Carbon Trading and Energy Finance Committee Newsletter

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MESSAGE FROM THE CTEF COMMITTEE CHAIRS

C. Baird Brown and Michael J. Zimmer

We are pleased and honored to serve as the new co-chairs of the Carbon Trading and Energy Finance Committee (CTEF). Under Roger Feldman and Lyle Larson's leadership, the Committee won the award for best energy and resources committee in SEER for 2008–2009. We hope to continue and expand upon the Committee's record of success. The broad outlines of our plan for the year are set out below.

I. Overview

The Committee seeks to assist with the transition to a new energy economy through development of new markets for energy and environmental attributes, and for financing of sustainable and transitional energy and environmental infrastructure in reliance on those markets.

We plan to provide educational opportunities and materials for members and directly involve them in the external activities of the Committee in the professional marketplace. While we outline a number of new and ongoing initiatives below, we hope to create a platform where member interest can directly translate into new or expanded programs.

We also plan to collaborate with other committees, particularly other energy-focused committees in the ABA Section of Environment, Energy, and Resources (SEER), and with other nongovernmental organizations (NGOs) and trade organizations working to promote a sustainable energy economy.

II. Initiatives

In addition to our vice chairs for traditional SEER administrative functions, we have designated six broad areas of focus this upcoming year, each of which is represented by a subcommittee chaired by a vice chair:

- **Project Finance**—Structured finance transactions that take advantage of revenue streams from energy and environmental markets, including emerging aggregated finance techniques.
- **Commodities and Derivatives**—Regulation of energy and environmental markets, trading platforms, and related issues, such as treatment of energy and environmental attributes under the Uniform Commercial Code.
- **Retail Electric Markets**—The opening or maintenance of retail competition not only through direct commodity sales by non-utilities but also through solar power purchase agreements and consumer-owned generation assets, including state utility regulatory issues, preemption, and concurrent jurisdiction over carbon, renewable, and emissions credits.
- **Environmental and Project Risk Management**—Insurance products and other virtual and physical hedges, rating agency evaluation of project risks, and accounting

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Kimberly E. Diamond, Editor

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issues affecting energy or environmental commodities.

- **International Markets**—Cross-border markets for energy and environmental commodities including carbon markets and cross-border electricity sales.
- **Energy Efficiency**—The adoption and financing of energy efficiency measures in the residential, commercial, institutional, and industrial markets, including the use of "white tags," avoided cost financing, Energy Service Companies (companies involved in the development, installation, and arranging of financing for projects designed to improve energy efficiency and facility maintenance costs over an extended period of time (ESCOs), leasing, and aggregate financing techniques.

We anticipate that these subcommittees will integrate their work with the work of the standing committees including publications, programs and events, and technology.

III. Program of Activities

Through the program subcommittees of the Committee, in collaboration with the traditional administrative-focused vice chairs, we expect to pursue the following activities:

- Continue our strong Newsletter.
- Institute a regular program of webinars or other public media, either as Quick Teleconferences (QTs) or in collaboration with other organizations and with ABA committees such as the Renewable and Distributed Energy Resources Committee (RADER) and Energy and Natural Resources Market Regulation Committee.
- Expand and improve our Web site with substantive materials of interest to members and the public.
- Use *The Year in Review* and other publication efforts to hone in on areas related to our focused topics.
- Collaborate with other energy-related committees to establish a strong program at Section events.

- Reach out to other NGOs and trade associations to expand the support for Committee activities.

We strongly encourage members of the Committee who have an interest in any of the program areas or activities described above to join a subcommittee. We also welcome suggestions for new initiatives. Please don't hesitate to reach out to us or to vice chairs in your area of interest.

C. Baird Brown, Co-Chair
Michael J. Zimmer, Co-Chair
Carbon Trading and Energy Finance Committee

If you are interested in writing an article for future editions of this Newsletter, contact **Kim Diamond**, Vice Chair, at kdiamond@lowenstein.com.

Upcoming Section Programs—

For full details, please visit www.abanet.org/environ/calendar/

Sept. 29 - Oct. 2, 2010
18th Section Fall Meeting
New Orleans

Oct. 12, 2010
9th Annual Energy Litigation Conference
Primary Sponsor The Center for American and International Law
Houston

Feb. 23-25, 2011
29th AnnualWater Law Conference
San Diego

March 17-20, 2011
40th Annual Conference on Environmental Law
Salt Lake City

August 4-9, 2011
ABA Annual Meeting
Toronto

SECURING A ROLE FOR FOREST OFFSETS IN A GREENHOUSE GAS EMISSIONS TRADING MARKET: A DISCUSSION OF LEGAL APPROACHES TO HELP ADDRESS PERMANENCE AND RELATED ISSUES

Michelle Passero

I. Introduction

Climate policies and the greenhouse gas (GHG) emissions trading markets are showing increased acceptance and demand for inclusion of forest-based reductions as a tool to address global warming and offset emissions from other sectors. With this increased popularity, a number of legal issues are emerging. These issues include the need to develop mechanisms to address the risk of impermanence of forest-based reductions, as well as more fundamental related questions regarding the kinds of rights or interests that may be created to secure a role for these reductions as offsets.

Unlike GHG emissions reductions from other sectors (e.g., power, transportation, etc.), reductions from forest activities are a part of the physical landscape. The carbon dioxide that is absorbed from the atmosphere by forests through photosynthesis is stored in the tree branches, leaves, trunks, roots, and soil. This nexus raises the question of whether the reduction and related offset transactions reflect or should reflect new types of rights in real property and how easements could be used as a means to secure the permanence of forest-based reductions. This article explores how the use of conservation easements, deed restrictions that run with land, and acknowledgment of carbon storage rights may help secure greater certainty for forest offset transactions in both voluntary and regulatory GHG emissions reduction markets in the U.S., such as the Regional Greenhouse Gas Initiative and the Western Climate Initiative, as well as any future federal program.

II. Market Growth and Demand for Forest Offsets

In spite of the global economic downturn, the voluntary and regulatory GHG markets and policies have shown

a robust demand and increased support for forest offsets. According to Ecosystem Marketplace's *State of the Forest Carbon Markets 2009*, there is a growing trend and sustained interest in forest offset transactions, which experienced a growth of over 228 percent between 2006 and 2007. Between 2007 and 2008, the volume of transactions increased from 5.1 to 5.2 million metric tons of carbon dioxide equivalent ($MMTCO_2e$), and as of the date of this article, there had been early indications that 2009 was also going to see additional growth.

While some of this growth is driven by non-regulatory motivation, much of it is due to clear policy signals and support for forest offsets in emerging regulatory cap-and-trade policy. While the Kyoto Protocol was among the first global policies to include a limited role for forest offsets through reforestation and afforestation (i.e., the planting and restoration of trees to the landscape), a number of governments have created substantial roles for this sector as a means to reduce atmospheric carbon dioxide, including New South Wales and New Zealand. Each of these governments has developed their own legislation and programs to reduce emissions by restoring and managing forests.

