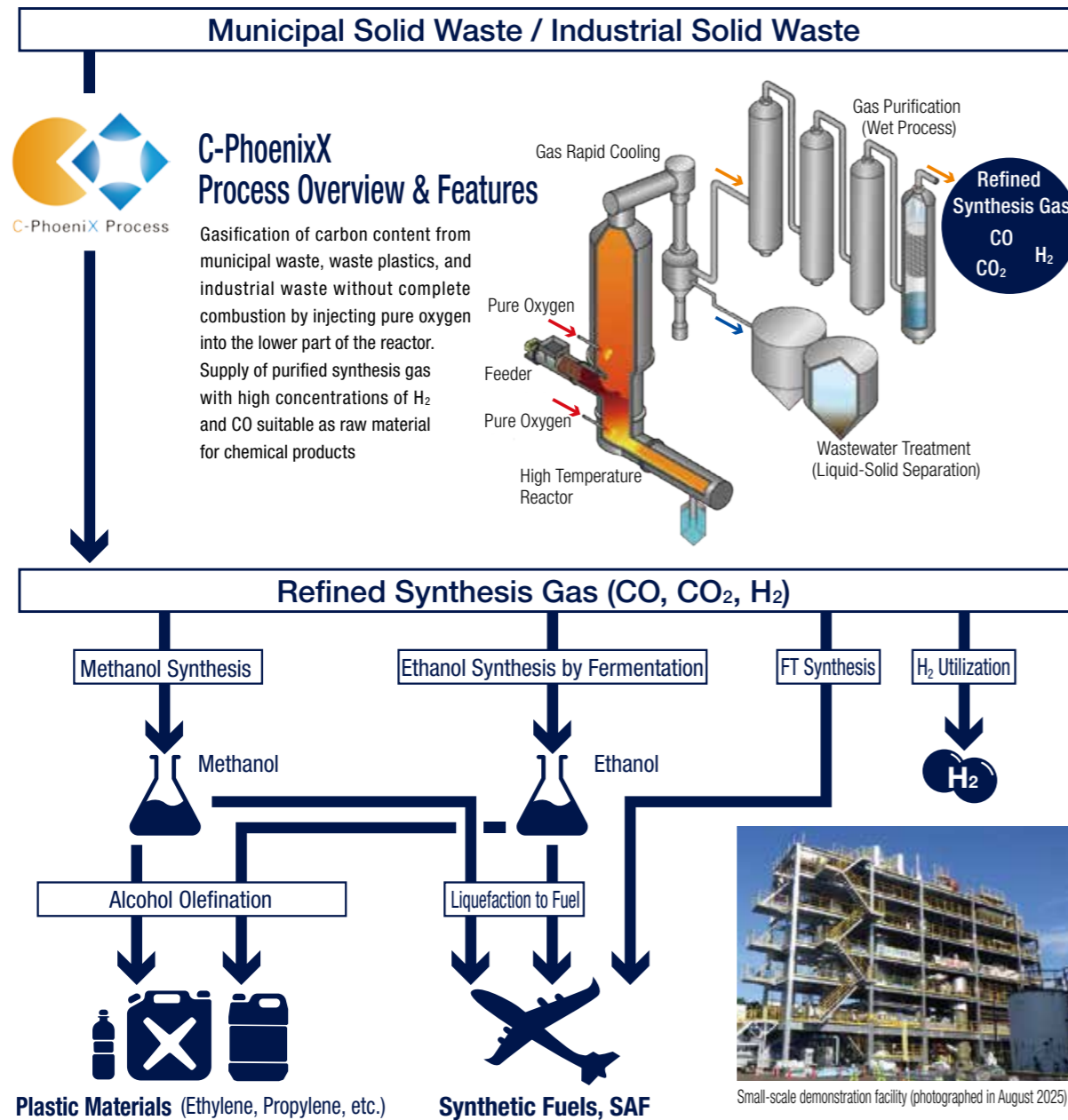
Carbon Neutral

Next-Generation Circular Green Innovation for Waste Management

We are working on material circulation from waste by utilizing Waste to Chemical recycling technologies and technologies for CO₂ capture from incinerator exhaust gases and methanol production. To support a carbon neutral community, we are also introducing EV waste collection trucks with exchangeable batteries. This helps build a safer and more sustainable waste collection system.

Establishing Material Circulation with Globally Unique Advanced Waste Gasification Technology

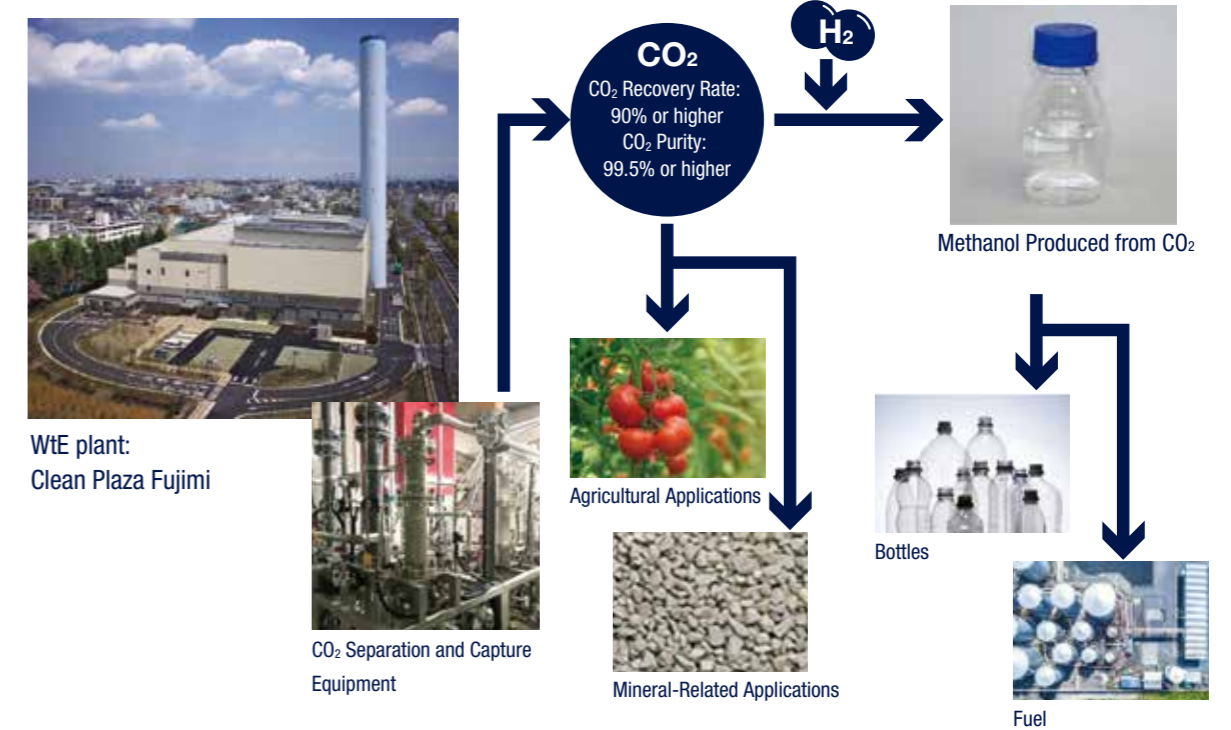
To achieve a carbon neutral community and circular economy, we are working toward implementing the "C-Phoenix Process" in society, which has the capability to produce high-quality refined synthesis gas from waste. This advanced gasification technology from a wide range of waste is our unique technology, unparalleled in the world. The refined synthesis gas produced from this technology has the potential to be transformed into various products.



