‘Forever Markets’: Giving Definition to Indefinite Contracts for the Trading, Storage and Recovery of Carbon Dioxide

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Synopsis

Sequestration of Greenhouse Gases (GHG) (primarily carbon dioxide) has the potential to play a critical role in mitigating global climate change. Institutional requirements for permanent sequestration of GHG’s is termed by some economists as creating a ‘Forever Market. ’However, from the context of contract law the need for permanence in the sequestration of super-critical carbon dioxide raises questions as to the structure and enforcement of carbon capture and storage contracts (CCSC).

To a great extent, the structure of a CCSC will reflect the regulatory framework under which the contract is entered. The majority of attention has focused on the Certified Emission Reduction (CER) instruments sanctioned under the Kyoto Protocol’s Clean Development Mechanism (CDM). This mechanisms contained in the Kyoto Protocol have spawned a variety of derivative markets where 'carbon credits', or 'carbon offsets', are issued through an exchange in return for a reduction of atmospheric carbon emissions. While frequently referred to as a ‘contract’ these intangible markets instruments appear to lack many of the basic requirements for a binding and enforceable contract.

What are actually traded are ownership rights to the commodities. That is, ownership of the Certified Emissions Reduction Credits (CERs), Emissions Reduction Units (ERUs) or European Union Allowances (EUAs), as I have described these in previous columns. Major commodity markets no longer rely on auctions from warehouses where samples are provided for inspection beforehand by prospective buyers. Modern communications have drastically reduced reliance on such outdated mechanisms and have as a consequence brought huge savings in warehousing and auction charges.

Under the UNFCCC and the Kyoto Protocol, the negative impact of greenhouse gases is technically measured in terms of equivalents to the global warming impact (GWI) of carbon dioxide. There are, as readers already know, far more potent greenhouse gases than carbon dioxide. Thus one metric ton of emitted methane is measured as 23 metric tons of emitted carbon dioxide. If readers think about it carefully this is an intangible abstraction. However, climate exchanges deals not only with intangible commodities (emissions allowances and offset credits) but these are to be generated in the future, which always entails some degree of uncertainty. In this way commodities traded on the carbon market are more complex than those traded on traditional exchanges for tangible physical commodities like sugar, bauxite or gold.

There are two broad types of carbon-trading markets, reflecting the legal imperative behind each. One is the compliance market. This is the market that fulfils legal mandatory emissions limits. Good examples are markets designed to meet the EU and other rich countries’ pledges under the Kyoto Protocol. The other is the voluntary market. As the term suggests, this refers to markets serving the needs of individuals, organizations and businesses that, without regard to legal limits on emissions, voluntarily agree to reduce their carbon footprints. A common example is the purchase of offsets to compensate for carbon emitted through airline travel. In the non-mandatory voluntary market carbon offsets/credit are specifically verified to a voluntary carbon standard established by independent standards-setting bodies.

Carbon dioxide is a versatile material, being used in many processes and applications - each of which takes advantage of one or more these characteristics: reactivity, inertness and/ or coldness. Carbon dioxide is commonly used as a raw material for production of various chemicals; as a working material in fire extinguishing systems; for carbonation of soft drinks; for freezing of food products such as poultry, meats, vegetables and fruit; for chilling of meats prior to grinding; for refrigeration and maintenance of ideal atmospheric conditions during transportation of food products to market; for enhancement of oil recovery from oil wells; and for treatment of alkaline water.

While the lack of definition may not raise issues for emissions trading purposes of an intangible market, it presents serious hurdles to the development of contracts for market transactions that require an agreement for the immediate or future physical delivery, storage and recovery of carbon dioxide.

This is the case under the framework for carbon storage recently adopted by the State of Wyoming. The Wyoming regime for carbon storage contemplates a series of interlocking contracts for the use of geologic pore space as the storage media in concert with the development of a storage area that is analogous to the unitization of and oil and gas field. The carbon dioxide owner would contract with the pore-space owner for physical storage and possible recovery. These arrangements generally follow the pattern for open-access market for the transportation and storage of natural gas in the U.S. and other countries.

