

Demonstration Project on the Efficient Energy Utilization Technology Using High-solids Anaerobic Digestion and Energy-saving Biogas Purification

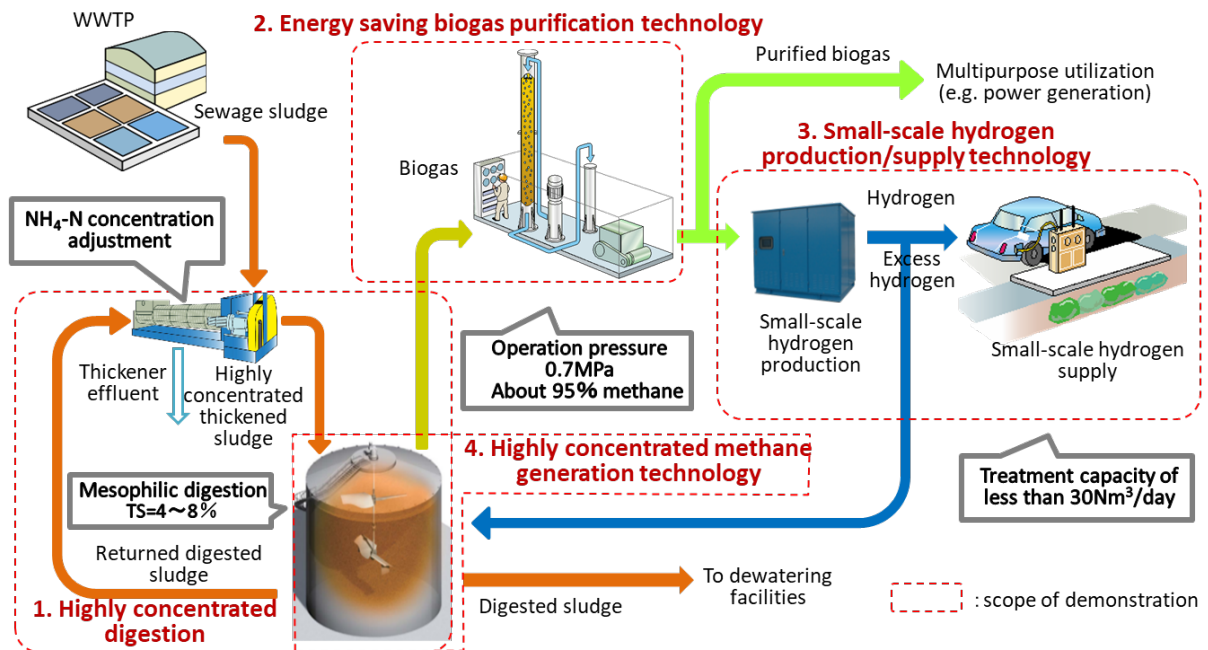
Implementer: The consortium of Kobelco Eco-solutions, Co., Ltd., JS, and Fuji City

The efficient energy recovery/utilization system combined methane fermenter, biogas purification facilities, and small-scale hydrogen production/supply device

Technology Overview

Maintains the same level of digestion and dehydration by increasing inner concentration of the digestion tank to more than twice that of conventional systems and adjusting the $\text{NH}_4\text{-N}$ concentration. By reviewing the scale of the facility, **no qualified personnel** and **legal inspections** are required.

1. Cost reduction by reducing digestion capacity to one third
2. Improved energy conversion rate: Allowing for multiple energy uses in a medium-scale facilities
3. Supplying hydrogen for fuel cell vehicles for small-scale new demand



Achievements

- Total cost (annual construction cost + maintenance cost) reduction: **10%^{*1}**
- Increase in total energy output: **20%^{*1}**
- Digestion performance: **gas yield 500Nm³/t-input VS^{*2}**

*1: Based on the results of FS for 50,000 m³/day (8.5 t-DS/day) in a virtual treatment plant (with anaerobic digestion and power generation)

*2: When the VS load supplied into the digestion tank was less than 4.4 kg/m³/day maximum