STRATEGY CCUS

A viable solution for a sustainable future

STrategic planning of Regions And Territories in Europe for low-carbon enerGy and industrY through CCUS

Coordination and Support Action (CSA)
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ABSTRACT

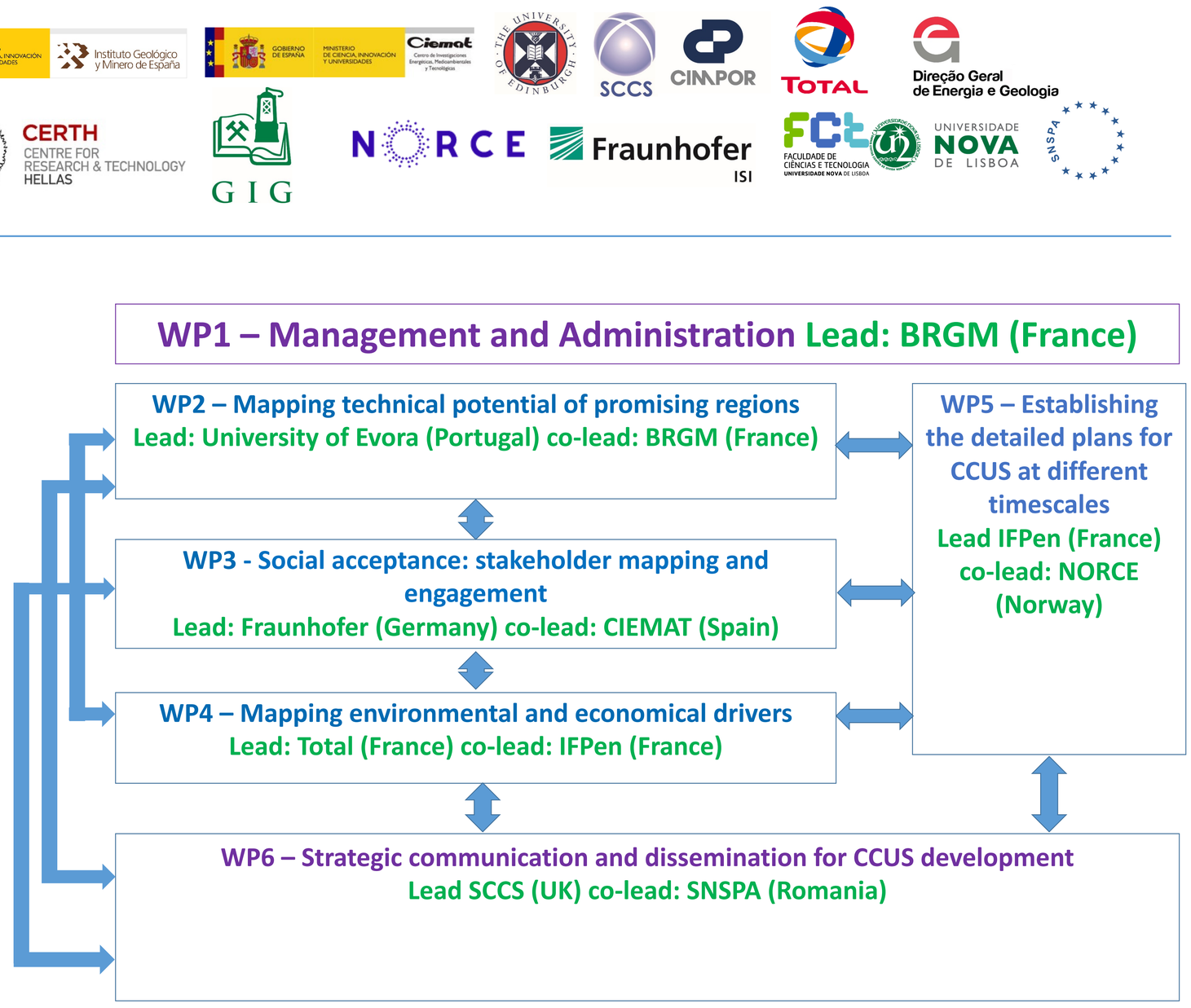
The STRATEGY CCUS project aims to elaborate strategic plans for carbon capture, utilisation and storage (CCUS) in Southern and Eastern Europe in the short term (up to 3 years), medium term (3-10 years) and long term (more than 10 years).

