3. SEMARANG CITY WASTE TO ENERGY (WTE)

**Project Profile**

<table>
<thead>
<tr>
<th>Location</th>
<th>Jatibarang Landfill, Semarang, Central Java</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Investment</td>
<td>US$100 million</td>
</tr>
<tr>
<td>Financial Scheme</td>
<td>Public Private Partnership (PPP)</td>
</tr>
<tr>
<td>Project Owner</td>
<td>Mayor of Semarang</td>
</tr>
<tr>
<td>Construction/Operating</td>
<td>2021 / 2023</td>
</tr>
<tr>
<td>Waste / day</td>
<td>1000 ton/day</td>
</tr>
<tr>
<td>Electric capacity</td>
<td>15-17 MW</td>
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**PPP PROJECT OVERVIEW**

**Scope of PPP:**
- Design, Build, Operate, and Maintain the WtE Facility or related activities of a WtE
- Design, Build, Operate, and Maintain the Supporting Infrastructure for a WtE Facility
- Conduct Site Preparation and Soil Investigation
- Installation of transmission line
- Manage Corporate Social Responsibility
- (CSR) during construction

**Payment Mechanism:**
- Availability Payment (AP) basis and Performance Based Penalties
- The GCA has indicated that Semarang Municipality has the ability to pay a Tipping Fee IDR 100 billion
- Right to sell electricity to PLN with Feed in Tariff of USD 13.35 cent/kWh
- Right to sell other residues/by-products

**PPP Period:**
20 years plus 3 years construction period

**Notes:**
1. At this stage, assuming that the Project sells electricity, PLN suggests that the IBE will be responsible to Design, Build, Operate, and Maintain the transmission line.
2. Circular Letter from MOHA on the Acceleration of WtE Project Development was issued on 22 July 2019, which clarifies that the Tipping Fees must be considered as AP.
1. Availability Payment
AP is a regular payment by Minister/Head of Agency/Head of Regional or City Government to the IBE for the availability of infrastructure services that are in accordance with quality and/or requirements determined in the PPP agreement.

2. Feed in Tariff (FiT)
FiT is the tariff per kWh that will be purchased by PLN through the PPA.

Note:
* PT PLN’s involvement and a Power Purchase Agreement (PPA) is required only for WtE technology option producing electricity.
Layout of Jatibarang Landfill

- Old Landfill Zone (Non-Active) 2.68 Ha
- Geo Membran Covered Zone for Landfill Gas Zone 9.25 Ha
- Active Landfill Zone 1.50 Ha
- Site 5 Ha
- Landfill Gas Power Plant
- Empty Zone 1.06 Ha
- Active Landfill Zone 3.5 Ha
- Water Intake for Water Supply Semarang
- Leachate Pool

TPA Jatibarang
Landfill Gas Zone
Active Landfill Zone
Active Landfill Zone
Water Intake for Water Supply Semarang & Leachate Pool

Google
The total amount of MSW generated in Semarang in 2017 is estimated at 1,022 tonnes/day.
Based on the current solid waste disposal, TPA Jatibarang will only be sufficient to accommodate the incoming waste for another two years.

This Project is one of the National Strategic Project (Proyek Strategis Nasional/PSN) under Presidential Regulation (Perpres) No. 3 of 2016.
Perpres No.38/2015 on the Cooperation between Government and Business Entities for the Provision of Infrastructure.

Responsibilities between the GCA, PLN, and the Private Sector for WtE

<table>
<thead>
<tr>
<th>Scope</th>
<th>Construction</th>
<th>Financing</th>
<th>Operation</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>WtE Facility</td>
<td>IBE</td>
<td>IBE</td>
<td>IBE</td>
<td>IBE</td>
</tr>
<tr>
<td>Supporting Infrastructure of WtE Facility</td>
<td>IBE</td>
<td>IBE</td>
<td>IBE</td>
<td>IBE</td>
</tr>
<tr>
<td>Transmission Line (for WtE)</td>
<td>IBE</td>
<td>IBE</td>
<td>PLN/IBE¹</td>
<td>PLN/IBE¹</td>
</tr>
<tr>
<td>Provision of sites for Project and Fly Ash – Bottom Ash (FABA) Landfill</td>
<td>GCA</td>
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<td>Waste Supply</td>
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<td>GCA</td>
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Note: 1. At this stage, PLN suggests that the IBE will be responsible for designing, building, operating, and maintaining the transmission line. This is to be further discussed with PLN and GCA.
The proposed Minimum Requirements of the Project includes:
1. Comply with relevant legislations in Indonesia.
2. A proven technology with a proven track record of successfully processing waste with compositions similar to that of the Project, and resilience to changes in waste composition.
3. A technology proven to reduce the waste by more than 80% of accepted MSW through the facility on a mass basis.
4. Control of emissions compliant with the better of international or Indonesian Standards.

The proposed Output Specifications of the Project includes, as a minimum:
1. To provide reception facilities that can quantify and monitor quantity and quality of waste delivered to the facility.
2. To process around 1,000 tpd of MSW through the facility.
3. Divert a minimum of 80% on a mass basis of Accepted MSW from Landfill per year through the Facility.
4. Operate for 20 years and meet, at a minimum, the equivalent of the higher of international or Indonesian environmental standards for air emissions.

The GCA is willing to consider other waste technology (i.e. non-WtE) options, as long as it address the proposed Output Specifications of the Project.
Potential Project Structure

Note:
* PT PLN's involvement and a Power Purchase Agreement (PPA) is required only for WtE technology option (Non-WtE technology does not require a PPA with PT PLN)

CONTACT
Interested parties may contact the following person for further information or queries.

<table>
<thead>
<tr>
<th>Name</th>
<th>Ismet Adipradana</th>
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<tbody>
<tr>
<td>Agency</td>
<td>Regional Planning Agency (Bappeda) of Semarang City</td>
</tr>
<tr>
<td>Phone</td>
<td>+62 822 2558 7162</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:bappeda@semarangkota.go.id">bappeda@semarangkota.go.id</a>; <a href="mailto:ismetadipradana@semarangkota.go.id">ismetadipradana@semarangkota.go.id</a></td>
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