

## European CCUS Market Overview

### Summary

This country status report serves as the primary intelligence tool for the CCSA members to navigate the rapidly maturing European CCUS and Carbon Dioxide Removal (CDR) landscape. Its primary goal is to provide Technical Intelligence - verifiable data points on legislation, finance, and infrastructure - enabling our members to identify immediate market entry points, manage cross-border regulatory risks, and synchronise multi-billion euro investment decisions with national deployment roadmaps.

The report provides exhaustive technical audits for **12 key EU markets**: Belgium, Denmark, France, Germany, Greece, Italy, the Netherlands, Poland, Portugal, Romania, Spain, and Sweden. The goal is to broaden the geographical scope over time.

### **For each jurisdiction, the analysis covers:**

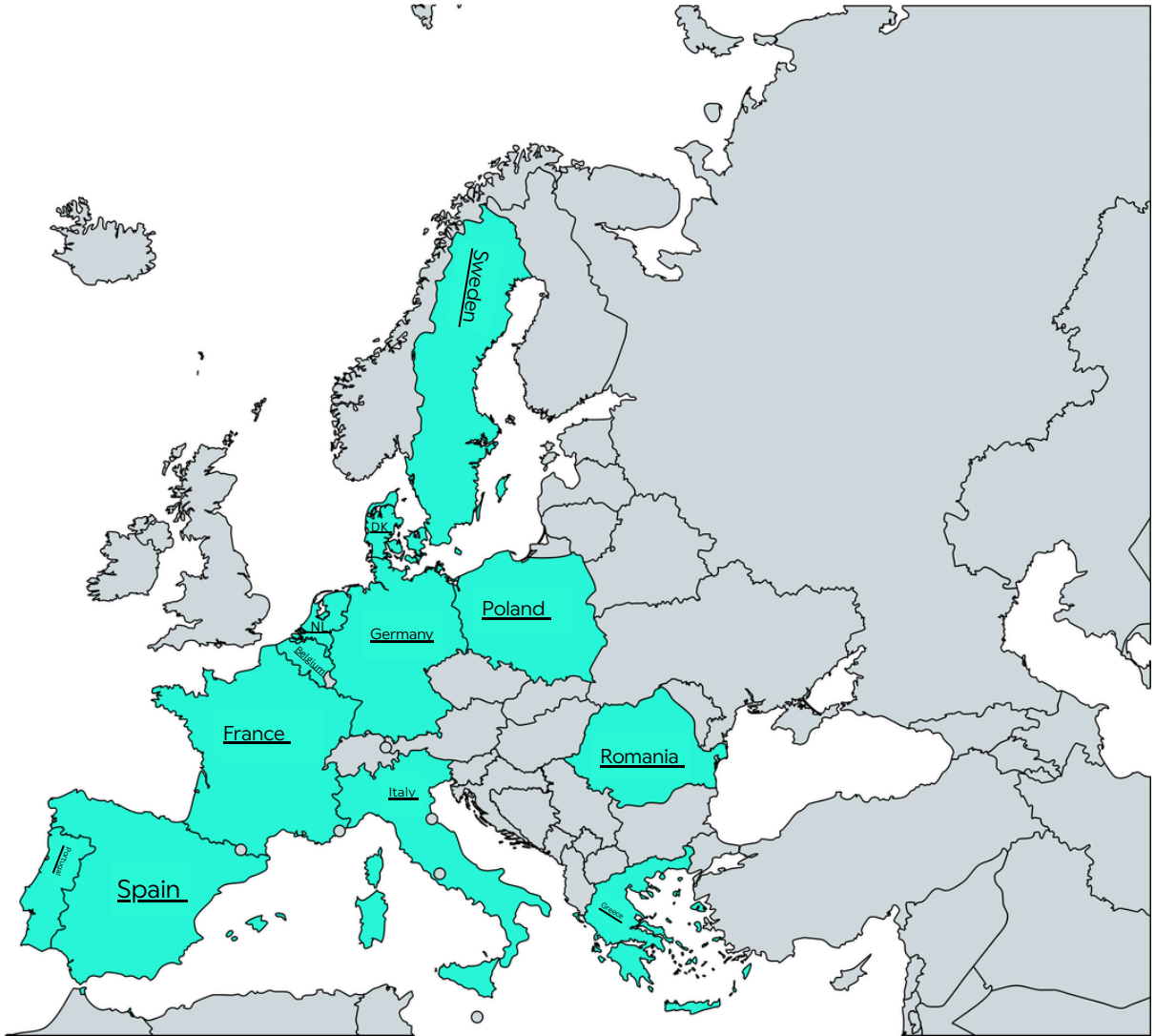
- **National Targets:** Quantified capture, injection, and technical removal (CDR) benchmarks for 2030, 2040, and 2050.
- **Legislative Registers:** Granular mapping of national storage laws, transport regulations, and the status of the London Protocol (Article 6) for maritime export.
- **Financial Support:** Active and planned de-risking mechanisms, including Carbon Contracts for Difference (CCfDs), national grants, and EU Innovation Fund allocations.
- **Project Milestones:** A comprehensive tracker of the project pipeline, monitoring FEED status, Final Investment Decisions (FIDs), and the formation of cross-border corridors like Nautilus, Callisto, and the Delta Rhine Corridor.

### Disclaimer

This report is based on a compilation of publicly available regulatory documents, academic papers, stakeholder reports and communications, and CCSA internal data, such as the [CCSA Europe Market Study 2026](#), up to this date. While every effort has been made to ensure the accuracy and completeness of the data presented, CCSA provides this intelligence for informational purposes only.

None of the CCSA members shall hold the association liable or responsible for any inaccuracies, omissions, or misinterpretations contained herein.

This report is continuously being updated by the CCSA team. We welcome feedback and updates from our members to ensure this report remains the most accurate. Please direct any comments or corrected data to Inês Bonnet Sequeira, EU Policy Officer ([ines.sequeira@ccsassociation.org](mailto:ines.sequeira@ccsassociation.org)).



## **Table of Contents**

<b>Summary</b> .....	1
<b>Countries Overview</b> .....	4
1. <b>Belgium</b> .....	4
2. <b>Denmark</b> .....	11
3. <b>France</b> .....	19
4. <b>Germany</b> .....	25
5. <b>Greece</b> .....	31
6. <b>Italy</b> .....	35
7. <b>Netherlands</b> .....	41
8. <b>Poland</b> .....	48
9. <b>Portugal</b> .....	54
10. <b>Romania</b> .....	58
11. <b>Spain</b> .....	60
12. <b>Sweden</b> .....	66

## Countries Overview

### Belgium

	<p>Latest updates are marked by the definitive March 26, 2026, signing of a subsea pipeline treaty between Belgium and Norway, establishing the legal framework for the "CO<sub>2</sub> Highway Europe" interconnector. Simultaneously, the European Commission approved €260 million in Flemish State aid for the Kairos@C project on March 10, 2026, while Fluxys c-grid Antwerp was officially designated as the Local Carbon Network Operator (LNCO) for the Port of Antwerp on March 20, 2026. Recently, OGE and Fluxys have signed an agreement to jointly cooperate on a cross-border CO<sub>2</sub> pipeline corridor (<a href="#">Ruhbens</a> project) connecting industrial Southern Germany to Belgian export hubs for North Sea storage.</p>
<p>Overview</p>	<p>Belgium currently serves as the indispensable logistical nexus for the North-Western European carbon management market, having transitioned from pilot-scale demonstrations to a fully commercialised infrastructure phase characterised by the March 26, 2026, signing of a definitive bilateral treaty with Norway for CO<sub>2</sub> transport. Fluxys c-grid is the Carbon Network Operator (CNO) for all three regions in Belgium (Flanders, Wallonia, and PoAB). Momentum over the past 30 days is primarily driven by the March 10, 2026, European Commission approval of €260 million in State Aid for the Kairos@C project and the critical March 31, 2026, Final Investment Decision (FID) deadline for securing associated Innovation Fund subsidies.</p>
<p>CCUS targets</p>	<p>Belgium's <a href="#">Long-Term Climate Strategy</a> targets a 95% reduction in emissions by 2050 compared to 1990 levels, with the remaining 5% compensated by negative emissions, including LULUCF-based and engineered removals like BECCS and DACCS.</p> <p>Belgium's climate architecture is defined by a decentralised governance structure in which the Federal State and the three regions (Flanders, Wallonia, and Brussels-Capital) must reach internal burden-sharing agreements to meet collective Union-level obligations.</p> <p><b>National Greenhouse Gas (GHG) Reduction Targets:</b></p> <p>The overarching objective for the Belgian state is to align with the European Climate Law's 2030 and 2050 benchmarks, with an increasing focus on the proposed 2040 target of a 90% net reduction.</p> <ul style="list-style-type: none"> <li>• 2030: 47% reduction in GHG emissions for sectors covered by the Effort Sharing Regulation (ESR) (non-ETS sectors) compared to 2005 levels. The 2025 NECP "With Additional Measures" (WAM) scenario projects a 42.7% reduction, with the remaining 4.3 percentage points to be bridged via ESR flexibilities.</li> <li>• 2040: EU-target of 90% net reduction (vs 1990) (Amendment to the European Climate Law, adopted in March 2026)</li> <li>• 2050: Climate neutrality by 2050 is the binding long-term goal. Specific regional paths include a 95% reduction for Wallonia (vs 1990) and 90% for Brussels (vs 2005).</li> </ul>

	<p><b>LULUCF Regulation:</b> -0.3 Mt CO<sub>2</sub>eq to be achieved by 2030 compared to the 2016–2018 average. WAM projections indicate a potential overachievement of -0.1 Mt CO<sub>2</sub>eq.</p> <p><b>BECCS:</b> The central scenario of the SNBC 3 anticipates about 15 Mt CO<sub>2</sub> from BECCS in 2050 – in addition to 9 Mt of biogenic emissions captured and reused to mainly produce synthetic fuels (energy BECCU) or reused as non-energy inputs for industry.</p> <p><b>DACCS:</b> The central scenario of the SNBC 3 foresees 6 Mt CO<sub>2</sub> of DACCS in 2050, halfway between the low and high scenarios drawn from the perspectives of the on CCUS deployment in France published in July 2024. ) [Draft SNBC-3 2025/12]</p>
Potential Capacity	<p><b>Carbon Capture Projections:</b></p> <ul style="list-style-type: none"> <li>• <b>2030:</b> Projections indicate that industrial facilities in Belgium will capture approximately 5 Mt of CO<sub>2</sub> by 2030, entirely within the Flemish region.</li> <li>• Beyond 2030, carbon capture capacity is anticipated to extend into both the Flemish and Walloon regions. In addition to domestic capture, Belgium is positioning itself as a key transit hub for cross-border CO<sub>2</sub> flows, enabling German CO<sub>2</sub> to be exported to storage sites in the UK and Norway.</li> <li>• <b>2050:</b> Projected estimates for 2050, based on stakeholder planning, show transport and storage opportunities equivalent to 6 Mt of CO<sub>2</sub> annually in Wallonia. This corresponds to the entire process emissions of the region. Process emissions correspond to emissions from cement, iron, steel, aluminium, pulp, paper and refineries.</li> </ul> <p><b>Carbon Storage:</b> Belgium does not have depleted gas and oil deposits in its maritime area. Denmark, Norway, the Netherlands, and the United Kingdom are key partners for international cooperation on CO<sub>2</sub> storage.</p>
Legal framework	<p>Belgium's regulatory framework operates under a "split competence" model. Regional authorities possess exclusive competence over CO<sub>2</sub> pipeline networks, environmental permitting, and onshore storage infrastructure, while federal authorities manage the marine environment, international treaties, and overarching climate governance coordination. The most recent regulatory updates transition Belgium from a project-by-project phase to a systemic infrastructure model with regulated third-party access.</p> <p><b>National Climate Regulation:</b></p> <ul style="list-style-type: none"> <li>• Belgium has not adopted any federal Climate Law.</li> </ul>

- [Federal Climate Governance Law](#) (Jan 2024): Determines federal/regional integration for NECP reporting. Establishes the Federal Energy-Climate Task Force and an independent Scientific Committee.
- [Walloon PACE 2030](#) (Adopted within 2025 NECP): establishes the regulatory mandate through Measures 395 and 396, which require the creation of a legal framework for CO<sub>2</sub> transport and task gas distribution system operators with developing a coordinated investment plan for CO<sub>2</sub> infrastructure.
- [Brussels Climate Order](#) (June 2021): Enshrines the 2030 targets and climate neutrality by 2050 into binding regional law, ensuring a minimum reduction of 90% compared to 2005.
- [City of Brussels Climate Plan](#) (December 2022): Aims for a 55% reduction in greenhouse gas emissions by 2030 (updated target).

#### **CO2 Storage:**

- [Flemish Decree on Deep Subsoil \(Diepe Ondergrond\)](#) (8 May 2009 / 15 July 2011): Transposes the EU CCS Directive for geological storage of CO<sub>2</sub> in Flanders. Strictly separated from recent transport decrees.
- [Walloon Decree on CO2 Geological Storage](#) (10 July 2013): Transposes the EU CCS Directive into Walloon regional law. The framework supports the development of infrastructure for transporting captured CO<sub>2</sub>, linking industrial facilities to broader regional or international transport networks (e.g., pipelines towards northern sea ports).
- [Brussels-Capital Region Storage Ban](#) (2 February 2012): Formally prohibits geological storage on its territory under the transposition of the CCS Directive.

#### **Transport of CO2 and Infrastructure Development:**

- **Fluxys c-grid is the "CO<sub>2</sub> Network Operator" for all three regions (Flanders, Wallonia, and PoAB).**
- [Flemish Decree on CO2 Transport by Pipelines](#) (29 March 2024): Establishes the legal framework for the Local CO<sub>2</sub> Network Operator (LCNO) and closed industrial networks. Mandates unbundling, third-party access, and designates VREG as the market regulator. Fluxys c-grid is appointed as the operator for the CO<sub>2</sub> network in Flanders to develop an open-access infrastructure connecting industrial emitters ([press release](#)).
- [Walloon Decree on CO2 Distribution](#) (2024): Mirrors Flemish legislation by providing the legal basis for transport. Empowers the Walloon Energy Commission (CWaPE) to set and approve infrastructure connection tariffs. In 2025, the Walloon government appointed Fluxys c-grid as the "CO<sub>2</sub> Network Operator" for 20 years to develop an open-access pipeline network connecting industrial emitters to storage or reuse sites).[press release](#)).

	<p><b>Low-Carbon Industry:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Klimaatsprong Programme (Flanders)</a> (June 2023): Anchored in legislation to guide the transition of the energy-intensive industry. A new program note (2026-2030) mandates coordinated planning for collective CO2 infrastructure needs.</li> <li>• <a href="#">Walloon Decree on Indirect Emissions (Carbon Leakage)</a> (21 Dec 2022): Grants state aid to electricity-intensive companies to compensate for EU ETS carbon quotas incorporated into electricity prices. While tangentially related to CCUS (targeting Scope 2 indirect emissions rather than Scope 1 direct emissions), it is a vital mechanism to prevent carbon leakage and protect the competitiveness of the industrial base.</li> </ul> <p><b>International:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">London Protocol</a> (Article 6 Amendment): Belgium has ratified the 2009 amendment and utilizes the 2019 "provisional application" mechanism to enable the transboundary export of CO2 for sub-seabed storage via bilateral treaties.</li> </ul>
Bilateral agreements	<ul style="list-style-type: none"> <li>• <a href="#">London Protocol (Article 6 Amendment)</a>: Belgium has ratified the 2009 amendment and utilizes the 2019 "provisional application" mechanism to enable the transboundary export of CO<sub>2</sub> for sub-seabed storage via bilateral treaties.</li> <li>• <a href="#">Belgium and Denmark</a> (26 September 2022): MoU on the cross-border transportation of CO<sub>2</sub> between the two countries with the purpose of permanent geological storage.</li> <li>• <a href="#">Belgium and Germany</a> (14 February 2023): Agreement to cooperate on hydrogen, carbon capture, electrification and LNG projects as part of efforts to increase energy independence and decarbonise.</li> <li>• <a href="#">Belgium and the Netherlands</a>: <a href="#">MoU</a> on the cross-border transportation of CO<sub>2</sub> between the two countries with the purpose of permanent geological storage.</li> <li>• <a href="#">Belgium and Norway</a> (26 March 2026): Bilateral agreement that establishes the legal framework for a subsea CO<sub>2</sub> pipeline connecting Zeebrugge to the Norwegian Continental Shelf (CO<sub>2</sub> Highway Europe), enabling Equinor and Fluxys to proceed with cross-border infrastructure development.</li> <li>• <a href="#">UK-Belgium Joint Statement</a> (May 19, 2025): The two countries aim to conclude a bilateral arrangement under the London Protocol on cross-border transportation of CO<sub>2</sub> in the first half of 2026.</li> </ul>

<p>EU &amp; National funding</p>	<ul style="list-style-type: none"> <li>• Flanders is providing funding for multiple CCS projects in the region. Targeted co-financing of promising CCUS projects maximises the success rate of EU grants. Through its support mechanisms, Flanders assists companies in their applications to EU funds.</li> <li>• CO<sub>2</sub> Hub in Zeebrugge (Interconnector Fluxys) is included in the second PCIs/PMIs list, making it eligible for CEF funding.</li> </ul>
<p>Support, research &amp; innovation</p>	<ul style="list-style-type: none"> <li>• Flanders holds a strategic position within the North-West European industrial cluster and is in proximity to major CO<sub>2</sub> storage sites in the North Sea basin. The region is home to Europe's largest integrated fuel and chemical cluster, resulting in substantial CO<sub>2</sub> emissions concentrated within a relatively small area. The existing or planned pipeline network, clusters, and ports enable efficient CO<sub>2</sub> transport. This positioning makes Flanders an ideal hub for fostering new collaborations and integrating innovative systems for capturing, collecting, or sequestering tens of millions of tonnes of CO<sub>2</sub> or transforming them into valuable products.</li> <li>• Wallonia is implementing several initiatives to foster carbon management. These include establishing a regulatory and administrative framework to facilitate the transport and utilisation of CO<sub>2</sub> in Wallonia, offering support for the development of CO<sub>2</sub> capture and sequestration projects, as well as related research and development. Additionally, efforts are underway to identify the potential for underground CO<sub>2</sub> storage in Wallonia. It is anticipated that Wallonia may export its CO<sub>2</sub> to Norway.</li> <li>• As indicated in the NECP, the federal government will continue to create the regulatory framework within its competences at national level to enable CCS.</li> </ul>
<p>Projects</p>	<ul style="list-style-type: none"> <li>• <b>Go4Zero Project:</b> Aims at decarbonising the Holcim's cement plant in Obourg using CCS and transport the captured CO<sub>2</sub> in underground storage sites.</li> <li>• <b>Ruhbens:</b> OGE to jointly cooperate on a cross-border CO<sub>2</sub> pipeline corridor connecting industrial Southern Germany to Belgian export hubs for North Sea storage. The project aims to create an open-access pipeline connecting to the Zeebrugge export hub, with construction aiming to start around 2029. and Fluxys have signed an <u>agreement</u> to jointly cooperate on a cross-border CO<sub>2</sub> pipeline corridor connecting industrial Southern Germany to Belgian export hubs for North Sea storage. The project aims to create an open-access pipeline connecting to the Zeebrugge export hub, with construction aiming to start around 2029.</li> </ul>

- **H2BE Project**: Operated by Equinor and ENGIE, the project aims at producing hydrogen from natural gas using autothermal reforming (ATR) technology combined with carbon capture and storage.
- **Kairos@C Project**: Air Liquide and BASF are planning to develop the world's largest cross-border CCS value chain to significantly reduce CO<sub>2</sub> emissions at the industrial cluster in the port of Antwerp, including CO<sub>2</sub> capture, liquefaction, shipping, and storage in the North Sea. The project received a EUR 356 million grant through the Innovation Fund.
- **Antwerp@C CO2 Export Hub Project**: Air Liquide, Fluxys, and the Port of Antwerp-Bruges aims to develop a world-scale open-access modular infrastructure for the transport, liquefaction, and export of CO<sub>2</sub> captured by industries in the Antwerp port area. It received EUR 144.6 million of EU funding for CO<sub>2</sub> capture infrastructure. The hub will have an initial export capacity of 2.5 Mtpa, with the ambition to reach up to 10 Mtpa by 2030.
- **Steelanol CCU Project**: ArcelorMittal is developing a CCU project at its steel plant in Ghent, using biocatalysts to transform carbon-rich waste gases from the steelmaking process and from waste biomass into advanced ethanol. At full capacity, the Steelanol plant will produce 80 million litres of advanced ethanol and reduce annual carbon emissions from the Ghent plant by 125,000 tonnes. The project received EUR 10.2 million of EU funding from the Horizon Europe program. However, the project is facing severe economic and regulatory headwinds. As of June 2025, ArcelorMittal is weighing the potential closure of the Steelanol facility due to financial unsustainability amid restrictive EU regulations. The company has given itself approximately one year to decide whether to continue operations.
- **Anthemis Project**: Heidelberg Materials intends to equip the Antoining cement plant with an innovative hybrid carbon capture unit. Once operational, it will capture around 800,000 tonnes of CO<sub>2</sub> from the cement production process annually.
- **Pilot CO2 capture unit at the Gent blast furnace**: ArcelorMittal and Mitsubishi Heavy Industries have launched a pilot carbon capture unit at the Gent steel plant using D-CRBN's plasma technology, operational from 2024, testing feasibility over 1 to 2 years as a step toward full-scale deployment. A pipeline between MHI's carbon capture unit and D-CRBN's unit was connected on 1 July 2024.
- **CO<sub>2</sub> Hub in Zeebrugge**: Aggregates CO<sub>2</sub> from Belgium and neighbouring countries, including Germany, at a central compression station, from which it will be transported in a single pipeline stream to storage sites in the Norwegian Continental Shelf. The planned capacity is between 20 and 35 Mt per year.

