



Identification of promising CCUS clusters in the Baltic and Mediterranean regions

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2nd European Underground Energy Storage workshop
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This project has received funding from UK Research and Innovation - Innovate UK under Innovation Funding Service (ISF)



Identification of promising CCUS clusters in the Baltic and Mediterranean regions

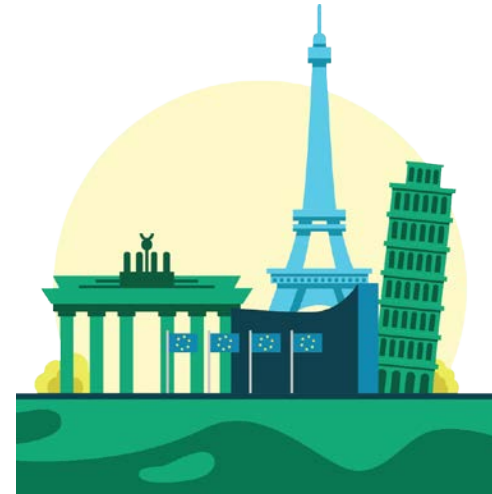
Zero Emission Network to facilitate CCUS uptake in industry

Objectives

- To enable faster development of CCUS projects in industrial clusters across Europe
- Identify potential new Project of Common Interest (PCI) projects for transport and storage
- Contribute to knowledge sharing on key issues relevant to industrial deployment of CCUS

HORIZON EUROPE

- CSA – Coordination and Support Action
- September 2022 – February 2025

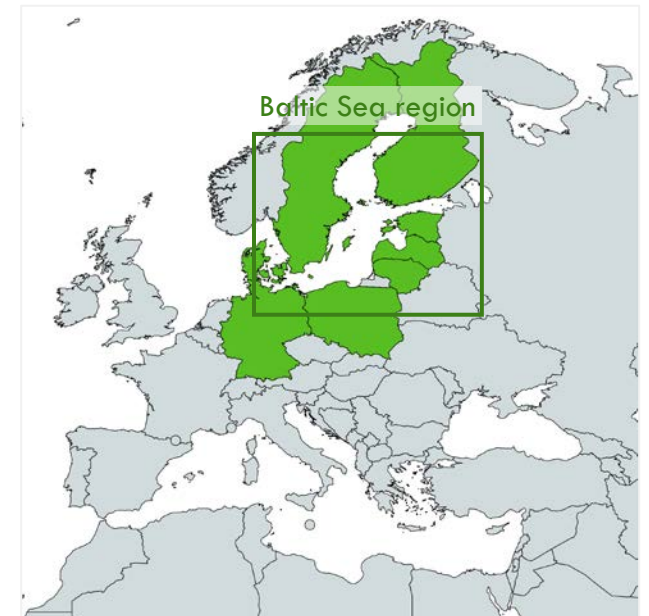




Identification of promising CCUS clusters in the Baltic and Mediterranean regions

Baltic Sea region

Denmark including the easternmost North Sea
Sweden
Finland
Germany
Estonia
Latvia
Lithuania
Poland
Baltic Sea





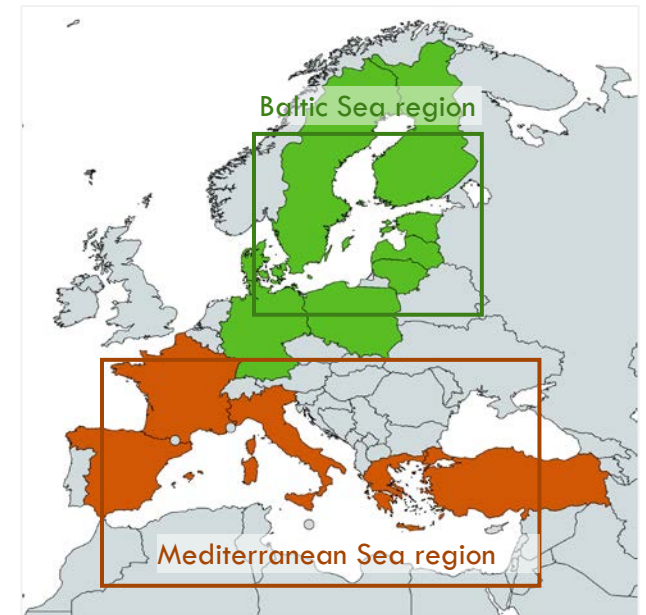
Identification of promising CCUS clusters in the Baltic and Mediterranean regions

Baltic Sea region

Denmark including the easternmost North Sea
Sweden
Finland
Germany
Estonia
Latvia
Lithuania
Poland
Baltic Sea

