ENERGY SECURITY AND CLIMATE STEWARDSHIP PLATFORM FOR THE MIDWEST

Legal and Regulatory Inventory for Carbon Capture and Storage & Analogues

MGA
Midwestern Governors Association

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And Storage Advisory Group

March 2009

ACKNOWLEDGEMENTS

This Inventory was developed with generous input from MGA Renewable Electricity and Advanced Coal with Carbon Capture and Storage Advisory Group participants and observers in addition to staff from various state and provincial agencies. Special acknowledgement goes to the World Resources Institute (WRI) for providing input on the Inventory structure and permitting the use of their template from the WRI "Case Studies of State Regulatory Treatment of Carbon Dioxide (CO2) Injection and Other Analogs" as a base for the MGA Inventory.

INTRODUCTION

The Midwestern Governors Association (MGA) "Legal and Regulatory Inventory for Carbon Capture and Storage (CCS) & Analogues" provides a jurisdiction by jurisdiction inventory of relevant regulations and statutes that may be applied to or be analogous to advanced coal with CCS projects in the MGA region. This data was gathered through communication with advisory group members, observers, and with staff in several state and provincial agencies across the MGA region.

The Inventory was developed pursuant to the MGA Energy Security and Climate Stewardship Platform's Carbon Management Infrastructure Partnership Resolution, Deliverable 3, to develop "a state-by-state inventory of Partnership member's regulations governing or potentially relating to CO_2 capture, compression, pipeline transportation, and underground injection."

The purpose of the Inventory is to provide stakeholders a jurisdictional guide to: the various authorities at the state and provincial level that may be involved in a CCS project; the existing rules and regulations that may apply; to look at how analogous projects are treated (e.g., oil and gas; natural gas storage); and key legislation that may impact CCS projects.

The Inventory structure is adapted with permission from the World Resources Institute's (WRI) "Case Studies of State Regulatory Treatment of Carbon Dioxide (CO_2) Injection and Other Analogs" (2007). Additional areas and issues are included in the MGA Inventory structure. The structure was developed further by a sub-group of participants in the MGA Renewable Electricity and Advanced Coal with Carbon Capture and Storage Advisory Group and is provided below:

1. **Regulatory Authority –** Who Regulates What
    a. Oil and Gas
    b. Water
    c. Environmental
    d. Power
    e. Pipelines (siting authority and safety regulation for intrastate and interstate pipelines – e.g., OPS certification)
2. **Pipelines**
    a. Treatment of CO_2 pipelines and potential impurities (purity standards)
    b. Mechanisms for acquisition of property for pipelines
    c. Eminent domain authority in relation to pipelines - identify the type of pipelines eminent domain authority applies to if existing
3. **Experience with CO_2 injection – Existing Projects, institutional capacity/resources to regulate**
    a. Historical Projects
    b. Background
    c. Other Info
    d. Surface Water Rights
    e. Liability Associated with Oil and Gas

4. **Existing CO_2 - EOR/EGR**
    a. Projects
5. **Natural gas storage** – existing natural gas storage projects
6. **Existing monitoring regulations – for Class II injection wells**
7. **Existing well abandonment regulations**
    a. Regulations
    b. Existence of insurance/indemnity bonds/fees for plugging and abandonment
8. **Property ownership (Trespass of CO_2 beyond project boundary, hydrocarbon damage)**
    a. Mineral rights
    b. Surface owner rights
    c. Pore space rights
9. **Long-term Stewardship**
    a. State statutes that may affect or limit state ability to take on long-term stewardship
10. **Existence of a mandatory GHG reporting requirement (Existing CO_2 Regulations that may address liability directly or indirectly)**
11. **Passed and Pending Legislation related to CCS**
    a. Incentives
    b. Inclusion of CCS in Portfolio Standards
    c. Legislation related to the classification of CO_2
    d. Other

ILLINOIS

Information contained in the Illinois section was initially based on the original WRI Case Study completed on Illinois. The WRI information was updated by Illinois staff with new data added in the additional areas for the MGA Inventory.

REGULATORY AUTHORITY – WHO REGULATES WHAT

OIL AND GAS

Illinois Environmental Protection Agency in conjunction with the Pollution Control Board (IEPA): UIC I, IV, V.
Department of Natural Resources, Office of Mines and Minerals, Oil and Gas Division, UIC II.
The Oil and Gas Division runs the Underground Injection Control Program to monitor the construction and operation of Class II injection wells in IL.

WATER

Illinois Environmental Protection Agency (EPA) Bureau of Water protects Illinois rivers, streams, lakes, and groundwater.
Illinois Department of Natural Resources, Office of Water Resources regulates construction of floodways of waterways and is the lead agency for water resources planning.
Illinois Pollution Control Board creates regulations regarding water pollution and hears and decides environmental cases.
Illinois Commerce Commission (ICC) regulates water/sewer utilities.
The Office of Water Resources is empowered to allocate water for industrial development from major US Army Corp of Engineers reservoirs in central and southern Illinois (Lake Shelbyville, Lake Carlyle, Rend Lake, etc.).

ENVIRONMENTAL

Illinois Environmental Protection Agency (EPA) safeguards environmental quality of the land, air and water; Illinois Pollution Control Board creates all regulations regarding pollution, and hears and decides environmental cases.
Illinois Department of Natural Resources, Division of Resource Review and Coordination, reviews projects for impacts on Threatened and Endangered Species and Wetlands.
The U.S. Army Corps of Engineers conducts environmental assessments and issues Construction Permits for major actions with significant environmental impact.
The U.S. Fish and Wildlife Service conducts Federal Endangered Species Consultation for potential impacts to federally-listed species or critical habitat.

POWER

Illinois Commerce Commission (ICC) regulates electric, natural gas, and water utilities as well as pipeline safety.
The ICC does not establish rates charged for electric power but does approve rate structures for transmission and distribution-based charges to customers that are paid as a component of a consumer's power or natural gas bill. Most rural electric power coops and municipal electric agencies have "opted out" (i.e., continue to operate as regulated public utilities and recover costs directly from ratepayers).

PIPELINES

Illinois Commerce Commission (ICC): pipeline siting and safety
The ICC operates its pipeline safety program under authority from the United States Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA, formerly called the Office of Pipeline Safety, or OPS.

PIPELINES, PURITY STANDARDS, ACQUISITION OF PROPERTY, EMINENT DOMAIN

TREATMENT OF CO_2 PIPELINES AND POTENTIAL IMPURITIES

MECHANISMS FOR ACQUISITION OF PROPERTY FOR PIPELINES

EMINENT DOMAIN AUTHORITY IN RELATION TO PIPELINES – IDENTIFY THE TYPE OF PIPELINES EMINENT DOMAIN APPLIES TO IF EXISTING

The Illinois Eminent Domain Act specifically provides that quick take proceedings may be used by the Illinois Department of Commerce and Economic Opportunity for purposes specified in the Illinois Coal and Energy Development Bond Act. See 735 ILCS 30/25-7-103.3 The Coal and Energy Development Bond Act provides that the power of condemnation shall be exercised solely for the purposes of siting, rights-of-way, or easements appurtenant to coal utilization or coal conversion projects. 20 ILCS 1110/3(c). The land needed for the CO_2 pipeline qualifies as a right-of-way appurtenant to a coal utilization project.

EXPERIENCE WITH CO_2 INJECTION - INSTITUTIONAL CAPACITY, RESOURCES TO REGULATE

HISTORICAL PROJECTS (FIELD NAME: PROJECT TYPE; TIMEFRAME; CUMULATIVE NET CO_2 INJECTED (MCF)

ISGS on behalf of the Midwest Geological Sequestration Consortium has permitted a 1 MT injection well into the Mt. Simon, at a site owned by ADM east of Decatur (Macon County). This is a DOE-funded "partnership" project. ISGS and the Illinois Office of Coal development have supported a $650,000 expanded 2-Dimensional seismic survey of the injection area targeted for the FutureGen project in Coles County. Illinois also expects to collect shared data from a characterization test being done by a non-for-profit consortium in Western Kentucky.

- Forsythe: Single well huff and puff; 1990; One truckload.
- Decatur: Single well huff and puff; 1997; 20 tons.
- Mattoon: Immiscible; continuous injection and huff and puff; 1993.
- Loudon: Project Type; Single Well Huff and Puff; 2007; Net CO_2 - 43 Tons.
- Tanquary: Coal sequestration test pilot; 2008 Net CO_2 – 91.5 Tons.

BACKGROUND

OOIP: 10.3 billion barrels
Recovered: 3.5 billion barrels
Remaining OIP: 6.8 billion barrels
Amenable to CO_2 EOR: 632 to 979 million barrels (the EOR volume was estimated on a series of oil recovery factors for specific geologic units and miscibility types that were applied to the OOIP as assessed per oil field) [information from DOE National Carbon Sequestration Atlas for Illinois portion of Illinois Basin only]

OTHER

SURFACE WATER RIGHTS

The reasonable use doctrine applies to surface waters in Illinois. The reasonable use doctrine

requires that a riparian owner use water in such a way so as to do as little injury to other owners below while still providing a valuable benefit.
A standard also has been established in Illinois that a riparian owner can transmit water to a non-riparian partner (i.e. adjacent industrial facility, if the fees paid are not related to a value per gallon, but reflect only capital and/or O&M cost (i.e. pumping, treating, transmission/ piping).

LIABILITY ASSOCIATED WITH OIL AND GAS

If a well is found to be abandoned or leaking, the Department will issue an order requiring that such well be properly plugged or repaired, and, upon further failure of the owner to do so, can enter onto the property and plug the well. If an owner is in violation of the law and is endangering public health, the owner can be ordered to cease operations. Funds for any emergency plugging or restoration are provided by the Annual Well Fee portion of the Plugging and Restoration fund, and owners must later reimburse this fund for the full costs of the plugging or repairs. Penalties for violations can consist of civil penalties not to exceed $1000 a day for each day of the violation, permanent modifications to the permit, and/or revocation of the permit. The Department may also bring a civil action through the Attorney General for the violations, with penalties or $1,000 per documented event within the last two years, requiring the submission of a bond or other security, and/or denial of new drilling / operating permits. The owner of a well that was properly plugged is still responsible for re-plugging the well if the well subsequently begins to leak.

EXISTING $C0_2$, EOR/EGR

PROJECTS

Illinois oil fields have had only brief experiences with CO_2 injection. A small pilot was initiated in the Forsyth field, utilizing CO_2 from the Archer-Daniels Midland Ethanol Processing Facility in Decatur, IL.
Few results from this project have been published. In the early 1990s, a single-well huff-and-puff CO_2 pilot project began in the Mattoon field. Drilled to a depth of 1,800' in the Cypress Reservoir, this project also utilized CO_2 trucked from ADM's ethanol plant in Decatur, IL. After several months of operation, the pilot was shut down due to high CO_2 costs compared to oil recovery. Currently, there is considerable work underway at locating and characterizing reservoirs suitable for CO_2-EOR.
A huff-and-puff pilot was conducted at the Loudon field (Fayette County) in March, 2007. Forty-three tons of CO_2 were injected over a five-day period. Incremental oil production during the first two months was approximately 95 barrels.
A coal bed pilot project was initiated at Tanquary in July 2007. Two wells were drilled in 2007 and two additional wells were drilled in May 2008. 91.5 Tons of CO_2 have been injected to date. Three additional EOR pilot tests are slated for 2009 in the Illinois Basin region.

EXISTING NATURAL GAS STORAGE PROJECTS

In northern Illinois, the Cambrian Mt. Simon Sandstone is used for natural gas storage by utilities. There are a few specific sites utilized for natural gas storage: 1) Mt. Simon in the Manlove Gas Storage Field, Champaign County, Illinois, and 2) the Herscher Gas Storage Field in Kankakee County, Illinois. Also, Aneth in Western Illinois is in the Mt. Simon.

EXISTING MONITORING REGULATIONS FOR CLASS II INJECTION WELLS

The permittee of each Class II UIC well shall file an Annual Well Status Report that includes the average and maximum monthly injection rates and pressures. The operator of an enhanced oil recovery project shall complete an annual project report. A mechanical integrity test (a pressure test) is required prior to injection in a newly permitted well or re-injection into a temporarily

abandoned well. A mechanical integrity test is also required at least every 5 years from the last successful test.

Existing Well Abandonment Regulations

Regulations

The permittee of a well is responsible for the plugging of a well upon abandonment.
Any production well that is idle and has not been in operation for 24 consecutive months is considered abandoned and must be plugged. The Plugging and Restoration Fund Program authorized the Division of Oil & Gas to plug abandoned and leaking wells. A well that is determined to be an emergency or is found to be either an orphan or abandoned is eligible for the program. There are over 4,500 wells in Illinois covered by the PRF Program. The Division has funds to plug approximately 500 wells annually.

Existence of insurance/indemnity bonds/fees for plugging and abandonment

A bond is required as part of the permitting process for a well. A bond can be in the form of a surety bond or other security such as an irrevocable letter of credit or a certificate of deposit. The bond shall be:
$1,500 for a well less than 2000 feet deep;
$3,000 for a well 2,000 or more feet deep;
$25,000 for up to 25 wells of a permittee;
$50,000 for up to 50 wells of a permittee; or
$100,000 for all wells of a permittee.
The bond will be released if the well is not completed but is plugged or the well is completed and the permittee pays the required assessments for 2 consecutive years; any failure to appropriately plug the well is grounds for forfeiture. A permit fee of $100 is also required.

Property Ownership

Mineral Rights

The owner of the surface rights is also entitled to all that is below the surface, including minerals. The subsurface rights, however, can be severed from the surface rights and either granted separately. Oil and gas, because of their fugitive nature, are considered inseparable from the land until they are captured, and are owned by the owner of the mineral rights. Oil and gas are incapable of being owned separately from the land as long as they remain underground.

Surface Owner Rights

Pore Space Rights

The FutureGen Illinois best offer included provision options to purchase full surface rights for the plant site and monitoring the initial underground CO_2 plume within a small radius of the injection site. For the long-term, 30 MT plume, storage deed options were negotiated for as little as $5 per acre with the surface owners. Resolutions were approved by local government agencies to offer fence row-to-fence row access to public rights of way covering the entire plume area to backstop monitoring on developer-controlled land.

