

INTERNATIONAL  
COLLABORATION | 20  
YEARS

# CLIMIT

## SUMMIT

# 10:00 Side Event

# ACT & CETP

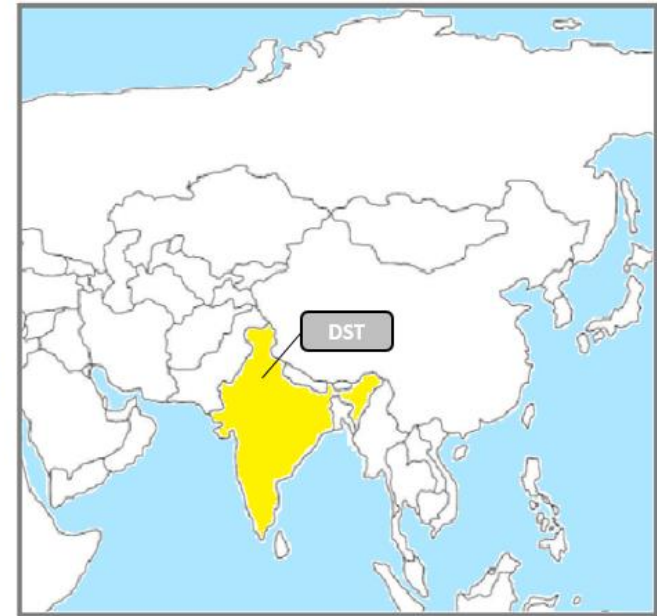
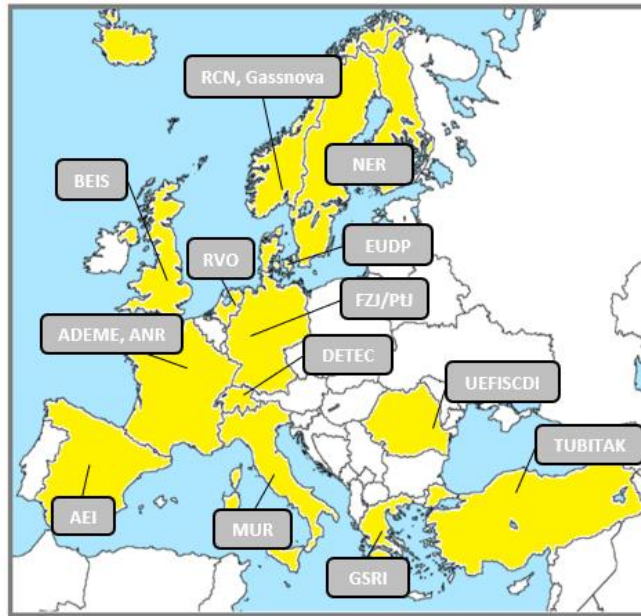
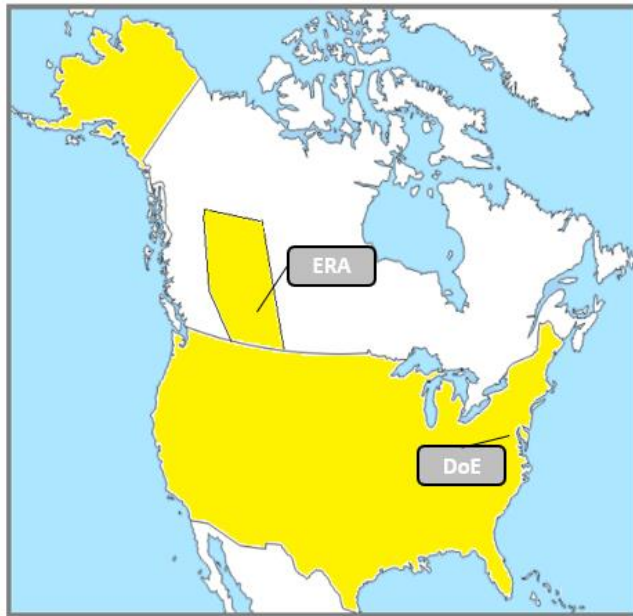
Moderator: Aage Stangeland, The Research Council of Norway

# Program for the next hour

1. ACT & CETP brief introduction
2. Impacts from ACT and CETP projects
3. Let's hear from the projects – results and challenges
4. New possibilities – the upcoming CETP Joint Call 2025
5. Discussion: How to bring R&D results from ACT & CETP projects into industrial activities

