



Industrial processes generate large volumes of wastewater requiring energy intense treatments, and final waste incineration. This causes significant CO₂-emissions.

With the EffiSludge concept, the energy demand for the treatment is reduced resulting in lower CO₂-emissions. Easy degradable bio-sludge is generated and digested to biogas.

Co-digestion of bio-sludge with local organic waste and residues supports efficient biogas production and nutrients recovery. This accounting for additional carbon saving.

The project

Wastewater Treatment 20 000 m³ treated per day, in a system with two External Circulation Sludge Bed (ECSB) reactors followed by the aerobic step where the age of the bio-sludge will be reduced from 15-18 days to 5-8 days. This will save energy through lowered aeration demands and, at the same time, producing a bio-sludge suitable for anaerobic digestion.

Biogas up to 125 GWh per year is generated from the ECSBs and two semi-Continuous Stirred Tank Reactors (CSTR) co-digesting the bio-sludge and fish waste.

Nutrient recovery is accomplished by recirculating reject water from the CSTRs into the WWT as main source of nutrient thus replacing urea and phosphoric acid. The digestate from the CSTRs can replace chemical fertilizers.

Carbon savings up to 500 g CO₂ per m³ of wastewater*:

- ✓ reducing energy input thanks to reduced sludge age
- ✓ reducing external dosing of chemicals thanks to nutrients recirculation
- ✓ replacing sludge incineration with biogas production
- ✓ providing sustainable fertilizer
- ✓ supporting circular economy and industrial symbiosis



*Expected results to be validated within the project period. Started in 2015, the project is expected to last until December 2019. Stable biogas production will be achieved during 2018.

A demonstration project implemented at Skogn, Norway, in one of the largest European newsprint mills exporting paper worldwide.

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A cooperation between



Scandinavian Biogas Fuels AB
Holländargatan 21A SE-111 60, Stockholm
www.scandinavianbiogas.com/effisludge

Disclaimer:

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LIFE Climate Change Mitigation
2015 –2019



To improve resource and energy efficiency in treatment of industrial effluents while generating biogas.