Small-scale demonstration facility (photographed in August 2025)
Selected for the "Green Innovation Fund Project" in February 2024.

Creating the Future by Resources from CO₂

CO₂ capture from exhaust gases generated during waste incineration is used along with hydrogen produced from renewable energy to establish a manufacturing method for green methanol with high carbon neutral effects. From CO₂ capture to methanol production, we are challenging technical innovation toward realizing a carbon neutral community and contributing to the creation of a sustainable circular economy by balancing the reduction of environmental impact with effective resource utilization.



Energy Circulation by EV Waste Collection Trucks

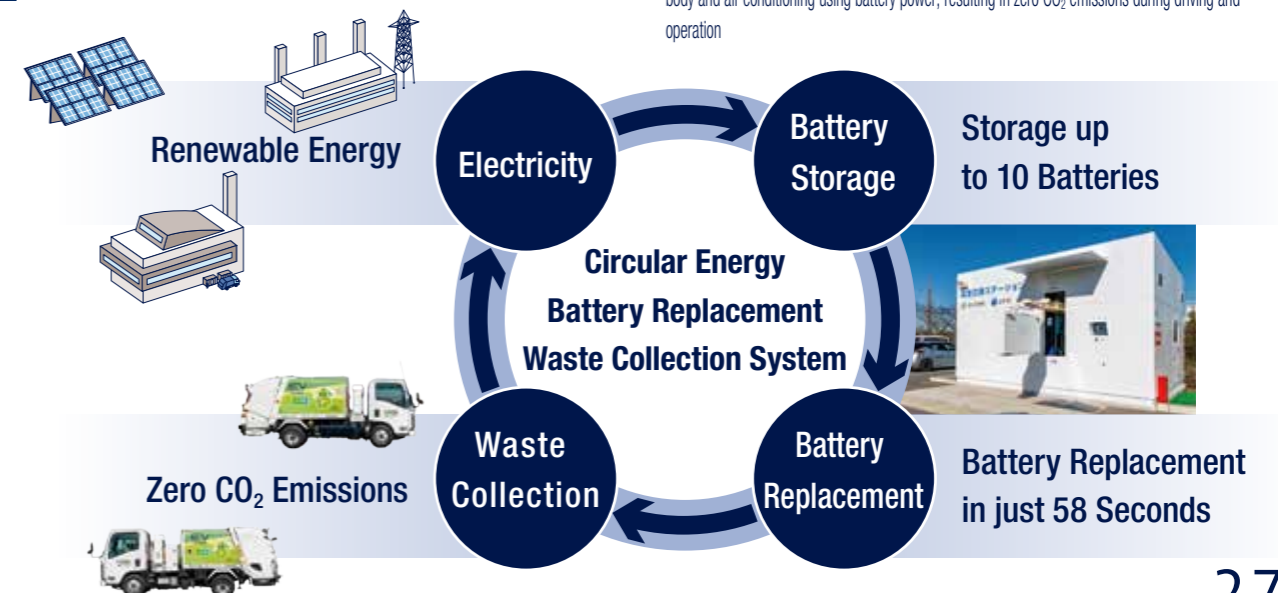
Electricity from Waste to Energy plant is transmitted to on-site battery exchange stations to charge storage batteries. These batteries are installed in EV Waste collection truck for operation. While reducing CO₂ emissions, this energy circulation with battery exchange waste collection system contributes to local carbon neutralization and improved resilience.

Electricity: Power from Waste to Energy plant is transmitted to on-site battery exchange stations (other power sources are also available)

Battery Storage: Storage up to 10 batteries, with each battery enabling approximately 60km of drive. It can also be used as emergency power during disasters (capable of charging smartphones approximately 3,000 times)

Battery Replacement: Rapid automatic battery replacement within 58 seconds by stopping the vehicle at the designated position and pressing the battery replacement button

Waste Collection: EV waste collection trucks operate not only the drive system but also auxiliary equipment including body and air conditioning using battery power, resulting in zero CO₂ emissions during driving and operation



MHKW Stapelfeld
(1,080 ton/day, in Hamburg, Germany)

Global Business

~ For the Sustainable and Resilient world ~



286
projects

Incinerators
& Gasifying
& Melting
Furnaces

42
projects

Water
& Wastewater
Treatment Plant

63
projects

Biomass
Power
Generation
Plants

154
projects

Heat Recovery
Steam
Generation
Plants

72
projects

Repair &
Maintenance Service
Contract Amount:
>1 Million EUR

Global Business

Global Excellence Journey

Strategic Global Hubs and Overseas Achievements in Waste to Energy and Aqua business

Global business development has continued since the 1990s, building a trusted network of environmental infrastructure across Asia and Europe

Major track record in global market (WtE and Aqua)

1	Aberdeen :	456t/day	7	Taichung-Wenshan :	900t/day
2	Stapelfeld :	1,080t/day	8	Chonburi :	360t/day
3	Chalampe :	540t/day	9	Yangon :	60t/day
4	Romonta :	366t/day	10	Negeri Sembilan :	67,000m ³ /day
5	Yen Xa :	270,000m ³ /day	11	Jakarta Wastewater Treatment Zone1 :	240,000m ³ /day
6	Bac Ninh :	500t/day			

* As of October 2025, Japan: Based on completed construction, Others: Based on orders received



1 UK (Aberdeen)



2 Germany (Stapelfeld)



7 Taiwan (Taichung-Wenshan)



8 Thailand (Chonburi)



9 Myanmar (Yangon)



5 Vietnam (Yen Xa)



10 Malaysia (Negeri Sembilan)



4 Germany (Romonta)



3 France (Chalampe)



6 Vietnam (Bac Ninh)



11 Indonesia (Jakarta Wastewater Treatment Zone1)

Europe
82
facilities

Japan
185
facilities

Asia
61
facilities

Overseas Waste to Energy Business

~Recycling Waste through High-Efficient Heat Recovery, Moving toward Sustainable Cities with Reduced Environmental Impact~

Overseas Aqua Business

~Building Safe Water Infrastructure with Advanced Treatment Technologies, Contributing to Regional Environment and Living~



Standardkessel Baumgarte(SBG)

Our multinational division of work within the JFE Engineering Group enables high-quality and efficient project execution



JFE Engineering India

China

JFE HQ

Philippines Branch/ Techno Manila

Myanmar

Thailand

Vietnam

Singapore

Indonesia



Leveraging its expertise in steelmaking and shipbuilding technologies, we have been developing its Waste to Energy business in Japan since the 1960s. The company began global business development across Asia in 1992, starting with Taiwan, followed by China, Singapore, Thailand, and Vietnam.

