CARBON DIOXIDE PIPELINE REGULATION

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Synopsis: The ability to transport massive volumes of carbon dioxide (CO_2) via pipeline will be crucial to using large scale carbon capture and sequestration (CCS) projects as a means of reducing greenhouse gas (GHG) emissions in the United States. The small existing CO_2 pipeline infrastructure may eventually have to be expanded to be comparable in size to the country's natural gas pipeline system. To build out a national CO_2 pipeline system, the U.S. will need to create a workable regulatory framework. Today, CO_2 pipeline developers have no access to federal siting or federal eminent domain authority for construction of such pipelines; rather, they must deal with a patchwork of individual state laws and regulations. The shape of any applicable economic regulation, including rules on rate and access regulation, will also need to be resolved and addressed before project sponsors will build pipelines to support CCS. This article provides policymakers with analysis and recommendations respecting the federal regulatory regime governing the construction and operation of CO_2 pipelines.

The article recommends that existing CO_2 pipelines remain subject to state level regulation principally because the current state schemes in place can support the purpose for which they were built, which was not a national-level GHG emission reduction program. However, new pipelines should be able to elect to apply for federal permits for construction and operation similar to those granted for natural gas pipelines. Once a federal permit is issued, the project sponsor would not be subject to state siting requirements and would have eminent domain authority similar to that provided interstate natural gas pipelines. When operational, CO_2 pipelines for which a federal permit is issued would be subject to federal common carrier regulation. This recommended framework should better support construction of the new CO_2 pipeline infrastructure necessary for widespread deployment of CCS.

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I. INTRODUCTION

As discussion of a federal regulatory program for reducing carbon dioxide (CO_2) and other greenhouse gas (GHG) emissions continues in the United States, carbon capture and sequestration (CCS) has emerged as a key technology option for CO_2 emissions abatement. This article surveys the current regulatory regime in place for CO_2 pipeline transportation and suggests areas for further evaluation. It outlines background information about CO_2 transport, summarizes the current state of CO_2 pipeline regulation under federal and state law, evaluates existing law in areas that may be important for a national CO_2 pipeline system, discusses alternative regulatory frameworks that could be considered to support development and operation of a much larger CO_2 pipeline network, and concludes with recommendations for reform.

II. BACKGROUND

CCS is regarded as "the critical enabling technology" for reducing CO_2 emissions significantly while allowing the continued use of coal and other fossil fuels to meet energy needs.[1] While numerous efforts are underway to understand the behavior of injected CO_2 in storage formations,[2] and to develop rules for siting of injection sites,[3] comparatively less attention has been paid to CO_2 transportation infrastructure issues that could arise.

CCS is the process in which CO_2—the most common GHG—is separated from the process and exhaust streams of electric generation units and other large emissions sources, compressed, and injected into underground formations to

1. MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Executive Summary, THE FUTURE OF COAL at x (2007), http://web.mit.edu/coal.

2. *See, e.g.*, *Energy Department Awards $66.7 Million for Large-Scale Carbon Sequestration Project*, Dec. 18, 2007, *available at* http://www.fossil.energy.gov/news/techlines/2007/07084-Illinois_Basin_Sequestration_Proje.html.

3. Proposed Rule, Federal Requirements Under the Underground Injection Control (UIC) Program for Carbon Dioxide (CO_2) Geologic Sequestration (GS) Wells, 73 Fed. Reg. 43,492 (2008).

prevent its release into the atmosphere.[4] The large volumes of CO_2 are compressed for injection onsite or transportation to a storage site with suitable geology. CO_2 is transported as a supercritical fluid (a substance above critical temperature and pressure points exhibiting characteristics of both a liquid and a gas), which maximizes pipeline efficiency.[5]

From an operational perspective, pipeline diameters are sized according to operating parameters so that CO_2 remains supercritical fluid throughout transport.[6] CO_2 pipeline diameters vary, but generally larger diameters of pipe result in lower transportation costs.[7]

If CCS is widely deployed, the potential required CO_2 pipeline infrastructure could be very large. "Plausible capture rates (~80%) of the carbon dioxide from fossil fuels used for electric power production in the US today would produce a CO_2 stream of approximately 1800 million tons (Mt) per year injected into a variety of geological formations."[8] The existing U.S. CO_2 pipeline infrastructure transports forty-five Mt of CO_2 per year over 3,500 miles of pipe for enhanced oil recovery (EOR).[9] For comparison, the existing U.S. natural gas pipeline network transports 455 Mt per year of natural gas over 300,000 miles of interstate and intrastate pipe.[10] At the high-end, some estimates predict that the CO_2 pipeline network that will develop for CCS could be comparable in size to the existing natural gas infrastructure.[11] Other estimates

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4. United States Dep't of Energy (DOE), Carbon Sequestration R&D Overview, http://www.fossil.energy.gov/programs/sequestration/overview.html

5. Z.X. Zhang, G.X. Wang, P. Massarotto & V. Rudolph, *Optimization of pipeline transport for CO_2 sequestration*, 47 ENERGY CONVERSION & MANAGEMENT 702 (2005).

6. Recth, D. L., "Design Considerations for Carbon-Dioxide Pipe Lines. 1," *Pipe Line* Industry, Vol. 61, No. 3, 53-54 (1984).

7. Sean T. McCoy & Edward S. Rubin, *An engineering-economic model of pipeline transport of CO_2 with application to carbon capture and storage*, 2 INT'L J. OF GREENHOUSE GAS CONTROL 219 (2008).

8. Adam Newcomer & Jay Apt, *Implications of generator siting for CO_2 pipeline infrastructure*, 36 ENERGY POLICY 1776, 1783 (2008).

9. *Coal: A Clean Future Response of the Market to Global Incentives and Mandates for Clean Coal: Hearing Before the Energy Subcomm. of the Finance Comm.*, (2007) (statement of William L. Townsend, Chief Executive Officer, Blue Source Companies). *2008 worldwide EOR survey*, OIL & GAS J. (2008). The survey reports that 240,313 bbl/d is currently produced via CO_2-flood EOR and the amount of CO_2 delivered into Texas is twenty-seven Mt/y. The number may be closer to thirty-two Mt/y of CO_2 considering that the typical net utilization of CO_2 falls somewhere between five to seven mscf/bbl, equal to twenty-three to thirty-two Mt/y of CO_2.

10. Newcomer & Apt, *supra* note 7, at n.1.

> While the total mass of CO_2 is 4 times larger than the mass of current natural gas transport (455 Mt) in the US, that does not mean that the total pipeline infrastructure will be 4 times larger, since at operational conditions, a CO_2 pipeline carries about 3 times more mass per unit length than does a natural gas pipeline.

Id.

