

International Offshore Initiative



International Workshop on Offshore Geologic CO₂ Storage

Katherine Romanak (Co-Chair)

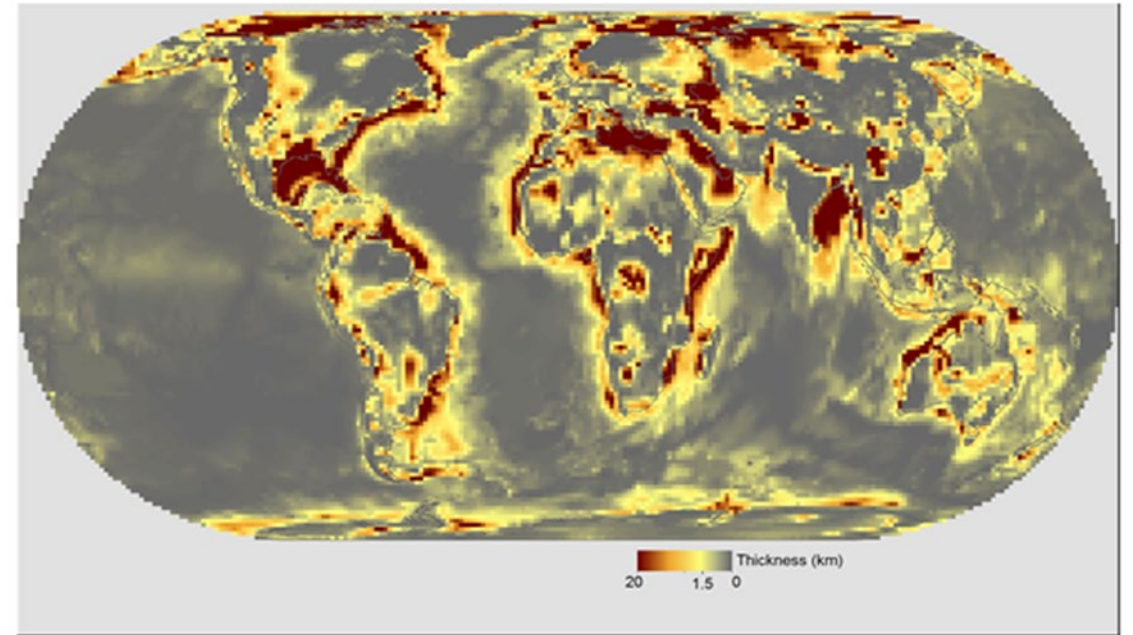
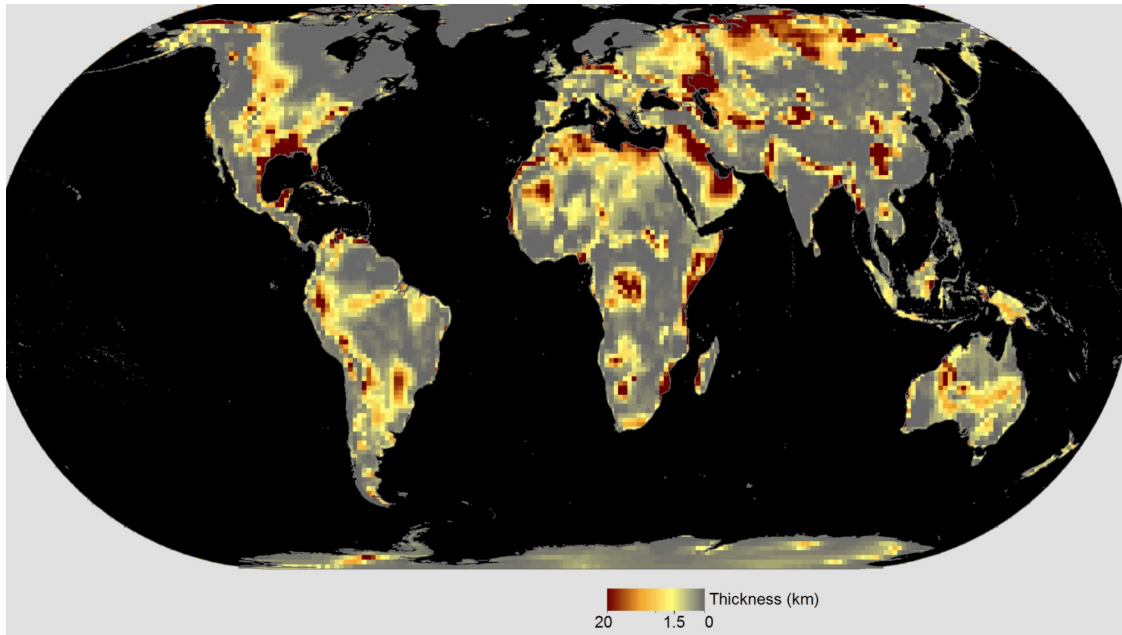
Tim Dixon (Chair)