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|  | <ul style="list-style-type: none"><li>• <b><u>Ghent Carbon Hub</u></b>: Developed by Fluxys, North Sea Port, and ArcelorMittal serving as an open-access CO<sub>2</sub> transport and export terminal, enabling industries in the region to liquefy and ship captured CO<sub>2</sub> to permanent offshore storage sites. It is designed to handle up to 6 MtCO<sub>2</sub>pa (up from earlier estimates of 4 Mtpa).</li></ul> |
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<p>Latest updates</p>	<p>Denmark's CCUS programme has reached a major milestone following the conclusion of the Danish CCS auction process. <b>The Danish Energy Agency has awarded Aalborg Portland a contract to capture and permanently store 1.25 million tonnes of CO<sub>2</sub> annually from 2030, making it the first awarded project under Denmark's large-scale CCS funding scheme.</b> The project is considered strategically important given that Aalborg Portland is Denmark's largest single CO<sub>2</sub> emitter and one of Europe's largest cement producers.</p>
<p>Overview</p>	<p>Denmark's CCS landscape features a mature policy framework, large public funding schemes (including an up-to-DKK 28.7 billion/€3.8 billion CCS fund and a market-based CCUS/CCS fund), and a pipeline of early-stage projects <a href="#">targeting</a> around 2.3–3.2 million tonnes of CO<sub>2</sub> stored annually by 2030 to support the country's legally binding 70% GHG reduction by 2030 compared with 1990 levels.</p> <p>Following completion of the latest tender evaluation under the Danish CCS Fund, the Danish Energy Agency awarded Aalborg Portland a contract to capture and permanently store 1.25 MtCO<sub>2</sub> annually from 2030. The project represents the first large-scale CCS award under Denmark's national funding scheme and marks the transition of the programme from competitive tendering into implementation.</p> <p>However, only one project ultimately received support, despite earlier expectations that the auction could deliver up to 2.3 MtCO<sub>2</sub> per year. The unsuccessful Gaia ProjectCo bid would have added a further 0.5 MtCO<sub>2</sub> annually and established Denmark's first major waste-to-CCS project. This outcome leaves a potential shortfall against Denmark's anticipated 2030 CCS contribution and increases reliance on the timely delivery of the Aalborg Portland project.</p>
<p>CCUS targets</p>	<p>Denmark has not legally binding <a href="#">national targets</a> specific to CCUS or CDR systems, but its climate policy explicitly relies on CCS and CDR to help meet broader goals.</p>

Potential capacity

- The National Geological Survey of Denmark and Greenland (GEUS) has [estimated](#) that Denmark's geological CO<sub>2</sub> storage potential is up to 22 T of CO<sub>2</sub>, corresponding to several centuries of Danish CO<sub>2</sub> emissions at current levels. This estimate builds on an earlier national screening figure of 12–22 Gt CO<sub>2</sub>, which was based on conservative assumptions covering mainly saline aquifers in the Gassum Formation and parts of the deeper Bunter Sandstone-type formations. Within this broader framework, the Danish NECP continues to cite that GEUS has provisionally identified geological CO<sub>2</sub> storage capacity of about 12,000 Mt in saline aquifers and at least 10,000 Mt or more in [other identified structures](#), open aquifers, and volcanoclastic sediments. GEUS is currently exploring and mapping eight potential land and coastal storage structures, the detailed characteristics of which are being refined through ongoing seismic and geological studies.
- Recent work by GEUS and industry-funded projects indicates that at least one offshore storage site in the Danish North Sea is already technically ready for injection and has demonstrated safe CO<sub>2</sub> behaviour at depth, enhancing confidence in near-term operational capacity.
- The [draft updated NECP](#) still indicates that 8.9 to 17.9 Mt CO<sub>2</sub> will be captured annually by 2025, with CO<sub>2</sub> captured from biogenic sources amounting to 6.3–12.5 Mt annually. However, newer assessments of Denmark's carbon-removal and CCS landscape suggest that actual near-term capture volumes are likely to fall at the lower end of these ranges, constrained by project permitting, investment, and infrastructure readiness.
- For 2030, the original plan put forward an estimated capture volume of 6.9 to 13.7 Mt CO<sub>2</sub> annually, of which biogenic capture is estimated at 5.1–10.1 Mt annually. Several independent and policy analyses now emphasise that Denmark's legally anchored ambition is to store around 3.2 Mt CO<sub>2</sub> per year by 2030 via CCS, implying that the upper ends of the 2030 capture ranges are not considered realistic without additional policy measures and project acceleration.
- For 2040, the plan previously indicated an estimated capture volume of 5.4 to 10.8 Mt CO<sub>2</sub> annually, with 3.9–7.7 Mt CO<sub>2</sub> captured annually from biogenic sources. Recent scenario work under the NECP-related frameworks notes that biogenic capture potential in Denmark is estimated at about 1–10 Mt CO<sub>2</sub> per year by 2030 and 3.5–6 Mt CO<sub>2</sub> per year by 2040, with over half of long-term capture potential being biogenic.
- The draft updated NECP also mentions two onshore CCS projects with a combined annual capacity of more than 10 Mt CO<sub>2</sub> by 2030, but these figures relate to technical potential rather than fully permitted, financed, or operating capacity; current project pipelines and permitting timelines indicate that the realised onshore-plus-offshore injection capacity by 2030 will likely be substantially lower, on the order of 3–4 Mt CO<sub>2</sub> per year.

Legal  
framework

**CO<sub>2</sub> Storage:**

- CO<sub>2</sub> storage is fully legal under the Danish Subsoil Act, with the Danish Energy Agency (DEA) as the competent authority for storage permits. Denmark has adopted an explicit strategy to become a regional CO<sub>2</sub> storage hub and is already positioning itself as a cross-border storage destination for other European countries, leveraging its large geological capacity and nascent CCS value chain.
- A TotalEnergies consortium and an INEOS–Wintershall DEA consortium received Denmark’s first exclusive full-scale CO<sub>2</sub> storage exploration licenses in the North Sea, covering depleted oil and gas fields and saline aquifers. These projects are expected to bring forward multi-million-tonne-per-year storage capacity from 2029–2032 onwards, although specific annual figures (e.g., 2–3 Mtpa by 2029–2030, 10–15 Mtpa by 2030–2032) remain indicative business-case projections rather than formally binding obligations.
- INEOS-led Greensand Future has received Denmark’s first full-scale CO<sub>2</sub> storage permit for the Nini West field, enabling up to 2.4 Mt CO<sub>2</sub> storage over 30 years and marking the first operational commercial storage facility in Denmark and the EU. The project is expected to start injection around mid-2026, with a view to scaling up to up to 8 Mt CO<sub>2</sub> per year by 2030, supporting both domestic and cross-border storage
- The Danish Energy Agency has opened a licensing round for geological CO<sub>2</sub> storage onshore, inviting applications to explore five designated areas (Gassum, Havnsø, Rødby, Stenlille, and Thorning) under the Subsoil Act, subject to strategic environmental assessment and individual EIAs.

**Transport of CO<sub>2</sub> and Infrastructure Development:**

- The draft updated NECP consistently foresees a mix of CO<sub>2</sub> transport modes—pipelines, ships, and in limited cases trucks—to link emitters to storage sites, with the DEA coordinating the permitting and regulatory framework. Decisions on the design and ownership of a national CO<sub>2</sub> transport network are still under discussion, but the Government has agreed on a broad framework for pipeline regulation and state co-ownership of core infrastructure, and the DEA has launched large-scale CCS tenders (CCUS and GSR pools) to secure capture and transport from 2029 onward.
- Denmark has ratified the 1996 London Protocol amendment on Article 6, enabling transboundary export and import of CO<sub>2</sub> streams for geological storage, and has entered into cross-border MoUs and bilateral “arrangements” (as required under Article 6) to facilitate cross-border CO<sub>2</sub> transport and storage with partner countries.

	<p><b>Carbon Removal:</b></p> <ul style="list-style-type: none"> <li>• The Danish Energy Agency’s scenarios for Denmark in 2050 still <a href="#">indicate</a> that BECCS, DACCS, biochar, and enhanced forest sinks could collectively deliver negative emissions of up to around 13 Mt CO<sub>2</sub>-eq per year, conditional on technology maturity, policy support, and international CDR rules. These scenarios are now being implemented via the CCS/CCUS-funding pools and the national CCS strategy, which explicitly includes CCUS-linked CDR (e.g., BECCS and DACCS-based removals) as one of the policy tools to help Denmark reach net-zero by 2050.</li> <li>• Denmark has ratified and filled in the legal basis for CCUS under the Subsoil Act and ETS-related legislation, and the CCS strategy (including the 2020 Climate Agreement for Energy and Industry and the 2022 Green Tax Reform) now underpins a legally established framework for CCS-based CDR support, with grants and tenders specifically earmarked for biogenic-CO<sub>2</sub> capture and storage.</li> </ul>
Bilateral agreements	<ul style="list-style-type: none"> <li>• <b>Denmark and Belgium:</b> <a href="#">MoU</a> on the cross-border transportation of CO<sub>2</sub> between the two countries with the purpose of permanent geological storage.</li> <li>• <b>Denmark and Germany:</b> <a href="#">Joint Declaration of Intent</a> to strengthen cooperation in the field of CCUS (2023).</li> <li>• <b>Denmark and the Netherland:</b> <a href="#">MoU</a> to strengthen cooperation in the field of CCUS.</li> <li>• <b>Denmark and Norway:</b> <a href="#">MoU</a> to strengthen cooperation in the field of the energy transition in the North Sea, with a special emphasis on CCUS, offshore wind, related offshore grid infrastructure and hydrogen.</li> <li>• <b>Denmark and the UK:</b> <a href="#">MoU</a> to cooperate on a path to net zero and long-term energy security (field of cooperation includes CCUS).</li> <li>• <b>Denmark and France:</b> <a href="#">Bilateral agreement</a> on CO<sub>2</sub> transportation and storage, allowing France to export captured CO<sub>2</sub> to Denmark for permanent geological storage, given Denmark’s available capacity and France’s limited onshore storage potential.</li> <li>• Denmark has, together with Norway, Belgium, the Netherlands, and Sweden, also <a href="#">signed</a> into a broader multi-country framework of cross-border transport-and-storage arrangements, which collectively support an emerging North-Sea-wide CCS market.</li> </ul>

EU & national  
funding

- The draft updated NECP mentions that more than DKK 35–38 billion has been allocated to implementing CCUS and CCS-linked CDR as climate tools, with overall state support for CCUS-related schemes estimated at around DKK 38.7 billion (roughly €5.2 billion in 2023 prices) expected to deliver about 3.2 Mt CO<sub>2</sub> reductions annually from 2030.
- Denmark's Energy Technology Development and Demonstration Programme ([EUDP](#)) provides funding for the demonstration of innovative green technologies, including those focused on geological CO<sub>2</sub> storage and direct air capture. So far, the EUDP has supported more than 1,200 innovative projects with about DKK 6.2 billion.
- The Finance Act of 2022 established a [subsidy pool](#) for facilities generating negative emissions aiming to annually remove up to 0.5 Mt of CO<sub>2</sub> from the atmosphere by 2025. In addition, a [CCUS subsidy pool](#) provides subsidy opportunities to CCUS installations capturing CO<sub>2</sub> at energy-intensive industrial facilities, waste plants, and heat and power plants. This CCUS-oriented pool, together with the NECCS Fund and the green-tax-reform-linked GSR pool, delivers roughly DKK 0.9 Mt CO<sub>2</sub> reductions per year from 2030.
- BECCS remains eligible for funding under Denmark's CCS Fund, which consolidated allocations from the national green-tax-reform packages into a single, long-term support scheme for capture, transport, and storage. The Danish Energy Agency has launched the CCS Fund, a DKK 28.7 billion (€3.8 billion in 2025 prices) pool providing 15-year contracts for capture, transport, and storage of fossil, biogenic, or atmospheric CO<sub>2</sub>, with support expected to start in 2029 and taper out by 2044. Sixteen companies applied for prequalification, from which up to ten will be selected to participate in the tender, while at least eight companies submitted initial bids, signalling strong private-sector interest in Denmark's CCS support scheme.; Following the completion of the competitive auction process, the Danish Energy Agency awarded Aalborg Portland a contract to capture and permanently store 1.25 MtCO<sub>2</sub> annually from 2030 under the Danish CCS Fund. The award makes Aalborg Portland the sole selected project in the tender round, despite earlier government expectations that the scheme could deliver up to 2.3 MtCO<sub>2</sub> per year.
- Denmark is also receiving EU-level support for CCUS and CDR, including partial REPowerEU cofunding for the NECCS Fund and a major EU Innovation Fund award of DKK 1.6 billion for the Aalborg Portland ACCSION project, which will capture around 1.4 Mt CO<sub>2</sub> per year from a cement plant, significantly contributing to national CCS-based mitigation and CDR ambitions.

<p>Support, research &amp; innovation</p>	<ul style="list-style-type: none"> <li>• The government plans to <a href="#">fund</a> novel CDR methods, such as pyrolysis for biochar production, and further support for BECCS projects and applications. Denmark has adopted a dedicated biochar strategy (2024) and budgeted large-scale subsidies: roughly DKK 10 billion (<math>\approx</math> €1.3 billion) per tonne-equivalent CO<sub>2</sub> stored via biochar from 2027, backed by prior allocations of around DKK 196–280 million for biochar R&amp;D and demonstration via the EUDP, Just Transition-linked programmes, and the research reserve. Additional schemes such as the NECCS Fund and the CCS Fund also support BECCS-linked storage, reinforcing the role of CCS-based CDR in national mitigation.</li> <li>• Denmark participates in the North Sea Basin Task Force, a collaborative initiative working towards the development of common principles for the transportation, injection, and permanent storage of CO<sub>2</sub>, including harmonised monitoring and risk-assessment frameworks. This participation is increasingly intertwined with concrete pipeline and terminal planning in the Danish North Sea (e.g., Greensand and Esbjerg-based logistics), which also generate research and demonstration cases on cross-border CCS-CDR value chains.</li> <li>• Denmark <a href="#">has joined</a> ECCSEL ERIC (the world’s largest CCUS and now CDR-oriented research infrastructure) via INNO-CCUS, giving Danish researchers and companies access to more than 100 state-of-the-art CCUS and CDR facilities across Europe. INNO-CCUS runs targeted funding pools (e.g. Pool 5 and later-stage calls) explicitly supporting CCUS and CDR demonstration projects, including DACCS, BECCS, and advanced capture and storage technologies, with a strong emphasis on moving from TRL-level research to pilot and demonstration scale. In addition, Denmark participates in transnational networks such as the Danish-American Research and Innovation Network on CCUS/CDR, which promotes bilateral R&amp;I collaborations with the US on technologies such as DACCS, BECCS, and biochar-based storage.</li> </ul>
<p>Projects</p>	<ul style="list-style-type: none"> <li>• <b><a href="#">Ørsted Kalundborg Hub Project</a></b>: Ørsted will establish carbon capture at its wood chip-fired Asnæs Power Station in Kalundborg in western Zealand and at the Avedøre Power Station’s straw-fired boiler in the Greater Copenhagen area. Ørsted will capture 430,000 tonnes of CO<sub>2</sub> annually from 2026, about half of which is biogenic, under the CCUS Fund agreement with the Danish Energy Agency.</li> <li>• <b><a href="#">Ruby Project</a></b>: Aims to establish an onshore CO<sub>2</sub> storage facility at the Rødby coastline, with Denmark’s largest onshore 3D seismic survey and subsurface characterisation ongoing as of 2025. The project targets first CO<sub>2</sub> storage around 2027–2028, with an ambition of 5–10 Mt CO<sub>2</sub> per year once scaled.</li> </ul>

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- **[CO2RYLUS Project](#)**: First full-scale onshore CO<sub>2</sub> storage facility at the Stenlille gas storage site, where the existing Gassum-formation reservoir and monitoring infrastructure are being repurposed for CO<sub>2</sub> storage. The project is designed for at least 10 Mt CO<sub>2</sub> storage capacity per year, making it one of Europe's first large-scale onshore CCS-CDR hubs.
- **[C4 - Carbon Capture Cluster Copenhagen Project](#)**: The C4 cluster aims to deploy CCS facilities to capture and store CO<sub>2</sub> from large power and waste-to-energy plants in the Copenhagen metropolitan area (including ARC Amager Bakke, Vestforbrænding, Argo, HOFOR biomass, and BIOFOS). The project is expected to reduce around 3 Mt CO<sub>2</sub> per year, with more than half of the captured CO<sub>2</sub> coming from biogenic sources, thus qualifying as a CCS-based CDR (BECCS) cluster.
- **[Norne Carbon Storage Hub Project](#)**: The Norne hub consists of CO<sub>2</sub> reception facilities at Danish ports and pipelines dedicated to transporting and storing both domestic and international captured CO<sub>2</sub>, utilising two existing underground gas-storage-like structures. Norne is designed to begin storing customers' CO<sub>2</sub> by 2030, with an ambition to store over 15 Mt CO<sub>2</sub> per year by the mid-2030s, forming a major North-Sea-facing storage-hub node.
- **[Bifrost Project](#)**: Focuses on enabling permanent geological storage of CO<sub>2</sub> in the Danish North Sea, with a potential capacity of about 3 Mt CO<sub>2</sub> per year. The project has been awarded EU Project of Common Interest (PCI) status, underlining its strategic role in the EU-wide CCS network.
- **[CHOCO2LATE Project](#)**: Aims to develop and demonstrate a full process chain from direct-air-captured CO<sub>2</sub> and to convert the CO<sub>2</sub> into sustainable fuels, acting as one of Denmark's early DAC-linked demonstration projects.

- **[Greensand Project](#)**: In 2024, the INEOS-led Greensand consortium made a final investment decision into Greensand Future, with storage operations set to begin late 2025/early 2026 at the Nini West field. The project is expected to scale to around 8 Mt CO<sub>2</sub> stored annually by 2030, supported by a DKK 197 million grant and other CCS-fund mechanisms. The initial operational phase focuses on 400,000 tonnes of CO<sub>2</sub> per year, providing early-stage proof-of-concept for cross-border storage.
- **Aalborg Portland Project & [ACCSION Project](#)**: The Aalborg Portland cement plant has developed a pilot carbon capture unit; if successful, the project could be scaled to capture around 400,000 tonnes of CO<sub>2</sub> per year by 2030, with the ACCSION project now superseding this as the main flagship CCS-CDR scheme. This latest, developed by Air Liquide and Aalborg Portland, will capture about 1.42 Mt CO<sub>2</sub> per year from 2029/2030 at the Aalborg cement plant, making it one of the first fully integrated CCS value chains (capture–pipeline–onshore storage) in the EU. The project has received DKK 1.6 billion (≈ €220 million) from the EU Innovation Fund and will supply surplus heat to the local district heating system, contributing to additional indirect CO<sub>2</sub> savings.
- The Danish Energy Agency has concluded NECCS-Fund contracts with BioCirc CO<sub>2</sub> ApS, Bioman ApS, and Carbon Capture Scotland Limited, which together will capture and store about 160,350 tonnes of CO<sub>2</sub> annually from 2026–2032, primarily from biogenic sources.