# ACT – Accelerating CCS Technologies

- ERA Net Cofund within Carbon capture, utilisation, and storage (CCUS)
- Aims to accelerate and mature CCUS technologies
- Four Joint Calls from 2017 to 2022
- 39 projects
- € 108 M in funding from the ACT funding agencies





### 33 Countries

23 EU Member States  
10 Associated Countries

### 50+ Funding Partners

Funding Agencies & Ministries

### Top-up

European Commission is the single biggest financing organisation

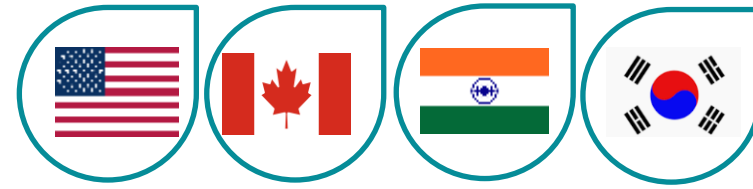
### 13 Coordination Units

Coordinator: BMK (Austria), SWEA (Sweden)

### Annual Calls for RTDI Projects

Budget in the order of **€100 M** each year for 2022 – 2027

**Seeking strong collaboration with Mission Innovation**



*Call 2024  
Total 90 M €*

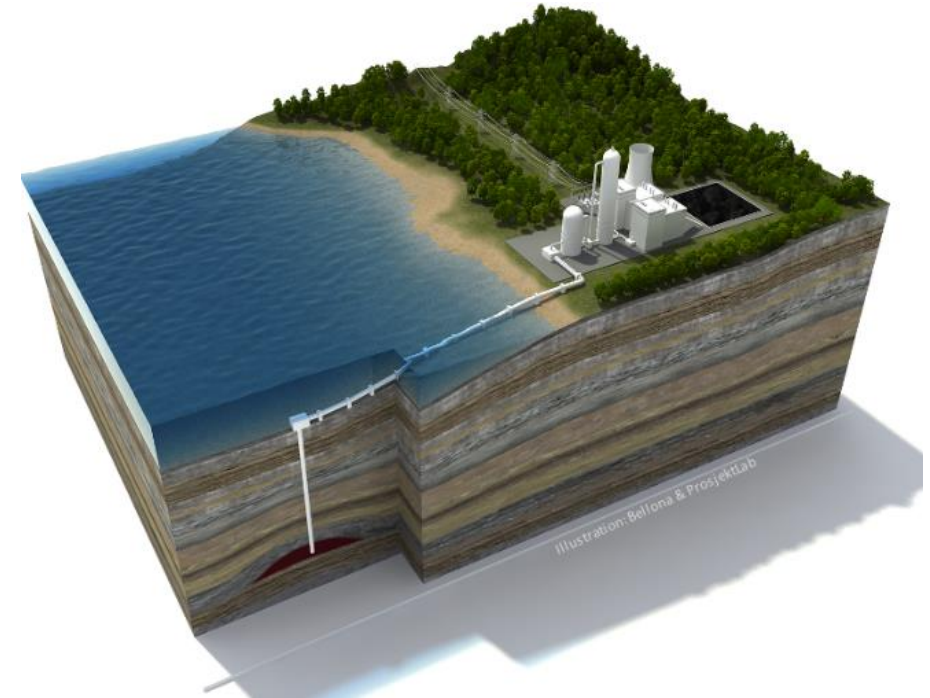
*Call 2025 to  
be launched  
28 May*

# CETP project portfolio within CCUS

Project	Title	Project periode	Project cost (€ M)	Funding request (€ M)	# partners
<b>ACLOUD</b>	Advancing chemical-looping combustion of domestic fuels	2024-2026	3.5	<b>2.9</b>	10
<b>AMbCS</b>	Advanced Membrane-based solutions for CCUS in Shipping	2024-2026	2.9	<b>1.5</b>	7
<b>BUCK\$\$\$</b>	Brine Utilisation for CO2 to be 'Koncretely' Sequestered, Solidified and Stored	2024-2026	2.0	<b>1.2</b>	13
<b>CO2RR</b>	Carbon Rhine Route	2024-2026		<b>2.0</b>	4
<b>CTS</b>	CO2 Transport and Storage directly from a ship	2024-2025	1.9	<b>1.5</b>	8
<b>DRIVE</b>	Deep Removal of CO2 and InnoVative Electrification concepts	2024-2026	4.3	<b>2.7</b>	10
<b>GreenSmith</b>	Gas Processing for Climate Neutral Steelmaking	2024-2026	2.8	<b>1.9</b>	6
<b>LEGACY</b>	Field studies for de-risking existing wells and CCS site geology	2024-2026	3.5	<b>2.4</b>	8
<b>RamonCO</b>	Risk-based framework for assessing CO2 storage monitoring	2024-2026	5.2	<b>4.5</b>	13
<b>SENSATION</b>	Sorbent Assisted Carbon Capture Tailored for Low CO2 Concentrations	2024-2026	4.1	<b>2.9</b>	9
<b>BIOCUF</b>	Biomimetic CO2 Fixation and Utilization for Formate Production	2025-2027	2.1	<b>0.8</b>	8
<b>BRINE-CARB</b>	Brine Integration for Carbon Capture	2025-2027	2.5	<b>1.6</b>	7
