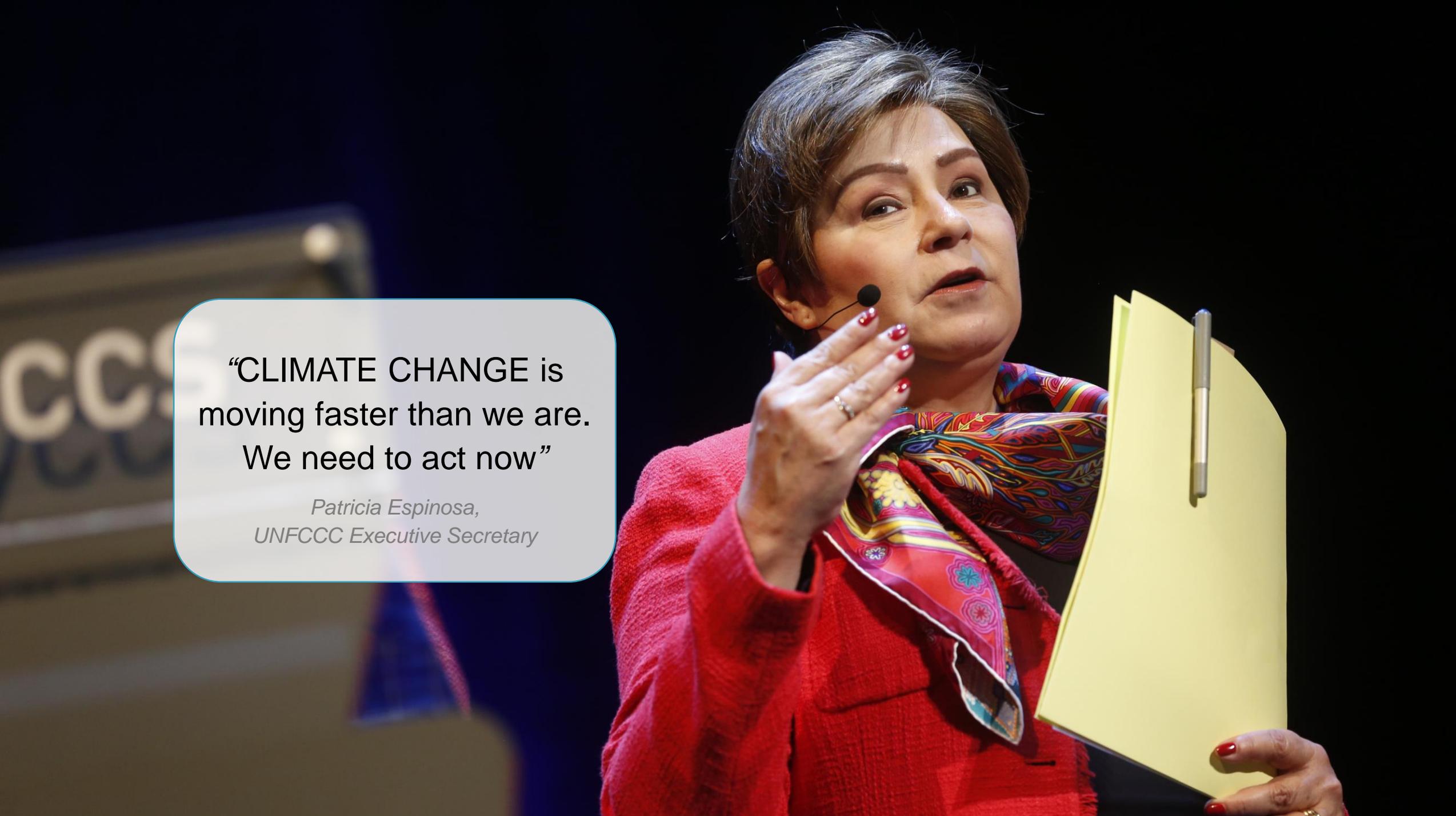


The Outlook for Carbon Capture and Storage technology

Aage Stangeland, The Research Council of Norway

GASSNOVA 

A photograph of Patricia Espinosa, UNFCCC Executive Secretary, speaking at a podium. She is wearing a red jacket and a colorful patterned scarf. She is holding a yellow folder and gesturing with her right hand. A small microphone is clipped to her ear. The background is dark with some blurred lights and a sign that partially reads "CCS".