11. CCSREG, CARBON CAPTURE AND SEQUESTRATION: FRAMING THE ISSUES FOR REGULATION 26 (2008), http://www.ccsreg.org/pdf/CCSReg_12_28.pdf; ADAM VANN & PAUL W. PARFOMAK, REGULATION OF CARBON DIOXIDE CO_2 SEQUESTRATION PIPELINES: JURISDICTIONAL ISSUES n.29 (2008) (describing three CO_2 pipeline build-out scenarios).

predict that, because CO_2 transportation is expected to involve shorter transportation distances than natural gas, a smaller network will likely result.[12]

The geographic configuration and size of the CO_2 pipeline network is difficult to predict at this time. It seems unlikely that CCS will drastically alter current siting calculations for electricity generation units, as "[t]he cost of piping CO_2 is not negligible, but is much less than [electric] transmission cost."[13] Rather, the network's configuration will likely be dictated by the feasibility and economics of generating electricity near a particular sequestration site, and the economics of transporting fuel to the generation unit and the economics of transmitting electricity from that location outward to serve load.[14]

III. CURRENT FEDERAL REGULATION OF CO_2 PIPELINES

A. Rate and Access Regulation

There is no current Federal siting or eminent domain regulatory scheme for CO_2 pipelines. Rather, the current federal regulatory framework for CO_2 pipeline rate and access regulation can only be described as Byzantine:

- The Federal Energy Regulatory Commission (FERC) has disclaimed jurisdiction over CO_2 pipelines under the Natural Gas Act.
- The Surface Transportation Board (STB) has not opined on its jurisdiction over CO_2 pipelines under Title 49, United States Code.
- The Interstate Commerce Commission (ICC) (the predecessor of the STB) disclaimed jurisdiction because CO_2 is a "gas" and, therefore, exempt under Title 49, United States Code.
- The Bureau of Land Management (BLM) has imposed the equivalent of a common carrier obligation on CO_2 pipelines crossing Federal lands on the basis that CO_2 is "natural gas."

1. Federal Energy Regulatory Commission

The FERC possesses jurisdiction to regulate transportation and sale at wholesale of natural gas in interstate commerce under the Natural Gas Act (NGA).[15] A pipeline operator cannot engage in the transportation or sale of

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12. JJ Dooley et al., *Comparing Existing Pipeline Networks with the Potential Scale of Future U.S. CO_2 Pipeline Networks*, ENERGY PROCEDIA 3 (2008) (estimating that the number of miles of CO_2 pipelines in operation by 2050 would fall somewhere between 16,000 and 28,000 miles).

13. Newcomer & Apt, *supra* note 8, at 1783.

14. Dooley et al., *supra* note 11, at 3 (stating that "fully 95 percent of the largest point sources lie within 50 miles of a potential storage reservoir").

15. Natural Gas Act, 15 U.S.C. § 717(b) (2006), defines the NGA's scope:

> The provisions of this chapter shall apply to the transportation of natural gas in interstate commerce, to the sale in interstate commerce of natural gas for resale for ultimate public consumption for domestic, commercial, industrial, or any other use, and to natural-gas companies engaged in such transportation or sale . . . but shall not apply to any other transportation or sale of natural gas or to the local distribution of natural gas or to the facilities used for such distribution or to the production or gathering of natural gas.

Id. The FERC's core activities under the NGA include: (1) certification of jurisdictional pipeline and storage facilities (certification carries eminent domain authority); (2) regulation of rates, terms and conditions for

natural gas, or service, construct, extend, or acquire a natural gas pipeline without obtaining a certificate of public convenience and necessity from the FERC.[16] The FERC will issue such a certificate only if "required by the present or future public convenience and necessity."[17] The FERC may impose conditions on the certificate[18] and has the power to determine the service area to be covered.[19] Perhaps the most valuable tool in the NGA is the right of eminent domain granted to the holder of a certificate of public convenience and necessity.[20] These provisions from Section 7 of the NGA, combined with Section 4 (rates and charges) and Section 5 (fixing rates and charges), have led the courts to repeatedly interpret the NGA as providing for exclusive and preemptive federal siting of interstate natural gas pipelines.[21]

In addition to regulating natural gas pipelines, the FERC also regulates oil pipelines under the Interstate Commerce Act.[22] The FERC's responsibilities include: (1) regulation of rates and practices of oil pipeline companies engaged in interstate transportation; (2) establishment of nondiscriminatory conditions of service in order to provide shippers access to pipeline transportation; and (3) establishment of reasonable rates for transporting petroleum and petroleum products by pipeline.[23]

The FERC has, however, specifically disclaimed jurisdiction over CO_2 pipelines, even where they transport small amounts of natural gas, such that the NGA requirements on rate regulation, access regulation, and certificate requirements otherwise applicable to interstate natural gas pipelines do not apply. In *Cortez Pipeline Co.* (*Cortez*), the FERC found that it did not have jurisdiction over CO_2 pipelines under the NGA.[24] Cortez sought to develop a pipeline connecting a CO_2 reservoir in Colorado with oil fields in Texas for EOR.[25] Cortez requested that the FERC issue a declaratory order stating that the FERC did not have jurisdiction over the proposed pipeline because the supercritical fluid being transported was not "natural gas" within the meaning of the NGA.[26] (The NGA defines natural gas as "natural gas unmixed or any

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pipeline transportation and storage; and (3) oversight of wholesale sales for resale (although wholesale rates are largely deregulated). *Id.* at § 717(m).

16. *Id.* at § 717f(c)(1)(A).

17. *Id.* at § 717f(e).

18. If the holder and a property owner cannot agree to the terms of a right-of-way for the construction, operation, maintenance, or transportation of a natural gas pipeline, the holder "may acquire the same by the exercise of the right of eminent domain" in state or federal court. *Id*. at § 717f(h).

19. *Id*. at § 717f(f).

20. *Id*. at § 717f(e).

21. *See, e.g.*, Northern Natural Gas Co. v. Iowa Util. Bd., 377 F.3d 817 (8th Cir. 2004)(finding that federal regulations and the NGA occupy the field of extension, operation, and acquisition of natural gas facilities, thereby preempting any state authority to do so.); *see also* Schneidewind v. ANR Pipeline Co., 485 U.S. 293 (1988)(the NGA preempts state attempts to regulate securities issued by interstate pipeline companies). A certificate does not have preemptive effect when a state is exercising federal delegated authority, such as that provided by the Clean Water Act. In such situations, the question is not one of preemption, but of which statute prevails.

22. 49 U.S.C. § 60502 (2006).

23. *Id*.

24. *Cortez Pipeline Company*, 7 F.E.R.C. ¶ 61,024 (1979).

25. *Id*.

