



wintershall dea

CARBON MANAGEMENT & HYDROGEN

BLUEHYNOW AND CO2NNECTNOW

MEETING GEOSTOR

HH - 30 September 2022 - AM

OUR H₂ AND CCS PROJECTS

Wintershall Dea is well positioned. We possess assets and strong competencies suitable for CCS & Hydrogen ...



Gas Reserves

1



Depleted Fields, Subsurface & Storage Know How

2

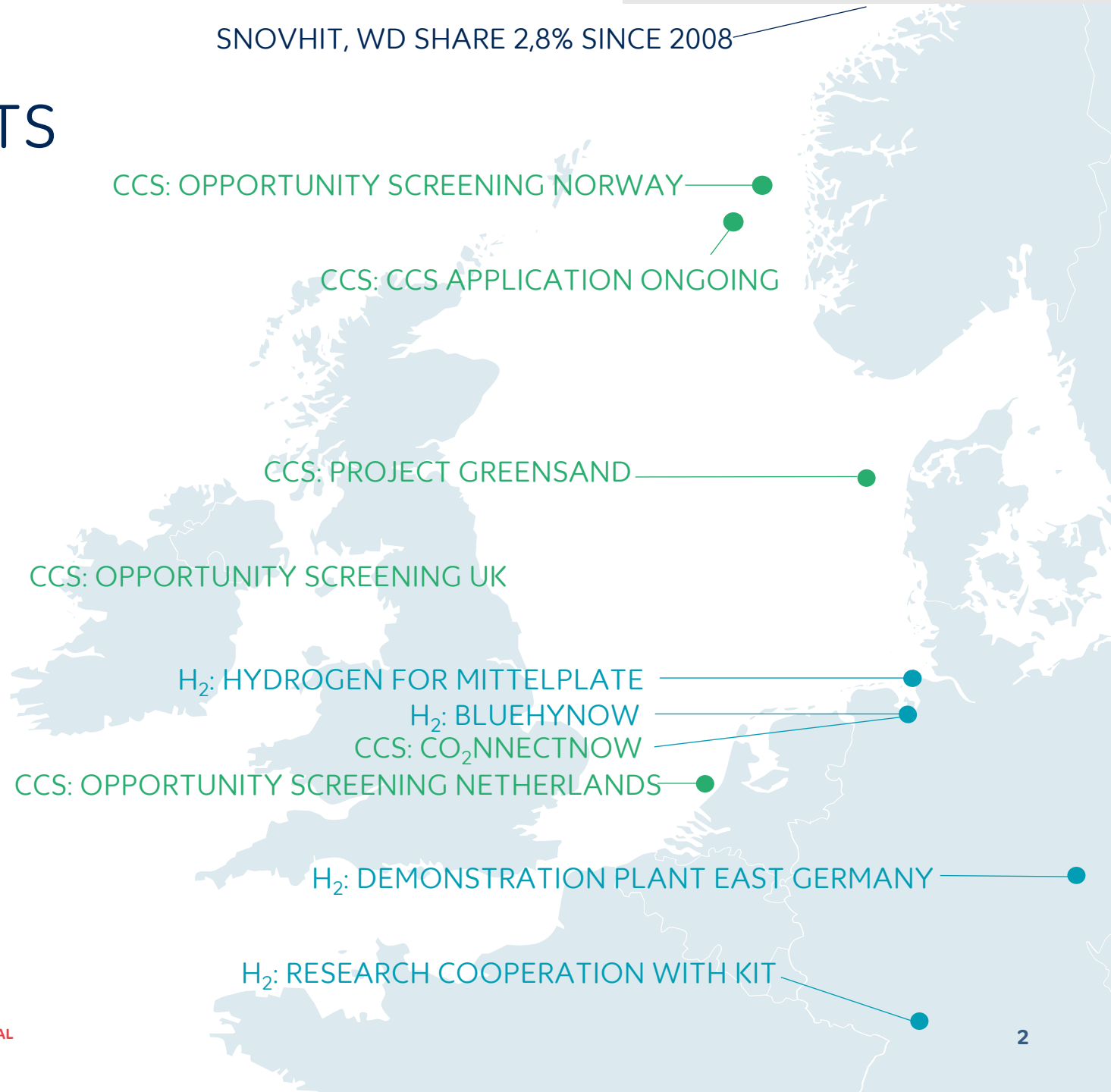


Pipeline Infrastructure & Operations

3

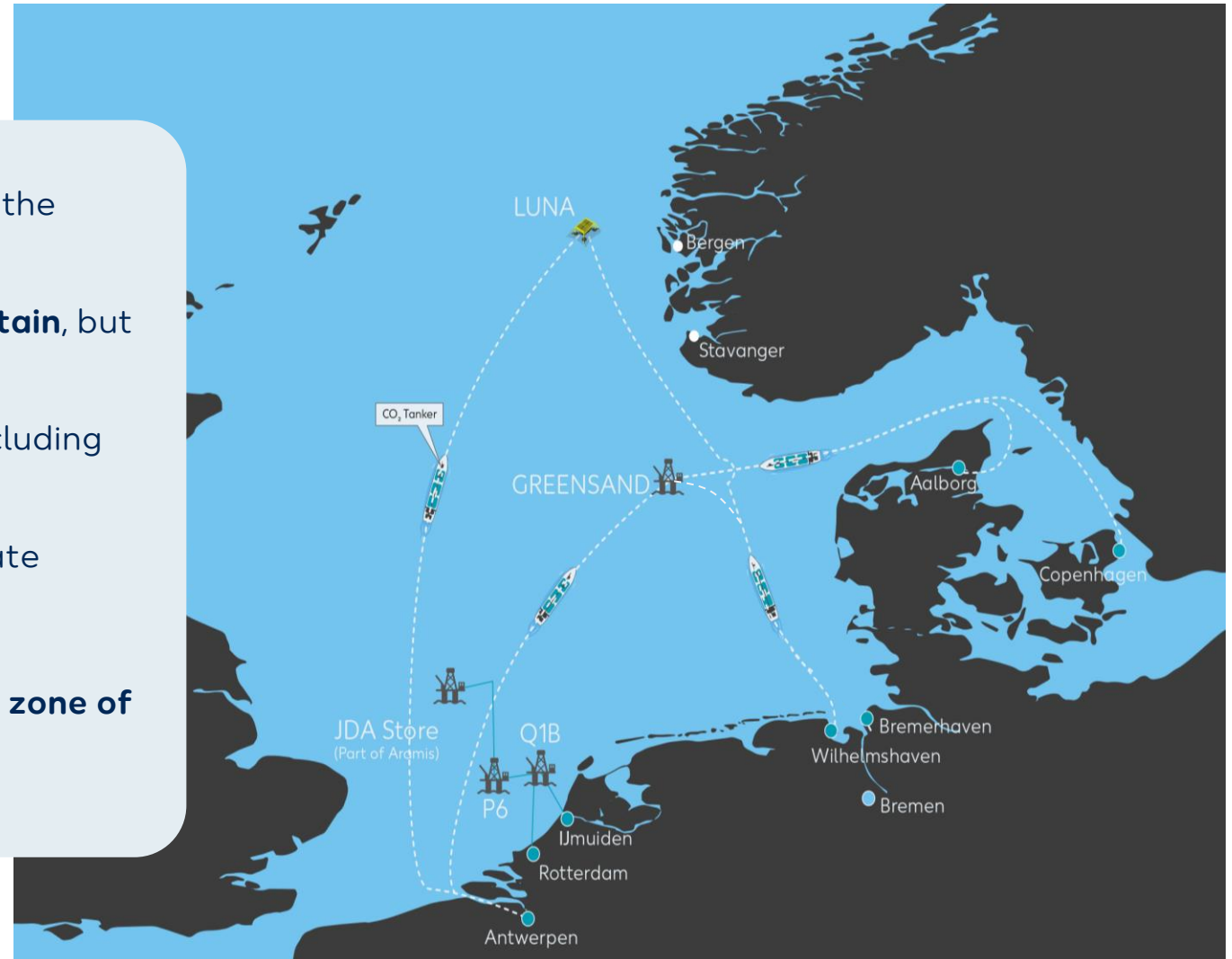
... and pursue several activities for deployment ...

SNOVHIT, WD SHARE 2,8% SINCE 2008



POTENTIAL FOR CCS

- **134 gigatons** estimated storage potential for **CO₂** in the **entire North Sea**
- Particularly large potential in **Norway** and **Great Britain**, but also in **the Netherlands and Germany**
- Currently **18 commercial CCS projects worldwide**, including two in Europe
- Over **200 million tons of CO₂ stored worldwide** to date
- Storage possible in **depleted gas and oil fields**
- But also, in **saline aquifers** in the **exclusive economic zone of the German North Sea**



BLUE H₂ AND CO₂ HUB IN WILHELMHSAVEN: BLUEHYNOW AND CO₂NNECTNOW

H₂ Hub BlueHyNow

- Production of **200,000 m³/h Blue H₂** (= 5.6 TWh p.a.)
- **Natural gas as feedstock only**, process energy from offshore wind
- **First tier H₂ customers** are refineries, steel and chemical industry as well as the initial H₂ network in NW Germany itself (market maker)



CO₂ Hub CO₂nnectNow

- Establishment of **CO₂ Hub and export solution** for own CO₂ and for third party CO₂ from i.e., German hard-to-abate CO₂ emitters