JFE HQ oversees operations in Japan and Asia, while SBG manages the European market and JFE Engineering India focuses on the Indian market. This structure enables JFE Engineering Group to deliver globally tailored services that meet the specific needs of each market.

Furthermore, we have strengthened its strategic partnership between SBG—renowned for its advanced technology and extensive experience in large-scale furnace construction—and JFE Engineering India, which excels in cost-effective design and procurement. Through this global network, JFE Engineering Group effectively addresses regional characteristics and requirements, delivering optimized engineering solutions worldwide.

Collaboration

- **JFE HQ:** Project management, Business Development and Operation
- **SBG:** Extensive experience in Europe and Basic design
- **JFE Engineering India:** Detailed design and Procurement
- **Techno Manila:** Detailed design

Features

- Diverse and extensive experience including large-scale incinerators
- Design approach that considers optimization of operations management
- Seamless business investment support from EPC to operation management

Starting from an industrial wastewater treatment project in the Philippines in 1995, we have fully expanded our overseas business in the water and wastewater sector.

In the Philippines, we have steadily built our track record by achieving large-scale projects such as the Camana Wastewater Treatment Plant construction (205,000 m³/day) and the Lamesa Water Treatment Plant renovation (1.5 million m³/day).

Furthermore, we have expanded our business to Southeast Asian countries including Vietnam and Indonesia, contributing to the development of essential infrastructure in these regions.

Moving forward, we will continue to aim for greater social contributions by leveraging our experience and technological capabilities.

Collaboration

- **JFE HQ:** Project Management and Overall Planning & Basic Design
- **JFE Engineering India:** Detailed design
- **Philippines Branch/Techno Manila:** Detailed design and Construction management

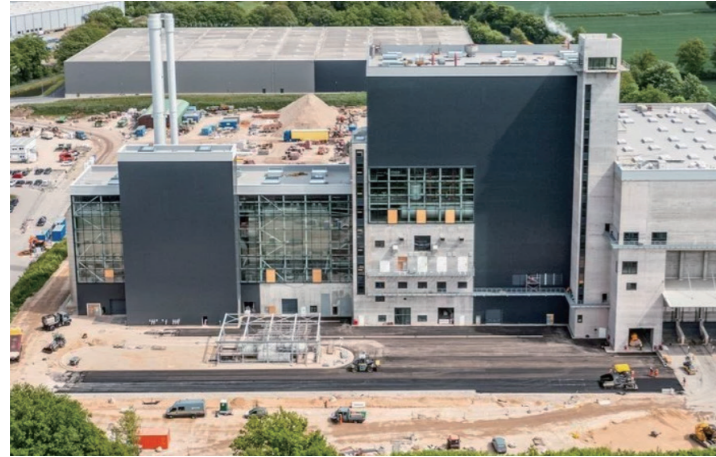
Features

- Achieving world-class EPC competitiveness
- Handling various projects including Japan's ODA and self-funded Design & Build projects

Project Experiences

~ Engineering Beyond Borders: Contribution for a Sustainable Planet ~

MHKW Stapelfeld, Hamburg, Germany



Customer	EEW Energy from Waste GmbH
Capacity	1,080 ton/day
Rated Thermal Input	120 MW
Steam Capacity	147.4 t/h (40 bar, 400°C)
Other Feature	Largest WtE plant provided by JFE Group's technology

Bac Ninh WtE, Vietnam



Customer	T&J Green Energy Company
Capacity	500 ton/day
Rated Thermal Input	53.6 MW
Steam Capacity	59.5 t/h (41 bar, 400°C)
Other Feature	First WtE investment project in overseas for JFE and First JCM supported WtE project in Vietnam

Energie Production Center Chalampé (EPCC), France



Customer	B+T Energie France S.A.S
Capacity	630 ton/day
Rated Thermal Input	80 MW
Steam Capacity	96.8 t/h (66 bar, 425°C)
Other Feature	Providing steam to the plant nearby to reduce the use of natural gas

Yen Xa WWTP, Vietnam



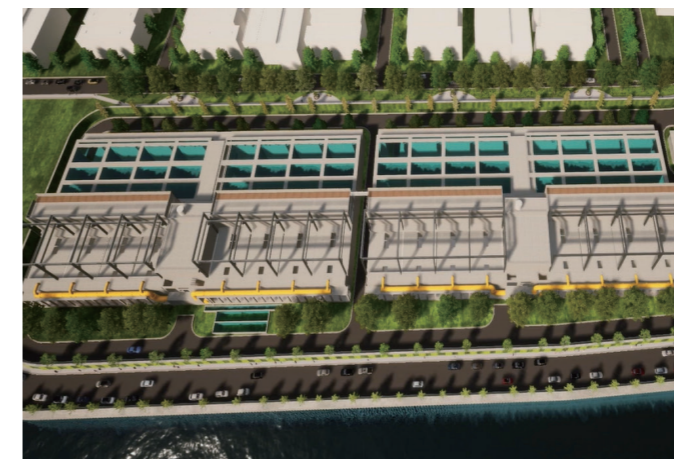
Customer	Hanoi City
Capacity	270,000 m³/day
Process	Conventional Activated Sludge (CAS) + Anoxic-Oxic (AO) process
Fund	JICA
Other Feature	Largest WWTP in Hanoi City, capital of Vietnam.

EfW NESS Aberdeen, UK



Customer	Acciona Industrial UK Ltd.,
Capacity	456 ton/day
Rated Thermal Input	49.1MW
Steam Capacity	63.0 t/h (64 bar, 425°C)
Other Feature	One of the first UK energy from waste facilities delivering heat locally

