New ACT3 projects selected for funding

In June 2021, the decision for funding new ACT projects from the call launched in 2020, was taken. These projects are addressing R&I targets in the CCUS field as they have been focused by the ACT funding partners. Following a rigorous two-stage evaluation process, during which projects were ranked by an independent international expert panel, the ACT Board decided to fund twelve (12) of the top ranked projects.

The new ACT3 projects cover a wide range of activities as described further down. Aside from their broad technical focus, all projects will address outreach, knowledge sharing, and social aspects.

The total budget of the 12 projects is 42M€ of which 27M€ is funded by the ACT Consortium; private financing amounts to ~3M€ of which the majority comes from industry partners. The in-kind contribution to these projects is approx. 11 M€ in total.

All the new projects are in the contractual process and are due to commence in autumn 2021**.** They will present their goals and plans in the Annual ACT Knowledge Sharing Workshop in Rotterdam on 24 November 2021. See more here

With three successful calls and several projects already delivering interesting results, the ACT consortium has established itself as a strong multinational funding scheme for research and innovation dedicated to CCUS. ACT envisages to launch additional calls and expand its network through its Open Call and its participation in the Clean Energy Transition Partnership (CETP).

The table below shows the ACT3 projects, the funding from ACT and the countries where the partners are located (marked in green). The green boxes with the bold X indicate the country for the lead project partner.

Project	ACT funding (M euro)	Alberta	Denmark	France	Germany	Greece	India	Italy	Netherlands	Nordic	Norway	Romania	Switzerland	Turkey	UK	USA
ABSALT	1,3				x	x		x					x		**X**	
CEMENTEGRITY	2								x		**X**				x	
CoCaCO2La	1,2					x									**X**	x
CooCE	1,6		x			x		**x**							x	
CREATE	0,6	**X**		x									x			
ENSURE	1,1	x		x							**X**				x	x
EverLoNG	3,4				x				**X**		x				x	x
LOUISE	2				**X**	x					x			x		
NEXTCCUS	1,9			x		x		**X**				x			x	x
RETURN	4,2	x			x				x		**X**				x	
SCOPE	3,7				x		x		x		**X**				x	x
SHARP	3,8		x				x		x		**X**				x	

All projects run for 3 years, except ABSALT and CoCaCoLa, which run for 2 years. Brief descriptions of the new ACT projects are listed below.

Project short summaries

ABSALT

The goal of ABSALT is to demonstrate that basic silica-polyethylenimine (PEI) in solids adsorption looping technology (SALT) can achieve low capture costs. This will be achieved through optimising the silica-PEI composition to minimise the adsorbent replacement cost and regeneration energy, with the extensive pilot-scale testing programme and the techno-economic and life cycle analyses providing the platform for taking silica-PEI SALT forward to full demonstrations.

ABSALT is led by Colin Snape at University of Nottingham. The project has 8 partners from: Germany, Greece, Italy, Switzerland, the UK and Korea. The funding from ACT is ~1.3 M€ and the project will run for 2 years.

CEMENTEGRITY

The main objective of CEMENTEGRITY is to develop cementing compositions and improve technologies for delivering wellbore cement seals which retain high integrity over long durations relevant for CCS, taking into account realistic in-situ conditions and (CO2) compositions.

This project is led by Reinier van Noort at IFE (Institute for Energy Technology, Norway), and has 7 partners from Norway, The Netherlands and the UK. The project period is 3 years and the funding from ACT is ~2 M€.

CoCaCO2La

CoCaCO2La aims to develop a flexible, tunable, economically viable electrolyser to convert CO2 to ethylene (C2H4), using nano-structured copper (Cu) catalyst.

The project is led by Damien Kirkpatrick at TWI LIMITED (UK) and has 6 partners from Greece, the UK and USA. The funding from ACT is ~1.2 M€ for this 2 year project.

CooCE

CooCE focuses on the bioeconomy which aims at responding to the environmental challenges associated with human activities by the development of bio-based processes and the implementation of biorefineries. Together with the application also of circular economy approaches, this will result in the production of chemicals, fuels and materials using renewable resources such as biomass instead of fossil materials, allowing a drastic reduction of the GHG emissions. Bio-based processes could also lead to the creation of net sinks since the CO2 previously fixed in the biomass is not released but stored as chemicals and materials.