26. *Id*. at ¶ 61,041.

mixture of natural and artificial gases.")[27] The pipeline company stated that the mixture transported in the pipeline project would be ninety-eight percent CO_2, with the other two percent of mixed composition, including methane.[28]

In response to the request, the FERC analyzed the NGA to determine whether the CO_2 and methane gas mixture was "natural gas" within the meaning of the statute.[29] The FERC looked beyond a scientific or technical definition of "natural gas" to determine its jurisdiction, looking instead to the reasons for passage of the NGA.[30] The FERC noted a lack of debate over any ambiguity in the term "natural gas" during the NGA enactment.[31] The FERC determined that the only debate in the legislative history around the term "natural gas" in the NGA focused on whether unmixed artificial gas should be included in the definition, concluding that, "[i]t seems likely that Congress used the common meaning of 'natural gas' of a mixture of gases, including a sufficient component of hydrocarbons to give it heating value."[32]

After the FERC determined that there was no specific chemical composition under the NGA that constitutes "natural gas," the FERC evaluated Congress' objectives in enacting the NGA.[33] The FERC stated that the "goal of the NGA was to protect the consumers of a salable commodity from 'exploitation at the hands of the natural gas companies' and was framed to afford consumers a bond of protection from excessive rates and charges."[34]

The FERC considered whether to include the CO_2 pipeline within its jurisdiction "in light of the general goal of the NGA," finding that "no goal or purpose of the NGA" would be advanced by asserting FERC jurisdiction over the CO_2 pipeline.[35] Accordingly, the FERC did not assert jurisdiction.[36]

2. Surface Transportation Board

The STB is an independent federal administrative agency within the Department of Transportation and is responsible for economic regulation of certain common carrier interstate transportation. This responsibility primarily relates to railroad transportation, but also includes interstate transportation by pipeline of commodities "when transporting a commodity other than water, gas or oil," with the term "gas" undefined.[37]

The ICC, the STB's predecessor, specifically disclaimed jurisdiction over CO_2 pipelines in 1981. In an ICC proceeding involving the same pipeline project as the FERC decision, *Cortez Pipeline Co.*, the ICC determined that it lacked jurisdiction over CO_2 pipelines. Cortez filed a petition with the ICC for a

27. 15 U.S.C. § 717a(5) (2006).

28. In the CCS context, it is unlikely that methane will be mixed with any CO_2, so there is likely to be less of a question under the Natural Gas Act.

29. 7 F.E.R.C. ¶ 61,024 at 61,042.

30. *Id*. at 61,041

31. *Id*.

32. *Id*.

33. *Id*. at 61,042.

34. *Id*. at 61,042.

35. *Id.*

36. *Id*.

37. 49 U.S.C. §15301(a) (2006).

declaratory order that CO_2 pipeline transport is exempt from ICC jurisdiction.[38] Cortez argued that the Interstate Commerce Act (ICA) specifically excluded from ICC jurisdiction interstate pipeline transportation of "water, gas, or oil," and that CO_2, while transported as a supercritical fluid, is a gas at atmospheric pressure, the transportation of which falls within the statutory exemption from regulation.[39]

The ICC proceeded to analyze the situation in terms of the meaning of "gas" in the statutory exemption. The inquiry began with the history of the statute granting jurisdiction over common carrier pipelines to the ICC, the Hepburn Act of 1906.[40] The ICC found that the original language in the Hepburn Act provided ICC jurisdiction over interstate commodity transportation "except water and except natural or artificial gas." "Artificial" coal gas was still in use during the early 1900's, so legislators wrote the exemption from jurisdiction to be clear that both "natural or artificial gas" are exempt from ICC jurisdiction.[41] The term "natural or artificial" was eliminated in a 1978 recodification because "those words were considered surplus."[42] The ICC determined that the recodification of the law, which earlier removed the original description of gas as "natural or artificial," was not a substantive change.

The ICC issued a preliminary finding that it lacked jurisdiction over CO_2 pipelines stating that, "[t]he plain meaning of the former act [Hepburn Act of 1906], as supported by the legislative history, is that the universe of gas types classified by origin or source was excluded."[43] The ICC explained that the decision of the FERC, as a "sister agency, should be given weight if possible."[44] However, the ICC distinguished the FERC's decision, because it was not based on an interpretation of the term "natural and artificial gas."

After receiving only supportive public comments on its preliminary decision, the ICC affirmed the preliminary decision that it did not possess jurisdiction over CO_2 pipelines.[45] The ICC found that based on the plain meaning of the statutory exemption for "water, gas or oil,"[46] and the legislative history of the Hepburn Act of 1906, "all gas types classified by origin or source are excluded from our jurisdiction. Consequently, carbon dioxide gas, the subject of the petitions, is also excluded, when transported by pipeline."[47]

The General Accounting Office (GAO) subsequently released a report that specifically found that CO_2 pipelines are within the oversight authority of the

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38. Cortez Pipeline Co., 45 Fed. Reg. 85,177 (1980). The ICC also ruled in the same order on a similar petition filed by the Atlantic Richfield Company, who sought, like the Cortez Pipeline Co., to transport CO_2 via pipeline from Colorado to Texas for tertiary recovery through EOR. *See also Future of Coal*, *supra* note 1.

39. 49 U.S.C. § 15301(a) (2006).

40. Pub. L. No. 59-337, 34 Stat. 584 (1906).

41. Cortez Pipeline Co., 45 Fed. Reg. 85,178.

42. *Id*.; *see also* H.R. Rep. No. 95-1395, 52 (1978).

43. Cortez Pipeline Co., 45 Fed. Reg. 85,178.

44. *Id.* (citing Erlenbaugh v. U.S., 409 U.S. 239, 243-44 (1972)).

45. *Id.*.

46. 49 U.S.C. 10501(a)(1)(C) (2006).

47. Cortex Pipeline Co., 46 Fed. Reg. 18,805 (1981). While the case indicated that the gas was transported as a supercritical fluid, the decision treats CO_2 as a gas at atmospheric pressure.

STB, along with at least one other gas, hydrogen.[48] To date, the STB (established in 1995) has not heard any case specifically requesting it to rule on its jurisdiction over CO_2 pipelines. On that basis has declined to address the jurisdictional issue raised in the GAO report.[49]

While the STB is not bound by the ICC ruling,[50] the statutory language interpreted in the ICC's *Cortez* decision is virtually identical to that in the corresponding section of the current Interstate Commerce Commission Termination Act (ICCTA).[51] Given the ICC's status as a predecessor agency and the similarity in statutory language, STB may be inclined to follow the ICC *Cortez* decision with respect to jurisdiction over CO_2 pipelines. Whether such a decision could be sustained on judicial review remains to be seen. The ICC's review of the legislative history of the 1906 Hepburn Act, in the underlying decision, fails to support its conclusion that all gases, rather than combustible gases, were intended to be covered.[52]

Even if one assumes that the STB has jurisdiction over CO_2 pipelines, the STB's regulatory oversight would be limited. The STB's regulatory role is to ensure that a common carrier pipeline: (1) charges reasonable, non-discriminatory rates;[53] (2) establishes classifications, rules and practices on matters related to its transportation and service;[54] (3) does not subject its shippers to unreasonable discrimination;[55] (4) provides proper facilities for the interchange of traffic;[56] and (5) provides transportation and service, as well as rates and other terms of service, upon reasonable request.[57] Importantly, the STB authority, unlike the FERC authority under the NGA, does not encompass siting, certification, or eminent domain authority with respect to pipelines it regulates.

