



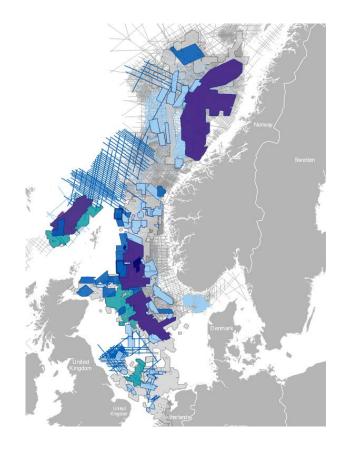


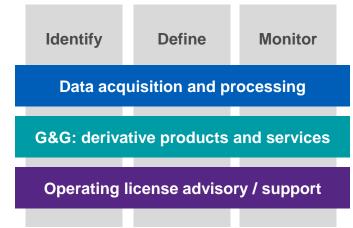


- This presentation contains forward looking information
- Forward looking information is based on management assumptions and analyses
- Actual experience may differ, and those differences may be material
- Forward looking information is subject to significant uncertainties and risks as they relate to events and/or circumstances in the future
- This presentation must be read in conjunction with the risk factors disclosed in PGS 2020 annual report and the latest earnings releases









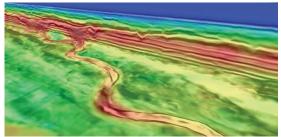


PGS and CGG Sign MoU to Develop MultiClient Data Collaboration for CO2 Storage

July 22, 202

**Coopetition is key** 







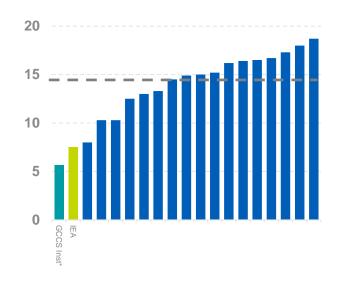
**Leading Seismic Service Provider** 

**World Class Data Library** 

## **CCS** seismic market size estimates

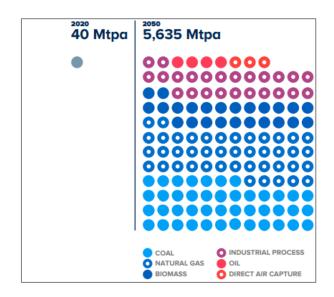


## 2050 CO<sub>2</sub> storage scenarios assessed by IPCC (Gtpa)



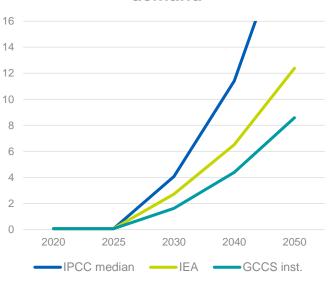
Scenarios assessed by IPCC have a median value of ~15 Gt CO<sub>2</sub> in 2050, approximately double the level in IEA's NZE 2050

## Global CCS Institute 2050 CO<sub>2</sub> storage scenario



IEA Net Zero 2050 and Global CCS Institute 2020 report are less bold on CCUS than most models assessed by IPCC, but still require growth of >>100 times today's storage volumes.

## Annual seismic vessel demand



CO<sub>2</sub> storage volumes can be translated to number of offshore projects; survey size and frequency gives an estimated vessel demand

IEA Net Zero 2050 scenario: 7.6 Gtpa in 2050

**CCUS** total growth requires large-scale projects

CCS represents a meaningful seismic market



### **Context: The Three Most Mature North Sea Development Projects**

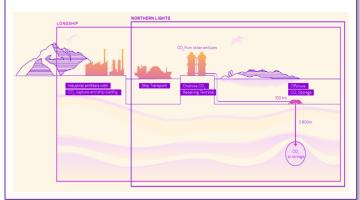
### **Northern Lights**

CO<sub>2</sub> transport and storage company Northern Lights JV DA was launched March 2021, with **Equinor, Shell and Total** as equal JV partners.

Developing the world's first open-source CO<sub>2</sub> transport and storage infrastructure to deliver carbon storage as a service.

Ph.1 will be completed mid-2024 with ~1.5 Mt/year capacity. Longship will deliver 0.8 Mt/year if both Brevik and Oslo capture projects are realized.

