



GreenShift

Securing the European Green transition through
Research, Business and Government Collaboration

CCUS as a building block for climate neutrality

Recommendations from GreenShift, CCUS Summit, Düsseldorf, 21 September 2023

A secure and affordable energy transition hinges on increased investments in clean energy and industrial processes. The IEA and EU stress the importance of carbon capture and storage (CCUS) tech for achieving net-zero by 2050. IEA's Net Zero by 2050 report calls for quadrupled investments in research and innovation efforts to combat climate and biodiversity crises.

CCUS can cut emissions from hard-to-abate industries like cement, and Waste to energy and permanently store CO₂ underground. Additionally, it can generate clean hydrogen from natural and renewable gases, boosting infrastructure development and decarbonizing sectors like steel, fertilizer, and transport. CCUS can be deployed in parallel to renewable technologies and does not rely on rare earth elements, and thus reduces the risk of the green transition in Europe. It is also the prerequisite for key routes to achieve negative emissions.

Norway's Sleipner project has stored 19 million tonnes of CO₂ since 1996, a promising start. However, In Europe and globally, we must intensify efforts to meet climate goals. The next two to three years will be crucial in shaping the green transition's course.

From 2025, [Norway's Longship project](#) is in operation, an open-access CCS chain, capturing emissions from cement and waste-to-energy sites and shipping them for permanent storage on the Norwegian Continental Shelf. Northern Lights will be ready to start operations during second half of 2024. In the Netherlands, the Porthos project's court approval clears the path for the Aramis project's realization.

International cooperation is vital for CCUS as a climate solution, as stressed by the IEA. Agreements like Green Deal Industrial Plan (GDIP) and Net Zero Industry Act (NZIA) aim to enhance Europe's net-zero tech manufacturing and industry competitiveness. The [Norway-EU Green Alliance, signed on 24 April](#), are crucial for providing a framework to support this cross-border work.

Stakeholders from Belgium, Denmark, Germany, the Netherlands and Norway are actively pursuing CCUS projects, rather than waiting for the EU to provide for a more coherent and overarching legislative framework. Still, harmonizing national initiatives is crucial. Notable examples include CO₂ transport from Antwerp to Denmark's Nini West depleted oil field in Project Greensand and agreements between Northern Lights and companies like Yara Sluiskil in the Netherlands for CO₂ storage.

In the past two years, we've witnessed progress in creating hydrogen transport corridors and production/offtake agreements among Norway, Germany, the Netherlands, Belgium, and between private and public entities.

The [GreenShift CCUS Summit](#) gathered 21. September 2023 representatives from business, governments, civil society, and research communities to build on the strategic diplomatic work already done to identify the next steps for CCUS and hydrogen enabled by CCS in Germany, the Netherlands, Belgium, Denmark and Norway. The business stakeholders together represent the entire value chain from hard-to-abate industries with need to capture CO₂, to transport and storage providers eager to realize such services.



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We would like to present five key recommendations for policymakers in both EU member states and Belgium, Denmark, Germany, the Netherlands, and Norway:

1. **Prioritize CCS, CCU, and Fast-Track implementation of a EU CCUS Strategy:** Europe should prioritize the development and implementation of CCS and CCU technologies to achieve its ambitious 2030 and 2050 climate targets, while also supporting the growth of the hydrogen economy. Furthermore, CCS unlocks the potential for large volumes of low carbon hydrogen in the near-term, a much-needed ramp-up solution for the hydrogen economy whilst renewable power is picking up momentum to provide large volumes of renewable hydrogen. The forthcoming EU CCUS strategy is of paramount importance and its implementation should expedite the development of CO₂ transport and storage infrastructure, clarify regulatory frameworks, engage industry stakeholders, and provide confidence to potential investors. Concrete actions are needed to make these priorities a reality and ensure exponential growth in CCS capacity over the coming decades.
2. **Support Ongoing CCUS and Clean Hydrogen Projects and Integrated Infrastructure Development:** Ongoing initiatives like Northern Lights, Aramis, GeZero and Porthos are essential for expediting CCUS adoption in Europe and ensuring sufficient CO₂ storage capacity by 2030. Continued support for these projects is crucial. To create a robust energy system with CCUS value chains, Europe must adopt a unified perspective and synchronize the development of capture, transport, and storage facilities. Third party access must be secured to underpin an EU-wide solution. A European backbone transport system for hydrogen is also much needed.
3. **Swift publication and implementation of The EU Industrial Carbon Management Strategy:** European nations should actively collaborate to establish a unified and comprehensive carbon management strategy that aligns with the imperative of achieving the 2030 and 2050 climate targets. This strategy should encompass all aspects of the CCUS value chain, introduce incentives for carbon dioxide removal, and address challenges like liability concerns and insurance for the very low-probability worst-case leakage scenarios. Such harmonization will enable a seamless deployment of CCUS value chains, eliminating barriers to success. Industrial carbon management strategies developed in EU and by individual member states/associated countries in national climate and energy plans should be aligned mutually as well as with the need for CCUS called forth by the 2030 and 2050 climate targets and the Climate Law. Member states'/associated states' regulatory framework must not pose generic barriers to deployment of CCUS value chains.
4. **Securing the European green transition through research, business and government collaboration** Collaborative efforts between business, government, and the research sector are vital to de-risk CCUS scale up and reduce costs. We recommend establishing European Centres of Excellence for research that will facilitate increased research efforts and effective pan-European collaboration among key stakeholders.
5. **Promote Green Solutions:** EU, national, and regional authorities should actively promote green solutions by incorporating green criteria into procurement processes. Leveraging their substantial purchasing power can create a market for carbon-neutral products and services, encouraging more investments in CCS technology and other climate-friendly solutions.



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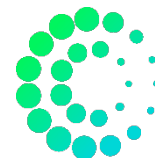
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