TUASONE
WASTE-TO-ENERGY PROJECT

FACTS & FIGURES

Client: National Environment Agency (NEA), Singapore
Developer: Hyflux Ltd and Mitsubishi Heavy Industries Ltd
Location: Tuas, Western Singapore
Project Description: Develop a waste-to-energy plant under a Design-Build-Own-Operate scheme and to provide waste treatment services exclusively to NEA for a 25-year period
Project Value: SGD750 million
Incineration Technology: Mitsubishi Reverse-Acting Stoker System
Capacity: 3,600 tonnes of waste per day
Online: 2019
Land Area: 4.8-hectare

Special Features:

a) Generate 120 MW of clean and renewable electricity
b) Best land utilisation factors in terms of incineration capacity per unit floor area
c) One of the most efficient in terms of energy recovery per unit waste incinerated in the world

www.hyflux.com
Hyflux has expanded its businesses to include providing clean and renewable energy from solid waste. This project is Hyflux’s first Waste-to-Energy (WTE) plant, Singapore’s sixth, and will be able to generate 120 MW of clean and renewable electricity, and process 3,600 tonnes of waste per day when completed in 2019.

As project lead, developer and system integrator of the project, Hyflux leverages on its proven multi-disciplinary capabilities from R&D to engineering, procurement and construction (EPC) and operations and maintenance (O&M). In this project, the company is in charge of EPC works, undertaking both in-house Civil, Structural and Architectural works and installation of the entire waste incineration plant, including stoker system, boilers, turbine-generators, flue gas treatment, ferrous metal recovery and the HT/LT electrical system.

In addition, Hyflux oversees all Balance of Plant (BOP) works such as security, chimney and cooling water system, including the design and installation of its state-of-the-art Demineralisation and Leachate Treatment systems.

**Stoker Grate System**
The proposed incineration technology is the Reverse-Acting Stoker System which has a long and proven global track record. In Singapore, the reverse-acting stoker system is effectively employed in three waste-to-energy plants. The oldest plant, Tuas WTE Incineration Plant, has been in successful operation for over 28 years. The system ensures that drying and ignition are completed within a short period, and the dynamic effects of the reverse-acting movements also ensure that the plant achieves high combustion efficiency (i.e. minimal carbon content in the bottom ash) and high availability in terms of incineration capacity.

**Flue Gas Treatment System**
Each Thermal Processing Unit will have a dedicated flue gas treatment system designed to treat flue gases to comply with the Environmental Protection & Management (Air Impurities) Regulations 2001, the Code of Practice for Pollution Control SS 593:2013 and their respective revised air emission limits. In this project, the main treatment processes are selective non-catalytic reduction (SNCR) to reduce NOx concentration in the flue gas and the dry catalytic fabric filter system that removes dust particles, acidic and other gaseous pollutants.