HERCCULES
full CCUS chain demonstration

Funded by the European Union

Funded by the European Union. This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No. 101096691. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Climate, Infrastructure and Environment Executive Agency (CINEA). Neither the European Union nor the granting authority can be held responsible for them.

CCUS ZEN

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UKRI Innovate UK

This project has received funding from UK Research and Innovation - Innovate UK under Innovation Funding Service (ISF)

Tallinn, Estonia. 13/06/2024

Dissemination event on CO_2 capture, transport, use and storage technology (CCUS)

Dr Romain Viguier / Scottish Carbon Capture & Storage, The University of Edinburgh

Introducing CCUS ZEN
Zero Emission Network

Zero Emission Network to facilitate CCUS uptake in industry

Romain Viguier, Scottish Carbon Capture Storage
Romain.viguier@sccs.org.uk

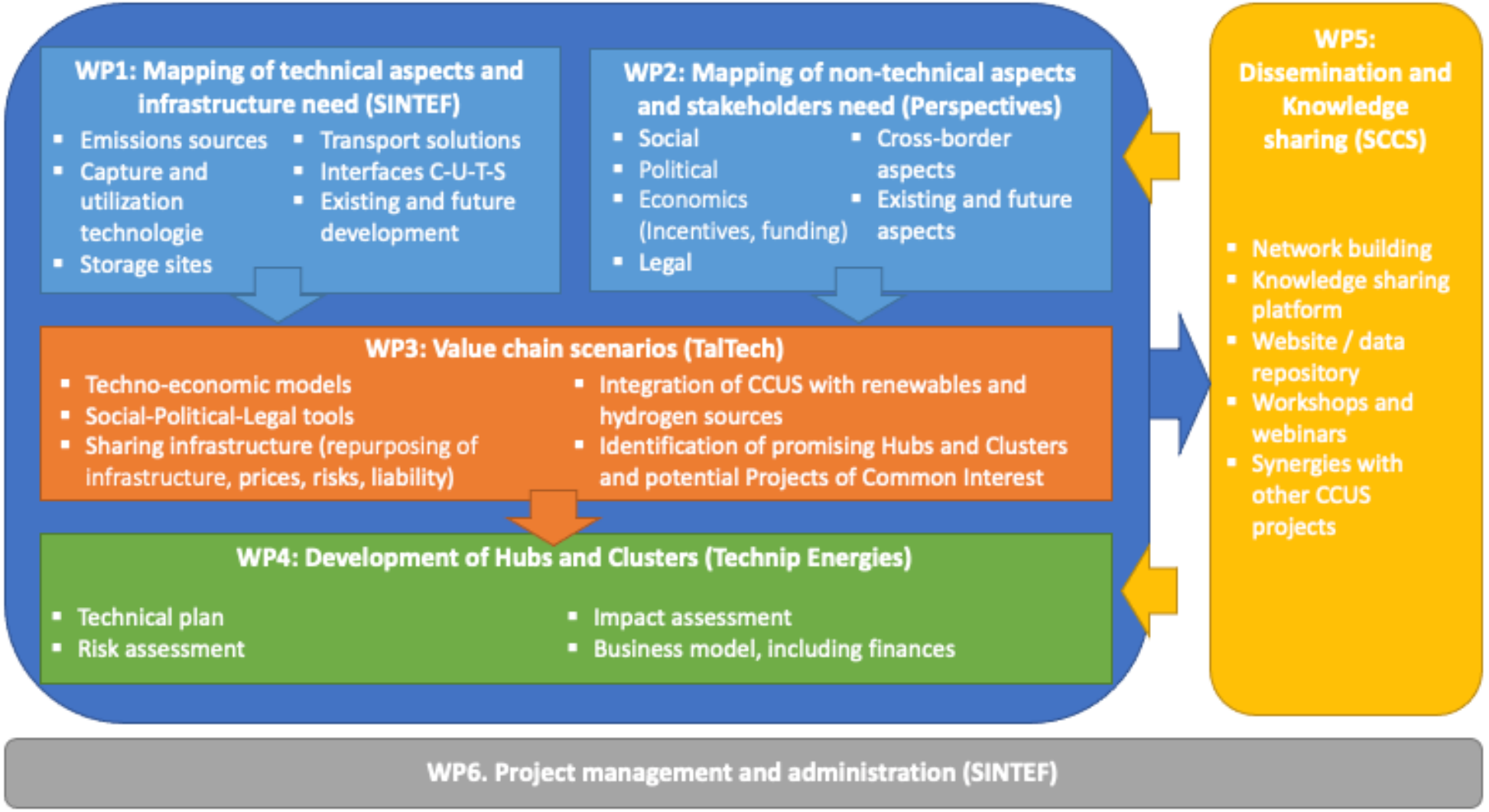
Three main objectives of CCUS ZEN

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

Project partners

Networking partners

CCUS ZEN work packages



CCUS ZEN work packages objectives

CCUS ZEN framework for CCUS value chain development

Regional screening → CCUS chains selection → Business model development

Mapping
emission sources, transport infrastructure, storage sites, utilization options and renewables

