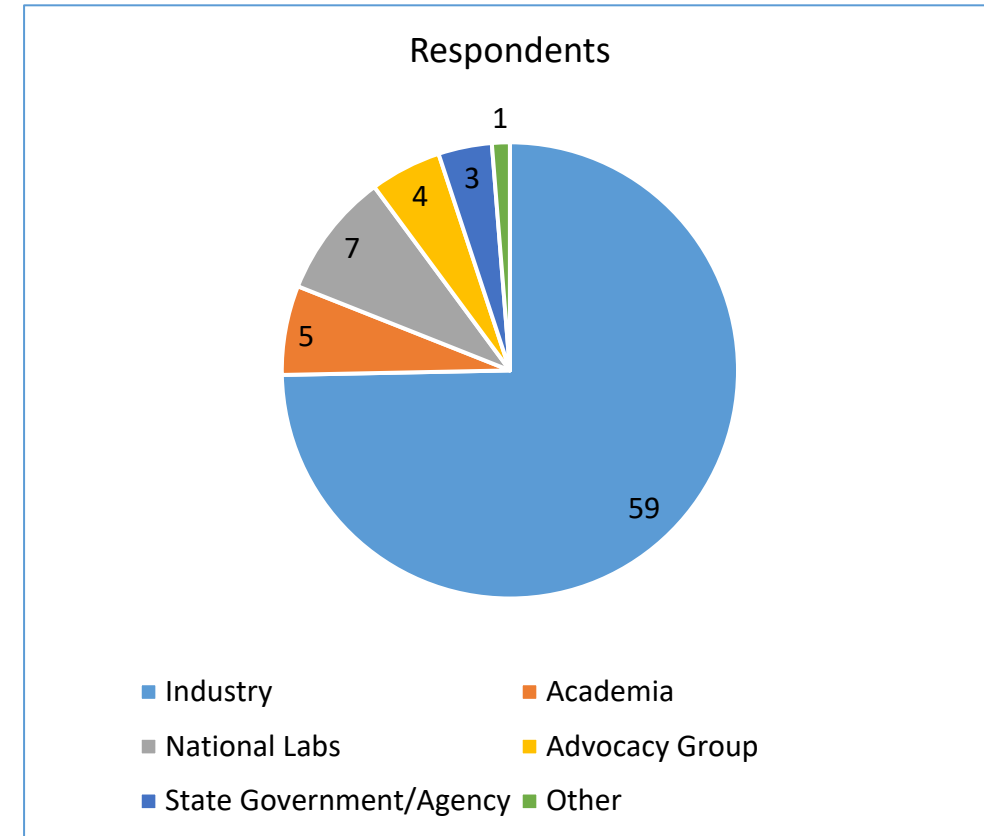


Technical Area #4.. Direct Air Capture (DAC) Technologies and Regional Deployment Opportunities

Response Overview

- 79 respondents
 - Industry (59)
 - Academia (5)
 - National Labs (7)
 - Advocacy Group (4)
 - State Government/Agency (3)
 - Other (1)



Technical Area #4.. Overall Summary

Overview of Major Ideas from Technical Area #4 Responses

• Hub Location

Most of the respondents recommended hubs located in the Gulf Coast and Pacific Coast regions close to:

- CO₂ storage reservoirs
- Zero carbon energy sources (nuclear, wind, solar)
- Existing infrastructure: Pipelines and Transportation & Carbon utilization technologies
- Heat sources for regeneration of capture media

• Technology Readiness

- Most Mature Tech (TRL 6-9): solvents and solid sorbents
- Least Mature Tech (TRL 1-3): membranes and electrochemical
- Wide range for cost and current scale indicated for the respondents' DAC technologies

• DAC Hub Strategies Proposed

- Develop a large DAC system with access to infrastructure, CO₂ pipeline and storage, and zero carbon energy, which would anchor the hub and encourage other lower TRL DAC technologies and smaller DAC systems to join in the future
- Design hub using the most mature and lowest cost DAC technologies to achieve large-scale deployment
- Design hub using multiple technologies at each hub over a range of TRL levels to speed hub development

Technical Area #4.. Overall Summary

Overview of Major Ideas from Technical Area #4 Responses

- **Partnership/Business Models**

Strongly encourage market-based approach for competitiveness and innovation. Government should help support R&D through incentives enabling DAC development.