The performance or remedy for breach of CCSC's in a Forever Market will depend upon expanding the accepted rules governing the requirements for contract formation and enforcement. Contracts that are too indefinite cannot be enforced by the courts. This rule is as old as the English common law, but is often overlooked in the creation of market instruments that by nature do not operate as agreements requires the delivery of specific commodity to a buyer's facility. The Restatement (Second) of Contracts states in pertinent part: "The more important the uncertainty, the stronger the indication is that the parties do not intend to be bound". The relational contract approach is all the more appropriate to the interpretation and enforcement of CO2 sequestration contracts that are intended to be effective for an indefinite duration.

Annotated Outline

1.0 Introduction

1.1 Role of Carbon Markets in Climate Adaptation[1]

1.2 The carbon market exists as a cost-effective tool to tackle climate change, and has mostly developed in response to the Kyoto Protocol.

1.3 Kyoto Protocol[2]
- 1.3.1 Clean Development Mechanism[3]
- 1.3.2 Certified Emission Reduction[4]
- 1.3.3 Emission Reduction Units[5]

2.0 Carbon Market Concepts

2.1 Permanence of carbon sequestration – 'Forever Market'

2.2 Derivative Carbon Markets[6]
- 2.2.1 European Union's Emission Trading Scheme (EUETS)
- 2.2.2 New South Wales Greenhouse Gas Abatement Scheme
- 2.2.3 Regional Greenhouse Gas Initiative
- 2.2.4 Chicago Climate Exchange
- 2.2.5 NYMEX Green Exchange
- 2.2.6 The New Zealand Carbon Exchange
- 2.2.5 Montreal Climate Exchange

2.3 Market for CO2 as a Physical Commodity[7]

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[1] Climate Focus, *Introduction to Emission Trading and the Carbon Market*, ww.climatefocus.com.

[2] David Freestone & Charlotte Streck, *The Challenges of Implementing the Kyoto Mechanisms,* 2 Envtl. Liability 47 (2007).

[3] Emissions trading, as set out in Article 17 of the Kyoto Protocol, allows countries that have emission units to spare - emissions permitted them but not "used" - to sell this excess capacity to countries that are over their targets. Thus, a new commodity was created in the form of emission reductions or removals. Since carbon dioxide is the principal greenhouse gas, people speak simply of trading in carbon. Carbon is now tracked and traded like any other commodity. This is known as the "carbon market."

[4] Gao Provone, "The Kyoto Protocol and the Emerging Carbon Market", 2002, r0.unctad.org. Certified Emissions Reduction (CER's) are, an example of 'carbon credits', or 'carbon offsets', issued in return for a reduction of atmospheric carbon emissions through projects under the Kyoto Protocol's Clean Development Mechanism (CDM). One CER equates to an emission reduction of one tonne of CO2. Holders of CERs are entitled to use them to offset their own carbon emissions as one way of achieving their Kyoto emissions reduction target. One CER equates to an emission reduction of one tonne of CO2.

[5] Emissions reduction units (ERUs**)** are units of Greenhouse Gas reductions (or, portion of a country's Assigned Amount) that have been generated via Joint Implementation under Article 6 of the Kyoto Protocol - as opposed to Certified Emission Reduction units (CERs) - which have been generated and certified under the provisions of Article 12 of the Kyoto Protocol, the Clean Development Mechanism.

[6] Jillian Button, *Carbon: Commodity of Currency? The Case for an International Carbon Market Based on the Currency Model,* 32 Harvard Envt'l L.Rev. 572 (2008).

[7] Carbon dioxide is a versatile material, being used in many processes and applications - each of which takes advantage of one or more these characteristics: reactivity, inertness and/ or coldness. Carbon dioxide is commonly used as a raw material for production of various chemicals; as a working material in fire extinguishing systems; for carbonation of soft drinks; for freezing of food products such as poultry, meats, vegetables and fruit; for chilling of meats prior to grinding; for refrigeration and maintenance of ideal atmospheric conditions during transportation of food products to market; for enhancement of oil recovery from oil wells; and for treatment of alkaline water.