Susan Hovorka, Tip Meckel, Ramon Trevino

2024 FECM/NETL Carbon Management Research Project Review Meeting - Pittsburgh



Global CO₂ Storage Potential



Exxon Production Research Company,
W.M.P.A.A.o.P.G.F., 1985
Laske and Masters, 1997
Schneider, et al., 2003
Slide courtesy of Ramon Trevino

2013 - Offshore Storage Resource Assessments in Sedimentary Basins



2013 - Offshore Injection



Proposal – A CSLF (Now CEM) Task Force

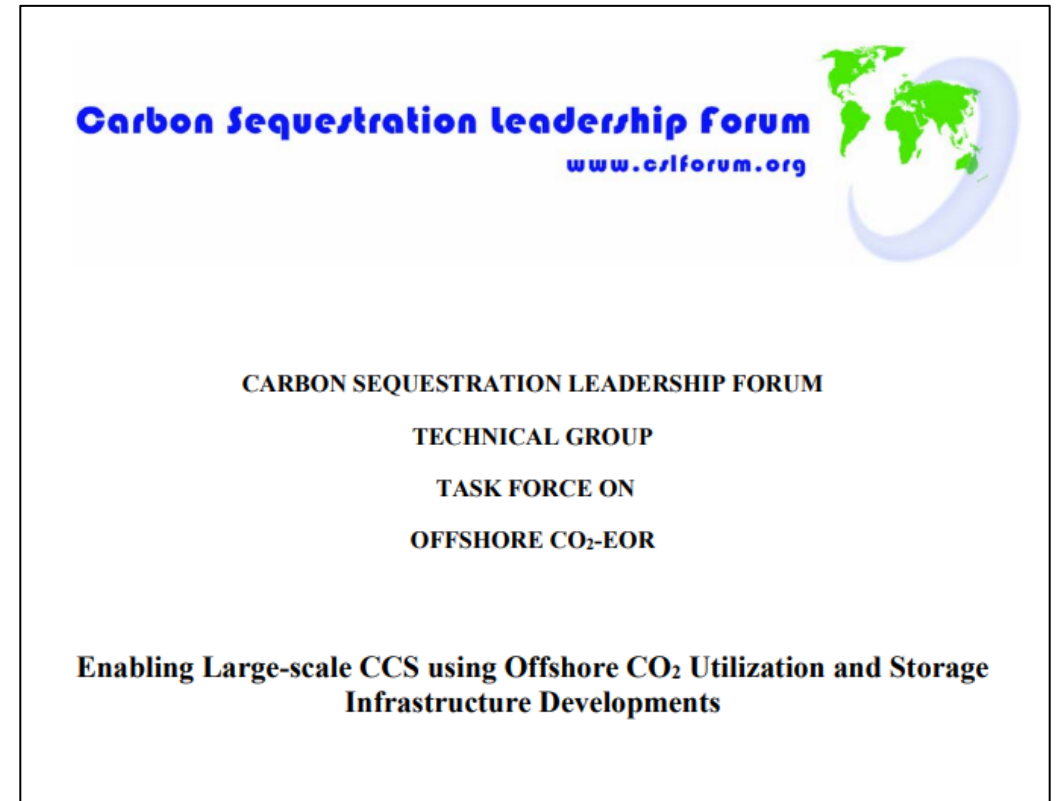
- **Assess barriers to implementation of offshore CO2 storage & technology needs**
 - **Serve Many Nations**
 - **Share and Synergize Technology Strengths**
 - **Share Experience**
- **Success Criteria**
 - **Accelerate Deployment of Offshore Field Test(s)**



Task Force Outcome

- March, 2014: US DOE volunteers to lead CSLF Task Force,
- Committee formed (7 countries) **USA, UK, Australia, Japan, Netherlands, Norway, China**
- November 2015– Final report submitted

[//www.cslforum.org/publications/documents/OffshoreStorageTaskForce_FinalCombinedReport.pdf](http://www.cslforum.org/publications/documents/OffshoreStorageTaskForce_FinalCombinedReport.pdf)



Task Force Report Conclusions

“... 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.”

