

Demonstration of an electricity generation system from sewage biomass source

Project Implementer

Consortium between Wakayama City, Japan Sewage Works Agency, Kyoto University, Nishihara Environment Co., Ltd. and Takuma Co., Ltd

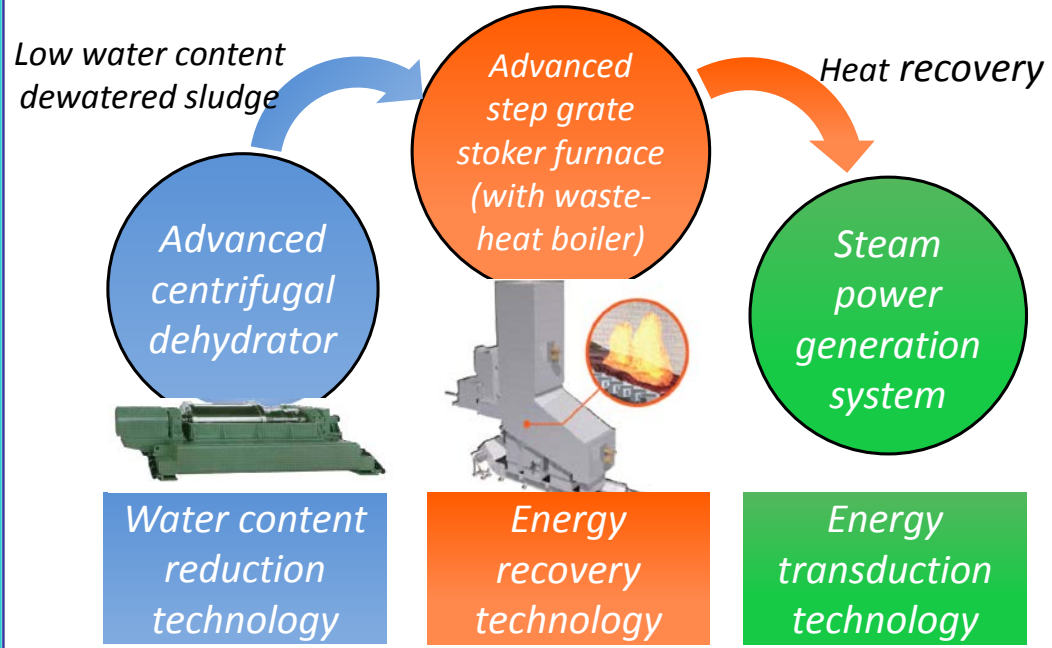
Demonstration Site

Wakayama City Central Wastewater Treatment Plant

Demonstration Overview

Demonstration of the energy production system based on sewage sludge incineration by combination of **Advanced centrifugal dehydrator**, **Advanced step grate stoker furnace with waste-heat boiler** and **Steam power generator**

【Technology Concept】



Advanced centrifugal dehydrator

「Increase in heating value of dewatered sludge」
 Reduction of the water content of dewatered sludge by seven to ten points
 ⇒ Heating value is twice as high as before

Advanced step grate stoker furnace with waste-heat boiler

「Energy recovery」

- Stable combustion with No auxiliary fuel, Low power consumption and Low N₂O emissions
- Production of steam from off-gas using waste-heat boiler

Steam power generator

「Energy production」
 Cascade use of steam (Combination of screw-type generator and Organic Rankine Cycle generator)

Energy reduction

- Self-sustained combustion operation
- Low power consumption

Reduce greenhouse gas emission

- Significant reductions of N₂O emissions in exhaust gas, CO₂ emissions from fossil fuel and electricity

Energy production

- Power generation in small- and medium-scale
- Supplying surplus power outside in large-scale