

CARBON CAPTURE & STORAGE GLOBAL LEGAL SYMPOSIUM



Carbon Capture Legal Issues: Treatment Of Carbon Capture Under A GHG Regulatory Program

Robert R. Nordhaus
Van Ness Feldman, P.C.
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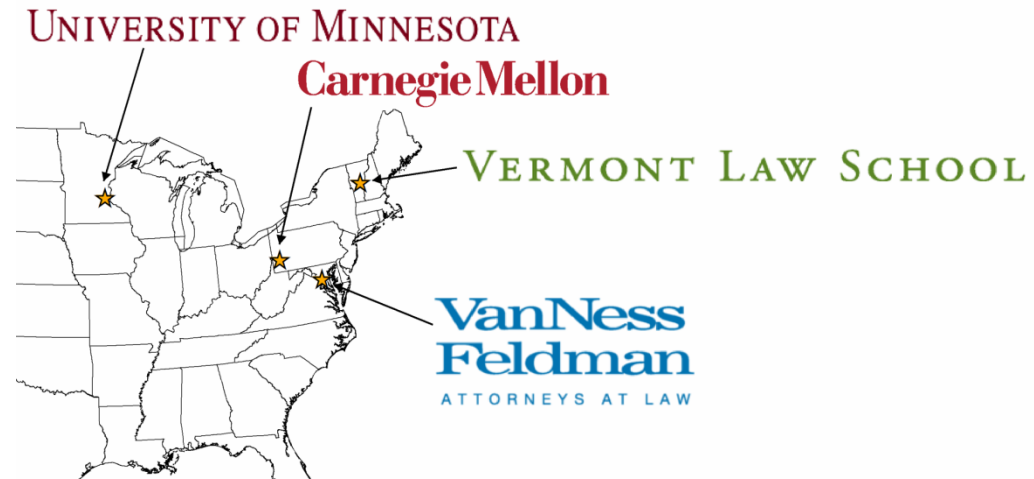
OVERVIEW

- CCSReg Project Key Recommendations
 - CO2 Transportation
 - Long-Term Stewardship
 - Access to Pore Space
 - GHG Accounting
- Capture Issues Under GHG Regulation –
 - Command and Control
 - Cap-and-Trade Programs
 - Carbon Tax

CCSReg Project

- Objective: To develop a proposed regulatory framework for the U.S. for the deep geological sequestration of carbon dioxide

- Structure: CCSReg project is a joint effort led by Carnegie Mellon



- Support: Doris Duke Charitable Foundation and Carnegie Mellon-NSF Climate Decision Making Center

- Interim Report and Policy Briefs at www.ccsreg.org

CCSReg RECOMMENDATION: CO2 PIPELINES

- Create an "opt-in" federal regulatory regime that provides the Federal Energy Regulatory Commission (FERC) with authority to consider and grant or deny applications for federal siting permits for new CO2 pipelines built to transport CO2 for purposes of permanent sequestration. The federal siting permit should provide the pipeline with federal eminent domain authority.
- Once new CO2 pipelines with federal siting permits are operational they should be subject to non-discriminatory access and rate regulation. Prescriptive cost-of-service rate regulation is not necessary.
- Retain the current system of state siting and economic regulation for existing CO2 pipelines and new pipelines that do not opt-in.
- Streamline the permitting process for CO2 pipeline projects on federal lands.
- Utilize the existing pipeline safety regulatory framework to ensure safe operation of all CO2 pipelines.

CCSReg RECOMMENDATION: ACCESS TO AND USE OF PORE SPACE

- Issuance of a UIC injection permit expressly grants a GS project developer the legal right to inject and sequester CO₂ within the boundaries specified by the permit.
 - Permit will incorporate a public notice & comment structure to consider rights that may be hampered by injection (i.e., alternative GS projects, mineral rights owners)
- Permits would not be granted if material impairment of a non-GS use is demonstrated unless certain conditions met:
 - a contractual resolution of the preexisting interest;
 - a modification of the project that avoids the impairment; or,
 - a finding by the UIC permitting agency that the GS project is of such public importance as to justify condemnation of the preexisting interest, with appropriate compensation if necessary.
- Enact federal legislation limiting the trespass liability of project developers operating pursuant to a valid UIC permit
 - Claims limited to material impairment of current or imminent use by injection and migration of CO₂
- Legislation should not preempt state mineral rights laws with minor exceptions.

CCSReg RECOMMENDATION: LIABILITY & LONG-TERM STEWARDSHIP

■ **Operating Commercial GS Projects:**

- Subject to liability rules under otherwise applicable state and federal law, require reliance on the private insurance market, or mutual insurance, for risk management, then transfer to long-term stewardship program.

