Just For the Earth - decarbonization through our waste-to-resource solutions
JFE for sustainable cities and communities

- JFE Holdings
  - JFE Steel
  - JFE Engineering
  - JFE Shoji
- Japan Marine United

- Environmental Solutions 43%
  - Waste to energy plants, water treatment plants, etc.
- Energy Industries 21%
  - LNG bases, pipelines, renewable energy, etc.
- Infrastructure 21%
  - Bridges, port and harbor facilities, cranes, logistics systems, etc.
- Recycling and Power Generation 13%
- Others 2%

Revenue (FY2021): 508.2 billion JPY

Group-wide
Five Initiatives for 2030 - Focusing on the Circular Economy

- Combined Utility Service
- Carbon Neutral
- DX
- Infrastructure

Waste to Resource
Kenya, Decarbonization
[Project]: Olkaria II Geothermal Power Project OG105Steam Field Development
[Place] Naivasha, Olkaria
[Completion] 2003
Hazardous situations for the communities and local economies

- CH4 Emission
- Global Warming
- Pest, Odor, Fire, Water & Air Contamination
- Pollution
- Land Availability
- Difficult to secure new Landfill space

Source: The New Humanitarian (Photo: Nairobi)
Emission level is lower than environmental standard

Waste Heat Reuse for Local Community

Close to waste generator and short transportation distance
Waste to Energy Plant in Yangon City
[Expected GHG Emission Reductions] 4,067 tCO2/year (average)
[Location] Shwe Pyi Thar Township, Yangon City
[Project participant (Myanmar)] Yangon City Development Committee
[Project participant (Japan)] JFE Engineering Corporation

Photo: Takahashi
Reference emissions

Project emissions

Power generation (exported to the grid)

GHG Emission Reduction

Reduction of CO2 emission from fossil fuel consumption at power plant
01 Jun. 2017  Starting date of project operation

16 Jan. 2020  Registration of the project

Estimated emission reductions in each year

-1,933 (in 2017)
-1,853 (in 2018)
262 (in 2019)
1,833 (in 2020)
3,030 (in 2021)
3,970 (in 2022)
4,728 (in 2023)
5,359 (in 2024)
5,897 (in 2025)
6,367 (in 2026)
6,785 (in 2027)
7,163 (in 2028)
7,509 (in 2029)
7,829 (in 2030)

Expected operational lifetime of project: 15 years

* solid waste disposal site

Reference emissions

Decomposition of waste at a SWDS*  CH4
Electricity generation  CO2

Project emissions

Combustion of fossil carbon contained in waste  CO2
Incineration of waste  N2O
Electricity use by the project facility  CO2
Consumption of auxiliary fossil fuels needed to be added into incinerator  CO2
Monitoring parameters

1. Quantity of MSW fed into incinerator (wet basis)
2. Quantity of electricity generated by the project facility
3. Quantity of electricity consumed by the project facility
4. Quantity of auxiliary fossil fuel consumed
# Myanmar: Waste-to-Energy Project

**Project background information:**
- Landfill capacity at the current treatment site is decreasing
- Negative impacts on environment (human health) due to poor waste management

**Project overview:**
- Introduction of advanced solid waste treatment
- Expected GHG emissions reduction: 4,067 t-CO\(_2\)eq/year (average)

<table>
<thead>
<tr>
<th>Solving</th>
<th>GHG emissions could be reduced by replacing electricity generated by fossil fuel and avoiding methane release from the solid waste. Over 60% of generated electricity is used by the treatment plant itself, and the rest is sold to the grid system.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solution</td>
<td>Generating electricity from solid waste leads to air pollution reduction. Treating solid waste can contribute to soil contamination reduction in the surrounding area. Therefore, the project reduces negative environmental impacts by improving waste management.</td>
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<tr>
<td>Challenges</td>
<td>Engaging in advanced waste management and reducing hazards from solid waste can prevent ground water pollution. The project can reduce the volume of solid waste by around 90%.</td>
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<tr>
<td>Benefits</td>
<td>Introducing high-efficiency technologies in solid waste treatment leads to enhanced sustainable public infrastructure development. The plant treats about 60 tonnes of waste per day. It has a separate recycling process which collects recyclable materials such as bottles and plastics. These activities contribute to reducing the landfill waste. Strengthening this kind of technological upgrade would help Myanmar to move towards more sustainable production.</td>
</tr>
<tr>
<td>Environment</td>
<td>Contributing to marine pollution reduction through appropriate solid waste management.</td>
</tr>
<tr>
<td>Partnerships</td>
<td>Participating in JCM and collaborating with different stakeholders ensure the diffusion of low-carbon and decarbonisation technologies and improve the partnership between the government and private sector in both countries.</td>
</tr>
</tbody>
</table>

Source: JCM contributions to SDGs - Best practices -, IGES, 2021  
Selected as a JCM Model Projects in FY2021 (1st Selection)

Waste to Energy project in Bac Ninh Province
[Expected GHG Emission Reductions] 41,805 tCO2/year (average)
[Location] Bac Ninh province, Vietnam
[Project participant (Vietnam)] T&J Green Energy Company Limited
[Project participant (Japan)] JFE Engineering Corporation