- **Permitting and Regulatory**

Limited availability of state primacy or Class VI well permitting, lack of resources, and lack of experience with permitting authorities slow down permitting process.

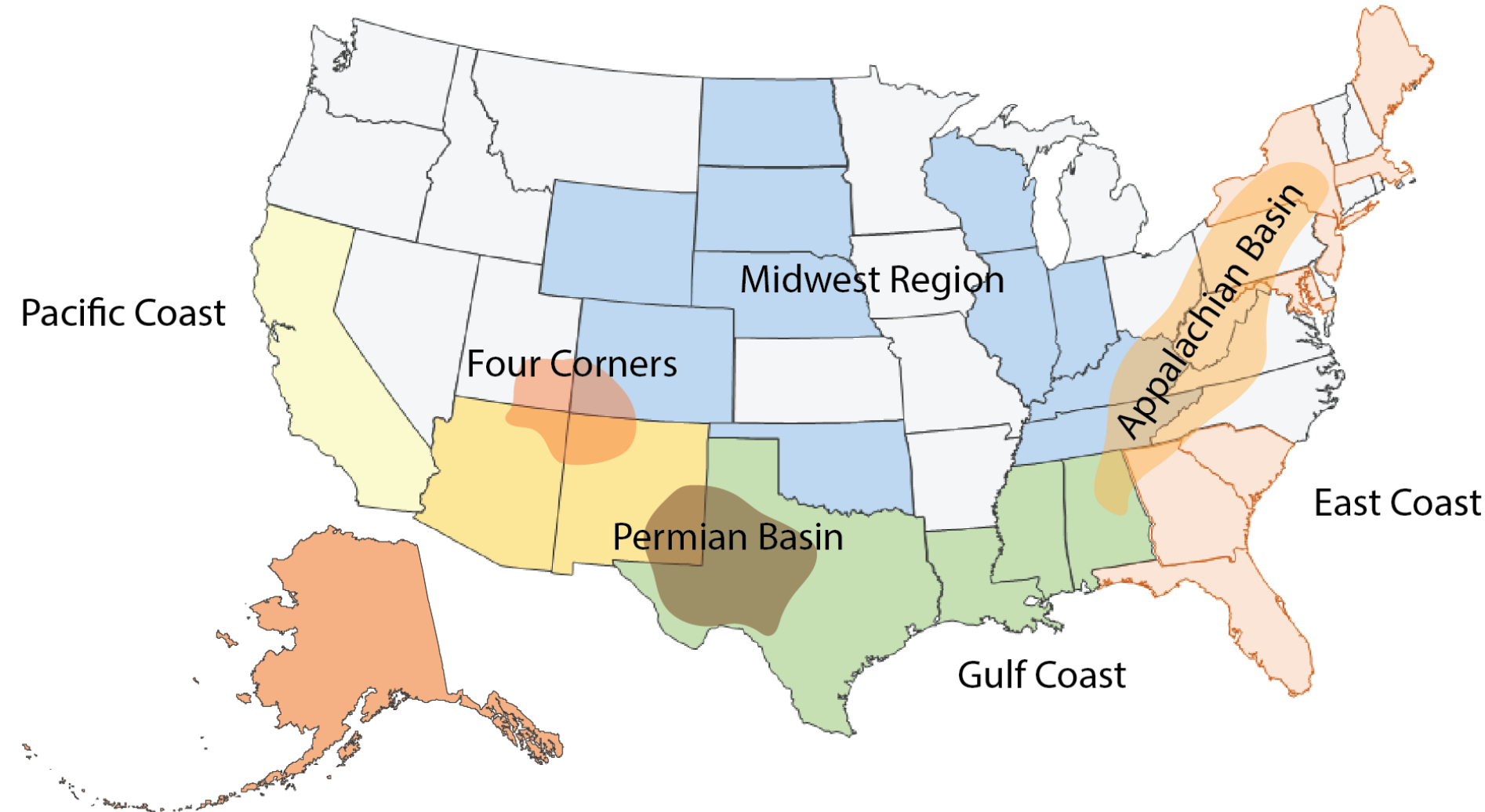
Recommended DOE to work with EPA to get Class VI wells permitted for CO2 storage.

- **Community Engagement, Benefits, Impacts**

DAC facilities will result in additional direct and indirect employment; construction jobs and ongoing operations jobs will help with local communities, investment, and growth of the U.S. economy.