California is also taking clear steps to include forest offsets in the implementation of its cap-and-trade program under its Global Warming Solutions Act of 2006 (California Health and Safety Code §§ 38500 et seq.; http://www.leginfo.ca.gov/cgi-bin/calawquery?codesection=hsc&codebody=&hits=20). Its draft cap-and-trade regulation identifies offsets and specifically forest offsets as a mechanism for capped sectors to reduce emissions. California has also supported the Climate Action Reserve Forest Protocols to encourage early action GHG reductions (*see* http://www.climateactionreserve.org/how/protocols/adopted/forest/current/, accessed June 16, 2010). Lastly, the recent round of federal climate bills introduced in 2009 and 2010, including Senate Bill 1733, Clean Energy Jobs and American Power Act (http://thomas.loc.gov/cgi-bin/bdquery/D?d111:4:./temp/~bdoZ8r::|/home/LegislativeData.php, accessed June 15, 2010), and the House Bill, American Clean Energy and Security Act of 2009 (http://thomas.loc.gov/cgi-bin/bdquery/D?d111:2:./temp/~bdLqmb::|/home/LegislativeData.php?n=BSS;c=111, accessed June 15, 2010), explicitly included in the text a role for forest offsets as part of a cap-and-trade program to reduce overall GHG emissions. The growth and support for forest offsets in a cap-and-trade program underscore that legal issues related to offset permanence and carbon rights will need to be resolved.

III. Offset Rules and Permanence

Both the GHG accounting rules and biological process provide the basis for the legal infrastructure that may be created to support a market for forest carbon. Forests, as they grow, absorb carbon dioxide (CO_2) from the atmosphere and store it as carbon in their roots, trunks, branches, leaves (i.e., their biomass), and soil, thus making atmospheric carbon become part of the landscape**.** When forests are disturbed through events like deforestation, conversion to other uses, harvest or fire, the stored forest carbon (in part or in whole) is emitted back into the atmosphere as greenhouse gas emissions. While forests can be a net source of emissions (i.e., emitting more carbon than they store), and are a source at the global level, they can also be a net "sink" or reservoir for carbon storage when, on balance, they are protected and restored in order to remove, store, and maintain additional carbon in the landscape. These types of activities, reforestation, changes in forest management, and avoided deforestation, are recognized by GHG programs and the market for producing real and marketable reductions.

Similar to offsets from other sectors, forest offsets must follow a basic set of accounting standards to qualify as real GHG emissions reductions that may offset GHG emissions in other sectors. These accounting standards include

> ***Additionality:*** Measurable reductions should be in excess of what would have happened in the absence of the GHG reduction activity. This assessment requires the establishment of a GHG accounting baseline that reflects either a "business as usual" or "without project" scenario and actions

that lead to GHG reductions that exceed (or are additional to) this baseline scenario.

Permanence: Permanence refers to the maintenance of the GHG reduction over time to serve as an effective offset. A number of GHG programs and buyers in the market require that forest-based offsets maintain additional stored carbon for long durations, sometimes up to 100 years or more, to effectively offset or be equivalent to emission reductions in other sectors. While other offset types (e.g., geologic sequestration) may also face permanence and other types of risks, forests and land-based offsets are viewed as particularly vulnerable to the risks of impermanence. These risks can be human-caused through activities like deforestation, conversion, and over-harvesting, or naturally caused through events like fire, insect infestation, and disease whereby the carbon stored in the forest is released back into the atmosphere.

Enforceability and Verifiability: The credibility and enforceability of reductions rely on clear title to the offsets and third-party verification. A number of GHG offset programs, including the Clean Development Mechanism under the Kyoto Protocol, the Climate Action Reserve, and the Voluntary Carbon Standard require offsets to be verified according to their standards by qualified third parties. Generally, third parties independently verify the accrual, permanence, and ownership of the reductions over time. For a third party verifier to properly audit a forest offset project and its reductions, the rights and any ownership interests related to the reductions should be clear.

IV. Easements as a Legal Tool to Secure a Commitment to Permanence

For forest-based emission reductions to serve as effective GHG offsets for other emission sectors, the permanence of these reductions must be secured over time. Mechanisms are evolving in the marketplace to help address this permanence issue. Certain GHG programs are starting to address permanence through a remedial approach with the establishment and use of buffer reserves. For example, the Climate Action Reserve requires forest offset projects to set aside a percentage of offsets in a common buffer pool to act as insurance for any unintended releases (or reversals) of carbon dioxide from forest offset projects. While this is an important aspect of addressing loss, consideration should also be given to how permanence may be secured *ex ante* through other legal instruments associated with real property, which may include conservation easements. Conservation easements are recognized federally and within states as deed restrictions that run with the land. They restrict allowable uses of the land for public benefit and bind future landowners in perpetuity.

The voluntary GHG market and federal climate bills have acknowledged the value of buffer pools as a mechanism to help secure the permanence, or address the impermanence, of forest offsets. The basic idea is that a percentage of GHG reductions from forest activities may be set aside to act as an insurance buffer or pool. If and when a natural disturbance or human action occurs that results in GHG emissions from a forest offset project area, the extra reductions from the buffer may be used as a remedy to help keep the buyer and the atmosphere whole. Both the Voluntary Carbon Standard and the Climate Action Reserve, two voluntary GHG offset programs, are implementing this buffer pool concept to build confidence in their respective forest offset programs and to help secure permanence of forest offsets from an atmospheric perspective.

In addition to addressing permanence through a buffer remedy, legal instruments should be used to secure forest offset permanence *ex ante*. Because a number of GHG programs require forest offsets to be maintained for long periods of time, such as the Climate Action Reserve and the Regional Greenhouse Gas Initiative, legal tools that can effectively secure a commitment to permanence at the initiation of a forest offset project are also an important component. Contracts for the purchase and sale of regulatory offset allowances and voluntary emission reductions can provide some legal reassurance and incentives for permanence. However, their impacts on permanence can be limited as contracts are generally limited in

duration and cannot bind future landowners who are not signatories to the contract.

Future changes in ownership of the property or property interests can introduce risks to the permanence of forest offsets as different or subsequent owners over time may have plans for managing forests that conflict with the maintenance of forest offsets and result in emissions. Given the nature of this risk, legal instruments based on real property law, such as conservation easements, may serve as an effective and complementary legal instrument to contracts to secure forest offsets before they are generated.

These restrictions are often compatible and supportive of the types of forest activities that produce GHG reductions, such as avoided deforestation, restoration, and improved forest management. The terms of conservation easements can and often do restrict or eliminate development rights and, in many cases, harvest activity. Easements can also include performance goals that can lead to increased carbon sequestration on a forest property and, where natural disturbance occurs, the restoration of forest and carbon stocks over time. In exchange for the limitation of uses with the land, landowners often receive either a tax incentive or direct financial compensation. The rights that are removed from the property are held and enforced by qualified third parties, such as non-profit land trusts or governmental entities. These enforcement rights are recognized in statute and the restrictions are enforceable against subsequent landowners. In recognition of the value of conservation easements, the Climate Action Reserve's forest offset protocols incorporate this tool as part of its overall approach to permanence.