Jakarta WWTP Zone 1, Indonesia



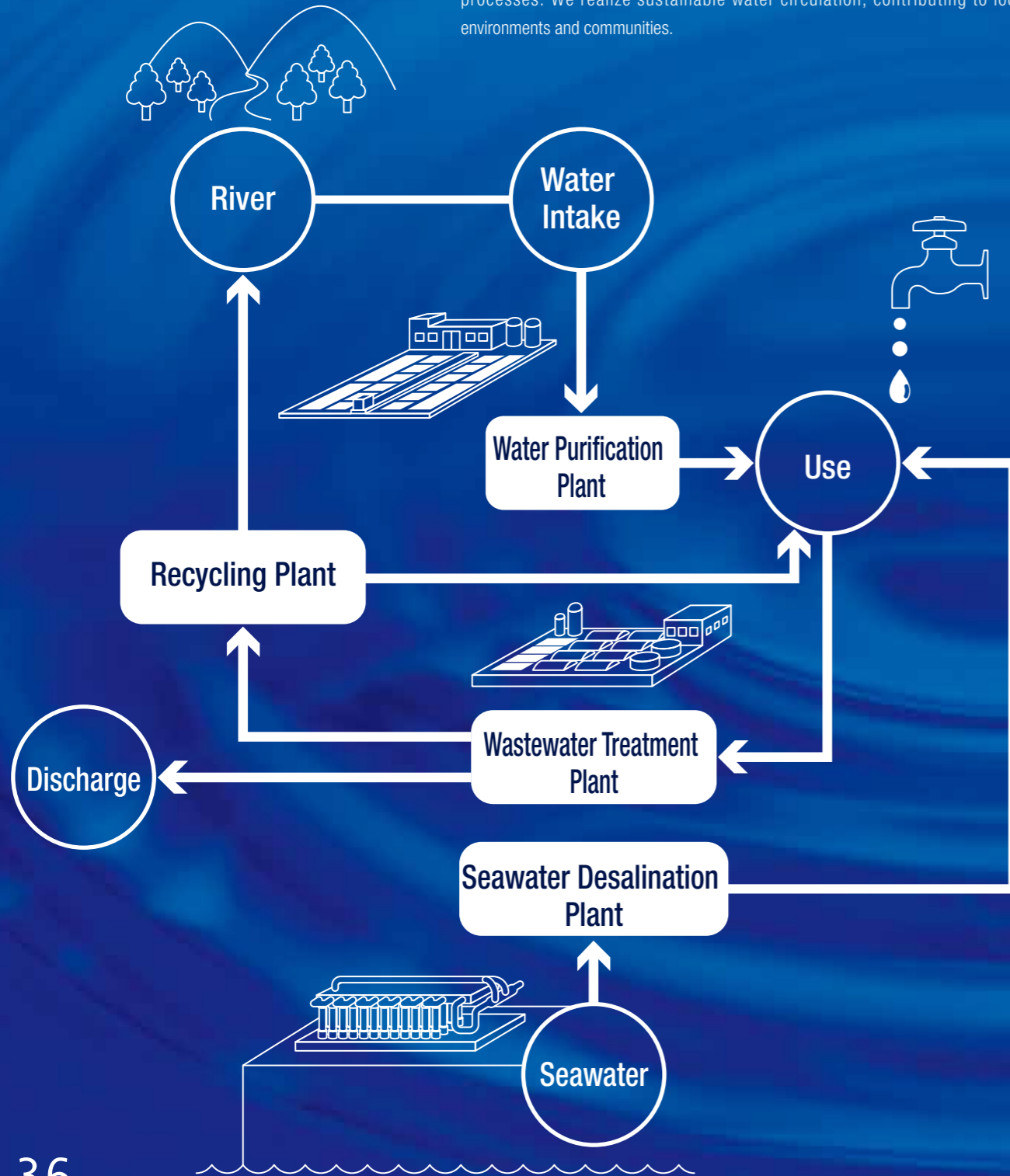
Customer	Ministry of Public Works and Housing
Capacity	240,000 m³/day
Process	Anaerobic anoxic aerobic activated sludge process + Membrane bioreactor (MBR)
Fund	JICA
Other Feature	Largest WWTP in Jakarta, capital of Indonesia

Aqua

Overseas Aqua Business

Producing clean, great-tasting water and recycling wastewater. JFE's technologies are paving the way toward a recycling-oriented and low-carbon society

Water sourced from rivers, oceans, and other natural bodies undergoes advanced purification before being delivered to households through distribution pipelines. Once used, the water is treated and separated into clean water and sludge. The treated water is then safely returned to the natural environment. Additionally, in regions facing water scarcity, there is a growing trend to further process the treated water and reuse it as "New Water." We provide high-quality engineering services utilizing the latest technologies in each stage of water purification and wastewater treatment processes. We realize sustainable water circulation, contributing to local environments and communities.



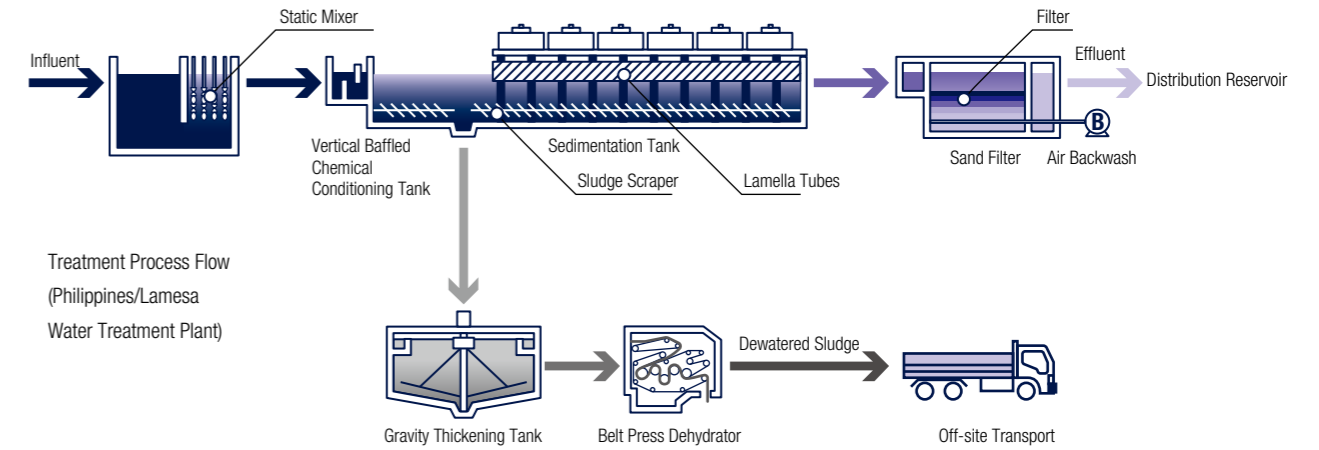
Water Purification Plant

Proposal with Comprehensive Solutions

In addition to addressing water shortages and diversifying water sources, the demands for water purification are becoming increasingly complex—ranging from energy efficiency and space optimization to cost reduction. Drawing on decades of proven technical expertise and a flexible approach to solution design, we deliver optimal water purification plants that precisely meet our customers' unique challenges.

1 Coagulation-Sedimentation / Sand Filtration Process

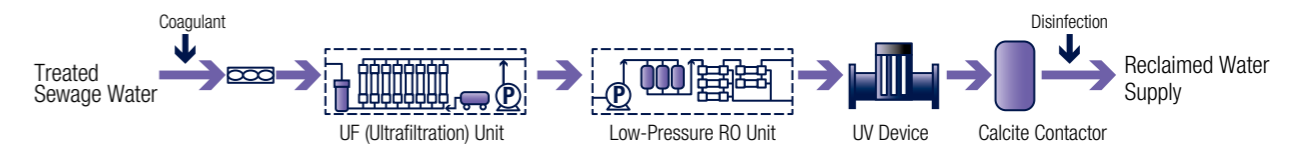
We provide water treatment systems that prioritize quality and safety, based on our proven technical capabilities founded on extensive experience and specialized knowledge acquired over many years.



