



International Workshop on Offshore Geologic CO₂ Storage



7th International Workshop

17-18 September 2024

Port Arthur, Texas



U.S. DEPARTMENT OF
ENERGY

Fossil Energy and
Carbon Management

VIRIDIEN



Greater
PORT ARTHUR
CHAMBER OF COMMERCE

Baker Hughes 

ExxonMobil

Technology Collaboration Programme

by **iea**

DISCLAIMER

Who are we?

Our internationally recognised name is the IEA Greenhouse Gas R&D Programme (IEAGHG). We are a Technology Collaboration Programme (TCP) and are a part of the International Energy Agency's (IEA's) Energy Technology Network.

Disclaimer

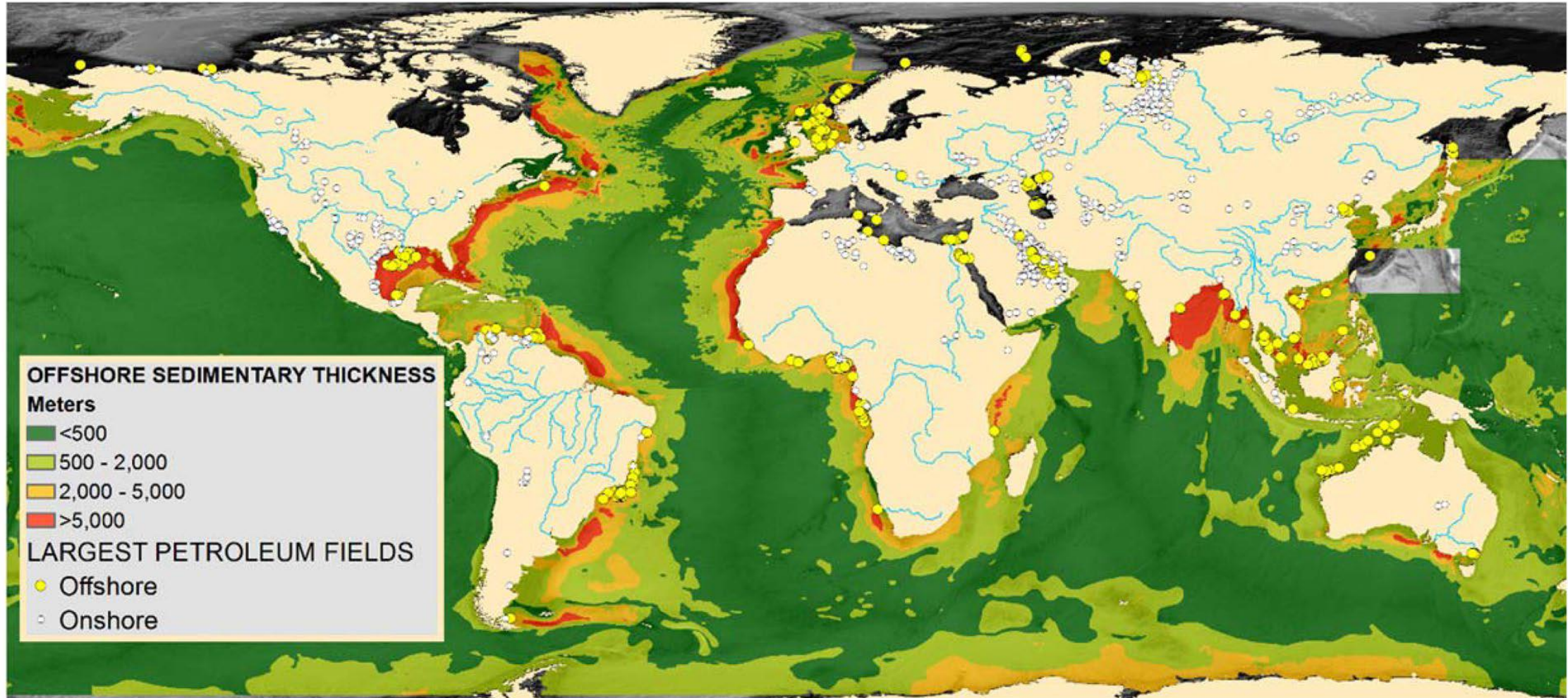
The IEA Greenhouse Gas R&D Programme (IEAGHG) is organised under the auspices of the International Energy Agency (IEA) but is functionally and legally autonomous. Views, findings and publications of the IEA Greenhouse Gas R&D Programme do not necessarily represent the views or policies of the IEA Secretariat or its individual member countries.



