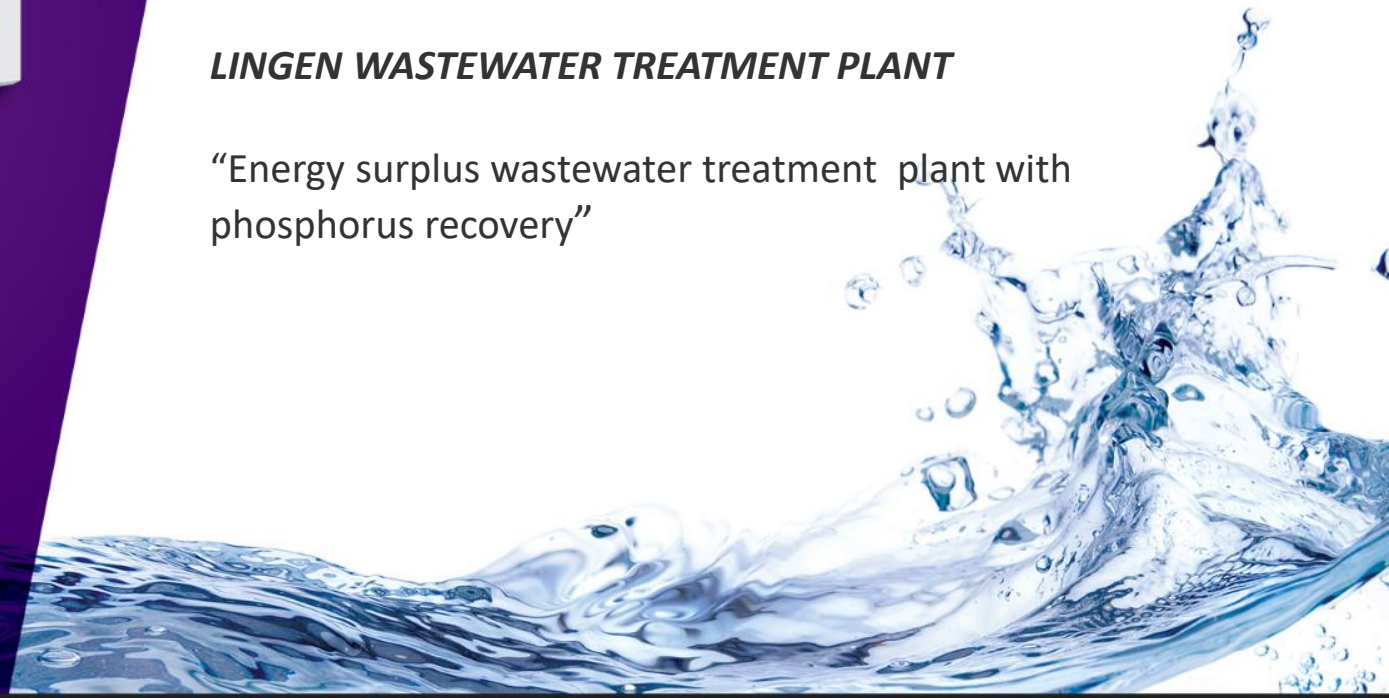
OVIVO
Worldwide Experts in Water Treatment

CASE STUDY

LINGEN WASTEWATER TREATMENT PLANT

"Energy surplus wastewater treatment plant with phosphorus recovery"



MUNICIPAL SEWAGE TREATMENT WORKS, LINGEN

Lingen's municipal sewage treatment works, with 30 employees, ensures wastewater from the town of Lingen and neighboring districts in Germany's Emsland region, is collected and treated. The upgrade of the treatment plant is designed for 195,000 PE, treating around 14,000 m^3 per day of wastewater.

PROJECT

As part of a project funded by the Federal Ministry for the Environment, Nature Conservation and Reactor Safety (BMU) and the KfW banking group, the Lingen wastewater treatment plant is to be converted into a "energy surplus wastewater treatment plant with phosphorus recovery". The intention is to not only achieve self-sufficiency in electricity and heating, but to also generate a 25% surplus of electrical energy by using the co-fermentation of highly polluted wastewater from the production of biodiesel.

Digestion will be enhanced by utilizing the LysoTherm® system for the thermal disintegration of secondary sludge. The separate digestion of primary and secondary sludge (LysoGest®) allows increased phosphorus recovery from the sludge flow using Magnesium Ammonium Phosphate (MAP, struvite) precipitation and improved digestion performance with the EloPhos® system.

These measures will be supplemented by the installation of new more efficient combined heat and power plants (CHPs) and the use of high-temperature thermal oil exhaust gas heat exchangers for operation of the LysoTherm® system.

IMPLEMENTATION

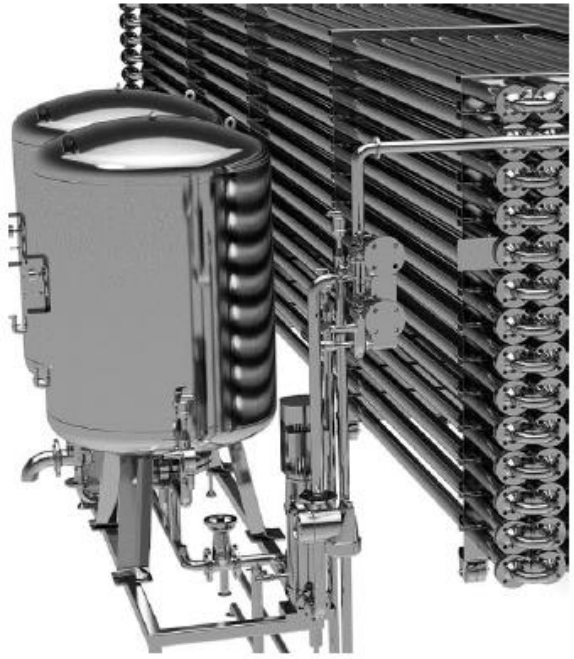
The project comprises all contract services from design and planning, through delivery, construction and commissioning, to full warranty cover. It is based on the use of the LysoTherm® technology for thermal disintegration of sludge, the LysoGest® process for separate digestion of primary and secondary sludge, and the proprietary technology EloPhos® (patent pending) for phosphorus recovery from the sludge flow.

SOLUTIONS

- Additional mechanical thickening of the primary sludge
- LysoTherm® system with a processing capacity of approx. 3,500 kg DS/d
- LysoGest® process for separate, highly efficient digestion of primary and secondary sludge
- EloPhos® system for the struvite precipitation out of digested sludge with a maximum throughput of 10 m³/h
- Installation of a centrifuge for dewatering of digested sludge
- Biological digester gas desulphurization
- 2 CHPs with an electrical output of 300 kW each, plus thermal oil exhaust gas heat exchangers

RESULT

The wastewater treatment plant at Lingen will be converted into a energy surplus wastewater treatment plant. The increase in gas production, the reduction in the amount of sewage sludge and the recovery of phosphorus bring considerable cost-advantages.



LysoTherm- Quality In Stainless Steel

AT A GLANCE

By implementing a variety of technologies, the capacity and performance of the digestion plant will be greatly enhanced and the amount of sewage sludge for disposal significantly reduced.

LysoTherm®
Efficient and low-cost sludge disintegration

EloPhos®
Struvite precipitation for phosphorus recovery from the sludge flow

LysoGest®
Optimal sludge flow management with phosphorus recovery

Construction Period: 2012 - 2016