

Cost-efficient capacity expansion of Viby wastewater treatment plant

Using model-based process optimisation and advanced control strategies to minimise infrastructure changes

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33% capacity expansion



Improved process stability



Less than EUR 2 million invested

Challenge

Aarhus Water has planned to increase the capacity of Viby wastewater treatment plant (WWTP) in order to ensure stable and efficient treatment performance. Due to the WWTP's expected short lifetime (10–15 years), a cost-efficient capacity expansion should be achieved with minimum infrastructure interventions.

Solution

In partnership with NIRAS A/S, TechRas Miljø ApS and EssDe GmbH, DHI provided a solution relying on optimisation of existing processes to achieve the desired increased capacity while minimising capital expenditures. A new optimal operational strategy was identified and tested using WEST. The strategy involved conversion of existing tanks and implementation of real-time control combined with innovative granular sludge technology.

Solution highlights

- Using process expertise to identify interventions
- Using process modelling for time-efficient evaluation of alternatives
- Identifying a new operational strategy



'The expansion of Viby WWTP during 2019-2020 has ensured improvements in effluent quality during peak loads and in the sludge quality. These outcomes have been achieved through a very constructive collaboration between the partners who provided the right solutions to achieve the desired end result.'

Flemming B. Møller
Project Manager
Aarhus Water



Contact: mike@dhigroup.com



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