

Potential Challenges for Proper Waste Management



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JFE Engineering Corporation



Waste-to-Energy



Biomass Power Plant



Sewage Treatment



Waste Heat Recovery

JFE offers the world leading technology

CH₄ Emission

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

Global Warming

Pollution

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

Land Availability

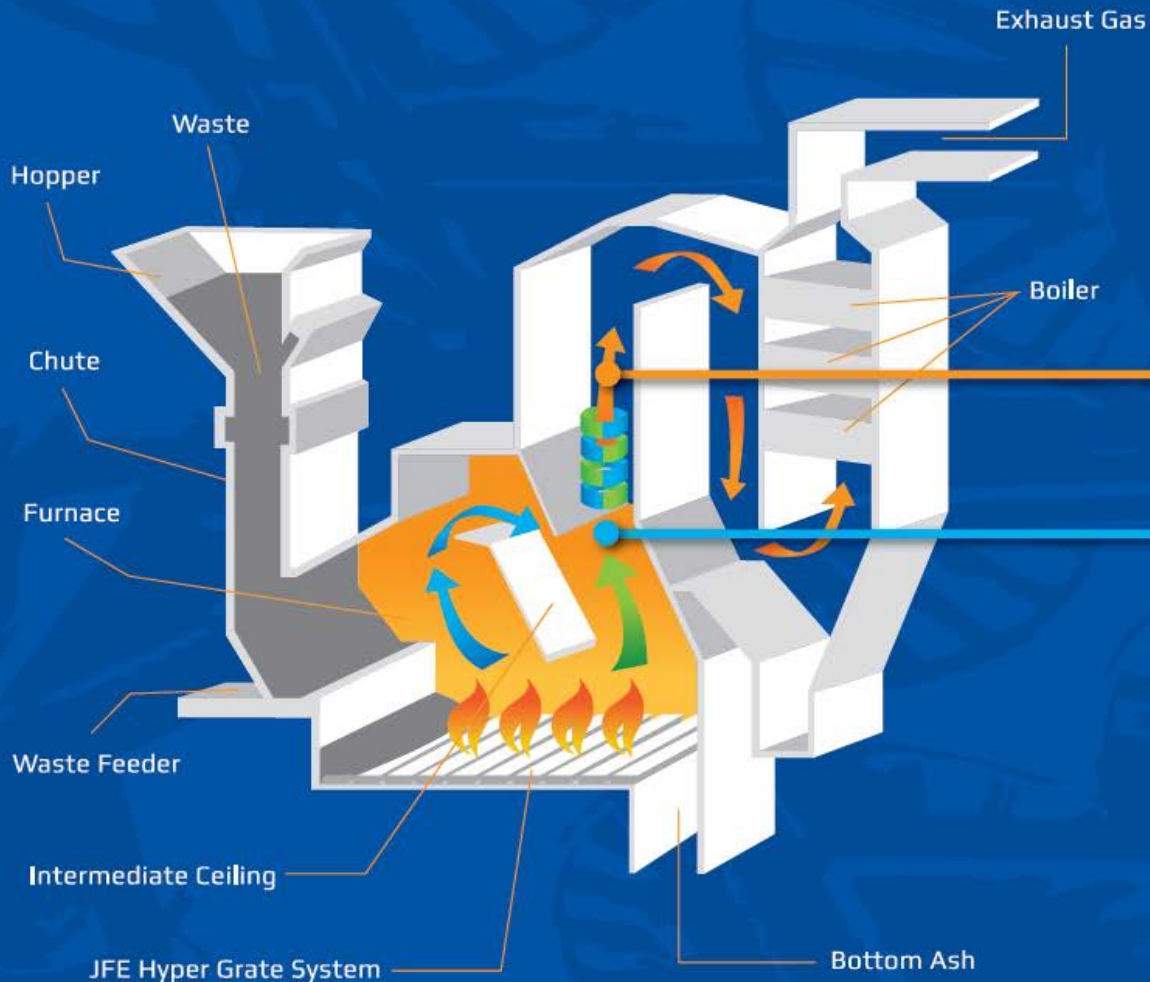
**Difficult to secure new
Landfill space**

Emission level is lower than
environmental standard

Waste Heat Reuse for Local
Community

Close to waste generator and short
transportation distance

Complete Combustion Reduces the Generation of Pollutants



Efficient Combustion Achieved.