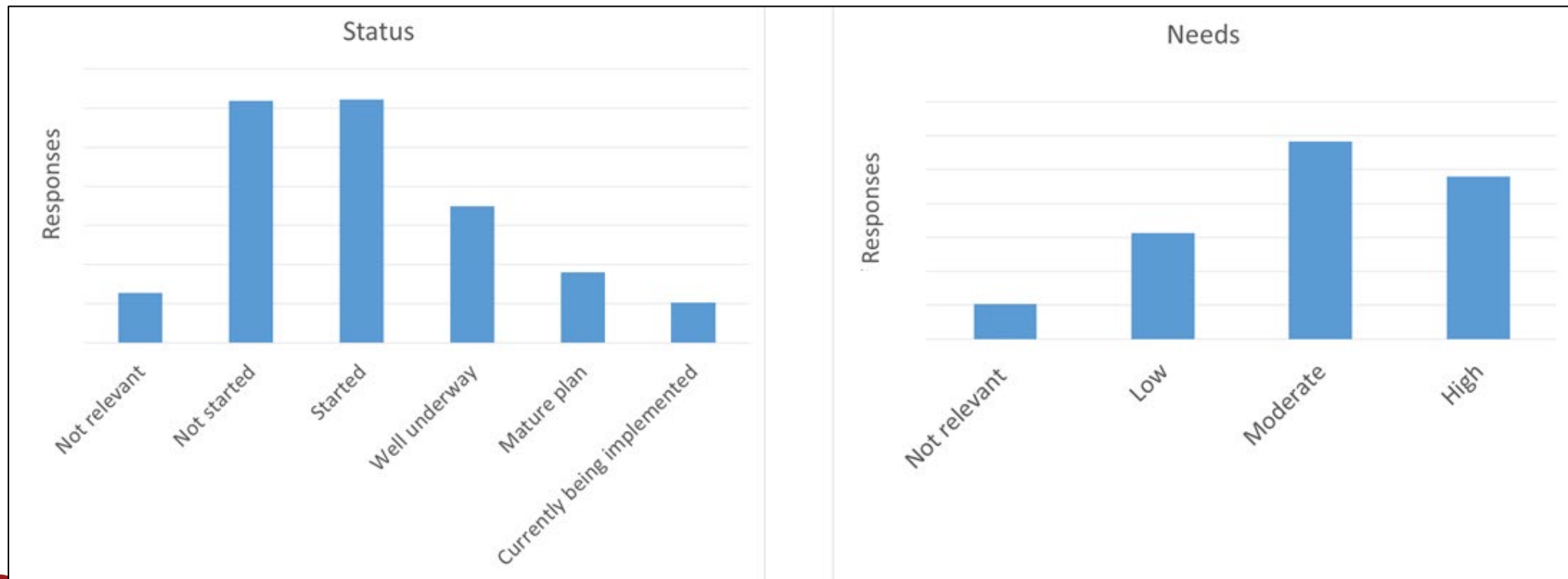
First Offshore Workshop

- **UT-BEG Partnered with IEAGHG to deliver the first workshop.**
- 19-21 April 2016, at the BEG, University of Texas, Austin.
- 50+ attendees from 13 countries.
- **Injection, Wells, Capacity**
- **Legal, Regulatory and Accounting**
- **Transport and Infrastructure**
- **Monitoring**
- **Environmental Aspects**
- **Conclusions and Recommendations**



Pre-Workshop International Needs Survey 2016

25 respondents from 15 countries
Unofficial, personal perspectives



Breakout Groups

Discussion on technical topics



Workshop on
UN Funding
Opportunities
for developing
countries



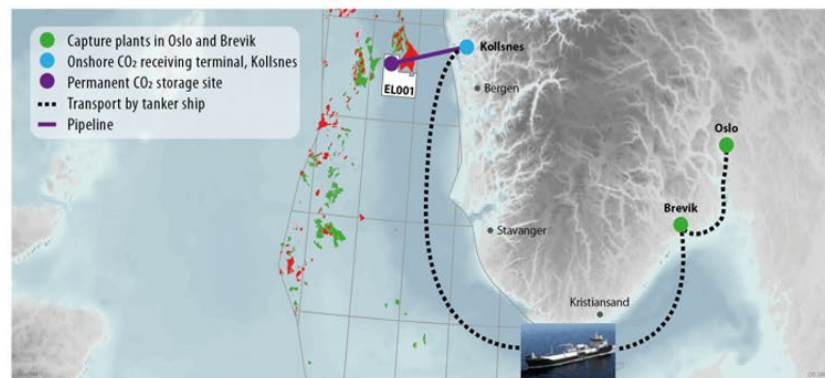
First Announcement of the Northern Lights Hub