Moreover, even if the STB exercised regulatory authority over CO_2 pipelines, its jurisdiction over a particular pipeline would depend upon whether the pipeline company is a "pipeline carrier."[58] The ICCTA defines "pipeline carrier" as a "person providing pipeline transportation for compensation."[59] If

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48. Testimony and Statement for the Record by Phyllis F. Scheinberg before the Subcommittee on Surface Transp. And Merchant Marine Infrastructure Safety and Security, U.S. Senate, GOV'T ACCOUNTABILITY OFFICE, Issues ASSOCIATED WITH PIPELINE REGULATION BY THE SURFACE TRANSPORTATION BOARD, RCED-98-99, Appendix 1 (1998)[hereinafter, GAO Report].

49. Adam Vann & Paul W. Parfomak, REGULATION OF CARBON DIOXIDE (CO_2) SEQUESTRATION PIPELINES: JURISDICTIONAL ISSUES, CRS Report for Congress, n. 29 (2008) (suggesting that Congress may need to enact specific legislation that provides for definitive CO_2 federal pipeline rate jurisdiction to prevent continued jurisdictional disclaimers).

50. Chevron v. Nat'l. Res. Def. Council, 467 U.S. 837, 863 (1984); Motor Vehicles Mfg. Assoc. v. State Farm, 463 U.S. 29,42 (1983) (According to U.S. administrative law, an agency is free to change its interpretation of the statute it administers if there is a reasoned basis for its decision).

51. Compare 49 U.S.C. §15301(a) (2006) with 49 USC §10501(a)(1)(C) (1978).

52. Cortez Pipeline Co., 45 Fed. Reg. 85,178.

53. 49 U.S.C. §15501(a) (2006).

54. 49 U.S.C. §15502 (2006).

55. 49 U.S.C. §15505 (2006).

56. 49 U.S.C. § 15506 (2006).

57. 49 U.S.C. §15701 (2006); 49 C.F.R. §§1305.2-1305.3 (2006).

58. 49 U.S.C. §15501 (2006)(setting forth standards for pipeline rates, classifications, and rules fro transportation or service provided by a "pipeline carrier").

59. 49 U.S.C. §15102(2) (2006).

the company entered into transactions with other companies to ship their carbon dioxide in interstate commerce, then the company would be a "pipeline carrier" and subject to STB regulation (assuming, again, that the STB found that supercritical CO_2 is not an exempt gas). In addition, according to the precedent established pursuant to the ICA, a pipeline that does not engage in "transportation" is not subject to regulation. For example, if a company owned or operated pipelines in which it shipped only CO_2 that it had produced, it would not be engaged in interstate "transportation" within the meaning of Title 49.[60] This precedent is consistent with the ICCTA definition of a "pipeline carrier," and would suggest that if a CO_2 capturer owns the pipelines that transport only CO_2 which it produces from its own facilities, it would not be regulated under Title 49.

If jurisdiction attaches, the STB's regulatory authority over pipeline carriers is significantly less rigorous and intrusive than FERC's regulatory authority over natural gas pipelines. For example, the STB may not begin an investigation into a pipeline's rates on its own initiative. Rather, the STB may begin investigations only in response to complaints by shippers or other affected parties.[61] In addition, the ICCTA eliminated the requirement that pipeline carriers file their rates, and, under the current regulatory scheme, the STB has no authority to regulate a pipeline carrier's decision to enter or abandon markets.[62]

3. Bureau of Land Management

Federal agencies have authority to grant rights-of-way (ROW) across federal lands. The statutes governing ROW are important both because they establish the ground rules for siting pipelines across federal lands, and because they may establish access and rate conditions for service provided on pipelines that cross federal lands. The Bureau of Land Management has responsibility for administering ROW on federal lands managed by the Department of the Interior. The Mineral Leasing Act (MLA) provides that:

> Rights-of-way through any Federal lands may be granted by the Secretary of the Interior or appropriate agency head for pipeline purposes for the transportation of oil, natural gas, synthetic liquid or gaseous fuels, or any refined product produced therefrom. . . .[63]

If a right-of-way is granted under the MLA, the pipeline is regulated by FERC as a common carrier, which imposes an obligation on the pipeline to "accept, convey, transport, or purchase without discrimination all oil or gas delivered to the pipeline without regard to whether such oil and gas was produced on Federal or non-Federal lands."[64]

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60. *See generally* U.S. v. Champlin Refining Co., 341 U.S. 290 (1951) (holding that the ICC could not regulate an oil company that transports its own products through its own pipeline, does not hold itself out as a public carrier, and does not transport products of any other company). *See also* The Pipe Line Cases, 234 U.S. 548, 562 (1914) (holding that the use of an oil pipeline for the sole purpose of moving oil across a state line from a company's own wells to its own refinery is not "transportation" within the meaning of the ICA).

61. 49 U.S.C. § 15503(c) (2006).

62. GAO Report, *supra* note 48, at 7.

63. 30 U.S.C. § 185(a) (2006).

64. *Id.* at § 185(r).

In contrast, the Federal Land Policy and Management Act (FLPMA) provides that the Secretary shall issue ROW for:

> pipelines and other systems for the transportation or distribution of liquids and gases, *other than water and other than oil, natural gas, synthetic liquid or gaseous fuels, or any refined product produced therefrom*, and for storage and terminal facilities in connection therewith;[65]

FLPMA rights-of-way, in contrast to MLA rights-of-way, do not require that the operator act as a common carrier.[66]

Questions regarding which statute controls have been the subject of litigation. In the case of *Exxon Corp. v. Lujan*,[67] Exxon challenged the issuance of a ROW across federal lands under the MLA, instead arguing that the ROW should have been issued under the FLPMA.[68] The reason that this distinction is important is that the MLA imposes common carrier obligations on pipeline operators, while the FLPMA does not. Exxon challenged the ROW at the agency and district court level, arguing that CO_2 is not a "natural gas" within the meaning of the MLA, but rather falls within the purview of FLPMA.[69]

The court addressed this statutory interpretation question by reference to the well-known administrative law precedent in *Chevron, U.S.A., Inc. v. Natural Resources Defense Council*,[70] under which courts defer to an agency's interpretation of a statute it implements where the statute is ambiguous and the agency interpretation is reasonable. The Tenth Circuit noted that there are varying definitions of natural gas, and that courts and agencies have interpreted the meaning of natural gas in different contexts, including in the FERC *Cortez* case.[71] The court concluded that the statutory term "natural gas" was ambiguous.[72] It looked further to the legislative history of the MLA, but concluded that "the legislative history of the MLA does not establish Congress's intention with the requisite clarity."[73] Consequently, the court applied the *Chevron* doctrine and granted deference to the Bureau of Land Management's reasonable interpretation of the MLA to cover ROW for CO_2 pipelines, based on an interpretation that CO_2 was "natural gas" under the MLA.[74]

B. Safety Regulation

Safety regulation of CO_2 pipelines is clearly established and does not suffer from the same uncertainties as economic regulation of those pipelines. The U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) has primary authority to regulate interstate CO_2

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65. 43 U.S.C. § 1761(a)(2) (2006) (emphasis added).