Mediterranean Sea region

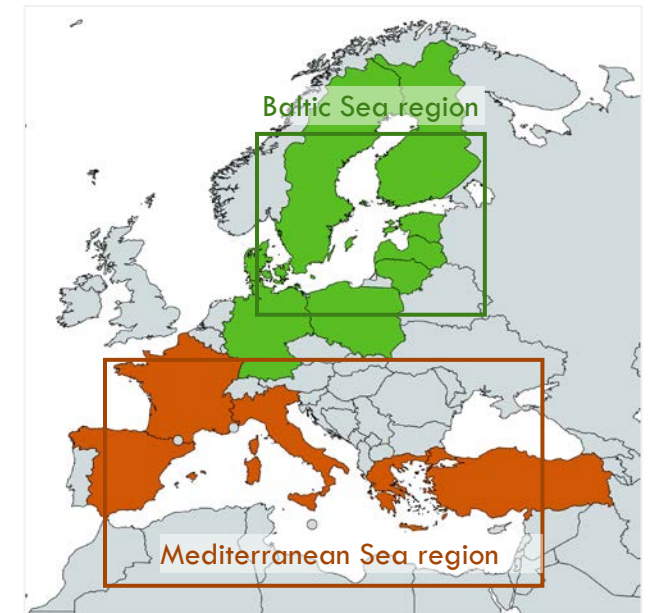
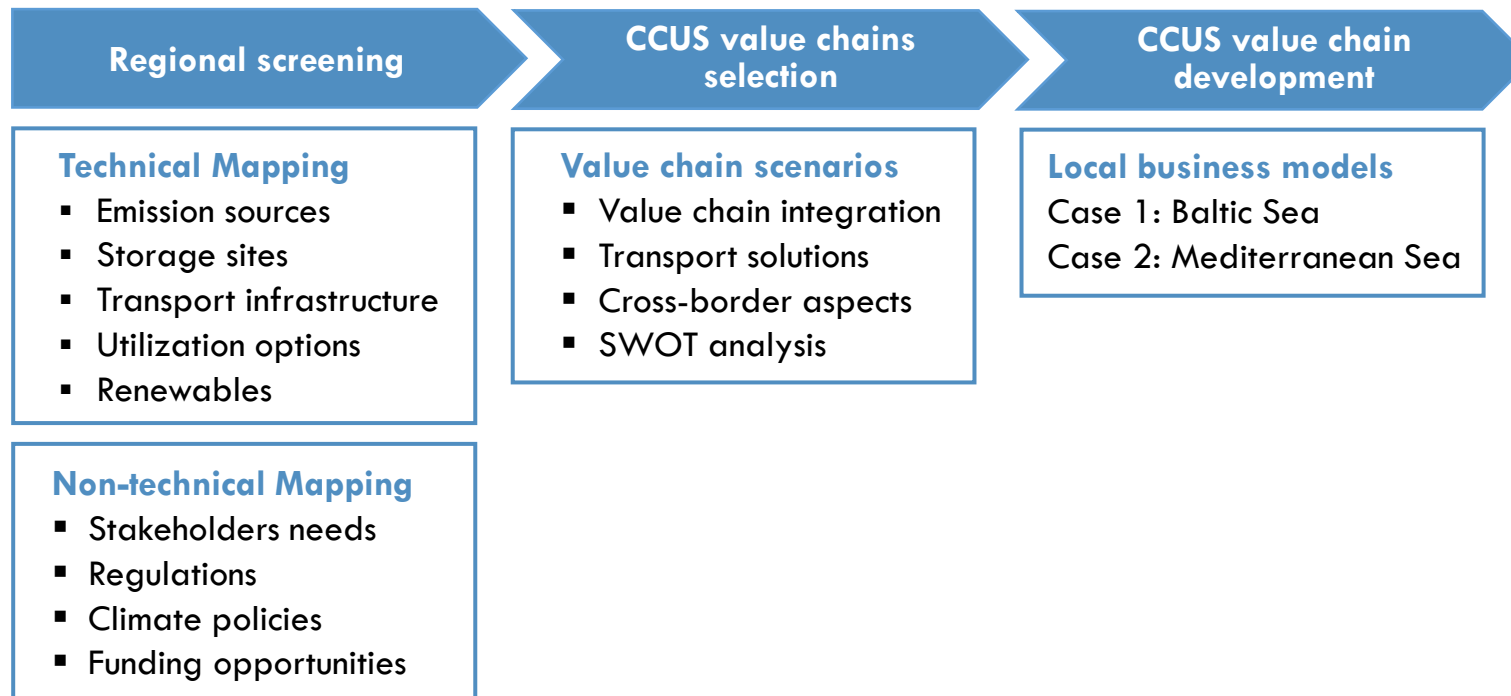
Spain
France
Italy
Greece
Türkiye
Mediterranean Sea





Identification of promising CCUS clusters in the Baltic and Mediterranean regions

Framework for CCUS value chain development





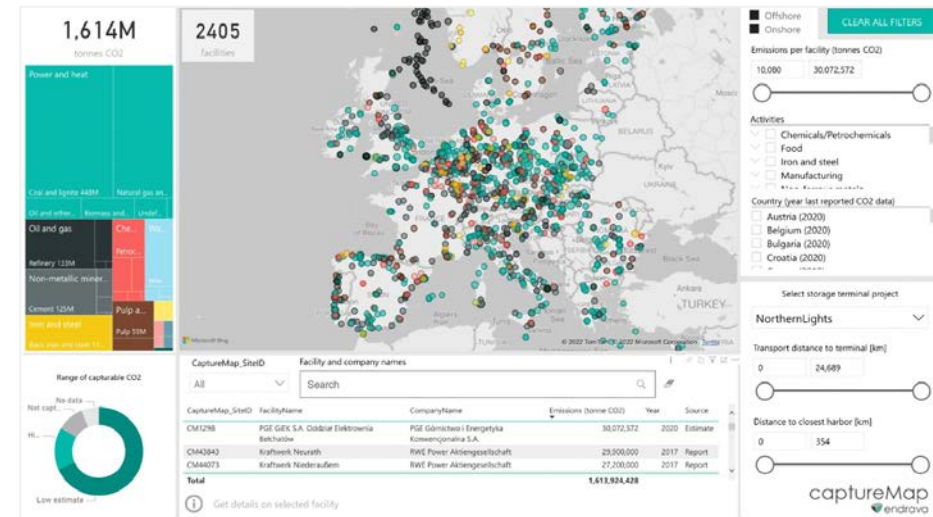
Identification of promising CCUS clusters in the Baltic and Mediterranean regions

Technical mapping
Emission sources

CaptureMap
endrava

- EU ETS (EU Emissions Trading System)
- E-PRTR (European Pollutant Release and Transfer Register)
- QA by Endrava

- QA by CCUS ZEN partners
Denmark, Sweden, Finland, Estonia, Latvia, Lithuania, Poland and France



Türkiye

- Middle East Technical University (CCUS ZEN partner)



Identification of promising CCUS clusters in the Baltic and Mediterranean regions

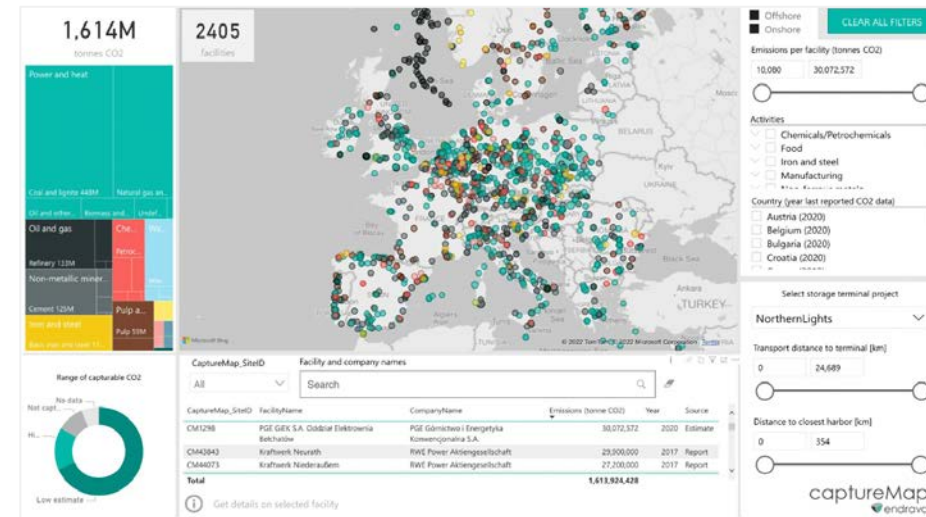
Technical mapping
Emission sources

Attributes

- Location
- Total emissions
- Emission trend
- Longlivity



ARC (<https://a-r-c.dk/english/visit-arc/>)