- Established in 1991. 38 Member countries and organisations
- Funds research into development and deployment of CCS technologies
- Technical Reports >400 reports published on all aspects of CCUS
- International Expert Networks: Risk Management; Monitoring; Modelling; Environmental Research; High Temperature Solid Looping; Costs; Social Research; Offshore CCS (with UT)
- Conferences
 - GHGT conferences (the largest global conference on CCS)
 - GHGT16 – 23-27 Oct 2022, Lyon France.
 - GHGT17 – 20-24 Oct 2024, Calgary
 - PCCC conferences – PCCC7, NETL Pittsburgh, 25-27 Sep 2023
 - Negative CO₂ Emissions conference – 17-20 June 2024 Oxford
- International CCS Summer Schools



The global offshore continental shelves represent the largest near-term storage for Gigaton-scale CCS



Ringrose
and
Meckel,
Nature
2019



BUREAU OF
ECONOMIC
GEOLOGY



TEXAS Geosciences
The University of Texas at Austin
Jackson School of Geosciences



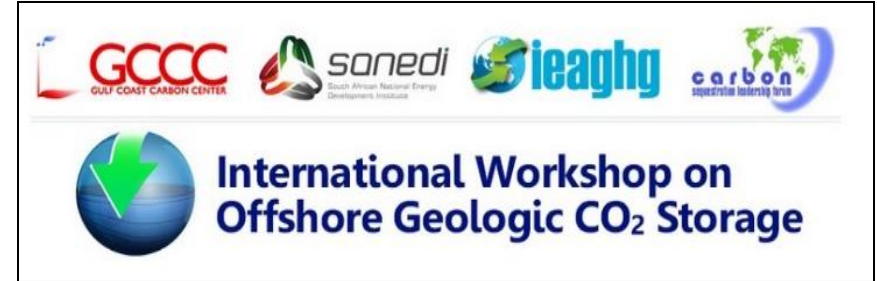
CSLF Report on Offshore Geologic CO₂ Storage



“There is a growing wealth of research, development and practical experiences that are relevant to CO₂ storage offshore, but this expertise is familiar only to a few specific countries around the world. However, there is also significant global potential for offshore CO₂ storage, and countries who are not yet active but may become interested in offshore storage, would benefit from knowledge sharing from these existing experiences and expertise. Such international knowledge sharing would be facilitated by international workshops and by international collaborative projects.”

(CSLF Ministerial Nov 2015: CSLF-T-2015-06)

Offshore Workshop Series



- **1st Workshop, 19-21 April 2016, at the BEG, University of Texas, Austin.** 50+ attendees from 13 countries.
 - Organized by the Bureau of Economic Geology (BEG) at the University of Texas at Austin in collaboration with the South African Center for CCS at SANEDI, IEAGHG, and with support from CSLF and UNFCCC's CTCN.
 - To facilitate sharing of knowledge and experiences among those who are doing offshore storage and those who may be interested.
 - **IEAGHG Report 2016-TR2**
- **2nd Workshop 19-20 June 2017, at Lamar University Beaumont, Texas.** 50+ attendees from 9 countries
 - To address and build on the recommendations and topics raised at the first workshop to take offshore storage forward. Continuing the theme of 'how to do'
 - **IEAGHG Report 2017-TR12**

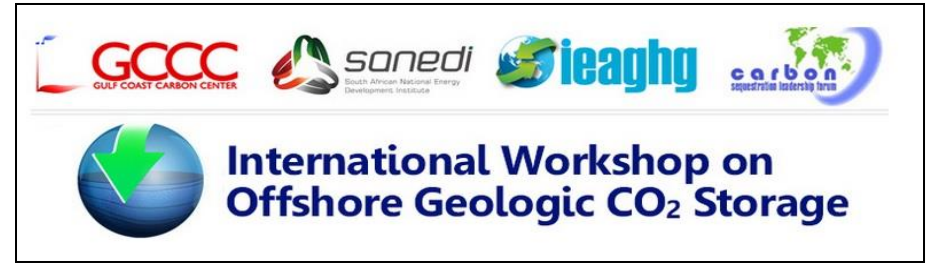
**Hosted by Research Council of Norway, Oslo,
3-4 May 2018**

