



TECHNOLOGY  
CENTRE  
MONGSTAD

# Technology Centre Mongstad

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1. **Introduction to TCM**
2. CCS Technology upscaling
3. Sharing Knowledge
4. Advisory services
5. Pipeline of activities

## Joint venture established in 2009

TCM was established to support development and testing of carbon capture technologies at an early stage.

Today, the company is a joint venture between the Norwegian state (managed by Gassnova) (73.9%), Equinor (8.7%), Shell (8.7 %) and TotalEnergies (8.7 %).



*«We see an increasing interest for testing at TCM, and we are very pleased that we can continue our important work with testing and research necessary for the deployment of large-scale carbon capture.»*



*«TCM has contributed to maturing the carbon capture supplier market and will remain relevant with the increasing number of technology suppliers lining up for testing.»*



*«TCM plays a key role in further developing and reducing the cost of CCS – a crucial technology to help society and economies thrive through the energy transition.»*



*«TCM is a cornerstone in Total's strategy to tackle climate change by accelerating the development and adoption of innovative CO<sub>2</sub> capture technologies.»*



## The world's largest open access test centre for carbon capture technologies

Technology Centre Mongstad (TCM) facilitates the advancement of carbon capture technology for mass deployment across industries.

We test, verify and demonstrate different post-combustion technologies related to cost-efficient and industrial scale CO<sub>2</sub>-capture





## Proprietary testing

>28,000 hrs



## Non-proprietary testing

>20,000 hrs



## Advisory services





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# Site for Emerging Technology



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# Key facts

## Capture Technologies:

Post combustion CO<sub>2</sub> capture technologies.

## Flue gas Sources:

RFCC CO<sub>2</sub> conc. 13-15% vol

Refinery Heater Plant(RHP) CO<sub>2</sub> conc. 8% vol

Flue gas composition can be simulated 1-16% CO<sub>2</sub>

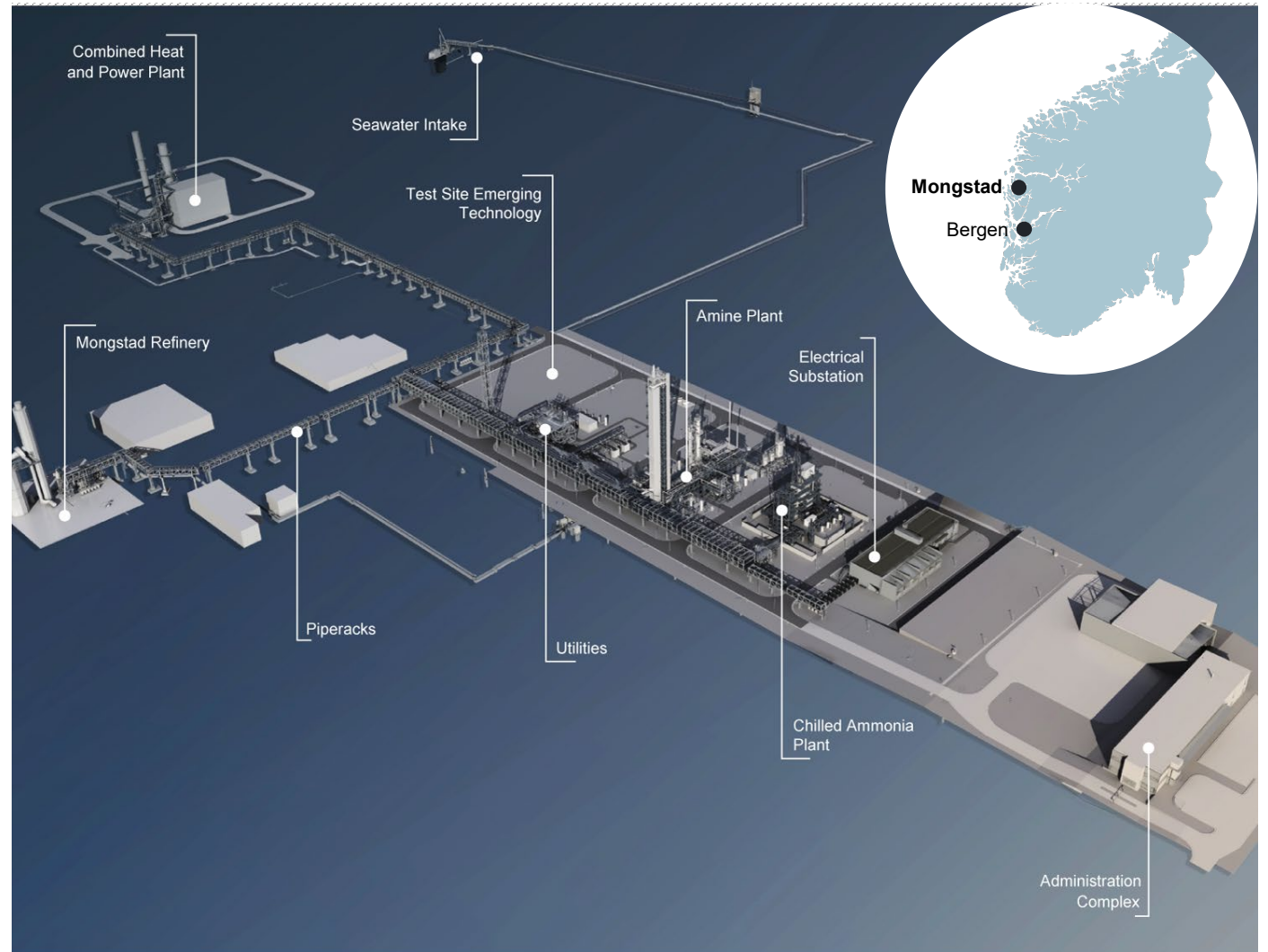
## Capacities:

**Amine plant:** 12MWe or 75,000 tons CO<sub>2</sub>/yr

**Chilled Ammonia plant:** 12MWe or 75,000 tons CO<sub>2</sub>/yr

**Site for emerging tech:** Capacity up to 18,000 tons CO<sub>2</sub> per year using up to 3 MWe modules.

**Monitor and control:** 4,000 online instruments, and 100 manual sampling points.





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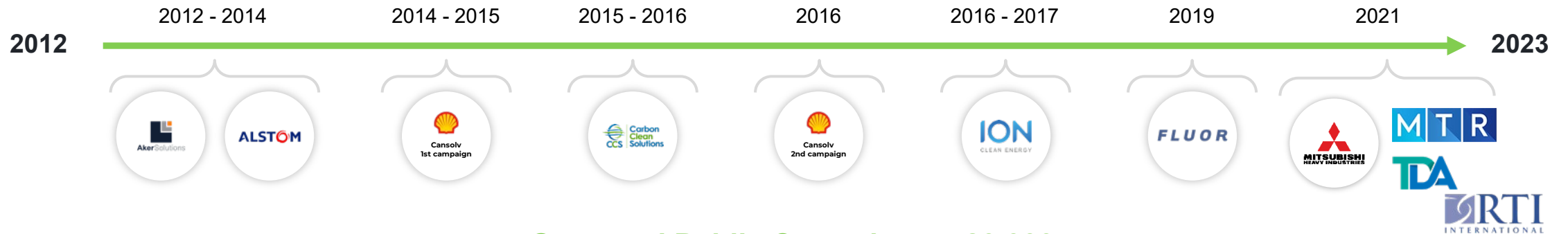
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# Conducted Test Campaigns

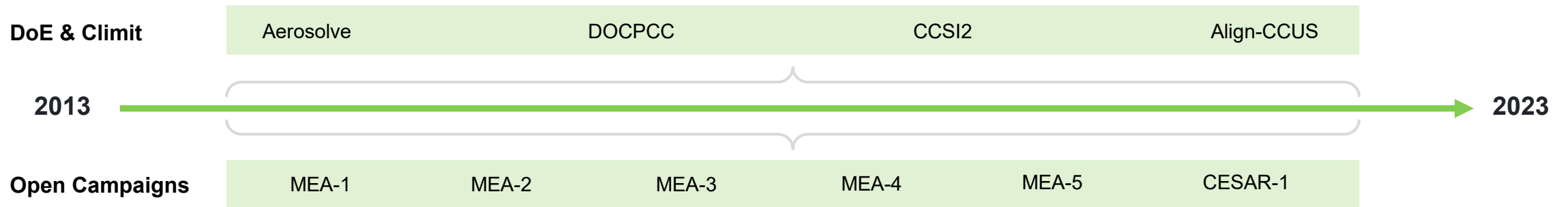
## Proprietary Campaigns >28,000

Technology Vendors perform tests with their own proprietary technology



## Open and Public Campaigns > 20,000

A large amount of open scientific test campaigns with non-proprietary technology in cooperation with universities, research institutes, U.S. Department of Energy and the European Union





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## Sharing knowledge from open campaigns

- TCM has established 4 different 3<sup>rd</sup> party verified baselines with open solvents (MEA, CESAR1)
- Total accumulated hands-on experience with open solvent >20,000 hrs
- Large operating windows are explored
- Different mode of operations explored, dynamic, cold and hot startups, shutdowns etc.
- HSE aspects successfully demonstrated
- 60+ different scientific papers published

<https://tcmda.com/sharing-our-findings/>

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**We support project owners to become smart buyers of CC technology utilizing our know how from open campaigns.**



## We provide risk intelligence

We help you to reduce HSE, technical and financial risks of technology deployment at scale





## Our Advisory Services Clients



OIL AND GAS CLIMATE INITIATIVE



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# Our pipeline of test activities

Inno<sub>2</sub>Sepra

Flue gas purification and sorbent technology

ACCESS

Non-amine solvent , Rotating packed bed

M<sub>4</sub>  
MOF4AIR

Metal Organic Framework







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