3.0 Regulatory Framework for CCS

3.1 Carbon Sequestration Contracts determined by institutional framework[8]
3.1.1 Liability is a central consideration.[9]

3.2 Federal[10]

3.2.1 *Massechutes v. EPA*[11]
3.2.2 CO2 as a Solid Waste[12]
3.2.3 Geologic Sequestration of Carbon Dioxide[13]
3.2.4 EPA Rule Making[14]
3.2.4.1 UIC Class VI wells[15]
3.2.4.2 GHG Reporting[16]

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[8] Charles Palmer, Markus Ohndorf & Ian A. MacKenzie, "Life's a Breach! Ensuring 'Permanence' in Forest Carbon Sinks under Incomplete Contract Enforcement" Swiss Federal Institute of Technology Working Paper 09/113, (July 2009).

[9] M.A. DeFigueiredo, D.M. Reiner & H.J. Herzong, *Framing the Long-Term In Situ Liability Issue for Geologic Carbon Storage in the United States,* 10 Mitigation & Adaptation Strategies for Global Change 647 (2005).

[10] Victor B. Flatt, "Paving the Legal Path for Carbon Sequestration from Coal" 19 Duke Envtl. L. & Pol'y F. 211 (2009).

[11] 549 U.S.497 (2007). Section 202(a) (1) of the Clean Air Act (CAA), 42 U.S.C. § 7521(a)(1), requires the EPA to set emission standards for "any air pollutant" from motor vehicles or motor vehicle engines "which in his judgment cause[s], or contribute[s] to, air pollution which may reasonably be anticipated to endanger public health or welfare."

[12] 40 CFR § 261

[13] U.S. EPA, Geologic Sequestration of Carbon Dioxide, http://water.epa.gov/type/groundwater/uic/wells_sequestration.cfm. Underground injection of CO2 for purposes such as enhanced oil recovery (EOR) and enhanced gas recovery (EGR) is a long-standing practice. CO2 injection specifically for geologic sequestration involves different technical issues and potentially much larger volumes of CO2 and larger scale projects than in the past.

[14] U.S. Environmental Protection Agency (EPA) finalized two rules related to the capture and sequestration of carbon dioxide. Carbon capture and sequestration (CCS) technologies have the potential to enable large emitters of carbon dioxide, such as coal fired power plants, to significantly reduce greenhouse gas emissions. This technology allows carbon dioxide to be captured at stationary sources like power plants and large industrial operations and injected underground for long-term storage in a process called geologic sequestration. Federal Requirements Under the Underground Injection Control (UIC) Program for Carbon Dioxide (CO_2) Geologic Sequestration (GS) Wells, 75 Fed. Reg. 77230 (Dec. 10, 2010).

[15] Drinking Water Protection: EPA finalized a rule that sets requirements for geologic sequestration of carbon dioxide, including the development of a new class of injection well called Class VI, established under EPA's Underground Injection Control (UIC) Program. The rule requirements are designed to ensure that wells used for geologic sequestration of carbon dioxide are appropriately sited, constructed, tested, monitored, and closed. The UIC Program was established under the authority of the Safe Drinking Water Act.

[16] Greenhouse Gas Reporting: EPA also finalized a rule on the greenhouse gas reporting requirements for facilities that carry out geologic sequestration. Information gathered under the Greenhouse Gas Reporting Program will enable EPA to track the amount of carbon dioxide sequestered by these facilities. The program was established in 2009 under authority of the Clean Air Act and requires reporting of greenhouse gases from various source categories in the United States.

[17] Wyo. Stat. Ann § 34-1-153.
[18] Wyo. Stat. Ann. §§ 35-11-314 through 35-11-317.
[19] Report and Recommendations of the Carbon Sequestration Working Group to the Joint Minerals, Business and Economic Development Committee and the Joint Judicial Committee of the Wyoming State Legislature, September 2009.
[20] 28 Energy Law Journal 443, 472 – 473.
[21] Philip M. Marston and Patricia A. Moore, *From EOR to CCS: The Evolving Legal and Regulatory Framework for Carbon Capture and Storage*”, 29 Energy Law Journal 421 (2008)
[22] *Occidental Permian Ltd v. Helen Jones F*dn. 2011 WL 291966.
[23] Klass van’t Veld & Owen R. Philips, *Pegging Input Prices to Output Prices in Long-Term Contracts: CO2 Purchase Agreements in Enhance Oil Recovery,* Journal of Economic Literature Q41, L71.
[24] U.S. Department of Energy, Energy Information Administration, The Basics of Underground Natural Gas Storage , http://www.eia.doe.gov/pub/oil_gas/natural_gas/analysis_publications/storagebasics/storagebasics.html.
[25] Philip M. Marston, *Pipeline Restructuring: The Future of Open-Access Transportation,* 12 Energy L.J.53 (1991).
[26] The Energy Policy Act of 2005 added a new § 4(f) to the Natural Gas Act, stating that the Commission may authorize natural gas companies to provide storage and storage-related services at market-based rates for new storage capacity (placed into service after the date of enactment of the Act), even though the company can't demonstrate it lacks market power. http://www.ferc.gov/industries/gas/indus-act/storage.asp