V. Value of Legal Recognition of a Biological Carbon Storage Right

An additional legal consideration that could support the use of easements to secure offset permanence is the establishment of a carbon storage right as a real property right. The recognition of such a right as one of the use rights associated with real property could allow legal instruments like conservation easements to be more focused on restricting activities to support the development and maintenance of forest offsets. Furthermore, the legal recognition of this carbon right may also help clarify title to the carbon, which is valuable for the verification, enforcement, and transfer of offsets.

The state governments of Australia, including New South Wales, Victoria, South Australia, and Western Australia, have adopted laws to recognize carbon storage (i.e., carbon sequestration) as a transferable real property right. Several states identify a carbon storage right and allow such rights to be alienated and encumbered through profits or covenants that run with the land. This legal distinction has aided the development of a market for forest offsets in Australia by providing opportunities outside of contract law to secure the permanence of any offsets that may be sold on the market. This distinction has also helped clarify the interests and related rights that are being sold into the marketplace to minimize confusion and the resulting conflict that may arise. For instance, landowners and buyers in the Australian marketplace can more readily distinguish between the sale of forest offsets (and related rights) and the sale of timber from the same property.

The legal acknowledgment of forest carbon storage rights could also help shape policy discussions that are emerging in the U.S. related to the use of public funds for conservation activities and acquisitions of interests in private forestlands. Government agencies, including some in California and at the federal level, are starting to scrutinize whether public funds used for easement acquisitions or other conservation contracts are effectively purchasing carbon storage rights and related GHG reductions if the funding effectively leads to activities that foster reductions. A legal recognition of a carbon storage right could help clarify this issue by allowing for these agencies and programs to specify explicitly whether or not public funds are acquiring these rights. Related discussions are occurring in California as it implements the Global Warming Solutions Act of 2006 and considers a cap-and-trade program with forest offsets. Similar legal questions are also arising at the federal level and in other regions of the U.S.

A lawsuit in Louisiana helps illustrate the potential need to clarify forest carbon storage rights. The case was brought before a U.S. district court in 2005 by a private forest landowner against the U.S. Fish and Wildlife Service (FWS), the holder of a conservation servitude on the landowner's property. The landowner sought declaratory judgment from the court to clarify that the forest carbon rights (i.e., carbon credits) within the area subject to the conservation servitude were retained by the landowner and were not transferred to FWS by virtue of the agency retaining the servitude. *Roseland Plantation, L.L.C. v. United States Fish and Wildlife Service*, No. 05-0793, 2006 U.S. District Court LEXIS 29334 (W.D. La. 2006). The landowner alleged that the government was attempting to convey to another party the carbon rights associated with the trees in the area and therefore sought a judgment that would effectively prohibit FWS from such a transaction since it would not have title to the carbon. At the time, FWS alleged that the existence of carbon credit (offset) registries and transactions did not mean that carbon credits are a part of real property. Ultimately, the court did not accept the FWS argument and found that carbon credits, in fact, are part of the bundle of rights that constitute real property. This case highlights, among other things, the confusion over ownership and the nature of the rights associated with offset transactions that may emerge in the absence of a clear legal recognition of a forest carbon storage right.

VI. Conclusion

With the emergence of a market for GHG emission reductions and growing popularity of forest-based offsets in particular, a number of legal issues are evolving with respect to forest offset permanence and the nature of rights being traded. The use of buffers is emerging as a remedy for the loss of emissions reductions due to forest offset impermanence. Legal instruments like conservation easements could also be a useful tool to secure binding commitments from landowners to maintain forest offsets over time, as conservation easements can effectively bind future landowners to management activities that would support maintenance of forest offsets. Other related legal considerations to support a market for forest offsets could include the establishment of a carbon storage right as a real property right, which could complement the use of conservation easements as a tool to secure permanence. This clarification could also help clarify emerging policy questions regarding the legal rights and ownership issues associated with the creation of forest offsets and related transactions.

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EMERGING LEGAL ISSUES IN THE FIELD OF CARBON CAPTURE AND SEQUESTRATION

Chris M. Carron and Bradley A. Ennis

I. Introduction

Emerging concerns over the threats of global warming and climate change are at the forefront of policy discussion among the general public, the scientific and environmental communities, and all levels of government. Given the perceived association of carbon dioxide (CO_2) emissions with global warming and the focus on limiting such emissions, one option that has received considerable attention is the capture of CO_2 emissions at their source, such as at coal-fired power plants, and subsequent injection and sequestration of CO_2 emissions (CCS) within underground geological formations. While CCS on a meaningful scale is in its infancy, the oil and gas industry has used underground injection, and incidental storage of large quantities of CO_2 has been used for decades for purposes of enhanced oil recovery (EOR). The natural gas industry has also used such injection techniques for transportation and storage. Nevertheless, given the unprecedented magnitude of potential future CCS activities, and given that there is not yet a commercial-scale CCS facility attached to any large coal-fired power plant in operation, much focus has been given to solving the technical and operational issues associated with CCS. However, resolving these issues in many ways will depend on the resolution of numerous legal issues emerging in the CCS field. This article surveys these legal issues in light of the current CCS regulatory regime.

II. Comprehensive Federal Regulation of Carbon Capture and Sequestration

A. The Regulation of CO_2 Under the Clean Air Act

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that greenhouse gases (GHGs) are "air pollutant[s]" covered by § 202(a) of the Clean Air Act (CAA). The Court held that the Administrator of the Environmental Protection Agency (EPA) must determine whether or not GHGs emissions from new motor vehicles "cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." Accordingly, on December 7, 2009, EPA announced its "Endangerment and Cause or Contribute" Findings for Greenhouse Gases under § 202(a) of the CAA, finding that the six key greenhouse gases—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)—in the atmosphere endanger the public health and welfare of current and future generations (Endangerment Finding). Because the Endangerment Finding was issued under § 202(a) of the CAA, it is limited to those GHGs emitted "from any class or classes of new motor vehicles or new motor vehicle engines." CAA § 202(a)(1).

