Report on the 2nd Pre-ACT Stakeholder Meeting,
10th of October 2019, Brussel
Summary by ACT Consortium 14 October 2019

General remarks:
The 2nd Pre-ACT Stakeholder Meeting was well attended by the policy/law makers from the EC/European Parliament, industry (oil-gas companies), R&D institutes/universities, NGOs and ACT project partners (about 35 people). The meeting, chaired by Ane Lothe and Peder Eliasson (both Pre-ACT, SINTEF) was held at the ‘right’ moment, according to Mr. Nils Røkke (EERA Chair and EVP Sustainability in SINTEF), as Brussels is currently discussing on the new post of EU Energy Commissioner and climate objectives for 2030 and 2050. To meet the climate and energy challenges, many actions are considered, such as decarbonation technologies, hydrogen and negative emission technologies. The good news is that 7 European companies have signed MoU with the Norwegian Northern Lights project on CO2 storage development. The MoU implies that they will discuss solutions on CO2 deliveries and transport, develop a timeline for possible final investment decision, plan start of operations, and collaborate on the CCS dialogue with national authorities and the EU. This could pave way for full scale CO2 storage.

The message from EC (presented by Mr Vassilios Kougionas) on ACT:
ACT ERA-NET as a vehicle for cooperation with MI countries
The EU’s goal is net-zero GHG emissions by 2050 to stay within 1.5°C to achieve climate neutrality. The Green Deal initiative is raising global ambition to 50-55% GHG emissions reduction by 2030. This means ‘renewables first’, with remaining fossil fuel and carbon intensive industries fully decarbonized through CCUS and clean hydrogen. CCUS, tackle remaining emissions with carbon capture and storage, is 1 of the 7 Building Blocks of the EU energy transition strategy. CCUS is recognized by the EC as one of the most important low carbon technologies. The Innovation Fund is an important mechanism that will accept proposals in late 2020, after the EU’s new long-term budget for 2021-2027 is approved.

The ACT programme was recognized at the Stakeholder Meeting “as a vehicle for cooperation with Mission Innovation countries”. ACT is also an important tool to reach the ambitions of the EU SET PLAN CCUS Implementation Plan.

The message from NGOs: Solving the climate puzzle with CCS
The two NGOs, Bellona and ZERO, attended the meeting and they are supportive for CCUS.
**ACT projects contribute on the safe and cost-effective carbon storage in Europe**

The project partners of 5 ACT projects attended the meeting, and 4 of these projects presented their research results in different perspectives on monitoring of carbon storage.

- **DETECT** has focused on fracture network (pressure, mineralization and clay swelling effects), leakage rate modelling and risk assessment. The current result of the research can provide some insights on managing geological carbon storage risk.

- **Elegancy**: presented the experimental CO$_2$ fluid (with water) injection at the Mont Terri Underground Rock Laboratory (CH). To understand the CO$_2$ storage capacity, an experiment has been taken for 8 months with different inject speed, inject pressure (40-50 Pa) and CO$_2$ saturation has been measured.

- **Pre-ACT**: presented their research focusing on pressure control and conformance (verification) management for safe and efficient CO$_2$ storage, as pressure management is crucial in addressing the main storage challenges: capacity, confidence and costs. The result of the research would help regulator to establish a safe and efficient monitoring system and to assess quantitatively site conformance.

- **Digimon**: presented their research plans focusing on fiber-optic sensing technology to develop and demonstrate an affordable, flexible, societal digital monitoring early warning system for CO$_2$ storage.

- **ACT project partner test in Canada**: GFZ presented the FRS field lab and the SINTEF-coordinated aCQuurate (accurate CO$_2$ monitoring using quantitative joint inversion for large-scale on-shore and off-shore storage applications) project in Brooks, AB Canada. The project aims to develop a new technology for quantitative CO$_2$ monitoring applicable to large-scale on-shore and off-shore sites.

The ACT projects have demonstrated the monitoring knowledge gained by carrying out the ACT projects.

**CCS Field labs**
Two interesting field labs were presented at the meeting.

- Norway Svelvik CO$_2$ Field Lab: official opening will be held on 14 November 2019 and the 3rd Pre-ACT stakeholders meeting will also take place at this location on the following day.

- UK CO$_2$ storage pilot on-shore and off-shore.

The field labs provide test services on CO$_2$ storage.

**Storage Potential in UK, Netherlands and Norway**
Anne Cavendish (Equinor EU Affairs Office) presented the status and plans for the Norwegian full-scale project, and the ACT projects (Pre-ACT, ALIGN and Elegancy) presented the storage potential in the 3 countries.
Panel discussion: Getting CO2 storage out of the deadlock
Anne Cavendish (Equinor EU Affairs Office), Jonas Helseth (Bellona, Director of Bellona Europe), Eric Cauquil (Leader Gas & CCUS Risk Management, Total), Nils Røkke (SINTEF, EERA Chair) were in the panel, led by Ane Lothe (Pre-ACT, SINTEF). The discussion showed that the real challenges of the CCUS are:

- **Scale-up the CCUS projects**: regulators, authorities and the public acceptance are still a challenge for large scale CCS in Europe. Many capture projects are currently running in Europe - however the storage facilities are very limited. Regulators need to focus more on business case.

- **Storage cost**: Jonas Helseth reported on disturbing news about that the cost of CO2 storage can go up to USD 200 – 500/ton CO2. As the source and background for this information is not clear, more clarity is needed for policy makers.