Identification of promising CCUS clusters in the Baltic and Mediterranean regions

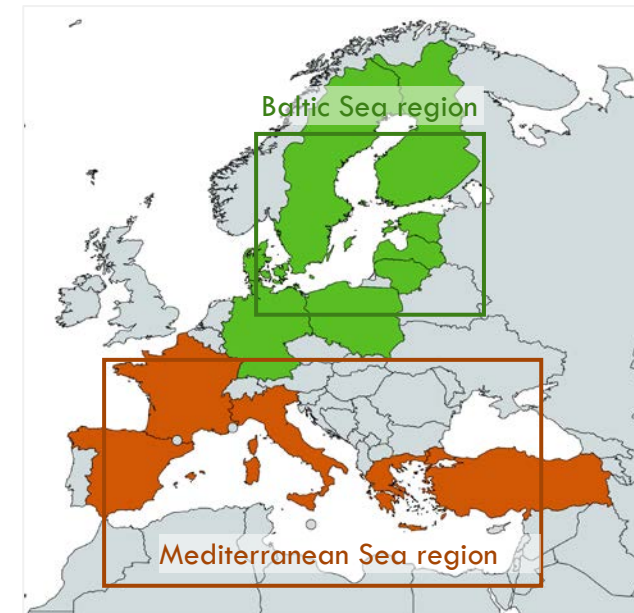
Technical mapping
Geological storage sites

European projects

Short name	Year
GESTECO	2000 - 2003
GeoCapacity	2006 - 2008
CO2Stop	2012 - 2014
NORDICCS	2012 - 2015
Strategy CCUS	2019 - 2022
Strategy Pilot	2021 - 2026

National projects

Country	Year
Sweden	2021
Denmark	2020
Spain	2015
Poland	2014
Projects by universities and research institutions	



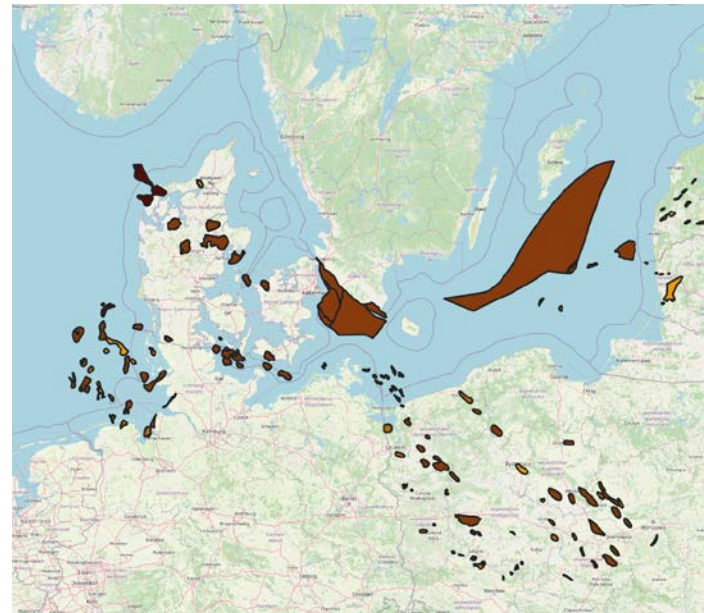


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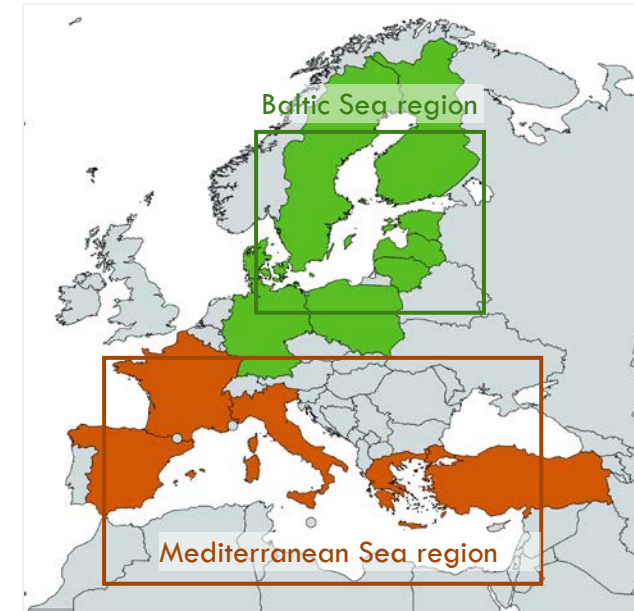
Technical mapping
Geological storage sites

Attributes

- Contour
- On-shore or off-shore
- Storage type (aquifer or hydrocarbon field)
- Storage capacity
- Storage Readiness Level (SRL)



