The Interstate Oil and Gas Compact Commission’s

Legal and Regulatory Guide for States and Provinces for Geologic Storage of CO₂

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Member States
Alabama (1945)
Alaska (1957)
Arizona (1955)
Arkansas (1941)
California (1974)
Colorado (1935)
Florida (1945)
Illinois (1935)
Indiana (1947)
Kansas (1935)
Kentucky (1942)
Louisiana (1941)
Maryland (1959)
Michigan (1939)
Mississippi (1946)
Montana (1945)
Nebraska (1953)
Nevada (1955)
New Mexico (1935)
New York (1941)
North Dakota (1953)
Ohio (1943)
Oklahoma (1935)
Pennsylvania (1941)
South Dakota (1955)
Texas (1935)
Utah (1957)
Virginia (1982)
West Virginia (1945)
Wyoming (1955)

Associate States
Georgia (1946)
Idaho (1960)
Missouri (1995)
North Carolina (1971)
Oregon (1954)
South Carolina (1972)
Washington (1967)

International Affiliates
Alberta (1996)
British Columbia (2002)
Egypt (1999)
Republic of Georgia (2001)
Newfoundland and Labrador (1997)
Nova Scotia (1997)
Venezuela (1997)
Phase I Observations & Conclusions

- Industry and states have 30 years experience in the production, transport, and injection of CO₂.
- States have necessary regulatory analogues in place to facilitate development of a comprehensive geologic CO₂ storage regulatory framework.
- CO₂ should be regulated as a commodity to allow the application of oil and gas conservation laws which will facilitate development of storage projects.
- Involve all stakeholders including general public in the development of regulatory frameworks.
The Regulatory System

Existing State and Federal Regulations

Existing UIC Regs

Existing State and Federal Pipeline Regulations

Long-Term Storage Regs Missing
Analysis of the U.S. Safe Drinking Water Act Relating To Carbon Capture & Geologic Storage

- The Underground Injection Control (UIC) program of the U.S. federal Safe Drinking Water Act does not mandate the regulation of CO₂ storage by the U.S. EPA.

- The UIC Program may be applicable at the discretion of a state program. The current limitations of the UIC program make it applicable only to the operational phase of the storage project.

- Given ownership issue and the proposed long-term “caretaker” role of the states, the states are best positioned to provide the necessary “cradle to grave” regulatory oversight of geologic storage of CO₂.
Phase II Task Force Objectives for Model Rules and Regulations

- Creation of a nationwide guidance document, approved by the IOGCC, which is specific enough to enable each state to develop its own statutes and regulations while at the same time helping to lay the essential groundwork for a state-regulated, but nationally consistent, “cradle-to-grave” system for the geologic storage of CO₂

- Work with member states in implementing draft model laws and regulations and assessing adequacy of those laws and regulations
Task Force Guiding Principals

- **SEAMLESS**—Maximize economic and environmental benefits, establish “cradle-to-grave” framework to provide for fully integrated regulatory oversight, and clearly identify risk parameters for industry.

- **KEEP IT SIMPLE**—do not over-regulate for the exotic. Initially address what will most likely occur and amend regulations with experience.

- **FLEXIBLE AND RESPONSIVE**—modify as gain knowledge with easy projects, respond to constantly changing technologies, which is a certainty, “one size” will not fit all projects.

- **“DOABLE”**—implement regulations which can be fielded now, problems will occur, but most are solvable, can not be focused on resolving every conceivable issue before initiating regulations.

- **POSITIVE PUBLIC PRESENTATION**—Geologic CO₂ storage is part of a solution with economic and environmental benefits, and not a waste problem waiting for a regulatory protection solution.
Resource Management Drivers

Economic Drivers

Environmental Drivers

EMISSIONS TRADING REGULATIONS

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OWNERSHIP AND RESERVOIR PROTECTION

ENVIRONMENTAL HEALTH & SAFETY

CARBON CAPTURE AND STORAGE REGULATORY FRAMEWORKS
Guidance Document Components

- Analysis of Property Rights Issues Related to Underground Space Used for Geologic Storage of Carbon Dioxide
- Model Statute for Geologic Storage of Carbon Dioxide
- Model General Rules and Regulations
The right to use reservoirs and associated pore space is considered a private property right in the United States, and must be acquired from the owner. In the U.S., with the exception of federal lands, the acquisition of these storage rights generally are functions of state law.

- Case law varies from state to state, and isn’t necessarily consistent within states

Control of the necessary storage rights should be required as part of the initial storage site licensing to maximize utilization of the storage reservoir.
Model Statute

- Declares that geologic storage of CO$_2$ will benefit the state’s* citizens and environment by reducing greenhouse gas emissions
- Provides the state regulatory agency (SRA) with the authority to regulate underground injection and long-term storage of CO$_2$, and outlines what conditions must be met before SRA may permit a geologic CO$_2$ storage project
- Empowers the storage operator, with approval of SRA, “to exercise the right of eminent domain provided by law, to acquire all surface and subsurface rights and interests necessary or useful for the purpose of operating the storage facility”
- Establishes a Carbon Dioxide Storage Facility Trust Fund, administered by SRA and funded by a tax or fee levied on the storage operator on a per-ton-CO$_2$-injected basis

*or province’s
Model Statute

- Establishes a tax or fee levied on the storage operator during the operational phase of the storage project to fund administration and enforcement of geologic CO$_2$ storage regulations.