Specific objectives are to develop:

- Local CCUS development plans, with local business models, within promising start-up regions;
- Connection plans with transport corridors between local CCUS clusters, and with the North Sea infrastructure, in order to improve performance and reduce costs, thus contributing to a Europe-wide CCUS infrastructure.

Our 8 promising regions in 7 countries (ES, FR, GR, HR, PO, PT, RO) represent 33% of Europe's CO_2 emissions from the industry and energy sectors (EEA, 2018). These regions satisfy CCUS relevant criteria: presence of an industrial cluster; possibilities for CO_2 storage and/or utilisation; potential for coupling with hydrogen production and use; existing studies; and political will.

Detailed mapping of CCUS technical potential of the regions, together with a comprehensive mapping of local stakeholders and a process for their engagement, will pave the way for CCUS deployment scenarios including assessment of 'bankable' storage capacity, and economic and environmental evaluation. CCUS development plans will be elaborated in close cooperation with stakeholders, through the Regional Stakeholder Committees and the Industry Club, to ensure plans can be implemented, i.e. socially acceptable.

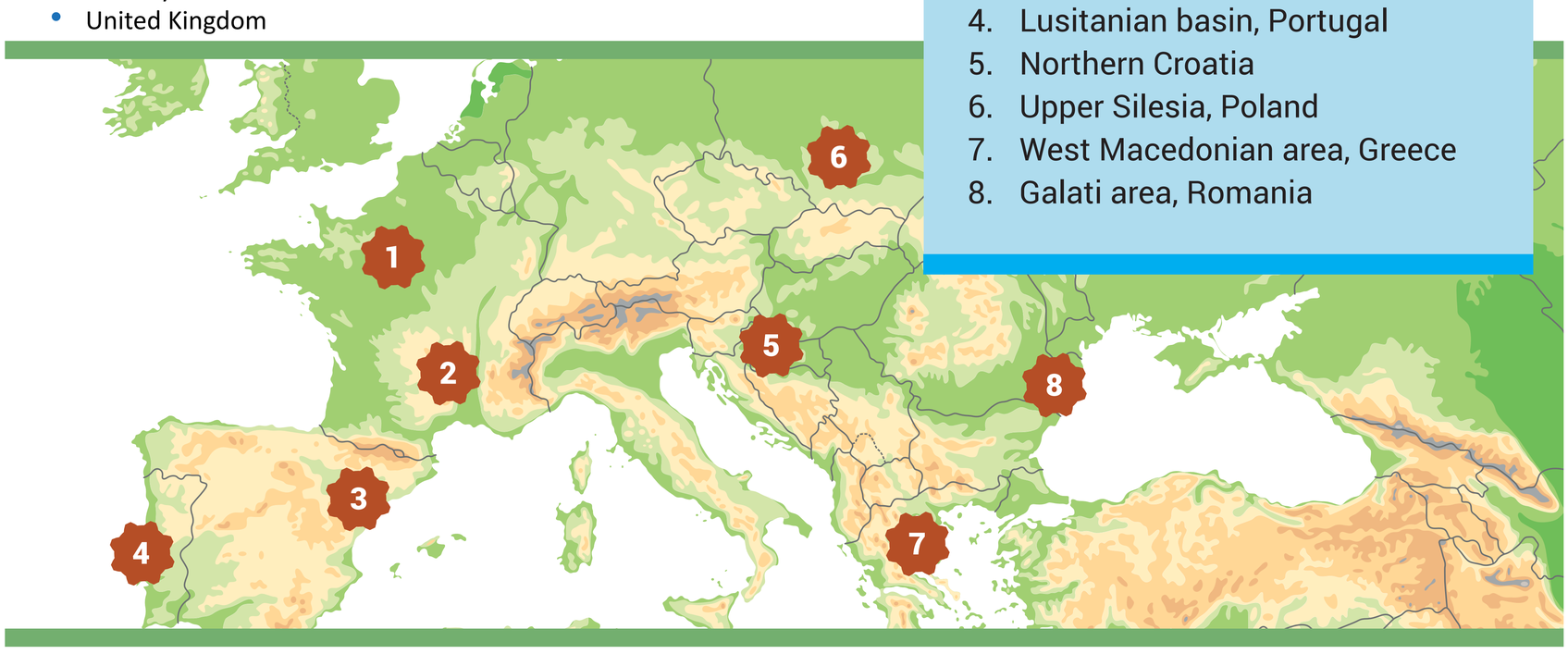


START-UP REGIONS

Supporting countries

- Germany
- Norway
- United Kingdom

1. Paris basin, France
2. Rhône Valley, France
3. Ebro basin, Spain
4. Lusitanian basin, Portugal
5. Northern Croatia
6. Upper Silesia, Poland
7. West Macedonian area, Greece
8. Galati area, Romania