<b>CO2SafeQuest</b>	Unravelling Faults properties and behavior for CO2 geological storage	2025-2027	4.4	<b>2.9</b>	11
<b>eMetCO2</b>	eNETmix technology for electrocatalytic production of Methanol from captured CO2	2025-2027	1.5	<b>0.5</b>	7
<b>More4LessCu</b>	Low Energy CO2 Capture and Utilization in Copper Processing	2025-2027	1.3	<b>1.2</b>	7
<b>MuPSI</b>	Multiscale Pressure-Stress Impacts on Fault Integrity for Multi-site Regional CO2 Storage	2025-2027	3.8	<b>3.2</b>	11
<b>Q-fibre</b>	Quantitative Strain Monitoring for Well and Seal Integrity through Wellbore Fibre Optics Cables	2025-2027	3.3	<b>2.5</b>	9
<b>SHEETS</b>	Sorbent based processes for highly efficient and compact CO2 capture technologies	2025-2027	2.5	<b>1.7</b>	9
<b>SUSGREEN</b>	Sustainable fuels from carbon dioxide using integrated green technologies	2025-2027	1.4	<b>1.2</b>	5

# ACT Impacts

- Larger projects with higher impact than what would have been possible with only national projects.
- Well-functioning RD&I collaboration across borders is established.
- Strong relations between academia and industry established.
- International cooperation already in the research phase increases chances for transnational large-scale implementation of CCUS.
- Results from ACT projects are relevant for the European Strategic Energy Plan (SET-plan) and for Mission Innovation.
- Important contributions to dissemination of key messages beyond the scientific community.



# Challenges and lessons learnt

- 1. Different eligibility criteria in each country. Some countries are very strict on their national eligibility criteria.**
  - *Applicants are encouraged to contact national funding agencies early in the process*
- 2. Some countries need a very long time to sign national contracts**
  - *Discuss internally within the project consortium to ensure all partners can start at the same time*
- 3. A Consortium Agreement signed by all partners has turned out to be challenging for many ACT & CETP projects because of differences in national legal cultures.**
  - *CETP recommends the EU DESCA template, but project partners are free to use whatever template they like*