First proposal of:

- Hub model
- Ship transport model
- International CO₂ trade enabled by a provisional application to the London Convention

A CCS activity has started:

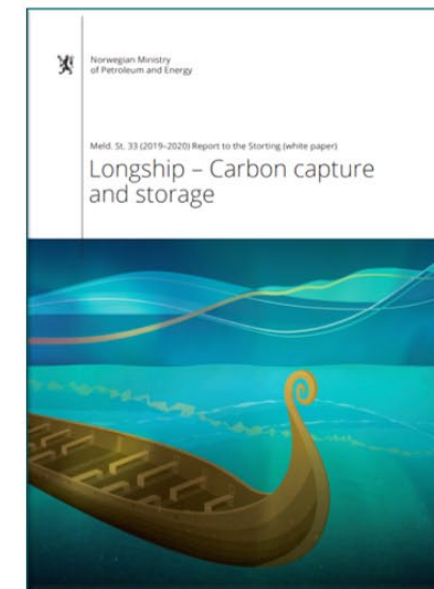
Longship- a full scale CCS demonstration project on the way to large-scale deployment



- Contribute to developing technology for capture, transport and permanent storage of CO₂
- Develop a full-scale CCS value chain in Norway by 2024
- Demonstrate that CO₂ management are safe and possible

Learning- cost reductions – business development

Eva Halland



Workshop Series

- **2nd Workshop 19-20 June 2017, at Lamar University Beaumont, Texas.**
 - 50+ attendees from 9 countries
 - **IEAGHG Report 2017-TR12**
- **3rd Workshop, Research Council of Norway, Oslo, 3-4 May 2018,**
 - 50+ attendees from 13 countries.
 - **IEAGHG Report 2018-TR02**
- **4th Workshop 19-20 February 2020, University of Bergen, Norway,**
 - 150 attendees
 - Organized with the STEMM-CCS Project meeting, University of Bergen,
 - **IEAGHG Report 2020-TR02**

5th Workshop, New Orleans

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

50 attendees in-person and 120 virtually

1. Acorn, UK
2. Prinos, Greece
3. Corpus Christi, Texas
4. Viking CCS, UK
5. Pilot Strategy, Portugal
6. Northern Lights, Norway
7. South Korea
8. Porthos, NL
9. Liverpool Bay, UK,
10. Ravenna, Italy, ENI
11. Deep C Store, Australia
12. Taiwan
13. Poseidon, UK
14. Talos, Texas
15. Petrobras, Brazil
16. Pelican, Australia
17. Enping, China
18. Timor Leste

