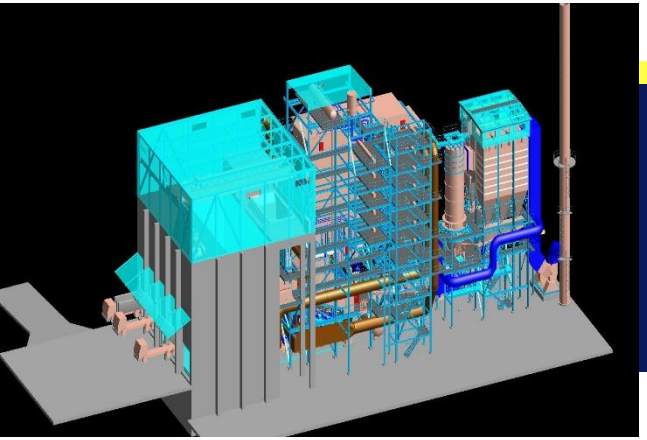
HITACHI ZOSEN INDIA PVT. LTD

(A 100% SUBSIDIARY TO HITACHI ZOSEN CORPOPRATION, JAPAN)



PRESENTATION ON WASTE TO ENERGY (INCINERATION + BIO-GAS) CONCEPT

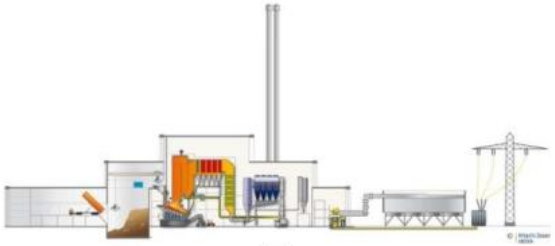
Most Effective Waste Management Concept – Integrated Approach

Circular Economy Concept – Effective Processing Technologies

Energy & Compost
from biowaste with
anaerobic digestion

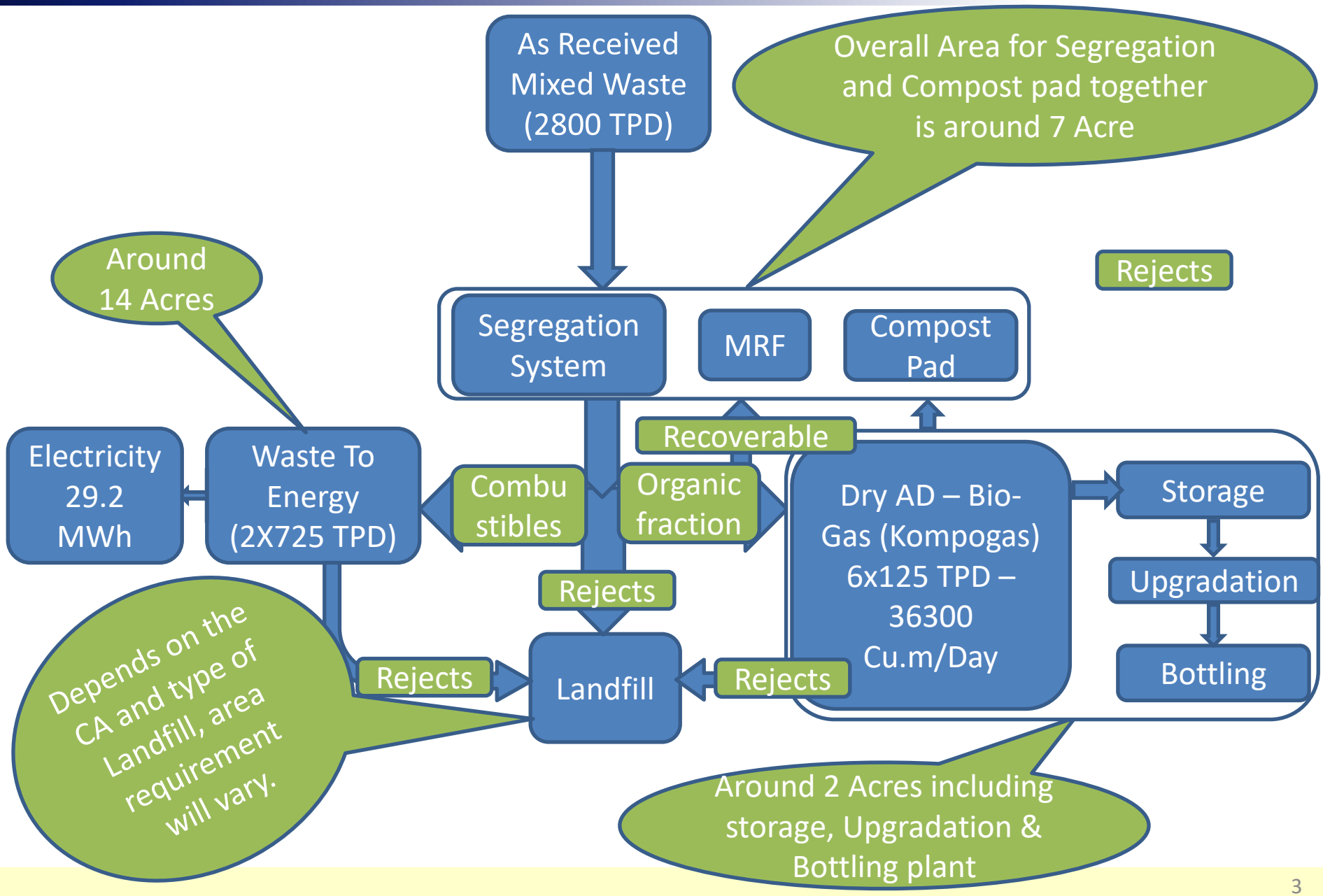
Recovered Material
from dry Recyclables
in Material Recycling
Facility