Ambition to expand capacity to a total of 5 Mt/year, dependent on market demand. Can be further expanded within aquifer at ~2,600m burial depth.



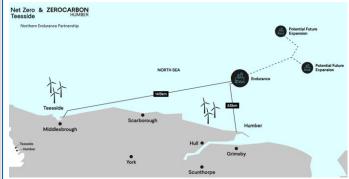
#### **Northern Endurance**

BP, ENI, Equinor, National Grid, Shell and Total formed Northern Endurance Partnership to develop offshore CO<sub>2</sub> infrastructure in the UK North Sea.

Serve Net Zero Teesside and Zero Carbon Humber projects, aiming for commission by 2026.

NTZ plans to capture up to 10 Mt/year and ZCH plans up to 17Mt/year, but injection plan is not communicated yet.

Storage formation is Bunter sandstone at ~1,000m burial depth.

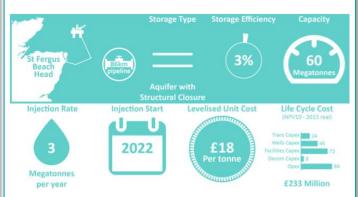


#### Acorn

Pale Blue Dot, Harbour and Shell works with Scotland's New Zero Infrastructure program from the St. Fergus gas terminal to repurpose existing gas pipelines to take CO<sub>2</sub> directly to the Acorn storage site.

This first phase offers a low capital cost start that can be delivered by 2024, to be further expanded through import of CO<sub>2</sub> to St. Fergus from ships.

Storage formation is Captain sandstone at ~2,500m burial depth.







### Offshore Wind – an industrial revolution in the making



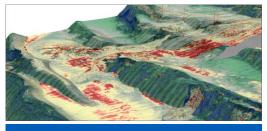
TECHNOLOGY PROGRESS REPORT Energy Transition Outlook 2021

#### FLOATING WIND

Floating wind turbines give access to abundant wind resources over deep water – at least four times as much ocean surface space compared with bottom-fixed wind. This gives an increased flexibility in site selection including the possibility to take advantage of areas with higher wind speed and areas with lower social and environmental impact. In the next five years we expect to see significant technology development in floating wind to reduce cost, scale, and increase applicability.



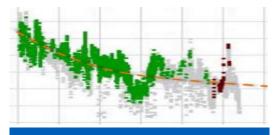
The sampling conundrum



Large scale mapping



High / Ultra-high resolution mapping



Improved geophysical modeling

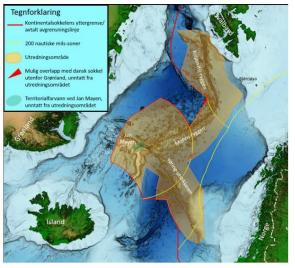
## Marine Minerals – impact assessment / early resource mapping phase





- The International Seabed Authority (ISA) is an autonomous international organization established under the 1982 United Nations Convention on the Law of the Sea (UNCLOS)
- 167 member States plus the European Union
- ISA organize and control all mineral-resources-related activities in the Area for the benefit of mankind as a whole
- The Area covers ~ 54 % of the total area of the world's oceans

Forslag til program for konsekvensutredning etter havbunnsmineralloven Olje- og energidepartementet, høringsdokument januar 2021



Figur 7. Kart som viser området der de geologiske betingelsene er til stede for å påvise økonomisk interessante forekomster av polymetalliske sulfider og manganskorper. Utredningsområdet for konsekvensutredningen er markert i brunt.

- Impact assessment ongoing
- Resource mapping through NPD projects
- First possible opening in 2023







ISA has issued 15-year exploration contracts with 21 contractors

Norway in impact evaluation stage

License to operate

# PGS

### **Summary**

- Tremendous growth in CCUS required to meet 2050 Net Zero / 1.5-2° targets, and offshore storage will be required for large-scale projects
- Long-term monitoring requirements for reservoir and sealing layers above
- Offshore wind industrial revolution has started
- Supporting geophysical data and services to be further developed
- Marine minerals in environmental impact assessment stage
- Vast, underexplored areas in need of geophysical data
- New partnerships to enable cost efficient growth



Significant future markets for PGS, but shape of growth curve still uncertain