“CLIMATE CHANGE is moving faster than we are. We need to act now”

*Patricia Espinosa,
UNFCCC Executive Secretary*



Make the world breathe again

LASS MICH UND BODD BAGGER! IMMER-NOCH

We don't have more time

want a hot date? want a hot planet?

SAVE THE EARTH

THE WORLD WITHOUT US



Renewable energy



Energy efficiency

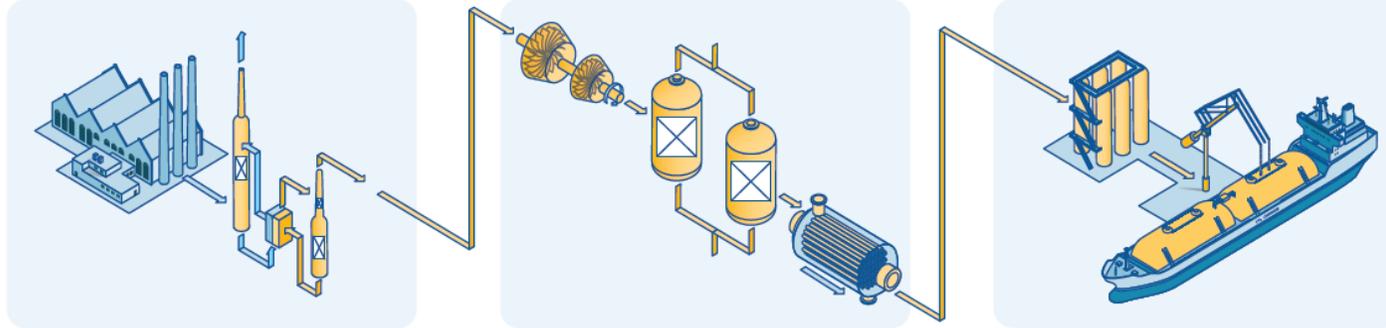


CCS

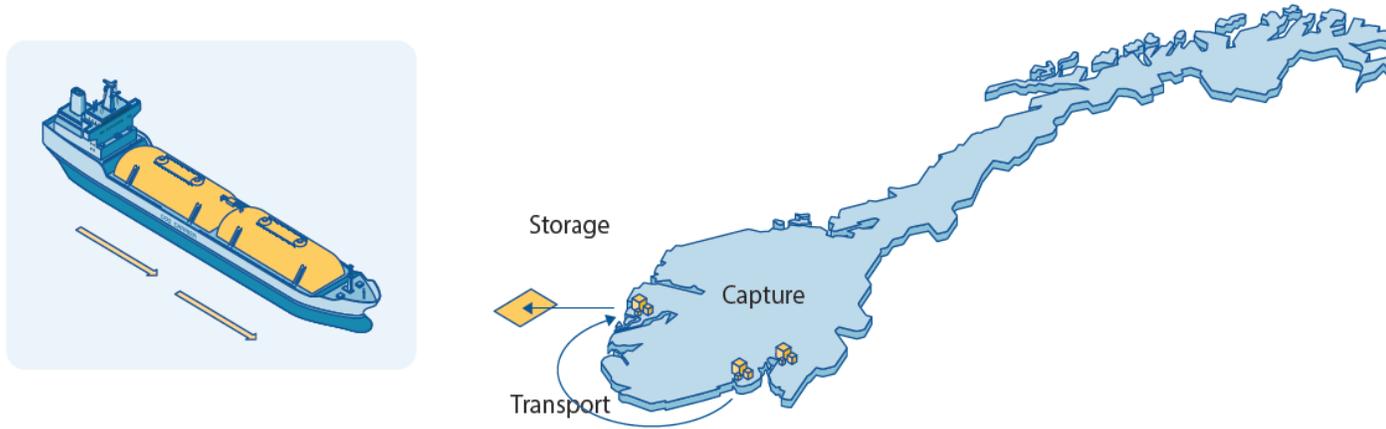


What is CCS?

