



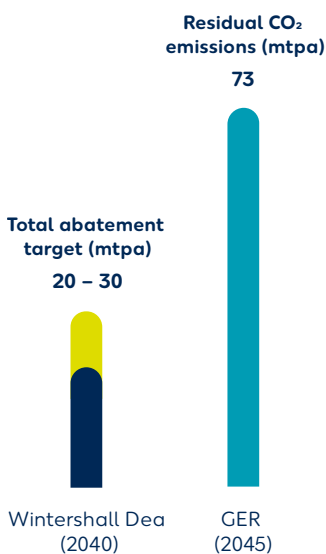
wintershall dea

FACTS & FIGURES

# CARBON MANAGEMENT AND HYDROGEN

## Solutions for a net-zero future

Mitigating climate change is one of the biggest challenges the world is facing today. Humanity needs to increase its efforts to meet the climate target of limiting global warming to well below 2°C. Thus, it is imperative to decarbonise economies and abate emissions. Our societies **need to adapt to enable a net-zero future**. Wintershall Dea is also adapting. Europe’s leading independent natural gas and oil company, with more than 120 years of experience, has set itself the goal of developing innovative carbon management and low-carbon hydrogen solutions that can deliver affordable clean energy while reducing emissions at the same time. In the years ahead, Wintershall Dea wants to **transform itself** from a gas and oil company **into a leading gas and carbon management company**.



## Reaching climate goals with carbon capture and storage

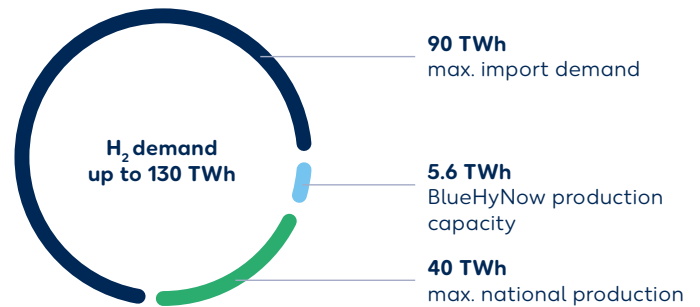
In an evaluation report, Germany’s Federal Ministry for Economic Affairs and Climate Protection stated that without the implementation of an effective carbon capture and storage (CCS) scheme the country’s climate policy goals cannot be achieved. **In 2040, therefore, up to 73 million tonnes of residual CO<sub>2</sub> emissions would have to be exported and stored each year.**<sup>1</sup> The Leopoldina, as the German academy of sciences is known, expects that there will still be up to 130 million tonnes of residual emissions in 2050.<sup>2</sup> At Wintershall Dea, we are currently developing **CCS and hydrogen projects that have the potential to abate 20 to 30 million tonnes** of CO<sub>2</sub> per year by 2040. The CO<sub>2</sub> is planned to be stored in deep geological formations underneath the North Sea, where we are currently involved in major CCS projects.

Factsheet  
Wintershall Dea  
April 2023

<sup>1</sup> BMWK (2022): Evaluation report of the carbon storage act, S. 123  
<sup>2</sup> Leopoldina et al. (05/2022): What are negative emissions and why do we need them?, S. 11

## Decarbonising industries with hydrogen

In the future, hydrogen will play an important role in reducing CO<sub>2</sub> emissions in Germany and Europe. According to the German government's updated National Hydrogen Strategy, **Germany will need between 95 and 130 TWh of hydrogen per year by 2030**. There is a potential import requirement of up to 90 TWh and a national hydrogen production of up to 40 TWh per year. **Wintershall Dea plans to produce up to 5.6 TWh of hydrogen**, which corresponds to about 14 percent of the expected national hydrogen production in 2030. In addition, Wintershall Dea is investing in start-ups that are developing solutions for the transport of hydrogen.



## Our carbon management flagship projects

### BlueHyNow and CO<sub>2</sub>nnectNow

Two important projects to accelerate decarbonisation in Germany are being advanced as part of the Energy Hub in Wilhelmshaven. The city is currently developing as a new centre for green energies in Germany. As part of the **BlueHyNow** project, Wintershall Dea is planning to building a plant to annually produce **up to 5.6 TWh of hydrogen** from Norwegian natural gas. **This represents almost 5 percent of the estimated demand in Germany 2030**. The plant itself is planned to be powered by electricity generated off the German North Sea coast.

The **CO<sub>2</sub>nnectNow** project will be part of the Energy Hub and a CO<sub>2</sub> collection point. As part of it, we are working on infrastructures to capture hard-to-abate emissions at German industrial sites and the BlueHyNow plant. The CO<sub>2</sub> are expected to be transported to safe and reliable offshore facilities near Denmark and Norway. **The first volumes of CO<sub>2</sub> are expected to be exported in late 2028**.

### CO<sub>2</sub> transport infrastructure

In order to implement CCS projects, the CO<sub>2</sub> must be transported from the emitter to the storage sites underneath the North Sea. With the **NOR-GE** pipeline we intend to connect Germany, 'the largest emitter of CO<sub>2</sub> in Europe' (762 million tonnes of CO<sub>2</sub> in 2021), and Norway, which has Europe's largest CO<sub>2</sub> storage potential.<sup>4</sup>

With the NOR-GE project we are planning together with our partner Equinor an **approximately 900 kilometre long pipeline**. This will connect our CO<sub>2</sub> Hub CO<sub>2</sub>nnectNow in Wilhelmshaven with storage sites off the Norwegian coast. The **expected annual capacity of 20 to 40 million tonnes of CO<sub>2</sub>** is equivalent to around 20 percent of German industrial emissions per year. With the Belgian transmission system operator **Fluxys** we are investigating options for a joint pipeline network that will transport CO<sub>2</sub> from **industrial clusters in southern Germany** to Zeebrugge on the Belgian coast. From there, the CO<sub>2</sub> is expected to be transported to storage sites in the North Sea. We also want to cooperate with Fluxys in the development of the offshore transport network.