Thus far, EPA's proposed rulemaking to establish GHG emission standards applies only to moving sources. However, the Endangerment Finding's general finding that GHGs constitute air pollution that may reasonably be anticipated to endanger public health and welfare will likely lead to proposed GHG emissions standards for stationary sources, such as power plants, under CAA § 111(b)(1), Standards of Performance for New Stationary Sources As recognized by EPA in its proposed GHG Tailoring Rule, this would trigger CAA permitting requirements for the construction and operation of major sources of GHG emissions such that "state permitting authorities would be paralyzed by permit applications in numbers that are orders of magnitude greater than their current administrative resources could accommodate." 40 C.F.R. Parts 51, 52, 70, and 71. The GHG Tailoring Rule proposes new thresholds for GHG emissions that define when CAA permits would be required for emitting industrial facilities. As a response, the proposed rule would phase in the applicability thresholds for the CAA permitting programs for sources of GHG emissions, which would begin at 25,000 tons per year (TPY) of CO_2 emissions. This means that all CAA permits for new facilities or modifications that result in 25,000 TPY or greater of CO_2 emissions will be required to implement "best available control technology" to reduce emissions and comply with new standards of performance promulgated by EPA. CCS is one such

control technology that could play a major role in reducing emissions of CO_2 from these sources. Further, on October 30, 2009, EPA promulgated a final mandatory reporting of greenhouse gases rule (MRR), which requires reporting of GHGs from all sectors of the economy and most major stationary sources of GHG emissions. 74 Fed. Reg. 56,260. On March 22, 2010, EPA proposed the addition of reporting requirements under subpart RR of the MRR for facilities that inject CO_2 underground for CCS purposes in order to track the amount, growth, and effectiveness of CCS over time to assist in the evaluation of CCS policy options. 40 C.F.R. Part 98.440.

B. The Regulation of CO_2 Under the Safe Drinking Water Act (SDWA)

EPA has regulatory authority for underground injection of CO_2 under the SDWA's Underground Injection Control (UIC) program. 42 U.S.C. § 300h(d)(1). Through the regional UIC programs, EPA, states, territories, and tribes act as co-regulators to protect underground sources of drinking water from any potential endangerment from underground injection of CO_2.

To research and evaluate the technical aspects of CCS due to the unprecedented volumes of CO_2 expected to be sequestered, EPA currently permits the use of Class V injection wells, which are wells used to place non-hazardous fluids underground for storage or disposal, for pilot CCS projects. For example, Mississippi Power Company received a Class V Experimental Well Injection Permit for its Plant Daniel Saline Reservoir Field Test to locate and evaluate suitable saline formations for CO_2 storage in close proximity to large coal-fired power plants along the Mississippi Gulf Coast. The test includes the injection of 3,000 tons of CO_2, building detailed geological and reservoir maps to further assess the test site, and conducting reservoir simulations to estimate injectivity, storage capacity, and long-term fate of injected CO_2. *See* U.S. Department of Energy (DOE) National Energy Technology Laboratory's Fact Sheet on the Southeast Regional Carbon Sequestration Partnership—Validation Phase (*available at* http://www.netl.doe.gov/publications/factsheets/project/Proj442.pdf).

On July 25, 2008, EPA published the Federal Requirements under the UIC Program for CO_2 Geologic Sequestration (GS) Wells Proposed Rule (GS Proposed Rule) for public review and comment. 73 Fed. Reg. 43,482. The proposed rule applies to owners or operators of wells that will be used to inject CO_2 into the subsurface for the purpose of long-term CO_2 sequestration. The GS Proposed Rule also establishes technical criteria for geologic site characterization, area of review and corrective action, well construction and operation, and mechanical integrity testing and monitoring; well plugging, post-injection site care, and site closure for the purposes of protecting underground sources of drinking water. Under the GS Proposed Rule, injection wells permitted for CCS would be regulated as a new category of injection well, designated as Class VI, which will specifically be used for these types of activities.

C. Federal Regulation of CO_2 Pipelines to the Sequestration Site

The implementation of CCS as a best available control technology to reduce CO_2 emissions and comply with new standards of performance promulgated by EPA would require a system for transporting large volumes of CO_2 from capture sites to sequestration sites. It is estimated that such large-scale CCS would require the sequestration of approximately 1,800 million TPY of CO_2 (Adam Newcomer & Jay Apt, *Implications of Generator Siting for C0$_2$ Pipeline Infrastructure*, 36 ENERGY POLICY, no. 5, 21 (May 2008)). By comparison, the existing CO_2 pipeline infrastructure in the U.S. transports a mere 45 million TPY (*Hearing on Coal: A Clean Future Response of the Market to Global Incentives and Mandates for Clean Coal Before the Energy Subcomm. of the S. Finance Comm.* (statement of William L. Townsend, CEO, Blue Source Companies (Apr. 26, 2007)). Increased use of CCS activities on such a large scale is not possible with the existing CO_2 pipeline infrastructure.

In addition to the technological difficulties facing a large-scale CCS system, the existing federal CO_2 pipeline regulatory scheme is virtually non-existent. Often, the transportation of CO_2 from capture sites to sequestration sites will occur wholly intrastate, allowing jurisdiction for the regulation of such movement to remain with state governments. However, the likely

development of an interstate pipeline system may require federal regulation for pipeline siting and transportation rates, similar to those used in the existing natural gas pipeline model. For instance, developers of large interstate pipelines would likely rely on a federal siting process and eminent domain authority in order to make their projects feasible. The logical candidate for federal jurisdiction over CO_2 pipeline siting would be the Federal Energy Regulatory Commission (FERC), given its authority under the Natural Gas Act of 1938 (NGA) over the siting of natural gas pipelines and the conferring of eminent domain authority to pipeline developers through the issuance of certificates of public convenience and necessity. 15 U.S.C. §§ 717–717z. However, FERC has previously disclaimed jurisdiction over CO_2 pipelines, holding that the term "natural gas," as used in the NGA, was intended to refer to a gaseous mixture of hydrocarbons and not CO_2. *Cortez Pipeline Company*, 7 FERC ¶ 61,024 (1979).

Similarly, the logical candidate for regulation of interstate CO_2 transportation rates would be the U.S. Surface Transportation Board (STB) given that under the Interstate Commerce Commission Termination Act of 1995, the STB regulates interstate pipelines transporting "commodities" other than water, oil, or natural gas. 49 U.S.C. § 15301. Although the STB has not opined on such jurisdiction, its predecessor, the Interstate Commerce Commission (ICC), previously disclaimed it by concluding that Congress's original intent was to exclude all types of gas, including CO_2, from ICC regulation (*Cortez Pipeline Company—Petition for Declaratory Order—Commission Jurisdiction over Transportation of Carbon Dioxide by Pipeline*, 46 Fed. Reg. 18,805 (Mar. 26, 1981)). Moreover, it would be a stretch to classify CO_2 transported purely for sequestration, and not for EOR, as a "commodity" under STB jurisdiction (49 U.S.C. § 1-501(a)(1)(c)), given its classification as a "pollutant" under the CAA, since significant quantities of such CO_2 would be disposed of as industrial pollution, rather than classified as a "commodity," due to a negative economic value (S.M. Frailey, R.J. Finlay, & T.S. Hickman, *CO2 Sequestration: Storage Capacity Guideline Needed*, OIL & GAS J., Aug. 14, 2006, at 44).

Therefore, should FERC and the STB continue to disclaim jurisdiction over CO_2 pipelines, the likely expansion of CCS may require Congress to bridge this regulatory oversight gap with a federal regulatory regime.