Contour of prospective storage sites



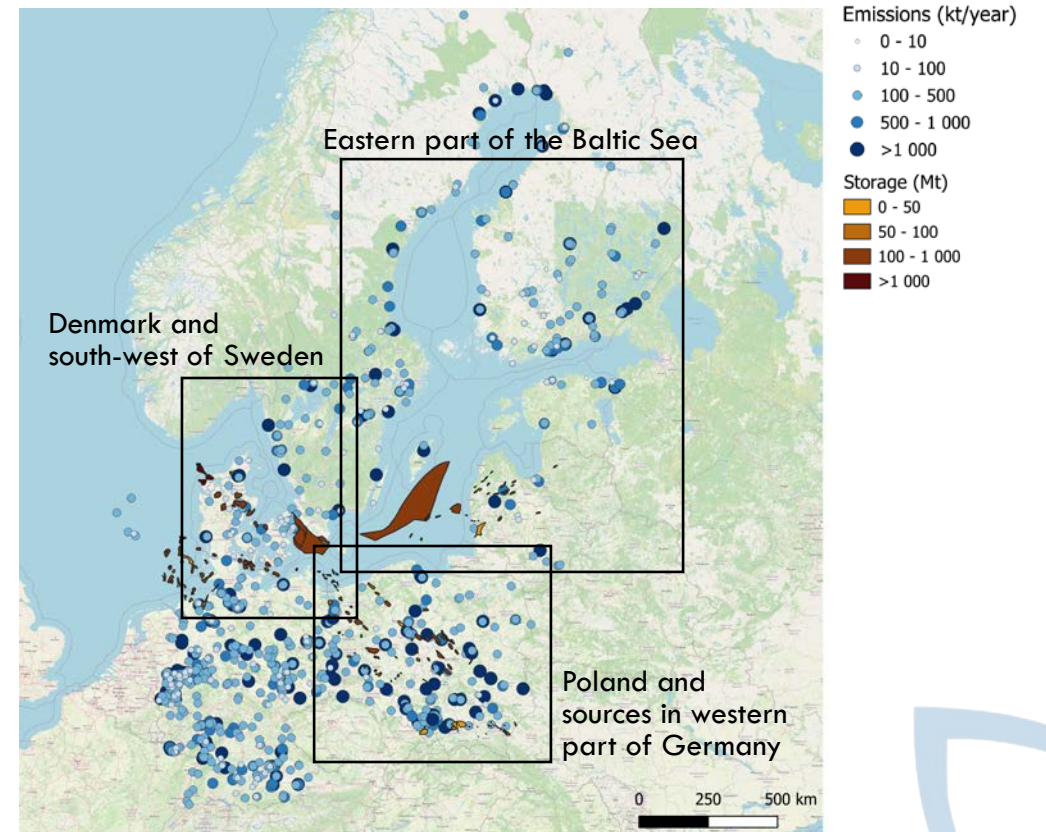


Identification of promising CCUS clusters in the Baltic and Mediterranean regions

Connecting emission sources with geological storage sites

Baltic Sea region

Denmark including the easternmost North Sea
Sweden
Finland
Germany
Estonia
Latvia
Lithuania
Poland
Baltic Sea





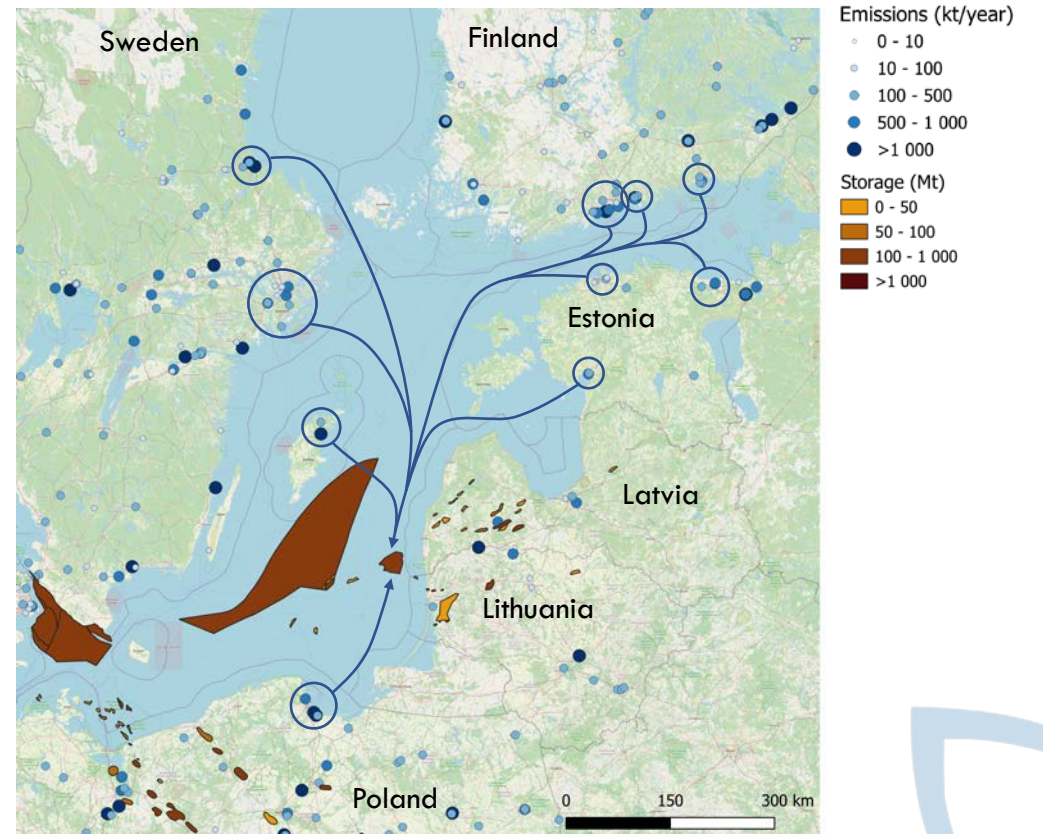
Identification of promising CCUS clusters in the Baltic and Mediterranean regions

Connecting emission sources with geological storage sites

Baltic Sea region

Denmark including the easternmost North Sea
Sweden
Finland
Germany
Estonia
Latvia
Lithuania
Poland
Baltic Sea

Eastern part of the Baltic Sea





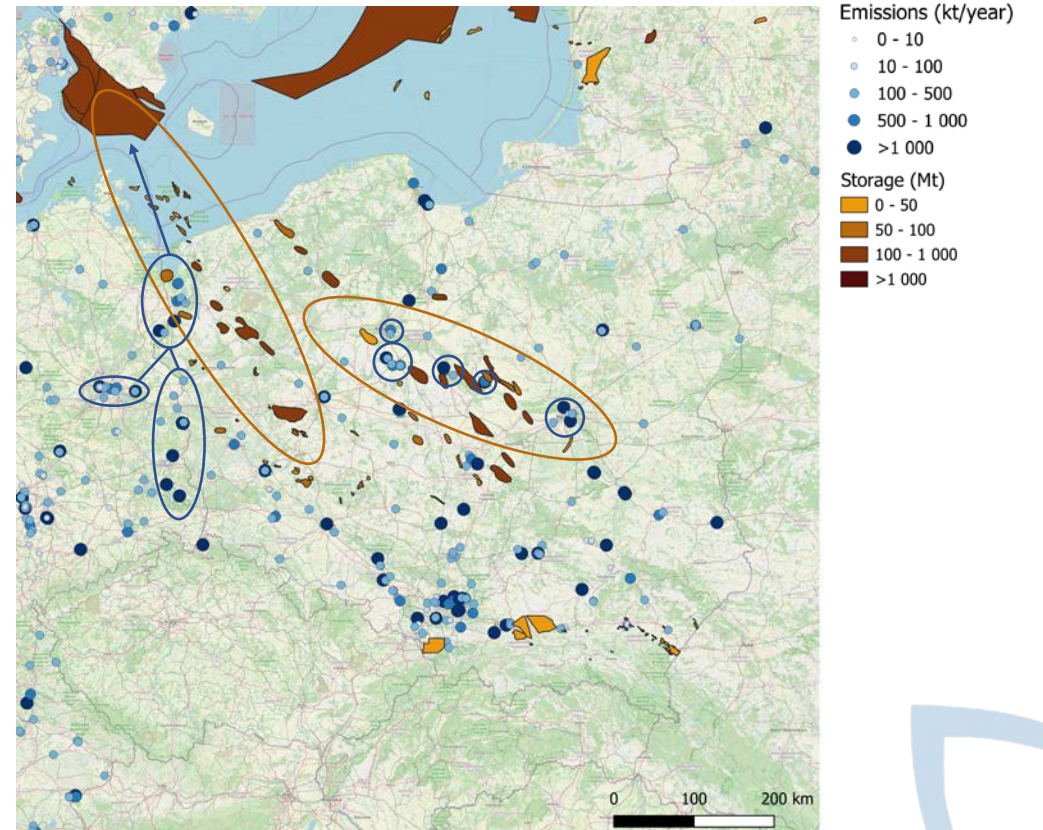
Identification of promising CCUS clusters in the Baltic and Mediterranean regions

