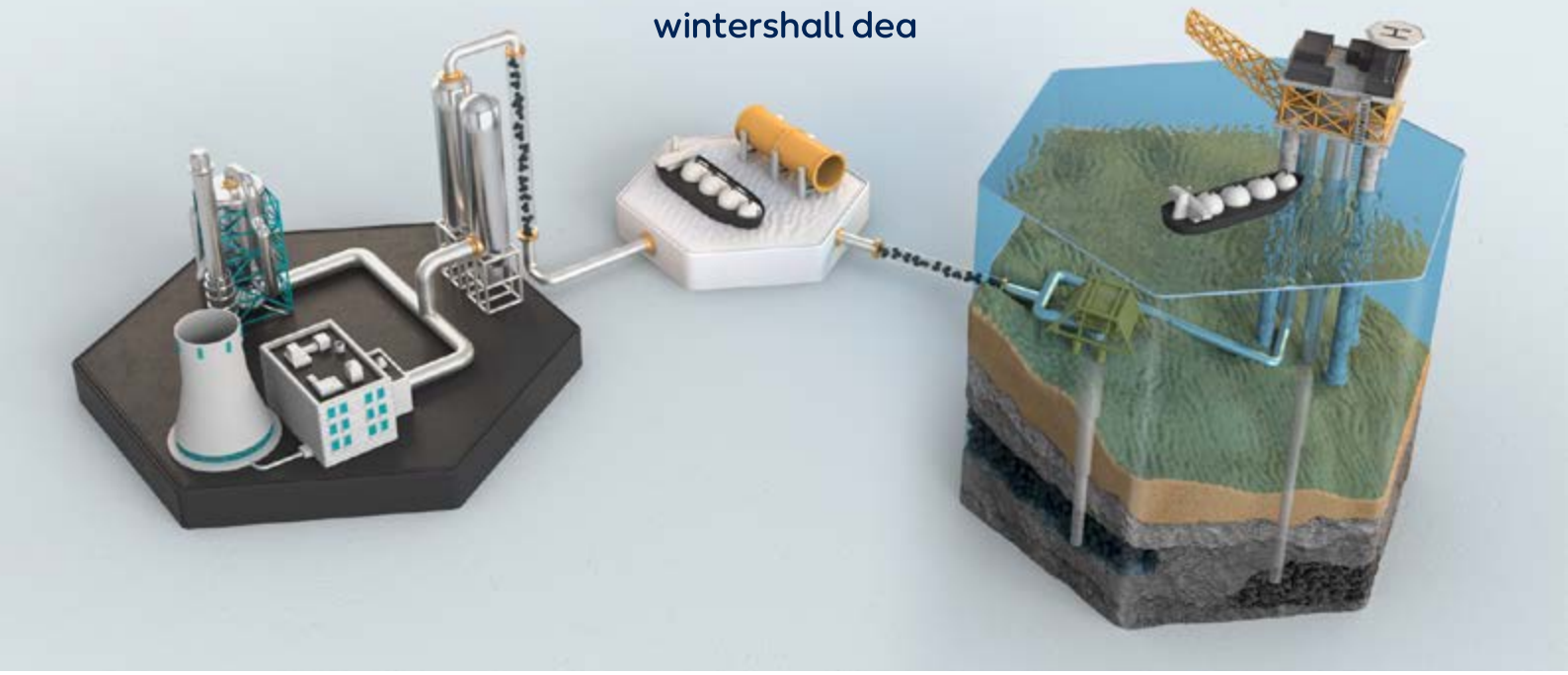
wintershall dea



FAST AND EFFECTIVE CLIMATE PROTECTION IN INDUSTRY

CCS: A TRAILBLAZER FOR NET ZERO

The world is rapidly changing. In particular, climate change poses major challenges for our society, economy, and prosperity. To tackle these challenges, we need a mix of innovative and climate-friendly technologies that quickly and effectively reduce emissions – without jeopardizing Germany and Europe's industrial competitiveness.

Carbon capture and storage (CCS) is one such technology and is already available, safe, reliable, and affordable. CCS involves capturing CO_2, for example from power plants or industrial facilities, and storing it long-term in underground geological structures, such as depleted offshore oil and gas reservoirs. **CCS enables reliable and low-cost decarbonisation of sectors with CO_2 emissions that are difficult or impossible to avoid. One example is the steel industry.** 85,000 people are directly employed in the German steel industry, with four million indirectly employed in wider industry.[1] Using CCS to enable low carbon steel manufacturing will help secure the industry's competitiveness in the coming decades.