<p>Latest updates</p>	<p>France announced in February 2026 a significant <b>€1.6 billion</b> in public support over 15 years to accelerate the decarbonisation of its industrial sector. This initiative uses <b>Carbon Contracts for Difference (CCfD)</b> to secure funding for seven major industrial projects, with a strong focus on carbon capture and storage (CCS) in hard-to-abate sectors. This 15-year funding package targets 3.8 Mtpa of avoided emissions across the cement, aluminium, and chemical sectors, providing the financial certainty required for large-scale final investment decisions. Momentum further solidified in April 2026 with the publication of the national Roadmap for Transitioning Away from Fossil Fuels, which formally integrates carbon capture as a cornerstone for neutralising residual emissions by 2050.</p>
<p>Overview</p>	<p>The French CCS approach is highly centralised and government-driven, focused on industrial clusters and stepwise infrastructure development from coastal hubs toward inland emitters. France divides CCS deployment into three phases. The initial phase, running from 2025 to 2030, focuses on capturing 4 to 8 MtCO<sub>2</sub>pa primarily from industry sites located in key industrial-port areas like Le Havre, Dunkerque, Saint-Nazaire, and the Rhône axis. The subsequent phase, from 2030 to 2040, will significantly expand these efforts, aiming for 12 to 20 MtCO<sub>2</sub>pa. This growth will be driven by new CCS network development, EU carbon market changes, and extending capture to sectors like waste incineration and biogenic emissions. Finally, the third phase, covering 2040 to 2050, will be crucial for achieving deep industrial decarbonisation and climate neutrality, necessitating the capture of 30 to 50 MtCO<sub>2</sub>pa, with biogenic CO<sub>2</sub> representing approximately 60% of that amount. This final target requires capturing all residual emissions from sites belonging to hard-to-abate industries and developing new sources, such as biorefining or DAC.</p>
<p>CCUS targets</p>	<p><b>The use of CCS in the industrial sector is planned as early as 2027.</b></p> <p><b>Capture targets:</b></p> <ul style="list-style-type: none"> <li>• 2030: 4.0–8.0 [Draft SNBC-3 2025/12]</li> <li>• 2040: 12.0–20.0 [CCUS Strategy, 2024/07]</li> <li>• 2050: 30.0–50.0 (including biogenic CO<sub>2</sub>) [SNBC 2, 2024/06]</li> </ul> <p><b>Regulations on Effort Sharing 'ESR' Agriculture, building, transport, waste:</b> -47.5 % instead of -37 %</p>

	<p><b>LULUCF Regulation:</b> -6.693 Mt to be achieved in delta/change from the baseline 2016-2018, which will be taken from the 2030 inventory available in 2032.</p> <p><b>BECCS:</b> The central scenario of the SNBC 3 anticipates about 15 Mt CO2 from BECCS in 2050 – in addition to 9 Mt of biogenic emissions captured and reused to mainly produce synthetic fuels (energy BECCU) or reused as non-energy inputs for industry.</p> <p><b>DACCS:</b> The central scenario of the SNBC 3 foresees 6 Mt CO2 of DACCS in 2050, halfway between the low and high scenarios drawn from the perspectives of the on CCUS deployment in France published in July 2024. ) [Draft SNBC-3 2025/12]</p>
Potential capacity	<p>Deployment of studies to evaluate geological storage capacity started in early 2024.</p> <p>The results of the EVASTOCO2 <a href="#">study</a>, co-funded by ADEME and commissioned by the Directorate General for Energy and Climate (DGEC), were published in February 2025. BRGM coordinated this first overall estimate of CO2 geological storage capacity in mainland France.</p> <p><b>Theoretical Capacity: 4.750 Mt</b></p> <ul style="list-style-type: none"> <li>• <b>Saline Aquifers (Onshore):</b> 2,343 Mt (including 117 Mt in "closed structures") [EVASTOCO2/BRGM, 2025/02].</li> <li>• <b>Saline Aquifers (Offshore):</b> 1,740 Mt (including 309 Mt in "closed structures") [EVASTOCO2/BRGM, 2025/02].</li> <li>• <b>Depleted Reservoirs:</b> 667 Mt (primarily Paris Basin and Aquitaine) [EVASTOCO2/BRGM, 2025/02].</li> </ul>
Legal framework	<p>The first national steering committee dedicated to the deployment of the French Carbon Capture, Utilisation, and Storage (CCUS) strategy met on February 9, 2026, at the Vicat Group headquarters in L'Isle-d'Abeau (Isère). Bringing together industry stakeholders, local elected officials, and government representatives, the meeting provided an opportunity to review progress on projects, as well as the challenges of regulation, financing, and risk prevention. It is intended to become a regular forum for dialogue and monitoring of the sector.</p> <ul style="list-style-type: none"> <li>• <b><a href="#">National Energy Climate Plan (Updated June 2024)</a>:</b> Adopted. Formally establishes the operational start date for CCUS in the industrial sector as 2027. Sets 2030 capture targets at 4–8.5 Mtpa.</li> <li>• <b><a href="#">National CCUS Strategy (July 2024)</a>:</b> Adopted. Defines a three-phase deployment: Phase 1 (2025-2030) targeting 4–8 Mtpa; Phase 2 (2030-2040) targeting 12–20 Mtpa; Phase 3 (2040-2050) targeting 30–50 Mtpa.</li> <li>• <b><a href="#">Loi Industrie Verte</a></b> (Art. 4 and 5): Fast-tracks permitting for "Net Zero" technologies (CCS included).</li> </ul>

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	<p><b>CO2 Storage:</b></p> <ul style="list-style-type: none"> <li>• CO<sub>2</sub> storage is allowed.</li> <li>• <a href="#">Code de l'environnement</a> (L229-27 to L229-54): Adopted. Governs the licensing, liability, and safety of CO<sub>2</sub> storage: Governs exploration permits (PER) and storage concessions; mandates a minimum 10-year post-closure period before liability transfer to the State.</li> </ul> <p><b>Transport of CO2 and Infrastructure Development:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Decree on CO2 Transport</a> (public consultation closed in Feb 2026): Proposed. Establishing 3rd-party access rules for the National Backbone. [Draft under review, 2026/01]</li> <li>• France is in the process of ratifying the amendment of Article 6 of the London Protocol on cross-border transport of CO<sub>2</sub>.</li> </ul> <p><b>Carbon Removal Certification Framework:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Label Bas-Carbon</a>: Adopted. serves as an official framework to certify emissions reductions and removals at the national level (French territory only).<sup>1</sup></li> </ul> <p><b>Low-Carbon Industry:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">National Low-Carbon Strategy (SNBC-2 / SNBC-3)</a>: Defines the role of CCUS in hard-to-abate sectors (Cement/Lime/Steel). SNBC-3 under revision.</li> </ul>
Bilateral agreements	<ul style="list-style-type: none"> <li>• <b>Aalborg Declaration:</b> Signatory (2023); Commits France to the "European CCUS Backbone" initiative.</li> <li>• <b>London Protocol (Article 6 Amendment):</b> Ratified June 2025. Enables the legal export of French industrial CO<sub>2</sub> to maritime geological storage formations (e.g., North Sea).</li> <li>• <b>France and Norway:</b> <a href="#">bilateral agreement</a> sets cooperation on cross-border transport and mutual recognition of storage credits.</li> <li>• <b>France-Denmark:</b> Signed Lol on maritime CO<sub>2</sub> shipping corridors from Dunkirk to Project Greensand.</li> <li>• <b>France-Netherlands:</b> <a href="#">Pact</a> for Innovation and Sustainable Growth. CCUS technologies are included.</li> </ul>
EU & national funding	<p><b>France 2030 investment plan (strategy to decarbonise industry):</b></p> <ul style="list-style-type: none"> <li>• An overall budget of EUR 5.6 billion for the development of CCUS technologies.</li> <li>• EUR 25 to EUR 30 million to support the carrying out of studies or works aimed at improving knowledge of the capacity of the French subsoil in terms of storing CO<sub>2</sub> (seismic campaigns or injectivity tests).</li> <li>• Calls for the creation of a Carbon Contract for Difference (CCfD) mechanism.</li> </ul>

	<ul style="list-style-type: none"> <li>• <b>Calls:</b> <ul style="list-style-type: none"> <li>◦ Call for tenders - Major Industrial Decarbonization Projects 2024 - closed</li> <li>◦ Decarbonising Industry - DECARB IND 25 - closed; winners will be published in May 2026</li> <li>◦ <b>Promoting the development of Low Carbon Industrial Zones (ZIBaC) Phase 2: <a href="#">open call until 10 June, 2028</a></b></li> <li>◦ <b>Hydrogen Innovation and Demonstration: <a href="#">call open until 25 September 2026</a></b></li> </ul> </li> </ul> <p><b>Innovation Fund - open calls:</b></p> <ul style="list-style-type: none"> <li>• <b>2025 Net-Zero Technologies call (IF25 NZT call) (€12.9B):</b> It supports decarbonisation projects that demonstrate highly innovative technologies and processes that are sufficiently mature and have a significant potential to reduce greenhouse gas (GHG) emissions. It involves projects of different scale, as well as those focusing on the manufacturing of components for renewable energy, energy storage, heat pumps and hydrogen production, including electric-vehicle batteries.</li> <li>• <b>Third auction for hydrogen production under the European Hydrogen Bank (IF25 Hydrogen Auction) (€1.3B):</b> Designed to provide cost-efficient support for the production of renewable fuels of non-biological origin (RFNBO) hydrogen or electrolytic low-carbon hydrogen across three topics, including a new topic for producers of hydrogen with maritime or aviation off takers.</li> </ul>
Support, research & innovation	<p>The results of the EVASTOCO<sub>2</sub> <a href="#">study</a>, co-funded by ADEME and commissioned by the Directorate General for Energy and Climate (DGEC), were published in February 2025. BRGM coordinated this first overall estimate of CO<sub>2</sub> geological storage capacity in mainland France.</p> <ul style="list-style-type: none"> <li>• Two types of potential reservoir were identified: former hydrocarbon deposits (also known as depleted reservoirs) and saline aquifers.</li> <li>• The storage capacity of the depleted reservoirs has been estimated at 700 Mt.</li> <li>• The estimated storage capacity of the saline aquifers is 2,300 Mt on land (including 100 Mt in closed structures) and 1,800 Mt at sea (including 360 Mt in closed structures).</li> <li>• These theoretical estimates will require new data to be acquired locally if projects are launched at one or more potential storage sites in mainland France.</li> </ul>
Projects	<ul style="list-style-type: none"> <li>• <b><a href="#">3D Project (DMX Demonstration in Dunkirk)</a>:</b> Aiming to capture up to 1 Mt of CO<sub>2</sub> per year from ArcelorMittal's blast furnace gases by 2025, with potential expansion to a 10 Mtpa capacity by 2035. The project will realise a comprehensive study dedicated to the development of the future European cluster in Dunkirk for capture and storage in the North Sea. 3D is part of the Horizon 2020 program and receives EUR 14.8 million in EU subsidies.</li> </ul>

- **GOCO2 Project (Grand-Ouest CO2)**: aims to develop an investment programme to capture CO<sub>2</sub> on industrial sites and transport it by pipeline to the Montoir-de-Bretagne terminal for permanent geological storage. The estimated capacity is of 2.6 Mt per year by 2030.
- **CO2-DISSOLVED Project**: aims at storing industrial CO<sub>2</sub> emissions in close saline aquifers while producing geothermal energy for local use.
- **PilotSTRATEGY Project**: funded by the European Union's Horizon 2020 programme, the project was officially launched in May 2021. It aims to improve knowledge of the ability of deep saline aquifers to store CO<sub>2</sub>. It will also propose the construction of CO<sub>2</sub> of southern Europe, including the Paris Basin. The project is finalised now after the recent final event in Brussels (21 April). The consortium partners are working on building up a follow-up project.
- **K6 Program**: aiming to capture 8 Mt of CO<sub>2</sub> over ten years, with storage in the North Sea or utilisation in concrete products.
- **CalCC Project**: capturing and permanently storing CO<sub>2</sub> emitted during lime production at Lhoist Group's Réty site. This project will cover the full CO<sub>2</sub> value chain: capture, pipeline transport, liquefaction, shipping, and offshore geological storage. For the carbon capture aspect of the project, Air Liquide will build the first Cryocap™ FG unit in a lime plant at industrial scale.
- **NaTran CO2 Transport Network**: developing dedicated transmission infrastructure to convey CO<sub>2</sub> from capture sites to storage or utilisation locations, facilitating large-scale CCUS deployment.
- **D'Artagnan CO2 hub** terminal is positioned as a multi-modal CO<sub>2</sub> hub that leverages existing gas infrastructure to enable CCS for the surrounding industrial basin. Operators are exploring how to reuse existing LNG infrastructure for CO<sub>2</sub> liquefaction and export to North Sea storage sites. Linked to the Dunkirk industrial cluster, which emits around 16 MtCO<sub>2</sub>/year, the project is one of three priority CCS hubs identified by the French government.

## Germany

<p>Latest updates</p>	<p>Germany has rapidly shifted from a restrictive stance on carbon storage to enabling large-scale CCUS deployment, marked by the entry into force of the Carbon Dioxide Storage and Transport Act (KSpTG) in November 2025, which permits offshore CO<sub>2</sub> storage and prioritises transport infrastructure. Momentum further accelerated in March 2026 with the €8 billion Climate Protection Programme 2026, introducing concrete carbon capture targets, funding mechanisms, and the first large-scale procurement of carbon removal certificates, signalling a transition toward full industrial carbon management integration.</p> <p>Germany has further strengthened its CCUS financing landscape with the launch of a new €5 billion Carbon Contracts for Difference (CCfD) scheme in May 2026, with bids open until September 2026 and awards expected by year-end. Enabled by the new Carbon Dioxide Storage and Transport Act, the scheme for the first time provides a viable funding pathway for CCS and CCU projects, introducing more flexible, market-linked pricing and long-term (15-year) contracts, marking a critical step toward making industrial carbon management projects bankable.</p> <p>In parallel, cross-border infrastructure development is advancing, including the Ruhbens agreement between OGE and Fluxys to develop a CO<sub>2</sub> pipeline corridor linking Southern Germany to Belgian export hubs and the Zeebrugge terminal for North Sea storage.</p>
<p>Overview</p>	<p>Germany has fundamentally pivoted from a restrictive moratorium on carbon sequestration to an accelerated, commercial-scale deployment phase, with the adoption of the Carbon Dioxide Storage and Transport Act (KSpTG), which entered into force on 28 November 2025. , alongside the launch of a new €5 billion Carbon Contracts for Difference (CCfD) scheme aimed at scaling industrial decarbonisation and enabling CCS/CCU deployment. Current momentum is driven by the March 25, 2026, adoption of the €8 billion Climate Protection Program 2026, which introduces 67 mitigation measures and confirms the first large-scale procurement of technical carbon removal certificates, alongside the launch of a new €5 billion Carbon Contracts for Difference (CCfD) scheme aimed at scaling industrial decarbonisation and enabling CCS/CCU deployment. (Klimaschutzprogramm 2026).</p>
<p>CCUS targets</p>	<p>The German climate policy architecture is anchored in the Federal Climate Protection Act (Bundes-Klimaschutzgesetz – KSG), which establishes the most ambitious net-zero trajectory in the European Economic Area. The legal framework was tightened following the 2021 Federal Constitutional Court ruling, which mandated more granular pathways beyond 2030 to prevent the disproportionate deferral of mitigation burdens to future generations.</p>

	<p>The 2026 Climate Action Programme identifies a structural gap of 30 Mtpa to meet the 2030 threshold, necessitating the immediate integration of industrial carbon management.</p> <p><b>1. National Greenhouse Gas (GHG) Reduction Targets</b>  These overarching legal benchmarks are established in the <b>KSG</b> and reaffirmed in the introductory section of the <b>KSP 2026</b>:</p> <ul style="list-style-type: none"> <li>• <b>2030: -65% Reduction (vs. 1990)</b>: Mandated by § 3 Absatz 1 KSG.</li> <li>• <b>2040: -88% Reduction (vs. 1990)</b>: Mandated by § 3 Absatz 1 KSG.</li> <li>• <b>2045: Net-Zero Greenhouse Gas Neutrality</b>: Established by § 3 Absatz 2 KSG.</li> <li>• <b>Post-2050: Net Negative Emissions</b>: Established by § 3 Absatz 2 KSG.</li> </ul> <p><b>2. Sector-Specific Capture &amp; Carbon Management Targets</b>  These technical targets are detailed in the "Measures" section and the technical "Annex" of the KSP 2026:</p> <ul style="list-style-type: none"> <li>• <b>Waste-to-Energy CCS (Measure EW 3)</b>: <ul style="list-style-type: none"> <li>◦ <b>Goal</b>: Capture of 15.0 Mtpa (biogenic and fossil CO<sub>2</sub>) by 2040.</li> <li>◦ <b>Scale</b>: Requirement for 65% of municipal waste incineration capacity to be equipped with capture units by 2040.</li> </ul> </li> <li>• <b>Industrial Capture (Measure Ind 1)</b>: The technical capture path for "hard-to-abate" industry is quantified in the <b>Ind 1 Table</b> in the Annex: <ul style="list-style-type: none"> <li>◦ <b>2030 Outlook</b>: ~1.78 Mtpa.</li> <li>◦ <b>2040 Outlook</b>: ~9.17 Mtpa.</li> <li>◦ <b>2045 Outlook</b>: ~11.60 Mtpa.</li> </ul> </li> <li>• <b>Steel Sector Transformation</b>: A mandate for <b>9.0 Mt</b> of steel production to be converted to Direct Reduction by 2030, with 20% hydrogen usage.</li> </ul> <p><b>3. LULUCF &amp; Technical Sink Targets</b>  Specific balance targets for land use and technical removals are governed by § 3a and § 3b of the KSG:</p> <ul style="list-style-type: none"> <li>• <b>2030 Net Balance</b>: -25.0 Mt CO<sub>2</sub>-Eq..</li> <li>• <b>2040 Net Balance</b>: -35.0 Mt CO<sub>2</sub>-Eq..</li> <li>• <b>2045 Net Balance</b>: -40.0 Mt CO<sub>2</sub>-Eq..</li> <li>• <b>Technical Removal Targets</b>: § 3b KSG mandates that specific targets for technical sinks (e.g., DAC, BECCS) for 2035, 2040, and 2045 must be determined via a separate legal ordinance.</li> </ul>
<p>Potential capacity</p>	<p><b>Theoretical Capacity</b>: Approx. 20,000 Mtpa in saline aquifers and depleted gas fields (offshore focus).</p> <p><b>Practical Capacity</b>: Commercial exploration focused on the German Exclusive Economic Zone (EEZ); coastal injection and onshore storage (except research) remain prohibited unless federal states "opt-in". KSP 2026 underscores that 2040 targets depend on the successful buildup of offshore storage and transport infrastructure.</p>

## **National**

### **CO2 Storage:**

- **Carbon Dioxide Storage and Transport Act (KSpTG)**: In force since November 2025.
- **KSpTG § 2 & § 7**: Commercial offshore CO<sub>2</sub> storage within the German Exclusive Economic Zone (EEZ) is now allowed. However, onshore storage remains prohibited unless Federal States (Länder) utilise the specific "Opt-In" clauses to allow local projects.
- The law expressly excludes CCS and CCU for emissions generated from coal-fired power plants from connecting to CO<sub>2</sub> pipeline networks or accessing CO<sub>2</sub> storage sites
- **Climate Protection Act (KSG) § 3b**: Establishes the legal mandate for determining targets for technical sinks (including geological storage of captured carbon) for the years 2035, 2040, and 2045 via a separate federal ordinance.
- **Carbon Management Action Plan (ACM)**: To be drafted in the near future, as foreseen in the [KSP 2026](#), aims to set out a potential economic framework for the possible deployment of technologies for the capture, transport, utilisation and storage of CO<sub>2</sub> (CCU/CCS) in Germany, prioritising the storage of "hard-to-abate" industrial emissions over energy-sector emissions ([2024 Key Principles for Carbon Management Strategy](#)).
- **High Seas Disposal Act (HSEG) & London Protocol**: In late January 2026, the German Bundestag passed the [resolution](#) to ratify the amendment to Article 6 of the London Protocol, and to approve the amendment to the **High Seas Dumping Act** (*Hohe-See-Einbringungsgesetz*) aimed at aligning national law with international marine protection standards. The resolution was published in the Federal Law Gazette (Bundesgesetzblatt) in March 2026.

### **Transport of CO2 and Infrastructure Development:**

- **KSpTG**: Introduces a comprehensive planning approval process (*Planfeststellungsverfahren*) focus on developing CO<sub>2</sub> pipelines, recognising this infrastructure as fundamental to scaling up CCS, CCU, and direct air carbon capture technologies.
  - **§ 13 (Overriding Public Interest)**: Grants CO<sub>2</sub> transport pipelines the status of "Overriding Public Interest," a critical regulatory mechanism used to fast-track permitting and prevent municipal-level planning veto.
- **KSP 2026 Measure Ind 1 (ACM Implementation)**: Commits to the development of a national CO<sub>2</sub> transport backbone.

### **Carbon Removal:**

- **Climate Protection Act (KSG) § 3a**: Mandates legally binding net balance targets for the LULUCF sector (Natural Sinks): **-25.0 Mt CO<sub>2</sub>-Eq.** by 2030, **-35.0 Mt** by 2040, and **-40.0 Mt** by 2045.