Connecting emission sources with geological storage sites

Baltic Sea region

Denmark including the easternmost North Sea
Sweden
Finland
Germany
Estonia
Latvia
Lithuania
Poland
Baltic Sea

Poland and sources in western part of Germany





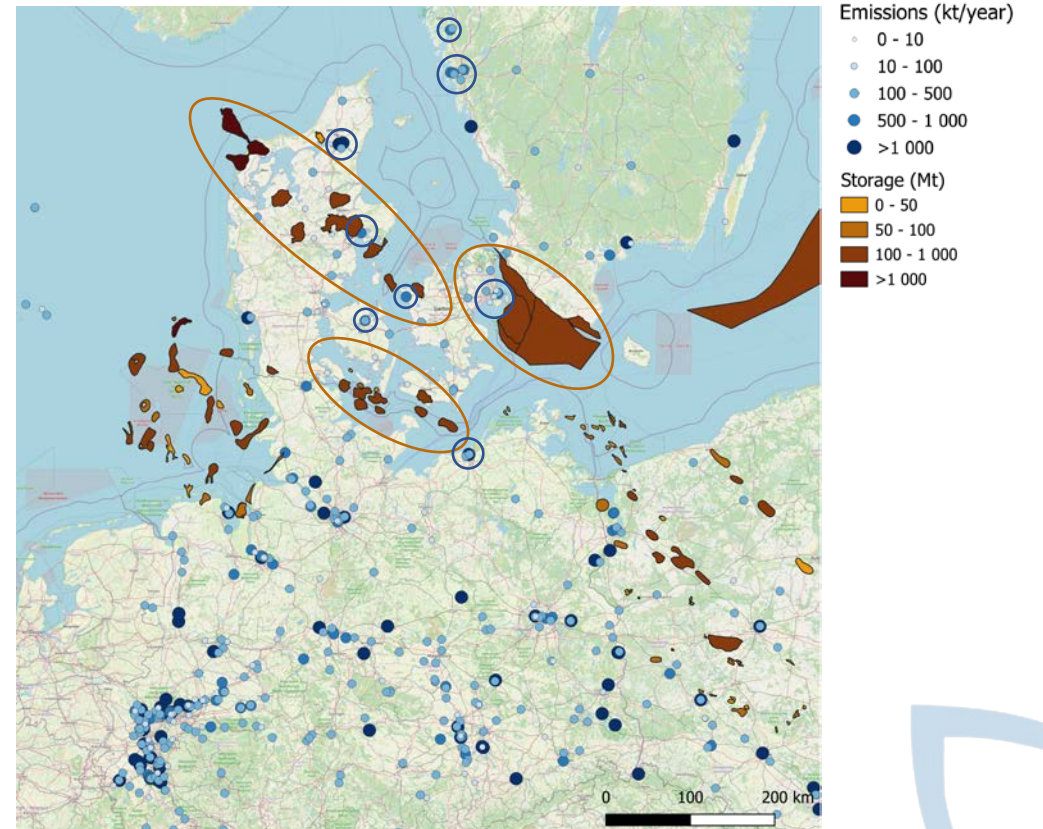
Identification of promising CCUS clusters in the Baltic and Mediterranean regions

Connecting emission sources with geological storage sites

Baltic Sea region

Denmark including the easternmost North Sea
Sweden
Finland
Germany
Estonia
Latvia
Lithuania
Poland
Baltic Sea

Denmark and south-west of Sweden



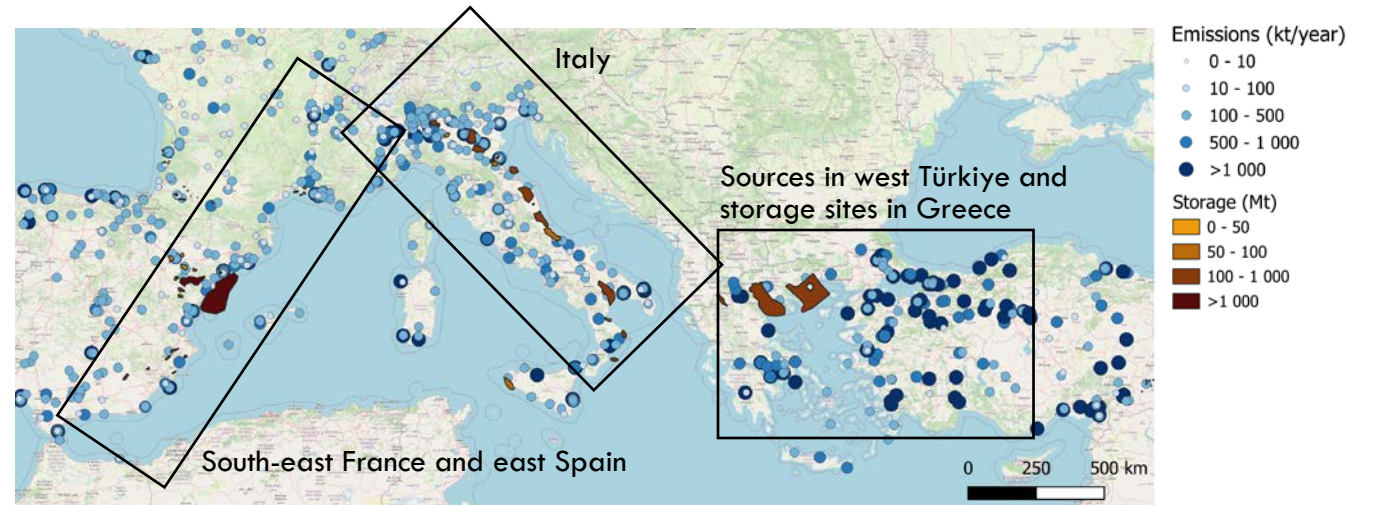


Identification of promising CCUS clusters in the Baltic and Mediterranean regions