- Total investment of ca. **1.2 bn EUR** (H₂ hub and CO₂ hub)
- **Cooperation** with companies in port of Wilhelmshaven, but also with logistics and service companies in Germany and abroad

CO₂NNECTNOW: CO₂ HUB FOR TRANSPORT AND STORAGE OF CO₂

CO₂ transport via Pipeline

- Pipeline connection to storage facilities in Denmark and Norway possible
- Connection of potential offshore storage project in German North Sea at later stage

CO₂ transport via ship

- Use of Germany's only deepwater port infrastructure
- possible CO₂ export to Wintershall Dea's CCS projects in Norway and Denmark

CO₂nnectNow: CO₂ from BlueHyNow and others

- Around 1.3 Mtpa of CO₂ are generated during hydrogen production
- Development of a CO₂ hub also for third party emissions in Wilhelmshaven (8-10 Mtpa)



OUR CCS VALUE PROPOSITION: TAILORMADE ONE STOP SHOP CCS SOLUTIONS FOR INDIVIDUAL EMITTERS OR CLUSTERS

- Large emitters can be **connected directly to WHV** via the railway system, allowing **consideration of individual needs** of emitters.
- Emitters could be connected in **local clusters for joint CO₂ evacuation** via railways or pipelines which increases economies of scale.
- We can offer CCS solutions with a **single CCS service fee** and take the CO₂ at a **delivery point at plant gate**, such as the outlet of a train loading station.
- With the CO₂ hub, we increase **economies of scale** and provide **security of offtake** by realizing portfolio effects with the connected storages.

OUR ROLE: THE ARCHITECT



- WD Lead
- WD potentially active in JV
- WD not active