III. Ownership and Control of Pore Space

One of the main considerations with CCS activities is the ownership and control of the property interests of the geologic formation, or pore space, employed by CCS facilities. Current regimes for property interests do not contemplate the range of issues associated with CO_2 sequestration activities. Due to these issues and those associated with CCS, a battle between state governance and federal oversight may be imminent if CCS activities continue to expand. There is a split among authorities as to whether regulations should remain with the states or whether regulation should transfer to the federal government, which already oversees some existing subsurface operations. Generally, state law determines property rights related to surface and mineral estates. Such laws will likely determine the ownership and control rights of pore space associated with CCS activities unless a federal regime is implemented. The Interstate Oil and Gas Compact Commission (IOGCC) has stated that "given the jurisdiction, experience, and expertise of states and provinces in the regulation of oil and natural gas production and natural gas storage in the U.S. and Canada, the states and provinces would be the most logical and experienced legislators of the geologic storage of carbon dioxide" (Victor Flatt, *Paving the Legal Path for Carbon Sequestration from Coal*, 19 DUKE ENVTL. L. & POL'Y F. 211 (2009); *quoting* IOGCC Task Force *Coal Final Report* (2007)).

Additionally, issues regarding whether pore space and surface ownership can be severed are of concern. Some states have taken the lead by enacting specific legislation aimed at CCS. For example, Wyoming's "pore space" statute clearly defines pore space ownership as a right belonging to the owner of the surface rights above the related pore space, but allows for the severability of the pore space ownership from surface ownership (WYO. STAT. §§ 34-1-152(a) and (b)). On the other hand, while North Dakota's Subsurface Pore Space Policy gives title of pore space to the owner of the overlying surface estate, severability is not allowed (N.D. CENT. CODE § 47-

31-03). Furthermore, Montana laws provide that pore space is tied to the surface estate unless deeds or severance documents state otherwise (Montana SB 498).

The continued passage of such legislation by various states could result in a diverse and non-uniform set of rules leaving potential CCS operators with additional, and possibly conflicting, rules to interpret. Traditional individual state regulation of CCS activities may unnecessarily complicate ownership issues when interstate CCS activities are involved. Accordingly, considering the potential for great variation among state laws and the reasonable potential that CCS activities will not necessarily stay within state territorial boundaries, comprehensive federal legislation governing ownership issues may be warranted, notwithstanding preemption issues of long-standing and well-developed state property laws.

Without a uniform set of rules, some believe that potential developers will stray away from sequestration projects (CCSReg Project, *Policy Brief: Governing Access to and Use of Pore Space for Deep Geologic Sequestration* (July 13, 2009)). Because the UIC program already regulates the injection of fluids into the subsurface, federal rules governing pore space ownership may be more appropriate.

If comprehensive federal legislation fails to materialize as a viable option, another possibility would be the development of model state legislation for those states that have yet to adopt CCS legislation of their own. (Flatt at 239). Model legislation could provide for requirements, such as those that would prevent sequestration projects until all property ownership rights have been determined. *Id.* Under such a scheme, legislation could address CCS without preempting state law and could further provide for (1) condemnation proceedings for interstate projects modeled after the Natural Gas Act of 1938, (2) methods for establishing fair market value of pore space, and (3) long-term ownership transfer and release of liability schemes that will inevitably be a part of the CCS process. *Id.* Federal legislation could also adopt IOGCC Task Force recommendations pertaining to post-closure property transfers, where ownership could ultimately transfer to the U.S.

IV. Liability Issues with CCS

A. Liability Exposure

According to a report by the Intergovernmental Panel on Climate Change, CO_2 retention in appropriately selected and properly managed storage sites will likely retain their effectiveness by more than 99 percent for over 1,000 years (http://www.ipcc.ch/pdf/special-reports/srccs/srccs_chapter1.pdf). As CCS activities become more prevalent, legal issues surrounding liability and long-term stewardship associated with sequestered CO_2 are destined to evolve. CCS regulations must anticipate such potential liabilities due to the long-term stewardship requirements for sequestration, including both common law and environmental statutes. Such liabilities are not novel, especially since the oil and gas industry has been utilizing CO_2 injection as an EOR technique for nearly 40 years (Philip M. Marston & Patricia A. Moore, *From EOR to CCS*, 29 ENERGY L.J. 423 (2008)). Liability theories that could potentially apply to CCS activities include, but are not limited to, the following: negligence, trespass, nuisance, and strict liability. Negligence would require a plaintiff to show that the CCS owner/operator had a duty of care over the CCS operation, a breach of such duty, and injury caused as a result of the breach. If CO_2 is unexpectedly released during CCS activities due to leaks and various other unintended or irregular releases, trespass claims could arise as a result of CO_2 migration into other property, such as adjacent pore space, that does not belong to the storage site operator. Further, one may be able to claim that such CO_2 is a nuisance due to interference of one's use and enjoyment of the pore space. Strict liability claims could also subject owners and operators to liability for activities that are deemed abnormally dangerous under sections 519 and 520 of the *Restatement (Second) of Torts* (*see* W. Page Keeton et al., PROSSER & KEETON ON THE LAW OF TORTS § 75 at 534 (5th ed. 1984)). For states that do not follow the *Second Restatement of Torts*, liability could arise under the doctrine of *Rylands v. Fletcher*—the doctrine of strict liability for inherently dangerous activities—for harms to public health and the environment (Prosser & Keeton at 545–56). Such claims could potentially vary from state to state as a result of the existing common law. Moreover,

differences among states could conflict when CCS facilities are sited close to territorial boundaries or in instances where CO_2 transport pipelines cross such boundaries.

Traditional common law claims are not the only claims to which a CCS owner or operator may be subject. Claims could potentially arise under several existing federal environmental protection statutes. For example, as discussed supra, sequestration of CO_2 falls within the purview of the SDWA and EPA's UIC Program. According to EPA, the injection of CO_2 into geologic formations can cause subsurface changes in pressure, which could lead to the unanticipated migration of fluids and gases to nearby groundwater sources (*see* EPA, "Vulnerability Evaluation Framework for Geologic Sequestration of Carbon Dioxide," EPA 430-R-08-009, July 2008). While unlikely, liability under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and/or the Resource Conservation and Recovery Act (RCRA and together with CERCLA, the "Acts") could attach if EPA were to classify CO_2 as a "hazardous substance." CERCLA was created to address problems associated with hazardous substances in the environment and provides a vehicle for federal and state governments to recover costs associated with contamination that occurred with the disposal of hazardous substances (42 U.S.C. §§ 9601–75). RCRA regulates the cradle-to-grave generation, transportation, treatment, storage, and disposal of hazardous or solid waste (*see* 42 U.S.C. §§ 6922–24), and authorizes suits by any person to restrain anyone who has contributed or is contributing to the past or present handling of any solid or hazardous waste that may present an imminent and substantial endangerment to human health or the environment (*see* 42 U.S.C. § 6972(b)(2)). For CO_2 to be covered under CERCLA or RCRA, either (a) EPA would have to designate CO_2 as a hazardous substance, or (b) CO_2 would have to exhibit the hazardous characteristics found in 40 C.F.R. 261.20–261.24. Arguably, CO_2 probably meets the definition of "solid waste" as found in 42 U.S.C. § 6903(27) because it is "refuse" from an "air pollution control facility or other discarded material, including solid, liquid, semisolid or contained gaseous materials, resulting from industrial . . ." activities. As a result, CCS owners or operators could find themselves subject to RCRA's requirements unless EPA were to exclude CO_2 from the definition of solid waste. Owners and operators should also be aware that liability could attach if captured CO_2 contains impurities which are themselves regulated under the Acts, thereby having the potential to subject the compound to regulation under CERCLA and/or RCRA.