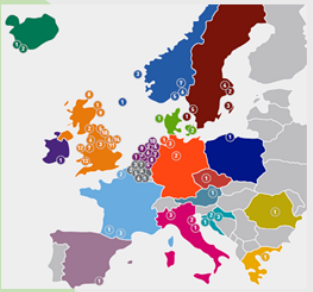
Mapping
stakeholders needs, regulations, climate policies, funding opportunities

Value chain scenarios
Value chain integration
Transport solutions
Cross-border aspects
SWOT analysis

Business models
Case 1: Baltic sea
Case 2: Mediterranean sea

KNOWLEDGE SHARING, DISSEMINATION & COMMUNICATION

Stakeholders outside CCUS ZEN



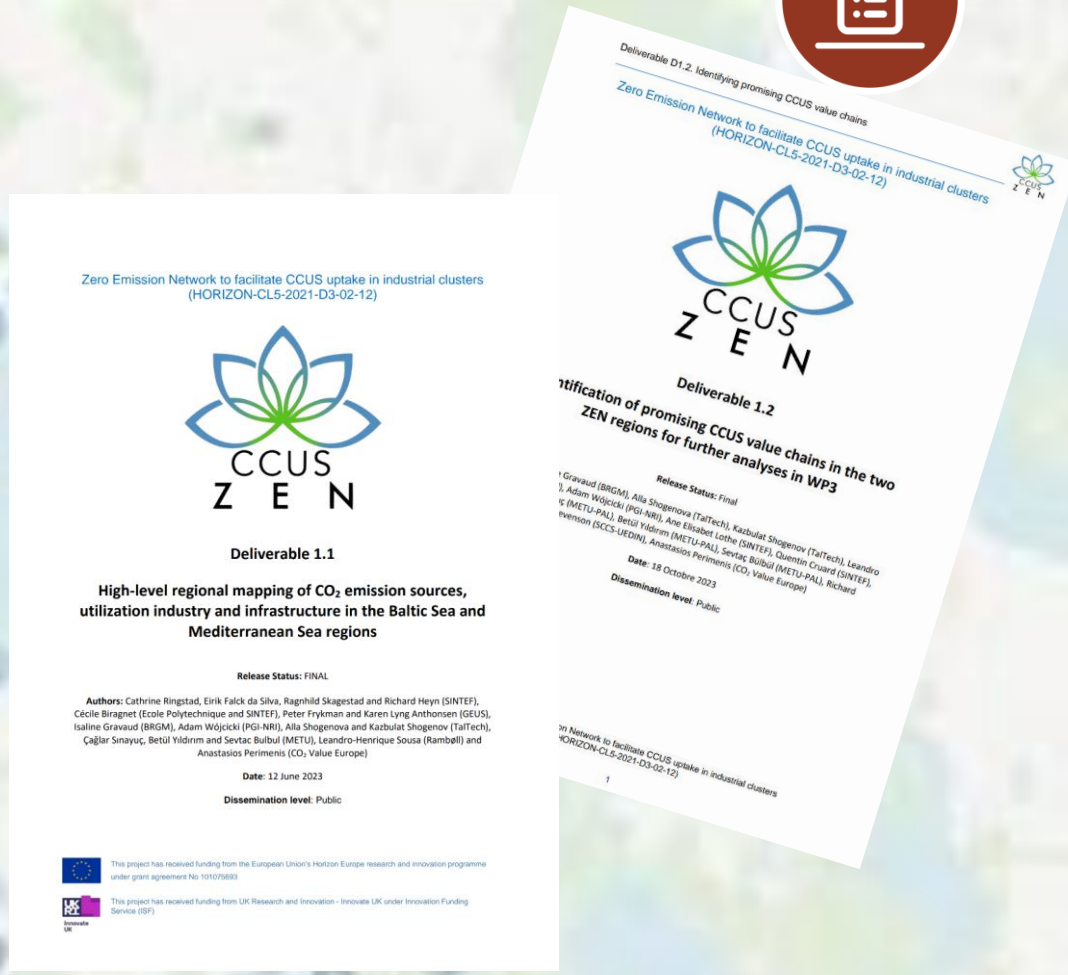
CCUS projects network

WP1 - Mapping of technical aspects and infrastructure needs

Lead: SINTEF

Objectives:

- Regional high-level screening of promising CCUS value chains in the two ZEN regions.
- Identify technical requirements for CCUS integration and demonstrate how these requirements should be incorporated in the high-level screening of promising CCUS value chains.