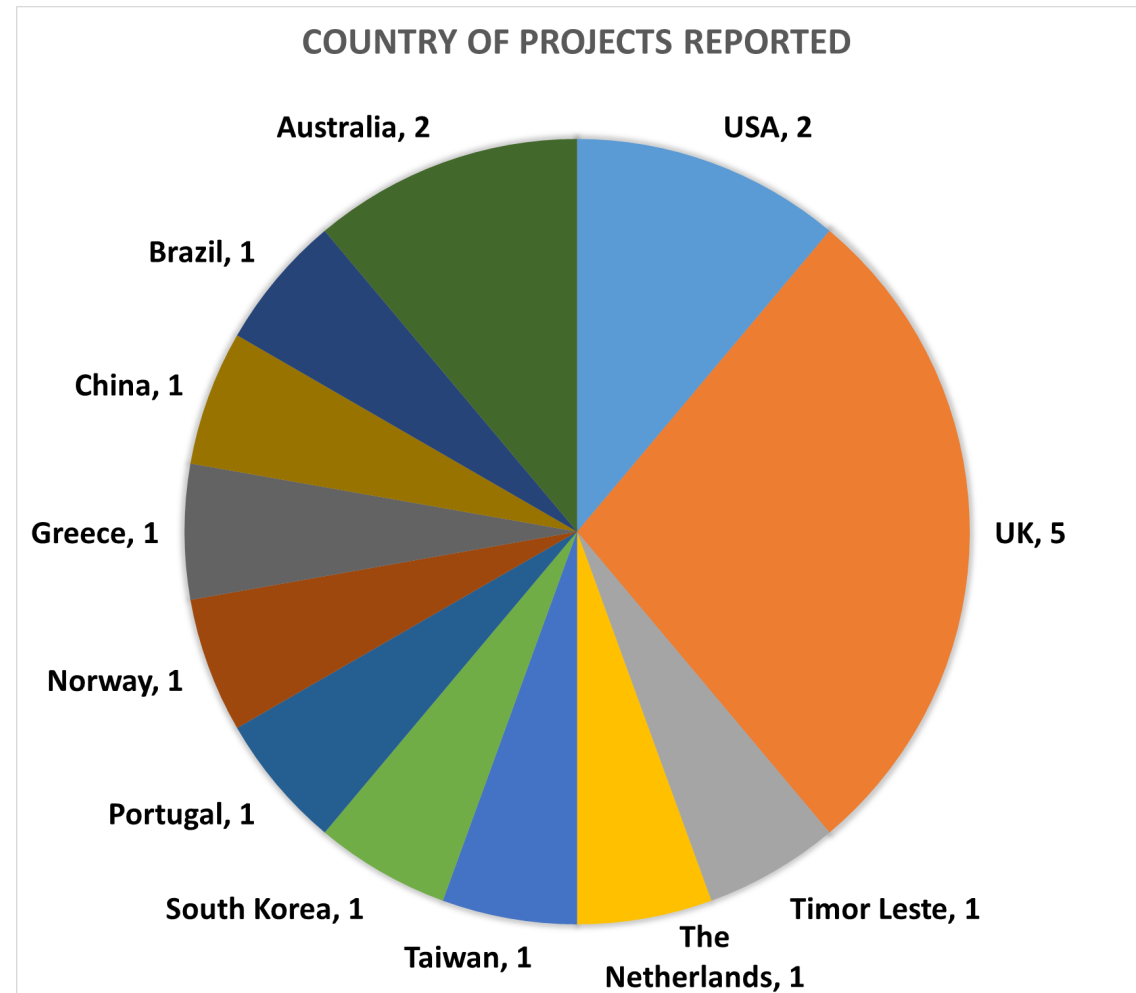
Plus summaries of:

Greensand (INEOS), Denmark; Bifrost, Denmark; (NL) L10; Poseidon, Norway; Polaris, Norway; Smeaheia, Norway; Woodside, Australia; Endurance Field, East Coast UK; Carbon-Zero (Cox Oil) Gulf of Mexico; Sleipner; Snovit; K12B; Tomakomai.

Project Attributes - Countries

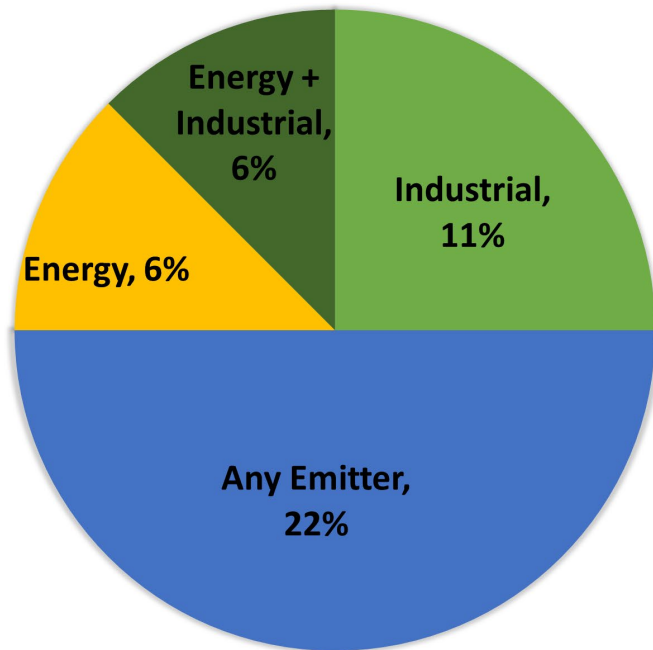
N=20 Projects Reported
12 countries from many regions of the world