In parts of Europe CCS has already been implemented or is undergoing trials. It is now time for a pan-European policy framework to tap the potential this technology offers and to make the vision of net zero a reality in Europe.

In the following four hypotheses, we explain how CCS will play a crucial role in meeting German and European climate targets: if the right policy framework is set.

wintershall dea

#1 Europe will only achieve its ambitious climate targets with CCS.

We cannot wait any longer: it is high time we use all available tools to protect the climate quickly and effectively. By capturing CO_2 in industry and in power and hydrogen generation, and by storing it safely underground, we can remove up to 95% of the CO_2 produced from the atmosphere and bind it permanently.[2] The International Energy Agency[3] (IEA), among other leading organizations, therefore believes CCS will play a key role in climate protection – and emphasizes that ambitious climate targets cannot be achieved without it.

In the future, carbon dioxide must also be actively removed from the atmosphere in order to reach net zero (by means of 'direct air' carbon capture plants, for example). In the long term, CCS is the only available technology which can deliver these 'negative' emissions.

#2 CCS enables net zero in industry.

Approximately 10% of Germany's annual greenhouse gas emissions cannot be cut by means of avoidance measures. In several industries that are especially important for Germany, such as steel, cement, chemicals and agriculture, there are processes that cannot be made emission-free in the foreseeable future.

For example, the International Renewable Energy Agency (IRENA) believes that cement industry emissions can only be reduced by around 40% through the use of renewable energies.

Such unavoidable emissions can be stored underground thanks to offshore CCS. CCS thus enables low-cost decarbonisation, safeguarding important industrial locations and jobs in Germany and Europe as a result.

#3 Europe can become the CCS frontrunner with the support of policymakers.

CCS is a tried-and-proven option for protecting the climate and is already in use. European companies, including Wintershall Dea, have the technological expertise and the required deep reservoirs to safely implement offshore CCS. The potential is particularly great in the North Sea countries: the Netherlands, Denmark, the UK and Norway. Estimated European storage capacity is around 134 gigatons of CO_2[4] – more than 50 times as much as Europe's emissions in 2020. Wintershall Dea is actively pursuing options. In a feasibility study in Norway, we aim to show that up to 50 million tonnes of CO_2 could be stored in the Brage oil field alone.

Given this excellent starting position, Europe can occupy a pioneering international role in developing key climate-friendly technologies. For that to be achieved, Berlin and Brussels must acknowledge that CCS is a core component of the energy transition. The ban on offshore CCS in Germany must be lifted so that this technology can reach its potential in Germany, too. In addition, any concept for effective climate protection must have an international dimension. Consequently, cross-border transportation and storage of CO_2 must be regulated in a way that ensures openness to innovation.

wintershall dea

#4 CCS paves the way for a transition to a future hydrogen market.

Demand for hydrogen in Germany is expected to increase five-fold until 2050 to a total of 268TWh[5]. EU-wide, hydrogen demand is expected to hit 3,300 TWh[6] by the middle of the century. This emission-free fuel is urgently needed, in particular in energy-intensive industries where electrification is difficult. Hydrogen produced from renewable sources is, however, currently neither competitive nor available in sufficient quantities. In order to meet rising demand, we need a diverse mix of sources. Blue and turquoise hydrogen[7] from natural gas are the key to rapidly expanding the share of hydrogen in the energy mix and creating a functioning hydrogen market in the first place. Green hydrogen will benefit in the long term: if large quantities of hydrogen from natural gas can be made available in the short term, that will increase the willingness of consumers to switch to hydrogen and justify large-scale investments to adapt infrastructure.
Large and affordable quantities of climate-friendly hydrogen from natural gas can already be produced using CCS. Its costs are currently less than €3 a kilogramme, in other words, around 50% less than hydrogen from renewables.[8] CCS will thus play an important role in ramping up the hydrogen market and paving the way to a climate-neutral and affordable future.

Wintershall Dea, Europe's leading independent gas and oil company, supports the European Union in achieving its climate targets. Greenhouse gas emissions are to be cut by 55% compared to 1990 levels by the year 2030. We will live up to our responsibility and actively contribute to Europe's transition to the world's first climate-neutral continent. Wintershall Dea has the technological know-how and is demonstrating in multiple projects that CCS is a safe and affordable technology for our industry's transformation. We operate in countries where depleted reservoirs can be used for CCS. We are happy to make these reservoirs and our expertise available so that CO_2 storage can be developed further.