	<ul style="list-style-type: none"> <li>• <b>Long-term Strategy for Negative Emissions (LNe):</b> Required under <b>§ 3b KSG</b>, this strategy defines the role of technical removals – specifically <b>Direct Air Capture (DAC)</b> and <b>Bio-energy CCS (BECCS)</b> – in achieving the post-2050 net-negative emissions mandate.</li> <li>• <b>KSP 2026 National Financial Support:</b> the Federal Government plans to invest in the technological and market scale-up for negative emissions, through funding of specific negative emission projects and technologies, and through a purchase program to strengthen the market for negative emissions.</li> </ul> <p><b>Low-Carbon Industry:</b></p> <ul style="list-style-type: none"> <li>• <b>KSP 2026 Measure Ind 5 (Lead Markets for Climate-Friendly Basic Materials):</b> Establishes the regulatory basis for "Green Lead Markets" in the steel and cement sectors, utilising public procurement mandates to create demand for low-carbon products (aligned with the European Commission’s proposal for the Industrial Accelerator Act).</li> <li>• <b>KSP 2026 Measure EW 3 (Waste-to-Energy CCS):</b> Mandates a capture target of 15.0 Mtpa by 2040 for the municipal waste sector, identifying captured CO<sub>2</sub> as a potential feedstock for CCU-based synthetic fuels.</li> </ul> <p><b>International</b></p> <ul style="list-style-type: none"> <li>• <b>London Protocol:</b> Even though Germany has completed its domestic legislative requirements, Germany still needs to formally submit the signed documents to the International Maritime Organisation (IMO) in London, and must specifically notify the IMO that it will apply the rules provisionally under Resolution LP. 5(14).</li> </ul>
Bilateral agreement	<ul style="list-style-type: none"> <li>• <b>Aalborg Declaration:</b> Signatory (Nov 2023); Germany Commits to removing regulatory uncertainty and enhancing cross-border cooperation.</li> <li>• <b>Belgium and Germany:</b> <a href="#">Agreement</a> to cooperate on hydrogen, carbon capture, electrification and LNG projects as part of efforts to increase energy independence and decarbonise.</li> <li>• <b>Denmark and Germany:</b> <a href="#">Declaration of intent</a> to cooperate on the further development of CCUS.</li> <li>• <b>Norway and Germany:</b> <a href="#">two joint Declarations</a> on the cooperation in the areas of hydrogen, battery technology, offshore wind, and carbon capture and storage.</li> </ul>
EU & national funding	<p><b><a href="#">Fund for Industry and Climate Action (Bundesförderung Industrie und Klimaschutz – BIK):</a></b></p> <ul style="list-style-type: none"> <li>• Module 1: supports the decarbonization of industry through electrification and the use of hydrogen where fossil fuels are currently used for process heat.</li> <li>• Module 2: addresses the application and implementation of CO<sub>2</sub> utilization (CCU) and storage (CCS). <a href="#">Call closed on 28 February 2026.</a></li> </ul>

	<p><b><u>Carbon Contracts for Difference (CO<sub>2</sub>-Differenzverträge/Klimaschutzverträge):</u></b></p> <ul style="list-style-type: none"> <li>• <b><u>2026 bidding round:</u></b> The 2026 €5 billion CCfD round marks a major upgrade of Germany’s industrial decarbonisation support, introducing a €3 billion base budget plus €2 billion flexible top-up. A key development is the inclusion of CCS and CCU projects, now viable due to the KSpTG framework. The scheme features dynamic pricing linked to the EU ETS and energy costs, 15-year contracts, and a requirement for projects to be operational by 2031. Applications close in September 2026, with awards expected by year-end.</li> </ul> <p><b>Innovation Fund – open calls:</b></p> <ul style="list-style-type: none"> <li>• <b>2025 Net-Zero Technologies call (IF25 NZT call) (€12.9B):</b> It supports decarbonisation projects that demonstrate highly innovative technologies and processes that are sufficiently mature and have a significant potential to reduce greenhouse gas (GHG) emissions. It involves projects of different scale, as well as those focusing on the manufacturing of components for renewable energy, energy storage, heat pumps and hydrogen production, including electric-vehicle batteries.</li> <li>• <b>Third auction for hydrogen production under the European Hydrogen Bank (IF25 Hydrogen Auction) (€1.3B):</b> Designed to provide cost-efficient support for the production of renewable fuels of non-biological origin (RFNBO) hydrogen or electrolytic low-carbon hydrogen across three topics, including a new topic for producers of hydrogen with maritime or aviation off takers.</li> </ul>
<p>Support, research &amp; innovation</p>	<p>The federal government intends to encourage environmentally friendly technologies through already implementing carbon contracts for difference (CCfDs) as a core instrument to support the deployment of low-carbon industrial technologies. This mechanism may also serve as an incentive for CDR methods as well.</p> <p>Germany updated its National Hydrogen Strategy, now allowing the possibility of supporting applications using blue hydrogen produced from fossil fuels with CCS during the ramp-up phase of the hydrogen market.</p> <p>Germany is active in 14 SET plan implementation working groups, including CCUS.</p>
<p>Projects</p>	<ul style="list-style-type: none"> <li>• <b>Ruhbens:</b> OGE and Fluxys have signed an <a href="#">agreement</a> to jointly cooperate on a cross-border CO<sub>2</sub> pipeline corridor connecting industrial Southern Germany to Belgian export hubs for North Sea storage.</li> </ul>

- **Harbour Energy and Equinor** have [agreed](#) to pursue the development of an extensive and safe CCS value chain connecting continental European CO<sub>2</sub> emitters to offshore storage sites on the Norwegian Continental Shelf. The initiative includes projects like [CO<sub>2</sub> Highway Europe](#), and aims to transport, via pipeline, 20-40 million tonnes of annually for safe, permanent storage, targeting operational start-up by the end of this decade.
- **GeZero Project:** Heidelberg Materials' CCS project is set to decarbonise cement production at Geseke plant in North Rhine-Westphalia. The project aims at implementing a comprehensive CCS value chain, with the goal of capturing 700,000 tonnes of CO<sub>2</sub> annually from 2029. The CO<sub>2</sub> will be transported via ship/pipeline/rail to offshore sites in the North Sea. It has received €191 million funding from the EU Innovation Fund. As of November 2024, technical planning (FEED) is underway with construction due from 2026.
- **EVEREST Project:** The project aims at decarbonizing the limestone plant of Lhoist Germany Rheinkalk GmbH in Wülfrath, by building 3 oxyfuel kilns equipped with carbon capture technology. It has successfully passed preselection the Innovation Fund's third call for large-scale projects.<sup>4</sup>
- **CO<sub>2</sub>NNECTNOW Project:** Harbour Energy is progressing with early-stage engineering and concept studies for the development of CO<sub>2</sub> transportation hubs at Wilhelmshaven in Germany, together with partner HES International. The CO<sub>2</sub> captured from German industrial sites will first be transported to the HES Wilhelmshaven Tank Terminal and transported by ship or pipeline to storage sites in the Norwegian and Danish North Sea.
- **H<sub>2</sub>GE Rostock Project:** Equinor and German gas company VNG AG are evaluating options for producing low-carbon hydrogen on the Baltic Sea coast, specifically in the Rostock area, using technologies to capture, utilize or transport and safely store CO<sub>2</sub> offshore.
- **Delta Rhine Corridor (DRC):** The Delta Rhine Corridor (DRC), being developed by BASF, Gasunie, OGE and Shell, is a major cross-border infrastructure project aiming to build underground pipelines for transporting hydrogen and CO<sub>2</sub> between the Port of Rotterdam, the Netherlands, and industrial regions in Germany. It is designed to decarbonise heavy industry, boost energy security, and enable renewable energy transport.
- **HES International:** The development of cross-border CO<sub>2</sub> infrastructure is further advancing through the HES International-led open season for CO<sub>2</sub> export terminals in the Port of Rotterdam. The initiative aims to establish an open-access CO<sub>2</sub> export hub enabling shipment of captured CO<sub>2</sub> from German industrial clusters to offshore storage sites in the North Sea, strengthening Germany's integration into a wider North-West European CCS value chain.

<p>Latest updates</p>	<p>Greece has significantly advanced its CCUS framework with the adoption of a dedicated CCS law (Law 5261/2025), enabling CO<sub>2</sub> transport and storage permitting. A key milestone was reached in February 2026, when the Hellenic Hydrocarbons and Energy Resources Management Company granted the storage permit for the Prinos CO<sub>2</sub> project, confirming regulatory readiness. In parallel, the project progressed technically with FEED contracts awarded and continued support from the EU Innovation Fund, further de-risking development ahead of FID. Prinos is considering a formal market test in 2026.</p>
<p>Overview</p>	<p>Greece is at an <b>early but fast-developing stage of CCUS deployment</b>, with growing policy and industrial momentum since 2024–2025. While not historically central to its decarbonisation strategy, CCUS is now recognised as key for reducing emissions in <b>hard-to-abate sectors</b> such as cement and refining, as reflected in the updated National Energy and Climate Plan (NECP). The country is increasingly positioning itself as a <b>regional CO<sub>2</sub> storage hub</b>, supported by a new legal framework for CO<sub>2</sub> transport and storage adopted in 2025.</p> <p>A major advantage is Greece’s <b>offshore geological storage potential</b>, particularly in the <b>Prinos depleted oil field</b>, which is being developed as the first large-scale CO<sub>2</sub> storage site in the Eastern Mediterranean. Combined with a <b>concentrated industrial base and strong EU funding support</b>, this creates favourable conditions for a <b>cluster-based CCUS model</b> and future <b>cross-border CO<sub>2</sub> transport and storage networks</b>.</p>
<p>CCUS targets</p>	<p>Greece’s climate policy framework is primarily guided by its <b>National Energy and Climate Plan (NECP)</b> and EU climate commitments. While the country does not yet have a dedicated national CCUS strategy, CCUS is increasingly recognised as a necessary tool for decarbonising hard-to-abate sectors such as cement, refining, and hydrogen production.</p> <p>The updated NECP includes indicative deployment volumes for carbon capture technologies:</p> <p><b>CCS deployment targets</b></p> <ul style="list-style-type: none"> <li>• 3.1 Mt CO<sub>2</sub>/year by 2030</li> <li>• 3.5 Mt CO<sub>2</sub>/year by 2040</li> <li>• Mt CO<sub>2</sub>/year by 2050</li> </ul> <p><b>CCU deployment targets</b></p> <ul style="list-style-type: none"> <li>• 0.2 Mt CO<sub>2</sub>/year by 2030</li> <li>• 2.7 Mt CO<sub>2</sub>/year by 2050</li> </ul> <p>These targets indicate the government’s intention to gradually scale carbon capture infrastructure to support the decarbonisation of heavy industry.</p>

<p>Potential capacity</p>	<p>Greece's CCUS potential is mainly linked to <b>offshore geological storage in depleted hydrocarbon fields</b> in the northern Aegean Sea.</p> <p>The most advanced site is the <b>Prinos offshore field near Kavala</b>, which is being redeveloped as a CO<sub>2</sub> storage facility.</p> <p>Key characteristics include:</p> <ul style="list-style-type: none"> <li>• Initial storage capacity: <b>~1 Mt CO<sub>2</sub>/year</b></li> <li>• Planned expansion: <b>2.5–3 Mt CO<sub>2</sub>/year by 2027–2030</b></li> <li>• Long-term potential to serve as a <b>regional storage hub for Southeast Europe and the Eastern Mediterranean</b></li> </ul> <p>The project relies on the geological characteristics of depleted oil reservoirs beneath the seabed, which are considered suitable for long-term CO<sub>2</sub> storage.</p> <p>The Prinos hub could also support cross-border CO<sub>2</sub> transport from neighbouring countries in the future.</p>
<p>Legal framework</p>	<p>Greece has recently strengthened the regulatory framework for carbon capture and storage.</p> <p>In <b>December 2025</b>, the government adopted <b>Law 5261/2025</b>, which establishes a comprehensive legal framework for CO<sub>2</sub> transport and geological storage in line with the <b>EU Carbon Storage Directive (2009/31/EC)</b>.</p> <p>This framework positions Greece to participate in emerging <b>European CO<sub>2</sub> transport and storage networks</b> and support industrial decarbonisation.</p>
<p>EU &amp; national funding</p>	<p>CCUS development in Greece is strongly supported by <b>European funding instruments</b>, particularly the <b>EU Innovation Fund</b> and the <b>Recovery and Resilience Facility (RRF)</b>.</p> <p>Key funding sources include:</p> <ul style="list-style-type: none"> <li>• <b>€150 million allocated to CCUS development</b> under national and EU-supported programmes.</li> <li>• The <b>Prinos CO<sub>2</sub> storage project</b>, which is expected to receive approximately <b>€313 million from the EU Innovation Fund</b> as part of a wider €1.4 billion investment.</li> <li>• Additional EU Innovation Fund grants supporting large-scale capture projects in the cement and refining sectors.</li> </ul> <p>Overall, Greece's emerging CCUS ecosystem is expected to attract <b>more than \$4 billion in combined public and private investments</b>.</p>
<p>Bilateral agreements</p>	<p>Greece is increasingly positioning itself as a <b>regional CO<sub>2</sub> storage hub</b> in the Eastern Mediterranean.</p> <p>The development of the Prinos storage site is linked to broader regional cooperation initiatives, including collaboration with <b>France and Italy</b> under the <b>Mediterranean CCS Strategic Plan</b> aimed at creating cross-border carbon storage infrastructure.</p> <p>Greece has also explored <u>partnerships</u> with countries such as <b>Egypt, Cyprus and Norway</b> to develop CO<sub>2</sub> transport and storage networks and enable cross-border carbon management solutions.</p>

<p>Support, research &amp; innovation</p>	<p>The Greek government is increasingly integrating CCUS into its industrial decarbonisation strategy, particularly in energy-intensive sectors such as cement and refining.</p> <p>The updated NECP identifies several priority sectors for carbon capture deployment:</p> <ul style="list-style-type: none"> <li>• cement production</li> <li>• refineries and petrochemicals</li> <li>• hydrogen production</li> <li>• heavy industry</li> </ul> <p>In addition, national agencies and research organisations are supporting knowledge development and capacity building for CCS technologies. For example, the <b>Hellenic Hydrocarbons and Energy Resources Management Company (HEREMA)</b> has organised in the past national CCS workshops to strengthen technical expertise and stakeholder coordination.</p>
<p>Projects</p>	<ul style="list-style-type: none"> <li>• <b>PRINOS CO<sub>2</sub> storage Project:</b> The <b>Prinos project</b>, developed by Energean and its subsidiary EnEarth, is the most advanced CCUS project in Greece and the <b>first large-scale CO<sub>2</sub> storage project in the Eastern Mediterranean</b>. Key characteristics: <ul style="list-style-type: none"> <li>◦ Offshore storage facility in a depleted oil field near Kavala</li> <li>◦ Capacity of <b>1 Mt CO<sub>2</sub>/year initially</b>, expanding to <b>~3 Mt/year by 2030</b></li> <li>◦ Planned start of operations between <b>2026 and 2027</b></li> <li>◦ Recognised as a <b>Project of Common Interest (PCI)</b> within the EU TEN-E framework.</li> </ul> <p>The site is expected to serve as the central storage hub for captured CO<sub>2</sub> from industrial facilities across Greece. In <b>2024–2025, the project advanced into the execution phase</b>, with <b>Front-End Engineering and Design (FEED) contracts awarded</b>, confirming technical maturation and progressing towards Final Investment Decision (FID). In parallel, the adoption of <b>Greece’s CCS legal framework (Law 5261/2025)</b> has enabled the permitting and licensing process for CO<sub>2</sub> storage, providing the regulatory basis required for project implementation. In February 2026, HEREMA <b>granted the CO<sub>2</sub> storage permit for the Prinos project</b>, marking a key regulatory milestone and confirming the project’s transition toward the implementation phase.</p> </li> <li>• <b>OLYMPUS Project:</b> The <b>OLYMPUS project</b>, led by the Heracles Group (Holcim), aims to transform the Milaki cement plant into a <b>net-zero facility</b>. Key elements: <ul style="list-style-type: none"> <li>◦ Capture of approximately <b>0.9–1 Mt CO<sub>2</sub> per year</b></li> <li>◦ CO<sub>2</sub> liquefaction and maritime transport to the Prinos storage site</li> <li>◦ Expected start of operations around <b>2029</b></li> <li>◦ Potential <b>95% reduction in plant emissions</b></li> </ul> </li> </ul>

- **IFESTOS Project:** This project, developed by Titan Group, aims to deploy carbon capture technology at a cement plant in Boeotia.
  - Expected to capture **~1.9 Mt CO<sub>2</sub>/year**
  - Planned start of operations around **2029**
  - Total investment estimated at **€583 million**
- **IRIS Project:** The **IRIS project**, developed by Motor Oil Hellas, integrates carbon capture with low-carbon fuel production. Key features include:
  - capture of CO<sub>2</sub> from refinery processes
  - production of **renewable hydrogen and e-methanol**
  - expected reduction of refinery emissions by **around 25%**
- **PilotSTRATEGY Project:** funded by the European Union's Horizon 2020 programme, the project was officially launched in May 2021. It aims to improve knowledge of the ability of deep saline aquifers to store CO<sub>2</sub> in five industrial regions in southern and eastern Europe<sup>5</sup>. It will also propose the construction of CO<sub>2</sub> storage pilots in three regions of southern Europe: the Lusitanian Basin (Portugal), the Ebro Basin (Spain), and the Paris Basin (France). The project is finalised now after the recent final event in Brussels (21 April). The consortium partners are working on building up a follow-up project.

<p>Latest updates</p>	<p>Italy is accelerating the development of its CCUS framework and infrastructure, with a strong focus on scaling the Ravenna hub and enabling cross-border CO<sub>2</sub> transport.</p> <p>The Ravenna CCS hub is progressing toward an initial capacity of ~4 Mt CO<sub>2</sub>/year by 2030, with longer-term expansion potential to 12–16 Mt/year, and is increasingly positioned as a regional storage hub for Southern Europe. In parallel, the Callisto Mediterranean CO<sub>2</sub> Network (now designated as an EU Project of Common Interest) is advancing plans for cross-border CO<sub>2</sub> transport between Italy, France, and Greece, supported by emerging bilateral cooperation frameworks under the London Protocol.</p> <p>Private investment is also strengthening, notably through Eni's sale of a 49.99% stake in its CCS business to Global Infrastructure Partners and Snam's planned investments in CO<sub>2</sub> transport and storage infrastructure. While Italy still lacks binding national CCS/CDR targets, policy, regulatory, and commercial developments over the past year signal a transition from pilot phase to early market formation, with Italy positioning itself as a key CO<sub>2</sub> storage hub in the Mediterranean region.</p>
<p>Overview</p>	<p>Italy's <a href="#">Long-Term National Climate Strategy</a> (2021) sets a goal of achieving carbon neutrality by 2050, in line with the EU Climate Law and the Paris Agreement. Approximately 20–40 Mt CO<sub>2</sub> of residual emissions are expected to be compensated through CCS and CDR technologies by 2050, with the strategy explicitly recognising CCS and CCS-linked negative emissions (e.g. BECCS and DACCS) as necessary tools to close the mitigation gap.</p> <p>Natural and biogenic sinks (mainly LULUCF) are expected to remove about 45 Mt CO<sub>2</sub>-eq annually by 2050, while the remaining 20–40 Mt CO<sub>2</sub>-eq of residuals are to be addressed by CCS and CDR, rather than by fossil-based offsets alone. Under the EU LULUCF Regulation, Italy has a legally binding additional net removal target of 3.2 Mt CO<sub>2</sub> by 2030, which would raise total LULUCF-based CDR to around 35.8 Mt CO<sub>2</sub> per year in 2030.</p> <p>In August 2025, the Ministry for the Environment and Energy Security (MASE) <a href="#">published a CCUS study</a> to address the regulatory framework, cost structure, potential users, and possible evolutionary pathways for the CCUS value chain in Italy. This study underpins the drafting of new legislation that will expand the competences of regulatory bodies along the CCUS chain and define clearer rules on CO<sub>2</sub> ownership and liability, transport-rights, and storage permit procedures.</p>
<p>CCUS targets</p>	<p>There are currently no legally binding national targets specific to CCUS or CDR technologies, although the 2024 update of the National Energy and Climate Plan (NECP) underlines <a href="#">the strategic importance</a> of CCS for decarbonising hard-to-abate sectors and for supporting CDR (BECCS and DACCS) and notes that specific CCS deployment targets will be defined once the geological potential is fully mapped.</p>

	<p>CCS capture and storage infrastructure has been explicitly included in the list of key climate-related infrastructure under Decree-Laws 76/2020 and 77/2021, and the updated NECP indicates an indicative target of capturing and storing about 4 Mt CO<sub>2</sub> per year by 2030 via CCS.</p>
<p>Potential capacity</p>	<ul style="list-style-type: none"> <li>• The draft updated NECP outlines an ongoing analysis of the storage potential in depleted oil and gas fields, primarily those operated by ENI. That analysis, provided to MASE by Eni, estimates a <a href="#">potential storage</a> capacity of around 750 Mt of CO<sub>2</sub> in offshore and onshore depleted hydrocarbon fields, with the majority located in the Adriatic and Emilia-Romagna regions. Additionally, the plan refers to deep saline aquifers across northern Italy and the Adriatic foreland, which various studies suggest could provide at least around 4.7–5 Gt CO<sub>2</sub> of storage potential, potentially expanding the total geological storage capacity to on the order of 5,000 Mt of CO<sub>2</sub> or more.</li> <li>• In parallel, sector-specific work by Eni and Snam <a href="#">indicates</a> that the depleted gas fields associated with the Ravenna CCS hub alone could host more than 500 Mt of CO<sub>2</sub>, with the hub foreseen to reach an injection capacity of about 4 Mt CO<sub>2</sub> per year by 2030, growing to 12–16 Mt CO<sub>2</sub> per year by 2040–2050. Nevertheless, the draft updated NECP still lacks a fully binding, time-bounded national assessment of site-by-site storage potential and does not provide a consolidated, legally anchored projection of annual injection capacity by 2030; it instead relies on operator-based studies that are being progressively refined through dedicated site-characterisation and pilot-injection phases.</li> <li>• The draft updated NECP also refers to plans for the deployment of cross-border dedicated CO<sub>2</sub> transport capacities of up to 4.6 Mtpa from the Callisto Mediterranean CO<sub>2</sub> Network, capturing CO<sub>2</sub> mainly in France and Italy and transporting it for storage in offshore Italian fields (including the Ravenna hub) and potentially in Greek storage sites. Callisto and the Ravenna CCS project are now both listed as Projects of Common Interest (PCI) under the TEN-E Regulation, which accelerates permitting and opens access to EU-level infrastructure funding while reinforcing the strategic role of Italian storage capacity in the wider Southern European CCS network.</li> </ul>
<p>Legal framework</p>	<p><b>CO<sub>2</sub> Storage:</b></p> <ul style="list-style-type: none"> <li>• Storage is permitted under Legislative Decree 162/2011, which transposed EU Directive 2009/31/EC on the geological storage of CO<sub>2</sub> and defines the competent authority (the Ministry of Environment and Energy Security – MASE), permitting procedures, site-selection criteria, and monitoring and reporting obligations.</li> </ul>