Long term stewardship

Existence of mandatory GHG reporting requirement

State statutes that may affect or limit state ability to take on long-term stewardship

The City of Chicago is a member of the Chicago Climate Exchange, and Gov. Blagojevich has expressed his intent for the entire state of Illinois to join. Illinois also established the Illinois

Climate Change Advisory Group to make recommendations on climate change policy, but no CO_2 regulations are currently in place.
The Illinois Department of Agriculture sponsors an incentive program for growers to engage in practices related to terrestrial carbon management, selling credits on the Chicago Climate Exchange. The Illinois Farm Bureau also has been proactively engaged in developing CCS programs while protecting surface ownership rights, including supporting FutureGen-limited indemnity protections and providing model storage and easement documents to developers and sponsors.
PASSED AND PENDING LEGISLATION RELATING TO CCS
INCENTIVES
The Illinois Department of Commerce and Economic Opportunity is directed to spend approximately $5 million of its annual Coal Program budget on projects related to Carbon Capture and Storage and coal miner safety.
SB 1511 authorizes $35 million in State-backed bonds to fund a study on the development of clean coal and efficient energy resource development.
Public Acts 92-0012 and 93-0167: "The Illinois Resource Development and Energy Security Act (Public Act 92-0012) authorizes DCEO to expend $500 million Coal and Energy Development Bond Funds to promote the development of new, coal-fired electric generation capacity in Illinois. In addition, Public Act 93-0167 provides $300 million in state-backed revenue bonds, which are designed to lower the borrowing cost of new project development." See description of Illinois Coal Revival Program: http://www.commerce.state.il.us/NR/rdonlyres/DAC6E66B-29C1-4652-8C19-81095D3C6B61/0/CoalRevivalFY2007.pdf
220 ILCS 5/9-220(h) Any gas utility may enter into a 20-year supply contract with any company for synthetic natural gas produced from coal through the gasification process if the company has commenced construction of a coal gasification facility by July 1, 2008. The cost for the synthetic natural gas is reasonable and prudent and recoverable through the purchased gas adjustment clause for years one through 10 of the contract if certain requirements are met. See http://law.justia.com/illinois/codes/chapter23/52898.html for complete requirements.
20 ILCS 206/605-332 Provides that DCEO is authorized to provide financial assistance to eligible businesses for the construction of new electric generating facilities. See requirements for assistance at: http://ilga.gov/legislation/ilcs/fulltext.asp?DocName=002006050K605-332
H.B. 1135 Clean Coal – Project Indemnification Act This bill indemnifies the owner or operator of FutureGen and provides for legal defense by the Attorney General unless there is proof of intentional, willful, or wanton misconduct. www.ilga.gov/legislation
INCLUSION OF CCS IN PORTFOLIO STANDARDS
S.B. 1987 Clean Coal Portfolio Standard Act: This bill supports coal gasification projects that utilize carbon capture and storage technologies. These plants will be required to meet equivalent requirements for clean energy as natural gas plants. To qualify as a clean coal facility the plant must capture at least 50% of their CO_2 emissions. This will provide support for the development of two proposed gasification plants in Illinois. The bill provides for a 30-year purchase agreement to at least one initial plant that has a final air permit. The bill creates a requirement for all electric utilities and electric retail suppliers to purchase up to 5% of their electricity from clean coal facilities. By 2017, all new coal plants built in Illinois will be required to capture and store at

least 90% of their CO_2 emissions.
http://www.ilga.gov/legislation/publicacts/95/PDF/095-1027.pdf

H.B. 3733 Utilities – Clean Coal Program Establishes a goal that coal gasification or other clean coal technologies will supply 10% of state energy use by January 1st, 2015. The ICC shall assess status of goal and identify future goals in March of 2015.
www.ilga.gov/legislation

LEGISLATION RELATED TO CLASSIFICATION OF CO_2

OTHER

Potential Future Projects:
FutureGen US DOE coal gasification and carbon sequestration project at Mattoon, IL is the FutureGen Alliance preferred site, selected on December 17, 2008.
Tenaska's proposed 630 MW coal gasification plant that is slated to be located in Taylorville, IL. The plant has received its final air permit.

INDIANA

REGULATORY AUTHORITY – WHO REGULATES WHAT

OIL AND GAS

Indiana Department of Natural Resources (DNR); Oil and Gas Division:
"The Division of Oil and Gas administers Indiana's oil and gas statutes (IC 14-37 and IC 14-38), which regulate petroleum exploration and production operations including: well spacing, exploration, permitting, drilling, completion, production, and abandonment operations; underground injection of fluids for enhanced oil recovery or for production fluid disposal; and the underground storage of natural gas or other petroleum products in underground formations." http://www.in.gov/dnr/dnroil/index.htm

The environmental protection rules of the Indiana Department of Environmental Management (IDEM) have been promulgated in Titles 326 through 329 of the Indiana Administrative Code (IAC).

EPA Region 5: Indiana is a joint implementation state for the EPA Underground Injection Control Program (UIC). The EPA regulates Class I, III, IV, and V (only Classes I and V are in operation) wells and the Indiana DNR regulates Class II wells. The "Indiana Department of Environmental Management (DEM) has not expressed interest in primacy for Class I, III, IV, and V wells." http://www.epa.gov/R5water/uic/uicwhat.htm
Indiana statutes for Class II well authority of IC 14-37 and Regulation 312 IAC 16-3-1(b)

WATER

Indiana Department of Environmental Management (IDEM) has primary enforcement authority for public water systems in Indiana, Water Compliance I.C.13-18-16-9. The IDEM is responsible for Solid Waste Landfills, RCRA subtitle C facilities, CERCLA, Superfund, Leaking Underground Storage Tanks, Spills Response, Voluntary Remediation Program, Brownfields Program, State Cleanup, Wellhead Protection, 319 ground water, Development of Ground Water Standards. See Indiana Fact Sheet, Groundwater Protection Council at: http://www.gwpc.org/e-library/documents/state_fact_sheets/indiana.pdf

IDEM "manages water quality through the regulation of point and non-point sources that run into waterways, monitoring of permit compliance, enforcing protective regulations, and the implementation of various prevention programs." One mechanism for managing water quality is through the implementation of Section 305(b) of the Clean Water Act that "requires the state to assess and report on how well the waters of Indiana support the beneficial uses designated in Indiana's water quality standards." This is implemented through Indiana's Integrated Water Monitoring and Assessment Report. http://www.indiana.gov/idem/4679.htm

The IDEM works with the Indiana Water Pollution Control Board on water quality and safe drinking water rulemaking. http://www.in.gov/idem/files/idem101oct19.ppt

Indiana Department of Natural Resources (IN DNR); Division of Water assesses, manages, and regulates surface and groundwater resources and manages issues in floodplain areas. Programs under the IN DNR: Basin Studies, characterization of ground water within defined river basins, Water Rights, Ground Water Well Log program, Coal Mine Reclamation Program and the Oil and Gas Class II Injection Well program. See Indiana Fact Sheet, Groundwater Protection Council, at: http://www.gwpc.org/e-library/documents/state_fact_sheets/indiana.pdf

Indiana Geological Survey (Geologic and Hydro geologic Mapping, Environmental Studies,

Resource Studies), United States Geological Survey (Aquifer Atlas, Ground water modeling, Mapping of Slag Fill Areas in Northwest Indiana, general water resource research). See Indiana Fact Sheet, Groundwater Protection Council at:
http://www.gwpc.org/e-library/documents/state_fact_sheets/indiana.pdf

ENVIRONMENTAL

Indiana Department of Environmental Management: The IDEM's authority is divided into the areas of air pollution, water pollution, solid waste management, pollution prevention, laboratories and administrative services and is required by statute to have departments that deal with environmental emergencies, communications, public hearings and investigations. There are four divisions: Office of Air Quality (OAQ), Office of Land Quality (OLQ), Office of Water Quality (OWQ) and the Office of Pollution Prevention and Technical Assistance (OPPTA).
http://www.in.gov/idem/files/idem101oct19.ppt

The Office of Environmental Adjudication "provides independent resolution of disputes regarding decisions made by the Indiana Department of Environmental Management via administrative adjudication when necessary, and via mediated case resolution when appropriate."
http://www.in.gov/oea/
The petitions fall into one of two categories: The appeals of enforcement actions brought by IDEM; or the appeal of an IDEM decision to issue or deny a permit.
Appeals of enforcement actions concern violations of the following environmental laws of the State of Indiana:

- Air pollution control laws (as defined in IC 13-11-2-6)
- Water pollution control laws (as defined in IC 13-11-2-261)
- Environmental management laws (as defined in 13-11-2-71)
- Solid waste management laws (under IC 13-19)

Appeals of permitting actions involve the following three primary areas: water quality, air quality, and land quality.
IC 13-15-6.

POWER

The IURC "monitors the rates, charges, rules and regulations of most electric, steam, natural gas, water, and sewer utilities operating within the state of Indiana. The Commission also oversees natural gas pipeline safety and restructuring of the electric and natural gas industries."
http://www.in.gov/iurc/2474.htm

PIPELINES

The US OPS under PHMSA "inspects, regulates and enforces interstate gas pipeline safety requirements in Indiana. The PHMSA OPS also inspects, regulates, and enforces both intra- and interstate liquid pipeline safety requirements in Indiana.
Through certification by PHMSA the state of Indiana regulates, inspects, and enforces intrastate gas pipeline safety requirements. This work is performed by the Pipeline Safety Division of the Indiana Utility Regulatory Commission."

See PHMSA Regulatory Fact Sheet: Indiana at:
http://primis.phmsa.dot.gov/comm/FactSheets/States/IN_State_PL_Safety_Regulatory_Fact_Sheet.htm?nocache=1234

Indiana state regulations can be found at: http://www.in.gov/iurc/2335.htm

Indiana also has voluntary guidelines for pipeline construction, including carbon dioxide pipelines that were created to assist negotiations between pipeline companies and landowners. http://www.in.gov/iurc/files/gao_2007_1_082207.pdf

PIPELINES, PURITY STANDARDS, ACQUISITION OF PROPERTY, EMINENT DOMAIN

TREATMENT OF CO_2 PIPELINES AND POTENTIAL IMPURITIES

Indiana Utility Regulatory Commission Division of Pipeline Safety

Gas Pipeline Safety: IC 8-1-22.5 Gas Pipeline Safety
Gas pipeline safety laws do apply to carbon dioxide pipelines in Indiana. Carbon dioxide is defined under this statute as: "carbon dioxide fluid" means a fluid consisting of more than ninety percent (90%) carbon dioxide molecules compressed to a supercritical state.
Transportation is defined in part as the "(1) the gathering, transmission, or distribution of gas, hazardous liquids, or carbon dioxide fluid by pipeline; or (2) the storage of gas, hazardous liquids, or carbon dioxide fluids."
http://www.in.gov/legislative/ic/code/title8/ar1/ch22.5.html

MECHANISMS FOR ACQUISITION OF PROPERTY FOR PIPELINES

IURC must approve a project, after which an operator must acquire property on a county by county basis. There is no blanket Eminent Domain for pipelines.

EMINENT DOMAIN AUTHORITY IN RELATION TO PIPELINES – IDENTIFY THE TYPE OF PIPELINES EMINENT DOMAIN APPLIES TO IF EXISTING

Eminent domain may be granted on case by case basis to a utility for the public good, by the IURC, but this is rare. See IC 32-24: Article 24 Eminent Domain

EXPERIENCE WITH CO_2 INJECTION - INSTITUTIONAL CAPACITY, RESOURCES TO REGULATE

HISTORICAL PROJECTS (FIELD NAME: PROJECT TYPE; TIMEFRAME; CUMULATIVE NET CO2 INJECTED (MCF)

No CO_2 projects in Indiana at this time.

BACKGROUND

The State of Indiana does not have a CO_2 injection project as of now. Duke Energy at Edwardsport is drilling a test well for the study of potential injection. This is part of an IURC requirement that Edwardsport study the process of collecting and sequestering 20% of the CO_2 produced at Edwardsport. But there is no mandate to actually do a CCS.

OTHER

SURFACE WATER RIGHTS

Surface water rights are regulated by the DNR Division of Water compliance. Eminent Domain does not apply to surface water rights.

IC 14-25-1-1
Legislative findings regarding use of surface waters
Sec. 1. The general welfare of the people of Indiana requires that: (1) surface water resources of Indiana be put to beneficial uses to the fullest extent; (2) the use of water for non-beneficial uses be prevented; and (3) public and private money for the promotion and expansion of the beneficial uses of surface water resources be invested to the end that the best interests and

welfare of the people of Indiana will be served.
LIABILITY ASSOCIATED WITH OIL AND GAS
IC 14-37-8-14 Limited liability of person plugging, abandoning, replugging, or repairing well under commission authorization. Sec. 14. (a) A person who plugs, abandons, replugs, or repairs a well under an order or authorization entered under this chapter: (1) does not assume responsibility for future remedial action on the well; and (2) is not liable for conditions subsequently arising with respect to the well. (b) A person who remedies or attempts to remedy a condition under this chapter does not by that action admit liability for: (1) the condition; or (2) damages resulting from the condition.
IC 14-37-8-12 Orders to remedy conditions causing environmental harm Sec. 12. The commission may order any responsible person to: (1) plug and abandon; (2) replug; or (3) repair; a well to remedy a condition found to cause environmental harm or waste.
EXISTING $C0_2$, EOR/EGR
PROJECTS
None.
EXISTING NATURAL GAS STORAGE PROJECTS
Extensive throughout the east central portion of the state. Regulated and listed by the IURC.
IC 32-24-5: Chapter 5. Eminent Domain for Gas Storage IC 32-24-5-1: Subsurface strata or formations Sec. 1. Whereas, the storage of gas in subsurface strata or formations of the earth in Indiana tends to insure a more adequate supply of gas to domestic, commercial, and industrial consumers of gas in this state and materially promotes the economy of the state, the storage of gas is declared to be in public interest and for the welfare of Indiana and the people of Indiana and to be a public use. As added by P.L.2-2002, SEC.9.
EXISTING MONITORING REGULATIONS FOR CLASS II INJECTION WELLS
DNR Division of Oil and Gas. Proposed well construction must meet the requirements of Indiana administrative code 312 IAC 16-5-9. Class II wells are designed for temporary gas storage, waste oil /water reinjection. Under the Class II rules a CO_2 injection well would come under the regulation of a Class II well. EPA is proposing rules now for Class 6 wells. DNR Division of Oil and Gas will be the lead agency until the State decides otherwise. EOR and EGR would be regulated under Class II rules. There are no EOR programs in Indiana at this time.
Permit Application. As part of the permit application (312 IAC 16-3-2), the survey for Class II wells must show all existing and plugged wells within 1/4 mile of the proposed injection well. The proposal must meet the well construction requirements, including surface and production casing standards (312 IAC 16-5-9).
EXISTING WELL ABANDONMENT REGULATIONS
REGULATIONS
IC 14-37-8: Plugging and Abandonment See http://www.in.gov/legislative/ic/code/title14/ar37/ch8.html
Field Services: This area is responsible for “conducting site inspections, witnessing well testing, plugging and abandonment operations, responding to and investigating oil and produced water spills, initiating

and monitoring enforcement actions, and responding to citizen complaints regarding oil and gas related operations. The section consists of a field inspection manager, an administrative assistant, and eight oil and gas inspectors."
http://www.in.gov/dnr/files/og-OilGas_in_Indiana.pdf

DNR Division of Oil and Gas: "This area is responsible for reviewing abandoned well sites for inclusion in a statewide list of sites qualifying for state closure action. The program manages projects for well closure and site remediation work on improperly abandoned oil and gas production facilities. Funding for the program is provided through annual well fees paid by Indiana operators, civil penalty assessments and forfeited bonds."
http://www.in.gov/dnr/files/og-OilGas_in_Indiana.pdf

EXISTENCE OF INSURANCE/INDEMNITY BONDS/FEES FOR PLUGGING AND ABANDONMENT

See http://www.state.in.us/dnr/dnroil/5716.htm for detailed permit requirements; insurance and bond requirements.

Bonding through DNR available: See IC 14-37-6 Chapter 6. Bonding
Bonding is required for wells where: The applicant does not have a 2 year history of operation with the division; or The applicant has had a permit revoked; or The applicant has not paid their annual well fee from a previous assessment The applicant has any unpaid civil penalty assessments.
Individual bond amount - $2,500
Blanket bond amount - $45,000

IC 14-37-6-4
Proof of financial ability to abandon noncommercial natural gas well
Sec. 4. Instead of a bond required by section 1 of this chapter, the commission may require a well owner or operator to provide proof of financial ability to abandon a noncommercial natural gas well. The proof must be established by a financial statement and personal guaranty.
As added by As added by P.L.1-1995, SEC.30.

PROPERTY OWNERSHIP

MINERAL RIGHTS

The Operator must get the rights from the land owner. Eminent Domain may be used to condemn the land if the local court agrees. This will require certain regulation.
IC 32-24-5-1 Eminent domain

The surface owner does not own the mineral rights until the owner has taken actions that result "in dominion and control by actual possession." *State v Ohio Oil Co.*, 177 U.S. 190.

Indiana played an important role in the development of "correlative rights" by legislatively limiting the "rule of capture." This was upheld and affirmed in the Indiana and the US Supreme Courts, and the Indiana Court of Appeals. Indiana expanded the role of state police power to prohibit injury or destruction of the commonly held oil and gas resources which would have a negative impact on the public. This is partly based on the notion to operate with "due regard" to others interests to the extent that it prevents "nuisance." This approach to the rule of capture was prominently held in *State v. Ohio Oil Co* which defined the extent and importance of applying "due regard" for public benefit:
"The continued waste and exhaustion of the natural gas of Indiana through appellee's wells would not only deny to the inhabitants the many valuable uses of the gas, but the state, whose many quasi public corporations have many millions of dollars invested in supplying gas to the state and its inhabitants, will suffer the destruction of such corporations, the loss of such

investments and a source of large revenues." *State v Ohio Oil Co*., 49 N.E. 816–17 (Ind. 1898) *Cited and discussed in* Bruce M. Kramer, Owen L. Anderson. The Rule of Capture, An Oil and Gas Perspective. Environmental Law, Vol. 35 (2005).