# Experiences from ACT and CETP projects

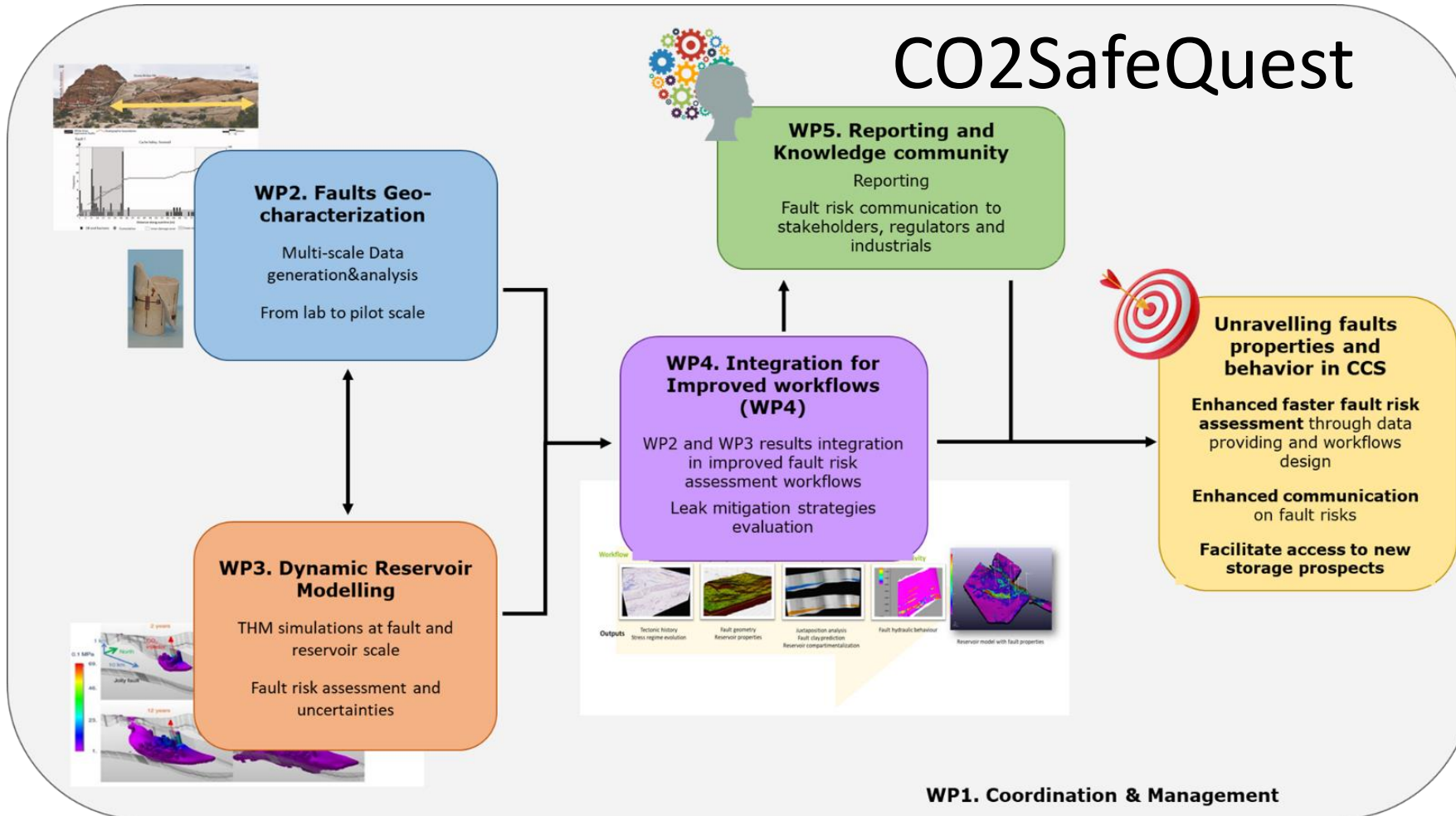
- ✓ Achievements
- ✓ Added value of international collaboration
- ✓ Challenges



# Project objective

- Enhance fault risk assessment through new data and workflow
- Enhance communication on fault risk
- Facilitate access to new storage prospects

**Main Challenge:** Finding industry partners



**ACT II 2019-2022**

**DigiMon**

Digital Monitoring of CO<sub>2</sub> storage projects

7 countries

Greece, Germany, the Netherlands, Norway, Romania, UK, USA



**CETP 2022 RAMONCO 2024-2027**

**RamonCO**

Risk- based framework for assessing CO<sub>2</sub> storage monitoring

6 countries

Greece, Germany, the Netherlands, Norway, Romania, USA



## (1) key objective or key results from your project

- Integration of a broad range of technologies and societal data for measurement, monitoring and verification (MMV) at CO2 storage sites
- Creation of methods for assessing safety and compliance in CO2 storage projects and to improve monitoring and implementation strategies.
- Bridging technology and social science research

## (2) added value of international collaboration

- Access to skilled experts
- Broader variety of backgrounds and competencies
- Advantages of ACT and CETP compared to Horizon Europe
  - The funding is better anchored with public authorities
  - Transatlantic collaboration
- International alignment of research on critical topics