	<ul style="list-style-type: none"> <li>• In 2023, Decree-Law 181/2023 (later converted into law) amended the CCS framework to enable the issuance of full-scale CO<sub>2</sub> storage permits, not only for experimental projects, and to expand the scope to include depleted offshore gas fields, streamlining the licensing regime. The amendment also reinforces liability and monitoring rules, including long-term responsibility for storage operators and requirements for continued monitoring during decommissioning and after site closure.</li> <li>• The regulatory framework is currently being updated to speed up the authorisation process, define detailed technical requirements for CO<sub>2</sub> transport and storage infrastructure, and establish a coherent business model for CCS (including remuneration schemes for capture, transport, and storage services). A preparatory study launched under the amended CCS law is tasked with devising technical-economic regulation for CO<sub>2</sub> transport networks and clarifying the role of the state vis-à-vis storage operators and transport-network owners.</li> </ul> <p><b>Transport of CO<sub>2</sub> and Infrastructure Development:</b></p> <ul style="list-style-type: none"> <li>• CCS and CO<sub>2</sub> transport facilities are explicitly included in the list of infrastructure needed to achieve the NECP objectives, and are being considered under the Trans-European Networks for Energy (TEN-E) Regulation, with several Italian CCS-linked projects (including Ravenna and Callisto) now designated as Projects of Common Interest (PCIs).</li> <li>• Italy intends to ratify the Article-6 amendment to the London Protocol on transboundary CO<sub>2</sub> transport and storage, and has committed to establishing bilateral CO<sub>2</sub> transport and storage agreements with France and Greece, as part of a Mediterranean Carbon Capture and Storage Plan outlined in the updated NECP. These arrangements are meant to support cross-border CO<sub>2</sub> exports from French and Italian industrial clusters for storage in Italian geological formations (e.g. the Ravenna hub) and in Greek fields, using a mix of pipelines and marine shipping.</li> <li>• In addition, Italy's updated NECP and related implementing decrees are starting to align the domestic CCS framework with the EU Industrial Carbon Management Strategy and the Net Zero Industry Act (Regulation 2024/1735), which collectively set EU-level expectations for CO<sub>2</sub>-injection capacity and streamline permitting for cross-border CO<sub>2</sub> transport and storage.</li> </ul>
Bilateral agreements	<ul style="list-style-type: none"> <li>• No formal, published bilateral CCS-specific transport-and-storage agreement between Italy and another country has yet been ratified, but the EU-level and policy-level record shows that several bilateral-like arrangements are under active preparation.</li> </ul>

	<ul style="list-style-type: none"> <li>• Italy has expressed its support for regional collaboration with France and Greece to facilitate the development of CCS infrastructure in the Mediterranean Sea basin and has included this cooperation in its updated NECP and in the “Mediterranean Carbon Capture and Storage Plan” signed by France, Greece, and Italy. This tripartite plan aims to enable cross-border CO<sub>2</sub> transport and storage, including shipping Italian-captured CO<sub>2</sub> to storage fields in Greek waters (e.g. the Prinos project) and allowing French and Italian emitters to export CO<sub>2</sub> for storage in Italian hubs such as Ravenna/Callisto.</li> <li>• Italy has also committed in its NECP and related documentation to establishing bilateral CO<sub>2</sub> transport and storage agreements with France and with Greece under the London Protocol Article-6 framework once the national amendment is ratified, but these agreements are still in the planning/consultation phase rather than formally signed instruments.</li> </ul>
EU & national funding	<ul style="list-style-type: none"> <li>• No dedicated national funding stream explicitly earmarked solely for CCS or CDR technologies has been formally established, but several existing instruments can be mobilised for such projects. The Fund for Sustainable Growth, managed by Invitalia, provides grants and financing for green and low-carbon industrial projects and could be used to support CCS and CDR demonstration or deployment activities, including pilot BECCS, DAC and CCS-linked biomethane projects. In addition, Italy’s National Plan for Recovery and Resilience (PNRR / NextGenerationEU) allocates substantial resources to the green transition, a portion of which could be directed toward CCS, low-carbon infrastructure, and CDR-relevant value chains (e.g. biomethane and biomass-based energy), although CCS/CDR are not yet a standalone component.</li> <li>• Beyond these public-finance instruments, large-scale private CCS investment is materialising through the gas-infrastructure and energy-transition strategies of Italian companies. Snam is exploring a binding offer to acquire a stake in Eni’s CCS business, with plans to invest €0.5 billion in CCS as part of a €12.4 billion infrastructure-and-low-carbon plan over five years, directed at the Ravenna CCS hub and associated CO<sub>2</sub>-transport network. In August 2025, Eni signed an agreement with Global Infrastructure Partners (a BlackRock subsidiary) for the sale of a 49.99% stake in its CCS business, a move that signals growing private-equity appetite for Italian CCS and may help unlock additional project-level funding.</li> <li>• On the EU side, Italy is expected to benefit from broader climate-related programmes such as the Innovation Fund and the EU R&amp;I framework (e.g. Horizon Europe and Clean Energy Transition Partnership calls), which can co-finance large-scale CCS and CDR projects, including the Ravenna-linked value chain and potential BECCS or DAC pilots.</li> </ul>

<p>Support, research &amp; innovation</p>	<p>The draft updated NECP details the potential for regional cooperation in R&amp;I on CCUS through important projects of common European interest, in particular the Callisto Mediterranean CO<sub>2</sub> Network and related TEN-E-labelled CCS value chains, which are designed to drive cross-border knowledge exchange on capture, transport, and storage technologies.</p> <p>Together with France and Greece, Italy is planning to support the development of CCS infrastructure within the scope of the Trans-European Network for Energy Regulation, and to promote cross-border cooperation on CO<sub>2</sub> capture, transport, and storage through joint projects and plans for cross-border management of CCS, with Italian research institutes and universities expected to contribute to monitoring, reservoir modelling, and risk-assessment work.</p> <p>Italian stakeholders participate in several EU-level R&amp;I initiatives relevant to CCUS and CDR, including the Clean Energy Transition Partnership (CETPartnership) and broader Horizon Europe and Industrial Carbon Management-related calls, which co-finance demonstrations of capture, transport, and storage technologies as well as methodological work on MRV and carbon accounting for CCS-linked CDR. National research entities, including CMCC (Euro-Mediterranean Centre on Climate Change) and other Italian universities, are also engaged in IPCC-linked methodological work on carbon dioxide removal and CCUS, helping to shape EU-level accounting and verification rules.</p> <p>Expressions of interest for injection in Italy have been received from foreign emitters totalling over 1 Mt CO<sub>2</sub> per year (mainly from France), in addition to those relating to national installations of at least 3.6 Mt CO<sub>2</sub> per year, with cross-border value chains being developed both in the Ravenna-Callisto and Prinos project clusters. Italian-captured volumes of CO<sub>2</sub> are also expected to be exported to other storage sites in the Mediterranean basin (i.e., Greece or Northern Africa), which in turn creates opportunities for joint R&amp;I on marine-based CO<sub>2</sub> logistics, monitoring, and long-term storage-safety protocols.</p>
<p>Projects</p>	<ul style="list-style-type: none"> <li>• <b>Buzzi Unicem Augusta Cement Plant Project:</b> Italgas and Buzzi Unicem have signed an agreement for the development of a feasibility study on the implementation of Power-to-Gas plants in combination with carbon capture technologies to decarbonise cement production processes at Buzzi Unicem’s plants, including the Augusta facility in Sicily. The study assesses the possibility of producing synthetic methane from green hydrogen and captured CO<sub>2</sub>, with the potential to cut process-related emissions if scaled up.</li> </ul>

- **[CCS Ravenna Hub](#)**: Operated by Eni in collaboration with the Italian utility Snam, the project aims to inject captured emissions into a depleted offshore gas field off the coast of Ravenna. Initially targeting emissions from Eni's natural gas treatment plant in Casalborgorsetti, the project has signed a letter of intent with several hard-to-abate emitters in the Ravenna industrial area. Phase 1 (commencing in 2024) will capture, transport, and store around 25,000 tonnes of CO<sub>2</sub> per year, reducing up to 90% of emissions from the treatment plant. Phase 2 is expected to scale capacity to about 4 Mt CO<sub>2</sub> per year by 2030, with further expansion toward up to 12–16 Mt CO<sub>2</sub> per year after 2030 as pipelines and offshore infrastructure are extended.
- **[Callisto Mediterranean CO<sub>2</sub> Network Project](#)**: Aims to develop a CCS value chain in south-west Europe, focusing on the decarbonisation of Italian industrial clusters (Ravenna hub and Ferrara) and the Fos-Marseille industrial cluster in France. The project is led by Eni and Snam in Italy and by Air Liquide for the Fos-Marseille hub, and spans capture, pipeline- and ship-based transport, and permanent storage in depleted offshore fields. Callisto is listed as a Project of Common Interest (PCI) under the TEN-E Regulation, giving it strategic status and access to EU infrastructure funding and accelerated permitting.
- **[Limenet Project](#)**: An Italian startup developing technology to store CO<sub>2</sub> in seawater using calcium bicarbonate solutions, combining CO<sub>2</sub> capture from flue gas and limestone-calcination processes with ocean alkalinity enhancement. The process dissolves CO<sub>2</sub>-rich calcium compounds in seawater, increasing alkalinity and buffering against ocean acidification while permanently sequestering carbon in the marine system. A pilot plant in La Spezia (TRL 6) has demonstrated a maximum storage capacity of about 1 kg CO<sub>2</sub> per hour; a larger facility inaugurated in 2024 in Augusta (Sicily) is roughly 100 times bigger and is positioned as the world's largest marine-based CO<sub>2</sub> storage-and-alkalinisation pilot to date.
- **[STORE&GO Project – Climeworks Troia \(DAC-3\) Plant](#)**: Climeworks has launched a second-generation direct air capture plant (DAC-3) in Troia, Apulia, as part of the Horizon 2020 STORE&GO project. The plant filters up to 150 tonnes of CO<sub>2</sub> per year from ambient air, using Climeworks' latest collector technology, and feeds the CO<sub>2</sub> into a Power-to-Gas system to produce carbon-neutral fuel for heavy transport, also hosting a 1.2 MW alkaline electrolyser powered by on-site photovoltaics.
- Italy has emerging domestic CDR companies beyond pilot projects, including [CarpeCarbon](#) (Italy's first dedicated DAC firm) and several startups and research consortia exploring biochar-based and enhanced-mineral-weathering CDR.

<p>Latest updates</p>	<p>Since late 2025, the Netherlands CCUS landscape has continued to shift from project development toward large-scale system deployment, with key infrastructure (notably Porthos and Aramis) moving closer to construction and commissioning phases. Policy focus has increasingly centred on cross-border CO<sub>2</sub> transport integration with Germany and Belgium, while political debate around industrial carbon pricing has introduced some uncertainty for long-term investment signals.</p> <p>At the same time, CCUS remains a cornerstone of Dutch industrial decarbonisation strategy, with growing emphasis on BECCS and negative emissions integration into national climate planning.</p>
<p>Overview</p>	<p>The Netherlands continues to position itself as one of Europe's leading CCUS hubs, driven by its industrial clusters and strong offshore storage potential in the North Sea.</p> <p>Since late 2025, policy attention has increasingly shifted from pilot deployment to system integration, with a focus on:</p> <ul style="list-style-type: none"> <li>• Scaling <b>CO<sub>2</sub> transport infrastructure (Aramis, Delta Rhine Corridor)</b></li> <li>• Enabling <b>cross-border CO<sub>2</sub> flows</b> (Germany, Belgium)</li> <li>• Balancing <b>industrial competitiveness concerns with climate ambition</b>. However, <b>political uncertainty has increased</b>, particularly around carbon pricing and industrial policy, which may impact investment signals for CCS.</li> </ul>
<p>CCUS targets</p>	<p>The <a href="#">Dutch Climate Act</a> sets a 55% greenhouse gas emissions reduction target by 2030, aims to reach net zero GHG emissions by 2050, and aims for negative GHG emissions thereafter.</p> <p>The <a href="#">Dutch Climate Agreement</a> led to the <a href="#">Dutch Climate Plan 2021-2030</a>, which aims to reduce emissions by 14.3Mtpa in 2030. The government presented an additional package of measures, including introducing the use of BECCS in electricity generation, which is forecasted to result in net emissions reductions of 1MtCO<sub>2</sub>.</p> <ul style="list-style-type: none"> <li>• The Dutch government continues to <b>rely on CCS for industrial decarbonisation</b>, particularly in hard-to-abate sectors (refining, chemicals, hydrogen).</li> <li>• The <b>~20 MtCO<sub>2</sub> reduction target in industry by 2030</b> still implicitly depends heavily on CCS deployment.</li> </ul> <p>No binding CCS/CDR targets have been introduced as of early 2026.</p> <p>According to the government's <a href="#">climate adviser</a>, current policies are projected to deliver only a 44-52% reduction by 2030, meaning the Netherlands is at risk of missing its 2030 target without further action.</p> <p>The Netherlands is positioning itself as a key transit hub for cross-border CO<sub>2</sub> flows, enabling German CO<sub>2</sub> to be exported to storage sites in the UK and Norway.</p>

<p>Potential capacity</p>	<p><b>Storage &amp; infrastructure (updated view):</b></p> <ul style="list-style-type: none"> <li>• By 2030, <b>~10–15 Mtpa CO<sub>2</sub> injection capacity</b> remains a realistic expectation based on confirmed projects (Porthos + early Aramis phases).</li> <li>• Longer-term potential (post-2030) is significantly higher due to: <ul style="list-style-type: none"> <li>◦ large <b>depleted offshore gas fields</b></li> <li>◦ integration with <b>regional CO<sub>2</sub> networks (Germany, Belgium)</b></li> </ul> </li> </ul> <p><b>New insights:</b></p> <ul style="list-style-type: none"> <li>• The Netherlands is increasingly expected to act as a <b>CO<sub>2</sub> transit and aggregation hub</b>, not just a storage provider.</li> <li>• <b>Shipping-based CO<sub>2</sub> transport</b> is gaining importance alongside pipelines (notably for flexible cross-border flows).</li> </ul> <p><b>CDR potential:</b></p> <p>No major shift since 2025, but clearer prioritisation:</p> <ul style="list-style-type: none"> <li>• <b>BECCS</b> → highest potential (waste incineration, biomass co-firing)</li> <li>• <b>DACCS</b> → still at early stage, but gaining policy attention</li> <li>• <b>Biochar</b> → remains marginal due to biomass constraints</li> </ul>
<p>Legal framework</p>	<p><b>National</b></p> <ul style="list-style-type: none"> <li>• <a href="#">The Dutch Long-Term Strategy</a> outlines the general climate policy direction, emphasising the consideration of all options, including the use of biomass and CCS. It discusses the role of negative emissions, including soil carbon sequestration, afforestation, and BECCS.</li> <li>• The <a href="#">CO<sub>2</sub> tax for the Dutch industry</a> was one of the main tools introduced to bring down industrial GHG emissions. It started at EUR 30 per tonne of CO<sub>2</sub> in 2021 and was meant to rise to EUR 125 per tonne in 2030. However, Parliament is now set to <a href="#">abolish</a> the CO<sub>2</sub> levy, following industry pushback over competitiveness concerns and job losses despite it having yet to yield any revenue.</li> </ul> <p><b>CO<sub>2</sub> Storage:</b></p> <ul style="list-style-type: none"> <li>• Storage of CO<sub>2</sub> is allowed.</li> </ul> <p><b>Transport of CO<sub>2</sub> and Infrastructure Development:</b></p> <ul style="list-style-type: none"> <li>• The Netherlands has ratified Article 6 of the London Protocol on transborder transport of CO<sub>2</sub>.</li> </ul> <p><b>Carbon Removal:</b></p> <ul style="list-style-type: none"> <li>• The government has been tasked with developing a CDR Roadmap.</li> </ul> <p><b>International</b></p> <p>The Netherlands has signed the <b>Aalborg Declaration</b>, which marks CCUS as an essential technology needed to support the green transition and reach net-zero emissions by 2050.</p>

<p>Bilateral agreements</p>	<ul style="list-style-type: none"> <li>• <b>The Netherlands and Belgium:</b> <a href="#">MoU</a> on the cross-border transportation of CO<sub>2</sub> between the two countries with the purpose of permanent geological storage.</li> <li>• <b>The Netherlands and Switzerland:</b> <a href="#">MoU</a> to strengthen cooperation in the field of CCUS.</li> <li>• <b>The Netherlands and Denmark:</b> <a href="#">MoU</a> to strengthen cooperation in the field of CCUS.</li> <li>• <b>The Netherlands and Norway:</b> <ul style="list-style-type: none"> <li>◦ <a href="#">MoU</a> to strengthen cooperation in the field of CCS.</li> <li>◦ <a href="#">MoU</a> on cross-border transportation of CO<sub>2</sub> with the purpose of permanent geological storage.</li> </ul> </li> <li>• <b>The Netherlands and France:</b> <a href="#">Pact</a> for Innovation and Sustainable Growth (includes CCUS).</li> <li>• <b>The Netherlands and UK</b> (July, 2025): <a href="#">MoU</a> to accelerate the clean energy transition, enhance energy security, and deepen cooperation on climate policy. It focuses on sharing expertise in offshore wind, hydrogen, carbon capture (CCUS), nuclear energy, and connecting electricity grids.</li> </ul>
<p>EU &amp; national funding</p>	<ul style="list-style-type: none"> <li>• <b>The Stimulating Sustainable Energy Production and Climate Transition scheme (SDE++):</b> Provides subsidies to companies and non-profit organisations that produce large-scale renewable energy or reduce CO<sub>2</sub> emissions. It bridges the financial gap between EU ETS pricing and CCS project construction and operation costs, covering CO<sub>2</sub> capture, transport, and storage.</li> </ul> <p>The subsidy cap on CCS was eliminated in 2023, but eligibility is limited to CO<sub>2</sub> storage in Dutch gas fields and the Dutch continental shelf. Only CCS for industrial purposes is eligible for the subsidy.</p> <p>The subsidy is granted to the owner of the capture installation, but also includes an amount for the transport and storage costs that can be paid to a third party.</p> <p>The Dutch government has continued to reward early deployment of CCS in 2023, along with other green technologies, through its SDE++ subsidy. A new round was open in June 2023 with a budget of €8 billion that will allow, if fully allocated, to realise up to 4 Mtpa of CO<sub>2</sub> savings by 2030. The new envelope for this scheme was approved by the European Commission under EU State aid rules in July.</p> <p>It provides a subsidy that could be applicable to CDR projects as well, such as BECCS and DACCS.</p> <ul style="list-style-type: none"> <li>• <b>Demonstration Energy and Climate Innovation scheme (DEI+):</b> CCUS projects are eligible only for pilot project funding. Temporary or permanent CO<sub>2</sub> storage on land is not eligible.</li> <li>• The Environmental Investment Deduction (MIA) and the Random Depreciation of Environmental Investments (Vamil) are two schemes providing investment support for CCUS projects.</li> </ul>

	<ul style="list-style-type: none"> <li>• The Top Sector Energy Scheme (TSE) provides subsidies for pilot and demonstration projects.</li> <li>• The Energy Investment Deduction (IEA) scheme provides tax deductions for CO<sub>2</sub> capture for permanent storage.</li> <li>• The government revealed an €11.4 billion “green growth” package, which includes funding for CCS infrastructure and earmarks €639 million for the Aramis project.</li> </ul>
Support, research & innovation	<p>The support scheme <b>SDE++ (Stimulerend Duurzame Energieproductie en Klimaattransitie)</b> is the main measure stimulating the application of CCS and continues to be the primary instrument supporting both CCS and, increasingly, CDR technologies such as BECCS, with regular funding rounds maintained through 2025–2026.</p> <p>The NECP mentions that further research is being conducted in view of converting existing natural gas infrastructure through a 10-year plan. This work has progressed, with increasing focus on repurposing gas networks for CO<sub>2</sub> and hydrogen transport as part of broader energy system integration strategies.</p> <p>An <a href="#">Integrated Knowledge and Innovation Agenda</a> has been developed to provide a long-term vision for related research priorities. CDR is mentioned several times as a means of achieving negative emissions.</p> <p>The draft updated NECP identifies 13 key research streams, some of which are related to CDR and CCS development.</p> <p>The University of Twente has a dedicated research stream on negative emission technologies, with six different research programmes. More broadly, Dutch research institutions and public-private partnerships are expanding work on CCUS demonstration, system integration, and industrial cluster decarbonisation.</p>
Projects	<ul style="list-style-type: none"> <li>• <b>Porthos Project</b> (domestic joint venture between the Port of Rotterdam Authority, Gasunie, and EBN): has taken the FID for the development of the first large-scale CO<sub>2</sub> transport and storage system. With construction having started in 2024, Porthos aims to store 2.5 Mtpa of CO<sub>2</sub> for 15 years (37 Mtpa of CO<sub>2</sub> in total). Construction is progressing on schedule as of early 2026, with key offshore and onshore infrastructure contracts awarded and initial pipeline works underway.</li> <li>• <b>The Aramis CCS Project</b> (PCI, domestic joint venture between TotalEnergies, Shell, EBN, and Gasunie) will enable the transport of CO<sub>2</sub> to depleted offshore gas fields under the North Sea, with a target capacity of 22 Mtpa by 2030. The project is currently in the FEED phase and recently saw a significant shift as EBN and Gasunie (both public entities) stepped into the project, taking over from private partners. This marks a major development as the project transitions from a privately led initiative to one with strong public backing.</li> </ul>

The Top Sector Energy Scheme (TSE) provides subsidies for pilot and demonstration projects. The Energy Investment Deduction (IEA) scheme provides tax deductions for CO<sub>2</sub> capture for permanent storage. The government revealed an €11.4 billion “green growth” package, which includes funding for CCS infrastructure and earmarks €639 million for the Aramis project. The Dutch government has also committed €639 million to support the development, with FID targeted for 2026. The project has advanced FEED studies and stakeholder alignment in 2025–2026, with increasing focus on integrating cross-border CO<sub>2</sub> volumes, particularly from Germany.

