

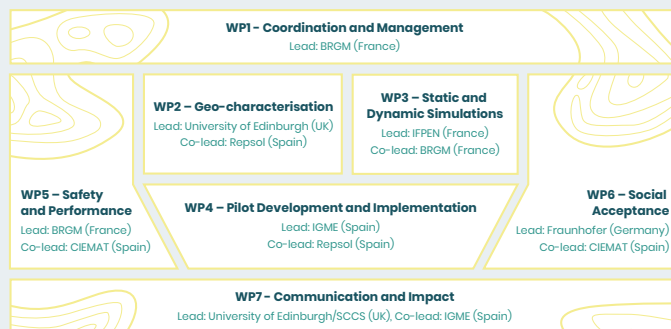
Abstract

PilotSTRATEGY focuses on advancing understanding of deep saline aquifers (DSAs) for geological CO₂ storage in five European industrial regions to support large-scale carbon capture and storage (CCS), a critical technology in the net-zero transition. Our research team of 16 scientific and industrial partners will build on the STRATEGY CCUS project which, among other things, identified a need to accelerate development of CO₂ storage.

DSAs have much promise for CO₂ storage, but are not well studied. PilotSTRATEGY will investigate DSAs in detail in three regions: Paris Basin (France), Lusitanian Basin (Portugal) and Ebro Basin (Spain). At the end of our five-year project, the level of site characterisation in these regions will be sufficient for a final investment decision to be made.

In two further regions, West Macedonia (Greece) and Upper Silesia (Poland), PilotSTRATEGY will update, and increase confidence in, understanding of DSA storage resources. This will enable these regions to start planning development of their CO₂ storage resources.

Recognising the societal challenges of implementing geological CO₂ storage, PilotSTRATEGY will develop public engagement strategies and include regional stakeholders and local communities in project implementation.



Our Regions



1. Paris Basin, France

- Industrial facility already capturing > 300 kt/CO₂ per year
- Storage resources within Keuper & Dogger Formations
- Keuper: identified effective storage capacity Tier 2 of 0.22Gt
- Dogger: identified theoretical storage capacity Tier 1 of 0.2Gt

3. Ebro Basin, Spain

- Region includes Tarragona and South Aragon industrial areas
- Potential CO₂ storage sites onshore and offshore. Social acceptance one of the criteria determining which proceeds
- DSA CO₂ storage capacity estimated at up to 0.85Gt Tier 2 and 0.2Gt Tier 1

5. Upper Silesia, Poland

- Region includes industrial areas of Katowice, Rybnik and Bedzin
- Poland's most industrialised region, with 16 coal mines and 7GW of power generation
- CO₂ storage capacity of 0.015Gt in uneconomic coal beds and of 0.1Gt in DSA

2. Lusitanian Basin, Portugal

- Includes CO₂ emitters in the Setúbal – Figueira da Foz axis
- Onshore effective storage capacity Tier 2 of 0.2Gt; offshore theoretical storage capacity Tier 1 of 1.2Gt
- As elsewhere, societal acceptance will help determine storage pilot's location

4. West Macedonia, Greece

- Region covers Kozani and Ptolemaida industrial areas
- Storage resource provided by the Mesohellenic Trough
- CO₂ storage in DSA estimated at 1.16Gt Tier 1 in STRATEGY CCUS

6. Germany (supporting country)

7. UK (supporting country)

Key expected impacts

Impact	PilotSTRATEGY Actions/Outputs
Detailed geo-characterisation	<ul style="list-style-type: none"> Conceptual Geological Model for five target regions New data including 3D active & passive seismic Characterisation (geological, geochemical & geomechanical) at field & sample scale for five regions
Safe storage sites: numerical simulations of CO ₂ fate and its impact in subsurface	<ul style="list-style-type: none"> Optimisation of well location and CO₂ injection rate by numerical simulations for four regions Short & long-term CO₂ fate in subsurface for five regions Pressure, geomechanical & geochemical impacts for four regions Impacts in near wellbore linked to injectivity issues Fault/fractures and caprock integrity for four regions
Development plans for safe storage sites in three most promising regions	<ul style="list-style-type: none"> Pre-FEED level development plan for CO₂ storage sites in France, Portugal & Spain Guidelines for risk identification in storage site development & assessment, including mitigation & preventive measures
Facilitate subsequent storage permit applications to help kick start CCS	<ul style="list-style-type: none"> Complete documentation for injection permits for France, Portugal & Spain in local languages Guidelines & road maps for permit submission, tailored to France, Portugal & Spain, in local languages Overview for Greece & Poland
Baseline storage cost estimates	<ul style="list-style-type: none"> Class 4 cost estimates for France, Portugal & Spain Creation of cost estimate database for future CO₂ storage sites in other European countries
Increased public awareness	<ul style="list-style-type: none"> Eight surveys in five target countries for public acceptance mapping Public engagement plans (activities, targets, schedule, material) for the five regions At least 10 workshops and engagement activities, aimed at citizens, media & policy makers, close to proposed pilot locations Regional Stakeholders Committees in all five regions Project dissemination: webinars, media and social media; clear, accessible information on project website
Laying groundwork for CCS operational stage in the mid-2020s	<ul style="list-style-type: none"> Complete studies for pre-FID in three main regions, including pre-FEED design Techno-economic pre-feasibility studies for CCS in all five regions Engage key stakeholders on potential implementation of future storage facilities