UK, Europe, Asia-Pacific, Oceania, North America, South America, Scandanavia

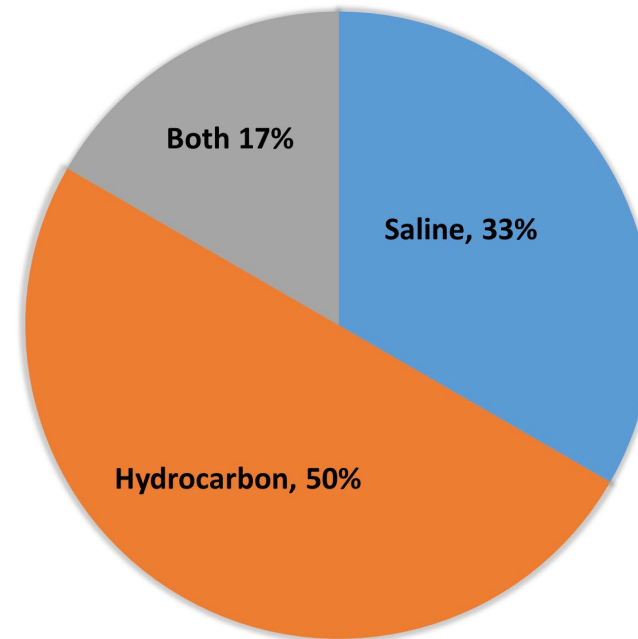


Project Attributes - Storage

CO2 SOURCES

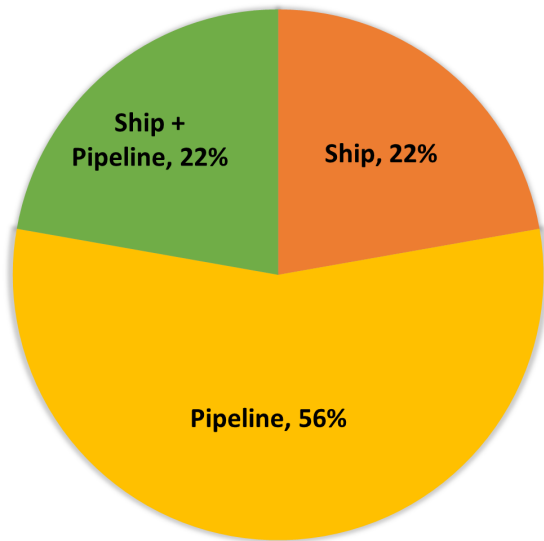


STORAGE TYPE

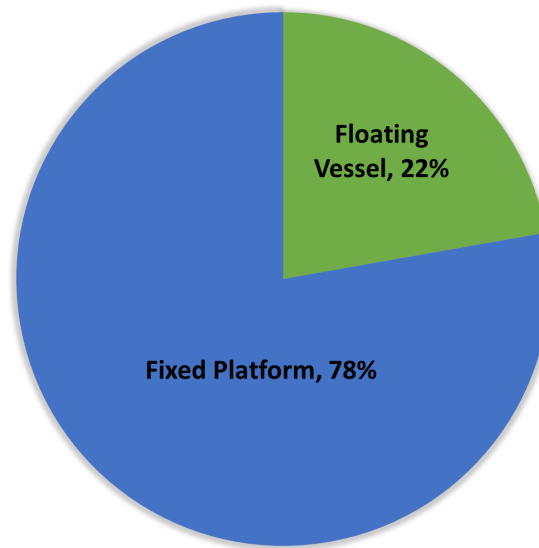


Project Attributes- Handling

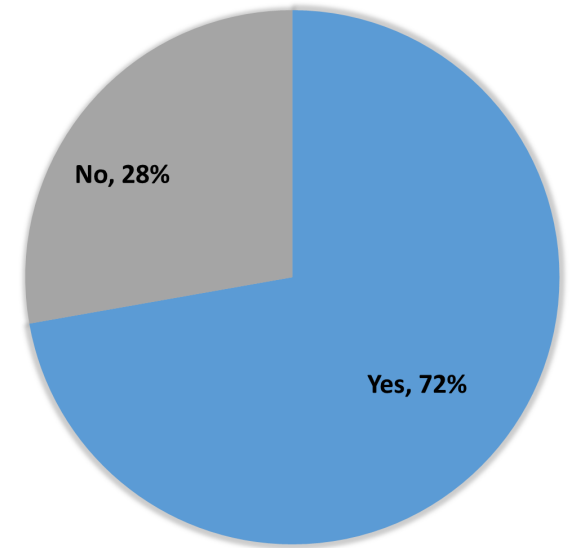
CO2 TRANSPORT



CO2 HANDLING



INFRASTRUCTURE REUSE?