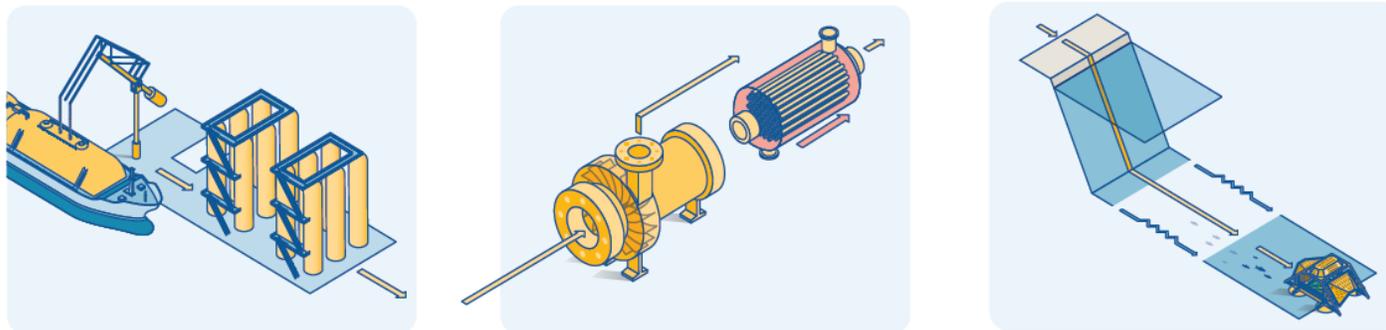
Capture



Transport

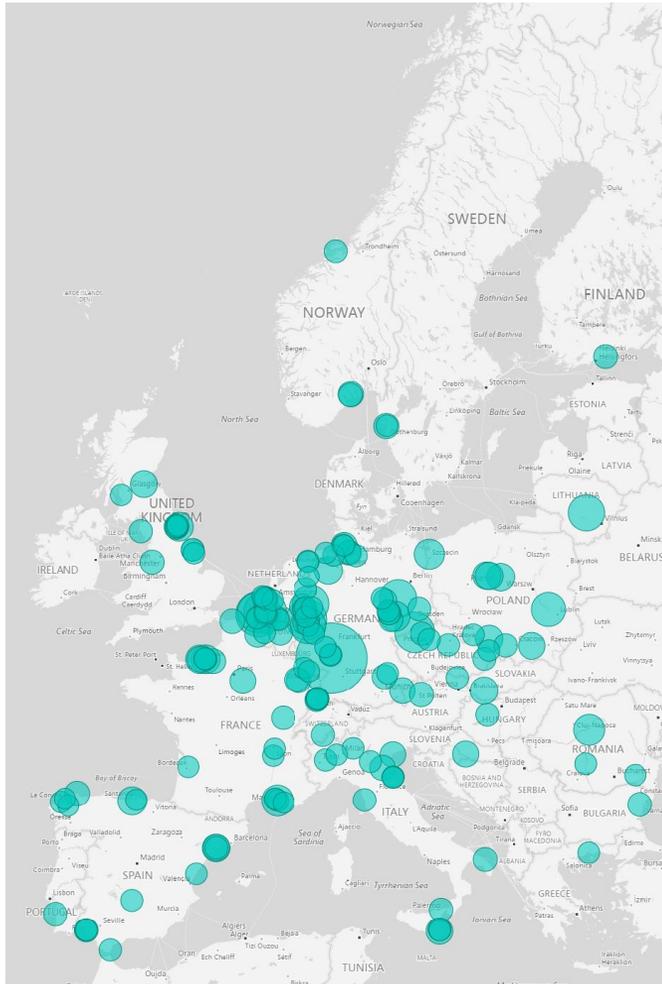


Storage



Significant CCS potential

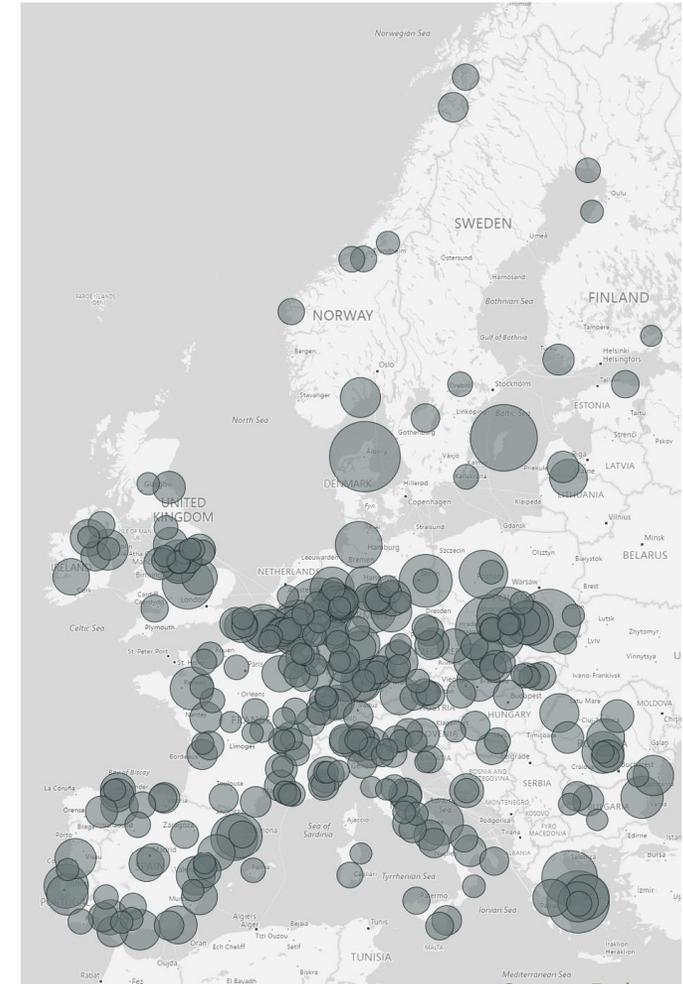
Petrochemical industry



Iron and steel



“Non-metal” minerals



Source: Endrava

23
years of CCS
experience



Gassnova – The state enterprise for CCS

- Advisor for the Norwegian Ministry of Petroleum and Energy
- Leads and coordinates research and development in CLIMIT
- Tests technologies from around the world at TCM
- Tracks and coordinates the full-scale CCS value chain
- 42 employees