Chapter 9. Integration and Forced Pooling
IC 14-37-9-1 Agreement to integrate interests; commission requiring integration
Sec. 1. (a) If at least two (2) separately owned tracts of land are located: (1) within an established drilling unit; or (2) within a pool or part of a pool suitable for secondary recovery methods; the owners of the separate tracts may agree to integrate their interests and to develop their land as a drilling unit. (b) If the owners of separate tracts of land do not agree to integrate their interests, the commission shall, for the prevention of waste or to avoid the drilling of unnecessary wells, require the owners to integrate their interests and to develop the land as a drilling unit.

SURFACE OWNER RIGHTS

"All surface rights must be negotiated directly with the land owner. Ground water is part of the land in which it is present and belongs to the owner of that land. It may be put to use to the fullest extent to further enjoyment of the land, however this right does not extend to causing injury gratuitously or maliciously to nearby lands and their owners."
Water's natural course, including "percolating water," as a cause of non-gratuitous and non-malicious activity is not a course of action.
Wiggins v. Brazil Coal & Clay Corp., 452 N.E.2d 958, 964 (Ind. 1983)

Property rights extend to the beneficial use of groundwater underlying the property of the fee simple owner as long as is not used maliciously or wastefully. Indiana has generally supported the absolute ownership framework for groundwater rights and has some statutory limitations.
City of Valparaiso v. Defler, 694 N.E.2d 1177, 1179 (Ind. Ct. App. 1998):
"See Natural Resources Comm'n v. Amax Coal Co., 638 N.E.2d 418, 429 (Ind. 1994), reh. denied, (holding that the State may regulate the use of ground water without destroying property rights in its use); Wiggins v. Brazil Coal & Clay Corp., 452 N.E.2d 958, 964 (Ind. 1983), 452 N.E.2d at 964 (holding that right to the use of ground water does not extend to causing injury "gratuitously or maliciously to nearby lands"); Gagnon v. French Lick Springs Hotel Co., 163 Ind. 687, 72 N.E. 849 (1904) (holding that the right to use ground water does not extend to using water maliciously or wastefully); see also 78 Am. Jur. 2d Waters §§ 157-158 (1975) (English Rule was followed in nearly all early American cases, but now a majority of states follow the American Rule or the correlative rights rule)" *Available at:*
http://www.in.gov/judiciary/opinions/archive/051801.rhs.html

PORE SPACE RIGHTS

All pore space rights must be negotiated directly with the land owner.

LONG TERM STEWARDSHIP

EXISTENCE OF MANDATORY GHG REPORTING REQUIREMENT

STATE STATUTES THAT MAY AFFECT OR LIMIT STATE ABILITY TO TAKE ON LONG-TERM STEWARDSHIP

Part of the Midwest Regional Greenhouse Gas Registry
See http://www.ladco.org

PASSED AND PENDING LEGISLATION RELATING TO CCS
INCENTIVES
IC 6-3.1-29 Investment tax credit for coal gasification technology.
IC 8-1-2-6.1 Defines clean coal technology and allows for cost recovery incentives **IC 8-1-2-6.6** Allows for valuation of qualified pollution control property (constructed pre-March 2002). **IC 8-1-2-6.7** Allows for depreciation of clean coal technology over specified time frames. **IC 8-1-2-6.8** Allows for valuation of qualified pollution control property (constructed post-March 2002).
IC 8-1-8.7 Determines specific cost recovery requirements, certificate requirements, and criteria for determination of public need **IC 8-1-8.8 Provides** cost recovery incentives and mechanisms for IGCC facilities.
INCLUSION OF CCS IN PORTFOLIO STANDARDS
None at this time.
LEGISLATION RELATED TO CLASSIFICATION OF CO_2
None at this time.
OTHER
Indiana brought together stakeholders and experts from Indiana and outside the state for a CCS Summit. Summit details and presentations are *available at*: http://www.in.gov/oed/2573.htm
Indiana may view CO_2 that is sold and acquired for CCS as a 'good' under the Uniform Commercial Code. See *Helvey v. Wabash County* REMC, 278 N.E. 2d 608 (1972) stating that: "[l]ogic would indicate that whatever can be measured in order to establish the price to be paid would be indicative of fulfilling both the existing and moveable requirement of goods," as cited by Marston, Philip M. and Patricia A. Moore, "From EOR to CCS: The Evolving Legal Framework and Regulatory Framework for Carbon Capture and Storage," Emory Law Journal, Volume 29, 421: 446 – 447.

IOWA

REGULATORY AUTHORITY – WHO REGULATES WHAT

OIL AND GAS

Administration of the State of Iowa's laws and regulations governing oil, gas, and metallic mineral exploration and production are assigned to the Geological Survey Bureau of the Iowa Department of Natural Resources.
Code of Iowa Chapter 458A; Iowa Administrative Code Energy and Geological Resources [565] Chapter 51.
http://www.igsb.uiowa.edu/service/oilgas.htm

WATER

Iowa Department of Natural Resources, Environmental Services Division

ENVIRONMENTAL

Iowa Department of Natural Resources, Environmental Services Division

POWER

The Iowa Utilities Board regulates the rates and services of electric and natural gas utilities and generally supervises all pipelines and the transmission, sale, and distribution of electrical current. Iowa Code chapters 476, 476A, 478, 479, 479A, 479B.

The Board regulates the rates and services of two investor-owned electric companies, MidAmerican Energy Company (MEC) and Interstate Power and Light Company (IPL). The Board regulates the service of rural electric cooperatives (RECs). The Board's jurisdiction over municipal electric utilities is limited to the matters specified in Iowa Code § 476.1B, such as safety standards.

The Board has jurisdiction over the certification of electric power generating plants (476A) and the authority to determine the regulatory principles that will apply to the plant throughout its life (476.53(4)). Relevant Board rules are at 199 IAC Chapter 24. The Board has the authority to review and approve emissions plans and budgets for the recovery of the costs to control emissions from generating facilities (476.6(22)).

The Board has general jurisdiction over gas utilities furnishing natural gas by piped distribution under chapter 476. The Board regulates the rates and services of four investor-owned gas utilities: MEC, Aquila, n/k/a Black Hills, IPL, and Atmos Energy Corporation. The Board also regulates certain areas of gas service provided by municipal utilities. Gas utilities having fewer than 2,000 customers are subject to separate rate and service regulatory provisions under Iowa Code § 476.1C.

Some or all of the costs associated with implementing these measures, at least for rate-regulated utilities, would likely be recovered from ratepayers through rate cases, automatic adjustment clauses like the energy adjustment clause or purchased gas adjustment, or a combination of both (476.1, 476.6, 476.6(8); 199 IAC 19, 20, 26).

PIPELINES

Through certification by OPS, the state of Iowa regulates, inspects, and enforces intrastate gas pipeline safety requirements. By signed agreement with OPS, Iowa also inspects interstate gas pipeline safety requirements. This work is performed by the Safety and Engineering Section of the Iowa Utilities Board.

See PHMSA Iowa Regulatory Fact Sheet: http://primis.phmsa.dot.gov/comm/FactSheets/States/IA_State_PL_Safety_Regulatory_Fact_Sheet.htm?nocache=7887
The Board has the authority to supervise the transportation or transmission of any solid, liquid, or gas, except water, through intrastate pipelines, and the authority to supervise the underground storage of gas. Intrastate gas pipelines and underground storage facilities must have a permit from the Board for their construction, operation and maintenance. Relevant Board rules are at 199 IAC chapters 9 and 10. The Board has the authority to enforce safety and engineering standards and acts as an interstate agent for the federal Department of Transportation in pipeline safety matters.
Jurisdiction over the transportation of CO_2 will depend on whether it is transported as a gas or compressed into a liquid, and on whether the pipeline is intrastate or interstate. If transported in a gaseous state by intrastate pipeline, Iowa Code Chapter 479 and Board rules at chapters 9 and 10 appear to apply. If transported in a gaseous state by interstate pipeline, it is unclear whether the Board or federal agencies would have jurisdiction or whether jurisdiction would be shared in some way. If compressed into a liquid and transported by intrastate pipeline, it appears that Iowa Code Chapter 479B and Board rules at chapters 9 and 13 would apply. If transported in a liquid state by interstate pipeline, it is unclear whether the Board or federal agencies would have jurisdiction or whether jurisdiction would be shared in some way.
PIPELINES, PURITY STANDARDS, ACQUISITION OF PROPERTY, EMINENT DOMAIN
TREATMENT OF CO_2 PIPELINES AND POTENTIAL IMPURITIES
199 IAC Chapter 13. The Board has the authority to implement certain controls over hazardous liquid pipelines to protect landowners and tenants from environmental or economic damages which may result from the construction, operation, or maintenance of a hazardous liquid pipeline or underground storage facility within the state, and to approve the location and route of hazardous liquid pipelines (479B). Intrastate hazardous liquid pipelines and underground storage facilities must have a permit from the Board (479B.4). The definition of "hazardous liquid" in § 479B.2 (2) includes "liquefied carbon dioxide." Intrastate hazardous liquid pipelines must have a pipeline permit from the Board for their construction, operation and maintenance (479B).
MECHANISMS FOR ACQUISITION OF PROPERTY FOR PIPELINES
Requirements at 199 IAC 10.4(2).
EMINENT DOMAIN AUTHORITY IN RELATION TO PIPELINES – IDENTIFY THE TYPE OF PIPELINES EMINENT DOMAIN APPLIES TO IF EXISTING
Eminent domain authority and rules for intrastate natural gas pipelines are at 199 IAC 10.4(2). Statutory authority for eminent domain at §479.24
EXPERIENCE WITH CO_2 INJECTION - INSTITUTIONAL CAPACITY, RESOURCES TO REGULATE
HISTORICAL PROJECTS (FIELD NAME: PROJECT TYPE; TIMEFRAME; CUMULATIVE NET CO_2 INJECTED (MCF)
There is no current or historic CO_2 injection in Iowa. The Department of Natural Resources – Iowa Geological Survey is conducting a basic assessment of the states geologic sequestration potential.
BACKGROUND
OTHER

SURFACE WATER RIGHTS
• Surface Water Rights and Groundwater Rights – All surface water, including water bordering the state, and ground waters are considered the wealth of the state and belong to the citizens of the state. Anyone taking more than 25,000 in any one day of the year is required to have a water allocation, use, or diversion permit. Authorizations are issued for a maximum of 10 years and must be renewed in order to remain in effect. • Iowa supports and protects the doctrine of correlative rights for groundwater. • Although there is no specific rule in the Iowa Administrative Code, it has been interpreted that the displacement of water in an aquifer is considered a diversion and requires a permit. Iowa has currently permitted the storage of natural gas in deep aquifers. • The injection of water containing contaminants has not been allowed except in very limited cases such as: returning the water entrained with natural gas withdrawals back into the aquifer; public water supply potable water injection and recovery wells; geothermal heat exchange wells [closed loop systems] that are fee of contaminants except heat; and, drainage wells that have historically been in existence, but represent only a minor treat of contamination. • Injection wells (UIC) permits must be obtained from EPA Region 7. In addition, Iowa operation permits are also required for these wells in addition to appropriate water use permits. • Currently, injection of liquid or gaseous materials such as CO_2 into a water bearing formation may not be allowed.
LIABILITY ASSOCIATED WITH OIL AND GAS
EXISTING $C0_2$, EOR/EGR
PROJECTS
EXISTING NATURAL GAS STORAGE PROJECTS
EXISTING MONITORING REGULATIONS FOR CLASS II INJECTION WELLS
EXISTING WELL ABANDONMENT REGULATIONS
REGULATIONS
Iowa Code Section 455B.171, 190; 67 IAC Chapter 39 Requirements for Plugging Abandoned Wells.
All well excavations that meet the definition of "water well" as stated in Iowa Code Section 455B.171 require proper abandonment when the well is no longer needed or in such a state of disrepair that continued existence of the well presents a hazard to the groundwater. Injection wells meet the definition of "water well" as found in Iowa law and require proper plugging as noted in Iowa Code 455B.190.
The holder of a permit for oil or gas exploration/production is responsible for proper abandonment and reasonable restoration of the leased land as applicable. Authority and procedures are in IAC Chapter 51.
EXISTENCE OF INSURANCE/INDEMNITY BONDS/FEES FOR PLUGGING AND ABANDONMENT
The department has minimum standards for the proper closure/plugging of abandoned wells based on geological and construction features. These standards can be found in 567 IAC Chapter 39, Requirements for Plugging Abandoned Wells. All wells must be properly plugged under the supervision of an Iowa DNR Certified Well Contractor. Local county environmental health

specialists are responsible for enforcing simple private well closing standards. On wells with unusual construction features or wells that present special challenges in aquifer protection and well plugging, the department provides technical resources and information regarding procedures and materials needed to properly close the abandoned well. In all cases proper documentation is required by the department to ensure that the work was performed according to the proper standards.

Bonding (or similar financial instruments such as an irrevocable letter of credit) are required under IAC Chapter 51. Single wells are required to file a $15,000 bond. A permittee granted a permit for two or more wells may submit a $30,000 blanket bond. Bonds are to be released when the well(s) are properly abandoned and documentation of plugging procedures is submitted.

PROPERTY OWNERSHIP

MINERAL RIGHTS

IA Code for severing goods (minerals, including oil and gas) from realty at IA Code 1999 554.2107. Goods to be severed from realty: recording.
http://www.legis.state.ia.us/IACODE/1999/554/2107.html
Oil and gas law chapter 458.
Including: 458A.7 Department shall set spacing units.
The department shall set spacing units as follows:
1. When necessary to prevent waste, to avoid the drilling of unnecessary wells, or to protect correlative rights, the department shall establish spacing units for a pool. Spacing units when established shall be of uniform size and shape for the entire pool, except that when found to be necessary for any of the purposes above mentioned, the department may divide any pool into zones and establish spacing units for each zone, which units may differ in size and shape from those established in any other zone.

SURFACE OWNER RIGHTS

PORE SPACE RIGHTS

LONG TERM STEWARDSHIP

EXISTENCE OF MANDATORY GHG REPORTING REQUIREMENT

STATE STATUTES THAT MAY AFFECT OR LIMIT STATE ABILITY TO TAKE ON LONG-TERM STEWARDSHIP

PASSED AND PENDING LEGISLATION RELATING TO CCS

INCENTIVES

INCLUSION OF CCS IN PORTFOLIO STANDARDS

LEGISLATION RELATED TO CLASSIFICATION OF CO_2

OTHER

KANSAS

REGULATORY AUTHORITY – WHO REGULATES WHAT

OIL AND GAS

Conservation Division of the Kansas Corporation Commission. Gas conservation and supervision of plugging abandoned wells to protect fresh and useable water from pollution. Oil and Gas regulations can be found at:
http://www.kcc.state.ks.us/conservation/cons_rr_110308.pdf

WATER

Department of Health and Environment has permitting authority for water wells. Division of Water Resources of the Kansas Dept. of Agriculture permits water usage.

ENVIRONMENTAL

The Kansas Corporation Commission has regulatory oversight of environmental laws concerning the exploration and production of natural gas and crude oil.

POWER

Kansas Corporation Commission regulates utility companies.

PIPELINES

The OPS "regulates, inspects and enforces interstate gas pipeline safety requirements in Kansas. The OPS also regulates, inspects and enforces both intra- and interstate liquid pipeline safety requirements in Kansas.
Through certification by OPS, the state of Kansas regulates, inspects, and enforces intrastate gas pipeline safety requirements. This work is performed by the Pipeline Safety Division of the Kansas Commerce Commission." Kansas state regulations can be found at:
http://www.kcc.state.ks.us/pipeline/pipeline_safety_regs.pdf

PIPELINES, PURITY STANDARDS, ACQUISITION OF PROPERTY, EMINENT DOMAIN

TREATMENT OF CO_2 PIPELINES AND POTENTIAL IMPURITIES

US DOT-Pipeline & Hazardous Material Safety Administration, Office of Pipeline Safety (no state jurisdiction).

MECHANISMS FOR ACQUISITION OF PROPERTY FOR PIPELINES

Eminent domain through district court proceedings.

