



ENOS
Enabling Onshore CO₂ Storage

<http://www.enos-project.eu/>

CO₂ Capture and Storage

Research institutes across Europe join forces through a new scientific project

A new project – named ENOS (ENabling ONshore CO₂ storage in Europe) - that unites almost 30 research institutes was launched in September 2016: the main objectives of the European Horizon 2020 project are to increase field experience relevant to geological storage of CO₂, refine techniques and tools used for site selection and monitoring and to advance communication between science and society on the geological storage of CO₂. The project will run until August 2020.

ENOS strives to enhance the development of CO₂ storage onshore, close to CO₂ emission points. Several field pilots in various geological settings will be studied in detail and best practices that stakeholders can rely on will be produced. In this way, ENOS will help demonstrate that CO₂ storage is safe and environmentally sound and increase the confidence of stakeholders and the public in CCS as a viable mitigation option.

CO₂ injection testing

Several onshore research sites will serve to test CO₂ injection. At the storage pilot of Hontomin in Spain, 10,000 tonnes of CO₂ will be injected into a limestone rock layer at a depth of 1,500 m. Key parameters will be studied in order to monitor the evolution of the geological reservoir and to demonstrate that the storage operations have no negative impact on the environment. Innovative injection strategies, designed to optimise storage whilst guaranteeing site safety in the short and long term, will also be tested.

Tests at two other sites will allow project partners to improve techniques to detect CO₂ in the subsurface so that, in the unlikely case that CO₂ leakage were to occur, smaller amounts of CO₂ could be identified more quickly. Such in-situ experiments will also help provide ground truthing for leakage simulations in two different geological settings, one in a shallow aquifer and the other along a fault plane. The first site, an initiative of the University of Nottingham and the British Geological Survey, is a field laboratory near Nottingham, UK, called the 'GeoEnergy Testbed', and the second is the 'Sulcis Fault Lab', located in Sardinia, Italy.

An additional two proposed pilot storage sites, LBr-1 in the Czech Republic and Q16 Maas in the Netherlands, complete the ENOS test site portfolio.

50 Mt of CO₂ already safely stored worldwide

CO₂ Capture and Storage (CCS) is identified by the IPCC as a key climate-change mitigation technology, as detailed in its 2005 Special Report¹. CCS offers a solution to bridge the gap to a low carbon future in scenarios until the use of fossil fuels is discontinued. It can even generate negative carbon emissions by removing CO₂ from the atmosphere, for example when coupled with bioenergy. Today, after more than 25 years of CCS research, 15 industrial-scale projects are in operation worldwide, with a further six scheduled to join these in 2017, and 17 new projects currently in preparation. It has thus become a reality to capture CO₂ (coal-fired power plants, natural gas processing factories, cement and steel manufacturing plants, etc.) and store it in deep saline aquifers or depleted hydrocarbon reservoirs. To date, some 50 Mt of CO₂ has been safely stored underground. However, this represents only a small step (0.06%) towards international 2050 targets. The International Energy Agency (IEA) recommends increasing this volume to 90 Gt of CO₂ stored by 2050, in addition to using all other low-carbon options, in order to keep global warming to the 2°C maximum defined by the Paris Agreement that was ratified on 4 November 2016.

About ENOS

The ENOS (ENabling ONshore CO₂ storage in Europe) project, coordinated by BRGM (France), was launched in September 2016 and will last for four years. It unites 29 organisations across 17 countries, and is financed by the European Union's H2020 programme with a budget of 12.5 M€ as well as partners' and national funds. ENOS is an initiative of CO₂GeoNet, the European Network of Excellence on the geological storage of CO₂ (www.co2geonet.com).

List of partners (*= Members of CO₂GeoNet)

Europe: CO2GeoNet	Italy: NHAZCA, OGS*, Sapienza University of Rome*, Sotacarbo
Austria: GBA*	Norway: IRIS*
Belgium: GSB-RBINS*	Romania: GeoEcoMar*
Croatia: UNIZG-RGNF*	Slovakia: SGUDS
Czech Republic: Czech Geological Survey*	Slovenia: GEOINZ*
Denmark: GEUS*	Spain: CIEMAT, CIUDEN*, IGME*
Estonia: TTUGI*	The Netherlands: TNO*
France: BRGM* (Coordinator), Flodim, Geogreen, IDIL	Turkey: METU-PAL*
Germany: BGR*	UK: BGS*, Heriot Watt University*, Silixa, University of Nottingham

¹ IPCC Special Report citation 2005