

Accelerating CCS Technologies

The power of ACT

Baltic Carbon Forum 22-23 October 2019

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ACT - today

- What ACT is about
 - What we have achieved
 - Calls, Projects, Results
-
- New partners (Funding agencies/Ministries) are welcome to join ACT



This is ACT - Accelerating CCS Technologies

- Funding agencies from Europe and USA
- Aims to accelerate and mature CCUS technologies
- Making funds available for R&D and innovation projects.



ACT - ambitious initiative.....

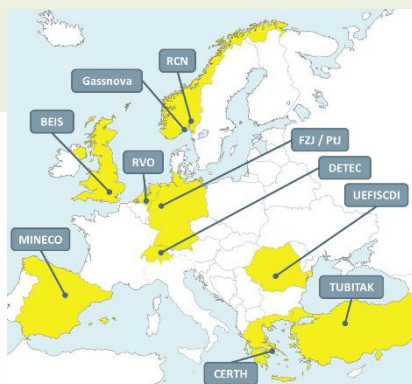
- With two successful calls and projects underway, the ACT partners have established themselves as a new multilateral funding scheme for research and innovation dedicated to CCUS.
- ACT is a fit-for-purpose, partner-driven, flexible and an easy-to-join multi-national funding scheme that serves our ambition **to make CCUS a commercially viable climate mitigation technology.**
 - Results relevant to the industry
 - Results relevant for policy makers



Status of ACT1 and ACT2

ACT1: Projects Started Sept 2017

- 10 funding agencies from nine countries
- 8 new projects started in 2017
- €36M from ACT of which ~€11.9M from the EC



ACT2: Projects Started ~Sept 2019

- Funding agencies from eleven countries
- 12 new projects decided for funding in June 2019
- €31M from ACT, No EC money



ACT1: Projects funded, 2017-2020

Project	Activities	ACT, M €	Norway	Netherlands	UK	Germany	Romania	Switzerland	Spain	Turkey
ALIGN	Chain integration, clusters	14.5	x	X	x	X	X			
ELEGANCY	Chain integration, hydrogen	8.9	X	x	x	X		x		
PRE-ACT	CO2 storage, pressure handling	4.5	X	x	x	X				
ACORN	Full chain CCS / infrastructure	2.0	x	x	X					
DETECT	CO2 storage, risk assessment	2.0		X	X	X				
ECOBASE	CO2-EOR SouthEast Europe	1.2	X	x			x			x
GASTECH	Gas switching technology	1.7	X	x			x	x	x	x
3D-CAPS	3D printed sorbents	1.5	X	X			x			

- Total budget for 8 projects: €50M
- ACT supporting: €36M

bold X = lead country

ACT results and impacts



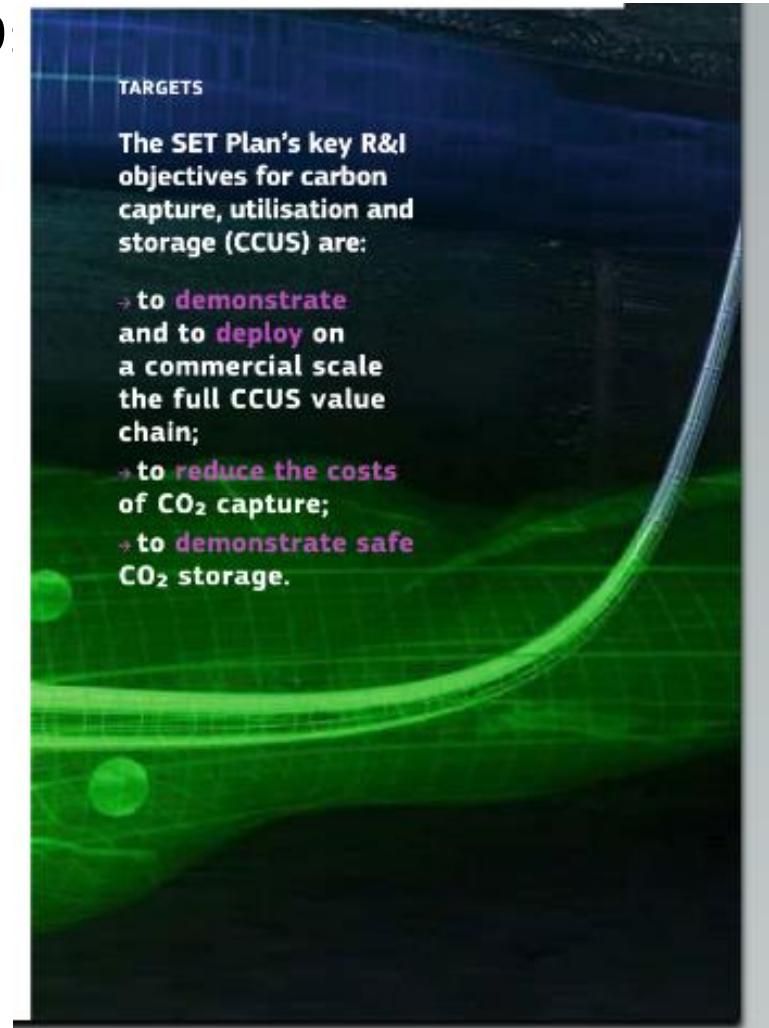
- **ALIGN-CCUS:** meeting the immediate R&D needs of industry and preparing for large scale CCUS implementation at 4-5 clusters in Europe
- **ELEGANCY:** Paving way for H₂ production combined with CCS
- **PRE-ACT:** improving strategies for monitoring and management of pore pressure. Just what the Norwegian full scale CCS project needs.
- **ACORN:** Recommendation for re-use of infrastructure in a UK CCS value chain.
- **DETECT:** Experimental setups to measure pressure, mineralisation and clay swelling effects which influence CO₂ flow through faults and fracture networks
- **ECOBASE:** CO₂ storage in South East Europe (Romania, Turkey)
- **GASTECH:** Testing 4 different capture technologies
- **3D-CAPS:** 3D printing of sorbents for more cost effective CO₂ capture
- More details at www.act-ccus.eu