<sup>3</sup> BMWK (2023): National Hydrogen Strategy, S. 4

<sup>4</sup> UBA (03/2022): Press release No. 15/2022

### Luna and Havstjerne

**Wintershall Dea has been awarded two CO<sub>2</sub> storage licences in Norway.** The Luna licence in October 2022, which boasts a CO<sub>2</sub> storage injection capacity of up to five million tonnes per year. Havstjerne was awarded in March 2023 with an estimated storage capacity of around seven million tonnes of CO<sub>2</sub> per year.

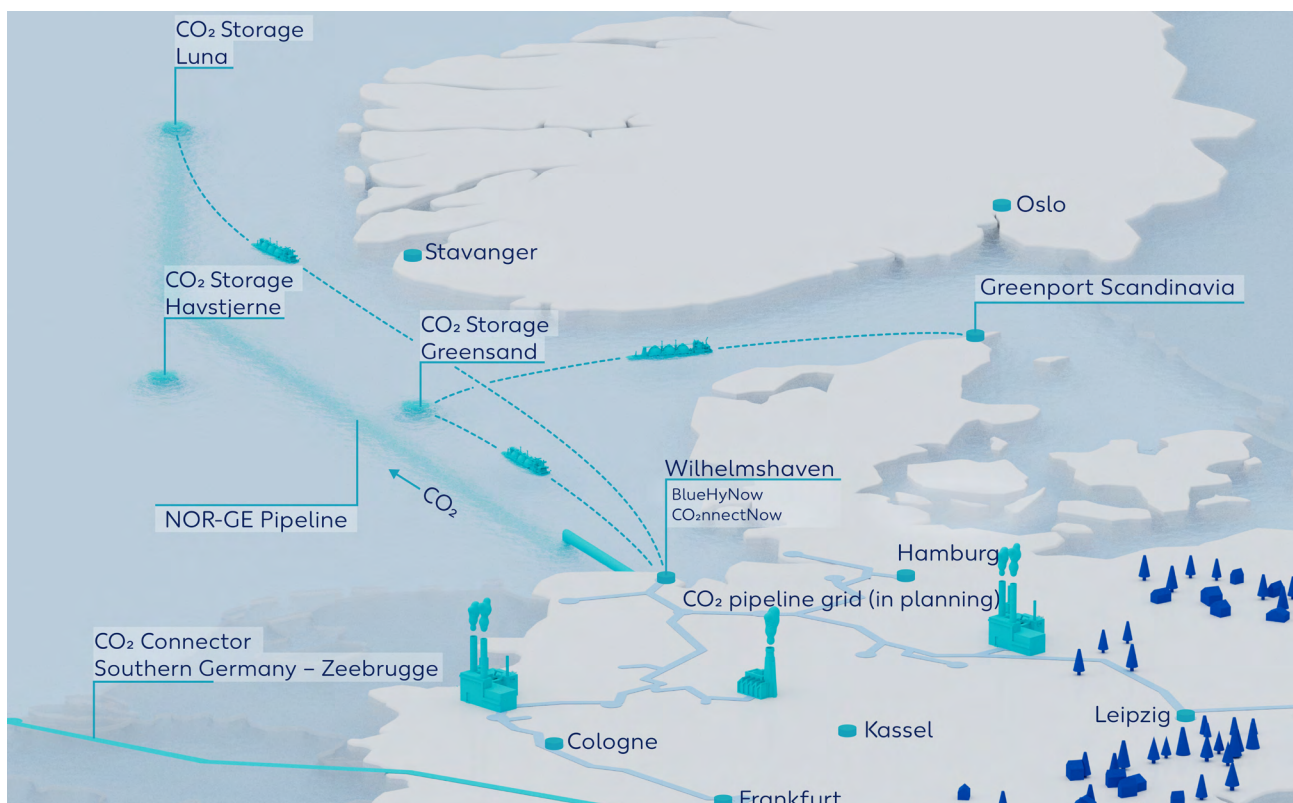
The two CCS licences are an important building block towards developing the Norwegian continental shelf into a leading CO<sub>2</sub> storage area in Europe as well as an important step for Wintershall Dea on its path to **becoming a carbon management company**. In the future, we want to apply for offshore CO<sub>2</sub> storage licences with our partner Equinor, with **the goal to store between 15 and 20 million tonnes of CO<sub>2</sub> per year** beneath the Norwegian shelf.

### Greensand

Greensand is the most mature CCS project in Europe with the entire CCS value chain (capture, transport, and storage) implemented across borders. With it we will gain valuable practical experience in the field of carbon capture and storage. By 2025/2026, storage capacity is expected to increase up to around 1.5 million tonnes per year. The project could ultimately **store up to 8 million tonnes of CO<sub>2</sub> per year by 2030**.

### Greenport Scandinavia

In the north of Denmark, we aim to build another CO<sub>2</sub> hub – Greenport Scandinavia – at the port of Hirtshals. This CO<sub>2</sub> hub is supposed to complement the Greensand CCS value chain and **will collect around 1.5 million tonnes of CO<sub>2</sub> per year**, initially from biogas plants, which can even lead to negative emissions. For Denmark, this hub is an essential part of their decarbonisation strategy. The emissions are planned to be transported to storage sites of Greensand.



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