

CO2 Capsol

A Proven, Cost Competitive Carbon Capture Technology

OSLO, 27 SEPTEMBER 2022

Ready-to-scale carbon capture technology

- CO2 Capsol AS established in 2015
- CO2 Capsol has developed a cost-effective carbon capture technology which could be a major contributor in combatting climate change
- CO2 Capsol licenses out its End-of-Pipe (EoP) technology, either directly to emitters or through global distribution partners
- The technology is based on a potassium carbonate solvent and applicable to all CO₂ intensive industries worldwide
- Key target segments include cement, biomass, energy-from-waste, power generation and large industrial facilities
- Three successful pilot projects to date with 3,300+ operational hours, >99% uptime and 90-95% capture efficiency

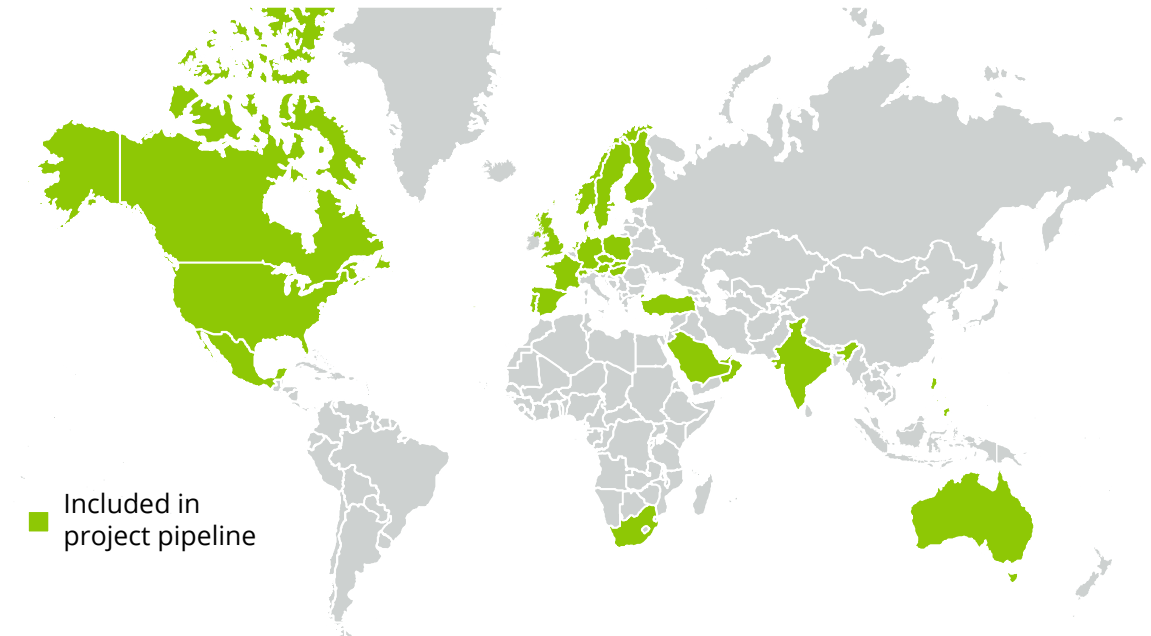
Tech. Initiated
2003

Invested
NOK ~500m

Euronext
CAPSL

Employees
15 + (growing)

...gaining global commercial traction



Global interest from
20+ countries

~5-10 inbound
leads/week

50+ active leads
totalling 20+ million
tons CO₂/year



Proven technology in more than 700 plants globally

Applied for CO₂ or H₂S removal in Natural Gas Plants; Vinyl Acetate Monomer (VAM) Plants; Ethylene Oxide (EO) Plants; Methanol Synthesis Plants. Fossil Fuel Power Generation, Incineration Plants, Pulp Mills, Fluid Catalytic Cracking (FCC) Gas, EOR.



Long history, back to the 1950s

Originally developed for CO₂ removal from coal gasification, licensed as the Benfield process.



High energy demand issue solved with Capsol EoP™

With the combination of the internal heat recuperation and steam generation, as well as the utilisation of a turboexpander package, lowest Capture costs are achieved.



Strong HPC experience within team of CO₂ Capsol

Building center of excellence for clients around the globe

Patented heat recuperation process with potassium carbonate

- CO2 Capsol's EoP (End of Pipe) technology is maximizing efficiency of the absorption/desorption process
- Near zero emission to air and low degradation