Potential Locations for DAC Hubs

Recommended Regions for DAC Hubs from Respondents



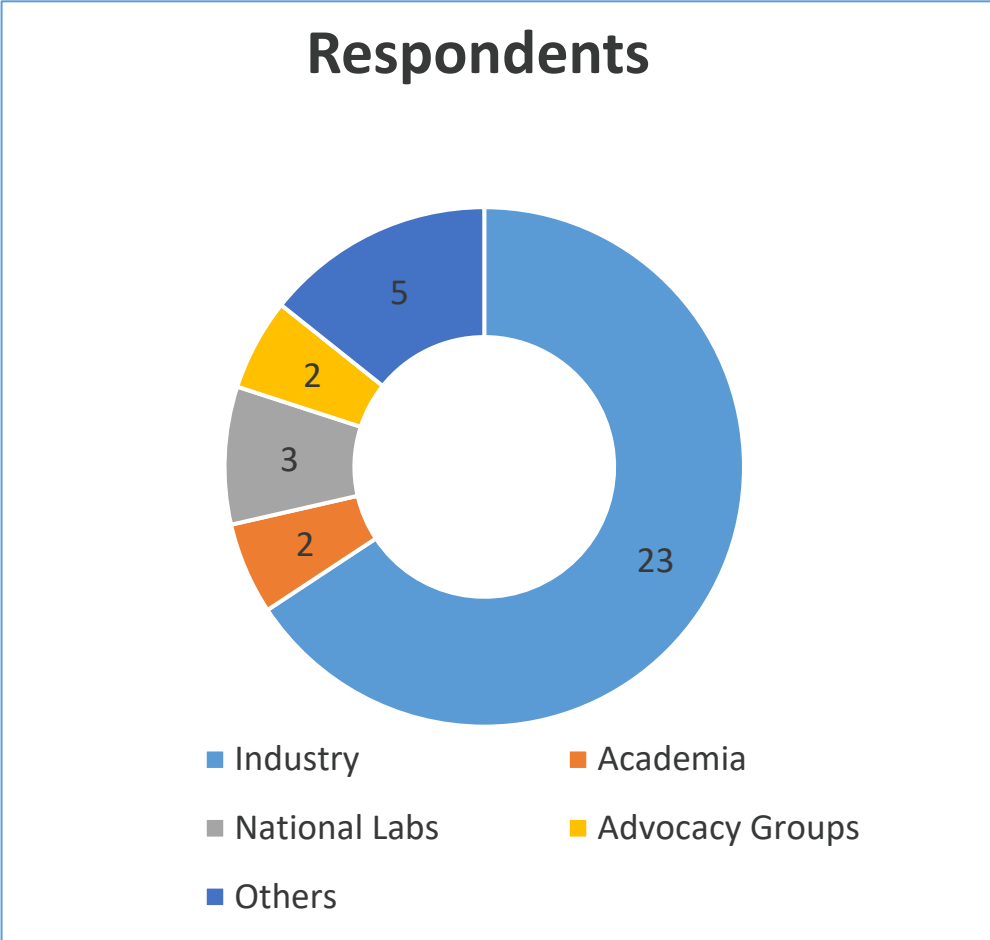
- Most of the respondents recommended the Gulf Coast and Pacific Coast regions
- Primary factors for choosing hub locations include proximity to zero-carbon energy and CO₂ storage and pipelines, and access to existing infrastructure and transportation.
- Others recommended potential storage locations, such as the Four Corners, Permian Basin, and Appalachian Basin.
- A few proposed the Midwest and East Coast regions for potential DAC Hubs.

Technical Area #5 - Direct Air Capture Prizes and Requirements



Response Overview

- 35 respondents
 - Industry (23)
 - Academia (2)
 - National Labs (3)
 - Advocacy Organization (2)
 - Other (5)



Technical Area # 5.. DAC Prizes and Requirements



Overview of Major Ideas from Responses

- Prizes are helpful for advancing DAC technology, but lump sums can't be used to overcome negative market forces.
 - Continuous payments over time are better for commercialization.
 - Extend 45Q tax credits for DAC.
-
- Most DAC costs far exceed the \$100/tonne, but many respondents are optimistic that < \$100/tonne can be achieved before 2050.
 - DOE should release a Cost and Performance Baseline Report for DAC.
 - Establish a basis for future research to compare to and inform future design decisions.
-
- FOA project selections should focus on technological diversity.