66. *Id.* at § 1761(b). An application for a ROW must contain information about the "effect on competition," which is considered in the terms and conditions of the grant of a ROW, but there are no specific non-discrimination or open access requirements.

67. 970 F.2d 757 (10th Cir. 1992).

68. 43 U.S.C. § 1761 (2006).

69. *Exxon*, 970 F.2d at 757.

70. 467 U.S. 837 (1984).

71. *Exxon*, 970 F.2d at 760.

72. *Id*.

73. *Id*. at 761.

74. *Id*.

pipelines under the Hazardous Liquid Pipeline Act of 1979.[75] Within the PHMSA, the Office of Pipeline Safety (OPS) regulates the design, construction, operation, maintenance, and spill response planning for regulated pipelines.[76] The PHMSA establishes minimum safety standards for interstate pipelines, and has largely preempted states from establishing their own standards for interstate pipelines.[77]

CO_2 is listed as a non-flammable gas hazardous material under Department of Transportation regulations.[78] As a result of this classification, safety of CO_2 pipelines is regulated to the same degree that hazardous liquids pipelines are.[79]

IV. REGULATION IN SELECTED STATES: TEXAS AND NEW MEXICO

CO_2 pipelines are subject to regulation in certain states as well as federal regulation. While we did not attempt to survey state regulatory authorities and practices in fifty states, we did review the regulations in Texas and New Mexico as examples of state approaches.[80]

A. Rate Regulation

In the two state schemes we reviewed, economic regulation appears only to apply in instances where intrastate pipelines are regulated as common carriers by the states.

For example, in Texas, CO_2 pipelines have the option to choose to become a common carrier,[81] which, in return for certain rights, imposes certain obligations on the pipeline. An intrastate CO_2 pipeline regulated as a common carrier is required to charge equal rates for like service,[82] and to "make and publish their tariffs under rules proscribed by the [Texas Railroad Commission]."[83] The Texas Railroad Commission does not appear to prescribe detailed tariff provisions for CO_2 pipelines, as it does for petroleum pipelines.[84]

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75. 49 U.S.C. § 601 (2006).

76. 49 C.F.R, §§ 190, 195-199 (2008).

77. 49 U.S.C. § 60104(c) (2006) (generally, states and local authorities "may not adopt or continue in force safety standards for interstate pipeline facilities or interstate pipeline transportation."); Olympic Pipeline Co. v. Seattle, 437 F.3d 872 (9th Cir. 2006) (finding that safety regulations imposed in addition to federal-state pipeline safety agreement were preempted by the Federal Pipeline Safety Act.).

78. 49 C.F.R. § 172.101 (2008).

79. 49 C.F.R. § 195.0 (2008).

80. *See also*, Philip M. Marston & Patricia A. Moore, *From EOR to CCS: The Evolving Legal and Regulatory Framework for Carbon Capture and Storage*, 29 ENERGY L.J. 421, 456–461 (2008) (discussing the common carrier status of CO_2 pipelines under state statutes in Texas, Mississippi, and Louisiana).

81. TEX. NAT. RES. CODE ANN. § 111.002 (2008):

> A person is a common carrier subject to the provisions of this chapter if it: (6) owns, operates, or manages, wholly or partially, pipelines for the transportation of carbon dioxide or hydrogen in whatever form to or for the public for hire, but only if such person files with the commission a written acceptance of the provisions of this chapter expressly agreeing that, in consideration of the rights acquired, it becomes a common carrier subject to the duties and obligations conferred or imposed by this chapter.

82. TEX. NAT. RES. CODE ANN. § 111.017 (2008).

83. TEX. NAT. RES. CODE ANN. § 111.014 (2008).

84. 16 TEX. ADMIN. CODE § 3.71 (2008).

Similarly, while New Mexico regulates the rates of oil or oil products pipelines, it does not currently regulate the rates of intrastate CO_2 pipelines.[85]

B. Safety

As noted above, the OPS regulates interstate pipelines, but states can participate in safety regulation as well.

The states that have CO_2 pipelines regulate the safety of CO_2 pipeline to varying degrees under delegation of the Hazardous Liquid Pipeline Act (HLPA) authority. First, states can assume regulatory authority and responsibility for enforcement of the HLPA requirements for intrastate pipelines through certification, whereby states adopt minimum federal standards and make an annual certification to the OPS.[86] Second, states can enter into agreements with the OPS to oversee aspects of the safety of intrastate pipelines. Third, states can act as agents of the OPS with respect to interstate pipelines, such that the state participates in oversight of interstate pipelines but the OPS is responsible for the ultimate enforcement in the event of violations.[87]

The Safety Division of the Texas Railroad Commission is certified by the OPS to regulate the safety of CO_2 pipelines that are used for intrastate pipeline transportation of CO_2.[88] Regulation includes reporting requirements, integrity assessment and management plans, notification requirements, and periodic inspection.[89] In addition, the Texas Administrative Code includes a subchapter that includes provisions applicable to hazardous liquids and CO_2 pipelines only. This section includes reporting requirements, corrosion control measures, and public education measures.[90]

Similarly, New Mexico has a Pipeline Safety Bureau that conducts compliance inspections and investigates accidents involving intrastate CO_2 pipelines. The New Mexico Pipeline Safety Bureau entered into an agreement with the U.S. Department of Transportation whereby the OPS oversees certain aspects of its intrastate hazardous liquids pipelines. New Mexico also has an informational filing requirement specifically addressing CO_2 pipelines.[91]

C. Siting Authority and Eminent Domain

As a general matter, the states and not the federal government are responsible for siting both interstate and intrastate CO_2 pipelines. In the states

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85. N.M. STAT. ANN. § 70-3-1 (2008)

> The corporation commission [public regulation commission] may prescribe reasonable maximum rates for the transportation of oil and the products derived therefrom, where such products are transported by a pipeline common carrier from any point in New Mexico to an ultimate destination in New Mexico, provided, in the event the reasonableness of such rates are [is] contested in the manner provided by law, the burden of proof to show the unreasonableness of such rates shall be upon the person, firm, association or corporation contesting the same.