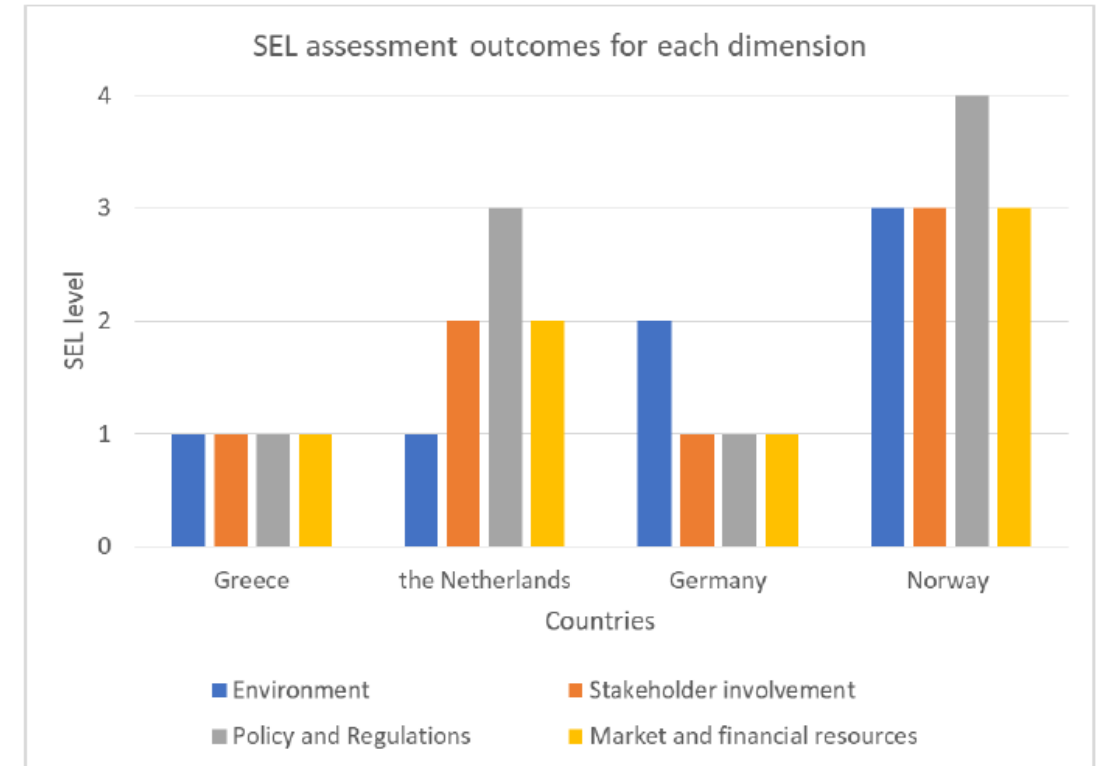


Figure 4 Outcomes of the Social Embeddedness Level (SEL) Assessment in Greece, the Netherlands, Germany and Norway per SEL dimension.

## (3) challenges you have experienced with ACT or CETP

- Difficulties to get consortium agreements signed
  - Need for standardized CA and NDA templates
- For CETP project
  - Unclear communication about the Disco platform
  - Missing information about the progress reporting
  - Extensive progress reporting requirements
  - Challenging that there is no contract between the project leader partner and CETP

# CEMËNTEGRITY

Development and testing of novel cement designs for enhanced CCS well integrity

*Climit Summit, Larvik, 2025-02-26*

Reinier van Noort, IFE Institutt for Energiteknikk (Kjeller, Norway)  
And the CEMËNTEGRITY team!

[www.cementegrity.eu](http://www.cementegrity.eu)

# Selected key objectives and results

## **CEMENTTEGRITY**

key objectives:

- To identify critical sealant properties to enhance sealant durability
- To suggest preferential testing procedures for sealants to be used in CCS.