↪ $\downarrow \text{NO}_x$ & $\downarrow \text{CO}$ → $\downarrow \text{DXN}$

The combustion gas mixture caused by this collision promotes the following oxidation/reduction chemical reactions:

↪ Unburned Gas Contents :
 $\text{CO}, \text{H}_2, \text{NH}_3$

↪ Combustion Gas Contents :
 $\text{O}_2, \text{NO}_x, \text{CO}_2$



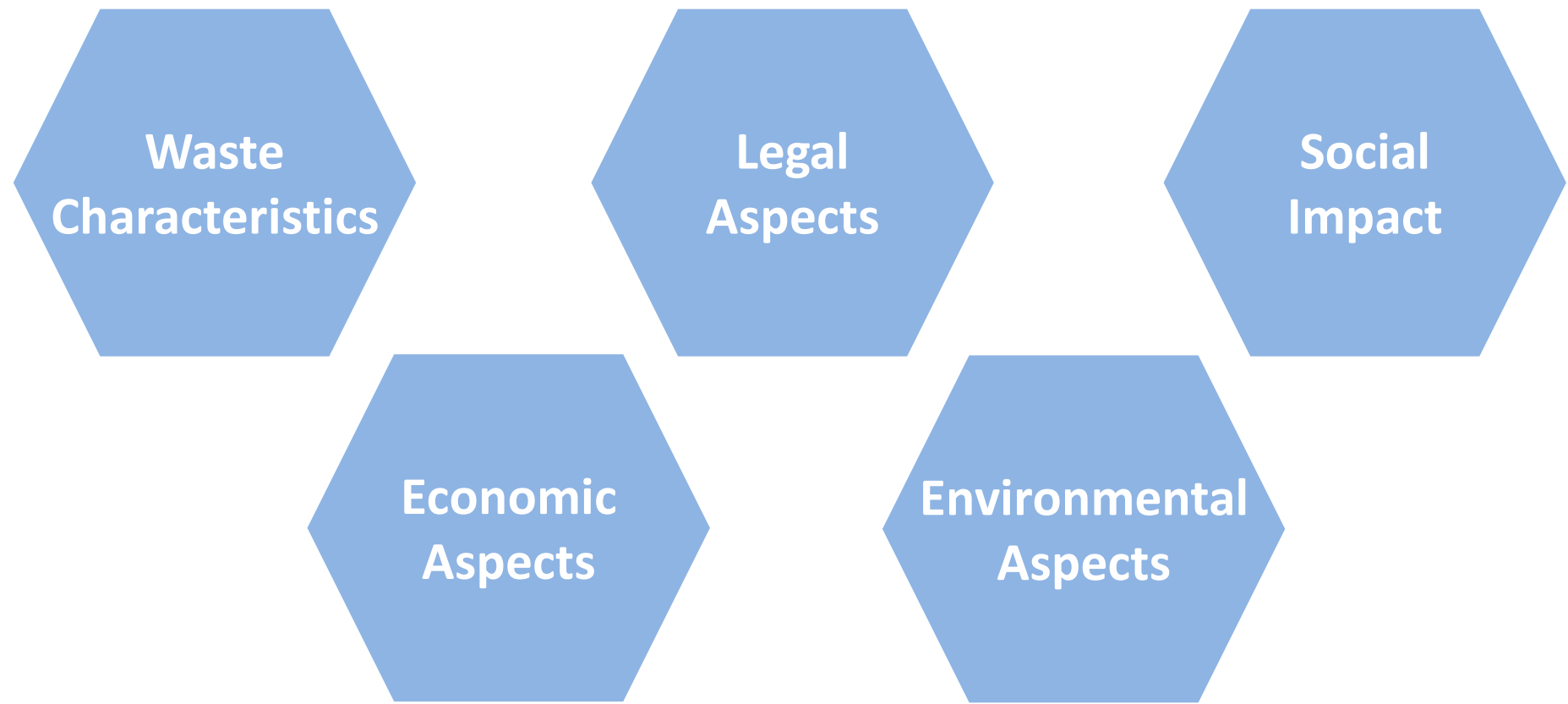
Unburned Gas Reaction :



Combustion Gas Reaction :



■ Challenges for implementation of WTEs





Stop at Planning Stage

- Weak policy enforcement, public opposition, no financial source, no supporting regulations, etc.