6th Workshop, Aberdeen

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

- Acorn UK
- Prinos Greece
- Corpus Christi USA
- Viking CCS UK
- Pilot Strategy Portugal
- Northern Lights Norway
- South Korea South Korea
- Porthos Netherlands
- Liverpool Bay, UK CCUS project UK
- Deep C Store Australia
- Taiwan Taiwan
- Poseidon & Orion UK
- Gulf of Mexico USA
- Pre-Salt play Brazil
- Pelican Project Australia
- Timor Leste Timor Leste

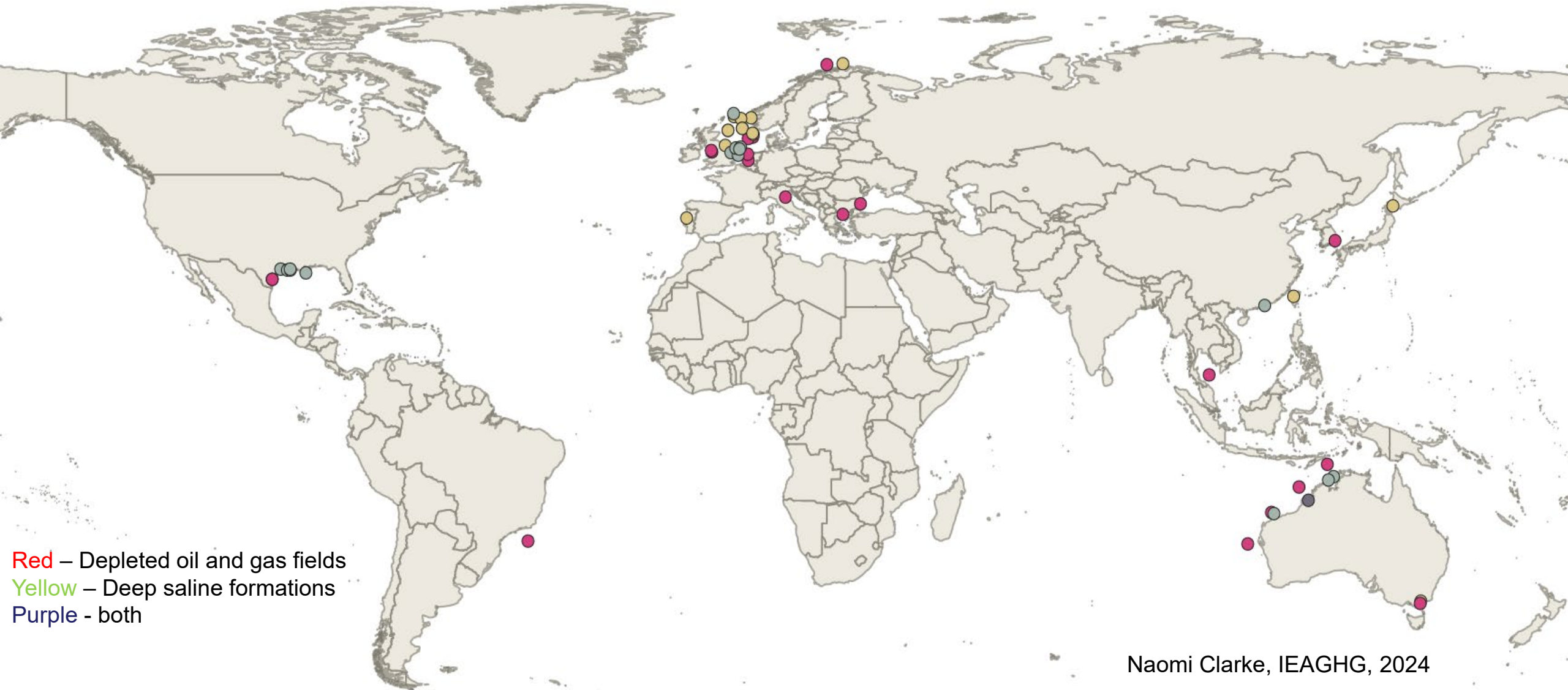




Additional Offshore Projects

- Sleipner Norway
- Snohvit Norway
- Tomakomai Japan
- K12B Netherlands
- Greensand Denmark
- Bifrost Denmark
- L10 Netherlands
- Poseidon Norway
- Polaris Norway
- Smeaheia Norway
- Woodside Australia
- Endurance Field UK
- Carbon-Zero , Gulf of Mexico USA
- Cliff Head CO2 Storage Project Australia