ACT 2nd call, launched June 2018

12 projects granted funding by June 2019

- 5 capture
 - 1 capture and solvents
 - 3 storage and monitoring
 - 1 storage and wells
 - 1 storage and CO₂ usage
 - 1 mineralisation
- Total budget of ~43,5M€
 - ~31M€ requested from ACT
 - 1,5M€ private/industry funding (approx. 3,4% of total budget)

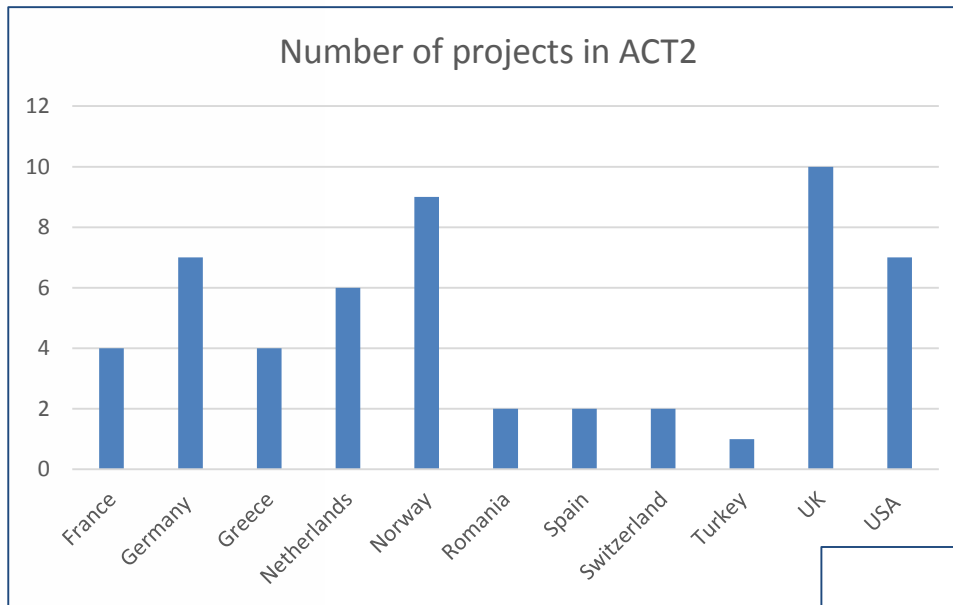


ACT2: Projects funded, 2019-2022

Projects	Activities	ACT, M€	France	Germany	Greece	Netherlands	Norway	Romania	Spain	Switzerland	Turkey	UK	USA
AC2COM	Oxyfuel technology in Cement production	3,0	x	x	x		x			x			
ACTOM	Offshore Monitoring	1,5				x	x					x	x
ANICA	Carbonate Looping Process in cement industry	2,4		x	x							x	
DIGIMON	Digital Monitoring of CO2 storage projects	5,0		x	x	x	x	x				x	x
FUNMIN	CO2 mineralisation into anhydrous MgCO3	0,7	x						x			x	
LAUNCH	CO2 capture in various industries	5,1		x		x	x					x	x
MemCCSea	Membrane systems for CO2 capture and storage at sea	1,7		x	x		x						x
NEWEST-CCS	Negative Emissions in the Waste to Energy Sector	2,2		x		x	x					x	
PRISMA	Sorbent Materials for energy efficient carbon capture	2,1					x			x		x	x
REX-CO2	Reusing existing wells for CO2 storage	2,5	x			x	x	x				x	x
SENSE	CO2 storage sites - ground surface monitoring	2,7	x	x			x		x			x	x
SUCCEED	CO2 storage Coupled with geothermal Energy Deployment	2,5				x					x	x	