In scenarios formulated by the Intergovernmental Panel on Climate Change, the target for limiting global warming to 1.5°C can only be achieved using CCS. For us to succeed together, political backing is needed. We are therefore committed to an impartial dialogue that takes all technologies into consideration and has only one goal: a climate-neutral Europe by 2050.

[1] Source: The German Steel Federation (Wirtschaftsvereinigung Stahl), 2020, Fakten zur Stahlindustrie in Deutschland (Facts about the Steel Industry in Germany), p. 2, https://issuu.com/stahlonline/docs/wv-stahl_fakten-2020_rz_web

[2] Source: Equinor, 2021, Info Flyer – H2morrow Steel, https://www.equinor.de/content/dam/statoil/image/germany/assets/aktuelles/H2morrow%20steel_Infoflyer_GER_20210112.pdf, p. 2

[3] Source: International Energy Agency, 2020, Energy Technology Perspectives 2020. Special Report on Carbon Capture Utilisation and Storage CCUS in clean energy transitions, p. 13, https://iea.blob.core.windows.net/assets/181b48b4-323f-454d-96fb-0bb1889d96a9/CCUS_in_clean_energy_transitions.pdf

[4] Source: Navigant, 2019, Gas for Climate: The optimal role for gas in a net-zero emissions energy system, https://gasforclimate2050.eu/wp-content/uploads/2020/03/Navigant-Gas-for-Climate-The-optimal-role-for-gas-in-a-net-zero-emissions-energy-system-March-2019.pdf, p. 115

[5] Source: Prognos, Öko-Institut & Wuppertal-Institut by order of Agora Energiewende, 2021, Towards a Climate-Neutral Germany by 2045, How Germany can reach its climate targets before 2050 – Executive Summary, p. 27
https://static.agora-energiewende.de/fileadmin/Projekte/2021/2021_04_KNDE45/A-EW_213_KNDE2045_Summary_EN_WEB.pdf

[6] Source: Hydrogen4EU Study, Creating Pathways to Enable Net Zero, p. 6 https://2d214584-e7cb-4bc2-bea8-d8b7122be636.filesusr.com/ugd/2c85cf_69f4b1bd94c5439f9b1f87b55af46afd.pdf,

[7] Blue hydrogen: In what is called steam reforming, heat and water are used to transform the methane contained in natural gas into hydrogen and CO_2. The CO_2 produced is stored safely in underground offshore reservoirs.
Turquoise hydrogen: In what is called methane pyrolysis, no CO_2 is produced. The methane contained in the natural gas is split into hydrogen and solid carbon using renewable electricity. The carbon can be further processed for industrial purposes – in steel production, for example.

[8] Source: Fraunhofer IKTS 2020, Hydrogen production technologies, https://www.ikts.fraunhofer.de/en/industrial_solutions/hydrogen_technologies/hydrogen_production.html

[9] Source: Der SPIEGEL, Nordsee: Weltweit größte CO_2-Lagerfläche geplant ("North Sea: World's largest CO_2 storage reservoir planned"), 2019, https://www.spiegel.de/wissenschaft/mensch/nordsee-weltweit-groesste-co2-lagerflaeche-geplant-a-1266770.html (in German)

wintershall dea

Wintershall Dea is involved in the following CCS projects:

Greensand:
Wintershall Dea is part of the Project Greensand CCS consortium, which aims to store up to 8m tonnes of CO_2 per annum in the Siri Area of the Danish North Sea. The consortium plans to launch a pilot phase in 2021, targeting first offshore injection in 2022. If successful, the pilot could lead to full-scale CCS from 2025.

Click here for more information

Brage:
In Norway, Wintershall Dea is currently taking part in a CCS feasibility study at the almost depleted offshore oil field Brage. An exploration team is examining the coastal area for structures where CO_2 can be stored. The total CO_2 storage capacity is put at up to 50 million tonnes.

Click here for more information

Athos und Porthos:
Wintershall Dea is also exploring options for developing offshore CCS in the Netherlands. Intensive talks are currently under way with public authorities and potential project partners in the Netherlands about potential Wintershall Dea participation in projects such as Athos or Porthos with its fields and connected infrastructure. The ports in Rotterdam – together with their Belgian partners in Antwerp and Ghent – aim to become climate-neutral. They are responsible for annual CO_2 emissions of 60 million tonnes, a third of the greenhouse gas emissions from the Benelux countries.[9]

Click here for more information: **Athos** / **Porthos**

KONTAKT

Wintershall Dea GmbH
Neustädtische Kirchstraße 8
10117 Berlin
Deutschland

Tel.: +49 30 206 73 600
politik@wintershalldea.com

MEHR ZUM THEMA

www.wintershalldea.com