- **Neptune (acquired by ENI in 2023) Energy Project (cross-border):** is advancing its L10 CCS project, which focuses on the development of large-scale CO<sub>2</sub> storage in depleted offshore gas fields in the Dutch North Sea, with an estimated total storage capacity of 120–150 Mt of CO<sub>2</sub> (supplied through the Aramis pipeline as well as by ships). The first CO<sub>2</sub> injection is expected in 2026. The L10 CCS project is part of Neptune Energy’s broader offshore energy transition portfolio, which also includes separate hydrogen initiatives such as H2opZee (offshore green hydrogen production with RWE) and the PosHYdon pilot.
- **NoordKaaP Project** (cross-border joint venture between CapeOmega and Neptune Energy): will transport and store offshore biogenic CO<sub>2</sub> from a biomass plant along the North Sea coast using vessels suitable for directly injecting the CO<sub>2</sub> at offshore locations. The project is gaining relevance as part of emerging ship-based CO<sub>2</sub> transport solutions, particularly for flexible cross-border value chains.
- **CO2Transports Project** (PCI, cross-border): aims to establish infrastructure to facilitate large-scale capture, transport, and storage of CO<sub>2</sub> from the ports of Rotterdam, Antwerp, and the North Sea through pipelines. The project continues to align with broader North Sea infrastructure planning and TEN-E priorities, with increased coordination between Dutch and Belgian authorities.
- **Air Products Project:** will build, own, and operate a carbon capture and CO<sub>2</sub> treatment facility at its existing hydrogen production plant in Rotterdam. The facility is expected to be operational in 2026 and will be one of the largest blue hydrogen plant in Europe. The project will supply low-carbon hydrogen to ExxonMobil’s Rotterdam refinery, with captured CO<sub>2</sub> transported via the Porthos system for offshore storage, making it one of the anchor volumes for the Dutch CCS value chain.
- **RWE BECCUS Project:** is a BECCUS project for large-scale capture and storage of CO<sub>2</sub> as well as a Taskforce Negative Emissions (TNE). The project is increasingly positioned within broader Dutch efforts to scale negative emissions, particularly in the power and biomass sectors.

- **Vlissingen Cryocap FG Project**  (joint venture between Air Liquide, TotalEnergies, and Lukoil): will provide a carbon capture and liquefaction solution. It will have the capacity to liquefy 2,400 tonnes of CO<sub>2</sub> per day and capture more than 800,000 tpa. The pure and liquefied carbon dioxide will then be transported for storage in the Dutch North Sea. The project is progressing toward deployment, contributing to Zeeland's role as an emerging CCUS cluster.
- **Carbon Connect Delta Programme Project** : has the ambition to capture, transport and store 6.5 Mt of CO<sub>2</sub> by 2030 in the Scheldt Delta region (supported by an SDE+ subsidy). The programme is advancing as a key regional cluster initiative, with increasing integration of Belgian industrial emitters.
- **Yara Sluiskil's CCS Project**  (cross-border joint venture between Yara and Northern Lights): will reduce its annual CO<sub>2</sub> emissions by 800,000 tons by storing CO<sub>2</sub> deep under the Norwegian seabed from 2025. The project is moving toward operational phase, representing one of the first cross-border CO<sub>2</sub> export cases from the Netherlands.
- **CCS AEB Amsterdam Project**  (Aurora): Waste management service providing waste-to-energy. The facility is being assessed as a potential BECCS candidate, reflecting growing policy interest in negative emissions from waste incineration.
- **The Delta Rhine Corridor Project**  (cross-border joint venture between BASF, Gasunie, OGE, and Shell): would connect Germany to the ports of Rotterdam through a network of CO<sub>2</sub> pipelines linking to the Aramis project for the storage part. It aims to be operational in 2028 and capacity of the pipeline will be between 4-10 Mtpa.
  - DRC West will run from Rotterdam via Moerdijk to Boxtel, enabling CO<sub>2</sub> transport to North Sea storage locations and creating a key hydrogen corridor for Dutch industry.
  - DRC East will connect Rotterdam and Chemelot (Limburg) to North Rhine-Westphalia in Germany, strengthening cross-border CO<sub>2</sub> and hydrogen infrastructure and linking Dutch emitters to German demand and/or storage solutions.
  - Timeline:
    - **Sep - Oct 2025:** public consultation on intention documents, draft participation plans, and draft scope documents (NRDs) for environmental impact studies.
    - **Early 2026:** publication of final NRDs and government responses to consultation feedback. Completed, enabling transition into detailed design and permitting phase.
    - **2026 - 2027:** detailed environmental studies, technical design work, and permitting processes.
    - **2028 onwards:** expected start of construction, subject to permitting and final investment decisions.

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|  | <ul style="list-style-type: none"><li>▪ <b>Early 2030s:</b> targeted commissioning and start of operations, enabling large-scale CO<sub>2</sub> transport to offshore storage and hydrogen distribution for industry.</li><li>• <b>HES International:</b> HES International has launched an open season for the development of CO<sub>2</sub> export terminals in the Port of Rotterdam, aiming to create open-access infrastructure for aggregating and exporting captured CO<sub>2</sub>. The terminals are intended to serve industrial emitters across North-West Europe, including Germany, enabling transport of CO<sub>2</sub> by ship to offshore storage sites in the North Sea and forming a key logistics backbone for regional CCS deployment.</li></ul> |
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<p>Latest updates</p>	<p>The 3rd Carbon Capture Congress in Katowice (March 17–18, 2026) consolidated industry alignment on the market conditions for CCUS deployment, while the Ministry of Climate and Environment advanced a draft regulation to expand designated areas for underground CO<sub>2</sub> storage (19 December 2025).</p>
<p>Overview</p>	<p>The Polish CCUS landscape in 2026 is defined by a paradox: it possesses the highest carbon intensity in the EU while simultaneously offering one of the most significant geological storage potentials on the continent, estimated at over 15 Gt. The primary takeaway of the current quarter is the transition from "demonstration-only" constraints to a commercial-scale regulatory environment following the transformative 2023 amendments to the Geological and Mining Law. This legislative evolution has unlocked the possibility for emitters in the high-density industrial south to conceptualise full-chain projects that link to maritime export hubs in the north, specifically the Port of Gdańsk. However, the market remains in a state of high-velocity formation. While flagship projects like GO4ECOPLANET have reached advanced construction stages, the broader infrastructure – particularly the pipeline networks required to aggregate smaller emitters – remains in the feasibility or permitting phase. The strategic focus for 2026 is the synchronisation of capture investments with the emergence of the ECO<sub>2</sub>CEE interconnector project and the Baltic maritime corridor.</p>
<p>CCUS targets</p>	<p>Poland’s climate and energy targets are currently in a state of flux, characterised by a tension between ambitious draft updates to the National Energy and Climate Plan (NECP) and the absence of a binding domestic climate law. The operational roadmap is defined by the July 2025 update of the NECP, which reflects a sharp upward revision in the country's decarbonisation trajectory.</p> <p><b>National Greenhouse Gas (GHG) Reduction Targets</b></p> <p>The updated NECP introduces a dual-scenario framework: the "With Existing Measures" (WEM) baseline and the "With Additional Measures" (WAM) active transition scenario. The WAM scenario has become the de facto target for the current administration, aiming for a 53.9% reduction in greenhouse gas (GHG) emissions by 2030 relative to 1990 levels. This is a significant leap from the previous 2019 NECP, which targeted a mere 30% reduction by 2030:</p> <ul style="list-style-type: none"> <li>• <b>2030: - 53.9%</b> (vs. 1990)</li> <li>• <b>2040: - 75.8%</b> (vs. 1990)</li> <li>• <b>2050: Climate Neutrality</b> (EU Mandate)</li> </ul>
<p>Potential capacity</p>	<p>The technical viability of CCUS in Poland is underpinned by its geological endowment, which is among the most favourable in Central Europe. The Polish Lowlands feature thick Permo-Mesozoic sedimentary complexes characterised by anticline structures, salt pillars, and pillows that provide high-integrity sealing mechanisms for supercritical CO<sub>2</sub> storage.</p>

Legal  
framework

The regulatory landscape for CCUS in Poland was fundamentally reset in October 2023. Prior to this, the transposition of the EU CCS Directive (2009/31/EC) restricted CCO<sub>2</sub> storage to "demonstration projects," effectively precluding commercial industrial applications. The 2023 amendments transitioned CCUS into a standard industrial activity, authorising large-scale commercial concessions and removing the demonstration-only barrier.

CO<sub>2</sub>

**National:**

- [2024 NECP Updated](#): Poland submitted its draft updated NECP (focused on "existing measures") on 1 March 2024, and the European Commission reviewed it on 26 April 2024, calling it insufficient to meet 2030 targets.

Also, a NECP update was published for public consultation in October 2024, emphasising CCS/CCU, especially for biomass and gas power sectors.

- [2025 update draft NECP](#), submitted to the Council of Ministers for final government approval. foresees measures to support the deployment of CCS and CCU technologies (measure 56), which includes preparing a proposal for a financial support instrument and a list of regulatory measures aimed at supporting the wider application of CCS and CCU technologies to reduce CO<sub>2</sub> emissions in processes where other decarbonisation pathways cannot be implemented. The instrument aims to develop measures related to:
  - The construction of strategic infrastructure for the transmission, storage and distribution of CO<sub>2</sub> (pipelines, a network of onshore storage sites in Poland).
  - Accelerating legislative measures that will enable the commencement of geological surveys for the exploration and identification of underground CO<sub>2</sub> storage complexes in Poland (onshore).
  - Initiating the establishment of industrial clusters to support the aforementioned infrastructure development, enabling transport to storage sites, including the appointment of a carbon dioxide transmission operator.
  - Conducting research and development work and pilot projects.
  - Launching a nationwide public awareness campaign on activities related to the development of CCS technology, aimed at raising public awareness of the safety of onshore CO<sub>2</sub> storage.

**CO<sub>2</sub> Storage:**

The primary legal instrument is the Geological and Mining Law (CCS Directive Transposition), amended in October 2023. Key changes include:

- **Commercial Scale Authorisation:** Removal of the "demonstration project" limitation, allowing industrial-scale CCUS.

- **Onshore Storage Re-entry:** The previous ban on onshore storage has been lifted, facilitating access for southern industrial clusters.
- **Permitting Streamlining:** A license is no longer required for the identification or search for storage sites during investment planning; investors now submit a "geological works project" for approval by the **Chief State Geologist**.
- **Small Installation Exceptions:** Installations with a total capacity of less than 100 kilotons are exempt from many standard licensing burdens.
- **Enhanced Hydrocarbon Recovery (EHR):** Formally introduced as a mechanism to combine CO<sub>2</sub> injection with the intensification of mineral extraction, improving project economics.
- **2025 update draft NECP:** Recognised as essential the establishment of an appropriate legal and regulatory framework, identify suitable sites for underground CO<sub>2</sub> storage, permit onshore CO<sub>2</sub> storage, designate transmission operators and create dedicated financial instruments.
- Draft Regulation on Underground Storage Areas (Proposed 19 December 2025): the Polish Ministry of Climate and Environment published a draft regulation that expands designated storage locations to 18 technology-specific areas (onshore and offshore), including Brzeźna, Łódzka, and Szczecin basins.

#### **Transport of CO<sub>2</sub> and Infrastructure Development:**

- Transport is primarily governed by the **Energy Law (1997)**, amended in 2023 to include CO<sub>2</sub> specific provisions: allows for CO<sub>2</sub> transport directly connecting capture and storage sites, bypassing the standard transmission network.
- Poland **has not ratified** Article 6 of the London Protocol on transborder transport of CO<sub>2</sub>, and it is not a Party to the Protocol.

#### **Carbon Removal:**

- While not governed by a single act, carbon removal is integrated into national planning documents and existing environmental laws.
- **NECP 2025 Outlook:** The draft revised NECP approved in July 2025 includes potential for DACCS and BECCS to meet 2040 and 2050 targets.

#### **Low-Carbon Industry:**

- The integration of CCUS into industry is driven by new mechanisms to protect competitiveness.
- **2025 update draft NECP:** Great focus on the role of circular economy, alternative fuels, and CCU for energy-intensive industries, such as cement or steel production.

	<ul style="list-style-type: none"> <li>• Additionally, recognises CCS as strategic technologies enabling reductions in both energy-related and process-related emissions (measure 57).</li> <li>• Specific for the cement industry, CCS technology is recognised as key solution for decarbonisation and avoiding charges under the EU ETS, and its development should be achieved by 2030. Furthermore, the document announces that a <b>detailed strategy for ensuring the competitiveness and decarbonisation of the cement industry will be developed</b> in collaboration with industry representatives (measure 58).</li> <li>• Specific for the chemicals industry, it recognised that support should cover the development and implementation of low-carbon production processes and the use of low-carbon and renewable hydrogen and CCUS technologies (measure 59).</li> <li>• <b>CBAM Implementation:</b> The Sejm adopted a <a href="#">draft bill implementing the Carbon Border Adjustment Mechanism (CBAM)</a>, on 21 November 2025. This acts as a "shield" for sectors like cement, steel, and fertilizers, incentivising domestic decarbonisation.</li> </ul> <p><b>International</b></p> <ul style="list-style-type: none"> <li>• <a href="#">London Protocol</a> Status: Poland has not ratified Article 6 of the London Protocol on transborder transport of CO<sub>2</sub>, and it is not a Party to the Protocol.</li> <li>• <a href="#">2019 Resolution Application</a>: Poland uses the 2019 IMO resolution on "provisional application," allowing for bilateral agreements to export CO<sub>2</sub> for sub-seabed sequestration until full ratification is completed.</li> <li>• <a href="#">Helsinki Convention (HELCOM)</a>: The convention currently presents a legal barrier as offshore CO<sub>2</sub> storage is implicitly prohibited in the Baltic Sea under the definition of "dumping" in Article 2.4 a (i) and Article 11.1. However, HELCOM is conducting an independent review of the legality, environmental impacts, and technical feasibility of CCS in the Baltic Sea. Additionally, Poland, Denmark and Sweden have also initiated discussions within HELCOM to clarify or amend the Convention in this regard.</li> </ul>
Bilateral agreement	<p><a href="#">ORLEN-Equinor Partnership (March 2025)</a>: Polish multi-utility company ORLEN and Norwegian state-owned energy company Equinor have signed a collaboration agreement to explore opportunities for carbon capture and storage (CCS) technology in Poland.</p>

<p>EU &amp; national funding</p>	<p><b>National</b> Funding in Poland is driven by EU funds, however <b>2025 update draft NECP</b> now foresees the preparation of a <b>proposal for a financial support instrument</b>.</p> <p><b>EU level</b> <b>Innovation Fund – open calls:</b></p> <ul style="list-style-type: none"> <li>• <b>2025 Net-Zero Technologies call (IF25 NZT call) (€12.9B):</b> It supports decarbonisation projects that demonstrate highly innovative technologies and processes that are sufficiently mature and have a significant potential to reduce greenhouse gas (GHG) emissions. It involves projects of different scale, as well as those focusing on the manufacturing of components for renewable energy, energy storage, heat pumps and hydrogen production, including electric-vehicle batteries.</li> <li>• <b>Third auction for hydrogen production under the European Hydrogen Bank (IF25 Hydrogen Auction) (€1.3B):</b> Designed to provide cost-efficient support for the production of renewable fuels of non-biological origin (RFNBO) hydrogen or electrolytic low-carbon hydrogen across three topics, including a new topic for producers of hydrogen with maritime or aviation off takers.</li> </ul> <p><b>CEF Energy:</b> The Poland EU CCS Interconnector project received EUR 2.5 million from <b>Connecting Europe Facility (CEF)</b> to fund feasibility studies on the project.</p> <p><b>Other Funds available:</b></p> <ul style="list-style-type: none"> <li>• <b>Modernisation Fund:</b> Poland also benefits from the <b>Modernisation Fund</b>, which aims to support the modernisation of energy systems and the improvement of energy efficiency in 13 lower-income EU Member States.</li> <li>• <b>EEA and Norway Grants</b>, which also aims at developing the country’s green transition.</li> </ul>
<p>Support, research &amp; innovation</p>	<p>Poland intends to increase the use of biomass in the energy sector until 2040, possibly achieving negative emissions through BECCS. However, there are currently no initiatives or programs in Poland’s national policy to support carbon removals technologies. The use of waste biomass that cannot be used in other sectors is encouraged.</p> <p>In August 2021, the Polish Minister of Climate and Environment established a CCUS Working Group aimed at advancing CCUS technologies. This group explores the possibilities of domestic CO<sub>2</sub> storage, various options for CO<sub>2</sub> transport, and addresses concerns related to public acceptance.</p>

<p>Projects</p>	<ul style="list-style-type: none"> <li>• <b><a href="#">Go4ECOPlanet Project</a></b>: Aims to fully decarbonise cement production at the Lafarge plant in Kujawy. 100% of the plant's CO<sub>2</sub> emissions will be captured, and then transported to storage areas in the North Sea. The project received EUR 228 210 004 from the Innovation Fund.</li> <li>• <b><a href="#">ECO2CEE</a></b>: major Central and Eastern European initiative led by ORLEN S.A. to develop a cross-border CO<sub>2</sub> transport and storage infrastructure. It aims to build an open-access liquid CO<sub>2</sub> terminal in Gdańsk, Poland, for importing/exporting captured CO<sub>2</sub> to storage sites in the North Sea.</li> <li>• <b><a href="#">EU2NSEA</a></b>: a cross-border initiative designed to create a large-scale, pipeline-based network to transport captured CO<sub>2</sub> from industrial emitters in North-West Europe to permanent storage sites in the North Sea. Coordinated by Equinor and recognized as a Project of Common Interest (PCI), it aims to enable massive industrial decarbonization, with operations starting around 2030.</li> <li>• <b><a href="#">BaltiCO2Net</a></b>: strategic cross-border carbon dioxide (CO<sub>2</sub>) transport and storage infrastructure initiative aimed at connecting major industrial CO<sub>2</sub> emitters in the Baltic region with permanent storage sites. The network includes 17 carbon capture initiatives and will deliver transport infrastructure with an annual capacity of approximately 23 million tonnes of CO<sub>2</sub>, spanning five EU Member States. The project envisions the use of CO<sub>2</sub> hubs, multimodal transport methods (pipelines, shipping, and land-based transport), and geological storage, particularly in underground formations in locations such as Kalundborg, Denmark.</li> <li>• <b><a href="#">PilotSTRATEGY Project</a></b>: funded by the European Union's Horizon 2020 programme, the project was officially launched in May 2021. It aims to improve knowledge of the ability of deep saline aquifers to store CO<sub>2</sub> in five industrial regions in southern and eastern Europe<sup>6</sup>. It will also propose the construction of CO<sub>2</sub> storage pilots in three regions of southern Europe: The Lusitanian Basin (Portugal), the Ebro Basin (Spain), and the Paris Basin (France). The project is finalised now after the recent final event in Brussels (21 April). The consortium partners are working in building up a follow-up project.</li> </ul>
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<p>Latest updates</p>	<p>The Portuguese Voluntary Carbon Market (MVC) has entered full operational status following the enforcement of registration platform requirements and independent verifier qualification criteria under Decree-Law 4/2024. Furthermore, the European Commission has issued a positive assessment for a €1.1 billion RRF payment to Portugal to accelerate industrial decarbonization reforms and strategic technology investments.</p>
<p>Overview</p>	<p>Currently, there are <b>no active or operational</b> storage projects in Portugal. The country is still in the "characterisation" phase through initiatives like the <a href="#">PilotSTRATEGY project</a>, which aims to develop a pilot injection site to bridge the gap between theoretical potential and practical deployment.</p>
<p>CCUS targets</p>	<p>The primary instrument, the Roadmap for Carbon Neutrality 2050 (RNC 2050), established the vision in 2019, which was subsequently codified into law via the Climate Basis Law (Law 98/2021). However, the April 2025 update to the National Energy and Climate Plan (PNEC 2030), adopted via Resolution of the Parliament 127/2025, has significantly accelerated these trajectories to ensure alignment with a 1.5°C-compatible pathway.</p> <p><b>National Greenhouse Gas (GHG) Reduction Targets (excluding LULUCF):</b></p> <ul style="list-style-type: none"> <li>• <b>2030: - 55%</b> (vs. 2005)</li> <li>• <b>2040: - 65% to -75%</b> (vs. 2005)</li> <li>• <b>2045: 100%</b> (Net-Zero Neutrality)</li> <li>• <b>2050: 90%</b> (vs. 2005)</li> </ul> <p>The acceleration of the neutrality date from 2050 to 2045 represents a significant shift for industrial policy. To achieve this, the 2030 targets under the updated PNEC require a 51% renewable energy share in gross final consumption and a 29% share in the transport sector, placing immense pressure on the remaining hard-to-abate sectors to deploy CCUS.</p> <p><b>LULUCF &amp; Technical Sink Targets:</b></p> <ul style="list-style-type: none"> <li>• <b>2025-2025:</b> 13 MtCO<sub>2</sub>eq [Law no. 98/2021, 31 December]</li> </ul>
<p>Potential capacity</p>	<p>Data from the PilotSTRATEGY and STRATEGY-CCUS projects indicate that while the gross volumes are vast, the highly faulted and folded nature of certain reservoirs, particularly in the Lusitanian Basin, necessitates high-resolution characterisation to mitigate seismic and leakage risks.</p> <p><b>Theoretical Capacity:</b> Estimations between 7.09 Gt and 7.6 Gt [<a href="#">here</a> and <a href="#">here</a>], with most of the storage capacity is located in offshore storage units.</p>