EMINENT DOMAIN AUTHORITY IN RELATION TO PIPELINES – IDENTIFY THE TYPE OF PIPELINES EMINENT DOMAIN APPLIES TO IF EXISTING

All pipelines including CO_2.

EXPERIENCE WITH CO_2 INJECTION - INSTITUTIONAL CAPACITY, RESOURCES TO REGULATE

HISTORICAL PROJECTS (FIELD NAME: PROJECT TYPE; TIMEFRAME; CUMULATIVE NET CO_2 INJECTED (MCF)

Hall-Gurney Field, CO_2 flood, 2003-05, 1.38million cubic feet injected.

BACKGROUND

Hall-Gurney project was funded in part by a grant from DOE. It was primarily used as a test for the effectiveness of 4-D seismic for relatively thin shallow oil producing formations. The results were not favorable.

OTHER

KS has varying formations for EOR and Carbon Sequestration including deep saline, numerous active and abandoned, water flooded oil fields and coal bed methane formations.

SURFACE WATER RIGHTS

In Kansas the Water Appropriation Act of 1945 awarded surface and ground water as property of the state, following the doctrine of prior appropriation. This act gives lands that were put to beneficial use before 1945 'vested' rights. It also set up a permit process for determining water rights. K.S.A. 82a-701 through 82a-738, K.S.A. 82a-761 through 82a-773, K.S.A. 82a-954, and K.S.A. 42-303, 42-313, and 42-314 2004.
http://www.ksda.gov/includes/statute_regulations/appropriation/KS_Water_Appropriation_Act_2004.pdf

Liability Associated with Oil and Gas

Kansas law makes oil and gas operators responsible for the remediation (and the costs associated with) of spills and releases to the environment. Penalties may be applied by the KCC if reporting of spills and the clean-up are not completed timely.

Existing $C0_2$, EOR/EGR

Projects

No existing projects in Kansas. Company interest in developing CO_2 floods exists when oil is at an elevated price.

Existing natural gas storage projects

20 active natural gas storage fields that are regulated by the Kansas Corporation Commission.

Existing monitoring regulations for Class II injection wells

Kansas received primacy in 1986 for the EPA UIC Class II program. The State Corporation Commission administers the program. A stringent set of rules pertaining to mechanical integrity testing and reporting of injected pressure and volume ensure compliance to KCC issued injection well permits.

Existing Well Abandonment Regulations

Regulations

The Kansas Corporation Commission uses specific and detailed rules and regulations to direct operators in the plugging and abandonment of oil and gas wells. A high percentage of the well plugging is witnessed by KCC field staff.

Existence of insurance/indemnity bonds/fees for plugging and abandonment

Two funds are used by the KCC in plugging abandoned wells with no responsible party: the Well Assurance Fund and the Abandoned Oil and Gas Well Fund. Fees and assessments applied to the oil and gas industry and some public monies fund the two programs.

The Abandoned Oil and Gas Well / Site Remediation Fund was established in 1996 to address the problem of abandoned oil and gas wells and remediation sites related to oil and gas exploration and production activities. Monies from this fund can be used by the Conservation Division to plug abandoned oil and gas wells and remediate surface and groundwater contamination related to oil and gas activities. http://www.kcc.state.ks.us/maps/statusmap.htm

Financial Assurance for Kansas Oil & Gas Operators
(effective July 1, 2005) House Bill No. 2390 which was passed during the 2005 legislative session increased the financial assurance requirements for oil and gas operators in Kansas.
For operators that have an acceptable compliance record over the last three years, the fee increased from $50.00 to $100.00.
For all other operators, the Blanket Bond or Letter of Credit amounts are now as follows:
Wells less than 2,000 feet:
1 – 5 wells $7,500.00
6 – 25 wells $15,000.00

Over 25 wells $30,000.00
Wells 2,000 or more feet in depth:
1 – 5 wells $15,000.00
6 – 25 wells $30,000.00
Over 25 wells $45,000.00
If you choose to pay the non-refundable fee in place of the bond amount, that fee increased from 3% of the bond required to 6% of the bond required.
See http://kcc.ks.gov/conservation/financial_assurance.htm

PROPERTY OWNERSHIP

MINERAL RIGHTS

The owner of the surface rights is also the owner of all the rights below surface, including the mineral right. The subsurface rights, however, can be severed from the surface rights or granted separately.

SURFACE OWNER RIGHTS

The vast majority of the surface is owned privately in the state, with only a fraction owned by the state or federal government.

PORE SPACE RIGHTS

Ownership of empty pore space has not been explicitly determined in Kansas.

LONG TERM STEWARDSHIP

In proposed CO_2 regulations KCC staff introduces the concept of transferring long-term liability from the facility owner to the state after it has been proven that the CO_2 plume is stable and no-longer a threat to usable water. Senate Bill 2419, the Carbon Dioxide Reduction Act, establishes the carbon dioxide injection well and underground storage fund that will be administered by the KCC and remitted to the state treasurer. The fund will cover activities ranging from the development and issuance of permits to remedial action plans and long-term remedial activities. The proposed rules and regulations details requirements and fees for the fund.
http://kcc.ks.gov/conservation/proposed_regs_032609.pdf

EXISTENCE OF MANDATORY GHG REPORTING REQUIREMENT

STATE STATUTES THAT MAY AFFECT OR LIMIT STATE ABILITY TO TAKE ON LONG-TERM STEWARDSHIP

SB 553 carbon offset credit for carbon capture technologies.

Voluntary Kansas Emissions Inventory Submittal: http://www.kdheks.gov/emission

PASSED AND PENDING LEGISLATION RELATING TO CCS

INCENTIVES

The state has provided for property tax exemptions that include any carbon dioxide capture and sequestration property: HB 2429 fund; HB 2419 tax exemptions.

INCLUSION OF CCS IN PORTFOLIO STANDARDS

LEGISLATION RELATED TO CLASSIFICATION OF CO_2

OTHER

Kansas House Bill 2419 directed the Kansas Corporation Commission to adopt specific rules for the safe injection of CO_2 for the purposes of sequestration. Proposed rules are in the process of review. Available at http://kcc.ks.gov/conservation/proposed_regs_032609.pdf

11 Kansas Mayors are part of the Mayor's Climate Protection Agreement

MANITOBA

REGULATORY AUTHORITY – WHO REGULATES WHAT

OIL AND GAS

The Mineral Resources Division of STEM governs the exploration, development, production, abandonment and restoration of sites, transportation and storage of crude oil and natural gas through *The Oil and Gas Act* and related regulations. Manitoba has 2800 producing wells, 400 service wells and 1 CO_2 injector. Provincial production in 2007 exceeded 8 million barrels.

WATER

Water Stewardship is responsible for the allocation of water use in Manitoba through *The Water Rights Act* and water protection through *The Water Protection Act*.

ENVIRONMENTAL

The Environmental Assessment and Licensing Branch of Manitoba Conservation is responsible for environmental licensing through *The Manitoba Environment Act*. It also is responsible for regulating hazardous waste and pesticides through a number of Acts.
The Clean Environment Commission provides advice to the government on environmental issues, such as licensing and project approvals. The federal government can also require impact studies under *The Canadian Environmental Assessment Act*.

POWER

The Public Utilities Board (PUB) regulates rates for electricity. It also oversees pipeline construction and safety for natural gas and registers natural gas brokers. Water Stewardship licenses hydro-electric proposals and issues licenses for water power. Manitoba Conservation issues licenses for construction of generation and transmission projects.

PIPELINES

Natural gas pipelines are the responsibility of the PUB. The National Energy Board is responsible for all lines that cross provincial boundaries. The Petroleum Branch regulates upstream gathering lines.

PIPELINES, PURITY STANDARDS, ACQUISITION OF PROPERTY, EMINENT DOMAIN

The Oil and Gas Act, and regulations, ensures that upstream lines are constructed safely and with the mitigation of environmental damages during the long term operation of the line. Abandonment of the lines is regulated.

To construct a pipeline requires approval from the Manitoba Public Utilities Board (PUB). If a voluntary agreement cannot be reached with the land owner, then application can be made to the PUB to have the land expropriated and compensation determined. This applies generally to gas pipelines

EXPERIENCE WITH CO_2 INJECTION - INSTITUTIONAL CAPACITY, RESOURCES TO REGULATE

The capacity for CO_2 injection with Manitoba's oil fields is unknown. The Petroleum Branch is the licensing body for CO_2 – EOR.

EXISTING $C0_2$, EOR/EGR

The Petroleum Branch of STEM has approved a pilot CO_2 EOR project and injection of CO_2 started in July of 2008 under authority of *The Oil and Gas Act* and associated regulations. It is too early to determine what potential CO_2 EOR has within the Williston Basin oilfields of Manitoba.

EXISTING NATURAL GAS STORAGE PROJECTS

The Oil and Gas Act gives the Petroleum Branch regulated authority to deal with petroleum storage projects. None exist.

EXISTING MONITORING REGULATIONS FOR CLASS II INJECTION WELLS

Provided for in *The Oil and Gas Act* and associated Drilling and Production Regulation - Petroleum Branch - STEM. Operational and reporting requirements are established for these wells and inspections are conducted to ensure they are operated according to licensing and permitting requirements

EXISTING WELL ABANDONMENT REGULATIONS

Provided for in *The Oil and Gas Act* and associated Drilling and Production Regulation - Petroleum Branch - STEM. The Branch has overseen the abandonment of 3070 wells which includes 162 injection and disposal wells and has strict expectations on the rehabilitation of abandoned well and batteries. The act and regulations require a performance bond to be posted which may be used to clean up spills or abandon well and battery sites. In the event that these costs are larger than the performance deposit, the Abandonment Reserve Fund provides additional funding to be used. Performance requirements are currently being updated in the Drilling and Production Regulation.

PROPERTY OWNERSHIP

SURFACE RIGHTS - WATER

The Oil and Gas Act requires that salt water be disposed of or injected into underground formations which are not potable water sources. A permit must be acquired which ensures that all affected mineral holders and surface owners have the right to object and ensure that their rights are protected.

OIL AND GAS

Under *The Surface Rights Act* an operator with oil and gas rights must also acquire the surface rights and/or provide compensation for right of entry from the owner or occupant. The Surface Rights Board arbitrates disputes and provides mediation services between surface owners, occupants and oil and gas rights holders on a voluntary basis.

SUB-SURFACE RIGHTS

Mineral owners have the right to access their minerals. *The Surface Rights Act* provides a mechanism to ensure they may be accessed in a manner agreeable to the surface owner and mineral holder.

MINERAL RIGHTS

Prior to being given a license to drill a well, mineral ownership must be proven to the satisfaction of the Petroleum Branch. Through the Crown Disposition Regulation the Branch administers leasing of Crown owned oil and gas rights. Mineral rights are separated from surface ownership. The Branch ensures that the correlative rights on mineral holders are protected.

GROUNDWATER

The Oil and Gas Act requires that salt water be disposed in underground formations (not potable water formations), a permit must be acquired first. The Operator is required to clean up all spills and is liable for any cost incurred when an inspector is forced to intervene to ensure proper clean up. The operator is required to rehabilitate the site in accordance with regulations. The Abandonment Reserve Fund has been established to fund rehabilitation and restoration of sites with failed ownership.

Manitoba's water rights have primarily been formed based on the doctrine of prior appropriation.

LONG TERM STEWARDSHIP
The Oil and Gas Act provides for the safe and efficient development, and the maximum economic recovery, of the oil, gas, helium and oil shale resources of the province.
EXISTENCE OF MANDATORY GHG REPORTING REQUIREMENT
The Climate Change and Emissions Reduction Act sets targets for emissions reductions and requires periodic reporting on Manitoba's progress in achieving those targets. It requires the owners and operators of landfills specified in the regulations to mitigate greenhouse gas emissions from their landfills. Manitoba Hydro must restrict its burning of coal to emergency operations, and must also report on reducing or eliminating the use of petroleum-based diesel fuel to generate electricity in northern and remote communities.
PASSED AND PENDING LEGISLATION RELATING TO CCS
N/A

MICHIGAN

REGULATORY AUTHORITY – WHO REGULATES WHAT

OIL AND GAS

The Department of Environmental Quality (DEQ), Oil & Gas Division, regulates the permitting, reworking, and plugging of all oil and gas wells (including gas storage) and the production of oil wells.

Natural Resources and Environmental Protection Act, Act No. 451 of the Public Acts of 1994, as amended:
• Part 615, Supervisor of Wells and the Administrative Rules;
• Part 616, Orphan Well Fund;
• Part 617, Unitization See Michigan Oil and Gas.
See Michigan Oil and Gas Regulations
http://www.deq.state.mi.us/documents/deq-ogs-land-fuelsmineral-oilandgas-regs.pdf

Other information about oil and gas regulation in Michigan can be found at the DEQ Office of Geological Survey.
See http://www.michigan.gov/deqogs

The Department of Energy, Labor and Economic Growth (DELEG) regulates the production of natural dry gas fields and the certification, operation and safety of gas storage fields.

WATER

The DEQ Water Programs "establish water quality standards, assess water quality, provide regulatory oversight for all public water supplies, issue permits to regulate the discharge of industrial and municipal wastewaters, monitor State Water resources for water quality, the quantity and quality of aquatic habitat, the health of aquatic communities, and compliance with state law. Several different divisions have regulatory authority over water issues." See DEQ Water at http://www.michigan.gov/deq/0,1607,7-135-3313---,00.html

ENVIRONMENTAL

The DEQ regulates environmental issues. Several different divisions have regulatory authority over environmental issues.

POWER

The Department of Energy, Labor and Economic Growth (DELEG) Michigan Public Service Commission (MPSC) regulates "natural gas, electric (investor owned and cooperatives, not municipally-owned), and telephone (local and long distance providers) utilities." See http://www.michigan.gov/mpsc

PIPELINES

The MPSC regulates the natural gas, crude oil, and petroleum products pipelines.
Michigan is certified by PHMSA to regulate intrastate natural gas pipeline safety, in addition to being an intrastate agent for interstate pipeline transportation.
http://www.michigan.gov/mpsc

PIPELINES, PURITY STANDARDS, ACQUISITION OF PROPERTY, EMINENT DOMAIN

TREATMENT OF CO_2 PIPELINES AND POTENTIAL IMPURITIES

There is currently no statutory authority within state government over CO_2 pipelines.

MECHANISMS FOR ACQUISITION OF PROPERTY FOR PIPELINES

DELEG addresses private easement, public right-of-way permit, or eminent domain, for

hydrocarbon products if provided for in regulation. There is currently no such statute in place for CO_2.

Michigan state regulatory authority under the Crude and Petroleum Act 16 (1929) to "regulate the business of carrying or transporting, buying, selling or dealing in crude oil or petroleum or its products, through pipelines; to authorize the use of public highways and the condemnation of private property; to regulate the purchase and storage of crude oil or petroleum; to provide for the control and regulation of all corporations, associations and persons engaged in such business, by the Michigan public utilities commission; to define the powers and duties of the commission in relation thereto; and to prescribe penalties for violations of the provisions hereof." See www.michiganlegislature.org

EMINENT DOMAIN AUTHORITY IN RELATION TO PIPELINES – IDENTIFY THE TYPE OF PIPELINES EMINENT DOMAIN APPLIES TO IF EXISTING

DLEG handles pipeline cases that could lead to eminent domain for natural gas and common carrier crude oil and petroleum products pipelines. Eminent domain applies only to common carrier pipelines and does not extend to private pipelines.

EXPERIENCE WITH CO_2 INJECTION - INSTITUTIONAL CAPACITY, RESOURCES TO REGULATE

HISTORICAL PROJECTS (FIELD NAME: PROJECT TYPE; TIMEFRAME; CUMULATIVE NET CO_2 INJECTED (MCF)

The DEQ through its Office of Geological Survey (OGS) has experience regarding injection of CO_2. As CO_2 is generated as a byproduct of crude oil and natural gas production operations, it may then be re-injected back into geological formations along with other waste gases or tail gas streams. Injection of CO_2 may be for either the sole purpose of disposal or may be utilized for injection in enhanced oil recovery operations. Various individual wells have been and continue to be utilized for injection into deep geological formations at locations throughout the state.