- Releases the storage operator from liability and responsibility 10 years (or TBD period) after cessation of injection and upon demonstrating to SRA that the reservoir is “reasonably expected to retain mechanical integrity and remain emplaced”. Liability and ownership of the project then passes to the state.

- Authorizes SRA to develop rules to allow conversation of EOR operations to CO$_2$ geologic storage operations.
Model General Rules and Regulations: Definitions

- **CO₂** means anthropogenically sourced carbon dioxide of sufficient purity and quality as to not compromise the safety and efficiency of the reservoir to effectively contain CO₂.

- **Geologic Storage Unit (GSU)** means the reservoir used by an entity that holds the SRA permit authorizing CO₂ injection activities.

- **CO₂ Facility (CF)** means all surface and subsurface infrastructure including wellhead equipment, down hole well equipment, compression facilities and CO₂ flow lines from injection facilities to wells within the GSU, monitoring instrumentation, injection equipment, and offices. CF does not include the main transportation pipeline to the GSU and pump stations along that pipeline.

- **CO₂ Storage Project (CSP)** means the project in its entirety, including CF and GSU.
Model General Rules and Regulations: Overview

- CSP (CO₂ Storage Project) permitting. The operator must:
  - Show evidence of holding necessary property rights for construction and operations of the CSP, or have begun the process of gaining access using eminent domain.
  - Submit extensive and adequate engineering and geological data about the GSU, surrounding reservoir, and overlying formations, as well as an injection plan that includes a description of geologic confinement mechanisms.
  - A public health and safety and emergency response plan, a worker safety plan, a corrosion monitoring and prevention plan, and a facility and storage reservoir leak detection and monitoring plan.

- Measurement, monitoring, and verification requirements focus primarily on the subsurface--especially within the GSU and the overlying formations--through use of observation wells. These MMV requirements are not overly prescriptive, to allow for technological advances and site-specific considerations.
Model General Rules and Regulations: Overview

- Injection wells are permitted after the CSP is approved. The model rules and regulations specify design standards that are meant to prevent migration of CO$_2$ out of the GSU.

- Operational Standards

- Requirements for leak detection monitoring and reporting

- Quarterly and annual reporting required

- Rules and regulations are not meant to apply to CO$_2$-EOR projects except in the case that an EOR operator permits the EOR project as a CO$_2$ storage project simultaneously or at the end of the EOR project life
“Cradle-to-Grave” Regulatory Framework

PAYMENT OF STORAGE FEE

OPERATIONAL BOND

SITE LICENSING AND CERTIFICATION

SITE AND WELL OPERATIONS

INDIVIDUAL WELL BONDS

BONDS RELEASED AS WELLS PLUGGED

LONG TERM

SITE CLOSURE AND WELL PLUGGING

STATE-ADMINISTERED TRUST FUND ASSUMES RESPONSIBILITY FOR OVERSIGHT AND LIABILITY

BOND RELEASED 10 YEARS AFTER INJECTION CEASES

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Summary of IOGCC Model Rules and Regulations Framework

- States are proposed as the lead entities for the regulation of CO$_2$ geologic storage projects.
- IOGCC’s regulatory framework is a state-administered program operating under state authority.
- States are proposed as the most responsive entity to administer long-term care.
Phase II Task Force
Participant Organizations

Alabama Geological Survey
Alabama State Oil and Gas Board
Alaska Department of Natural Resources
Alberta Energy and Utilities Board
Alston & Bird Law Firm
Arkansas Oil and Gas Commission
Augusta Systems (Southeast Regional Carbon Sequestration Partnership)
California Division of Oil, Gas, and Geothermal Resources
California Institute for Energy & Environment (West Coast Regional Carbon Sequestration Partnership)
Codding & Rogers Law Firm
Environmental Defense *
Idaho National Laboratory (Big Sky Carbon Sequestration Partnership)
Illinois State Geological Survey (Midwest Geological Sequestration Consortium)
Interstate Oil and Gas Conservation Commission

Kansas Geological Survey
Kentucky Geological Survey (Midwest Regional Carbon Sequestration Partnership)
Melzer Consulting
National Energy Technology Laboratory *
New Mexico Oil Conservation Division
North Dakota Industrial Commission
Oklahoma Geological Survey
Texas Railroad Commission
U.S. Bureau of Land Management *
U.S. EPA Region 6 *
University of North Dakota (Plains CO₂ Reduction Partnership)
University of Utah (Southwest Regional Partnership on Carbon Sequestration)
Utah Department of Natural Resources
West Virginia Geological Survey

* Observer
To view IOGCC’s “Storage of Carbon Dioxide in Geological Structures: A Legal and Regulatory Guide for States and Provinces”, visit:

http://www.iogcc.state.ok.us/docs/MeetingDocs/Master-Document-September-252007-FINAL(2).pdf