WP2 - Mapping of non-technical aspects and stakeholder needs

Lead: Perspectives Climate Research

Objectives

- Map non-technical aspects of developing CCUS value chains; identify current and/or potential challenges to CCUS value chains, including social, political, economic, and legal dimensions for both local, regional and cross-border activities; outline opportunities to resolve these challenges.
- Engage stakeholders to jointly deepen the understanding of non-technical challenges and opportunities.
- Provide a list of non-technical criteria that serve to inform selection of CCUS value chains based on a synthesis of the above mapping.

WP3 - CCUS value chain scenarios

Lead: Tallinn University of Technology

Objectives

•Identify the most promising CCUS value chains for the CCUS ZEN regions based on SWOT analysis.

•Establish a generic framework for the selection of the most prospective CCUS value chains, based on the high-level screening methodology established in WP1 and integrated with WP2 analyses.

•Identify potential PCI and determine key stakeholders

WP4 - Development of CCUS value chains and local business models

Lead: Technip Energies

Objectives

•Overall objective of WP4 is to consolidate the analyses performed in WPs 1-3 for the most promising CCUS value chain in each of the two CCUS ZEN regions, delivering a documentation set that can be disseminated to potential partners, public authorities, and financers, notably:

•Business plan, including projections of costs (CAPEX, OPEX), generated revenues and identification of the required funding support

•Consolidated technical design description for the entire CCUS value chain and details of key metrics (carbon abatement) for the two selected CCUS value chains

•Early project environmental impact identification based on expert workshop (i.e. no site visit)

•Project risk assessment

WP5 - Knowledge-sharing, communication and dissemination

Lead: University of Edinburgh

Objectives

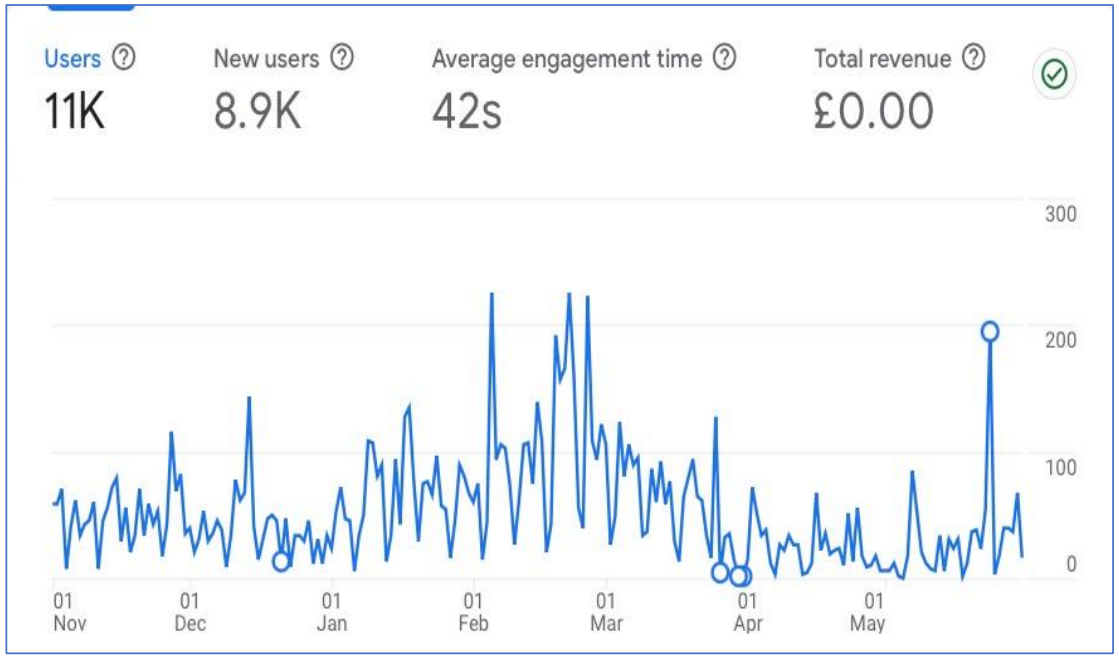
- Disseminate project results to key stakeholders (public, industries, policy makers) to accelerate and deepen project impact.
- Facilitate communication and dialogue between project partners, including network partners, and with other relevant EU projects and networks.
- Plan the exploitation of the project results by facilitating access to project results, encouraging adoption by other industries and countries, making sure best practices are shared, and key economic benefits (job creation/retention) can be easily understood.