B. Comprehensive Liability Legislation

In addition to traditional liability schemes, many scholars have proposed numerous means to address liabilities associated with CCS activities. By no means is this list of suggestions to be considered all-inclusive. A few of the means suggested in recent years include traditional environmental insurance policies, liability cap programs that have been implemented in the past, and a federal compensation fund for CCS. An initial approach to managing liability associated with CCS is the traditional insurance policy. Insurance is commonly used to manage environmental risk. The relative novelty of CCS technology has not allowed for opportunities to test the insurance market in this arena. As a result, the applicability and effectiveness of a private insurance scheme for CCS activities remain unknown. Risks are still being evaluated through demonstration projects (such as the Plant Daniel Saline Reservoir Field Test, discussed supra), and, until such evaluations are completed, insurers may be reluctant to issue policies and/or determine premiums. While risks certainly may not be as great or imminent as those associated with other energy sectors (such as nuclear power), one company has decided to forgo those uncertainties and has begun issuing policies for CCS activities. According to the *Carbon Capture Journal*, Zurich Financial Services Group has introduced CCS liability insurance to cover projects from design and operational phases through closure and post-closure events at storage sites (*Carbon Capture Journal*, Jan. 20, 2009). It remains to be seen if other insurers will follow Zurich's lead and offer adequate coverage at a commercially reasonable premium rate for CCS owners and operators. Once risks can be evaluated through demonstration projects, potential insurers may be able to better evaluate and manage the needs of such programs and develop them accordingly.

Since private insurance for CCS activities remains questionable, some have suggested that CCS activities could follow in the footsteps of nuclear regulatory

activities of the 1950s by implementing a liability cap. The Price-Anderson Act of 1957 limits the liability of the nuclear industry in the event of a nuclear accident in the U.S. 42 U.S.C. § 2210. The purpose of the Price-Anderson Act is to ensure the availability of a large pool of funds (roughly $10 billion) to provide for prompt and orderly compensation to members of the public who incur damages from a nuclear incident, regardless of liability. At the time nuclear power was gaining prominence in the 1950s, investors were unwilling to accept the risks of nuclear energy without some limitation on their liability. Under the Price-Anderson Act, power reactor licensees are required to obtain the maximum amount of insurance against nuclear-related incidents that is available in the insurance market. 10 C.F.R. § 140.11(a)(4). The reactor companies are also required to finance a fund which is then used to make up the difference between the primary insurance and total losses in the case of an incident. The Price-Anderson Act stimulated development of civilian nuclear energy while limiting tort liability arising from nuclear accidents (Dan Anderson, *Limits on Liability: The Price Anderson Act Versus Other Laws*, 45 J. RISK & INS. 651–74 (1978)). While this type of management scheme could be used for CCS due to uncertainties about the long duration of post-closure periods, the Price-Anderson Act is principally directed at risks that occur during operation, rather than during the post-closure period (Chiara Trabucchi & Linda Patton, *Storing Carbon: Options for Liability Risk Management, Financial Responsibility*, WORLD CLIMATE CHANGE, Sept. 3, 2008, at 18). Moreover, if such a scheme were adopted for CCS, it would need tailoring to accommodate potential risks that could occur years in the future.

In addition to a liability cap program, bonding could be considered as a financial assurance mechanism for CCS activities to ensure regulatory or contractual requirements. Bonding has been regularly used in the environmental management of landfills, hazardous waste transportation, and underground injection projects to enforce contracts and regulatory provisions (Alexandra B. Klass & Elizabeth J. Wilson, *Climate Change and Carbon Sequestration: Assessing a Liability Regime for Long-term Storage of Carbon Dioxide* (2008), *available at* http://works.bepress.com/alexandra_klass/4). Bonding mechanisms are currently used for mining site reclamation and in underground injection well projects, and corresponding terms vary pursuant to such laws as the Surface Mining Control and Reclamation Act, underground injection provisions of the SDWA, and their implementing regulations. One caveat to bonding is that it will only cover up to the amount of the bond posted and not necessarily the full amount of potential damages, even though known risks associated with a catastrophic CCS event are low.

Other emerging considerations pertaining to liability legislation could include a federal compensation fund, which would pay claims and possibly set damage caps similar to the Longshore and Harbor Worker's Compensation Act (33 U.S.C. §§ 901–44) or new legislative proposals such as those found in the Department of Energy Carbon Capture and Sequestration Program Amendments Act of 2009, Section 2 of S. 1013, which require CCS facility licensees to obtain acceptable liability protection while offering indemnification to licensees who comply. Additionally, the American Clean Energy and Security Act of 2009 encourages CCS technology and has provisions that would require CCS operators to provide evidence of financial responsibility. H.R. 2454, § 12.

V. Conclusion

The policy debate surrounding the implementation of CO_2 regulation in the U.S. is a topic of intense interest among the general public, the scientific and environmental communities, and all levels of government. The emergence of CCS as a viable means by which the electric utility industry might decrease CO_2 emissions has focused a great deal of attention to solving the technical and operational issues associated with the implementation of a large-scale CCS system. However, there are also many legal issues at the federal level, which may need to be resolved to set the stage for successful future CCS implementation. Congress may look to Department of Energy-sponsored pilot programs to address the gap of federal regulatory oversight over CO_2 pipelines, whether regulations dealing with ownership and control of pore space should remain with the states or be transferred

to the federal government which already oversees some existing subsurface operations, and the various means of addressing liabilities associated with CCS activities.

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SUMMARY OF THE JUNE 7, 2010, QUICK TELECONFERENCE ENTITLED "THE CURRENT STATE OF CARBON TRADING"

Christina M. Iafe

I. Introduction

Carbon trading and issues associated with carbon markets and regulation affect countries around the world. The quick teleconference (QT) held on June 7, 2010, entitled "The Current State of Carbon Trading," introduced by Roger Feldman, a co-chair of the Carbon Trading and Energy Finance Committee (CTEF), and moderated by Kim Diamond, a vice chair of CTEF, considered a number of these issues across a broad and international spectrum. The QT featured four speakers from three different countries—Jos Cozijnsen from the Netherlands, Patricia (Pat) Koval from Canada, and Keith Casto and Alex Rau from the U.S.—who each gave a unique perspective on different topics relating to these developments.