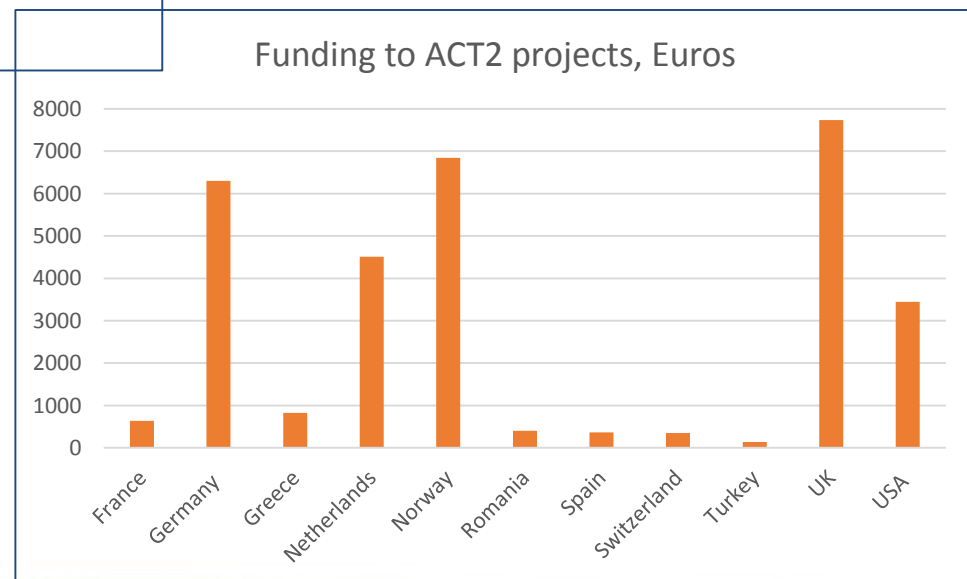
Total budget 43,5M€ of which 31,5M€ from ACT

Distribution of ACT2-projects



- Projects have included **communication**, **knowledge sharing** and **social aspects**
- Germany, The Netherlands, Norway, UK and USA participate in 7-10 of the projects
- France, Greece, Spain, Switzerland and Turkey participate in 1-4 projects
- Participants from 3-7 countries in each project

The awarded projects will be published on our web 23 October



Expectations

- Pave way for large scale CCUS deployment
- Dissemination beyond scientific papers.
Communicate results to industry, and decision makers.
- Collaborate with other 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***



ACT Knowledge Sharing Workshop

Athens, 6-7 November 2019

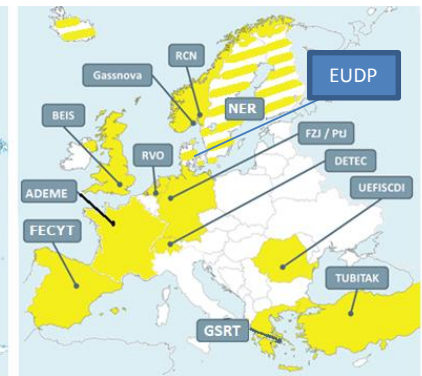
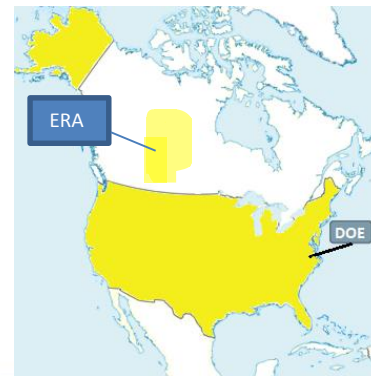
- All ACT projects will be present
- Fruitful knowledge sharing
- Enhance collaboration
- 100 participants expected
- See ACT web site for registration form



ACT3: The 2020 Call – under planning

Consortium extended with **new partners**:

- **Nordic Energy Research** (NER, www.nordic.org) - covering Iceland, Norway, Sweden, Finland and Denmark
 - Focus on social aspects and business models
- **Emission Reduction Alberta** (ERA, www.eralberta.ca/)
- **Danish Energy Agency** (Dep. EUDP, www.ens.dk) - decision to be taken 12.12.2019
- New partners from the Baltic region are very much welcome to join ACT3



Learning from the ACT calls

- An ACT project is more than a set of national projects.
- Thinking beyond traditional dissemination
- Be present where industry and decision makers meet
- Cooperate with other ACT projects
- Keep the ACT consortium posted on deliverables, reports, project meetings, workshops, delays



EEA – Norway grants

Poland, POLNOR CCS Call

Close 12 December 2019

Budget € 11,764,706

- Full value chain analysis
- Social science related to deployment of CCS
- Storage pilots
- New knowledge that facilitates large-scale CO2 storage
- Development of CO2 capture solutions integrated in power and industry processes

Environment, Energy, Climate Change and Low Carbon Economy



TOPICS & PROGRAMMES

Environment and Ecosystems

Environmental protection does not only mean providing a better environment for animals



TOPICS & PROGRAMMES

Energy

Secure, affordable and climate-friendly energy is key for a sustainable future.



TOPICS & PROGRAMMES

Climate Change

Climate change is one of the largest threats faced by the world today. Iceland,

Basis for success



- Political interest and will to long-term support of R&D programs/projects
- **People working together towards the same goal – best tools for climate measures !**
- Open minded processes - sharing knowledge across borders
- Value for money !
- Relevant projects for the nation's green transition, industry and society
- New partner joining, contributing with EUR in transnational calls and the strategic work (towards EC etc)



Thank you for your attention

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