

Achieving 50% carbon footprint reduction by 2025

Explore how a WRRF plans to reduce emissions based on technology assessment and model simulations

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Improved effluent quality

< 10mg/L Total Nitrogen
< 5mg/L Total Phosphorus



Reduced carbon footprint

60% energy neutral operation
achievable



Annual savings

Estimated to be USD 293,000

Challenge

West Lafayette's water resource recovery facility (WRRF) committed to minimise their city's impact on climate change by reducing carbon footprint by 50% before 2025 and continuously improve the quality of effluent discharged into the Wabash River. Improvements were to be implemented with minimal modifications to existing infrastructure.

Solution

DHI developed an optimisation plan following a systemwide approach to evaluate current operation of the WRRF. Through the use of DHI's simulation software, WEST, plant process modelling was completed in order to develop and test real-time control strategies for aeration in a virtual environment. Additionally, operational modifications for anaerobic digester optimisation showed the potential to double the power harvested from biogas.

Solution highlights

- Nutrient-based aeration control
- Biological phosphorus removal
- Anaerobic digester and biogas harvesting optimisation
- Carbon footprint analysis

WEST LAFAYETTE



'DHI has provided WEST Lafayette with a roadmap to our goals. Our vision of being energy neutral while still maintaining excellent effluent seems achievable now.'

Dave Henderson
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