Id. The New Mexico Constitution grants the New Mexico Public Regulation the authority and responsibility to regulate "pipeline companies . . . in such manner as the legislature shall provide." N.M. Const. Art. XI, § 2.

86. 49 U.S.C. § 60105 (2006).

87. 49 U.S.C. § 60106 (2006).

88. 16 TEX. ADMIN. CODE § 8.1-8.315 (2008).

89. *Id.*

90. *Id.*

91. N.M. CODE R. § 18.60.3.10 (2008).

reviewed, CO_2 pipeline project sponsors have eminent domain authority, which facilitates the ability to site the pipelines there. The power of eminent domain allows pipeline developers to take lands for the public use of pipeline infrastructure development. Lands for pipeline construction are often obtained through leases, with the threat of eminent domain action looming over the transactions.

In Texas, pipelines that are common carriers, including CO_2 pipelines, have the statutory right of eminent domain.[92] The Texas Natural Resources Code provides that:

> (a) Common carriers have the right and power of eminent domain.
> (b) In the exercise of the power of eminent domain granted under the provisions of Subsection (a) of this section, a common carrier may enter on and condemn the land, rights-of-way, easements, and property of any person or corporation necessary for the construction, maintenance, or operation of the common carrier pipeline.[93]

In the exercise of the power of eminent domain, property owners are entitled to just and adequate compensation for the public use of their land. The standard easement granted is fifty feet wide.[94] Of note, Texas does not require CO_2 pipeline operators to obtain a certificate of need and public convenience before the power of eminent domain is granted.[95] Siting is not performed by the state, but by the pipeline operator, which has the authority to decide the route a pipeline takes.[96] The Safety Division of the Railroad Commission of Texas oversees pipeline construction and grants permits for operations of intrastate hazardous liquids pipelines.

Like Texas, New Mexico's eminent domain statute provides for the authority to condemn surface property for pipeline construction and specifically includes CO_2 pipelines. The New Mexico eminent domain statute allows any person, firm, association or corporation to obtain a right-of-way for the construction, maintenance and operation of such pipelines and to enter onto state and private lands to make necessary surveys and examinations for them.[97]

This right applies to trunk lines only, which are primary transportation lines. In New Mexico, a pipeline does not have to be a common carrier in order

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92. TEX. NAT. RES. CODE ANN. § 111.002 (2008) The statute states:
A person is a common carrier subject to the provisions of this chapter if it: (6) owns, operates, or manages, wholly or partially, pipelines for the transportation of carbon dioxide or hydrogen in whatever form to or for the public for hire, but only if such person files with the commission a written acceptance of the provisions of this chapter expressly agreeing that, in consideration of the rights acquired, it becomes a common carrier subject to the duties and obligations conferred or imposed by this chapter

93. TEX. NAT. RES. CODE ANN. § 111.019 (2007).

94. TEX. NAT. RES. CODE ANN. § 111.0194 (2008).

95. The Texas statute lists seven categories of common carrier pipelines. TEX. NAT. RES. CODE ANN. § 111.002 (2007). Of those categories, only common carrier pipelines that transport coal require a certificate of public convenience. TEX. NAT. RES. CODE ANN. §§ 111.301-111.302 (2007).

96. The common carrier statute is void of any discussion concerning the regulation of common carrier pipelines apart from coal pipelines. TEX. NAT. RES. CODE ANN. §§ 111.301-111.302 (2007). In FAQ's issued by the Texas Railroad Commission (RRC), the RRC disclaims any authority to decide the route a common carrier pipeline will take and asserts that the authority is vested with the pipeline's owner or operator. RRC: Pipeline Eminent Domain and Condemnation–FAQ's, *available at* http://www.rrc.state.tx.us/eminentdomain.html.

97. N.M. STAT. ANN. § 70-3-5(a) (2009).

to exercise eminent domain authority.[98] New Mexico has extensive procedural requirements in place for eminent domain proceedings.[99] Should a dispute arise over condemned property, New Mexico will allow the condemner to take possession if it can show that the property condemned is for public use.[100] Condemnation for the provision of CO_2 pipelines is considered "public use" based on the legislature's decision to grant such pipelines eminent domain authority.[101]

V. ADEQUACY OF EXISTING LAW

Large-scale, commercial implementation of CCS will not only require further development of capture and sequestration technology, but may also require construction of a very large network of CO_2 pipelines. It is unclear at this point who will construct, own, and operate these lines–utilities, pipeline companies, CO_2 injectors, or consortia of all three. But, whoever the owners are, the CO_2 pipeline transportation regulatory regime is likely to require further delineation.[102] This further delineation could provide access to eminent domain to facilitate pipeline construction, and also provide increased regulatory certainty for CO_2 pipeline infrastructure developers that will be necessary for wide-spread deployment of CCS.

A. Rate Regulation

To date, disputes about CO_2 transportation rates have not arisen. However, as the network expands, CO_2 transportation rates could become a contentious issue. While an argument can be made that the STB has the statutory authority to regulate interstate CO_2 transportation rates, because the STB's predecessor agency has disclaimed jurisdiction in the ICC *Cortez* case, the STB's jurisdiction

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98. N.M. STAT. ANN. § 70-3-5(b) (2009) (emphasis added). The statute states:

> Any person, firm, association or corporation may exercise the right of eminent domain to take and acquire the necessary right-of-way for the construction, maintenance and operation of pipelines, including microwave systems and structures and other necessary facilities for the purpose of conveyance of petroleum, natural gas, *carbon dioxide gas* and the products derived therefrom, but any such right-of-way shall in all cases be so located as to do the least damage to private or public property consistent with proper use and economical construction. Such land and right-of-way shall be acquired in the manner provided by the Eminent Domain Code [42A-1-1 NMSA 1978]. Pursuant to the requirements of Sections 42A-1-8 through 42A-1-12 NMSA 1978, the engineers, surveyors and other employees of such person, firm, association or corporation shall have the right to enter upon the lands and property of the state and of private persons and of private and public corporations for the purpose of making necessary surveys and examinations for selecting and locating suitable routes for such pipelines, microwave systems, structures and other necessary facilities, subject to responsibility for any damage done to such property in making surveys and examinations.

99. N.M. STAT. ANN. § 42A-1-1-42A-9 (2009).

100. N.M. STAT. ANN. § 42A-1-22 (2009).

101. 1983-1986 Op. Att'y Gen. N.M. 146 (1984) (discussing whether it was appropriate for the carbon dioxide pipelines to have eminent domain authority and finding that the legislature makes that determination. The petitioner raised the concern because CO_2 pipelines, when added to the New Mexico eminent domain power statute, were not used as a fuel by the general public, but for the extraction of oil and other petroleum products).