This project is led by Tomas Morosinotto at University of Padova (Italy) and has 9 partners from Denmark, Greece, Italy and the UK. They are funded with ~1.6 M€ from ACT.

CREATE

The CREATE project focuses on technological advancement of a circular economy model in a cement plant, i.e. capture and conversion of CO2 and waste heat from a cement plant into solid additives for composites in building and transportation.

CREATE is led by Mina Zarabian at Carbonova (Canada) and has 4 partners from Canada, France and Switzerland. The funding from ACT is ~0.6 M€.

ENSURE

The overarching goal of the ENSURE project is the progression of microseismic monitoring technologies to become not only a robust and cost-effective, but also a publicly accepted tool for seal integrity verification in large-scale CO2 sequestration.

The project is led by Bettina Goertz-Allmann at NORSAR (Norway) and the consortium is formed by 9 partners from Canada, France, Italy, Norway, Netherlands, UK and USA. The funding from ACT is ~1.1 M€.

EverLoNG

The objective of the EverLoNG project is to accelerate the implementation of the Ship-Based Carbon Capture (SBCC) technology by demonstrating it on board of LNG-fuelled ships. EverLoNG will validate and demonstrate the SBCC technology on-board of two LNG-fuelled ships, owned and operated by project partners Total and Heerema. The demonstration will bring the technology to TRL7.

The project is led by Marco Linders at TNO (Netherlands) and has 17 partners from Germany, Norway, Netherlands, the UK ad USA. The total funding form ACT is ~3.4 M€.

LOUISE

The aim of the LOUISE project is to prepare for pre-commercial demonstration of Chemical Looping Combustion (CLC) of solid waste-derived fuels, i.e. an innovative process for poly-generation of power, heat, and chemicals from waste (waste-to-energy, WtE) providing a concentrated stream of CO2 that is ready for transport and storage or utilization.

The project is led by Jochen Ströhle at Technical University of Darmstadt (Germany) and has a total of 18 partners from Germany, Greece, Norway and Turkey. The funding from ACT is ~2 M€.

NEXTCCUS

NEXTCCUS aims to contributing towards a sustainable energy technology with negative carbon footprint by producing methanol as a clean and secure alternative renewable fuel from CO2 capture, direct conversion and storage as liquid fuel using sustainable electrochemical system.

The project is led by Mahmoud Zendehdel at IRITALY Trading Company Srl (Italy) and has 8 partners from Greece, France, Italy, Romania, the UK and USA. The funding from ACT is ~1.9 M€.

RETURN

The RETURN project consortium, which was initiated by industry, consists of leading R&D providers in collaboration with several major oil and gas operator companies. The project focuses on unlocking the potential for CO2 storage in depleted oil and gas reservoirs. The goal is to enable safe and cost-efficient use of depleted reservoirs as long-term storage sites for CO2. Achieving this goal demands an in-depth understanding of the subsurface processes occurring during CO2 injection and the availability of reliable modelling tools to predict the flow of CO2 across the pipeline wellbore-reservoir system.

The project is led by Malin Torsæter and Pierre Cerasi at SINTEF (Norway) and has 19 partners from Canada, Germany, Italy, Norway, Netherlands, and the UK. The funding from ACT is ~4.2 M€.

SCOPE

The overall objective of SCOPE is to accelerate CO2 capture projects by providing critical data, methodologies and tools that are essential for plant owners and regulators engaged in managing emissions and permitting processes.

The project is led by Hanne Marie Kvamsdal at SINTEF AS (Norway). SCOPE is a project with a consortium of 24 partners from Germany, India, Norway, Netherlands, the UK, and USA. The project is funded with ~3.7 M€ from ACT.

SHARP

SHARP aims to quantify and reduce storage risks by a more accurate estimation of rock stress states and related rock failure scenarios. The project will contribute to ensure safe storage of CO2 at the gigatonne per year scale; it will scale up the Northern Lights CO2 storage project, mature emerging storage sites in the North Sea and kick-start offshore storage development in India.

The project is led by Elin Skurtveit at Stiftelsen Norges Geotekniske Institutt (NGI, Norway) and has a consortium of 16 partners from Denmark, Germany, India, Norway, Netherlands, and the UK. The funding from ACT amounts to ~3.8 M€.