Technology development and knowledge-sharing

R&D&D



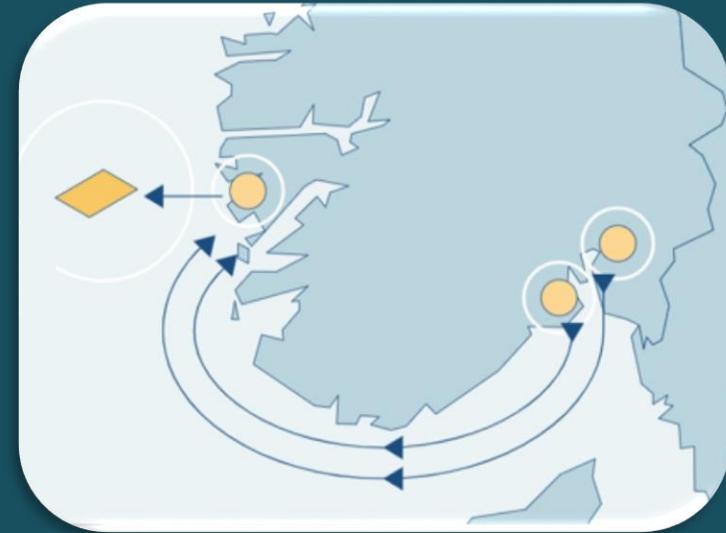
CLIMIT
FME`s
ACT

DEMO



Technology
Centre
Mongstad

Full-scale



The Full-scale project in Norway



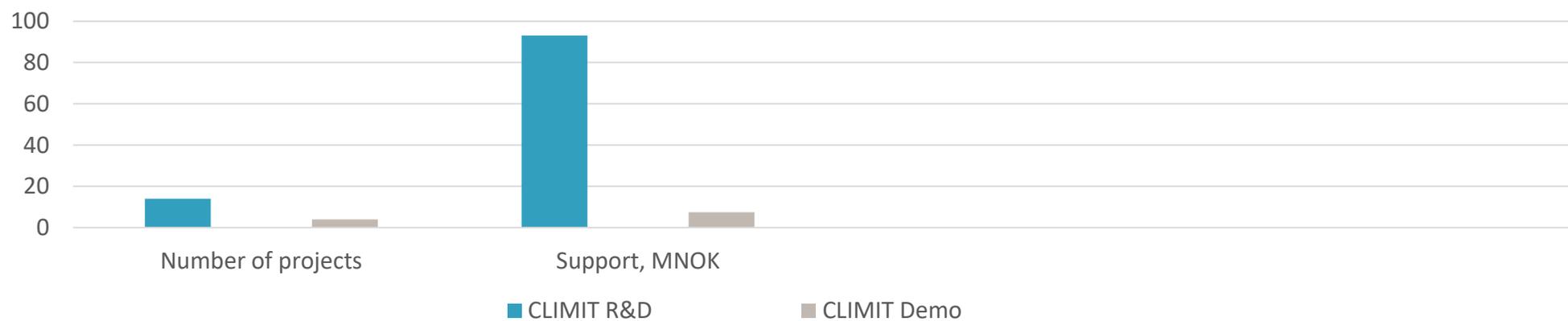
The CLIMIT programme

- Collaborative partnership between Gassnova and the Research Council of Norway
- Set up international top-class level CCS actors