Connecting emission sources with geological storage sites

Mediterranean Sea region

Spain
France
Italy
Greece
Türkiye
Mediterranean Sea





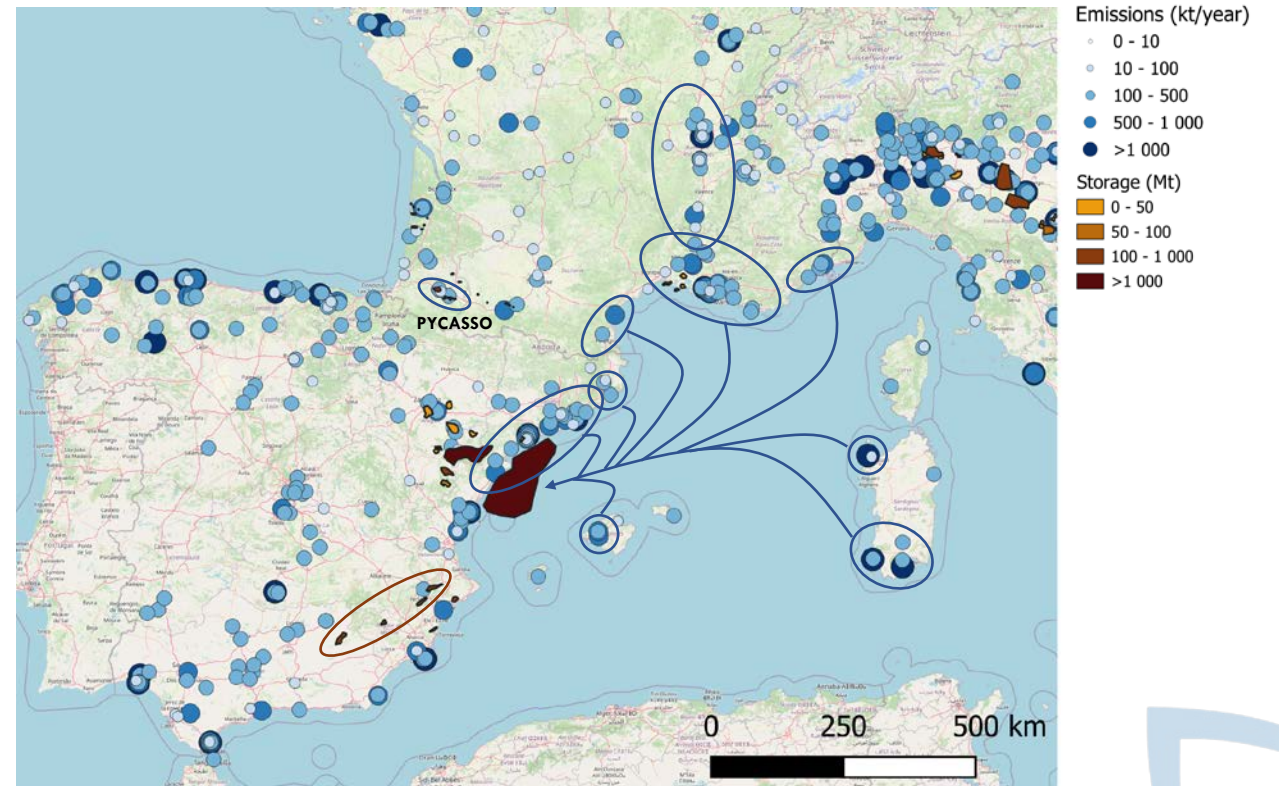
Identification of promising CCUS clusters in the Baltic and Mediterranean regions

Connecting emission sources with geological storage sites

Mediterranean Sea region

Spain
France
Italy
Greece
Türkiye
Mediterranean Sea

South-east France and east Spain





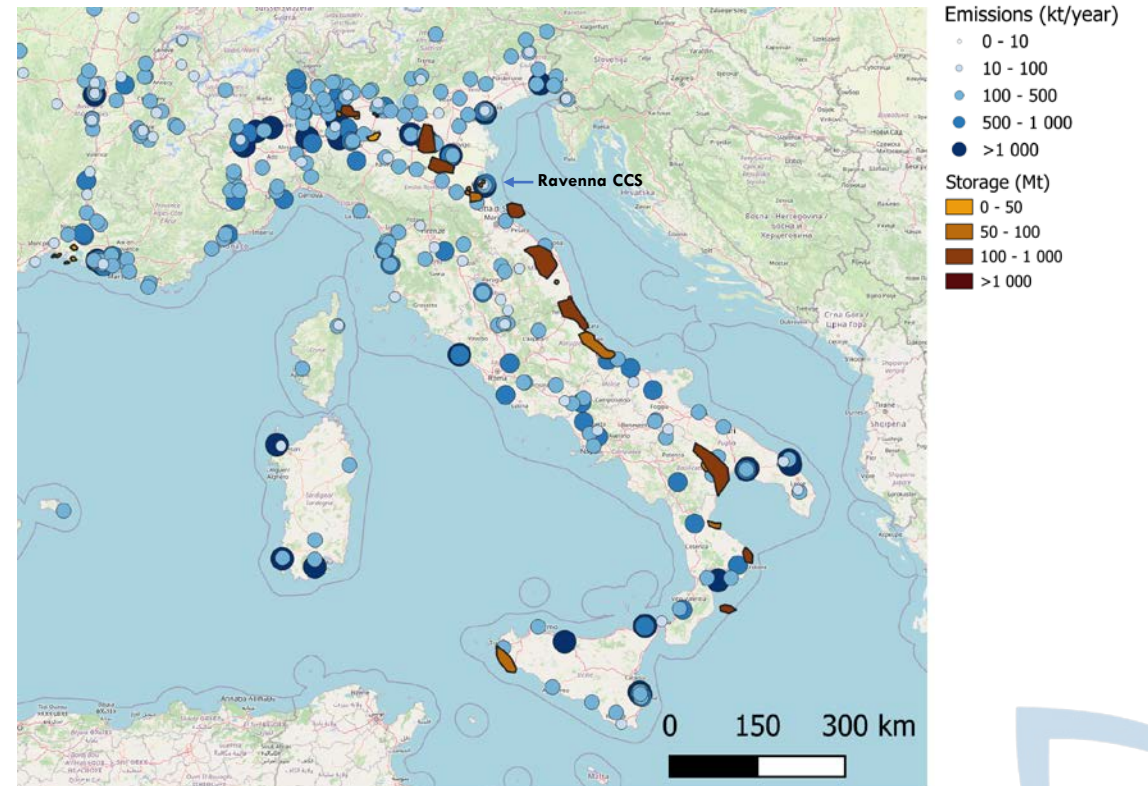
Identification of promising CCUS clusters in the Baltic and Mediterranean regions