Energy & Material
from non recyclable waste
with thermal treatment



Energy Recovery	Material Recycling	Energy Recovery
Biomethane	Glass, Paper, Metals	Power & Heat
Material Recycling	Recyclable Plastic	Material Recycling
Compost & Fertilizer		Metalls & Minerals

Overall area requirement 2800TPD – Segregation, MRF, WTE & Bio-GAS



Concept of WTE Technology

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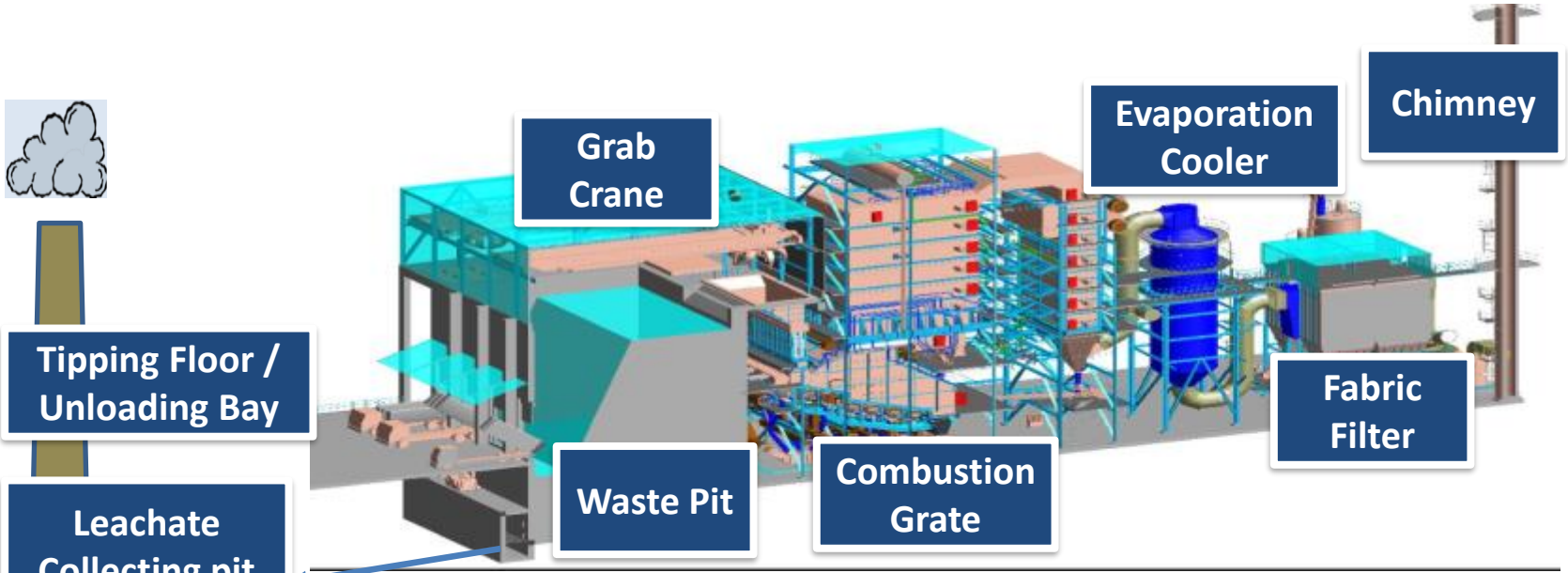