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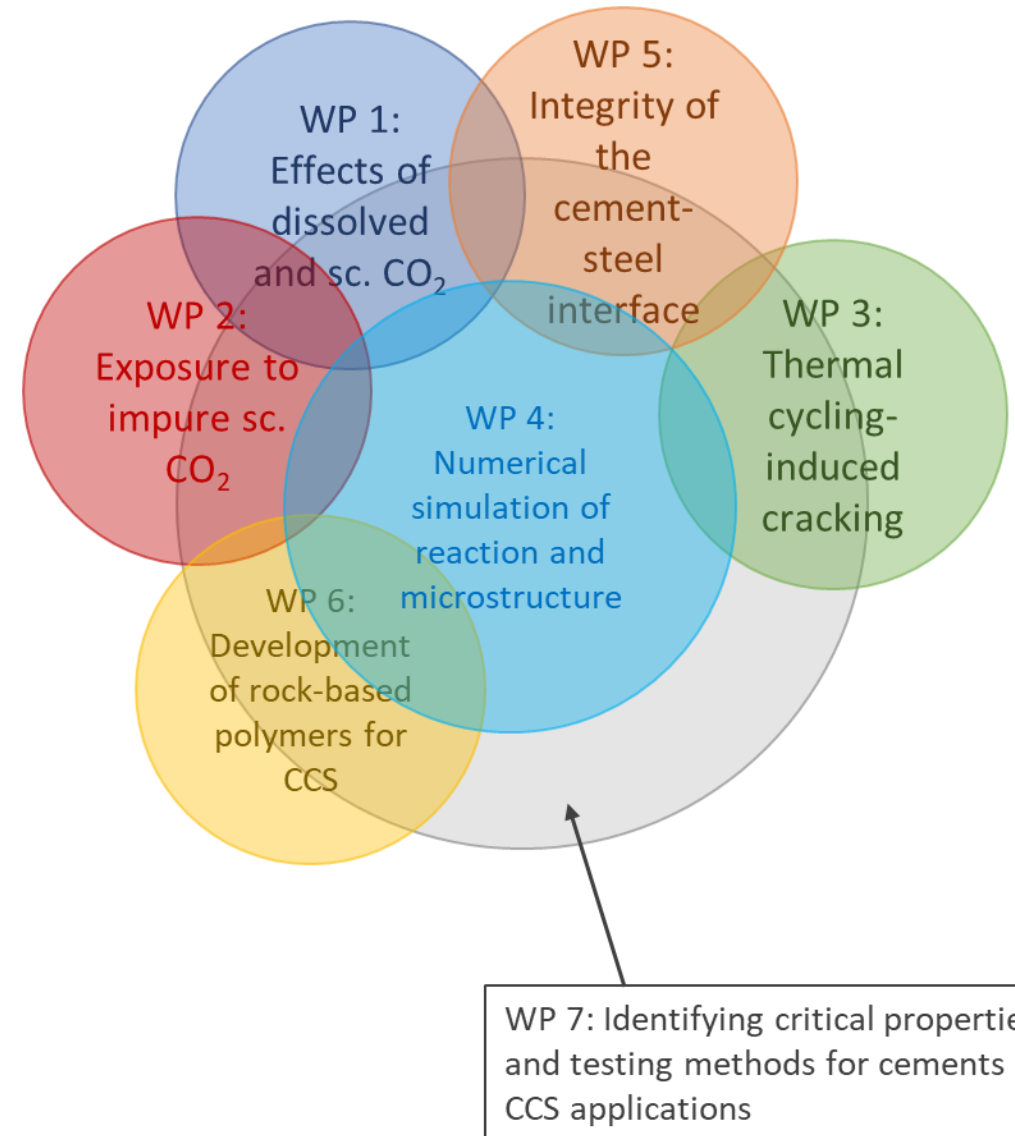
<b>Permeability</b>	
	Low permeability required; Further reducing permeability may improve ability to withstand CO <sub>2</sub> -exposure.
<b>Mechanical properties</b>	
- Compressive strength	Sufficiently high
- Tensile strength	High
- E-modulus	Low
- Poisson's ratio	Suitable (0.1-0.3)
- E/C-ratio	Low
<b>Volumetric behaviour</b>	
- During curing	No shrinkage; Expansion preferred.
- Over time	No shrinkage; Expansion preferred.
<b>Thermal properties</b>	
- Thermal diffusivity	High
- Thermal expansion coefficient	Suitable (i.e., similar to surrounding materials)
<b>Mass</b>	
	Mass changes from exposure indicate ongoing reactions that may cause (or lead to) degradation.
<b>Composition</b>	
- Chemical, - Mineralogical, - Microstructure.	Chemical, mineralogical, and microstructural changes should be assessed to determine the depth to which the material is affected by various changes, and to what degree these changes are deleterious to the material's integrity as a sealant.