Connecting emission sources with geological storage sites

Mediterranean Sea region

Spain
France
Italy
Greece
Türkiye
Mediterranean Sea

Italy





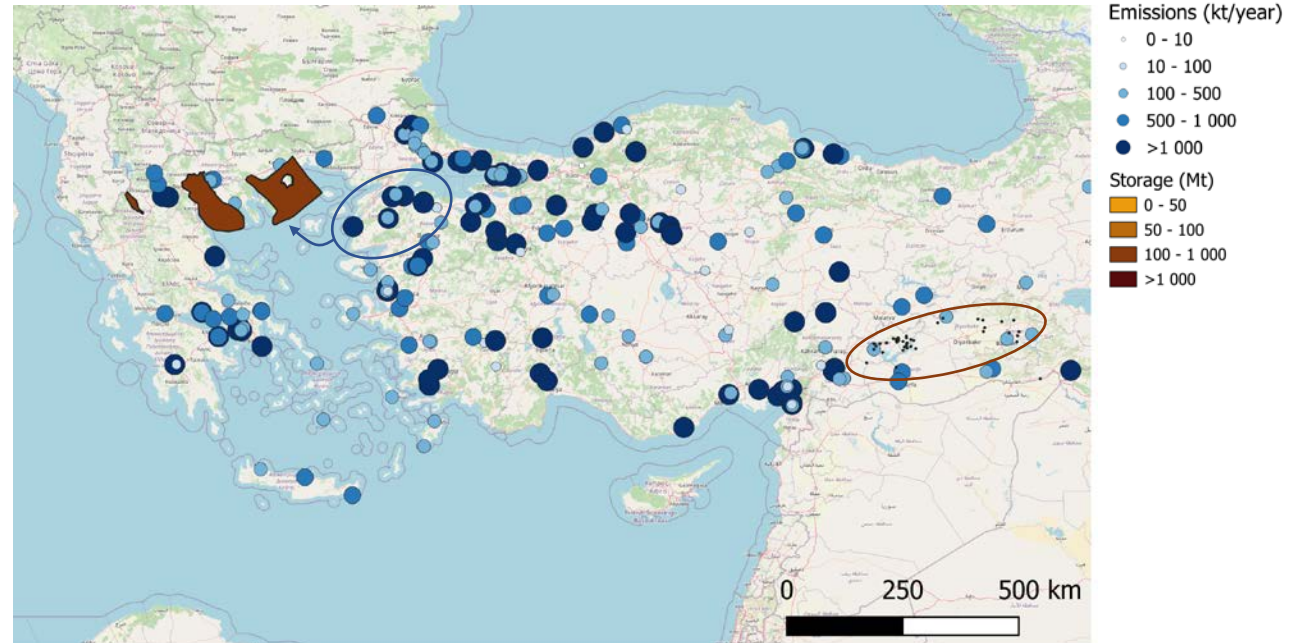
Identification of promising CCUS clusters in the Baltic and Mediterranean regions

Connecting emission sources with geological storage sites

Mediterranean Sea region

Spain
France
Italy
Greece
Türkiye
Mediterranean Sea

Sources in west Türkiye and storage sites in Greece





Identification of promising CCUS clusters in the Baltic and Mediterranean regions

Non-technical mapping

Topics

- Policy and public support
- Market readiness and financial aspects
- Legal and regulatory aspects





Identification of promising CCUS clusters in the Baltic and Mediterranean regions

Non-technical mapping

Topics **Webinars**

- Policy and public support **Wednesday 14 June 10:00 – 12:00**
- Market readiness and financial aspects **Friday 24 June 10:00 – 12:00**
- Legal and regulatory aspects **Tuesday 2 May 10:00 – 12:00**





Identification of promising CCUS clusters in the Baltic and Mediterranean regions

Non-technical mapping

Topics **Webinars**

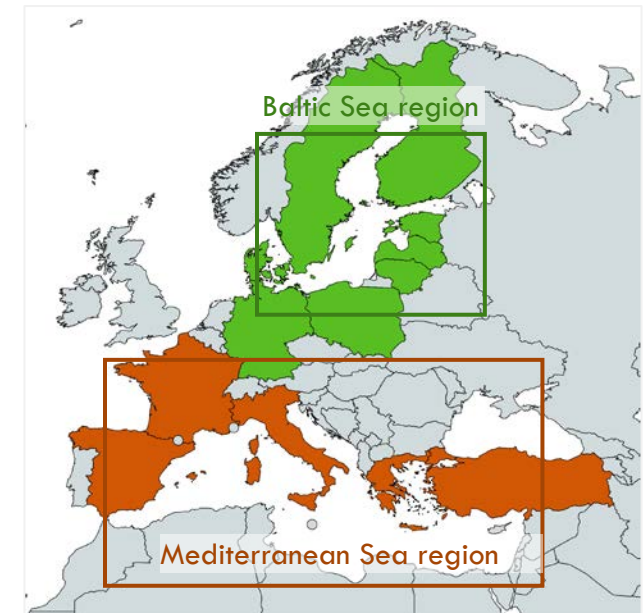
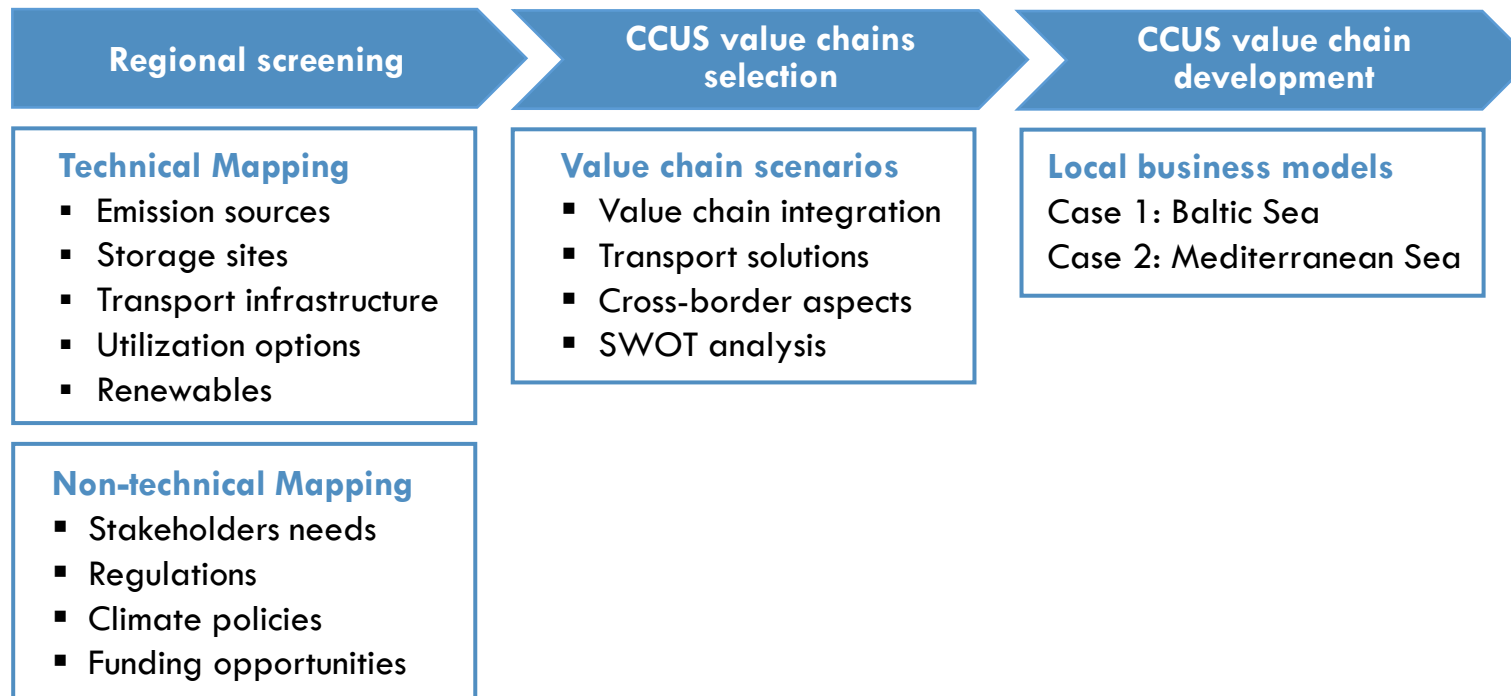
- Policy and public support **Wednesday 14 June 10:00 – 12:00**
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 - London Protocol
 - Helsinki Convention
[Protection of the Marine Environment of the Baltic Sea Area](#)
 - Barcelona Convention
[Protection of the Mediterranean Sea against Pollution](#)