102. The authors have focused principally on ownership and operation of CO_2 pipelines by private companies rather than government entities. Public ownership is also a possibility; however, that too would require statutory change since at present no Federal agency, and to our knowledge no state agency, has authority to construct, own and operate such pipelines.

over interstate CO_2 transportation remains uncertain at best. To date, the STB has not made an affirmative statement regarding its jurisdiction. Moreover, the STB rate regulation, even if it does attach, is limited to interstate pipelines and is sufficiently constrained as to offer little protection to customers.

Like the federal government, states have not devoted much attention to rate regulation for intrastate pipelines. Most CO_2 pipelines operate on a contractual basis for a specific application (i.e. EOR). As a need arises, states would likely respond with additional legislation.

B. Nondiscriminatory Access

Application of nondiscriminatory access requirements would require a pipeline operator to provide transportation service to any qualified entity that requests such service. Nondiscriminatory access is a requirement for receiving a permit under the MLA to cross federal lands.[103]

The situation is less clear where a pipeline does not cross federal lands. Nondiscriminatory access requirements would arise under the ICCTA if CO_2 pipelines are found to be regulated under the Act, if the pipeline is an interstate pipeline, and if the pipeline holds itself out to provide transportation services for compensation. This would trigger regulation as a common carrier (referred to as a "pipeline carrier" under Title 49).[104] But, if a pipeline does not cross federal lands, and does not provide transportation to others, then the pipeline is not a "pipeline carrier" and would not be subject to STB jurisdiction, even if the STB otherwise had jurisdiction over CO_2 pipelines. Thus (even if the STB regulated CO_2 pipelines), if the CO_2 pipeline transports only its own CO_2, non-discriminatory access provisions would not apply under Title 49, but would apply nonetheless under the MLA.

Nondiscriminatory access could become an important issue as the CO_2 pipeline network expands. Under various scenarios, an infrastructure could develop with high capacity pipelines transporting CO_2 to the most favorable CO_2 injection sites. These pipelines would transport CO_2 from numerous electric generation and industrial facilities, each of which could have different owners and operators. Policies aimed at avoiding duplication of facilities and capturing economics of scale may impel Congress or the states to impose nondiscriminatory access requirements.

C. Safety

The current safety regime is well-defined, with the PHMSA minimum standards and delegation to states. State programs for CO_2 pipelines are managed by the same agencies that manage other pipeline regulation. This program of delegated authorities on pipeline safety seems to function well in practice.[105] Further build-out of the CO_2 pipeline infrastructure would not appear to require any changes to the existing regulatory framework for pipeline safety,

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103. 30 U.S.C. § 185(r) (2006).

104. 49 U.S.C. §§ 15501-15506 (2006).

105. There were only three "serious incidents" for onshore hazardous liquids pipelines in 2007, which are defined as those that cause a fatality or require hospitalization. PMSA PIPELINE SAFETY PROGRAM, STAKEHOLDER COMMC'N (2008), http://primis.phmsa.dot.gov/comm/reports/safety/SerPSI.html.

so long as the safety regime stays up-to-date with current pipeline building practices.[106]

D. Siting Authority

There is currently no federal siting authority for CO_2 pipelines, except over federal lands. Thus, under existing law, pipelines are largely dependent on state eminent domain authority to site both interstate and intrastate CO_2 pipelines, though it is not clear whether that authority is available in all of the states. As the pipeline network is expanded (particularly in or through states with no EOR experience), federal siting authority for interstate CO_2 pipelines may become a practical necessity.

VI. ALTERNATIVE REGULATORY FRAMEWORKS

There are various approaches to regulate CO_2 pipelines. In recent Congressional testimony, the then Chairman of the FERC, Joseph Kelliher, discussed alternative models for regulation of CO_2 pipelines.[107] He stated that there are three designs that the United States has used for transportation of energy resources that could be appropriate for regulation of CO_2 pipelines.[108]

First, the existing model, as it currently stands for CO_2 pipeline regulation, could work. Under the current regime, states retain authority for siting CO_2 pipelines. The federal government only involves itself in siting CO_2 pipelines that cross federal lands. For economic regulation, assuming that the STB has jurisdiction, the STB only acts in the event that a rate complaint is filed. The Department of Transportation's OPS acts to ensure safety, with state involvement if states so choose. Chairman Kelliher expressed the view that this regulatory framework appears to be adequate.[109]

Second, the model that currently exists for oil pipelines could be used for CO_2 pipelines. Under this model, the states would be responsible for pipeline siting. FERC, rather than the STB, would have authority for transportation rates and access. Safety issues would be handled by OPS.

Third, the natural gas pipeline model could be applied. This model envisions a larger federal role. FERC would have authority for the siting of CO_2 pipelines, like the authority provided for natural gas pipelines in the Natural Gas Act.[110] In addition, FERC would be responsible for transportation rates. The authority for pipeline safety would remain within the Department of Transportation, under PHMSA. A recent proposal by two renewable energy associations recommends a similar regime for siting and regulation of major new electric transmission facilities. [111]

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106. Marston & Moore, *supra* note 80, at 449-450.

107. *Full Committee Hearing: To receive testimony on carbon capture, transportation, and sequestration and related bills, S. 2323 and S. 2144 Before the S. Comm. on Energy and Natural Res.*, 110th Cong. 1 (2008) (testimony of Hon. Joseph T. Kelliher, Chairman, F.E.R.C.) [hereinafter Kelliher Testimony].

108. *Id.*

109. *Id.* Chairman Kelliher expressed his view that the STB has the authority to regulate CO_2 pipelines. At this point, the STB has not asserted that authority.

110. 15 U.S.C. §§ 717-717z (2006).

111. AMERICAN WIND ENERGY ASS'N & SOLAR ENERGY INDUS. ASS'N, WHITE PAPER, *Green Transmission Superhighways* (2009).

With regards to siting, FERC Chairman Kelliher stated that "I would not recommend that Congress preempt the states on siting carbon dioxide pipelines, by providing for exclusive and preemptive federal siting of carbon dioxide pipelines."[112]

In addition, there are other models that could be used for siting of CO_2 pipelines. For example, if the need were demonstrated, a federal "backstop" authority, like that provided for electricity transmission siting in the Environmental Protection Act of 2005, could serve to keep CO_2 pipeline development on schedule.[113] Under this model, states would have initial siting authority within certain designated corridors. However, if states fail to act and there is a need for such development, the FERC is authorized to issue a permit to developers of CO_2 pipelines. This authority would allow development in areas where it has been determined that there is a need. The FERC would act to issue permits that would provide federal eminent domain authority to holders of those permits.

In another model, an "opt-in" approach could be used for CO_2 pipeline siting. The current regime of state siting would continue, but pipeline developers could choose whether or not to avail themselves of federal siting authority. Under this approach, CO_2 pipeline developers who need federal siting authority in connection with construction of their interstate CO_2 pipelines could apply for a federal certificate, which, if granted, would provide the developer with federal authority to construct and operate the pipeline using federal eminent domain authority, notwithstanding state law. If Congress were to provide pipeline developers with federal eminent domain authority, it is likely that it would also subject the pipeline to some form of federal economic regulation by the FERC or another agency. That regulation could entail nondiscriminatory access requirements modeled on the MLA or full rate and service regulations modeled on the NGA.