Knowledge sharing, communication and dissemination activities

- Toolbox for communication and dissemination
  - Project website,
  - Project sharepoint
  - Social media accounts
  - Other tools (Newsletters, …)
- Project events
- Participation to other project events

Website Analytics

7-month period from 1 November 2023 – 31 May 2024



Newsletter & Social Media figures

As of 31 May 2024

mailchimp	115 Newsletter subscribers on Mailchimp
in	1,331 followers on LinkedIn
X	705 followers on X (formerly Twitter)

Peer-reviewed publications

- WP1
  - E F. da Silva, A. Shogenova; Horizon Europe Project CCUS ZEN, GeoENeRGY newsletter N46, p3 (2022)
- WP2
  - I. Ombudstvedt; G. Koperna; "Comparing Permitting Regimes for CO2 Storage, Like Comparing Apples and Oranges?" OGEL 3 (2023). www.ogel.org
  - I. Ombudstvedt; L. Wammer Østgaard; P. Prasad; "Playing Nice in the Sandbox: How Coordination and Cooperation with International Neighbors Can Fuel Domestic and Global Deployment of Carbon Capture and Storage"
    OGEL 3 (2023), www.ogel.org
  - Matthias Honegger; Toward the effective and fair funding of CO2 removal technologies, Nature communications (2023) 14:534
  - L. W. Østgaard & I. Ombudstvedt (IOM Law), SSRN-id4624764
  - F. Karimi; Lokal försörjning – från vetenskap till energi och mat; Västa Nyland, (2022)
  - U. Dahlberg, F. Karimi; Koldioxidinlagring kräver snaba handilingar men långsiktig planering ; Åbo Underrättelser (2023)
- WP3
  - A. Shogenova, K. Shogenov, M. Uibu, R. Kuusik, K. Simmer; Techo-economic modelling of the Baltic CCUS onshore scenario, Baltic Carbon Forum Vol1, pp4-4 (2022); https://doi.org/10.21595/bcf.2022.22841
  - K. Shogenov, A. Shogenova; New CO2 and Hydrogen storage site marketing: How to make your storage site unique and attractive? DOI: **10.21595/bcf.2022.22840**
  - S. Nagy, A. Wójcicki; New attempt of the implementation of CCS technology in Poland. DOI https://doi.org/10.21595/bcf.2022.22926
  - K. Shogenova, A. Shogenova; Synergy scenario for renewable energy production, CO2 and H2 storage in the Baltic offshore structure. DOI: **10.21595/bcf.2023.23644**.

Project Events

- CCUS ZEN, kick-off meeting in Paris

- CCUS ZEN, cluster-building workshop in Copenhagen

- CCUS ZEN, in Madrid (Feb)

Presentations at conferences

- Baltic Carbon Forum 2022, A. Shogenova et al., Oct 2022
- Baltic Carbon Forum 2022, S. Nagy, A. Wójcicki, Oct 2022
- L'Associació Empresarial Química de Tarragona - Annual meeting in Tarragona, Eirik da Silva, Nov 2022, (**100 attendees**)
- CCS4CEE – final regional conference in Prague, Eirik da Silva, Sep 2023, (**60 attendees**)
- Baltic Carbon Forum 2023 in Riga, Eirik da Silva, Oct 2023, (**70 attendees**)
- Baltic Carbon Forum 2023 in Riga, Matthias Honegger, Oct 2023, (**70 attendees**)
- The 12th Trondheim Conference on CO2 Capture, Transport and Storage, Trondheim, Eirik da Silva, Jun 2023, (**60 attendees**)
- 2nd European Underground Energy Storage Workshop in Paris, Cathrine Ringstad, May 2023 (**50 attendees**)
- CO2 Capture, Storage & Reuse 2023 in Copenhagen, Cathrine Ringstad, May 2023 (**70 attendees**)
- CO2Geonet Open Forum 2023 in Venice, Isaline Gravaud, Oct 2023 (**60 attendees**)
- CO2Geonet Open Forum 2023 in Venice, Lena Østgaard, Oct 2023 (**60 attendees**)
- The 12th Trondheim Conference on CO2 Capture, Transport and Storage in Trondheim, Lena Østgaard, Oct 2023 (**40 attendees**)
- Regional sea conventions and offshore storage in Europe: status of permissibility in Oslo, Lena Østgaard, Oct 2023 (**70 attendees**)

Frequently asked question - Knowledge-sharing, communication and dissemination

Pilot STRATEGY

Przyspieszenie magazynowania CO_2 dla zrównoważonej przyszłości

Geologiczne składowanie CO_2 na terenach strategicznych Budowanie niskowęglowej przyszłości neutralnej dla klimatu: bezpieczna, czysta i efektywna energia

Koordynatorka: Isaline Gravaud, BRGM (i.gravaud@brgm.fr)

Często Zadawane Pytania

CZĘSTO ZADAWANE PYTANIA

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www.ccuszen.eu

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> GRAZIE PER L'ATTENZIONE

> THANKS FOR YOUR ATTENTION