Stop at Designing Stage

- Reject of proposal by a competent authority, opposition from existing stakeholders, lack of budget, gap between proposal and needs, etc.



Stop at PQ/Tender Stage

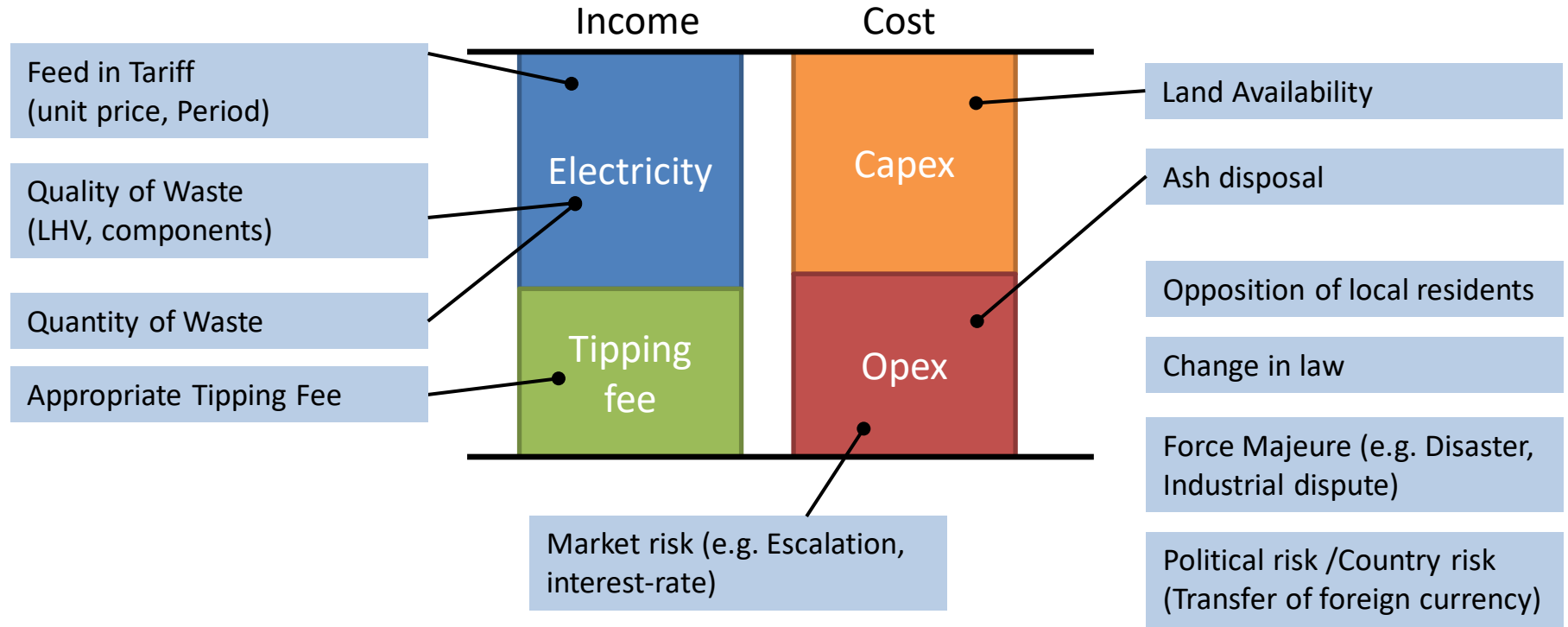
- Unsuccessful PQ/tender due to conflict of price (tipping fee, etc.), etc.



Stop at Operation Stage

- Insufficient performance of facility, critical change of waste management policy, bankruptcy of operation company, etc.

Potential Risks of WTE Project



Appropriate income (FiT, T/F) must be secured by Municipality

Appropriate framework in order to secure the risk allocation



Feasibility

Profitability



Thank you

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