A pilot project designed for the sole purpose of CO_2 sequestration and subsequent monitoring has been implemented in the State Charlton 4-30 well located in Otsego County. This is a unique project sponsored by the U.S. Department of Energy (U.S. DOE), DTE Energy Corporation, and Core Energy, LLC. To date, the project is the largest of its kind in the U.S. having sequestered 10,000 metric tons of CO_2 into a deep saline geologic formation.

BACKGROUND

The injection of CO_2 produced in association with crude oil and natural gas production is regulated by the DEQ under Part 615, Michigan Oil and Gas Regulations, Natural Resources and Environmental Protection Act No. 451, P.A. 1994 as amended (NREPA). The OGS also regulates underground injection of waste fluids generated from sources other than oil and gas activity under Part 625, Michigan's Mineral Well Operations Regulations, of the NREPA. The U.S. Environmental Protection Agency retains primary jurisdiction of regulating underground injection wells in Michigan through its Underground Injection Control program.

OTHER

Michigan has all classes of EPA Underground Injection Control wells and does not have primacy (i.e., all injection wells are administered by the EPA).

In consultation with other parties, the OGS has developed draft rules for regulating geological sequestration of CO_2. The draft rules are intended to amend the existing mineral well regulations (Part 625, of the NREPA).

The DEQ is a member of the Midwest Regional Carbon Sequestration Partnership (MRCSP.) The MRCSP is one of seven regional partnerships established by the U.S. Department of Energy's National Energy Technology Laboratory (DOE/NETL) to study carbon sequestration as one option for mitigating climate change. The MRCSP represents a concerted effort toward building a scientific and institutional foundation for carbon sequestration by helping develop technologies, infrastructure and best practices/protocols for implementation. The MRCSP is a collaborating group of eight states with more than 35 members comprised of universities, state geological survey organizations, non-governmental organizations and leading energy companies and is led by Columbus-based Battelle.

SURFACE WATER RIGHTS

Michigan has followed riparian and reasonable use doctrines. Any dispute between water interests should be governed by the reasonable use doctrine as opposed to a natural flow test. The reasonable use doctrine balances the riparian owner with other interests.
For riparian doctrine See Theis v. Howland, 424 Mich 282, 288 FN2 (1985).
For reasonable use doctrine see Dumont v. Kellogg, 29 Mich. 420, 425 (1874).
For balancing test see M.C.W.C. v. Nestlè, 269 Mich. App. 72-73 (2005).
For reasonable use doctrine applied to groundwater see Schenk v. City of Ann Arbor, 196 Mich 75, 91 (1917).

LIABILITY ASSOCIATED WITH OIL AND GAS

It is likely that oil and gas producers will realize liability for CO_2 emissions produced during crude oil and natural gas production or upstream operations.

EXISTING $C0_2$, EOR/EGR

PROJECTS

Michigan has 6 active CO_2 – EOR projects. The source of the CO_2 is an antrim gas stripping plant located in Otsego County.
There are currently five projects utilizing injection of CO_2 for enhanced oil recovery in Michigan. The source of the CO_2 is from produced natural gas wherein the CO_2 is extracted from the gas at nearby natural gas processing plants. This is CO_2 that would otherwise be vented to the atmosphere. It is projected that Michigan will soon produce its one millionth barrel of oil attributable to CO_2 enhanced oil recovery projects. To date, no projects exist in Michigan for EGR.

EXISTING NATURAL GAS STORAGE PROJECTS

Storage of natural gas began in Michigan in 1941. Since that time Michigan has been a leader in the storage of natural gas in underground reservoirs. There are currently around sixty active storage fields. Gas storage is regulated by the DELEG Michigan Public Service Commission. Information is available online at: http://www.cis.state.mi.us/mpsc/gas/storage.htm

Natural gas EOR: Natural gas has also been used in enhanced oil recovery projects. Numerous projects dating back to 1974 have used recycled gas either by itself or in combination with brine. EOR projects are regulated by the DEQ Office of Geological Survey.

EXISTING MONITORING REGULATIONS FOR CLASS II INJECTION WELLS

Oil and gas brine disposal wells are regulated by both the State of Michigan and by the EPA. State of Michigan monitoring regulations governing the operation and monitoring of brine disposal wells are Rules 801 through 808 of Part 615 in the Oil & Gas Regulations.
http://www.deq.state.mi.us/documents/deq-ogs-land-fuelsmineral-oilandgas-regs.pdf

Existing Well Abandonment Regulations

Regulations

Michigan well abandonment regulations are Rules 901 through 904 of Part 615 in the Oil & Gas Regulations See http://www.deq.state.mi.us/documents/deq-ogs-land-fuelsmineral-oilandgas-regs.pdf

Existence of insurance/indemnity bonds/fees for plugging and abandonment

Bonding regulations are Rules 210 through 216 of Part 615 in the Oil & Gas Regulations See http://www.deq.state.mi.us/documents/deq-ogs-land-fuelsmineral-oilandgas-regs.pdf

Property Ownership

Mineral Rights

"A mineral right is part of property rights and may be sold, transferred, or leased in a similar manner as other property rights. Mineral rights are distinct from "surface rights," or the right to the use of the surface of the land for residential, agricultural, recreational, commercial, or other purposes. Mineral rights may be sold or retained separately from the surface rights, in which case the mineral rights are said to be "severed." A person may own all of the mineral rights for a parcel or any fraction of the rights. A person may also own rights to only one kind of mineral, such as oil and gas, or to only one formation or depth interval. The ownership of the mineral rights in a parcel can usually be determined by examining the deed abstract for the property." As cited by the Michigan Geological Survey in "Mineral Rights," available at http://www.deq.state.mi.us/documents/deq-ogs-land-oilandgas-mineral-rights.PDF

"Under Michigan's Dormant Minerals Act, severed oil or gas rights revert to the surface owner after twenty years, unless one of the following actions have occurred within the 20-year period:
• The severed interest is sold, leased, mortgaged, or transferred by recorded instrument.
• A drilling permit is issued.
• Oil or gas is actually produced or withdrawn from the severed holdings.
• The interest is utilized for underground gas storage operations; or
• A record claim of interest is filed with the county Register of Deeds.
The Dormant Minerals Act applies only to oil or gas rights, and not other mineral rights. The Act excludes interests owned by a governmental body." As cited by the Michigan Geological Survey in "Mineral Rights," available at http://www.deq.state.mi.us/documents/deq-ogs-land-oilandgas-mineral-rights.PDF

Surface Owner Rights

The surface owner has rights over the mineral estate until the minerals have been sold, transferred, or leased.

Pore Space Rights

Michigan's Court of Appeals held in the *Department of Transportation v. Goike* that the underground storage space, "evacuated of the minerals and gas, belongs to the surface owner." The court stated that the storage space is not part of mineral and gas rights. They looked to the "plain and ordinary meaning" of mineral and gas rights as a "right to the minerals themselves, not the land surrounding the minerals." The court found their holding consistent with the following cases: *Great Lakes Sales, Inc v State Tax Comm*, 194 Mich. App 271; 486 NW2d 367 (1992); *United States v 43.42 Acres of Land*, 520 F Supp 1042 (WD La, 1981), *Southern Natural Gas Co v Sutton*, 406 So 2d 669, 671 (La App 2d Cir, 1991), *Emeny v United States*, 412 F2d 1319 (Court of Claims, 1969); *Ellis v Arkansas Louisiana Gas Co*, 450 F Supp 412 (ED Okla, 1978), aff'd 609 F2d 436 (CA 10, 1979). Further, they clarify that the mineral estate

owner may store native fluid minerals or gas but may not do so with "foreign or extraneous minerals or gas" and that this right rests with the surface owner. *Department of Transportation v Goike*, 560 N.W.2d 365,366 (Mich. Ct. App. 1996).

LONG TERM STEWARDSHIP

The DEQ OGS believes that there currently is no statutory authority within state government for the state's ability to take on long-term stewardship.

EXISTENCE OF MANDATORY GHG REPORTING REQUIREMENT

STATE STATUTES THAT MAY AFFECT OR LIMIT STATE ABILITY TO TAKE ON LONG-TERM STEWARDSHIP

Rule 806 of Part 615 in the Oil & Gas Regulations requires the reporting of CO_2 injected as part of an oil and gas EOR operation.

PASSED AND PENDING LEGISLATION RELATING TO CCS

INCENTIVES

Senate Bill 801 of 2007: credit; tax incentive for carbon dioxide sequestration and capture.
Senate Bill 1184 of 2008: Submission of certain information regarding oil and gas contracts; require department to furnish to Michigan green energy authority.
House Bill 5604 of 2007: credit for certain costs incurred during carbon dioxide sequestration and capture.
Senate Bill 1166 of 2008: replacement credit for reduction of carbon dioxide emissions.

INCLUSION OF CCS IN PORTFOLIO STANDARDS

LEGISLATION RELATED TO CLASSIFICATION OF CO_2

OTHER

Senate Bill 707 of 2007 Environmental protection; pollution prevention; carbon dioxide capture and sequestration.
Senate Bill 708 of 2007 Personal property; carbon dioxide capture equipment.
Introduced (died) Senate Bill 1353: Introduced in the Michigan Senate in 2008 for compulsory unitization with a requirement that the CO_2 used is from a source that would otherwise be vented and that the CO_2 used is not vented during operations or after operations have been terminated.

MINNESOTA

REGULATORY AUTHORITY – WHO REGULATES WHAT

OIL AND GAS

The MN Public Utilities Commission regulates retail natural, manufactured, or mixed gas or electric service pursuant to M.S. 216B
https://www.revisor.leg.state.mn.us/statutes/?id=216B&view=chapter

WATER

Minnesota Department of Natural Resources (water resource issues), Minnesota Department of Health (drinking water standards, water well regulation), Minnesota Pollution Control Agency (groundwater and surface water contamination).

ENVIRONMENTAL

The Environmental Quality Board develops policy, creates long-range plans and reviews proposed projects that would significantly influence Minnesota's environment pursuant to M.S. 116C
https://www.revisor.leg.state.mn.us/statutes/?id=116C.04)

POWER

The Minnesota Public Utilities Commission regulates electric (investor owned), natural gas, and telephone utilities pursuant to M.S. Chapters 216A, 216B and 237.

PIPELINES

The Minnesota Public Utilities Commission has regulatory authority over intrastate natural gas pipelines pursuant to 216B.045.
https://www.revisor.leg.state.mn.us/statutes/?id=216B&view=chapter#stat.216B.045 and 216G

Through certification by OPS, Minnesota regulates, inspects, and enforces intrastate gas and liquid pipeline safety requirements. By signed agreement with OPS, Minnesota also inspects interstate liquid and gas pipeline safety requirements. This work is performed by the Minnesota Office of Pipeline Safety, within the State Fire Marshal Division of the Minnesota Department of Public Safety. The 93 pipeline operators regulated in Minnesota operate more than 65,000 miles of pipe and with nearly 1.5 million gas meters. Statutory authority Minnesota Statutes 2007 299F.57
https://www.revisor.leg.state.mn.us/statutes/?id=299F.57
Administrative Rules, Chapter 7530, Pipeline Safety Enforcement and Sanctions
https://www.revisor.leg.state.mn.us/rules/?id=7530&view=chapter

PIPELINES, PURITY STANDARDS, ACQUISITION OF PROPERTY, EMINENT DOMAIN

TREATMENT OF CO_2 PIPELINES AND POTENTIAL IMPURITIES

MECHANISMS FOR ACQUISITION OF PROPERTY FOR PIPELINES

Certificate of Need (CON). Under Minn. Stat. §216B.243, subd. 2, a facility cannot be sited or constructed in Minnesota unless the PUC issues a Certificate of Need to the Applicant. The CON rules pertinent to this filing are Minnesota Rules, Parts 7853.0010 to 7853.0800.

Pipeline Routing Permit (PRP). The PRP proceeding determines the location of the pipelines. During this proceeding the impact that the proposed projects will have on humans and on the environment is determined in addition to methods to minimize or mitigate those impacts. A PRP designates both where the pipeline may be built and specifies conditions for right-of-way

preparation, construction and right-of-way restoration. The PUC is authorized by Minn. Stat § 216G.02 to designate routes where the pipeline may be built and issue PRPs.
http://www.leg.state.mn.us/leg/statutes.asp

EMINENT DOMAIN AUTHORITY IN RELATION TO PIPELINES – IDENTIFY THE TYPE OF PIPELINES EMINENT DOMAIN APPLIES TO IF EXISTING

Eminent domain exists for crude petroleum, oil, their related products including liquefied hydrocarbons, or natural gas pipelines as a common carrier pursuant to M.S. 117.48
https://www.revisor.leg.state.mn.us/statutes/?id=117.48
Eminent domain may be obtained after an issuance of a Certificate of Need and a Pipeline Routing Permit under Minnesota laws (Minn. Stat.117.48) to use eminent domain to acquire the right-of-way necessary to construct and operate the proposed pipelines and associated facilities.

MN SF 2750 Limits the use of eminent domain to a public use or public purpose, defined as the possession, occupation, ownership or enjoyment of the property by the general public or a public agency, or for the mitigation of blight. Stipulates that the public benefits of economic development do not, by themselves, constitute a public use or public purpose. Requires good faith negotiations with property owners and increases public notice and public hearing requirements.

EXPERIENCE WITH CO_2 INJECTION - INSTITUTIONAL CAPACITY, RESOURCES TO REGULATE

HISTORICAL PROJECTS (FIELD NAME: PROJECT TYPE; TIMEFRAME; CUMULATIVE NET CO_2 INJECTED (MCF)

None.

BACKGROUND

Primary authority for UIC: EPA Region 5 (Classes I-V)

OTHER

SURFACE WATER RIGHTS

Minnesota follows the doctrine of riparian rights as adapted by the reasonable use rule. This provides for the reasonable use of water resources with regard for the rights of other riparian owners.

LIABILITY ASSOCIATED WITH OIL AND GAS

EXISTING $C0_2$, EOR/EGR

PROJECTS

EXISTING NATURAL GAS STORAGE PROJECTS

MN had 1 total underground natural gas storage site with a working gas capacity of 2 BCF as of 2005.

EXISTING MONITORING REGULATIONS FOR CLASS II INJECTION WELLS

Primary authority for UIC: EPA Region 5 (Classes I-V)
Class II injection wells are banned in Minnesota

EXISTING WELL ABANDONMENT REGULATIONS

REGULATIONS

By law, a well must be in use, be under a maintenance permit, or be sealed by a licensed contractor. A well must be sealed if:
the well is not in use,
the well is contaminated,
the well has been improperly sealed in the past,
the well threatens the quality of the groundwater, or
the well otherwise poses a threat to health or safety.
An unused well kept for future use must have a special "maintenance permit" from the Minnesota Department of Health (MDH). The permit requires an annual fee, and is only issued if the well meets minimum sanitary requirements.

EXISTENCE OF INSURANCE/INDEMNITY BONDS/FEES FOR PLUGGING AND ABANDONMENT

PROPERTY OWNERSHIP

MINERAL RIGHTS

Although federal, state and local governments own or control some surface and mineral interests in Minnesota, the vast amount of both interests remain privately held. State and local governments have no inherent sovereign claim to all the minerals in their jurisdictions. Private ownership of real estate is traceable to grants or patents of public land to individuals or other private entities by the federal or state governments. Unless minerals were reserved by the granting authority, they were included in original government grants. There may, however, have been a severance of the mineral rights from the surface rights during the private ownership of the property.

SURFACE OWNER RIGHTS

Although the issue has never been addressed by the Minnesota Supreme Court, the general rule that has developed in other parts of the country is that unless otherwise stated in the severance deed, the mineral estate carries with it the right to use so much of the surface as may be reasonably necessary to reach and remove the minerals. Under this rule, if there is no contrary language in the severance deed, the mineral owner has a right of entry or access to explore for and mine minerals beneath the surface of the land. Leases of state owned minerals require that a surface owner be compensated for any damages to the surface which arise from mining activities of the holder of the state mineral lease.