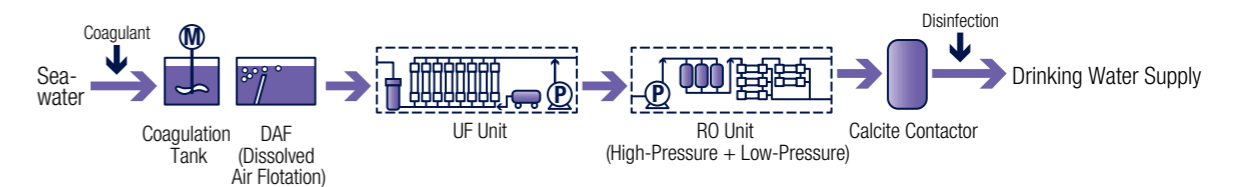
2 Membrane Treatment Water Production Process

Selection of the optimal membrane modules from various options based on the characteristics of water sources and local regions. Furthermore, by effectively combining different water purification processes, we achieve efficient use of water resources and contribute to building a sustainable water environment.

Example of Water Reuse Process



Example of Seawater Desalination Process



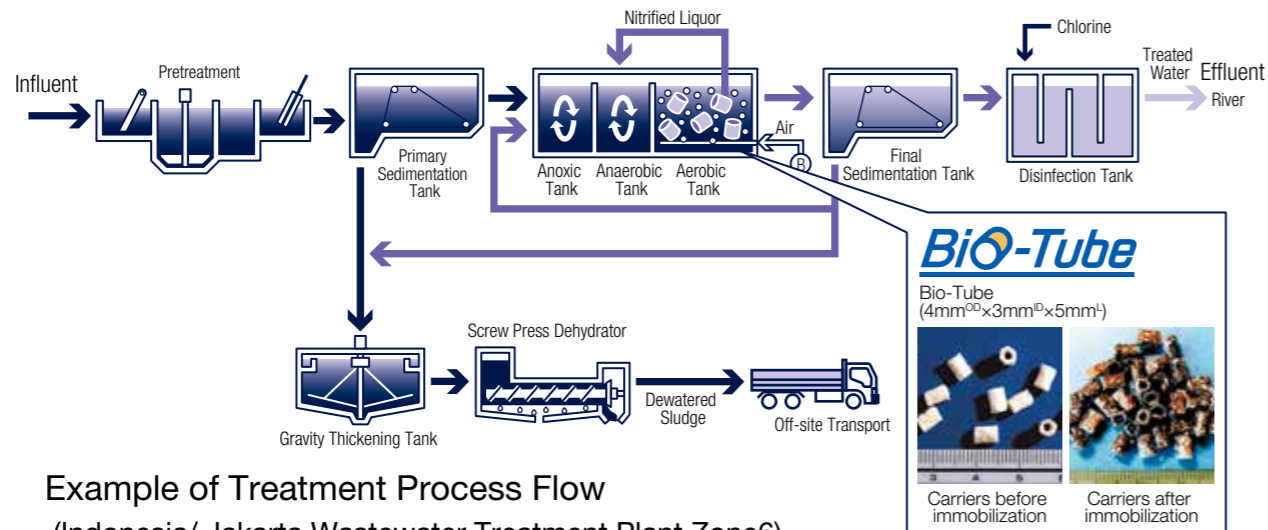
Wastewater Treatment Plant

Next-Generation Water Treatment Technology Enhancing Competitiveness through Life Cycle Cost Reduction

Our wastewater treatment process contributes to customers' long-term cost reduction by combining advanced purification performance with energy-efficient design. Additionally, through treatment processes that combine our proprietary technologies, we achieve optimization of total life cycle costs from initial investment to operation and maintenance.

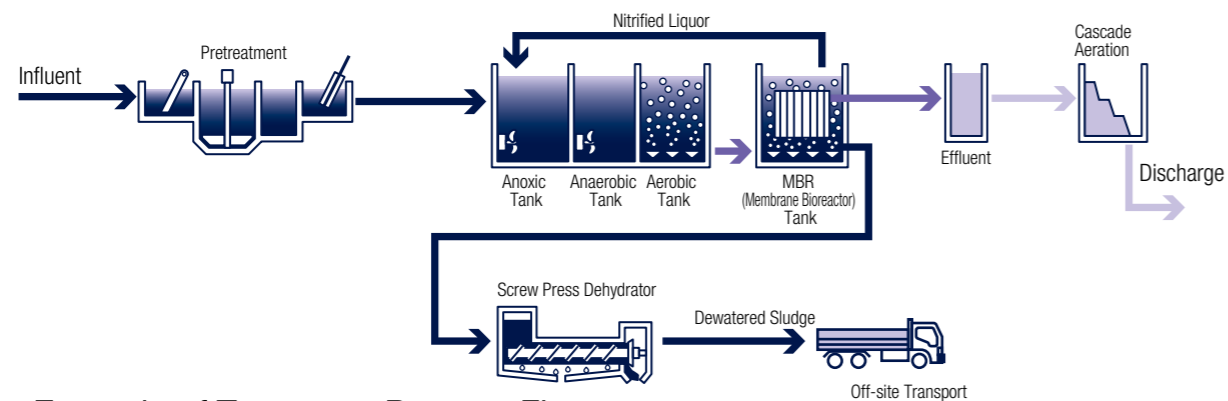
1 Carrier-Based Activated Sludge Process

We achieve a high-efficiency, space-saving advanced treatment process by immobilizing microorganisms at high concentrations on carriers uniquely developed by JFE. These carriers do not wear out or deteriorate, requiring no replenishment, and also eliminate concerns about microplastic generation.



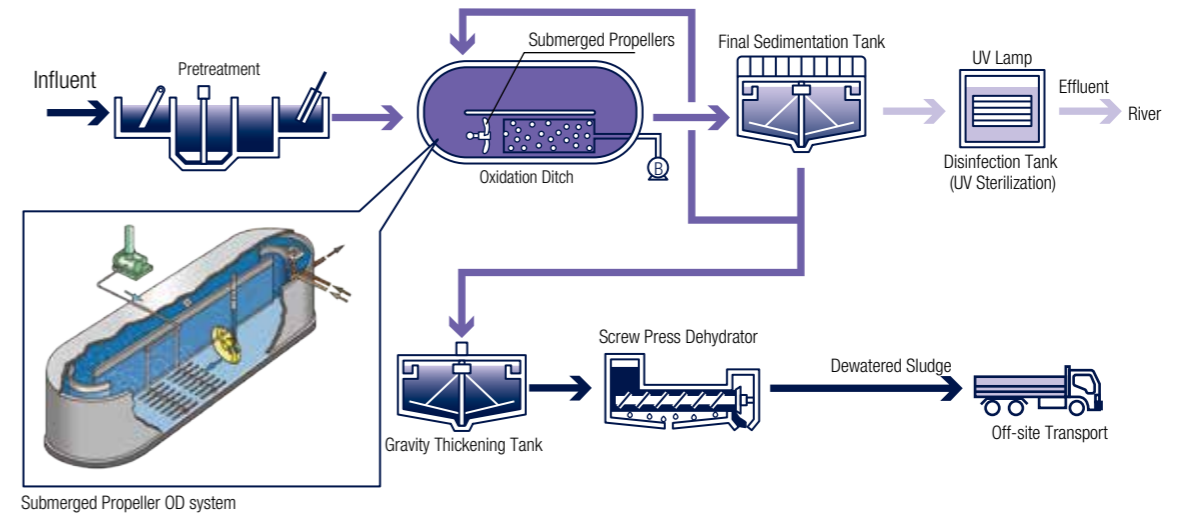
2 Membrane Bioreactor (MBR) Process

By combining biological treatment using activated sludge with membrane separation, sedimentation tanks become unnecessary, allowing us to obtain high-quality treated water while saving space.