5.0 Shaping the Contract, Shaping the Market

5.1 Indefinite Contracts

5.1.1 Corpus Juris Secundum
A construction conferring a right in perpetuity will be avoided unless compelled by the unequivocal language of the contract, a perpetual contract will be enforced, if the terms are clear. A contract which purports to run in perpetuity must be adamantly clear that that is the parties' intent, in order to be enforceable.[27]

5.1.2 Restatement (Second) of Contracts
The terms of a contract are reasonably certain if they provide a basis for determining the existence of a breach and for giving an appropriate remedy.[28]

5.1.3 Uniform Commercial Code
A contract is not too indefinite as long as there is a reasonable basis for affording an appropriate remedy.[29]

5.1.4 Williston on Contracts
If the contract makes it clear that perpetual performance is required, the question of indefiniteness should not arise.[30] "It is uncommon, although not unheard of, for a promise, properly interpreted, to call for a perpetual performance."

5.2 Relational Contracts[31]

5.2.1 Relational contracts agreements sustained by the value of future relationships

5.2.2 The character of the contract and the needs of the parties ultimately the degree of indefiniteness that the courts are willing to allow.[32]

5.2.3 Relational Contracts and complex transactions.[33]

5.2.4 Relational Contracts and long-term agreements.[34]

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[27] 17B C.J.S. Contracts § 602

[28] The Restatement (Second) of Contracts, American Law Institute (1981) § 33 f. *Other indefinite terms*. Promises may be indefinite in other aspects than time and price. The more important the uncertainty, the stronger the indication is that the parties do not intend to be bound; minor items are more likely to be left to the option of one of the parties or to what is customary or reasonable. Even when the parties intend to enter into a contract, uncertainty may be so great as to frustrate their intention.

[29] Section 2-204(3).

[30] 1 Williston on Contracts § 4:22 (4th ed.).

[31] A relational contract is economically efficient because it reduces the transactional costs of uncertain or complex agreements to acceptable levels – in a word,, a relational contract makes it possible for the parties to make a deal under circumstances in which they probably could not make a deal if all details of the transaction had to be spelled out in the contract. Distributorships, franchises, employment contracts, oil and gas leases are examples of relational contracts.

[32] Ian Macneil, The New Social Contract: An Inquiry into Modern Contractual Relations, Yale University Press (1980).

[33] Victor P. Goldberg, *Relational Exchange: Economics and Complex Contracts*, Wisconsin L.Rev.527 (1985).

[34] Morten Hvii, *Long-Term Contracts and Relational Contracts,* University of Warwick Department of Economics (1999). Journal of Economic Literature classification: C72, D82, K12.

[35] This is a type of contract that provides for an indefinite quantity of supplies or services during a fixed period of time. The legal origin of IDIQ contracts is the Federal Acquisition Regulation (FAR), section 16.501(a).

[36] A cash contract in which a seller agrees to deliver a specific cash commodity to a buyer sometime in the future. Forward contracts, in contrast to futures contracts, are privately negotiated and are not standardized.

[37] A legally binding agreement, made on the trading floor of a futures exchange, to buy or sell a commodity or financial instrument sometime in the future. Futures contracts are standardized according to the quality, quantity, and delivery time and location for each commodity. The only variable is price, which is discovered on an exchange trading floor.

[38] Gregg Marland, Kristy Fruit & Roger Sedijo, *Accounting for Sequestered Carbon: The Question of Permanence, 4 Envt'l Sci. & Pol'y 259 (2001).*

[39] It may also wise to designate a period of time short of perpetuity but extensively long to avoid any question of indefiniteness (such as 1,000 or 10,000 years). It would also be wise to expressly state that the contract is not terminable except by the consent of both parties in order to avoid be interpreted as a terminable at will be either party.