PORE SPACE RIGHTS

LONG TERM STEWARDSHIP

EXISTENCE OF MANDATORY GHG REPORTING REQUIREMENT

STATE STATUTES THAT MAY AFFECT OR LIMIT STATE ABILITY TO TAKE ON LONG-TERM STEWARDSHIP

Regarding the Minnesota GHG control plan (216H.03), CO_2 emissions refers to annual emissions from electricity generation. However, "carbon dioxide that is injected into geological formations to prevent its release to the atmosphere in compliance with applicable laws […] [is] not counted as contributing to statewide power sector carbon dioxide emissions." M.S. 216H.03 Subd. 2

PASSED AND PENDING LEGISLATION RELATING TO CCS

INCENTIVES

INCLUSION OF CCS IN PORTFOLIO STANDARDS
LEGISLATION RELATED TO CLASSIFICATION OF CO_2
M.S. 216H Greenhouse Gas Emissions: emission reduction goal, action plan, failure to reduce emissions, enforcement
OTHER
SF 1783/ HF 1786: A bill to appropriate money for a carbon sequestration demonstration project and authorize the sale and issuance of state bonds. The bill has not passed and the most recent action on the bill is as follows: SF 1783 Status: Introduced and referred to Finance 3/12/07. No further action before the end of session. HF 1786 Status: Introduced and referred to Finance; referred by Chair to Environmental and Natural Resources Finance Division 3/7/07. Referred by Chair to Capital Investment Finance Division 3/8/07. Referred to Watersheds, Wetlands and Buffers Subcommittee 2/14/08. No further action before the end of session
216B.1694 Innovative Energy Project A bill to support the development of an IGCC project in Minnesota by defining IGCC as an innovative energy project. Provides various regulatory incentives. This statute has been applied to the Mesaba Energy Project, a proposed IGCC plant for Northern Minnesota.

NORTH DAKOTA

REGULATORY AUTHORITY – WHO REGULATES WHAT

OIL AND GAS

Industrial Commission – Division of Mineral Resources - Oil & Gas Division
The Industrial Commission regulates exploration, development, and production of oil and natural gas.
Authority: N.D.C.C. ch. 38-08 (Control of Oil & Gas Resources); N.D.C.C. ch. 38-08.1 (Geophysical Exploration Requirements)

WATER

State Engineer and State Water Commission
The State Engineer and State Water Commission have broad powers over the development, use, and control water resources. The two agencies work closely together to regulate water appropriations; water delivery systems; construction of dams, dikes, and drains; etc.
Authority: N.D.C.C. Title 61 (Waters)

ENVIRONMENTAL

Department of Health – Envt'l Health Section (many other state agencies have a secondary responsibility for environmental protection)
North Dakota Department of Health has authority in ND for regulating the EPA UIC Class I and V programs. North Dakota is in EPA Region 8.

N.D.C.C. Article 33-25

Air Quality. Governs air quality permits, air quality compliance, air quality impact analysis, air quality monitoring, radiation, lead-based paint, asbestos and indoor air quality.
Authority: N.D.C.C. ch. 23-25 (Air Pollution Control Act)

Waste Management. Responsible for hazardous waste and toxic substances, underground storage tanks, solid waste, antifreeze registration, and petroleum testing.
Authority: N.D.C.C. ch. 23-20.3 (Hazardous Waste Management); N.D.C.C. ch. 23-29 (Solid Waste Management and Land Protection Act)

Water Quality. Responsible for surface water quality/management, water quality special projects, waste-water facility/permits, and groundwater protection.

Authority: N.D.C.C. ch. 61-28 (Water Pollution Control Act); N.D.C.C. ch. 61-28.1 (Safe Drinking Water Act); N.D.C.C. ch. 23-33 Ground Water Protection Act)

POWER

The Public Service Commission has general jurisdiction over public utilities, which include, among other enterprises, pipelines, electric utilities, and transmission lines. The Commission sets public utility rates and regulates their services, and has some authority for safety standards. It also has authority to regulate the location, construction, and operation of energy conversion facilities and transmission facilities (including pipelines), and issues certificates of necessity and site compatibility, as well as route permits for public utilities, including electric utilities, energy conversion facilities, and transmission lines (including pipelines).

Authority: N.D.C.C. Title 49 (Public Utilities)

PIPELINES

For the Public Service Commission's general authority, see the preceding section. In addition, the Commission is governed by a chapter covering just pipelines.

Authority: N.D.C.C. ch. 49-19 (Common Pipeline Carriers)

The Pipeline Authority was created under the Industrial Commission to diversify and expand the state's economy by promoting the development of pipeline facilities to support the production, transportation, and use of North Dakota energy-related commodities. The Pipeline Authority may participate in a pipeline project through financing, planning, development, acquisition, leasing, rental, joint ownership, or other arrangements.

Authority: N.D.C.C. ch. 54-17.7 (Pipeline Authority)
http://www.legis.nd.gov/cencode/t54c177.pdf

ND Pipeline Authority website: https://www.dmr.nd.gov/pipeline/assistance.asp

PIPELINES, PURITY STANDARDS, ACQUISITION OF PROPERTY, EMINENT DOMAIN

TREATMENT OF CO_2 PIPELINES AND POTENTIAL IMPURITIES

None.

MECHANISMS FOR ACQUISITION OF PROPERTY FOR PIPELINES

See next Section.

EMINENT DOMAIN AUTHORITY IN RELATION TO PIPELINES – IDENTIFY THE TYPE OF PIPELINES EMINENT DOMAIN APPLIES TO IF EXISTING

The state's general eminent domain chapter, N.D.C.C. ch. 32-15, states that the right of eminent domain may be exercised for "public uses," and "public uses" include "[o]il, gas, coal, and carbon dioxide pipelines."

Authority: N.D.C.C. ch. 32-15 (Eminent Domain)

Another eminent domain provision—though located in statutes governing the Public Service Commission—states:
Every common pipeline carrier which shall have filed with the commission its acceptance of the provisions of this chapter has, subject to chapter 32-15, the right and power of eminent domain in the exercise of which it may enter upon and condemn the land, right of way, easements, and property of any person necessary for the construction, maintenance, or authorization of its pipeline.

Authority: N.D.C.C. § 49-19-12.

EXPERIENCE WITH CO_2 INJECTION - INSTITUTIONAL CAPACITY, RESOURCES TO REGULATE

HISTORICAL PROJECTS (FIELD NAME: PROJECT TYPE; TIMEFRAME; CUMULATIVE NET CO_2 INJECTED (MCF)

1985 non-producing pilot CO_2 injection project in Little Knife field conducted by DOE and Gulf Oil.

BACKGROUND

Department of Mineral Resources currently regulates Class II and Class III underground injection wells.

Other

North Dakota has approximately 25 years experience with high pressure air injection for EOR.

Surface Water Rights

Surface water rights are under the jurisdiction of the Water Commission and the Department of Health.
N.D.C.C. §61-04-01.2 "A right to appropriate water can be acquired for beneficial use only as provided in this chapter. Beneficial use shall be the basis, the measure, and the limit of the right to the use of water."
North Dakota follows the doctrine of prior appropriation.
http://www.legis.nd.gov/cencode/t61.html

Liability Associated with Oil and Gas

Approximately 10 years experience with acid gas injection projects in and near oil and gas producing areas.
North Dakota has an Oil Impact fund, managed by the State Land Department that allocates grants to counties that are adversely impacted by oil and gas activity. The Fund receives up to 6 million dollars per biennium.

Existing $C0_2$, EOR/EGR

Projects

None.

Existing natural gas storage projects

None.

Existing monitoring regulations for Class II injection wells

Department of Mineral Resources has had primacy over Class II wells since 1983. Regulations are in place in the North Dakota Administrative Code 43-02-05. Reporting and Monitoring requirements are in North Dakota Administrative Code 43-02-05-12, Corrective action requirements are in 43-02-05-10.

Existing Well Abandonment Regulations

Regulations

Department of Mineral Resources has had primacy over Class II wells since 1983. Regulations are in place in the North Dakota Administrative Code 43-02-05.

Well abandonment regulations are in North Dakota Administrative Code 43-02-05-08.

Existence of insurance/indemnity bonds/fees for plugging and abandonment

Well bonding requirements are in North Dakota Administrative Code 43-02-05-11 and 43-02-03-15.

Property Ownership

Mineral Rights

Mineral rights may be separated or leased from the surface estate in ND.
See ND Surface and Mineral Owners Information at:
https://www.dmr.nd.gov/oilgas/surfacemineralownerinfo.asp

The ND Industrial Commission has authority over compulsory pooling or 'unitization.' The NDIC has authority to approve such an action pursuant to statute 43-02-03-16.3. NDCC 38-08-08 is the statute that defines the process for compulsory pooling and penalties on those who do

not participate in the cost and risk of drilling operations. In the absence of voluntary pooling, the Commission, upon the application of any interested person, shall enter an order pooling all interests in the spacing unit for the development and operations thereof. An operator does, however, need to have an interest in the drilling unit of the proposed well, whether it is by lease or mineral, in order to propose the forced action. See ND Oil and Gas, Frequently Asked Questions at:
http://ndoilgas.govoffice.com/vertical/Sites/%7B6517345E-F6E4-4593-A651-A1525FCA2299%7D/uploads/%7B7A989818-2480-473A-BF57-C8A4A5BBF581%7D.PDF

Police power in North Dakota may be extended "to impose such restrictions upon private rights as are practically necessary for the general welfare of all." State v. Cromwell, 9 N.W.2d 914, 919 (N.D. 1943).

SURFACE OWNER RIGHTS

"North Dakota Century Code (NDCC) Chapter 38-11.1 provides that all persons should be justly compensated for personal injury, property damage, and interference with the use of their property caused by oil and gas development.
Oil and gas development means the drilling, completion, production, or other operations of an oil and gas well which require entry upon the surface estate.
The law provides that surface owners and their tenants are entitled to compensation from the mineral developer for: 1) loss of agricultural production and income, 2) lost land value, 3) lost use and access, or 4) lost value of improvements caused by oil and gas drilling operations that directly affect the land where said operations occur." See the 2003 letter titled, Notice to surface owners concerning the right of compensation for damages cause by oil and gas operations.
https://www.dmr.nd.gov/oilgas/surfacemineralownerinfo.asp

PORE SPACE RIGHTS

S.B. 2139

This bill defines ownership issues related to pore space. Pore space is defined as, "a cavity or void, whether natural or artificially created, in a subsurface sedimentary stratum." The bill states that the pore space title is vested in the surface owner and that it cannot be severed from the surface owner. Title to the pore space is conveyed with the conveyance of the surface property and may not be severed from the property. The pore space may be leased from the surface owner. This bill does not apply to pore space that has been previously severed from the surface estate.

North Dakota Senate Bill 2139 *available at* http://www.legis.nd.gov/assembly/61-2009/bill-text/JQTB0300.pdf.

LONG TERM STEWARDSHIP

S.B. 2095, Summarized excerpts:
Carbon dioxide administrative fund

- A fee per ton of injected CO_2 must be paid to the Commission by storage operators covering construction, operational, and pre-closure phases of a project. This fund will be solely used for project permitting, construction, operations, and pre-closure phases and may be used to compensate other agencies that regulate a storage facility.

Carbon dioxide trust fund

- A fee per ton of injected CO_2 must be paid to the Commission that will cover anticipated expenses related to the long-term monitoring and management of a closed storage facility. This fund will be solely used for long-term monitoring and management of a closed storage facility and may be used to compensate other agencies that regulate a storage facility.
- The Commission will provide a report every 4 years (starting after the first report due in December 2014) to the legislative council that discusses "whether the amount in the carbon dioxide storage facility trust fund and fees being paid into it are sufficient to satisfy the fund's objectives."

North Dakota Senate Bill 2095 *available at* http://www.legis.nd.gov/assembly/61-2009/bill-text/JQTA0300.pdf.

EXISTENCE OF MANDATORY GHG REPORTING REQUIREMENT
STATE STATUTES THAT MAY AFFECT OR LIMIT STATE ABILITY TO TAKE ON LONG-TERM STEWARDSHIP
North Dakota does not have a specific law that requires such reporting; however, the state is incorporated by reference in N.D. Admin. Code § 33-15-21-09, EPA's acid rain rule at 40 CFR § 75.64(a) (5), which does require power plants to report such emissions.

PASSED AND PENDING LEGISLATION RELATING TO CCS
INCENTIVES
INCLUSION OF CCS IN PORTFOLIO STANDARDS
LEGISLATION RELATED TO CLASSIFICATION OF CO_2
OTHER

OHIO

REGULATORY AUTHORITY – WHO REGULATES WHAT

OIL AND GAS

The Division of Mineral Resources Management (DMRM) manages the Underground Injection Control (UIC) Program that permits and regulates injection wells for the enhanced recovery of oil or natural gas resources (Class IIR) pursuant to our authority in Chapter 1509 of the Ohio Revised Code (ORC) and 1501 of the Ohio Administrative Code (OAC). U.S. EPA awarded Ohio primacy of its Class II UIC program to the former Division of Oil and Gas in 1983. Secondly, the DMRM reviews and comments on all applications for Class I and Class V injection well permits in order to evaluate proposed injection operations relative to potential impacts to oil and gas reserves, and potential for endangerment of underground miners. Third, the DMRM can issue permits for stratigraphic test wells and authorize short-term reservoir tests, such as step-rate or injectivity tests. Finally, the Division of MRM manages the Idle and Orphan Well Program to properly plug leaking wells when a responsible owner cannot be identified.

The Division of Geological Survey reviews all permit applications for Class I wells under ORC 6111.044. Such reviews provide for the protection of valuable mineral resources and include an evaluation of the risk of induced seismic activity. These reviews also provide consistency in geologic approach and usage between Class I operators across the state.

The Division of Water also reviews all permit applications for Class I wells under ORC 6111.044 to determine whether all underground sources of drinking water in the area of review of the proposed well or injection have been identified and correctly delineated in the application.

WATER

The Ohio Environmental Protection Agency (Ohio EPA) has primary enforcement authority for the Safe Drinking Water Act (SDWA) and the Clean Water Act (CWA) in Ohio.
Ohio Revised Code (ORC) 6111.043(B) requires the director of Ohio EPA to adopt and enforce rules governing the injection of sewage, industrial waste, hazardous waste, and other waste into wells. In addition, Ohio EPA has been delegated primary enforcement authority (Primacy) for the regulation of Class I, Class IV, and Class V UIC wells as required by the Section 1422 of the Safe Drinking Water Act (SDWA).
A Class I UIC well is a well used for injection of fluids, either hazardous or non-hazardous, into geologic formations far below any underground source of drinking water. Class I wells are strictly regulated to prevent migration of injected fluids into an underground source of drinking water. There are 10 active permitted Class I wells located at three facilities in Ohio. Principal annual activities of DDAGW staff for Class I UIC wells include: reviewing permit applications and issuing permits to drill and permits to operate; conducting surveillance and field inspections; witnessing mechanical integrity tests (MIT); reviewing monthly operating and monitoring reports; conducting enforcement activities; tracking and reporting facility compliance to U.S. EPA; and, providing guidance and technical assistance to operators of underground injection wells.
Class V wells are typically shallow disposal systems used to place a variety of non-hazardous fluids below the ground surface into or above an underground source of drinking water. Over

32,000 Class V wells have been inventoried in Ohio. It is estimated that there are an additional 10 to 20 thousand Class V underground injection wells in Ohio not included within the inventory. All Class IV wells are prohibited as they inject hazardous materials into or above an underground source of drinking water.
Ohio EPA Division of Drinking and Ground Waters is also responsible for oversight of all public water systems in Ohio, characterizing and protecting ground water, and providing geologic technical services to other waste management divisions within Ohio EPA. Ohio EPA Division of Surface Water (DSW) regulates water pollution control, operates the wastewater program, and maintains the surface water quality program under ORC 6111.

ENVIRONMENTAL

Ohio EPA establishes and enforces standards for air, water, waste management and cleanup of sites contaminated with hazardous substances. The Agency also provides financial assistance to businesses and communities; environmental education programs for businesses and the public; and pollution prevention assistance to help businesses minimize their waste at the source.

The Ohio Power Siting Board is required by statute to determine the minimal adverse environmental impact in its certificate of public convenience and necessity. The certificate process covers gas pipelines, electric transmission lines and electric generating plants greater than 50 MW.

POWER

Public Utility Commission of Ohio (PUCO) is responsible for the regulation of electric and gas utilities.

PIPELINES

The Ohio Power Siting Board has jurisdiction over pipeline siting. The Public Utilities Commission Of Ohio is responsible for safety regulations.