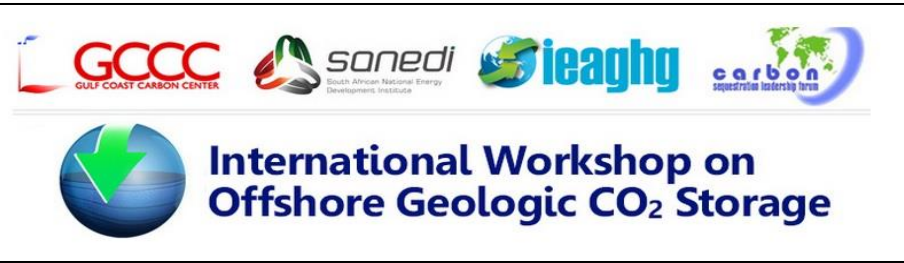
Aim: To address and build-on the recommendations and topics raised at the first two workshops to take offshore storage forward. Continuing theme of 'how to do'.

Scope:

- How to learn from learnings?
- Value chains for offshore
- Infrastructure (re-use)
- Monitoring offshore CO₂ storage/EOR
- Offshore CO₂ storage resource assessment
- Project updates
- Standards and regulatory frameworks
- Brainstorming towards an international collaborative project

IEAGHG Report 2018-TR02





Hosted by University of Bergen, Norway, Feb 2020

Aim: To address and build-on the recommendations and topics raised at the first three workshops to take offshore storage forward. Continuing theme of 'how to do'. 150 attendees. [IEAGHG Report 2020-TR02](#)

Scope:

- Infrastructure
- Deep subsurface monitoring and modelling offshore CO₂ storage
- Regulatory frameworks
- Project updates
- Emerging CCS country needs and progress
- Brainstorming towards an international collaborative project





New Orleans 19-20 May 2022, Hosted by UT-BEG and SSEB

Agenda

- Welcome & Scene Setting
- International Project Roundup (16 projects)
- Technical Aspects of Depleted Fields
- Containment & Pressure Management
- Regulations and Offshore CCS
- Technical Aspects of Saline Formations
- Monitoring Offshore CCS
- Shipping & Shore Infrastructure
- Summary & Recommendations



[Report IEAGHG 2022-TR05](#)

6th Workshop

Hosted by University of Aberdeen and Storegga
13-14 Sep 2023



STOREGGA

Agenda

- Injection, Wells, Capacity
- Legal, Regulatory and Accounting
- Interaction with other Users
- Transport and Infrastructure
- Stakeholder Engagement
- Monitoring
- Environmental Aspects
- Conclusions and Recommendations
- **Report IEAGHG 2023-TR06**