# International collaboration

## CEMENTTEGRITY performed mostly experimental research

- International collaboration allowed us to **bring together key laboratory facilities**;
- While working on a **single set of sealant compositions**;
- With all samples **prepared centrally, and cured identically**.
- One key outcome is that we can combine and analyze results across WP's, and thus **compare different methods** for measuring similar aspects;
- This provided **important additional insights** that would not have been available otherwise.



# Thank you for your interest and attention!

→ If you have any further questions, do not hesitate to contact us.

→ Results presented today will be published, the CEMENTTEGRITY website will be kept up to date.

→ Recordings of today's webinar will also be made available through our website.

[www.cementegrity.eu](http://www.cementegrity.eu)

# CEM<sup>•</sup>ENTTEGRITY



RESTONE



MeDORA, Luca Ansaloni, SINTEF

Pre-ACT, SPARSE, LEGACY, Peder Eliasson, SINTEF



# CETP Joint Call 2025 - schedule

Details will be available at the CETP web site: <https://cetpartnership.eu/>

<b>Stage 1 Launch event</b>	<b>28 May 2025</b>
<b>Stage 1 Submission of pre-proposals</b>	<b>October 2025</b>
<b>Stage 2 Submission of full proposal</b>	<b>Early 2026</b>
<b>Funding decision communicated</b>	<b>Early summer 2026</b>
<b>Project start (tentative)</b>	<b>Autumn</b>
<b>Application to national/regional Funding Agencies</b>	<b>Consult specific Funding Agency Annex.</b>

# CETP Joint Call 2025 – Call Modules

Call Module	Title / scope
1	Energy system
2	Renewable energy: production, storage, system integration
3	Advanced renewable energy
4	CCUS
5	Hydrogen and renewable fuels
6	Heating and cooling technologies
7	Integrated regional energy systems
8	Integrated industrial energy systems
9	Clean energy integration in built environment

# Call Module 4 - CCUS

- Open for applications within CO<sub>2</sub> capture, transport, utilization, and storage
- Direct CO<sub>2</sub> removal (CDR) included in the scope (DAC, BECCS, etc)
- Projects must end at TRL 5 or higher
- Activities at lower TRLs may be included if they contribute to the higher TRL goal of the overall project
- Active industrial involvement in research and innovation activities.
- Applied funding from the Call in the range of (but not limited to) € 1–4 M
- Please read national eligibility criteria carefully

# Norwegian eligibility criteria

- Norwegian activities must be within the scope of the CLIMIT program plan
  - CCS, not CCU
- For universities and research institutes
  - At least two Norwegian industrial partners / end users must be included
  - Up to 100 % funding rate for academic partners. Industrial partners must be self-financed
- For industrial driven projects
  - Maximum 50 % funding rate
  - Academic partners may be included

# General steps for submitting an application



## Two-step procedure:

- ✓ submission of a **pre-proposal** followed by a potential invitation to submit a **full proposal**
- ✓ eligibility check according to both general and national requirements
- ✓ evaluation by three experts per proposal
- ✓ Evaluation criteria: Excellence, Impact, Implementation.
- ✓ Scale of marks: 0 to 5 where 5 is best
- ✓ Threshold: score at or above 10 and none of the criteria scoring below 3



## Submission:

- ✓ choose one Call Module per proposal
- ✓ Project Coordinator invite Project Partners through the submission system



# CETP eligibility criteria



- ✓ Each project proposal must include **at least three eligible and independent legal entities from at least three different countries** participating in the CETP Joint Call 2025, out of which at least two must be EU Member States or Horizon Europe Associated Countries
- ✓ Total effort of one Partner cannot exceed 60% of the total project efforts (person months)
- ✓ Total effort of Partners from one country/region cannot exceed 75% of the total project efforts (person months)
- ✓ **Applicants must be eligible for funding according to their Funding Partner's national/regional requirements**

## Discussion:

# How to bring R&D results from ACT & CETP projects into industrial activities

- ✓ What can CETP do better?
- ✓ What do industry need from the research community?
- ✓ What are the hot topics where R&D is needed?