Hydrated lime, water and Lignite Coke

Feed Water

Waste

Clean Flue Gas

Fabric Filter

Evaporation cooler

Steam Boiler

Grate Combustion System

Residue

Boiler Ash

Steam

Air

Bottom Ash

Electric Power

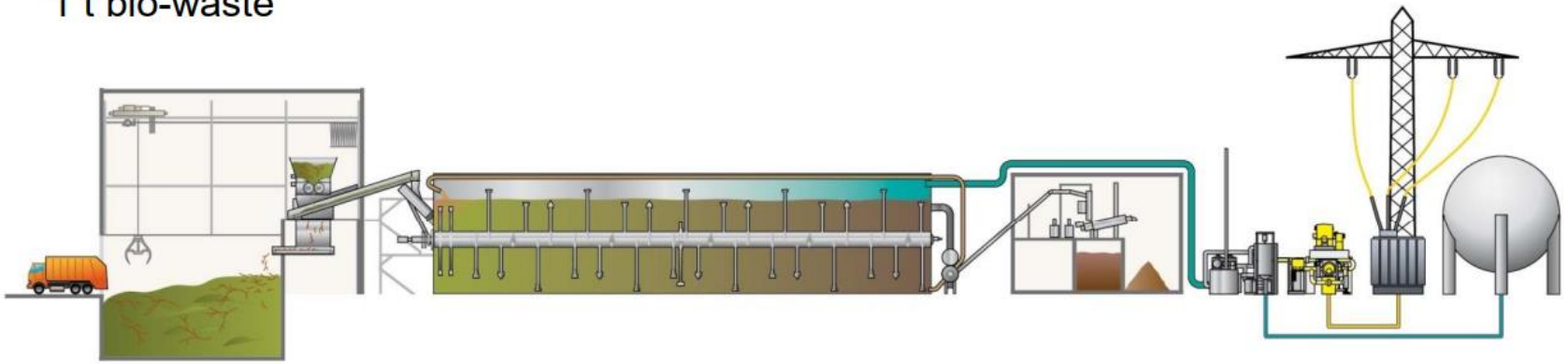
Heat Utilization

Concept of Dry AD – Kompogas Technology

Food Waste

Green Waste

1 t bio-waste



Compost
Soil conditioner / Fertilizer

60 Nm^3 Bio-Methane
replaces 60 l Petrol

or

250 kWh electricity

Why Hitachi Zosen?

WtE + Biogas

Hitz
Hitachi Zosen

- Hitachi Zosen Corporation has been established on **May 29, 1934**, having head office at Osaka, Japan. Originally founded by **Mr. EH Hunter** in the year **1981 on 1st April**.
- Hitachi Zosen Corporation is having the capital of **332 million USD** as of March, 2022 and net sales of **3,225 million USD** as of FY2021 with an employee strength of 11,540 as of March, 2022.
- **Composite solution of WTE and Bio-gas**, adopting the best technologies adhering to the stringent EUROPEAN norms and also **Latest SWM Rules 2016** to generate **maximum energy** and minimal landfill.
- Installed more than **1350 WTE plants** across the Globe, with **130 Years** of WTE experience.
- Largest **WTE plant of 5000 TPD** is under construction at Dubai
- Our unique KOMPOGAS plug flow system is superior to all other technologies accepting higher **impurity content of 20%** and very less **reoculation rate of 5%**. Kompogas Technology can be operated with different types of organic waste.
- Around **100 Bio-gas** installations across the Globe.
- Largest Dry-AD Kompogas (Bio-Gas) plant constructed in **Doha with 825 TPD**.
- Strong, well committed and easily accessible engineering, SCM, QM, Project management and Site management set-up to execute the projects within the stipulated time frame with widest range of reputed suppliers.
- Hitachi Zosen as a Group is spread across **10 Domestic offices & 7 works in Japan and 60 Overseas offices & group companies**.
- Established office set-up in Hyderabad with **end to end** solutions in catering the **WTE and Bio-gas** requirements to India and Indian Sub-continent with **90% of Plant** and machinery are being **sourced in India**, to encourage the **"MAKE IN INDIA"** concept.

Industry Problems – Recommendations by Hitz India

- The major Industry problems are highlighted as below

  1. Dedicated funding mechanism
  2. Things to be addressed under PPP model
  3. Effective Segregation system

- **Dedicated funding mechanism:**
  - There should be a separate funding wing specially to cater the financing needs of WTE under the central ministry. Through the central ministry the fund flow to the respective municipal corporation at a cheaper interest rate for ensuring the effective implementation of the ISWM (Integrated Solid Waste Management) projects. Municipal corporation should come forward and act as the developer with the direct funding from the central ministry; this will avoid the third party entry and their profit, which may become burden for the project implementation.
- **Things to be addressed under PPP model:**
  - There should be a fixed revenue stream for viability of the project. As the waste is heterogeneous in nature with variation in calorific value, often resulting into the variation in the power output. Hence, all the WTE plants are to be awarded on the basis of Tipping fee with year on year escalation along with reasonable PPA rate for the power produced.
  - WTE industry to be brought under GST free category. IDC waive off or reduced interest rate to be considered for achieving the commercial viability. Early realisation of power sale from Discom.
  - A special single window approval mechanism to be developed to avoid the delay in the statutory approvals. It is highly recommended to take care of all the statutory approvals by the municipal corporations. This will reduce, the pre-operative cost and its interest.
- **Effective Segregation system:**
  - This is to be mandatorily implemented and audited in integrated waste management. This will ensure the effective utilisation of different waste by adopting best technologies: Incineration for combustibles, Bio-Gas for Biodegradables and MRF for material recovery to promote the circular economy, enhance the maximum energy generation and minimise the landfill.