PIPELINES, PURITY STANDARDS, ACQUISITION OF PROPERTY, EMINENT DOMAIN

TREATMENT OF CO_2 PIPELINES AND POTENTIAL IMPURITIES

MECHANISMS FOR ACQUISITION OF PROPERTY FOR PIPELINES

EMINENT DOMAIN AUTHORITY IN RELATION TO PIPELINES – IDENTIFY THE TYPE OF PIPELINES EMINENT DOMAIN APPLIES TO IF EXISTING

If a pipeline company decides to become a public utility, then the utility has eminent domain authority.

EXPERIENCE WITH CO_2 INJECTION - INSTITUTIONAL CAPACITY, RESOURCES TO REGULATE

HISTORICAL PROJECTS (FIELD NAME: PROJECT TYPE; TIMEFRAME; CUMULATIVE NET CO_2 INJECTED (MCF)

In 2007 the state's first borehole was drilled for the purpose of testing CO_2 injection. This pilot project is part of ongoing carbon sequestration research projects conducted by the Division of Geological Survey and Battelle under the auspices of the Midwest Regional Carbon Sequestration Partnership (MRCSP) funded in part by the U.S. DOE. The well was drilled in southeastern Ohio's Belmont County on the property of First Energy's Burger Power Plant. The DMRM permitted the borehole at the Burger Power Plant as a stratigraphic test pursuant to Section 1509.05 of the O.R.C., and inspected and enforced applicable permit conditions. Subsequently, Ohio EPA issued a Class V Experimental Well permit to authorize CO_2 injection.

Injection of approximately 3,000 tons of CO_2 is scheduled for late 2008.

The Battelle Memorial Institute in Columbus, Ohio has been awarded another grant by the U.S. DOE for a CO_2 injection well to be constructed at the Anderson-Marathon Ethanol Plant in Darke County Ohio. Ohio EPA will ensure proper construction and operation of injection activities through issuance of a Class 1 permit to drill and permit to operate. It is anticipated this large scale test well will inject approximately one million tons of CO_2 over a four year period.

BACKGROUND

Ohio EPA Division of Drinking and Ground Water (DDAGW) staff, working in cooperation with staff in several Divisions within the Ohio Department of Natural Resources, has extensive experience in the oversight of deep well injection activities. There are 10 active permitted Class I wells located at three facilities in Ohio. Principal annual activities of DDAGW staff for Class I UIC wells include: reviewing permit applications and issuing permits to drill and permits to operate; conducting surveillance and field inspections; witnessing mechanical integrity tests (MIT); reviewing monthly operating and monitoring reports; conducting enforcement activities; tracking and reporting facility compliance to U.S. EPA; updating and reviewing Class I rules; and, providing guidance and technical assistance to operators of underground injection wells. This experience with deep well injection will be very valuable in the regulation of deep injection of CO_2. The Division has been providing technical assistance to Battelle and ODNR in design of CO_2 injection wells since 2003.

The Division of Geological Survey, working with the U.S. DOE and Battelle, has been mapping the state's potential CO_2 reservoir and cap rock units since 2003. In order to fill a large data gap, the State of Ohio funded a deep stratigraphic test well in eastern Ohio's Tuscarawas County. This well was drilled by the Division of Geological Survey and Battelle in 2007. The MRCSP is now evaluating a site in western Ohio's Darke County for use as the first large-scale CO_2 injection test in the region. This pilot project is designed to inject approximately one million tons of CO_2 over a four year period. A full suite of pre-injection data is being gathered to allow stringent monitoring and verification during and after injection.

The ongoing geologic research and pilot injection projects in which the state is engaged should position Ohio very well for future carbon capture and sequestration projects. The state will have the basic knowledge it needs on a number of potential reservoir and cap rock systems, and the regulatory agencies will be versed in the necessary permitting and monitoring protocols.

OTHER

SURFACE WATER RIGHTS

LIABILITY ASSOCIATED WITH OIL AND GAS

EXISTING CO_2, EOR/EGR

PROJECTS

The state of Ohio, historically, has not had access to economical sources of CO_2 for use in enhanced oil or gas recovery projects. Injection of CO2 for such projects has been limited to a very few tests to examine the efficacy of using CO_2 for "huff-n-puff" operations where it is injected for short time periods to act as a solvent to liberate additional oil from a reservoir. Ohio has no existing CO_2-assisted enhanced oil or gas recovery projects.

The Division of Geological Survey is currently working with several industry partners and partial funding from the U.S. DOE to perform a huff-n-puff operation in Ohio's largest still-producing oil field. Data from this test will be joined with other reservoir data to produce a simulation of CO_2-assisted EOR in this field. If all is successful, this may lead to the state's first CO_2-EOR project and pipelines.

Ohio's oil fields that are deep enough for miscible EOR operations contain approximately 4.3 billion barrels of remaining oil in place. Which of these fields may be successful CO_2-EOR candidates and how much of the remaining oil can be recovered are current topics of research at the Division of Geological Survey.

EXISTING NATURAL GAS STORAGE PROJECTS

The DMRM permits wells for storage of natural gas. Pursuant to U.S. EPA's regulatory determination, CO_2 injection will not be regulated as gas storage and is not exempt from the SDWA. Ohio currently has 21 natural gas storage fields with a working gas capacity of about 202 billion cubic feet.

EXISTING MONITORING REGULATIONS FOR CLASS II INJECTION WELLS

EXISTING WELL ABANDONMENT REGULATIONS

REGULATIONS

For non-hazardous Class I injection wells, the existing plugging and abandonment requirements are included in OAC Rules 3745-34-27(B)(5) and 34-36. These requirements include: plugging with cement to prevent movement of fluids into or between underground sources of drinking water; and the placement requirements for the cement plugs. Additional plugging requirements are included in the permit to operate. The closure and post-closure monitoring requirements are addressed in OAC 3745-34-36 and 61. Financial assurance is addressed in 3745-34-62.

An operator of a Class II injection well must have a permit to plug a well, and must plug each well in accordance with an approved plan that is consistent with the requirements and standards established in Section 1501:9-11 of the O.A.C.

EXISTENCE OF INSURANCE/INDEMNITY BONDS/FEES FOR PLUGGING AND ABANDONMENT

The financial assurance requirements for non-hazardous Class I injection wells are located in OAC Rules 3745-34-27(B) (7) and 34-62.

Section 1509.07 of the O.R.C. requires operators to maintain liability insurance and surety bonds.

PROPERTY OWNERSHIP

MINERAL RIGHTS

Pursuant to our authority under Section 6111.044 of the O.R.C., the DMRM also reviews permit applications for Class I and V wells and evaluates whether the proposed injection operation presents and unreasonable risk that waste or contamination of recoverable oil or gas will occur. The Division of Geological Survey, under this same ORC section, is charged with evaluating the risk of loss or damage to valuable mineral resources as a result of a proposed injection operation. The DMRM also coordinates the review of application for permits of injection wells in the vicinity of underground mines to ensure that injection will not jeopardize the safety of underground miners. The Chief of the DMRM has authority to disapprove an application based upon well-founded objections related to miner safety.

SURFACE OWNER RIGHTS

Groundwater rights: Originally an absolute ownership state, the Ohio Supreme Court adopted

the reasonable use doctrine in 1984. In McNamara vs. Rittman (McNamara v. Rittman, 107 Ohio St.3d 243, 2005-Ohio-6433), the Ohio Supreme court stated that "Ohio recognizes that landowners have a property interest in the groundwater underlying their land and that governmental interference with that right can constitute an unconstitutional taking." This property interest in water was originally established in Cline v. Am. Aggregates Corp., 15 Ohio St.3d 384, 15 OBR 501, 474 N.E.2d 324, thus departing from the absolute ownership doctrine that had held for over 100 years in Ohio, based originally on Frazier v. Brown (1861), 12 Ohio St. 294.

Further citations from McNamara vs. Rittman, stating precedent: "In Smith v. Erie RR. Co. (1938), 134 Ohio St. 135, 11 O.O. 571, 16 N.E.2d 310, paragraph one of the syllabus, this court held: "Under Section 19, Article I, of the [Ohio] Constitution, which requires compensation to be made for private property taken for public use, any taking, whether it be physical or merely deprives the owner of an intangible interest appurtenant to the premises, entitles the owner to compensation."

http://www.sconet.state.oh.us/rod/newpdf/0/2005/2005-ohio-6433.pdf

PORE SPACE RIGHTS

The issue here is who owns the subsurface rights (if anyone) and what compensation is required to inject CO_2 beneath someone's property or into their subsurface property (oil and gas producing strata or coal bearing)? Two Ohio Supreme Court (OSC) decisions give some answers but large scale injection of CO_2 could challenge previous decisions.

- 1996 Ohio Supreme Court Ruling – Chance et al vs. BP Chemicals Inc. OSC ruled that there was no cause for assessing trespass damages as the land owners did not having a reasonable likelihood of using the saline Mt Simon Aquifer. The legal logic was the same as for trespass of airplanes above a property. If the surface owner has no reasonable expectation of use of the airspace then no damage has occurred and no damages needed to be awarded. This decision only applied to saline aquifers with no oil and gas potential.

- 1992 Ohio Supreme Court Ruling – Columbia Gas Transmission Corp. vs. An exclusive natural gas storage easement in the Clinton Subterranean geological formation et al. This was an opinion given by the OSC to the following question posed by the US District Court, Northern District of Ohio: "According to the law of the state of Ohio, what is the measure of just compensation for the appropriation of an underground storage easement?" Six methods for determining compensation were considered and covered in the opinion. One was the "View point of value" which looks at what the landowner has lost, not what the injector has gained. If there is no impact on the surface owner's property value due to no reasonable expectation of use of the formation, then no compensation is due. Other methods assume some use is present and may apply when conflicting injectors are looking to use the saline formation within each other's area of review.

LONG TERM STEWARDSHIP

EXISTENCE OF MANDATORY GHG REPORTING REQUIREMENT

STATE STATUTES THAT MAY AFFECT OR LIMIT STATE ABILITY TO TAKE ON LONG-TERM STEWARDSHIP

None currently.

PASSED AND PENDING LEGISLATION RELATING TO CCS

INCENTIVES
There are currently no mandatory CO_2 requirements. Future rule development may institute such a requirement.
INCLUSION OF CCS IN PORTFOLIO STANDARDS
No CCS is directly included in Ohio's future portfolio standard, but CCS is indirectly addressed under the future rules for advanced energy. **SB 221** Half of the 25% of advanced energy required by 2025 may come from "Clean coal technology that includes the design capability to control or prevent the emission of carbon dioxide." http://www.legislature.state.oh.us/BillText127/127_SB_221_EN_N.pdf
LEGISLATION RELATED TO CLASSIFICATION OF CO_2
OTHER
The Ohio Power Siting Board provides a one-stop shop for siting in Ohio and has been cited as model siting agency. The Board must approve permits within 90 days of receiving an application; may coordinate with other state and federal agencies including holding joint investigations, hearings, and issue joint orders in conjunction or concurrence with any state or federal official agency. The Board "may adopt rules to provide for an abbreviated review of an application for a construction certificate for construction of a major utility facility related to a coal research and development project as defined in section 1555.01 of the Revised Code, or to a coal development project as defined in section 1551.30 of the Revised Code, submitted to the Ohio coal development office for review under division (B)(7) of section 1551.33 of the Revised Code." http://codes.ohio.gov/orc/4906.03

SOUTH DAKOTA

REGULATORY AUTHORITY – WHO REGULATES WHAT

OIL AND GAS

The Department of Environment and Natural Resources (DENR), Oil and Gas Section, has primary authority over Class II wells.
The US EPA Region 8 has primary authority in SD for Classes I, III–V.
"The Oil and Gas Conservation Statute (Chapter 45-9) requires the Board of Minerals and Environment (board) and the DENR to promote the development of oil and gas resources in the state in a manner that will prevent waste, encourage the greatest economic recovery of oil and gas and protect correlative rights, ground water resources, the environment and human health."
"Drilling for oil and gas is regulated under SDCL 45-9 and the Administrative Rules of South Dakota (ARSD) Article 74:09 and 74:10. In addition, underground injection for the purpose of enhanced oil recovery or the disposal of exploration and production wastes, are regulated by the same statute and rules."
http://www.state.sd.us/denr/DES/Mining/Oil&Gas/rulesreg.htm

Authority by the Board of Minerals and Environment is under the SDCL 45-9-11. Operations for production of oil or gas, regulation by board. The Board of Minerals and Environment shall promulgate rules pursuant to chapter 1-26 to regulate or to provide for:

(1) The drilling, producing, and plugging of wells, and all other operations for the production of oil or gas;
(2) The shooting and chemical or physical treatment of wells;
(3) The spacing or locating of wells;
(4) Operations to increase ultimate recovery such as cycling of gas, the maintenance of pressure, and the introduction of gas, water, or other substances into producing formations; and
(5) Disposal of salt water and oil field wastes.

The board may delegate to the secretary of environment and natural resources the authority to monitor and enforce compliance with rules promulgated pursuant to this section.
http://legis.state.sd.us/statutes/DisplayStatute.aspx?Type=Statute&Statute=45-9-11

WATER

The "South Dakota Drinking Water Program, part of DENR, develops and enforces the South Dakota Drinking Water Regulations that apply to public water systems in the state." The DENR has primary enforcement authority for the Safe Drinking Water Act and the Clean Water Act in South Dakota. http://www.state.sd.us/DENR/des/drinking/dwprg.htm

The seven member Water Management Board regulates "water use, approves and denies permits, validates vested rights, cancels water right permits or rights, establishes ordinary high and low water marks for lakes as well as setting lake outlet elevations."
SDCL 1-40-15, 43-17-21, 43-17-23 thru 43-17-25, 43-17-28, 46-2-9, 46-2-11, 46-2A-7, 46-2A-8, 46-2A-16, 46-4-2, and 46-5-8.1.
http://www.state.sd.us/denr/des/waterrights/summary.htm

The Ground Water Quality Program [within DENR] is responsible for managing South Dakota's ground water resources. This includes directing the cleanup of all spills and Superfund projects, regulating above ground and underground storage tanks, overseeing the SARA Title III program, issuing ground water discharge permits, implementing Underground Injection Control program, and helping to protect the ground water resources through the source water assessment and

protection program.
http://www.state.sd.us/denr/des/ground/groundprg.htm

ENVIRONMENTAL

DENR has several environmental regulatory programs under the environmental services division including air quality, drinking water, groundwater quality, minerals and mining, plans and specifications, surface water quality, waste management, and water rights. The DENR permits minor, Part 70 (Title V), Acid Rain, and PSD sources. There are no nonattainment areas in South Dakota; therefore, the DENR does not issue NSR permits.
http://denr.sd.gov/des/aq/airprogr.aspx

POWER

The SD Public Utility Commission (PUC) "regulates investor-owned electric, natural gas and telephone utilities." http://puc.sd.gov/whatispuc/default.aspx

PIPELINES

The SD PUC is certified by PHMSA to "regulate, inspect, and enforce rules including assessing penalties as adopted through Statutory Titles 49-34B of SDCL with federal gas regulations in 49 CFR 191 and 49 CFR 192 adopted with no changes."
SDPUC Pipeline Safety Program Presentation:
http://www.state.sd.us/denr/Boards/2008/PUCPipelineSafety.pdf
49-34B of SDCL: http://legis.state.sd.us/statutes/DisplayStatute.aspx?Type=Statute&Statute=49-34B

The SD PUC is required to complete findings within one year of receipt of application for a Large facility or pipeline permit as defined by statute (SDCL 49-41B-24).

PIPELINES, PURITY STANDARDS, ACQUISITION OF PROPERTY, EMINENT DOMAIN

TREATMENT OF CO_2 PIPELINES AND POTENTIAL IMPURITIES

MECHANISMS FOR ACQUISITION OF PROPERTY FOR PIPELINES

The SD PUC has authority to approve or deny pipeline routes as filed but does not have authority on suggesting changes to the route.

EMINENT DOMAIN AUTHORITY IN RELATION TO PIPELINES - IDENTIFY THE TYPE OF PIPELINES EMINENT DOMAIN APPLIES TO IF EXISTING

Title 21. A petition for ascertainment of compensation by jury is done in the circuit court of the county where the property is to be taken or damaged.