II. Summary of Presentations

A. Jos Cozijnsen—Emission Trading in the European Union

Jos Cozijnsen, an emissions trading attorney in the Netherlands, began the conference by providing his insights on the current state of emissions trading in the European Union (EU). While his presentation focused primarily on the substance and formation of the EU Emissions Trading System (EU ETS), Mr. Cozijnsen also described how the EU ETS influences emissions trading in the U.S., and why the U.S. likely will look to the EU for guidance in implementing its own policies.

As background, Mr. Cozijnsen explained the three different phases of the EU ETS, noting both the successes and failures of the program and the lessons other countries can learn from the EU's experience. Under the EU ETS program, emission allowances for manufacturing plants emitting carbon dioxide are distributed at one time to cover a period of several years, the rationale being that emission levels may vary from one year to the next due to fluctuations in weather

patterns over the course of such years. Each block of several years is called a "trading period." According to Mr. Cozijnsen, the first pilot phase for the EU ETS ran from January 2005 to January 2008. There were difficulties during this first trading period in which all 15 Member States of the EU participated, due to the method of distribution of carbon allowances which caused the market to be saturated with such allowances. As Mr. Cozijnsen explained, in an emissions trading system, the price of carbon is determined by market forces. If the market is saturated with too great a number of allowances, as occurred during this pilot phase, the price of carbon will be low, therefore not encouraging carbon emissions reductions. During the second phase of the EU ETS, which started in January 2008 and will end in December 2012, each EU Member State's government will allocate allowances free to plants in their respective countries. Mr. Cozijnsen believes that this second phase enjoyed success in the first half of 2008, but slowed down in the later part of the year because of the global recession. According to Mr. Cozijnsen, the market is currently stable, and the ability to bank allowances both works well and helps keep allowance prices reasonable. Also, under the Kyoto Protocol (an international agreement linked to the United Nations Framework Convention on Climate Change (UNFCCC), which sets binding targets for 37 industrialized nations and the European community for reducing greenhouse gas (GHG) emissions) (*see* http://unfccc.int/kyoto_protocol/items/2830.php), Certified Emission Reduction units (CERs) are generated from UNFCCC-certified carbon projects. Notably, the EU determined to accept such Kyoto Protocol CERs as the equivalent of an EU carbon emissions allowance unit. This will enable such allowance units to trade with and be interchangeable with UNFCCC CERs on a one-to-one basis. Mr. Cozijnsen also noted that the third EU ETS phase, the post-2012 phase that will run from January 2013 and thereafter, is currently being discussed and negotiated in the EU, with formal treaties anticipated to be forthcoming soon. The target for this third phase is to reduce emission levels to 20 percent below 1990 levels by 2020. The EU's post-2030 plan is to have fewer allowances available each year, with a decrease in the number of allowances by 1.74 percent each year. Mr. Cozijnsen believes that there will be more harmonization of emissions allowances among all EU states after 2012, as there will be one central emissions cap for each industry (such as steel manufacturing), with a centralized allowance distribution regime (rather than individual state allocation regimes) covering all participant states. Mr. Cozijnsen also expressed hope that the U.S. will join in these efforts with EU states.

In terms of the mechanics of the EU ETS program, Mr. Cozijnsen explained that the EU's current plan is to have annual issuances of carbon allowances. Currently, there are approximately 10,000 companies in Europe receiving approximately two billion allowances per year. Each allowance is traded an estimated five times on different exchanges.

Allowances are viewed as a property in most EU states, so that those who hold such allowances possess a property right to such items. The United Kingdom, however, is a notable exception and views allowances as financial assets. This is significant because property rights are treated differently than financial assets, particularly in terms of how they are valued, recorded on balance sheets, and treated for tax purposes. Mr. Cozijnsen noted that this difference will need to be resolved by 2012 in order to move forward successfully. Furthermore, in addition to the allowance itself, there are also derivatives of allowances, such as futures, options, and swaps. The derivatives are always treated as financial assets, though, and have an appropriate level of financial oversight. Mr. Cozijnsen also addressed the issues of how these derivatives appear on a balance sheet, and how these types of assets are valued for tax purposes. Mr. Cozijnsen believes that these concerns need further attention and assessment moving forward.

Mr. Cozijnsen then explained the basics of transferring allowances in the EU. According to Mr. Cozijnsen, all EU Member States have emissions registries, and each emissions owner has an individual account therein. If an owner has an allowance in an account, the owner's right to that allowance is undisputed. There are also various forms of contracts that are used for purposes of trading allowances, depending on the type of allowance being sought. For example, an International

Emissions Trading Association (IETA) agreement may be used for compliance purposes, and an International Swaps and Derivatives Association (ISDA) agreement may be used for trades with banks.

According to Mr. Cozijnsen, the majority of emissions trading is done on the over-the-counter (OTC) market, although there is a movement to do almost all trades on organized platforms. A futures and spot trade market has also been established recently. The volume of trading is high. Specifically, at least twenty to thirty million tons of allowances are traded every day, with forty million tons trading on some days.

The possibility of mutual recognition between Europe and the U.S. of each others' emissions trading systems is another topic about which Mr. Cozijnsen spoke. According to Mr. Cozijnsen, this type of allowance recognition will occur eventually, though the different rules each currently possesses may make this difficult. Mr. Cozijnsen believes that there will be an indirect link in the future between the U.S. and the EU, which is already reflected in the U.S. Environmental Protection Agency's (EPA's) monitoring of the Clean Development Mechanism , a mechanism defined in Article 12 of the Kyoto Protocol intended to assist nations in achieving sustainable development and preventing climate change, as well as assist member countries in achieving compliance with their GHG emissions caps (*see* http://en.wikipedia.org/wiki/Clean_Development_Mechanism).

Mr. Cozijnsen concluded by expounding on the lessons learned from the EU's successes and failures in its implementation of the EU ETS. First, Mr. Cozijnsen suggested that a pilot phase is crucial to the success of any program. Second, he indicated that compliance should be the primary goal, and that unilateral rules are important to overcome differences. Based on the past failures of the EU ETS, Mr. Cozijnsen noted that it is very difficult to locate emissions verifiers, and advised those who want or need their emissions reductions verified to find such persons early. Finally, Mr. Cozijnsen stated that windfall profits in the power markets cannot be allowed. Thus, in contrast to what occurred previously in Europe, no free allowances should be distributed.

B. Alex Rau—The Business-Side Perspective

Alex Rau, principal of Climate Wedge Ltd. in San Francisco, spoke next and gave a general update on carbon markets. He explained that most countries have some type of compliance system in place that use a cap-and-trade regime, although the U.S. and Canada are notable exceptions. Mr. Rau stated that there is rapid growth in trading volume overall, with approximately 150 billion transactions occurring annually, and with the bulk of trading done through the EU ETS.