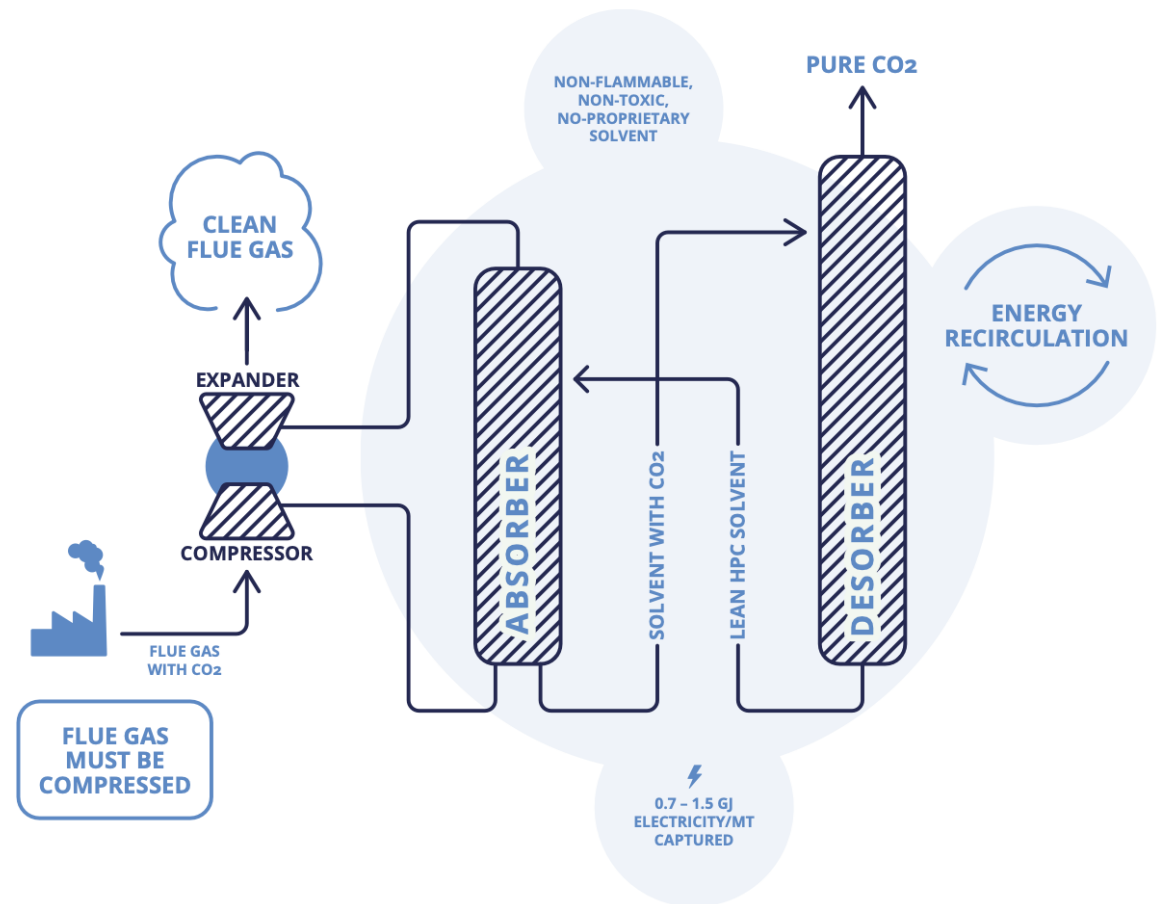
High-purity CO2

- The captured carbon dioxide can be liquified and further processed
- Suitable for use in chemical processes or storage

Proven through successful pilots

- Three pilot projects completed with more than 3,300 operating hours and >99% uptime¹
- 90-95% CO2 capture efficiency

1): Coal plant in the US, bio plant in Sweden and a Stockholm Exergi plant





Demonstration unit: CapsolGo™

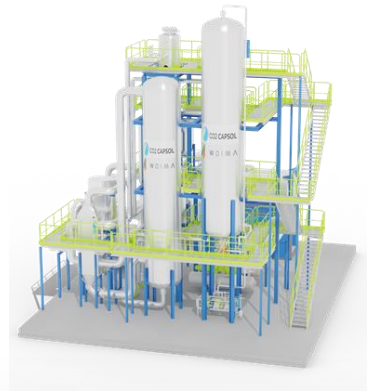
700 tons CO2/year

Verify technology with client's flue gas to reduce uncertainties and risks before full-scale project

Capex of EUR 1.5-3 million

Mobile – can be used for several clients

Will provide annual revenue, foothold in project and increase technology track record



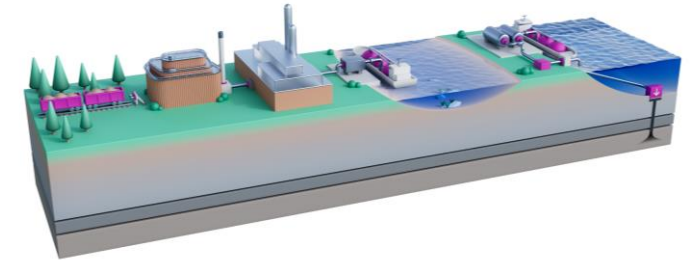
Small-scale

+/- 100,000 tons CO2/year

Potential for module-based plants

Flexible delivery model

Revenue model range from licensing to as-a-service (with partners)



Large-scale

250,000+ tons CO2/year

Licensing of technology – delivery together with partners

Revenue model (EUR per ton captured)

% of capex as license fee in instalments

Paid engineering

Non exclusive partnerships:

EPC provider for licensing model



International EPC provider for Energy and Infrastructure Projects with broad inhouse capabilities to deploy Capsol EoP across regions and application areas.

