ACT4-projects recommended funding

December 21, 2022

Mid-December 2022, the decision for funding new projects from the ACT4-call launched in May 2022, was taken. Following an evaluation process, during which projects were ranked by internal and external experts, the ACT4-partners decided to recommend funding of six of the highest ranked projects. The total amount of funds for these successful projects is around 11 M€. They are expected to start in the first half of 2023.

ACT received 16 applications to the ACT4 call which closed on 12 September 2022. There was a good contribution of participation by the ACT funding countries/regions from Alberta province of Canada (Emission Reduction Alberta, ERA), Germany (Projektträger Jülich, PtJ), India (Department of Science and Tecnology, DST), Norway (Research Council of Norway, RCN and Gassnova, GN), and the USA (Department of Energy, DOE). The Projects were encouraged to target issues defined by:

- The SET-Plan CCS and CCU Implementation Plan
- Mission Innovation Research Priorities

The projects asked in total for € 29 M funding from ACT, which was twice the available budget. The applications have been evaluated and ranked according to procedures described in the ACT4 call text.
A common decision on funding has been taken by the involved funding agencies and the decision has been communicated to the applicants by the coordinator of ACT at the Research Council of Norway on 12 December 2022. All the new projects are in the contractual process and are due to commence in the first months of 2023.

A brief introduction of the six new ACT4 projects can be found below. Aside from their technical focus, the projects will address outreach, knowledge sharing, and social aspects. The total budget of the 6 projects is approx. 16M€ (including in-kind and industry funds), of which 11 M€ is requested from the ACT-partners.

Short project summaries

- **3D printing**: The goal is to reduce the embodied carbon of cement-based construction materials and is thus critical to achieving decarbonization targets. The aim is to adopt 3D printing technology to overcome the challenge of maximizing CO2 diffusion into the structure and optimizing material chemistry to maximize carbon sequestration without affecting the strength and durability of the concrete.
  3D-printing is led by Ass. Prof. Souradeep Gupta at the Indian Institute of Science, India. The project has partners from India and USA.

- **Amigo**: A CO2 injection program will be developed for depleted gas reservoir utilizing state-of-art and novel technical workflows.
  The project is led by Gordon Riley, Repsol, Canada and has partners from Canada and USA.

- **MACE**: The focus will be on direct carbon conversion: implementation of a process that directly absorbs carbon into a product at the point of emissions such as the creation of CO_2-based products (e.g., fuels, chemicals, building materials).
  The project is led by Morgan Beck, NREL, USA and has partners from Canada and USA.

- **MEDORA**: Cost-efficient solutions to mitigate solvent degradation will accelerate large scale implementation of CCS. The project builds on ALIGN-CCUS (funded by ACT1), and its patented Dissolved Oxygen Removal Apparatus (DORA): a membrane contactor used to remove dissolved O2 from the amine-based solvent, limiting degradation and prolonging solvent lifetime. MeDORA will advance the DORA technology, bringing it to TRL8 by demonstrating stable long-term operations.
  The project is led by Luca Ansaloni, SINTEF, Norway and involves partners from Norway, Germany and The Netherlands.

- PERBAS aims to provide detailed solutions for reservoir selection, CO2 transport, injection and monitoring to pave the way towards commercialization of CO2 storage in offshore basalt complexes.
  The project is led by Christian Berndt, GEOMAR, Germany and involves partners from Germany, India, Norway and USA.

- **SPARSE**: The aim is to develop a low-cost monitoring system to ensure containment and conformance, consisting of node-based multi-physics geophysical monitoring and automatic conformance evaluation.
  The project is led by Peder Eliasson, SINTEF, Norway and involves partners from Canada, Norway and USA.