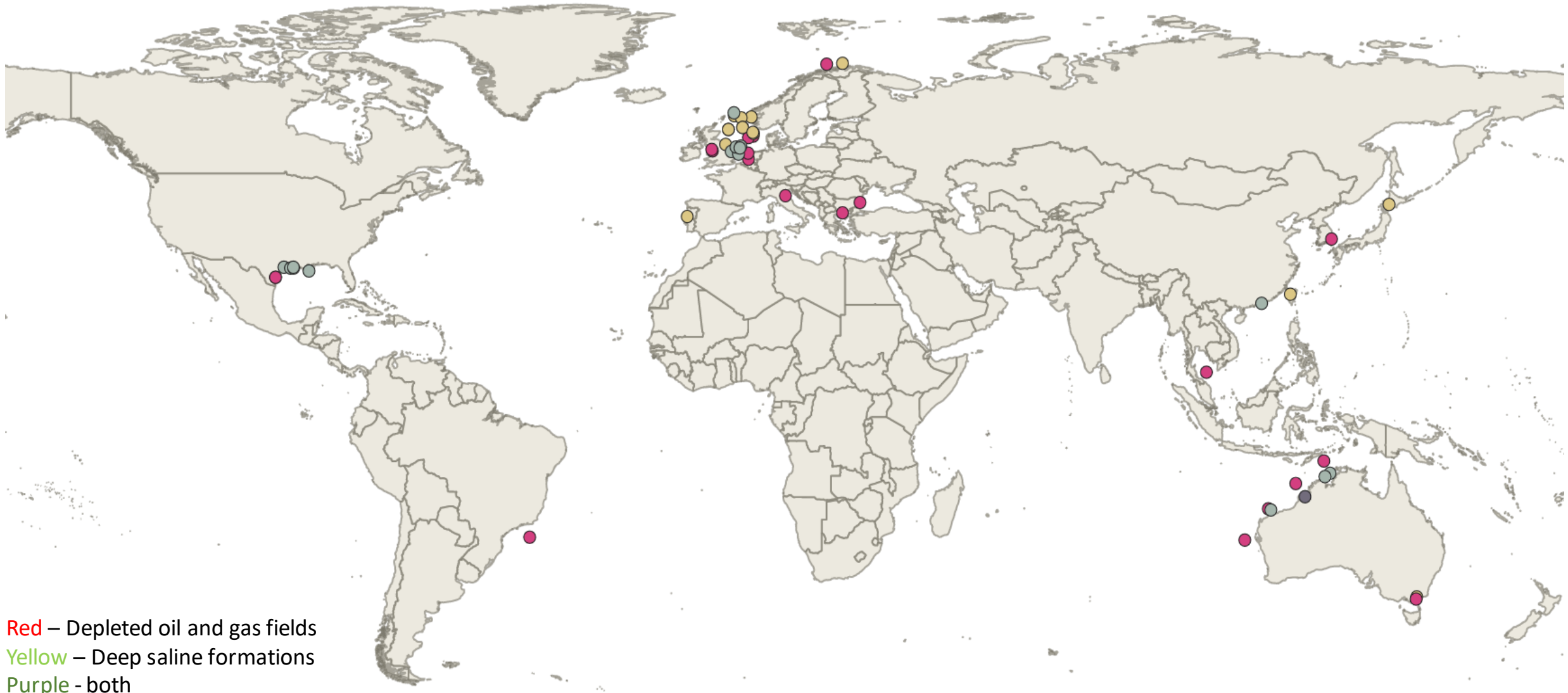


Offshore Projects presented at 6th Workshop

| | | |
|-------------------------------------|-------------|---------------------------|
| • Acorn | UK | Storegga |
| • Prinos | Greece | Energean |
| • Corpus Christi | USA | University of Texas |
| • Viking CCS | UK | Harbour Energy |
| • Pilot Strategy | Portugal | University of Évora |
| • Northern Lights | Norway | Northern Lights |
| • South Korea | South Korea | Korea CCUS Association |
| • Porthos | Netherlands | EBN |
| • Liverpool Bay, UK, Ravenna, Italy | UK/Italy | ENI |
| • Deep C Store | Australia | Deep C Store |
| • Taiwan | Taiwan | ITRI |
| • Poseidon & Orion | UK | Carbon Catalyst |
| • Gulf of Mexico | USA | Talos Energy |
| • Pre-Salt play | Brazil | Petrobras |
| • Pelican Project | Australia | Victoria State Government |
| • Timor Leste | Timor Leste | ANPM |

- Sleipner
- Snohvit
- Tomakomai
- K12B
- Greensand
- Bifrost
- L10
- Poseidon
- Polaris
- Smeaheia
- Woodside
- Endurance Field
- Carbon-Zero , Gulf of Mexico
- Cliff Head CO2 Storage Project

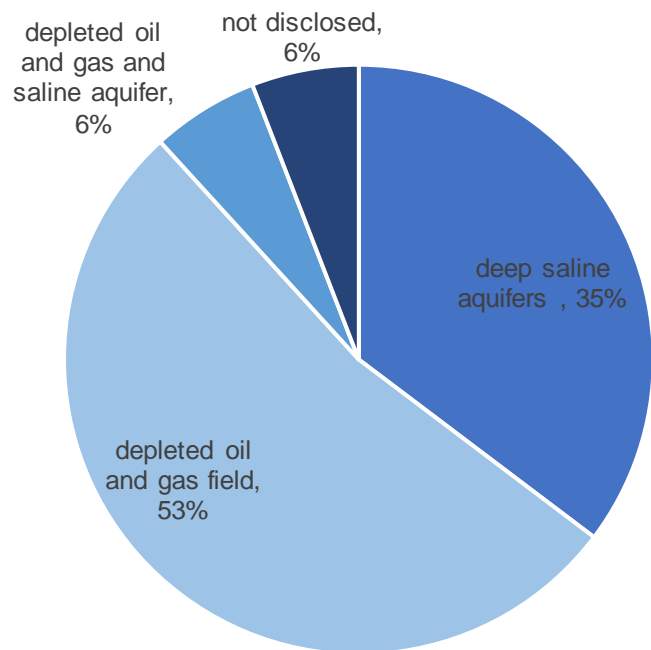
Norway
Norway
Japan
Netherlands
Denmark
Denmark
Netherlands
Norway
Norway
Norway
Australia
UK
USA
Australia



