Carbon Sequestration on the Outer Continental Shelf

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Section 40307 of Bipartisan Infrastructure Law (BIL) amended the Outer Continental Shelf Lands Act (OCSLA) to authorize the Secretary of the Interior to grant a lease, easement, or right-of-way on the Outer Continental Shelf for activities that “provide for, support, or are directly related to the injection of a carbon dioxide stream into sub-seabed geologic formations for the purpose of long-term carbon sequestration.”

Additionally, the law directs, “Not later than 1 year after the date of enactment of this Act [November 14, 2022], the Secretary of the Interior shall promulgate regulations to carry out the amendments made by this section.”
Joint Bureau of Ocean Energy Management (BOEM) – Bureau of Safety and Environmental Enforcement (BSEE) rulemaking is underway

Rulemaking team established relying on existing expertise throughout the bureaus

Extensive outreach underway

Topics under consideration for the rulemaking include:

- Financial and economic considerations
- Pre-lease exploration
- Leasing
- Site characterization
- Plans
- Environmental considerations
- Risk assessment and management
- Monitoring and reporting
- Liability
- Well and infrastructure qualification
- Operations, facilities, and pipelines
- Emergency response and mitigation
- Decommissioning
Leasing Considerations

- **Leasing Considerations:**
  - BOEM will conduct pre-leasing analyses to determine lease areas
  - Lease spacing and correlative rights
  - Conservation of pore space
  - Long-Term Liability
  - What are the market drivers?

- **Potential Research:**
  - Lease spacing considerations on the OCS:
    - How much buffer is appropriate between lease areas to prevent pressure front overlap/interference across leases?
Geologic Considerations – GOM Depleted O&G Reservoirs vs. Saline Reservoirs

Depleted Reservoirs

- Potential for greater available pressure margins
- Abundant geologic, geophysical, engineering and production data
- Proven trap and seal
- Numerous legacy wells
- Smaller storage capacity

Saline Aquiferas

- Large potential storage capacity
- Fewer legacy wells
- Abundant geologic, geophysical, engineering and production data
- Multiple Stacked Reservoirs
- Unknown seal integrity
- Smaller available pressure margin
**Geologic Considerations**

- GOM extensive, world-class data
- High porosity and permeability
- Over 23,000 depleted reservoirs

Analysis identified 100 largest producing reservoirs

Distance to shore and water depth refined the list to 21 Reservoirs in 9 fields.
GOM – 21 Depleted Reservoirs / 9 Fields

https://www.boem.gov/about-boem/regulations-guidance/carbon-sequestration

21 Tier 1 depleted reservoirs in the Gulf of Mexico based on:
- Production (>25MMBOE)
- Distance to Shore (<25 miles)
- Water Depth (<100ft)
Geologic Considerations cont’d

- **Geologic Considerations:**
  - Depleted O&G Reservoirs vs. Saline Reservoirs vs. Basaltic Reservoirs
  - Legacy Wells:
    - Potential leakage pathways? Can there be too many? Re-entry?

- **Potential Research:**
  - Injection Pilot Project to full-scale Demonstration Project
    - Consider starting with a depleted O&G reservoir
  - Environmental Monitoring
  - CO₂ Release Project/Modeling
Environmental Considerations

- Environmental Considerations:
  - Environmental Impacts from CO₂ Leakage – Risk Assessments, CO₂ Blowouts, Legacy Wells, Pipeline Ruptures, Geologic Leakage
  - “Baseline” Environmental Conditions
  - Cumulative Impacts?
  - Transportation – Vessel vs. Pipeline

- Potential Research:
  - What are the important considerations for establishing “baseline” conditions in the OCS environment?
  - What needs to be monitored and what are the appropriate monitoring protocols and frequency?
  - Transportation