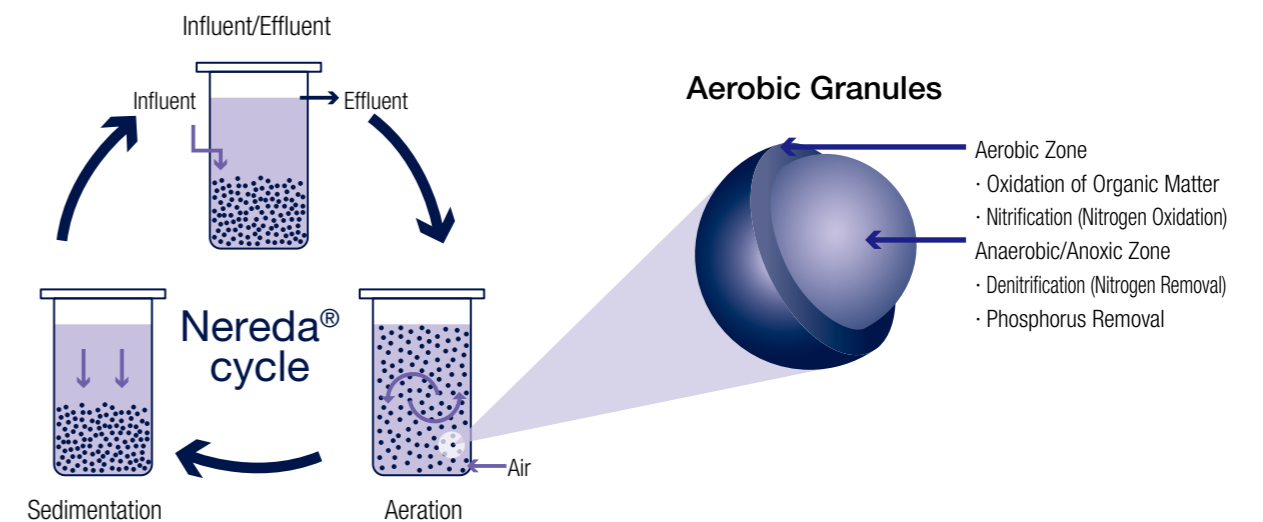
3 Oxidation Ditch Process

Our submerged propeller OD (Oxidation Ditch) system is an aeration device that combines submerged propeller with diffusion equipment. Since the submerged propeller and diffusion equipment operate independently, the process enables easy switching between anaerobic and aerobic operations, allowing for nitrogen removal as well. The system can also operate at deeper levels, pursuing space-saving and energy-efficient design.



4 Sequencing Batch Reactor (SBR) Process (Nereda®)

The Nereda process is an innovative wastewater treatment technology using aerobic granules. It enables simultaneous removal of organic matter, nitrogen, and phosphorus in a single tank. With the granular structure providing high sedimentation efficiency, this next-generation wastewater treatment process requires only about 1/4 of the installation area and reduces energy consumption by approximately 1/3 compared to conventional methods, making it a space-saving and energy-efficient solution.



Note: the Nereda technology is under an exclusive license agreement within the Philippines.

Group Company

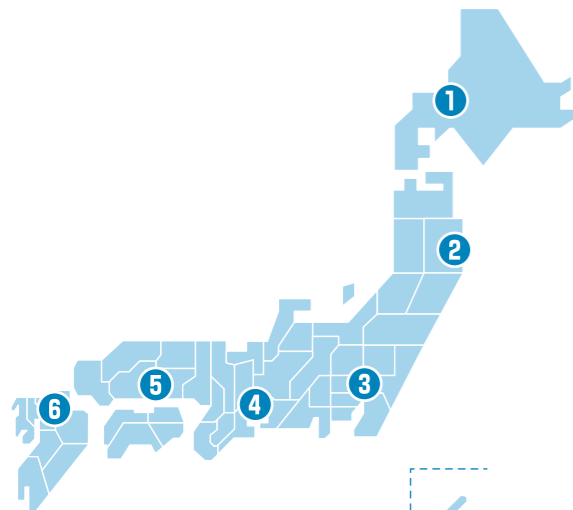
J&T Recycling Corporation



Experts of Environmental Solution with diverse capabilities and proven experience for driving the transition to a Sustainable Society

As a comprehensive recycling company backed by the technologies of the JFE Engineering Group, J&T Recycling provides full-range environmental service from consulting to waste logistics, intermediate treatment, and recycling.

Domestic Network and Business



1 Hokkaido Sapporo Food waste recycling	4 Kinki/Tokai Tsu PET bottle recycling Komaki Food waste recycling
2 Tohoku Sendai Container and packaging plastics recycling Recycled plastic pallets Waste plastic recycling as raw materials & fuel Food waste recycling	5 Chugoku/Shikoku Hiroshima Container and packaging plastic recycling Fukuyama Recycled plastic pallets Waste plastic recycling as raw materials & fuel Kure Kneading and ash recycling Kurashiki Wood waste recycling Waste Treatment
3 Kanto Isesaki Solar panel recycling Tokyo Waste to Energy Medical waste recovery Disposal of confidential information media Kawasaki Waste to Energy Medical waste recovery PET bottle recycling Container and packaging plastic recycling Waste plastic recycling as raw materials & fuel Home appliance recycling	6 Kyushu Fukuoka Food waste recycling Omuta Waste to Energy
Overseas Business Vietnam Waste to Energy (Bac Ninh) Malaysia Waste Treatment (near Kuala Lumpur)	Yokohama Waste to Energy Medical waste recovery Container and packaging plastic recycling Waste liquid/sludge/powder waste recycling Dry cell/battery recycling Solid/Mixed waste recycling Food waste recycling Chiba Food waste recycling



Four Core Business Fields and its Key Features

1 Waste Treatment - Waste to Energy

- providing a wide range of waste treatment
- implementing countermeasures for exhaust emission
- providing electricity to the local community
- reducing transport costs and supporting local economy through the metropolitan area



2 Food Recycling

- Promoting a dual-loop recycling food waste into electricity and fertilizer
- Handling mixed food waste, including packaging and wooden utensils
- Developing locally produced and consumed recycling system



3 Plastic Recycling

- Tailoring recycling methods to plastic types —material, chemical, and thermal— for effective resource recovery
- Creating a streamlined recycling flow through nationwide collaboration



4 PET Bottle Recycling

- Realizing 100% recycling through the effective use of residual materials within J&T Recycling Group
- Complying with rigorous beverage manufacturer requirements via advanced proprietary cleaning technology
- Supporting efforts to lower CO₂ emissions



J&T Recycling Group

JFE Urban Recycle Corporation

Household electrical appliance and OA recycling

J Circular System Corporation

Plastic recycling

Dia Ecotech Hiroshima Co., Ltd.