	<p><b>Practical Capacity:</b> a single "practical" figure is not yet finalised; however, current studies (<a href="#">STRATEGY CCUS project</a>) put the <b>Lusitanian Basin</b>, which contains 17 identified storage units (13 offshore, 4 onshore), as the most advanced region for storage development:</p> <ul style="list-style-type: none"> <li>• <b>Lusitanian Basin:</b> 3.19 Gt (~260 Mt onshore) – Closest to 76% of national point-source emissions</li> <li>• <b>Algarve Basin:</b> 2.17 Gt – High potential but distant from major industrial clusters</li> <li>• <b>Porto Basin:</b> 1.73 Gt – Significant offshore potential near northern industrial hubs</li> </ul> <p>While the total capacity is vast, the "practical" utility is limited by <b>admissible injection rates</b>. Research indicates that injection rates per cluster range from <b>1.7 to 35.7 million tonnes (Mt) per year</b> to avoid fracturing the reservoir or seal.</p>
<p>Legal framework</p>	<p>The Portuguese CCUS regulatory landscape is defined by the early <a href="#">transposition of the EU CCS Directive</a> (Decree-Law 60/2012), supplemented by the overarching <a href="#">Climate Law (98/2021)</a>, and updated through the <a href="#">2025 PNEC amendments</a>. This structure ensures that CCUS is not just a permitted activity but a legally recognised component of the national decarbonisation pathway.</p> <p><b>National CO<sub>2</sub> Storage:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Decree-Law 60/2012</a>: The primary framework for geological sequestration is established via Decree-Law 60/2012, which defines the licensing process and safety standards (Arts. 4, and 12-16).</li> <li>• <a href="#">Climate Law</a>: Subsidiary legislation applied to subsurface exploration and geological resource regulation.</li> </ul> <p><b>Transport of CO<sub>2</sub> and Infrastructure Development:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Decree-Law 60/2012</a>: Mandates "fair and open access" to CO<sub>2</sub> transport networks for 3rd parties; governs operator refusal procedures (Arts. 40, 41).</li> </ul> <p><b>Carbon Removal:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Climate Law</a>: Sets binding GHG reduction targets and adopts a net CO<sub>2</sub> equivalent sink target of 13 Mt between 2045-2050 (Art. 19).</li> <li>• <a href="#">Decree-Law 04/2024</a>: Establishes the <b>National Voluntary Carbon Market</b> (VCM) for emissions reductions and sequestration.</li> <li>• <a href="#">Regulation (EU) 2024/3012</a>: EU Carbon Removal Certification Framework (CRCF); governs certification for BioCCS and DACCS.</li> </ul>

	<p><b>Low-Carbon Industry:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Resolution 127/2025: 2025 PNEC 2030 Update</a>; formally integrates CCUS into industrial targets and sets -55% GHG reduction by 2030.</li> <li>• <a href="#">Decree-Law 85/2025</a>: Transposes RED III; sets binding targets for renewable energy in industry, including 42% renewable hydrogen by 2030 (Art. 22a of RED III).</li> <li>• <a href="#">Decree-Law 79/2025</a>: Updates legal definitions for "low-carbon gases" and "natural gas" to include renewable alternatives.</li> </ul> <p><b>International</b></p> <ul style="list-style-type: none"> <li>• <a href="#">London Protocol Status</a>: Portugal did not ratify the amendment to Article 6, even though it is a Party of the London Protocol.</li> </ul>
Bilateral agreements	<ul style="list-style-type: none"> <li>• <a href="#">Climate Security Alliance</a>: Bilateral agreement with Spain (March 2026) to strengthen cooperation on climate emergency and energy transition. However, it does not specifically address the CCUS deployment.</li> <li>• <a href="#">Joint Letter on EU ETS</a>: Portugal is one of the parties that signed the joint statement defending carbon pricing integrity and current ETS purchase mechanisms, together with Denmark, Finland, Spain and Sweden.</li> </ul>
EU & national funding	<p><b>National</b></p> <ul style="list-style-type: none"> <li>• <a href="#">State aid Temporary Crisis and Transition Framework ('TCTF')</a>: closed on 31 December 2025. €1b in direct grants to fund companies producing relevant equipment, namely batteries, solar panels, wind turbines, heat-pumps, electrolysers, equipment for CCUS.</li> </ul> <p><b>EU level</b></p> <p><b>Innovation Fund – open calls:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">2025 Net-Zero Technologies call (IF25 NZT call) (€12.9B)</a>: It supports decarbonisation projects that demonstrate highly innovative technologies and processes that are sufficiently mature and have a significant potential to reduce greenhouse gas (GHG) emissions. It involves projects of different scale, as well as those focusing on the manufacturing of components for renewable energy, energy storage, heat pumps and hydrogen production, including electric-vehicle batteries.</li> </ul>

	<ul style="list-style-type: none"> <li>• <b>Third auction for hydrogen production under the European Hydrogen Bank (IF25 Hydrogen Auction) (€1.3B):</b> Designed to provide cost-efficient support for the production of renewable fuels of non-biological origin (RFNBO) hydrogen or electrolytic low-carbon hydrogen across three topics, including a new topic for producers of hydrogen with maritime or aviation off takers.</li> </ul> <p><b>Other Funds available:</b></p> <ul style="list-style-type: none"> <li>• <b><u>Modernisation Fund</u>:</b> Poland also benefits from the Modernisation Fund, which aims to support the modernisation of energy systems and the improvement of energy efficiency in 13 lower-income EU Member States.</li> </ul>
Support, research & innovation	<ul style="list-style-type: none"> <li>• <b><u>Lusitanian Basin Consortium (PilotSTRATEGY)</u>:</b> Characterisation of storage potential in deep saline aquifers.</li> <li>• <b><u>Hub Azul (Blue Hub)</u>:</b> PRR-funded initiative aimed at the blue economy, which will support startups, research and development, and marine infrastructure. Marine-based CDR could fall under this funding.</li> <li>• <b><u>NET4CO2</u>:</b> Collaborative venture for capture testing and utilization pathways.</li> <li>• <b><u>REUSE Project (Horizon Europe)</u>:</b> It focuses on capturing from biogenic flue gases using an innovative Rotating Packed Bed (RPB) system with enzymes, then converting it into valuable products like carbon monoxide or formic acid.</li> </ul>
Projects	<ul style="list-style-type: none"> <li>• <b><u>PilotSTRATEGY</u>:</b> funded by the European Union's Horizon 2020 programme, the project was officially launched in May 2021. It aims to improve knowledge of the ability of deep saline aquifers to store CO<sub>2</sub> in five industrial regions in southern and eastern Europe<sup>7</sup>. It will also propose the construction of CO<sub>2</sub> storage pilots in three regions<sup>8</sup> of southern Europe, including the Lusitanian Basin. The project is finalised now after the recent final event in Brussels (21 April). The consortium partners are working on building up a follow-up project.</li> <li>• <b><u>Lipor Waste-to-Jet (Veolia/P2X)</u>:</b> An interdisciplinary consortium, formed by LIPOR (Intermunicipal Waste Management of Greater Porto), P2X Europe and Veolia Portugal is moving forward with feasibility studies evaluating the development and implementation of a fully integrated industrial-scale Power-to-Liquid (PtL) facility at the Maia Energy Recovery Plant (Waste-to-Energy, WtE). The PtL project will combine renewable energy derived green hydrogen with CO<sub>2</sub> captured from the waste gas stream of the WtE plant to produce green fuel for the aviation industry.</li> </ul>

## Romania

Latest updates	Holcim Romania signed a financing agreement with the EU Innovation Fund in March 2026 for the Carbon Hub CPT01 project, marking the first large-scale CCUS project funded in Romania.
Overview	<p>In its <a href="#">updated Integrated National and Climate Plan (NECP)</a>, Romania sets a goal of achieving carbon neutrality by 2045 and negative emissions by 2050, with forest absorption exceeding emissions. This national target reaches beyond the European Union’s target of climate neutrality by 2050.</p> <p>Romania’s decarbonisation strategy relies heavily on natural carbon sinks (forests) and industrial decarbonisation, with CCUS identified as a key technology for hard-to-abate sectors such as cement and refining.</p>
CCUS targets	<p>Under NZIA, Romania must develop 9 mtpa of operational CO<sub>2</sub> storage by 2030. Obligated entities: OMV Petrom, Romgaz, Black Sea Oil &amp; Gas.</p> <p>Romania is currently at an early stage of CCUS deployment, with no large-scale operational storage yet and projects mainly in pilot or development phases.</p>
Potential capacity	<p>Estimated storage capacity of 22.6 Gt in saline aquifers and depleted hydrocarbon fields.</p> <p>Romania benefits from favourable geology, including onshore sedimentary basins and depleted oil and gas fields, which are considered suitable for long-term CO<sub>2</sub> storage.</p>
Legal framework	<p>Romania has not yet developed a dedicated, comprehensive CCUS legal and regulatory framework, though it is partially covered by EU directives (e.g. CCS Directive) and national transpositions. Further regulatory clarity is required to enable investment and permitting.</p>
Bilateral agreements	None.
EU & national funding	<p><b><u>Innovation funding for Holcim Carbon Hub CPT 01:</u></b> The Carbon Hub CPT01 project is supported by the EU Innovation Fund, one of the largest global funding programmes for low-carbon technologies, with additional private co-investment from industrial partners.</p> <p>Romania has also participated in EU-funded CCUS research initiatives (e.g. Horizon 2020 ConsenCUS project involving OMV Petrom).</p>

Support, research & innovation	<p>Romania has a limited but growing CCUS innovation ecosystem, involving:</p> <ul style="list-style-type: none"> <li>• Industrial players (OMV Petrom, Holcim, Romgaz)</li> <li>• EU-funded pilot and demonstration projects</li> <li>• Legacy experience from the <a href="#">GETICA CCS project</a> (not implemented), which provided early feasibility studies and storage assessments.</li> </ul>
Projects	<ul style="list-style-type: none"> <li>• <b>Carbon Hub CPT 01:</b> Holcim project, Eastern Europe's first full scale onshore CCUS project, expected to produce 2 million tons of near-zero cement per annum from 2032. Located in Câmpulung, capturing CO<sub>2</sub> from both cement and lime production and enabling permanent geological storage. First fully integrated onshore CCS project in Eastern Europe, covering the full value chain (capture, transport, storage). Funded by the EU Innovation Fund and developed in partnership with Carmeuse and other industrial actors.</li> </ul> <p><b>Other early-stage initiatives:</b></p> <ul style="list-style-type: none"> <li>• OMV Petrom CCUS pilot (Petrobrazi refinery): part of the EU-funded ConsenCUS project, testing carbon capture and utilisation technologies (e.g. conversion of CO<sub>2</sub> into chemical products).</li> <li>• GETICA CCS (cancelled): early large-scale CCS project linked to the Turceni coal power plant; completed feasibility and storage studies, but was not implemented due to funding constraints.</li> </ul>

<p>Latest updates</p>	<p>Recent momentum in Spain’s CCUS and CO<sub>2</sub> infrastructure pipeline is driven by <b>EU Innovation Fund awards and emerging CO<sub>2</sub> logistics projects</b>. In particular, <b>CO<sub>2</sub>necta (Valencia cluster)</b> has progressed as a circular CCUS value chain linking capture, transport and utilisation, while <b>MOSUSOL netCO<sub>2</sub> (Molins–Enagás)</b> has advanced toward Innovation Fund preparation with ~1 MtCO<sub>2</sub>/year potential at scale. At the infrastructure level, the <b>HubCO<sub>2</sub>net Norte PCI</b> project is strengthening the planned northern CO<sub>2</sub> export corridor (Gijón–Bilbao terminals), targeting multi-Mt annual abatement from 2033 onward. Collectively, these developments indicate a shift from pilot projects toward <b>structured CO<sub>2</sub> transport hubs and cross-sector CCUS value chains</b>, although final storage capacity characterisation and permitting remain unresolved.</p>
<p>Overview</p>	<p>Spain is positioning itself as an <b>emerging CCUS market within Southern Europe</b>, with increasing industrial interest but still <b>at an early stage of regulatory and infrastructure development</b>. The country has a <b>clear long-term decarbonisation framework (ELP 2050 and NECP 2024)</b> targeting climate neutrality by 2050, but <b>no dedicated national CCUS or CDR targets</b>, and a strong reliance on <b>natural carbon sinks</b> to close the remaining emissions gap. While CO<sub>2</sub> storage is legally permitted, Spain <b>has not yet ratified the London Protocol amendment</b>, limiting cross-border CO<sub>2</sub> transport—an important constraint given the current lack of domestic storage characterisation.</p> <p>On the market side, momentum is <b>rapidly building through EU-backed industrial projects</b>, particularly in <b>hydrogen, e-fuels and CO<sub>2</sub> utilisation</b>, rather than pure storage-led CCS. A growing pipeline of <b>Innovation Fund-supported projects (e.g. TarraCO<sub>2</sub>, CO<sub>2</sub>necta, MOSUSOL)</b> signals increasing industrial coordination and cluster development, especially around <b>Tarragona and Valencia</b>. However, the absence of a <b>quantified national storage inventory and CO<sub>2</sub> transport infrastructure</b> remains a key bottleneck. Overall, Spain is transitioning from a <b>research and pilot phase toward early commercial CCUS ecosystems</b>, with progress likely to depend on <b>EU funding, industrial clusters and future policy clarity on transport and storage frameworks</b>.</p>
<p>CCUS targets</p>	<p>Spain’s <a href="#">Long-Term Climate Strategy (ELP 2050)</a> sets a pathway for <b>around a 90% reduction in greenhouse gas emissions compared with 1990 levels by 2050</b>, with the remaining emissions balanced through carbon sinks. Policy trackers and strategy documents estimate that approximately <b>37 MtCO<sub>2</sub>/year of carbon sinks</b> will be required by 2050. These removals are expected to be achieved primarily through <b>reforestation, wetland restoration and agroforestry systems</b>.</p> <p>There are <b>no binding national targets specifically for CCUS or engineered carbon dioxide removal (CDR)</b> technologies.</p>

	<p>Spain's latest <b>updated National Energy and Climate Plan (NECP)</b> submitted in <b>2024</b> reconfirms the <b>2050 climate neutrality trajectory</b> and provides updated intermediate sectoral milestones for 2030 and 2040.</p>
<p>Potential capacity</p>	<p>The updated NECP does not identify any specific project, nor does it report estimates of the annual emissions that could be captured from ETS and non-ETS sources. Similarly, no robust, quantified national inventory published; Spain has indicated its territory could be potential storage, but detailed resource assessments are still under development.</p> <p>In a 2023 <a href="#"><u>report from the Commission to the European Parliament and the Council on Implementation of Directive 2009/31/EC on the Geological Storage of Carbon Dioxide</u></a>, Spain <b>explicitly mentioned its entire territory as potential storage sites</b>. However, no quantified storage inventory has yet been published.</p> <p>There is potential for developing BECCS in Spain since biogas features prominently in Spain's EPL 2050. Capturing and storing this CO<sub>2</sub> stream could play a role in addressing emissions from sectors using biomethane as an energy source.</p> <p>Recent infrastructure concepts (e.g., CO<sub>2</sub> hubs around LNG terminals and industrial clusters) suggest that Spain may develop <b>regional CO<sub>2</sub> transport and storage networks linked to Mediterranean industrial clusters</b>.</p>
<p>Legal framework</p>	<p><b>National CO<sub>2</sub> Storage:</b></p> <ul style="list-style-type: none"> <li>• CO<sub>2</sub> geological storage is <b>legally permitted in Spain</b> under the framework transposing <b>Directive 2009/31/EC on the geological storage of CO<sub>2</sub></b>.</li> </ul> <p><b>Transport of CO<sub>2</sub> and Infrastructure Development:</b></p> <ul style="list-style-type: none"> <li>• Spain has not ratified Article 6 of the London Protocol on transborder transport of CO<sub>2</sub>.</li> </ul> <p><b>Carbon Removal:</b></p> <p>The <b>final updated NECP (2024)</b> includes measures that may shape the future role of carbon dioxide removal by:</p> <ul style="list-style-type: none"> <li>• Supporting <b>industrial decarbonisation pathways</b>, including potential deployment of CCUS technologies</li> <li>• Defining <b>research priorities related to carbon capture and removals</b>.</li> <li>• <b>Allocating funding for ecosystem protection and natural carbon sinks</b>.</li> </ul>

	<ul style="list-style-type: none"> <li>• The <a href="#">Strategic Projects for Economic Recovery and Transformation</a> (PERTE) for Industrial Decarbonisation is linked to Spain's <a href="#">Recovery and Resilience Plan</a> and mentions carbon removals in the context of applying BECCS.</li> <li>• Spain's 2021 <a href="#">Climate Law</a> (Ley 7/2021 de cambio climático y transición energética) designates a net-zero target by 2050. Article 26 of this Law recommends that public entities incentivise citizens and private actors to increase the capacity of capturing CO<sub>2</sub> in ecosystem carbon sinks, with emphasis largely on actors in the LULUCF sector.</li> </ul>
Bilateral agreement	<p><b>Spain has an environmental <a href="#">Memorandum of Understanding with the UK on Gibraltar</a></b>, establishing cooperation for marine research, waste management, and pollution control.</p> <p>No formal bilateral CO<sub>2</sub> transport and storage agreements have been announced.</p>
EU & national funding	<p>Spain operates several national funding mechanisms supporting industrial decarbonisation and emissions reduction:</p> <ul style="list-style-type: none"> <li>• <a href="#">FES-CO<sub>2</sub> (Carbon Fund)</a>: a public fund managed by the <b>Ministry for the Ecological Transition and the Demographic Challenge (MITECO)</b> to support projects reducing CO<sub>2</sub> emissions.</li> <li>• The fund has historically financed domestic mitigation projects, including <a href="#">€30 million allocated in 2021</a>.</li> </ul> <p>More broadly, Spain's <b>Recovery, Transformation and Resilience Plan</b> and EU mechanisms such as the <b>Innovation Fund and IPCEI hydrogen initiatives</b> provide substantial support for decarbonisation projects.</p> <p>In <b>2025</b>, Spain also committed <b>€524 million to large-scale renewable hydrogen projects under the EU IPCEI Hy2Use programme</b>, supporting industrial decarbonisation and hydrogen production capacity.</p> <p><a href="#">FES-CO<sub>2</sub></a> (a.k.a. Carbon Fund) is a public fund created in Spain under the framework of the Kyoto Protocol to help achieve the country's greenhouse gas emissions reduction targets. Managed by the Ministry for the Ecological Transition and the Demographic Challenge, the fund supports projects that help to reduce CO<sub>2</sub> emissions in Spain. In 2021, the fund provided <a href="#">€30 million</a> to projects reducing CO<sub>2</sub> emissions.</p>
Support, research & innovation	<ul style="list-style-type: none"> <li>• The <a href="#">Spanish National Research Council (CSIC)</a>, developed patents for CO<sub>2</sub> carbonation-calcination at the La Pereda pilot plant. A variant of this process was developed in parallel at a 400-kW pilot plant at the La Robla thermal power plant, which could be used for BECCS processes.</li> <li>• The Council has coordinated a <a href="#">project</a> funded by Horizon 2020, focused on developing the geochemical carbon dioxide removal potential of Spain through enhanced weathering and carbonation strategies for mine wastes to sequester more CO<sub>2</sub>.</li> </ul>

