



COLUMBIA LAW SCHOOL

CENTER FOR CLIMATE CHANGE LAW

Legal Status of Carbon Capture and Sequestration

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Legal and Regulatory Issues in CCS

- Capture
- Transport
- Sequestration
 - On-shore
 - Off-shore
- Post-closure liabilities

Capture

- No current requirement for carbon capture
- Proposed EPA regulations on new fossil fuel power plants
 - Effectively require CCS for new coal plants
- Forthcoming EPA regulations on existing fossil fuel power plants
 - Proposal due June 2014; full implementation 2016?
 - CCS retrofit probably will not be required
- Sources other than fossil fuel power plants: ??

Transport: Pipeline

U.S. models for regulation

- Existing method for CO₂ pipelines: State law determines siting; Surface Transportation Board may review privately-set rates if third party complains
- Oil pipeline model: State law determines siting; FERC sets rates
- Natural gas pipeline model: FERC determines siting and rates

Storage: On-shore

Separate property rights to:

- Surface (injection site)
- Subsurface (storage reservoir)
- Stored CO₂
- Groundwater

Property Rights -- continued

- Relevance
 - Whose permission is needed?
 - Who is liable?
 - Who gets credits?
- Attributes
 - Title, lease or license
 - Covenants, easements to restrict future use
 - Transferability
 - Acquisition through eminent domain?
 - Adjust liability and credits via contract or law

Storage: On-shore

Existing comparable legal regimes

- Injection of CO₂ into underground formations for enhanced oil recovery
- Storage of natural gas in geologic reservoirs
- Injecting acid gas into underground formations

U.S. Safe Drinking Water Act Underground Injection Control

- Regulates underground injection of fluids
- Purpose: Protect groundwater supplies
- Governs siting, construction, operation, closure of injection wells
- Primarily implemented by states (34 have primacy)
- EPA regulations on CCS effective January 2011

EPA Regulations Under SDWA

- CO₂ not a hazardous substance unless contaminated
- Geologic site characterization
- Well construction specifications
- Monitoring of groundwater, CO₂
- Permitting
- Post-injection monitoring, site care
- Financial responsibility requirements for well closure, post-closure work

Liability concerns

- Local
 - CO₂ in atmosphere or shallow subsurface
 - Harm to humans, animals or plants
 - CO₂ dissolved in subsurface
 - Contamination of underground drinking water
 - Interference with deep subsurface ecosystems
 - Corrosive to well materials
 - Pressure-based
 - Ground heave or induced seismicity
 - Contamination of drinking water by displaced brines
 - Damage to hydrocarbon resources
 - Subsurface trespass into pore space owned by others
- Global: Release of CO₂ Into Atmosphere

Liability Issues

- How long will it persist? Statute of limitations?
- Who is liable – current or former owner?
- Retroactive loss of trading credits, offsets?
- Discount offsets/credits to account for expected leakage?
- Escape through bankruptcy or dissolution?
- Role of post-closure fund?
- Role of insurance?
- Government backstop

Offshore storage: London Protocol (1996)

- London Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter
- U.S. not a party
- November 2006, effective February 2007:
Amended to allow sequestration of CO₂ in subseabed geological formations

Other Legal Issues With CCS

- GHG emissions from recovered oil/gas from EOR
- Can regulated electric utilities recover cost of CCS from rate base if not legally required?
- Eligibility for carbon offset credits?
- Intellectual property rights