


# WESTCARB Annual Business Meeting

## Acquiring Property Rights for Carbon Sequestration: Common Law and New Statutes

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## Outline of Presentation

- Scale of CO<sub>2</sub> Sequestration Required.
- How to Acquire Property Rights on that Scale.

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## Scale is the Challenge: One 1000 MW coal-fired power plant:

- 5-8 MMt CO<sub>2</sub>/y (Sleipner 1 MMt/y).
- CO<sub>2</sub> plume at 50 yrs, ~30 km radius ~ in a single layer, porous sandstone.
- Multiple injection zones – still potentially over 100 square miles.
- Pressure front may extend further and permit agencies will consider effects.



## Indianapolis, For Example...



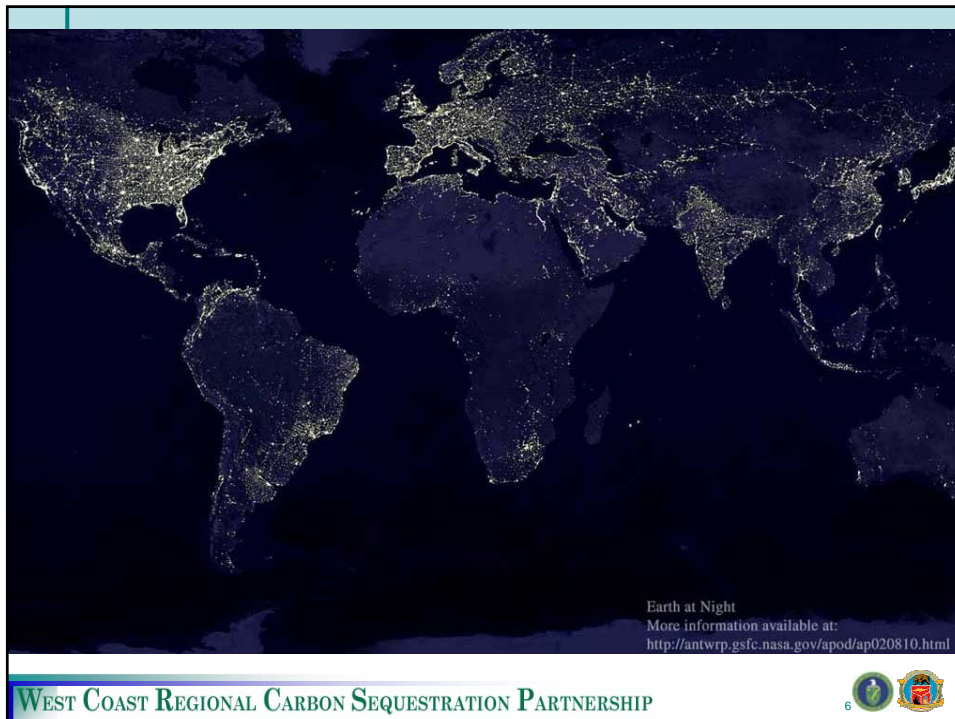
### Indianapolis Utility:

- 3,400 MW Coal Power
- Assume single porous layer, used for life of coal plants.
- 36 mile radius

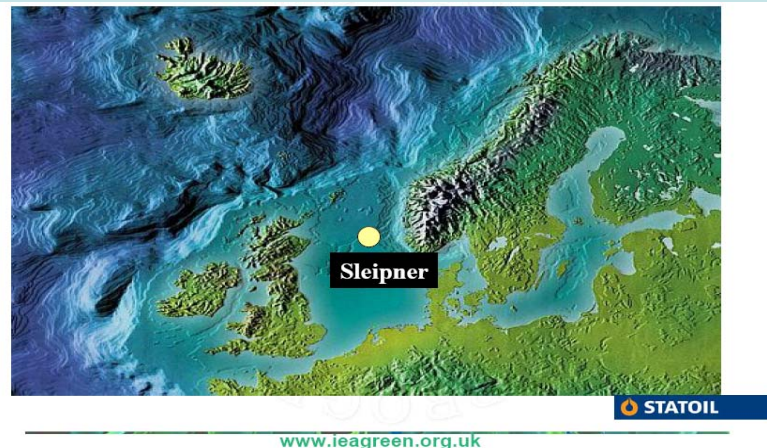


## Pore Space Acquisition: The Big Picture of Ownership

- Must match sequestration sites to CO2 sources or build pipeline network.
- Continental shelves controlled by state and federal governments.
- USA is one-third federal land, mostly western.
- Eastern states largely private land with many owners.
- One system of pore acquisition may not fit all.



## Sleipner Project – 1Mt/y



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## Dealing With Private Property Rights – Who Owns Pore Space?

- Surface rights and mineral rights may be owned separately in many, many fractions.
- Unclear in most states if pore space owned by surface owner or mineral owner.
- Even if surface owner owns pore space, may not interfere with mineral rights.
- Knowing who owns pore space is not the end of the quest.