1 Paris basin, France

France's most industrialised area, with small and medium industrial emitters. Several possibilities for CO_2 storage sites in deep saline aquifers or depleted hydrocarbon fields: estimated capacity 200 million tonnes. Captured CO_2 used in different options, including horticulture.

2 Rhône Valley, France

A number of high-emitting industries in "Chemical Valley" and the potential to develop several clusters. Studies already completed on pathways from industrial CO_2 emitters to CO_2 usage opportunities. CO_2 transportation by river and storage in the Mediterranean area.

3 Ebro basin, Spain

Includes large industrial zones with emissions mainly from power, cement and chemical industries. Geology offers varying CO_2 storage capacity of around 0.6 Gt. Opportunities for CO_2 usage for chemicals and industrial waste remediation. Potential to access 2000 km of gas pipelines.

4 Lusitanian basin, Portugal

Various CO_2 emitters, mainly power and cement industries, and a variety of storage site options with a theoretical offshore capacity of 3.9 Gt. Previous studies have defined pipeline corridors and ports offering CO_2 transport options to offshore storage.

5 Northern Croatia

Two current commercial CO_2-EOR projects with others planned. Geological CO_2 storage capacity in deep saline aquifers and depleted hydrocarbon fields has been evaluated at 2.7 Gt. Additional storage capacities have been assessed for ongoing CO_2-EOR projects and candidates.

6 Upper Silesia, Poland

Poland's most industrialised region, with power generation, coal mining, and metallurgical and coking sectors. Ten large power plants account for 90% of Silesia's emissions. It is the biggest emitter of our 8 regions. Poland's only region to enable CCUS use.

7 West Macedonian area, Greece

Covers two industrial zones, which feature coal-fired power, cement and biomass plants. High CO_2 storage potential in Mesohellenic Trough with two formations having a large capacity. Existing CO_2 capture plant in the area.

8 Galati area, Romania

Includes major industrial installations, including one of Romania's biggest emitters (steel production). Depleted hydrocarbon reservoirs offer CO_2 storage options. Black Sea proximity provides potential for CO_2 transport via shipping and/or pipelines.

PLANNED OUTCOMES AND IMPACTS

STRATEGY CCUS output	*Short-term (<3 years) expected impacts*	*Medium-term (3-10 years) expected impacts*	*Long-term (>10 years) expected impacts*
Detailed plans at national and transnational scales	Assessment of costs and impacts of CCUS to reach national targets of greenhouse gases reduction goals of the country	Investment opportunities Inclusion of CCUS in Nationally Determined Contributions (NDCs) of countries	Connections between regional CCUS clusters at national and transnational scales Lower decarbonisation cost than if CCUS is not applied
Detailed plans and roadmaps at regional scale	FEED study for pilot or demonstrator Providing enabling actions Including CCUS in regional plans for climate, energy and industry	Design infrastructure for hubs and clusters; full chain CCUS pilot/demo projects operating; deployment of Projects of Common Interest (PCIs) for construction of transnational CO_2 infrastructures	Regional CCUS clusters in operation
Methodology and best practices for CCUS assessment at local scale	Defining standard, key data and challenge issues	Policy support and regional incentives; proposed improvements to national and European policies and regulatory issues	Adapted regulatory framework at local, national and European level
Local business models Techno-economic assessment (TEA) MRIO analyses LCA analyses	Common European methodology to estimate economic and environmental drivers	Easy update of economic evaluation Same methodology used or the potential assessment in new regions	Deployment of CCUS whole chain
Public acceptance findings	Improved perception of the technology Avoiding stranded assets	Policy support and Regional incentives	Strong and sustained government support for the development of CCS, including policy incentives

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