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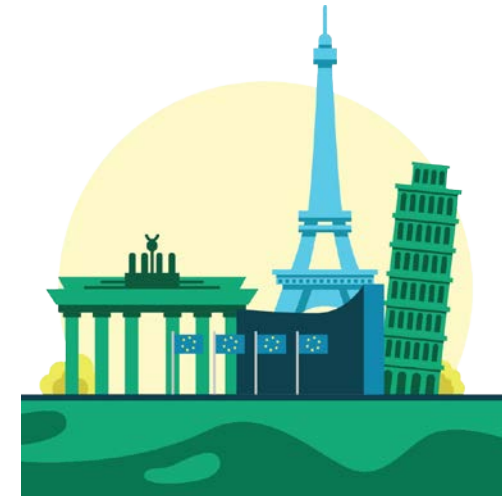
Framework for CCUS value chain development





Identification of promising CCUS clusters in the Baltic and Mediterranean regions

Partners



















































Internship at SINTEF: Cécile Biragnet from l'Ecole Polytechnique (Palaiseau, France)



Identification of promising CCUS clusters in the Baltic and Mediterranean regions

Networking partners

 ASPIRE	 Aker Carbon Capture	 BASRECCS network of Carbon Capture and Storage	 BGR	 Carbon Capture Cluster Copenhagen (C4)	 Carboncause	 Technology Centre Mongstad	 Total Energies	 Tupras	 Vallourec	 Geological and Mining Institute of Spain (IGME), Spanish National Research Council
 DNV	 ECCSEL ERIC	 Endrava	 ENeRG	 Eni	 Equinor	 AkerBP	 Global CCS Institute	 Celsio	 INEOS	 Municipality of Thisted
 Heidelberg Materials	 Holcim Innovation Center	 Latvenergo	 NECCUS	 Noble Corp	 Pentair	 Geological Survey of Sweden	 CEA Liten	 Port of Hanstholm	 Ventspils nafta terminals SIA	 Chemical Business Association of Tarragona
 Piicto by Marseille Fos	 Port of Antwerp-Bruges	 Process4Planet	 Repsol	 Schwenk Latvija	 Shell	 The Carbon Capture and Storage Association	 Lhoist	 Storaenso	 Latvian Hydrogen Association	 CGG
 Gassnova	 Porthos	 Pôle AVENIA	 Bellona							



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www.ccuszen.eu

The screenshot shows the CCUS ZEN website homepage. At the top left is the CCUS ZEN logo. To the right is a navigation menu with links: About the Project, Knowledge Platform, CCUS in Europe, Industry Clusters, News, Events, Get in touch, and Search. Below the navigation menu are three main content cards:

- Industry Clusters:** CCUS ZEN is exploring the potential for enabling CCUS value chain deployment in the Baltic Sea and the Mediterranean Sea regions. [READ MORE >>](#)
- Knowledge Platform:** Access a range of shared knowledge, experience and advice to help drive forward CCUS deployment in Europe. [READ MORE >>](#)
- CCUS in Europe:** Find out how CCUS technology works, why Europe needs its rapid delivery and what progress has already been made. [READ MORE >>](#)

Below these cards is a section titled "Latest news & events" with three news items:

- TCCS 12:** The bi-annual Trondheim CO₂ Conference series is a leading scientific CO₂ technology conference. Since its inception in 2005, the conference has developed to become a globally important meeting place for over 400 CO₂ experts. The conference typically has 150 oral presentations, five or six parallel sessions, over 100 posters and world-leading keynote speakers. The 12th conference, TCCS-12, will build on the heritage of the previous conferences, and will be held June 19-21, 2023, in Trondheim, Norway. [READ MORE >>](#)
- INDUSTRY VETERAN RETURNS TO TRONDHEIM:** We profile Erik Felici de Silva, our project coordinator. In our relatively young carbon capture and storage (CCS) industry, Erik Felici de Silva, our project coordinator, can be considered a veteran. Looking through ads for PhDs back home while working as a research scientist for Mitsubishi Chemicals in Japan, he settled on an opportunity to study carbon capture at his alma mater the Norwegian University of Science and Technology (NTNU). [READ MORE >>](#)
- CCUS ZEN IN QUEST TO ACCELERATE CCUS IN EUROPE WITH CLUSTER PLANS:** As part of its mission to accelerate the roll out of carbon capture utilisation and storage (CCUS) in Europe, CCUS ZEN will this year identify two industrial clusters suitable for deployment of CCUS, one in the Mediterranean and one in the Baltic region. [READ MORE >>](#)



Identification of promising CCUS clusters in the Baltic and Mediterranean regions

Workshop 7 – 8 March in Copenhagen hosted by Rambøll



Next Workshop: noon 9 – noon 11 October in Madrid to be hosted by [carboncause/nexwell](#)





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**Innovate
UK**

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