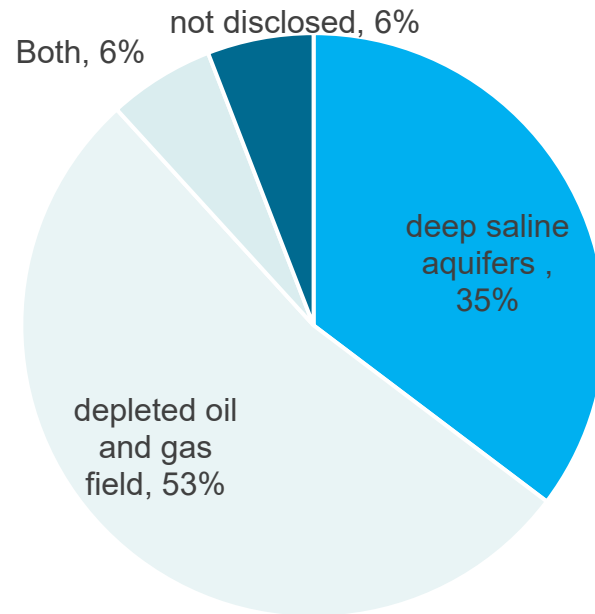
Projects operational or in development (2024)



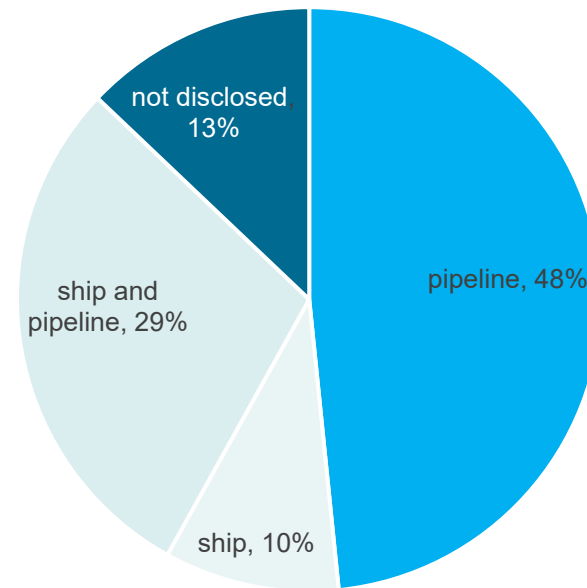
Project characteristics (2023)



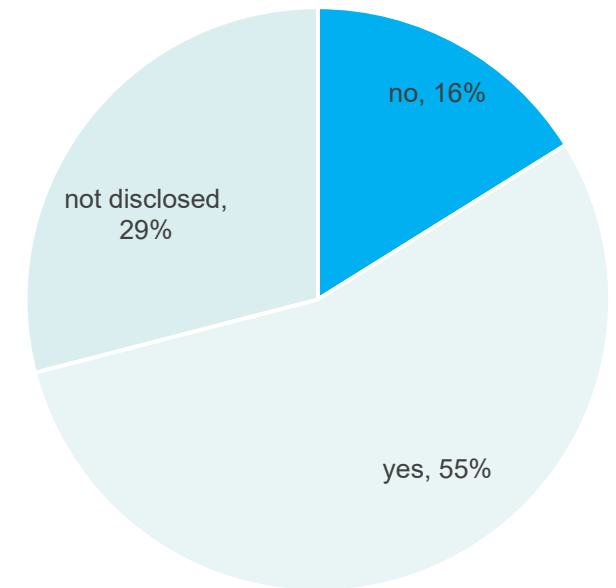
Storage Type (n=32)



Transport (n=32)



Infrastructure Re-Use (n=32)



7th Offshore Workshop

Invitation

7th International Workshop on Offshore Geologic Storage

September 17–19, 2024

Carl A. Parker Multipurpose Center
Lamar State College
Port Arthur, Texas, U.S.A



<https://gcc.beg.utexas.edu/research/goi/register>

7th Offshore Workshop- Topics to be Covered

- **Projects Roundup**
- **Challenges and solutions to using Depleted Fields in the offshore**
- **Shipping, Handling, and Direct Injection from ships**
- **Public Engagement and the offshore energy transition**
- **Managing risk of potential leakage pathways for CO2 and brine**
- **Well remediation**
- **Monitoring tools and techniques**
- **Tailoring an MMV plan to target risk**
- **Regulatory factors to consider and global developments**
- **Field Trip to the Exxon Mobile Green pipeline, well logging tool demonstration and observe modern analogs for CO2 storage Sea Rim Park**

Presentations and reports available at:

- **IEAGHG.org**
- **<https://gcc.beg.utexas.edu/research/goi>**

**Katherine Romanak
Senior Research Scientist
Bureau of Economic Geology
The University of Texas at Austin**

katherine.romanak@beg.utexas.edu

<http://www.beg.utexas.edu/gcc/>