■ **First Mover GS Projects:**

- If necessary establish a stop-gap federal indemnity program for stewardship phase of “first-mover” projects; then transfer to long-term stewardship program.

■ **Create Federal Geologic Sequestration Board (“FGSB”)**

- Independent agency that would oversee the long-term stewardship of adequately closed injection projects; oversees all liability and responsibility for compensation
- Prior to transfer, closed projects must be found to meet established standards
- Administers and financed by a revolving fund that is based upon risk-based assessments on GS projects during their operating life. Any necessary remediation or compensation payments during the stewardship phase should be the responsibility of the FGSB, and should be disbursed from the revolving fund.

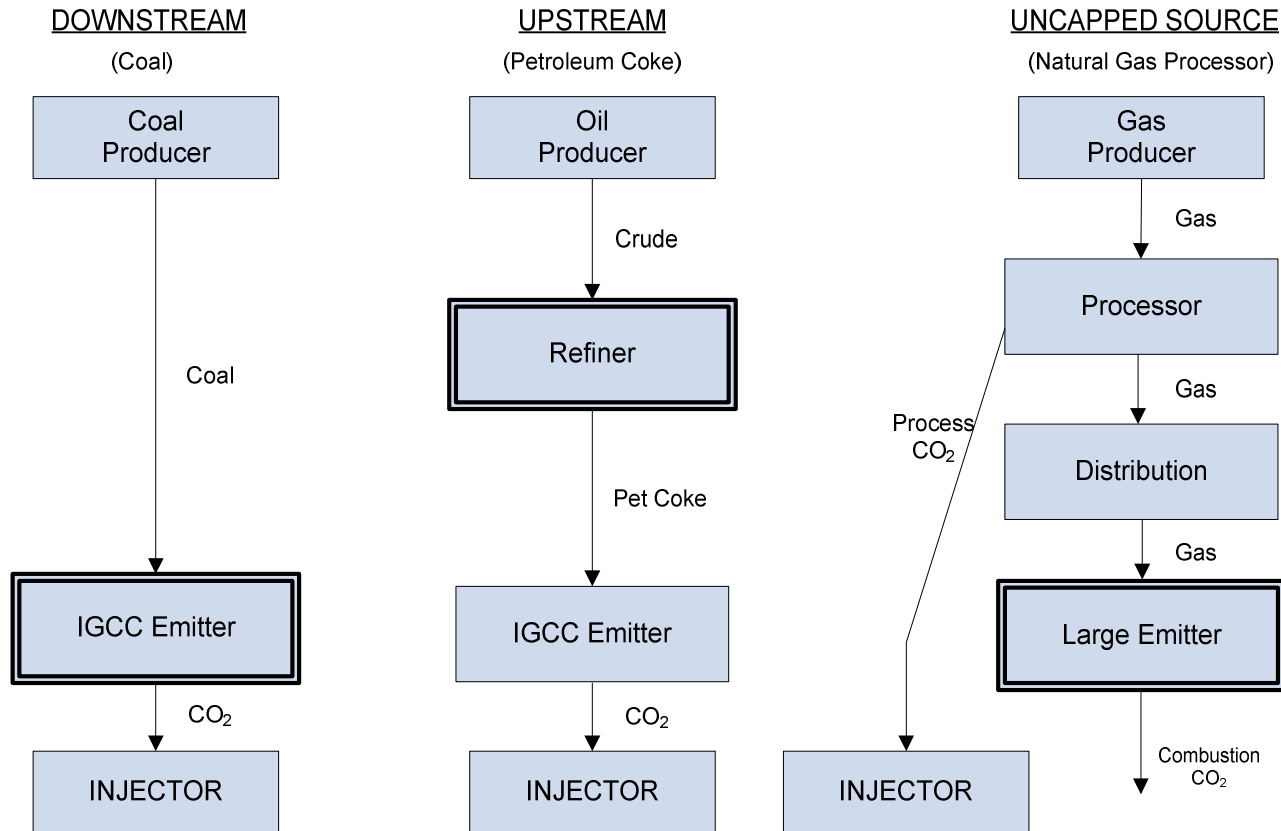
CCSReg RECOMMENDATION: GHG ACCOUNTING


- **Inventory Accounting:** To ensure that captured CO₂ reaches its intended destination, require operators of each stage of a CCS project (capture, transport, sequestration) to measure & report the mass of CO₂ handled and injected. Each stage is treated as a covered entity.
- **Monitoring:**
 - Conduct routine site-specific, performance-based monitoring using subsurface monitoring methods;
 - GS project operators need monitor for GHG accounting **ONLY IF** routine monitoring finds that CO₂ has migrated through the confining formation using surface monitoring methods;
 - Regulators should establish performance standards identifying the level of leakage a monitoring program should be designed to detect; or require operator to submit allowances to cover a set fraction of total amount of CO₂ sequestered.
- **Long-Term Stewardship Accounting:** Create an emissions allowance reserve program to address possible emissions during LT stewardship phase:
 - Require GS project operators to deposit emissions allowances (e.g., <0.5%) of their annual injection quantity into a pooled fund to cover leakage from all GS projects during LT stewardship;
 - FGSB or equivalent manages fund.