Container and packaging plastic recycling

Kyoei J&T Recycling Corporation

PET bottle recycling

Omuta Recycle Power Co Ltd.

Power Generation using Refuse Derived Fuel (RDF)

Sapporo Bio Food Recycling Corporation

Food waste recycling and Biogas Power Generation

Tohoku Bio Food Recycle Co., Ltd.

Food waste recycling and Biogas Power Generation

Bios Komaki Co., Ltd.

Food waste recycling and Biogas Power Generation

J Bio Food Recycle Co., Ltd.

Food waste recycling and Biogas Power Generation

FUKUOKA Bio Food Recycling Co., Ltd.

Food waste recycling and Biogas Power Generation

Group Company



JFE Environment Technology Co., Ltd.

Creating a better living environment

JFE Environment Technology contributes to the sustainable development of local communities while caring for global environmental conservation and resource circulation

Expertise in small to medium-sized incinerators, offering full-service capabilities from design and construction to maintenance, and operation of waste management facilities.

Design and Construction



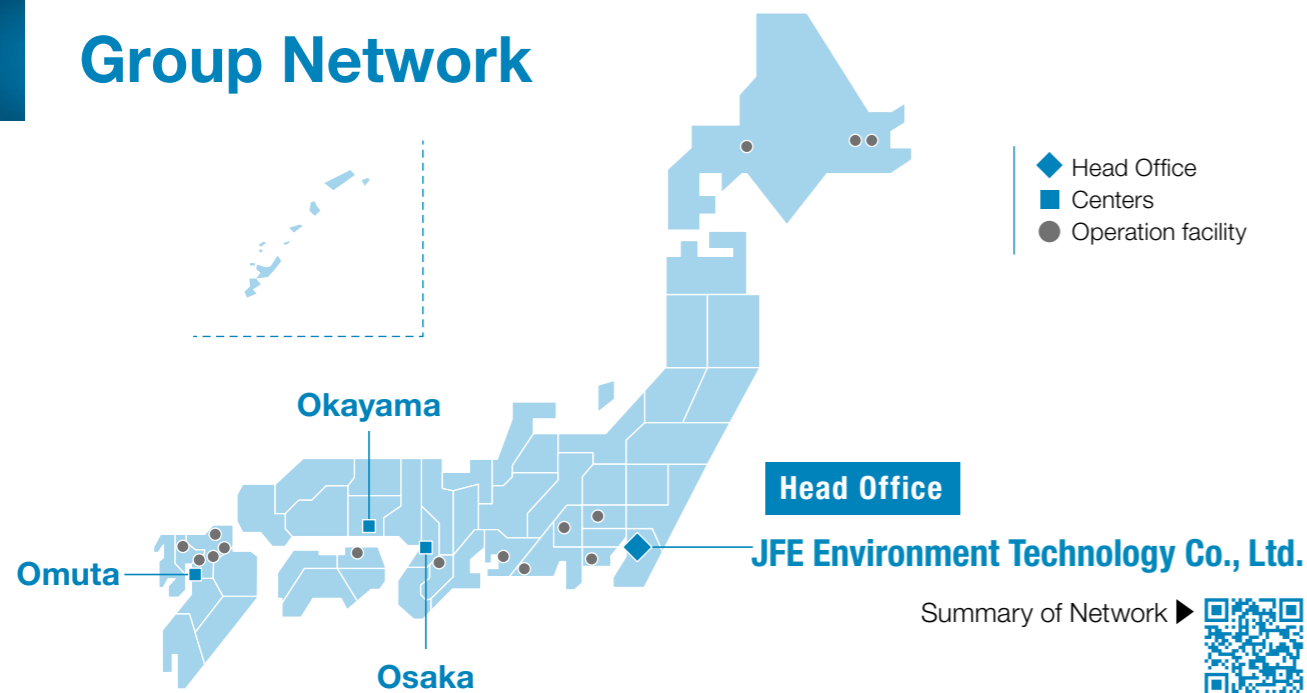
Maintenance



Operation



Group Network



Major Facilities by JFE Environment Technology

We provide optimal waste treatment processes tailored to our customers' needs.

- **Kiln-type gasification and melting furnace**
Reduces waste volume and promotes resource recovery, significantly decreasing the amount of final disposal.
- **Fluidized bed incinerator**
Efficiently processes a wide range of waste types, from low to high calorific value.
- **Stoker-type incinerator**
Suitable for both small- and large-scale operations, offering a highly reliable treatment method with stable combustion and high-efficiency power generation.

Kiln-type Gasification and Melting Furnace

Hamamatsu Western Waste to Energy plant (494ton/day)

Completion: January 2009

One of the Japanese largest kiln-type gasification and melting facilities. By utilizing DX and AI technologies, we achieve optimization of energy efficiency and reduction of operational costs.



Fluidized Bed Incinerator

Gobo Regional Cleaning Center (147ton/day)

Completion: March 1998

Major facility improvement work was completed in March 2024, achieving enhanced functionality and energy efficiency through the introduction of state-of-the-art equipment.



Stoker Incinerator

Shibecha Town Clean Center (8ton/8h)

Completion: March 2018

We are consistently responsible for operations management and maintenance services, achieving stable operation that complies with the latest environmental standards.



Material Recycling

Sakaide City Recycling Plaza (26ton/day)

Completion: July 1999

We process recyclable waste from reception through crushing and sorting, recovering high concentrations of valuable materials such as iron and aluminum, contributing to resource circulation.



Group Company

JFE Environment Service Corporation



Operates Waste to Energy facilities safely and securely

As professionals in environmental plant operations, JFE Environment Service is committed to delivering outstanding service to all our customers. We strive to contribute to the prosperity of local communities and to the protection and enhancement of the global environment.

Operation and Maintenance Services

Comprehensive operation and maintenance of waste to energy facilities and their auxiliary equipment.

