Fortum Oslo Varme and our Carbon Capture Project

Fortum Oslo Varme's waste-to-energy CCS project provides a blueprint for cities across Europe on how to best deal with non-recyclable waste, while producing heat and electricity for city inhabitants and meeting ambitious greenhouse gas emission reduction targets.

Fortum Oslo Varme's CO_2 capture project

Can capture 400,000 tonnes CO_2 per year. This is the equivalent of the emissions from around 200,000 cars and will reduce Oslo's emissions by 14%, making it essential for reaching the city's ambitious climate goals.

Will produce negative emissions. 50% of the waste handled is of biological origin, meaning that when we capture it, the CO_2 will be taken out of the atmosphere. This is also known as Bio-CCS, something which the European Commission, the UN and the International Energy Agency all state is paramount to reaching the world's climate targets.

Handles the city's waste sustainably. We treat 400,000 tonnes of waste per year, that cannot or should not be recycled, such as medical waste, toxic plastics and residual waste.

Reuses the waste's energy to produce heat and electricity. Currently, Fortum Oslo Varme covers the heat demand from 160,000 housing units in Oslo, equalling 20% of the city's heat demand, through its district heating system.

Can be replicated to almost 500 similar plants in Europe. The project in Oslo is the most mature waste-to-energy with CCS project in the world. When realised, it will be a state-of-the-art facility providing circular waste handling, district heating and negative emissions, and a model plant for European cities aiming to reduce emissions and solve their waste problems.

Is safe and tested. We have conducted a 5,500-hour pilot test on our flue gas and achieved up to a 95% capture rate. In addition, our technology supplier Shell has experience from full-scale carbon capture in Canada.

Why waste-to-energy with CCS?

- 2.2 billion tonnes of waste is produced every year, and this is expected to double by 2025.
- Household waste alone accounts for 5% of global CO_2 emissions.
- Waste incineration reduces emissions by 75% compared to landfills, and with CCS the last 25% can be removed and even go carbon-negative.
- The world must transition from landfills to waste sorting, recycling and energy recovery of residual waste that cannot, or should not, be recycled.
- In the EU alone, approximately 100 million tonnes of waste is landfilled every year. If this was handled with waste-to-energy and CCS, Europe could reduce its CO_2 emissions by 90 million tonnes per year.
- With the EU's increased targets for material recycling and landfill reduction, the EU would still lack waste-to-energy capacity of at least 40 million tonnes, or 100 Fortum Oslo Varme plants.
- Waste-to-energy is a necessary supplement to sorting and recycling. It plays an important role in the circular economy by manging waste that must be taken out of the cycle, and it ensures that we recycle the waste's energy in a sustainable manner.

Fortum Oslo Varme

Fortum Oslo Varme is 50/50 owned by Fortum and the City of Oslo.

Fortum Group is one of the leading heat producers globally with a number of combined heat and power (CHP) plants for energy recovery and district heating, focusing on sustainable urban development and the circular economy in Europe.

The focus on reducing CO_2 emissions has been in Fortum's DNA for decades. Our carbon exposure is already one of the lowest within the European power generation industry. Our mission is to engage our customers and society to drive the change towards a cleaner world.

Our role is to accelerate this change by reshaping the energy system, improving resource efficiency and providing smart solutions.

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STATUS Fortum Oslo Varme's CO_2 capture project

- *21 September 2020, the Norwegian Government proposed to realise its full-scale carbon capture project and named it "Langskip" (referring to the Viking longships). The project consists of a full CCS value chain, from capture to transport and storage, and includes several industrial actors. Fortum Oslo Varme received a conditional offer of NOK 3 billion (approx. euro 300 million), provided that the project secures sufficient own funding as well as funding from the EU or other sources.*

- *The Norwegian Parliament will make its investment decision in the autumn of 2020; depending on the degree of funding and FOV's success in other funding mechanisms, the capture plant can be ready between 2024 and 2027.*

- *The project is an "oven-ready" CCS project that is ready to be the first full-scale waste-to-energy plant in the world with CO_2 capture. The project has successfully conducted its FEED studies, operated a pilot plant for 5,500 hours and achieved a stable capture rate of 90-95%. It will demonstrate CO_2 transport to port with emission-free trucks, and is ready to take the role as a leader for cities aiming to solve their waste problem and substantially cut their emissions.*

fortum

PROSJEKT CCS
KARBON-FANGST
OSLO

Oslo kommune