Using graphs as illustration, Mr. Rau presented a price curve history of carbon trading. He thinks that the carbon trading market is maturing and becoming more sophisticated, with greater liquidity.

Mr. Rau also discussed several influences that set prices in the EU ETS. As examples, Mr. Rau described how tradable instruments in the carbon markets correlate to other commodities or derivative contracts covering the prices of fuel, energy, shares, or weather. Mr. Rau's analysis showed the correlation between carbon credits prices and fuel prices as strongest.

According to Mr. Rau, there is a general reduction in overall emissions as a result of the cap-and-trade system in Europe. He believes, though, that there is a strong need to make sure the rules that are implemented in the United Sates with respect to carbon trading are designed appropriately for the U.S. market to succeed in the long term.

C. Keith Casto—The Current State of Carbon Trading in the U.S.

Keith Casto, a partner in the San Francisco office Shook, Hardy and Bacon, outlined the current state of carbon trading in the U.S. He began by giving an overview of the Kerry-Lieberman climate bill (also known as the American Power Act, and herein referred to as the Bill) pending in Congress and the concerns surrounding the Bill. In particular, the four main concerns according to Mr. Casto are the

following: (1) how allowances will be distributed; (2) the status of already-existing programs; (3) the regulation of trading markets to prevent manipulation; and (4) the validity of offsets.

To address the concern of allowance distribution, Mr. Casto noted that the Bill provides for four federal auctions per year and states that EPA must promulgate regulations for such auctions within one year. Mr. Casto also noted that there is a retroactive application for actions taken already to reduce emissions, but that the greater issue of recognizing existing state credits or allowances still needs to be addressed adequately for the legislation to be successful.

Mr. Casto also discussed that there must be regulation of GHG markets in order to avoid another derivatives market crisis. According to Mr. Casto, regulations should be put in place to regulate swap transactions, institute criminal penalties for fraud, and prohibit manipulation, excessive speculation, and certain types of transactions such as short sales. He also believes that all trading should go through an international clearing house, with required participant registration and approvals for organizations. Further, Mr. Casto indicated that there should be emergency suspension authority and a memorandum of understanding (MOU) between the U.S. Securities and Exchange Commission (SEC), EPA, and other federal agencies to facilitate coordination.

As for offsets, Mr. Casto believes that these must be an additional effort, rather than something already required by law or part of business as usual. The offsets must also be verifiable, measurable, and enforceable. Mr. Casto explained that there are both domestic and international offsets, with different concerns for each. EPA would issue domestic offsets, and would also conduct audits to ensure the offsets' validity. According to Mr. Casto, the main issue for international offsets is integration with other domestic offsets.

Finally, Mr. Casto gave a brief description of several programs in the U.S. and how the proposed legislation may impact them. One system, which has already been in place for three years, is the California cap-and-trade program. Mr. Casto explained that if the Bill is passed, there would be a serious federal preemption issue with this program. Consequently, many in California oppose the Bill. Currently, there is a pending proposition to stay implementation of the California cap-and-trade program, as proposed by three large Texas oil companies. The California government, though, opposes such stay.

Additionally, California has a key agency, the California Climate Action Reserve (CAR), which validates all credits so that they can be traded both domestically and internationally. Another program on the west coast is the Western Climate Initiative (WCI), which includes the states of California, Montana, Utah, Washington, Oregon, and New Mexico, as well as certain Canadian provinces (as specified herein). On the east coast, the Regional Greenhouse Gas Initiative (RGGI), comprised of ten Member States, has been quite successful, and has already held seven auctions. The RGGI program, though, is limited to the electricity sector.

D. Pat Koval—The Canadian Perspective on Carbon Trading

Pat Koval, a partner in the Toronto, Canada, office of Torys LLP, concluded the QT by giving an overview of carbon trading developments in Canada. Ms. Koval first detailed new activity in Alberta, which is currently using an intensity-based cap-and-trade system. This system involves either buying allowances/emissions offset credits or paying into a technology fund. Three purchase periods have already been completed in Alberta, Canada, where the market is growing and appears healthy.

Ms. Koval also spoke about the WCI, in which the Canadian provinces of Ontario, British Columbia, Manitoba, and Quebec are actively involved. The WCI, which covers the six Kyoto Protocol gases (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulphur, and hexafluoride (*see* http://unfccc.int/kyoto_protocol/items/3145.php)), intends to put in a system of absolute caps with a target of emission levels 15 percent below 2005 levels. The first phase of the

WCI's three-year compliance period cap-and-trade program will begin on January 1, 2012, and will cover emissions from imported electricity, industrial combustion, and industrial process emissions. The WCI also plans to have a second phase in 2015, when the program's scope will be extended to cover fuels emitted from transportation, residences, commercial, and industrial sectors (*see* www. western climate initiative.org/ the-wci-cap-and-trade-program). New developments in the WCI include mandatory reporting for the upcoming year.

Logistically, the WCI has an auction process design with a minimum of 10 percent of emissions allowances auctioned off every year. This might change, however, as the WCI is currently waiting on draft recommendations to revise the program. The most controversial provision of the draft revisions is the eligibility date of September 23, 2008, the date on which the Design Recommendations for the WCI were released. As Ms. Koval explained, many supporters of the system are opposed to this date because they believe that the eligibility date should be much earlier. Finally, the WCI has become a part of the "three regions" process by linking with RGGI and the Midwest Greenhouse Gas Reduction Accord (MGGRA). The three regions' first joint paper was issued recently and sets up their joint views for a high quality offset plan.

Ms. Koval also described the exciting entry of the Pacific Carbon Trust (PTC) in 2008 as an agent of British Columbia. The program was initially set up to help British Columbia fulfill a legislative mandate to be carbon neutral by 2010, but has been developing a greater role in the private sector. The PCT now buys carbon credits and subsequently sells them to the private sector. The PCT has offset purchase criteria and a competitive procurement process. Currently, the PCT has also set a target to supply up to one million tons of offsets annually to its clients.

Ms. Koval concluded by explaining that until last year, there were no standards for offsets in Canada. This has changed because of the Voluntary Carbon Standard (VCS) and California's CAR program. Now, there is a reasonably active voluntary market for growth of carbon funds.

III. Conclusion

Overall, it is apparent that carbon trading programs will need to be truly international in scope to be successful in an increasingly interconnected market. As illustrated from the presentations the speakers above delivered, having a carbon trading system wherein emissions allowances may be verified against uniform standards—so that more stringent criteria are not used for certain allowances relative to others—is crucial to being able to trade such allowances on both national and international levels. Developing legislation and other measures to implement such standards and facilitate carbon trading within and among particular nations continues to prove to be a challenging process. Furthermore, although certain countries face unique challenges in implementing an efficient carbon trading system, much can be learned from the common experiences in developing carbon trading programs around the world. Hopefully, the U.S. will draw upon the successes and failures of systems in the EU and Canada when implementing its own effective carbon trading program.

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