EXPERIENCE WITH CO_2 INJECTION - INSTITUTIONAL CAPACITY, RESOURCES TO REGULATE

HISTORICAL PROJECTS (FIELD NAME: PROJECT TYPE; TIMEFRAME; CUMULATIVE NET CO_2 INJECTED (MCF)

None

BACKGROUND

None

OTHER

None

SURFACE WATER RIGHTS

"South Dakota water rights are administered by a system commonly called the 'Doctrine of Prior Appropriation.' This means the first in time (senior priority) is the first in right, except for individual domestic use. Priority is established based on the date of filing the application. Uses of water developed prior to or under development as of March 2, 1955 (surface water) or

February 28, 1955 (ground water) may qualify for a vested water right depending on the type of use involved."
Reference: SDCL 46-1-9, 46-2A-9, 46-2A-12, 46-4-1, 46-4-2, 46-5-4, 46-5-7, 46-5-8, 46-5-34, 46-5-34.1, and 46-6-3.
http://www.state.sd.us/denr/des/waterrights/summary.htm#Ownership

LIABILITY ASSOCIATED WITH OIL AND GAS

SDCL 45-9-68. Violation of law, rule, regulation, or order--Civil penalty--Liability for damages to environment. Any person who violates any provision of this chapter, or any rule, regulation, or order of the Board of Minerals and Environment is subject to a civil penalty of not more than five hundred dollars for each act of violation and for each day that such violation continues, or is liable for damages to the environment of this state, or both.
http://legis.state.sd.us/statutes/DisplayStatute.aspx?Type=Statute&Statute=45-9

SDCL 45-9-14. Escape of oil or gas from one pool to another--Intrusion of water into an oil or gas pool--Pollution of fresh-water supplies by oil, gas, or salt water--Blowouts, cavings, seepages, and fires--Authority of board to prevent. Without limiting its general authority, the Board of Minerals and Environment may require, or may delegate to the office of the state geologist, specific authority to require the drilling, casing, operation, and plugging of wells in such manner as to prevent:

(1) Reasonably preventable escape of oil or gas out of one pool into another;

(2) The detrimental intrusion of water into an oil or gas pool that is avoidable by efficient operations;

(3) The pollution of fresh-water supplies by oil, gas, or salt water; and

(4) Blow-outs, cavings, seepages, and fires.

http://legis.state.sd.us/statutes/DisplayStatute.aspx?Type=Statute&Statute=45-9

EXISTING $C0_2$, EOR/EGR

PROJECTS

None

EXISTING NATURAL GAS STORAGE PROJECTS

None

EXISTING MONITORING REGULATIONS FOR CLASS II INJECTION WELLS

South Dakota Codified Law 45-9-11 and Administrative Rules of South Dakota 74:10:09 contain statutes and regulations for Class II injection wells

74:10:09:01. Requirements for injection well application and modifications. The injection of any substance for the purpose of maintaining reservoir pressure, for enhanced recovery operations, for disposal of exploration and production waste, or for storage of hydrocarbons which are liquid at standard temperature and pressure may be permitted by the secretary pursuant to the procedures set out in this chapter and chapter 74:10:11.01. To obtain a permit to inject, an applicant must demonstrate that the project will not cause any degradation of freshwater resources or other mineral resources, except where an aquifer exemption is approved. The secretary may not allow any major modification of the permit unless the permit is modified utilizing the notice of recommendation procedure in chapter 74:10:11.01.
http://legis.state.sd.us/rules/DisplayRule.aspx?Rule=74:10:09:01&Type=Rule

Chapter 74:10:09 Enhanced recovery and underground injection
74:10:09:08. Inspection and monitoring of injection project. The secretary may sample injection fluids at any time during the inspection and may inspect all injection facilities pursuant to the

provisions of §§ 74:10:11:03 to 74:10:11:06, inclusive.

EXISTING WELL ABANDONMENT REGULATIONS

REGULATIONS

Existence of insurance/indemnity bonds/fees for plugging and abandonment

45-9-15. Plugging and performance bond for wells drilled--Authority of board to require--Amount--Surety--Conditions. Without limiting its general authority, the Board of Minerals and Environment may require, or may delegate to the office of the state geologist, specific authority to require the furnishing of a plugging and performance bond in the amount of five thousand dollars per well drilled, or twenty thousand dollars blanket, with good and sufficient surety, conditioned for the performance of the duty to plug each dry or abandoned well, to restore the premises, insofar as possible, to the condition which existed prior to the filing of the application to drill; and conditioned on the proper performance of all of the requirements of §§ 45-9-5 to 45-9-18, inclusive. The condition of the bond insofar as it relates to restoration of the surface shall be deemed to have been complied with if the landowner or lessee and the producer or driller adopts a different plan as approved by the board. The board may require additional bond if the circumstances require.
Available at: SL 1943, ch 153, § 6; SL 1959, ch 244; SDC Supp 1960, § 42.0706 (3) (a); SDC Supp 1960, § 42.0706 (4) (a) (5) as enacted by SL 1961, ch 211, § 1; SL 1979, ch 296, § 1.

PROPERTY OWNERSHIP

MINERAL RIGHTS

43-30A-1. "Mineral interest" defined. In this chapter, unless context otherwise requires, the term, "mineral interest," includes any interest in oil, gas, coal, clay, gravel, uranium, and all other minerals of any kind and nature, whether created by grant, assignment, exception, reservation, or otherwise, owned by a person other than the owner of the surface estate.

Unitization: Existing state law (SDCL 45-9-37 through 51) authorizes the Board of Minerals and Environment to establish a unit operation for oil and gas production.
To form a unit, state law requires that 60% of the affected persons who own or lease mineral rights within the proposed unit area must approve of the unit formation.
Affected mineral owners or lessees are expected to pay a share of the development costs, exclusive of royalties, and then share in the profits, both on some type of pro-rata basis that is negotiated with the production company.
http://www.state.sd.us/denr/DES/Mining/Oil&Gas/Documents/oil%20and%20gas%20legislation%20fact%20sheet.pdf

SURFACE OWNER RIGHTS

Surface owner rights as defined by SD 43-16-1: Owner of land in fee, right to surface and things beneath or above it. The owner of land in fee has the right to the surface and to everything permanently situated beneath or above it.

SDCL 45-5A-1. Legislative findings. The Legislature finds the following:
(1) It is necessary for the state to protect the public welfare of South Dakota which is largely dependent on agriculture, and to protect the economic well-being of individuals engaged in agricultural production;
(2) Exploration for and development of mineral and oil and gas reserves in this state may interfere with the use, agricultural or otherwise, of the surface of certain land;
(3) Surface owners should be justly compensated for injury to their persons or property and

interference with the use of their property occasioned by mineral and oil and gas development. Source: SL 1982, ch 304, § 1.

SDCL 45-9-4 Requires that an applicant to drill an oil or gas well "must certify that an agreement with the landowner or lessee is being negotiated regarding compensation for damages to livestock and surface land resulting from drilling operations."

PORE SPACE RIGHTS

Under SD1-16, South Dakota has defined subsurface rights and has a statute for condemnation of subsurface property for laboratory, experimental, and development facilities.
1-16H-31.1. Subsurface property defined. For the purpose of §§ 1-16H-31.1 to 1-16H-31.10, inclusive, the term, subsurface property, means complete fee title to real property located one hundred feet or more below the surface, including the right to use such real property to construct, operate, support and maintain underground facilities, for scientific and technological experimentation and exploration, for the commercial exploitation of the subsurface for purposes other than mineral extraction, and for any other lawful purpose. The term, subsurface property, does not include ownership or the right to occupancy of the surface.

Available at: SL 2005, ch 12, § 1.
http://legis.state.sd.us/statutes/DisplayStatute.aspx?Statute=1-16H&Type=Statute

1-16H-31.2. Condemnation of subsurface property for purpose of acquiring, developing, constructing, maintaining, or operating projects--Limitation--Procedures. The authority may condemn private and public subsurface property for public use for the purposes of acquiring, developing, constructing, maintaining, or operating projects. The authority may only condemn subsurface property upon or through which it already owns or controls some, but not all, property rights. If the authority deems it necessary to condemn any subsurface property for such purpose, it shall, by resolution, declare the condemnation necessary, stating the purposes and extent thereof. Thereupon, proceedings for condemnation shall be undertaken in the name of the authority, as provided in chapter 21-35 and this chapter.

Available at: SL 2005, ch 12, § 2.
http://legis.state.sd.us/statutes/DisplayStatute.aspx?Statute=1-16H&Type=Statute

LONG TERM STEWARDSHIP

None

EXISTENCE OF MANDATORY GHG REPORTING REQUIREMENT

None

PASSED AND PENDING LEGISLATION RELATING TO CCS

INCENTIVES

None

INCLUSION OF CCS IN PORTFOLIO STANDARDS

None

LEGISLATION RELATED TO CLASSIFICATION OF CO_2

None

OTHER

None

WISCONSIN

REGULATORY AUTHORITY – WHO REGULATES WHAT

OIL AND GAS

The Public Service Commission of Wisconsin (PSC) regulates Wisconsin public utilities including natural gas distribution utilities. Currently, there are no oil or gas production wells operating within Wisconsin. The Wisconsin Department of Natural Resources (DNR) regulates oil and gas exploration drill holes, as well as the construction activities associated with oil and gas facilities (as outlined in 1b below) and air permitting for oil and gas facilities.

WATER

The PSC regulates Wisconsin public utilities, including combined sewer and water utilities (including those that are municipally-owned). The DNR manages activities that affect the safety, quality and availability of drinking water by preventing contamination of drinking water and groundwater to protect public health. Additionally, DNR manages activities that influence water quality by preventing and regulating water pollution from industries, municipal sewage treatment facilities, construction sites, farms, and urban areas. DNR permits are required for activities that effect waterways including structures in and near waterways, grading in and near waterways, and placement of bridges necessary for pipeline construction. DNR water quality certification is required for wetland impacts, and often this certification is part of the federal wetland permitting process. DNR also regulates underground injection wells.

ENVIRONMENTAL

The DNR is responsible for implementing the laws of the state and, where applicable, the laws of the federal government, that protect and enhance the natural resources of our state; it is the one agency charged with full responsibility for coordinating the many disciplines and programs necessary to provide a clean environment and a full range of outdoor recreational opportunities for Wisconsin citizens and visitors. All state agencies are required to administer regulatory programs in a manner that complies with Wisconsin's Groundwater Law (Chapter 160, Wis. Stats.). Additionally, all state agencies are required to comply with the Wisconsin Environmental Policy Act (WEPA) (Section 1.11, Wis. Stats.). Each state agency has specific administrative rules that outline WEPA compliance requirements (e.g., PSC 4 and NR 150, Wis. Adm. Code are the WEPA rules for PSC and DNR, respectively.)

POWER

The PSC regulates both electric and natural gas utilities; the DNR regulates air and water emissions.

PIPELINES

PSC regulates siting and need determinations for Wisconsin public utilities including natural gas distribution utilities.

PIPELINES, PURITY STANDARDS, ACQUISITION OF PROPERTY, EMINENT DOMAIN

TREATMENT OF CO_2 PIPELINES AND POTENTIAL IMPURITIES

Wisconsin has neither CO_2 pipelines nor purity standards.

MECHANISMS FOR ACQUISITION OF PROPERTY FOR PIPELINES

If a utility were involved, the utility would negotiate directly with the property owner for obtaining an easement. If they were unable to reach agreement, the utility has eminent domain authority under 32.02(6) Wis. Stats.

EMINENT DOMAIN AUTHORITY IN RELATION TO PIPELINES – IDENTIFY THE TYPE OF PIPELINES EMINENT DOMAIN APPLIES TO IF EXISTING
A Wisconsin utility receives eminent domain authority under 32.02(6) Wis. Stats. [32.02(6) (6) Any Wisconsin corporation furnishing gas, electric light or power to the public, for additions or extensions to its plant and for the purpose of conducting tests or studies to determine the suitability of a site for the placement of a facility.] It appears that if a utility built a CO_2 pipeline it would be covered by this grant of eminent domain authority. It does not appear that it would be likely for a non-utility entity, nor would the PSC be able to grant it under 32.02(13), as CO_2 is not oil, a related product, or hydrocarbon. Interstate natural gas pipelines receive whatever eminent domain authority they have from FERC, not the PSC. However, 32.02(13) allows the PSC to grant authority to other oil or hydrocarbons pipelines based on a showing of public interest.
EXPERIENCE WITH CO_2 INJECTION - INSTITUTIONAL CAPACITY, RESOURCES TO REGULATE
HISTORICAL PROJECTS (FIELD NAME: PROJECT TYPE; TIMEFRAME; CUMULATIVE NET CO2 INJECTED (MCF)
Wisconsin has no experience with CO_2 injection, EOR/EGR, or natural gas storage anywhere in the state.
BACKGROUND
OTHER
SURFACE WATER RIGHTS
LIABILITY ASSOCIATED WITH OIL AND GAS
EXISTING $C0_2$, EOR/EGR
PROJECTS
Wisconsin has no experience with CO_2 injection, EOR/EGR, or natural gas storage anywhere in the state.
EXISTING NATURAL GAS STORAGE PROJECTS
Wisconsin has no experience with CO_2 injection, EOR/EGR, or natural gas storage anywhere in the state. A March, 1960 summary prepared by the State Geologist (George F. Hanson) concluded that the geology of Wisconsin provided minimal opportunities for subsurface gas storage.
EXISTING MONITORING REGULATIONS FOR CLASS II INJECTION WELLS
Class II injection wells are prohibited (s. NR 815.06 (2), Wis. Admin. Code).
EXISTING WELL ABANDONMENT REGULATIONS
REGULATIONS
Well and drill hole abandonment is regulated by DNR (Chapter NR 812, Wis. Admin. Code).
EXISTENCE OF INSURANCE/INDEMNITY BONDS/FEES FOR PLUGGING AND ABANDONMENT
DNR regulates and requires the above for oil or gas exploration drill holes, metallic mining boreholes, and radioactive waste site investigation wells. Bonding may be required for water supply wells or other drill holes (determined on a case by case basis).
PROPERTY OWNERSHIP
MINERAL RIGHTS

Surface Owner Rights

Pore Space Rights

As a regulated activity, the owner operator of a CO_2 injection facility would be required to comply with Wisconsin's Groundwater Law (Chapter 160, Wis. Stats.).

"One of the most important features of Wisconsin's groundwater law is something that is not in it – aquifer classification. Aquifer classification involves looking at the use, value or vulnerability of each aquifer and allowing some to be "written off" as industrial aquifers not fit for human consumption. Wisconsin said "no" to aquifer classification. The philosophical underpinning of Wisconsin's groundwater law is the belief that our groundwater is capable of being used for citizens to drink, and must be protected to assure that it can be."
See FY 2008 Groundwater Coordinating Council Report to the Legislature for more background on WI Groundwater Law
http://www.dnr.state.wi.us/org/water/dwg/gcc/rtl/introduction2008.pdf

Long Term Stewardship

Existence of Mandatory GHG Reporting Requirement

State Statutes That May Affect or Limit State Ability to Take on Long-Term Stewardship

Current Wisconsin rules (NR 438) require annual reporting of CO_2 emissions by stationary sources, from fuel combustion, with a threshold of 100,000 tons/yr. The Governor's Task Force on Global Warming recently recommended revising that rule to lower the threshold to 10,000 tons/yr.

Passed and Pending Legislation Relating to CCS

Incentives

The Wisconsin PSC, in partnership with the WI DNR conducted a review of potential incentives for integrated gasification combined cycle technology (IGCC) deployment in their report, "IGCC: Benefits, Costs, and Prospects for Future Use in Wisconsin."
http://psc.wi.gov/apps/erf_share/view/viewdoc.aspx?docid=68721

Inclusion of CCS in Portfolio Standards

Legislation Related to Classification of CO_2

Other

Wisconsin has not passed legislation related to CCS. The Governor's Task Force on Global Warming recommended the creation of a group to study the technical and economic potential and infrastructure requirements for CCS deployment in Wisconsin. That group expects to have a final report on these issues in 2009. Future legislation may result.