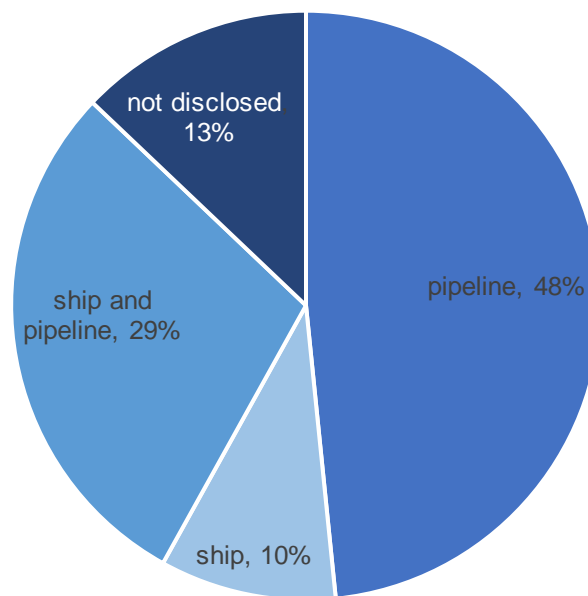
Red – Depleted oil and gas fields
Yellow – Deep saline formations
Purple - both

Project characteristics (2023)

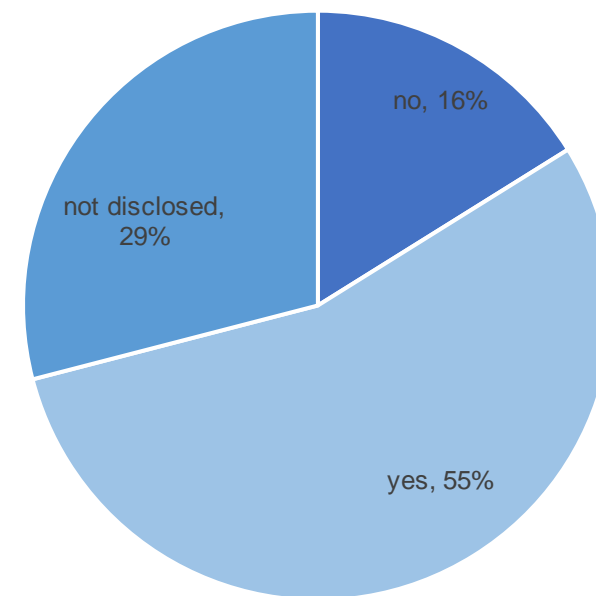
Storage Type (n=32)



Transport (n=32)



Infrastructure Re-Use (n=32)



- Encouraging number of projects in development: but aren't enough projects in the pipeline to deliver CCS role in climate targets.
- Spatial resource allocation is strategic – collaboration is key
- Time to apply for licenses and permits needs to be accelerated E.g. Positives in way companies worked with UK NSTA to develop plans – modify work programs and optimise – NSTA shaved a year off
- Just Transition is being recognised with CCS projects
- MMV plans maturing and being approved by regulators, first projects set precedent
- Community benefits are key, even for offshore
- We have the tools for environmental monitoring
- Develop/prove monitoring techniques for use in windfarms

International Steering Committee for 7th Workshop

- Tim Dixon, IEAGHG (Chair)
- Katherine Romanak, BEG (Co-chair)
- Susan Hovorka, BEG
- Tip Meckel, BEG
- Nikki Clarke, IEAGHG
- Owain Tucker, Shell
- Darin Damiani, US DOE
- Sarah Leung, US DOE
- Paulo Negrais Seabra- Independent Consultant (formerly Petrobras)
- Charles Jenkins, CSIRO
- Sveinung Hagen, Equinor
- Filip Neele, TNO
- Nigel Hicks, Council for GeoScience, South Africa
- Jonathan Bull, University of Southampton

Past presentations are available on the BEG GCCC's [Global Offshore Initiative webpage](#) and reports on IEAGHG [Publications Library - IEAGHG](#)



International Workshop on Offshore Geologic CO₂ Storage



7th International Workshop

17-18 September 2024
Port Arthur, Texas

