CYIENT | Hafslund Celsio

Nothing Less



Accelerating Oslo's decarbonization through intelligent carbon capture engineering

Business challenge

To support the City of Oslo's decarbonization goals, Hafslund Oslo Celsio sought to cut emissions from its waste to energy facility through a Carbon Capture and Storage programme that could integrate with live operations and the existing district heating network, while remaining technically sound, economically credible, and ready for EPC execution.

Key challenges included:

- Integrating carbon capture into an operating waste to energy plant without disrupting live operations
- Connecting the solution to the district heating, heat recovery, and utility systems
- Evaluating and selecting appropriate carbon capture technologies
- Optimising design and costs to strengthen the business case and funding submissions
- Advancing the programme from pilot scale towards large scale deployment

Overview

Oslo has set ambitious climate targets to significantly reduce carbon emissions and become a low emission city. Hafslund Oslo Celsio, one of Norway's largest district heating providers, plays a central role in this ambition through the deployment of carbon capture technology at its waste to energy facilities.

Cyient partnered with Hafslund Oslo Celsio to support the engineering and development of a large-scale carbon capture project, contributing technical expertise across multiple project phases to enable a viable and energy efficient solution.

What we did

We served as owner's engineer, delivering multidisciplinary engineering and intelligent design across the early lifecycle of the programme.

Owner's engineering role

Delivered engineering support across concept, pre-FEED, and FEED, ensuring continuity from early definition through design maturity.

Technology evaluation

Completed technology assessments to support informed selection of carbon capture approaches and providers.

Balance of plant design

Designed balance of plant systems, integrating heat, cooling, and utilities with the operating district heating network.

Integration with live operations

Engineered solutions for seamless integration with existing waste to energy operations and infrastructure, maintaining operational stability.

Design and cost optimization

Led optimization initiatives to reduce costs, improve technical efficiency, and strengthen EPC readiness.

Funding and business case

Strengthened the EU innovation fund submission through improved technical definition and economic justification.

The results

Cyient enabled Hafslund Oslo Celsio to mature an EPC ready carbon capture design that integrates with live waste to energy operations and the district heating network.

EPC execution readiness

Design maturity progressed towards EPC execution readiness.

Improved cost credibility

Cost optimization strengthened the business case for execution.



Scale up target defined

Carbon capture solution engineered to target 3,50,000 tonnes of CO_2 per year, building on the February 2019 pilot towards large scale deployment.

District heating aligned

Heat and utility integration aligned with the operating district heating network.

Funding submission strengthened

EU innovation fund inputs reinforced with robust technical and economic justification.

Voice of our customer

We have highly appreciated Cyient's partnering attitude, expertise, and quality of deliverables throughout the project's different demanding phases.

Jannicke Gerner Bjerkås,
Director CCS, Hafslund Oslo Celsio

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