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 CO\textsubscript{2} 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 CO$_2$
• 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 CO$_2$ 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

• CO$_2$ not a hazardous substance unless contaminated
• Geologic site characterization
• Well construction specifications
• Monitoring of groundwater, CO$_2$
• Permitting
• Post-injection monitoring, site care
• Financial responsibility requirements for well closure, post-closure work
Liability concerns

• Local
  – CO$_2$ in atmosphere or shallow subsurface
    • Harm to humans, animals or plants
  – CO$_2$ 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 CO$_2$ 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

• 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 CO$_2$ 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