RDF Business

- Operation and management of RDF production facilities
- Maintenance of RDF equipment
- Purchase and sale of RDF

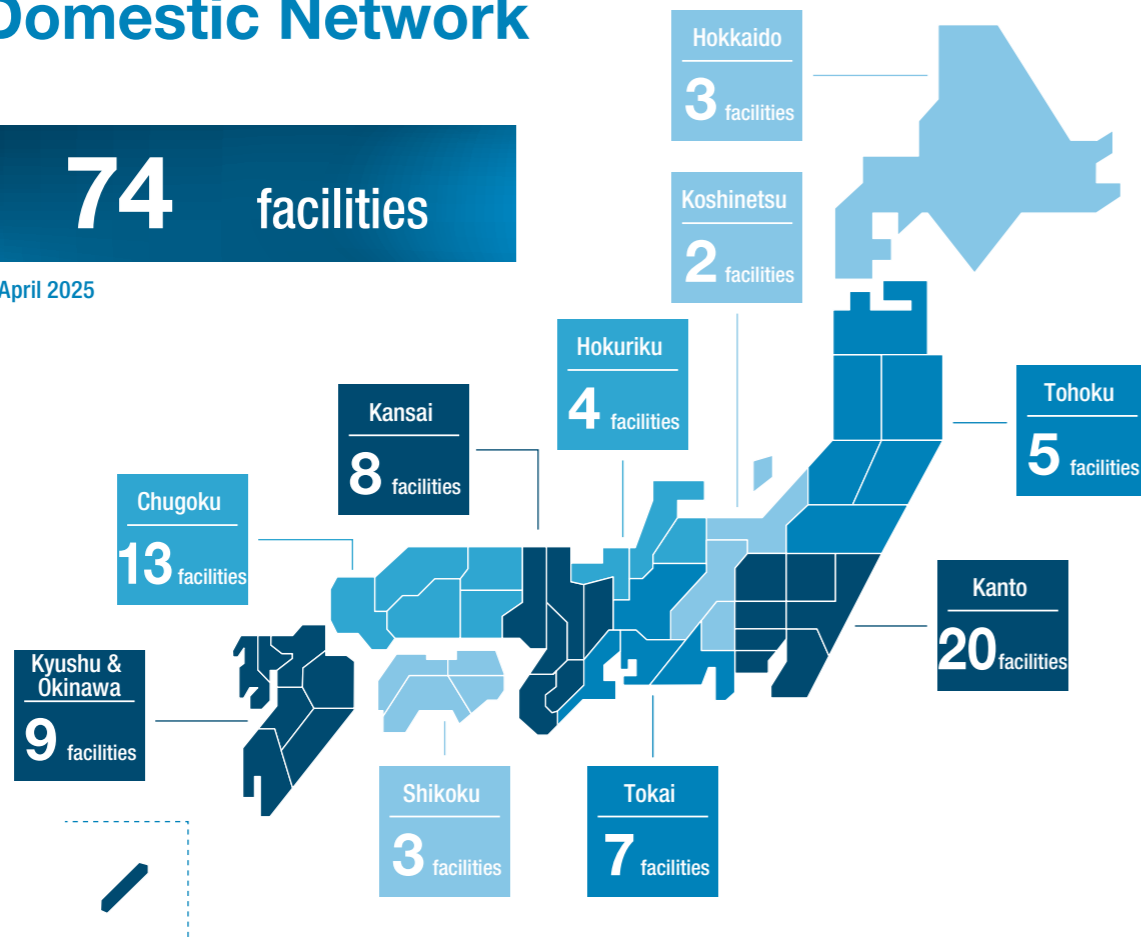
Operator Dispatching Business

Flexible solutions according to operational needs.

Domestic Network

74 facilities

* As of April 2025



Business Introduction

Operation and Maintenance Services

We offer expert operation and maintenance services backed by specialized knowledge and experience. Our capabilities include equipment and machinery inspection, facility maintenance, waste reception and processing, and by-product removal. We are committed to continuous skill development through certifications and comprehensive training programs.



Process Monitoring and Control



Waste Pit Management



Customer Support (Weighing and Reception)

Daily Inspection Services

To ensure long-term stable operation, our experienced maintenance professionals—equipped with broad knowledge and proven technical skills—provide comprehensive equipment support.



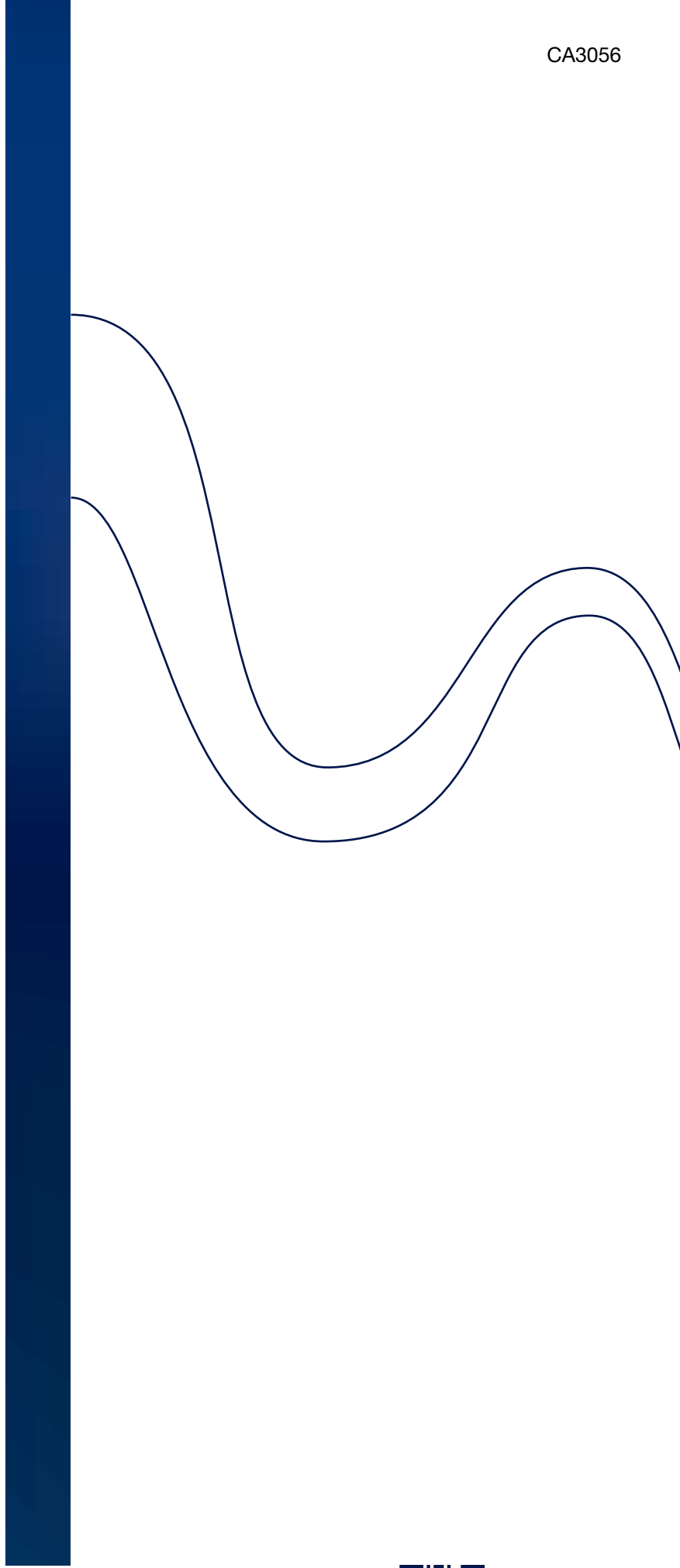
Equipment Patrol



Mechanical Equipment Inspection and Maintenance



Equipment Repair



JFE Engineering Corporation

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