Development & supply cooperation



The focus of the cooperation lies in the development and supply capability of small-scale modular carbon capture solutions primarily in connection with the waste-to-energy power plant deliveries.

Testing, validation & expertise



Captimise AB is a specialist within CCS with deep knowledge and over 15-year experience of CCS projects in USA and Europe.

Advanced discussions



...ongoing with several global industrial leaders to implement CO2 Capsol's technology.

2 fully equipped 20ft containers

- Absorber and desorber columns
- Flue gas compression
- Instrumentation
- Control terminal
- Piping, insulation and trace heating
- Air cooling unit
- Absorbent tank
- Ready to catch
- ...



Carbon capture with potassium carbonate

- Utilising CO2 Capsol's EoP technology

Heat recuperation

- Capsol EoP on small scale (CF+LF)

0,5 – 2 t/day of CO₂ captured

- Catch & release, utilisation possible



In September 2022, CO2 Capsol started a CapsolGo™ demonstration campaign at Öresundskraft's energy-from-waste plant in Helsingborg

- The independent test operator will be Captimise and the campaign is estimated to take 4-5 months
- The demonstration project has received funding from the Swedish Energy Agency

Valuable data on effectivity, flexibility and safety

- The campaign will be delivered as a service with a flexible testing and validation program, helping to accelerate the decision processes towards a full-scale carbon capture plant
- In addition, the CapsolGo™ demonstration unit serves as a showcase to stakeholders and helps them to win public approval

Full-scale deployment of 210,000 ton CO2 per year



Image: <https://www.oresundskraft.se/om-oss/filbornaverket/c>



“Signing up for a demonstration campaign with the CapsolGo HPC carbon capture technology is part of our long-term strategy for sustainable energy production and negative carbon emissions from our production of heat and power.” Anders Östlund, CEO of Öresundskraft

In July 2022, CO2 Capsol signed a license agreement for Europe's first large-scale negative emissions plant with Stockholm Exergi

- Stockholm Exergi provides power, district heating and cooling. Owned 50% by the City of Stockholm and 50% by long-term investors led by APG
- The plant will make Stockholm the first carbon neutral capital of the world and is supported with EUR 180 million from the EU Innovation Fund

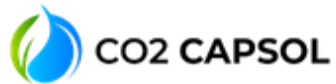
CO2 Capsol's technology selected as the preferred solution due to:

- Highly competitive economics
- Ease of EoP installation
- Proven technology and safety of HPC compared to amines
- Opportunity to recover carbon capture process heat for district heating

Full-scale deployment of 800,000 ton CO2 per year with operations to begin at the end of 2025



“This project is proof of our scalable technology platform and could accelerate the CCS value chain development across Northern Europe.”
CO2 Capsol CEO, Jan Kielland



Highly cost competitive technology

- \$30-37/t capture costs (opex and capex) with high capture efficiency (>90%)



Successful pilots demonstrating commerciality and viability

- Three successful pilot projects with more than 3,300 operating hours and >99% uptime
- Selected as technology of choice and plans to convert pilots into full scale plants



Non-disruptive End of Pipe Installation

- Standalone, electric powered solution and no modifications or downtime required at mother plant
- Easy to install with commissioning in 18-24 months



Broad deployment potential

- End of Pipe solution is agnostic to source of emissions allowing for broad deployment across multiple industries
- Active inbound interest from power producers, industrial emitters, LNG terminals and hydrogen developers



Modularization enables ease of scaling

- Units of up to 2.5mtpa capacity each
- Easily scalable by installation of multiple units



Safe HPC solvent

- No hazard to environment or people
- Low cost and readily available



The End



Jan Kielland, Chief Executive Officer

>40 years' experience with management and board positions in the energy sector internationally. MSc in Petroleum Engineering from NTNU.



Cato Christiansen, Chief Technology Officer

> 20 years' experience, former Shell, SPT Group and the Norwegian Ministry of Petroleum and Energy (Carbon Capture and Storage). PhD in Mechanical Engineering from NTNU.



Ingar Bergh, Chief Financial Officer

>15 years' experience as advisor and executive in the energy and shipping sectors. Engineering degree, MSc in Supply Chain Management, MBA Finance, Authorized Financial Analyst (CEFA).



Tone Bekkestad, Chief Marketing Officer

>20 years' experience in communications & media. Moderator and lecturer on the topic of solutions to climate change. MSc in Meteorology.



Johan Jungholm, Chief Commercial Officer

10 years' in Business Development, Complex Sales and Marketing and 15 years in energy sector. BA in Geology and Environmental Science, University of Pennsylvania.



Philipp Staggat, Head of CapsolGo

>10 years at Siemens, including lead commissioning engineer and project manager, before joining CO2 Capsol. BSc Engineering Berlin University of Applied Sciences and MBA London Business School