VII. LIKELY NEED FOR A FEDERAL ROLE

The massive build out of CO_2 pipeline infrastructure that will be required for large scale commercial deployment of CCS will likely require substantial change in CO_2 pipeline regulation. In particular, it is not clear whether reliance on state-by-state siting processes and eminent domain authority will be sufficient to support construction–over a period of one or two decades–of a network of interstate CO_2 pipelines that may be equivalent in size to the current natural gas pipeline system. As a result, some developers will likely need access to a federal siting process and federal eminent domain authority to enable construction of this national CO_2 pipeline system. This authority is likely to be particularly needed for multi-state projects and for projects in states that do not provide CO_2 pipelines with eminent domain authority.

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112. Kelliher Testimony, *supra* note 107. Chairman Kelliher testified that Congress created a federal preemptive siting scheme for natural gas pipelines because states were failing to site pipelines themselves. He asserted that states were successfully siting CO_2 pipelines for EOR and other purposes; hence, the state siting method does not need a federal overhaul. As discussed in the body of this paper, his reasoning may need revisiting should CCS require a CO_2 pipeline network of national scope and should pipeline development be necessary in states with little or no experience with CO_2 pipeline siting.

113. 16 U.S.C. § 824p (2006).

While Federal siting and eminent domain authority is likely to entail significant additional Federal environmental review, these reviews could be integrated into the siting process and performed on a timely basis, were the FERC to be granted siting authority over CO_2 pipelines comparable to its authority under the NGA. The FERC could follow the process it now utilizes for interstate pipeline certification. That process entails environmental review under the National Environmental Policy Act of 1969 (NEPA), as well as any necessary actions under the Endangered Species Act, and statutes relating to wetlands, historic preservation, and similar matters. Under current FERC practice, these reviews are conducted in the course of the certification process, which takes an average of fourteen to sixteen months.[114]

In addition, existing law governing access and rate regulation of CO_2 pipelines is unclear at best. Greater certainty as to the extent of that regulation will help facilitate project financing. In order to obtain financing project developers (and their debt and equity investors) need to know what regulatory requirements–if any–will apply to the pipeline during its operational phase, so they evaluate potential regulatory risks.[115] Moreover, if Congress is asked to grant federal siting and eminent domain authority to such pipelines, it is likely to impose some form of "common carrier" requirements, such as nondiscriminatory access and rate regulation–among other reasons, to avoid a multiplicity of small high unit-cost facilities.

Finally, the existing framework for safety regulation of CO_2 pipelines–which relies on a federal regulatory program, with delegation of some functions to state regulators–seems clear and workable. [116]

In light of these considerations, Congress should give serious consideration to an "opt-in" federal regulatory regime for new CO_2 pipelines that would consist of the following elements:

1. The current system of state siting and economic regulation of CO_2 pipelines would be retained, except with respect to those new CO_2 pipeline projects for which a permit application is filed under (2) below.[117]

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114. FEDERAL ENERGY REGULATORY COMM'N, OFFICE OF ENERGY PROJECTS, DIV. OF GAS–ENV'T & ENG'G, PROCESS FOR THE ENVTL & HISTORICAL PRESERVATION REV. OF PROPOSED INTERSTATE NAT'L GAS FACILITIES, (2008), http://www.ferc.gov/industries/gas/enviro/gasprocess.pdf.

115. The type of risks that worry developers and investors include regulatory agency modifications of transportation contracts (as under section 5 of the Natural Gas Act), the imposition of open access transportations requirements. Order No. 636, *Pipeline Serv. Obligations and Revisions to Regulations Governing Self-Implementing Transp.; and Regulation of Natural Gas Pipelines After Wellhead Decontrol*, F.E.R.C. STATS. & REGS. ¶ 30,939, 57 Fed. Reg. 13,267 (1992) (to be codified at 18 C.F.R. pt. 284), *order on reh'g denied in part and granted in part, order clarifying Order 636*, Order No. 636-A, F.E.R.C. STATS. & REGS. ¶ 30,950, 57 Fed. Reg. 36,128 (1992), *order on reh'g denied and order clarifying Orders 636 and 636-A*, Order No. 636-B, 61 F.E.R.C. ¶ 61,272 (1992), *order on remand*, Order No. 636-C, 78 F.E.R.C. ¶ 61,186 (1997); the Interstate Commerce Act section 3(1) (creating pro rationing requirements for common carrier oil pipelines that prevent a pipeline from giving anyone shipper undue preference. 49 U.S.C. app. § 3(1)).

116. Marston & Moore, *supra* note 80, at 449-451.

117. This paper does not recommend modifying the regulatory scheme for existing CO_2 pipelines. The paper presents the regulatory changes that would be necessary to build out a new, larger CO_2 pipeline network to support CCS activities. There would be no need to modify the regulations over existing pipelines to support this goal.

2. Any entity proposing to construct a new CO_2 pipeline to transport CO_2 for purposes of permanent sequestration could elect to apply to the FERC for a federal siting permit for the new pipeline. The FERC would have exclusive authority, similar to that under the NGA, to consider and grant or deny the applications. The FERC could impose conditions on any permit granted. The FERC would undertake environmental reviews comparable to those now conducted under the NGA (see description above).
3. Once a the FERC permit is granted, the project sponsor would have federal eminent domain authority, and the permit would have the same preemptive effect over state and local land use regulation as a certificate of public convenience and necessity now does under the NGA.[118]
4. When operational, the pipeline would be subject to non-discriminatory access and rate regulation similar to the FERC's current authority over oil pipelines and the STB's authority over commodity pipelines. Prescriptive regulation of rates and service–on the NGA model–would not be required.

Congress would be well advised to address these matters sooner rather than later, so that project sponsors will have greater certainty as to the CCS pipeline regulatory ground rules applicable to new CO_2 pipelines by the time that the first commercial scale CCS projects are ready for deployment in the next decade.

Existing CO_2 pipelines, on the other hand, are already built and operating. If the rationale for Federal regulatory intervention is to facilitate the build out of a new CO_2 pipeline infrastructure, there would be little need to extend Federal economic regulation to existing CO_2 pipelines, subject to several caveats. An argument can be made that some form of open access requirement should be imposed on existing pipelines that have surplus transportation capacity, in the interest of optimizing use of existing capital resources. In addition, it may turn out the FERC will need authority to require inter-connections between existing and new pipelines in order to integrate their operation. While these may be issues in the future, we are inclined to recommend against regulating existing CO_2 pipelines unless experience indicates that another course is required.

118. *Supra* sec. II(a)(1).