- Over 500 projects have received support
- Budget 2020: NOK 160 million





Support from CLIMIT - UiO



TCM; more than 7 years of operation



Vendors Proprietary Test Campaigns

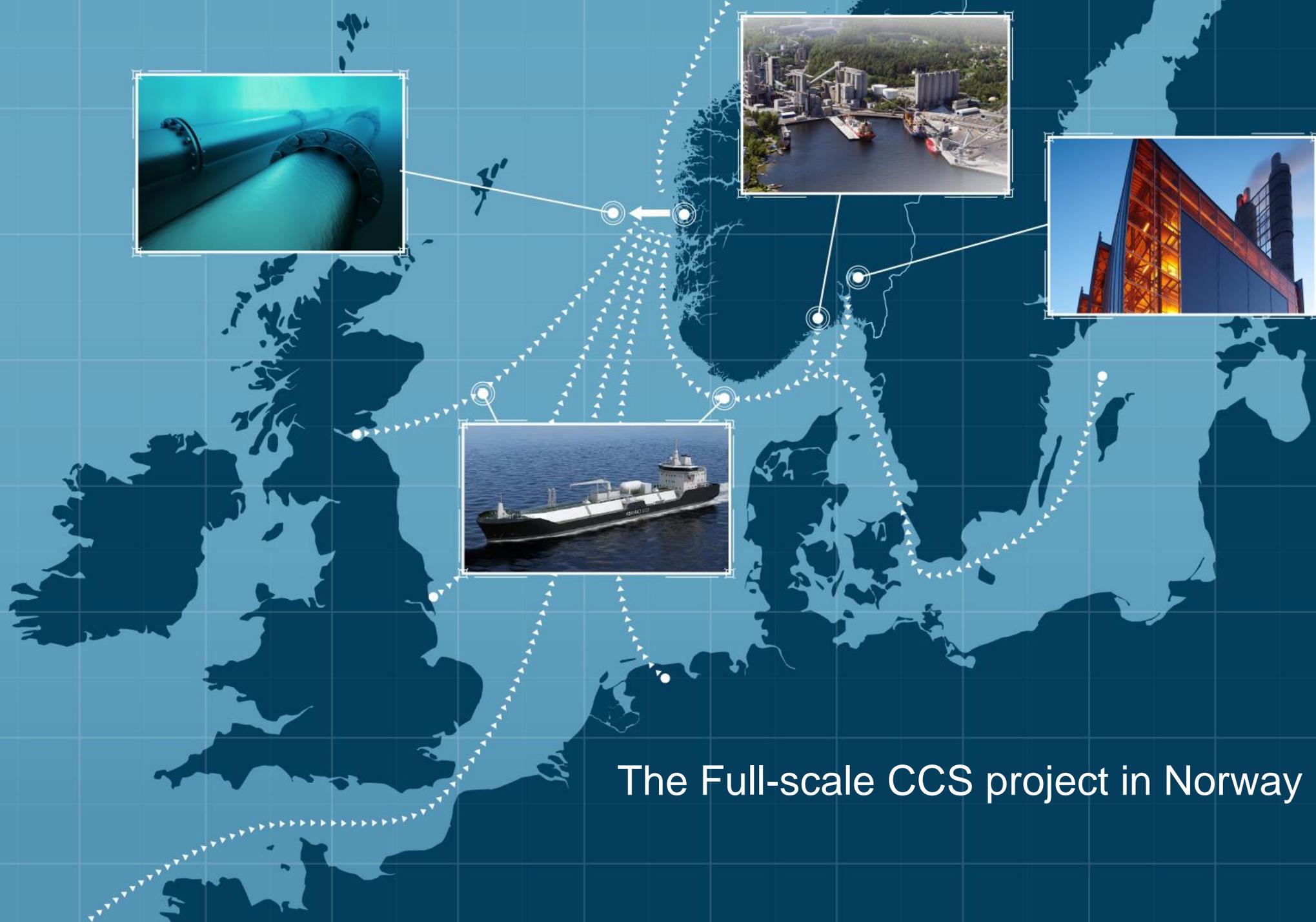
- Aker Solutions (Norway)
- Alstom/BHGE (US)
- Cansolv Technologies (Canada)
- Carbon Clean Solution (UK/India)
- ION Engineering (USA)
- Fluor (USA)

