

Kårstø FEED Study



Kårstø will be the largest CO₂ separation facility using gas turbine exhaust gas as the CO₂ source.

Bechtel and HTC Pureenergy performed a front-end engineering and design (FEED) study for a CO₂ capture and compression facility at Kårstø, Norway.

Prepared for Gassnova SF (a state-owned company established by the Norwegian Ministry of Petroleum and Energy), the study addresses the facility's design basis; process; equipment; physical design; environmental, safety, and health factors; construction; and startup. The study results include a cost estimate and identify potential technology improvements and life-cycle cost savings.

The Kårstø facility is designed to capture 85% of the CO₂ emissions (over 1 million tonnes per year) of an adjacent 420 MW gas-fired power plant in southwest Norway. Once completed, Kårstø will be the largest CO₂ separation facility ever constructed that treats gas turbine exhaust gas.

PLANT CONFIGURATION

The design employs a post-combustion chemical absorption process. The facility incorporates an amine-based CO₂ capture plant along with a CO₂ compression plant that dehydrates and liquefies the CO₂ which will be pumped to an offshore oil field.

Major facility equipment includes absorber towers; stripper tower; reboiler; reclaimers; overhead stripper condenser; heat exchangers; gas dehydration and compression; and associated pumps, tanks, electrical distribution, and controls.



Location:

Kårstø, Norway

Customer:

Gassnova

Scope of Services:

FEED study

Project Completion:

2009

Design Capacity:

3,100 tonnes of CO₂/day

Significant Features/ Accomplishments:

- Largest CO₂ separation facility using gas turbine exhaust gas as CO₂ source
- Expected to reduce CO₂ emissions by 85%
- Non-corrosive materials design throughout
- Low capital cost
- Low life-cycle CO₂ capture/compression cost