	<ul style="list-style-type: none"> <li>The Innovation Fund’s latest call for large-scale projects selected to fund the <b>Green Meiga</b> project (Iberdrola, Galicia) was selected for Innovation Fund support (~<b>€123M</b>). It includes DAC/e-methanol elements. Update to reference the Innovation Fund award and project fiche.</li> </ul> <p>Additional innovation projects include EU-funded initiatives integrating CO<sub>2</sub> capture with <b>synthetic fuels or hydrogen production</b>.</p> <p>The <b>Green Meiga project (Galicia)</b>, developed by Iberdrola, received <b>approximately €123 million from the EU Innovation Fund</b> and combines <b>(DAC) technologies with e-methanol production (see Projects section)</b>.</p>
Projects	<ul style="list-style-type: none"> <li><b>HubCOnet2 Norte:</b> this project has been included in the provisional PCI list. It will enable transport of CO<sub>2</sub> captured in industries in northern Spain, liquefaction and export by ship. Key infrastructure: CO<sub>2</sub> terminals: El Musel (Gijón) and BBG (Bilbao). Emissions abatement: 2Mt/a in 2033, 3 Mt/a in 2035.</li> <li><b>COnet2Sea:</b> Project selected by the EU Innovation Fund. Conet2Sea focuses on the <b>development and operation of a 20,000 m<sup>3</sup> liquefied CO<sub>2</sub> transport vessel</b>, designed to be fully integrated into a <b>permanent CO<sub>2</sub> storage logistics chain</b>. The vessel will be connected to <b>Enagás’ CO<sub>2</sub> capture and handling infrastructure</b>, supporting the transport of captured emissions from industrial sources to storage sites.</li> </ul> <p>The project has been <b>awarded funding under the EU Innovation Fund</b> and is currently in the development phase, with <b>commercial operation (COD) expected by January 2032</b>. <b>Key innovations:</b></p> <ul style="list-style-type: none"> <li>Use of <b>bio-LNG as a low-carbon marine fuel</b></li> <li>Advanced <b>boil-off gas (BOG) management system using ecoCOLDBOX technology</b></li> <li>Integration of <b>CO<sub>2</sub> capture and storage from vessel exhaust gases</b>, reducing lifecycle emissions of maritime transport</li> <li><b>The Lighthouse Carboneras Project:</b> A joint initiative by <b>Carbon Clean and LafargeHolcim</b> aimed at capturing CO<sub>2</sub> from cement production and re-using it locally in agriculture.</li> <li>The project captures CO<sub>2</sub> from cement plant flue gases and converts it for <b>controlled agricultural applications</b>, accelerating crop growth and improving resource efficiency.</li> </ul> <p>Initially targeting <b>10% of the plant’s emissions</b>, the model aims to scale <b>up to ~700,000 tonnes of CO<sub>2</sub> utilisation</b> and support full decarbonisation of the facility over time</p> <ul style="list-style-type: none"> <li><b>The PilotSTRATEGY Project:</b> funded by the European Union's Horizon 2020 programme, the project explored geological CO<sub>2</sub> storage sites in industrial regions of Southern and Eastern Europe to support the development of large-scale CCS.</li> </ul>

- Research focused on deep saline aquifers—porous rock formations filled with brine several kilometres below ground, which promise a large capacity for storing CO<sub>2</sub> captured from clusters of industry. Funded by the European Innovation Fund (€14M EU-funded project). The project finished in April 2026, but the consortium is in conversations for a follow-up project.
- **Green Meiga Project** (Green Methanol in Galicia): E-methanol plant developed by Iberdrola that will use a combination of PEM, solid oxide, and alkaline electrolyzers, as well as both enzyme-based and direct air carbon-capture technologies. Awarded ~€123M from the EU Innovation Fund (2023 large-scale call).
- **Tarragona Network Hydrogen Project:** A hydrogen production project developed by **Repsol**, supported by the **EU Innovation Fund (~€62 million)**. The project deploys **pressurised alkaline electrolyzers** and will supply renewable hydrogen to industrial off-takers while integrating oxygen and other by-products.
- **Triskelion Project:** Green methanol facility in Spain, green H<sub>2</sub> + captured CO<sub>2</sub> from an existing CHP plant. Received ~€49M Innovation Fund support. Expected to be operational by 2027.
- **Asturias H2 Valley Project:** Developed by EDP subsidiary, H2 Aboño is a renewable hydrogen facility that will be located inside an existing coal power plant in Spain. Supported by the EU Innovation Fund with ~€39M. While primarily an H<sub>2</sub> project, it incorporates captured CO<sub>2</sub> for synthetic fuel integration.
- **TarraCO<sub>2</sub>:** This is an offshore geological CO<sub>2</sub> storage project planned off Tarragona with a quoted storage potential of ~54 million tonnes and an injection capacity around 2 MtCO<sub>2</sub>/year (projected to significantly decarbonise nearby hard-to-abate industries). TarraCO<sub>2</sub> was selected by the EU Innovation Fund, which is a strong credibility and financing signal; the project still requires the Spanish research/operation permits under national/EU rules before FID. EU Innovation Fund support: **~€205 million.**
- **CO<sub>2</sub>necta:** A circular CCUS value-chain initiative formed by Enagás, Holcim and Saggas. The project aims to capture CO<sub>2</sub> at industrial sources, transport it and enable storage/use routes; publicly stated potential to prevent >560,000 tCO<sub>2</sub>/year. It's a consortium of established industrial & infrastructure players, which increases the likelihood of progressing from pilot to demo and commercial chain. The local cluster model is exactly what policy makers and EU programmes are trying to incentivise.
- **MOSUSOL netCO<sub>2</sub>:** A project partnership led by Enagás and Molins designed to provide a comprehensive CCUS solution for hard-to-abate sectors in Spain.

- The consortium has signalled an ambition of ~1 MtCO<sub>2</sub>/year capture for the MOSUSOL netCO<sub>2</sub> concept when scaled. MOSUSOL is being prepared for Innovation Fund candidacy (Innovation Fund candidacy, €590M investment, 1 MtCO<sub>2</sub>/year capture) and showing that market-scale CCUS proposals in Spain are now reaching EU funding pipelines and industry cooperation.

Note that the last three projects are not pure CCUS projects – they are green hydrogen / green methanol projects where captured CO<sub>2</sub> is an input (Triskelion) or could be linked later (Tarragona, Asturias).

<p>Latest updates</p>	<p>The Swedish Energy Agency launched the Second BECCS Reverse Auction, which closed applications at the end of April. Funds available account for approximately 300 million SEK. Decisions on which projects will be granted support are planned to be made no earlier than June 2026. More info <a href="#">here</a>.</p>
<p>Overview</p>	<p>Sweden's climate framework remains centred on net-zero emissions by 2045, requiring at least an 85% <a href="#">reduction</a> from 1990 levels, with the balance via supplementary measures like CDR. The 2020 public inquiry's BECCS projections (up to 1.8 MtCO<sub>2</sub>/year by 2030 and 3-10 MtCO<sub>2</sub>/year by 2045) are unchanged, but recent policy advances include a SEK 36 billion reverse auction scheme approved in 2024 for BECCS deployment from 2026-2046. The June 2024 updated NECP aligns with prior intermediate targets: ESR emissions ≥63% below 1990 by 2030 (up to 8% supplementary), domestic transport ≥70% below 2010 by 2030, and ESR ≥75% below 1990 by 2040 (up to 2% supplementary).</p>
<p>CCUS targets</p>	<p><b>National Targets</b> The Swedish climate policy framework, anchored in the <a href="#">Climate Act</a>, establishes a bifurcated approach to decarbonization that explicitly distinguishes between territorial emission reductions and "supplementary measures" such as Carbon Capture and Storage based on biomass (BECCS) and land-use sequestration. This structural distinction is critical for industry actors to understand, as it defines the ceiling for technical removals versus absolute reduction requirements. The overarching objective is to reach zero net greenhouse gas (GHG) emissions by 2045, with a mandate for net negative emissions thereafter.</p> <p><b>National Greenhouse Gas (GHG) Reduction Targets:</b></p> <ul style="list-style-type: none"> <li>• <b>2030:</b> Adopted -63% reduction for non-ETS sectors against a 1990 baseline.</li> <li>• <b>2040:</b> Adopted -75% reduction for non-ETS sectors against a 1990 baseline.</li> <li>• <b>2050:</b> Adopted net-zero emissions by 2045 (minimum 85% absolute domestic reduction vs 1990), with continuous net-negative emissions mandated post-2045.</li> </ul> <p><b>Sector-Specific Capture &amp; Carbon Management Targets:</b></p> <ul style="list-style-type: none"> <li>• <b>2030:</b> Adopted 1.8 Mtpa to 2.0 Mtpa captured exclusively via BECCS.</li> <li>• <b>2050:</b> Proposed 3.0 Mtpa to 10.0 Mtpa captured via BECCS to sustain negative emissions post-2045.</li> </ul> <p><b>LULUCF &amp; Technical Sink Targets:</b></p> <ul style="list-style-type: none"> <li>• EU regulation <a href="#">mandates</a> -47 MtCO<sub>2</sub>/year total removals by 2030, plus 3.9 MtCO<sub>2</sub> additional net capacity (noted as ~4 MtCO<sub>2</sub> in some sources); 2023 sink was ~32 MtCO<sub>2</sub> from forests, but projections show challenges.</li> </ul>

<p>Potential capacity</p>	<p>The <a href="#">Swedish Geological Survey (SGU)</a> leads the identification of geological CO<sub>2</sub> storage sites, with a March 2026 final report (RR 2026:06) confirming two suitable offshore locations: south of Skåne and southeast of Gotland in the Baltic Sea. These sites offer an initial capacity of at least 5 MtCO<sub>2</sub> annually combined (equivalent to Sweden's international shipping emissions), based on new drilling data to 1,200m in Skåne and 800m off Gotland; further research is needed for full capacity. Theoretical potential remains ~3.4 Gt in southern Sweden, with medium-term storage likely relying on Nordic neighbours (Norway/Denmark) due to nascent domestic sites.</p> <p>The technical <a href="#">potential</a> for BECCS removals from biomass facilities (CHPs, pulp mills, waste incinerators) holds at ~50 MtCO<sub>2</sub>/year, with a feasible 10-20 MtCO<sub>2</sub>/year by 2045 at €45-125/tCO<sub>2</sub> (excluding final transport/storage €25-40/t). Recent SEK 20B support (2025) targets &gt;11 MtCO<sub>2</sub> storage over 15 years via reverse auctions.</p>
<p>Legal framework</p>	<p><b>National General Regulation:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Updated National Energy and Climate Plan (NECP) 2021–2030 (2024 Update)</a>: Section 4.2.1.2 and Section 2.1.1 detail the national objectives for the five dimensions of the Energy Union. It establishes the 2030 ESR reduction target of 50% (relative to 2005) and the LULUCF net removal obligation of 49.00 Mt CO<sub>2</sub>e.</li> <li>• <a href="#">Climate Act (SFS 2017:720)</a>: mandates a reduction in carbon dioxide emissions and other greenhouse gases, assigning emission targets to the Riksdag. Art. 3 establishes the legal basis for "supplementary measures," enabling the integration of BECCS and technical sinks into the national carbon balance.</li> <li>• <a href="#">GHG Emissions Trading Act (SFS 2020:1173)</a>: It aims to promote cost-effective and economically efficient reductions of greenhouse gas emissions, particularly focusing on the EU Emissions Trading System (EU ETS).</li> <li>• <a href="#">Environmental Code (1998:808)</a>: is the foundational legal framework governing all environmentally hazardous activities in Sweden, making it critical for the permitting, operation, and environmental compliance of Carbon Capture, Utilization, and Storage (CCUS) projects.</li> </ul> <p><b>CO<sub>2</sub> Storage:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Regulation on Geological Storage of Carbon Dioxide (SFS 2014:21)</a>: Provides the detailed, technical, and administrative rules required to implement the EU's "CCS Directive" (2009/31/EC) within Sweden. While the broader legal authority for such activities sits within the Swedish Environmental Code (Miljöbalken), SFS 2014:21 specifies the "how-to" for operators. Art. 10 restricts large-scale storage (&gt;100,000 tonnes) to the Swedish Exclusive Economic Zone (EEZ); Art. 42 requires monitoring plans to be updated every five years.</li> </ul>

- **[Continental Shelf Act \(SFS 1966:314\)](#)**: regulates the exploration and exploitation of natural resources on Sweden's continental shelf, which includes the permanent geological storage of CO<sub>2</sub> under the seabed and related activities in that area. In this regard, the law requires permits for exploring and utilising the seabed for storing CO<sub>2</sub>, which are to be issued by the Government or a designated authority.

#### **Transport of CO<sub>2</sub> and Infrastructure Development:**

- **[Act on Certain Pipelines \(SFS 1966:314\)](#)**: Determines the permitting process for transporting CO<sub>2</sub> via pipelines. Art. 8a–8d establish a "Third-Party Access" (TPA) regime, requiring pipeline operators to transport CO<sub>2</sub> for other parties on reasonable commercial terms if capacity is available.
- **[Utility Easements Act \(SFS 1973:1144\)](#)**: Provides the legal framework for obtaining the necessary rights to transport captured CO<sub>2</sub> via pipelines across land owned by others. **2 §** includes CO<sub>2</sub> pipelines in the list of infrastructures eligible for "Ledningsrätt" (utility easements), streamlining the acquisition of rights-of-way for transport backbones.

#### **Bio-CCS:**

- **[Ordinance on state support for Bio-CCS \(SFS 2024:626\)](#)**: approves SEK 36B reverse auctions (2026-2046) for biogenic CO<sub>2</sub> capture/transport/storage by the Statens energimyndigheten (the Swedish Energy Agency). Art. 2, 4, and 23 regulate the disbursement of the SEK 36 billion support scheme via reverse auctions, stipulating that geological storage must commence within four years of the funding decision.

#### **International**

- **[London Protocol](#)**: Sweden ratified the 2009 Article 6 amendment (provisional application), legally permitting the export of CO<sub>2</sub> streams for offshore storage.
  - **[2019 Resolution on Provisional Application](#)**: Sweden submitted a formal declaration to the IMO to apply the 2009 amendment provisionally, bypassing global ratification delays
- **[Aalborg Declaration](#)**: Sweden signed the Aalborg Declaration in 2023 (with Denmark, Germany, France, Netherlands), affirming CCUS for net-zero.
- **[Article 6.2 of the Paris Agreement](#)**: Plans Article 6.2 use for offsets (e.g., MoUs with [Ghana](#), [Nepal](#), [Zambia](#), [Kenya](#), [Rwanda](#), [Dominican Republic](#), [Switzerland](#); SEK 1.5B program to 2032, potential CDR focus; pioneering CDR exchange with Switzerland). More [here](#).

<p>Bilateral agreements</p>	<ul style="list-style-type: none"> <li>• <a href="#">Norway-Sweden MoU (15 April 2024)</a>: Arrangement enabling CO<sub>2</sub> export to the Norwegian Continental Shelf (Longship).</li> <li>• <a href="#">Denmark-Sweden MoU (15 April 2024)</a>: Facilitates transport between Swedish emitters and Danish offshore sites (Greensand/Bifrost).</li> <li>• <a href="#">MoU Progressive Energy - Pipe58 (January 2026)</a>: "Highway58" project for a shared Baltic Sea CO<sub>2</sub> backbone.</li> <li>• <b>CDR-Focused Agreements</b></li> <li>• <b>Article 6.2 MoUs:</b> <ul style="list-style-type: none"> <li>◦ <a href="#">Ghana</a>, <a href="#">Nepal</a>, <a href="#">Zambia</a>, <a href="#">Kenya</a>, <a href="#">Rwanda</a>, <a href="#">Dominican Republic</a>, <a href="#">Switzerland</a>.</li> </ul> </li> </ul>
<p>EU &amp; national funding</p>	<p>The European Commission approved Sweden's €3 billion (SEK 36 billion) state aid scheme for BECCS on 2 July 2024 via Ordinance 2024:626, enabling reverse auctions for capture, transport, and geological storage of biogenic CO<sub>2</sub>. The first auction (Aug-Nov 2024) awarded Stockholm Exergi SEK 20 billion over 15 years (from storage start) for BECCS Stockholm (~800 ktCO<sub>2</sub>/year removal). The second call opened Dec 2025 (SEK 10 billion available); SEK 15 billion remains for 2026-2046 auctions.</p> <p><b>Tax Incentives</b> Ministry of Finance proposes electricity tax relief to EU minimum (€0.055/kWh) for negative emissions projects (BECCS/CDR), enacted in 2024 budget.</p> <p><b>Other National Funding</b> Industriklivet: SEK 300M (~€28M) call opens March 2026 for verified geological bio-CCS (excludes CCU/biochar). R&amp;I: €4.5M/year to 2027 continues; new 2026 calls for negative emissions research/projects.</p> <p><b>EU Funding</b> Innovation Fund: €54M to <a href="#">Öresundskraft Innozhero</a> (Helsingborg WtE CCS, 200 ktCO<sub>2</sub>/year by 2026); potential for BECCS Stockholm. EU NZIA/Recovery Facility supports <a href="#">Industriklivet</a> as a cross-border CCUS hub (e.g., Denmark-Sweden).</p>
<p>Support, research &amp; innovation</p>	<p>Sweden funds CCUS/CDR R&amp;D primarily via <a href="#">Industriklivet</a> (Industrial Leap), with SEK 1,354M in 2025 (RRF/NextGenEU to 2031); total SEK 370M awarded to CCS (mostly BECCS) by 2026. ~30 CDR projects funded, including BECCS feasibility, DACCS R&amp;D, biochar pyrolysis (Bio+ SEK 4.5M 2023-25); new 2026 calls: SEK 300M deployment (bio-CCS, excl. CCU/biochar, closes Apr) and SEK 15M research (closes Aug).</p> <p><b>Key Initiatives</b></p> <ul style="list-style-type: none"> <li>• <b>Biochar</b>: Public inquiry flags promise but needs more research; limited to Klimatklivet; no extra aid.</li> <li>• <b>Fossil-free Sweden</b>: 2016 initiative (22 roadmaps); released bio-CCS strategy 2024.</li> </ul>

	<ul style="list-style-type: none"> <li>• <b>SET-Plan:</b> Active in IWG9 (CCS-CCU), targeting EU deployment KPIs.</li> <li>• <b>Recent Projects</b> <ul style="list-style-type: none"> <li>◦ <b>Malmö CO<sub>2</sub> Hub</b> (Nordion Energi): SEK 31M for shared CO<sub>2</sub> transport/storage (1.5 Mt/year by 2030).</li> </ul> </li> </ul>
Projects	<ul style="list-style-type: none"> <li>• <b><u>Cementa Slite Plant Project:</u></b> Heidelberg Materials develops the world's first carbon-neutral cement plant in Slite, targeting up to 1.8 MtCO<sub>2</sub> capture annually (1 Mt fossil, 0.8 Mt biogenic). The Land &amp; Environment Court granted a 30-year limestone extraction permit in May 2025; CCS permitting ongoing, with FEED to 2026, FID 2026, and commissioning ~2030. Industriklivet funding secured.</li> <li>• <b><u>BECCS Stockholm Project:</u></b> Full-scale BECCS at KVV8 CHP, up to 0.8–0.9 MtCO<sub>2</sub>/yr biogenic capture. €180M EU Innovation Fund support; 15-year CO<sub>2</sub> transport/storage with Northern Lights (Norway, 900 kt/yr from 2028); won first BECCS auction (SEK 20B, Jan 2025). Stockholm Exergi has signed a contract with Microsoft in 2024 covering 3.33 million tonnes of permanent carbon removals from bio-energy with carbon capture and storage (BECCS) at Värtan, Stockholm (more <a href="#">here</a>). Construction underway, ops 2028-29.</li> <li>• <b><u>Preem CCS Project:</u></b> Preem collaborates with Aker Carbon Capture, SINTEF, Chalmers, Equinor for CO<sub>2</sub> capture at Lysekil/Gothenburg refineries, ship transport to Norwegian storage. Demo completed 2022; paused amid refinery closure plans, revival sought.</li> <li>• <b><u>Innozhero Project:</u></b> Öresundskraft's BECCS/CCS at Filbornaverket CHP (Helsingborg), 200 ktCO<sub>2</sub>/yr (100kt biogenic). €54M EU Innovation Fund; operations targeted 2028.</li> <li>• <b><u>Malmö CO<sub>2</sub> Hub:</u></b> Nordion Energi's shared infrastructure for 1.5 MtCO<sub>2</sub>/yr transport/export. SEK 31M Industriklivet grant (2026).</li> </ul>