Non-proprietary Test Campaigns

- Mono Ethanol Amine (MEA)
- Aerosolve
- Align
- DOCPCC
- CCSI2

Global Competence Centre

- Fortum (Finland)
- Heidelberg Cement Norcem
- Guandong, China
- OGCI-CI
- DNV GL



The Full-scale CCS project in Norway

Northern Lights

Memorandum of understanding have been signed with:

Air Liquide
Arcelor Mittal
Ervia
Fortum Oyj
HeidelbergCement AG
Preem
Stockholm Exergi



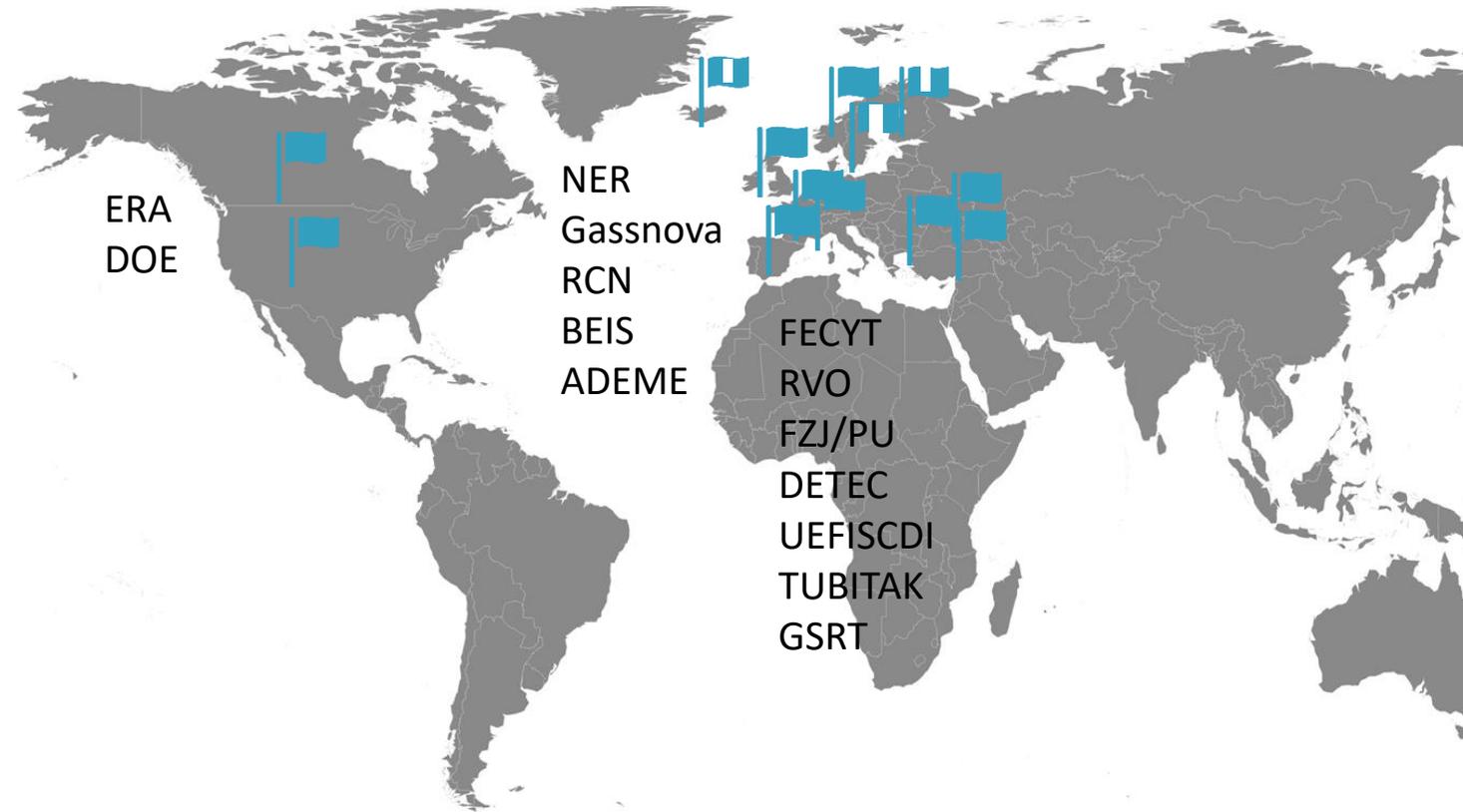
The London Protocol

Temporary solution: CCS chains across borders legal



ACT - The family is expanding

- Funding agencies from eleven countries
- 12 new projects decided for funding in June 2019
- €31M from ACT, No EC money
- Nordic Energy Research (NER) and Emission Reduction Alberta (ERA, Canada) will join ACT3 - perhaps also more countries...



www.act-ccs.eu



The STEMM-CCS project, in collaboration with other projects in the field of CCS storage research, presents

EU CCS Storage Research Projects Science-Policy Showcase

10:00 - 16:30, 10 September 2019

NH Hotel Berlaymont, Boulevard Charlemagne 11-19, Brussels

This 1-day event brings together the storage-focused CCS projects supported through the EU's Horizon2020 and ACT funding streams to showcase their latest research results and developments with special relevance for energy, environment and climate policy. The aim is to provide a platform for informative dialogue and exchange of ideas between Europe's leading researchers in the field of carbon storage, industry representatives, and the EC's decision-makers and policy developers.

The event will comprise a programme of stimulating talks from the projects, interspersed with discussion sessions and accompanied by an exhibition of project highlights and results. Refreshment and lunch breaks will provide opportunities for informal networking with teams from the STEMM-CCS, Pre-ACT, ELEGANCY, ALIGN-CCUS, SECURE, ENOS and Strategy CCUS projects, as well as other representatives from industry, regulatory bodies, civil society and the wider CCS research community. Topics covered will include environmental baseline and monitoring, leak detection technologies, risk management, storage appraisal and CCS reservoir monitoring, as well as work on development of regional CCUS strategies.