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### **Cassinos, 18 Cal. Rptr. 2d 574 (Ct. App. 1993). Pore Space Owner Cannot Interfere with Minerals**

- O&G Operator got state permit to inject waste salt water.
- Got permission from surface owner (assuming he owned the pore space).
- The salt water unexpectedly interfered with oil and gas reserves.
- Court awarded \$5 million damages to mineral owner.
- Court didn't know or decide who owned pores.



### **Thoughts About Mineral Property**

- Avoid mineral strata except for EOR.
- Too many mineral owners, lessees, and royalty owners. Fractional owners.
- Owners hard to convince the mineral is worthless or exhausted.
- High transaction cost to acquire rights and determine mineral values.



## Relying on Court Decisions – Common Law – Is Time Consuming and Risky

- *Columbia Gas Transmission Corp.* 620 NE 2d 48 (Ohio 1993). Injecting natural gas is trespass – injunction and punitive damages.
- *Chance* 670 ME 2d 985 (Ohio 1996). Injecting hazardous waste – not trespass and not actionable. Same sandstone formation.
- Who can invest billions and hope the state supreme court will rule their way (10 years later)? Statutes are needed.

## How to Acquire Pore Space

Four existing models discussed:

1. Underground gas storage
2. Enhanced oil recovery
3. Hazardous waste disposal wells
4. Aquifer storage of fresh water

## Model 1: Natural Gas Storage Law

- IOGCC recommends sequestration modeled on gas storage.
- Ownership of injected gas: stays with injector by statute in most states.
- Pore space purchased or leased.
- The rights of mineral owners are leased or purchased.

## Model 1 - Natural Gas Storage Law

- Under federal and state statutes, gas storage companies have eminent domain rights.
- Buffer zones are often acquired – because gas escape is trespass (*Columbia Gas* case).
- Property acquired for gas storage covers only a few square miles, not hundreds.

## Model 2: EOR

- Oil and gas leases give rights to inject CO<sub>2</sub> - *but only in aid of production.*
- Leases and state laws give right to “unitize” for secondary recovery.
- Holdouts cannot complain about water or gas injections (usually).
- EOR not designed to sequester CO<sub>2</sub> – IOGCC recognizes difference. This may change if EOR can be shown to retain a high percentage of CO<sub>2</sub>.

## Model 3: Hazardous Waste Injection

- Wells permitted by EPA or by State.
- Property rights for plume ignored.
- Pore space outside well owner’s property is generally not purchased.
- Ohio Supreme Court said if neighbors have no reasonable and foreseeable use for the pore space, they cannot complain. *Chance* case.
- But should be established by statute to aid investment.



## Model 4: Fresh Water Aquifer Storage

- Western states law: water a public resource.
- Imposes “servitude” on the pore space.
- Water authorities can inject water for later withdrawal.
- No payment for pore space required.
- *Board of County Commissioners v. Park County Sportsmen’s Ranch, LLP*, 45 P.3d 693 (Colo. 2002) (Citing *Chance*).

## Wyoming: Ownership of Pore Space HB 89 (2008)

- Pore space is owned by the surface owner, but can be severed.
- Deeds before 2008 will be so interpreted unless someone can prove otherwise.
- Mineral estate remains dominant.
- No provision for condemnation.

## Wyoming: Acquisition of Pore Space HB 80 (2009)

- Unitization to aggregate pore space.
- Must acquire 75% to 80% voluntarily.
- Must generate and allocate economic benefits to landowners.
- Must benefit the use and production of Wyoming energy resources.
- Landowners not liable for CO2 effects.

## Montana: Ownership of Pore Space SB 498 (2009)

- If ownership of the “geologic storage reservoir” cannot be determined from deeds, “presumed” to be owned by the surface owner.
- The mineral estate remains dominant.
- No provision for condemnation.

## Montana: Acquisition of Pore Space SB 498 (2009)

- Unitization to aggregate pore space.
- Must acquire 60% voluntarily.
- Does not address compensation.
- Does not limit to use in connection with production of Montana resources.
- May convert EOR or natural gas storage to carbon sequestration.

## Which Law Analogy “Works” for CO<sub>2</sub> Sequestration?

- Water storage law may be better suited to *rapid* deployment of CO<sub>2</sub> sequestration.
- No purchase of pore space required.
- But likely to meet resistance from property owners expecting compensation, especially in mineral states.
- Acceptance of *Chance* rule of liability may not translate from small hazardous waste plumes to large sequestration plumes.

## Which Model “Works” Best for CO<sub>2</sub> Sequestration?

- Gas storage or EOR type unitization most familiar – compensation facilitates acceptance.
- Condemnation laws are likely needed for the gas storage model. Markets will develop for pore space.
- Affected landowners may number in the *thousands* – high transaction costs.
- Water law approach may work for states with few minerals (Arizona?).

## Conclusions About Property Rights

- Under any model, new statutes are needed to govern ownership and use of pore space for sequestration.
- Political barriers may lowest if landowners compensated.
- Large land blocks in single ownership will be attractive locations.
- Different states may adopt different approaches.