CAPTURE ISSUES UNDER GHG REGULATORY PROGRAM

- Key Question: How Will Carbon Capture Be Treated Under Domestic GHG Regulatory Program?
- Potential Regulatory Pathways
 - Command & Control
 - Cap-and-Trade
 - “Downstream” program
 - “Upstream” program
 - Uncapped sources
 - Carbon Tax

Cap & Trade Point of Regulation (cf. Waxman/Markey)



 Denotes point of regulation (entity that has allowance requirement)

Capture Under GHG Regulation: COMMAND & CONTROL

- GHG regulation under the current Clean Air Act, if it proceeds, could entail –
 - Imposition of Best Available Control Technology (BACT) requirements for new and modified large stationary sources of GHGs (CAA § 165)
 - New source performance standards for new and modified sources (CAA §111(a) and (b))
 - Performance standards for existing unmodified sources (CAA § 111(d))

Capture Under GHG Regulation: COMMAND & CONTROL (Cont'd.)

- Carbon capture will be a compliance option (and may be required) under CAA
- For carbon capture to qualify as compliance option, EPA likely to require showing that captured CO₂ is in fact sequestered and will not be leaked back to atmosphere
- Failure to sequester and atmospheric leakage will be subject to penalties and make-whole requirements

Capture Under GHG Regulation: CAP-AND-TRADE: DOWNSTREAM PROGRAM

- Under “downstream” program, allowance surrender requirement imposed on emitter
- CCS is treated as an avoided emission if showing made that CO₂ actually sequestered
- Sequestration project is treated as an emitter for purposes of accounting for atmospheric leakage

Capture Under GHG Regulation: CAP-AND-TRADE UPSTREAM PROGRAM

- “Upstream” cap-and-trade program imposes allowance requirement on upstream fuel supplier, rather than emitter
- Program cannot treat CCS as an avoided emission because emitter is not regulated. To provide incentive for CCS, emitter must be provided with a tradable credit, equivalent in value to an allowance
- CCS credit is subject to requirement to demonstrate actual sequestration. Leakage treated as in downstream program

Capture Under GHG Regulation: CAP-AND-TRADE: UNCAPPED SOURCES

- All current cap-and-trade proposals leave significant percentage of sources outside of cap-and-trade (e.g., agriculture, small stationary sources).
- To provide CCS incentives to uncapped sources, these sources must be provided some form of credit under an offset program

CARBON TAX

- Carbon tax, like cap-and-trade, can use either upstream or downstream concept
 - Point of Taxation, rather than Point of Regulation
- “Downstream” carbon tax can use “avoided emission” concept
- “Upstream” carbon tax must provide a tax credit for downstream CCS
- Atmospheric leakage issues similar to cap-and-trade

DOWNSTREAM LIABILITY

- Capture facility faces potential liability for atmospheric leakage of GHGs in downstream operations
 - Key question: Who is accountable under GHG regulation for downstream atmospheric leakage in pipeline, injection, or storage portion of CCS operations?
 - Regulatory proposals unclear on whether capture facility or downstream operators are liable for downstream leakage
- One option (similar to CCSReg proposal) would hold downstream operators, not capture operator, liable for injection of atmospheric leakage in pipeline injection or storage operations, if these operations are properly permitted. Federal agency liable in long-term stewardship phase

FINANCIAL INCENTIVES

- The economic value to CCS system of allowances saved or CCS credits unlikely to be sufficient to offset higher cost of CCS in earlier years of cap-and-trade program. Additional incentives likely to be necessary
- Capture segment of CCS in most cases is the most capital intensive and has highest operating costs
- Key issues for bonus allowances or other financial incentives under cap-and-trade –
 1. Incentives must be set at adequate level
 2. Incentives should be targeted at CCS segment that has greatest financing need – capture in most circumstances
 3. Program needs a rational relationship between allowance price and level of incentive – fixed number of bonus allowances per ton sequestered overpays when allowance prices high, underpays when allowance prices low

Contact Information

Robert R. Nordhaus
Van Ness Feldman, P.C.
1050 Thomas Jefferson Street
Seventh Floor
Washington, DC 20007
T. #202-298-1910
F. #202-338-2416
E-Mail: rrn@vnf.com

CCSReg Project
www.ccsreg.org