Workshop contact: Dr Vikki Gunn, STEMM-CCS project, email vikki.gunn@ecoscopeconsultants.co.uk, +44 (0)1794 367797.

What we want to achieve – together

- Pave way for large scale CCUS deployment
- Dissemination beyond scientific papers. Communicate results to industry, and decision makers.
- Collaboration between ACT projects
- Deliver results that comply with SET plan CCUS Implementation plan and Mission innovation Research priorities
- Pave way for new CCUS projects under Horizon Europe, especially the partnership of Clean Energy Transition



www.act-ccs.eu





Norge nå
19. nov. 2019



EVENTS

Oil and Gas Climate Initiative sets sights on carbon capture

The Oil and Gas Climate Initiative (OGCI), a group of leading energy companies, recently introduced new measures to address climate challenges at its fifth annual conference in New York and said it was making progress curbing methane emissions



by Martin Menachery

02 OCT 2019



"We are committed to helping to meet society's lower carbon goals while reliably meeting the energy needs of billions of people for decades to come," said Saudi Aramco chief technology officer Ahmad O Al-Khwaiter.



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POLITICS, POLICY AND PEOPLE MAGAZINE

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Home > Carbon Capture and Storage technology could solve EU decarbonisation issues

Carbon Capture and Storage technology could solve EU decarbonisation issues

Written by Jon Benton and Ana Gallego on 12 September 2019 in News

European climate commissioner Miguel Arias Cañete discussed the EU's plans to reduce CO2 emissions last week and the role ca



"I am firmly convinced that this can only be done if one is **WILLING TO CAPTURE AND STORE CO₂**. The countries in question do not deny this. The method is called CCS – and for many in Germany it is a highly charged term."

Source: The Guardian

Merkel: Europe must unite to stand up to China, Russia and US

German chancellor also shares views on Brexit and climate crisis in interview



▲ 'There is no doubt that Europe needs to reposition itself in a changed world,' said Merkel. Photograph: Hannibal Hanschke/Reuters



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