Western Climate Initiative

Market Oversight White Paper

November 18, 2009

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1. Introduction

The Western Climate Initiative (WCI) is a cooperative effort of seven U.S. states and four Canadian provinces that are collaborating to identify, evaluate, and implement policies to reduce greenhouse gas (GHG) emissions, including the design and implementation of a regional cap-and-trade program. The WCI began in February 2007 with the governors of Arizona, California, New Mexico, Oregon, and Washington, who have since been joined by the premiers of British Columbia, Manitoba, Ontario, and Quebec, and the governors of Montana and Utah. Participation in the WCI reflects each Partner jurisdiction's strong commitment to identifying, evaluating, and implementing collective and cooperative actions to address climate change.

In September 2008, the Partner jurisdictions released the final "Design Recommendations for the WCI Regional Cap-and-Trade Program."[1] The first compliance period for the cap-and-trade program will begin January 1, 2012, covering GHG emissions from electricity generation (including emissions associated with imported electricity), combustion at large industrial and commercial facilities, and industrial process emissions for which adequate measurement methods exist. Starting in 2015, the program's coverage expands to include transportation fuels in addition to residential, commercial, and small industrial combustion. Thus, by 2015 the cap-and-trade program will cover almost 90% of GHG emissions in the Partner jurisdictions.

In February 2009, the Partner jurisdictions released the WCI 2009 – 2010 Work Plan, describing the approach to implementing the Design Recommendations.[2] The WCI is working through six committees: Offsets, Reporting, Electricity, Complementary Policies, Cap Setting and Allowance Distribution, and Markets. The Work Plan describes the tasks and deliverables for each committee. The purpose of one of the Markets Committee's tasks, "market oversight," is to recommend measures to ensure that the allowance and offset credit trading market is organized properly to operate reliably and prevent or minimize manipulation. This task was included in the work plan based on the consensus among WCI Partner jurisdictions on the need to provide effective oversight to assure an efficient and transparent carbon market.

This white paper reports on the information collected and reviewed by the Markets Committee on market oversight approaches and issues. The information was obtained through several means, including the following.

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[1] The Design Recommendations and accompanying Background Report can be found at http://westernclimateinitiative.org/the-wci-cap-and-trade-program/design-recommendations.

[2] The 2009 – 2010 Work Plan can be found at http://westernclimateinitiative.org/component/remository/general/workplans/2009-2010-WCI-Work-Plan/.

- The Markets Committee held a stakeholder workshop on market oversight in Seattle, Washington in April 2009. The Committee presented a draft set of principles of market oversight, and a list of questions for discussion with those who attended in person or online.[3] Stakeholders were invited to submit written comments.[4] Stakeholders' responses guided the Committee's consideration of issues and the Committee revised the principles of market oversight as set forth below. The principles guided the Committee's research, analysis, and deliberation, and will continue to do so as the Committee progresses towards draft and final recommendations.

- The Markets Committee held a webinar with the market monitor used by the Regional Greenhouse Gas Initiative (RGGI).

- The Markets Committee consulted with U.S., Canadian, state, and provincial regulatory authorities, and received input from European market regulators, potential market participants, trade associations, market infrastructure providers, and other stakeholders.

- The Markets Committee conducted a literature review with the assistance of our task advisor at the Nicholas Institute at Duke University.

Through this process, the Committee acquired substantial knowledge about the types of regulation in place in existing financial markets, the roles of regulators and exchanges, and the scope of existing carbon-related financial products. This information is presented in this paper as follows:

- Section 2 presents the revised principles being used to guide the development of the market oversight recommendations.

- Section 3 summarizes background information, including an overview of cap-and-trade, market architecture and oversight, and existing market models.

- Section 4 describes oversight of existing markets in the U.S., Canada, and Europe.

- Section 5 identifies recent U.S. federal proposals related to carbon market oversight.

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[3] The principles and questions can be found at http://westernclimateinitiative.org/component/remository/func-startdown/25/. Market oversight was one of three tasks for which the Committee developed draft principles for comment; the others were auction design and compliance verification and enforcement.
[4] Stakeholder comments were submitted to the WCI website, and can be found at http://westernclimateinitiative.org/documents/public-comments/document/2.

The paper concludes with a brief list of key decisions that are under consideration.

2. Principles

These principles serve as guidelines for developing oversight of the allowance, offset credit, and associated derivatives trading markets to assure maximum environmental and economic benefit to the public.

- **Fairness:** All market participants, especially covered entities, have fair and equal access to the market.

- **Efficiency:** The market is designed to operate efficiently so that greenhouse gas (GHG) emission reductions can be achieved at the least cost. An efficient market means that allowance and offset credit prices reflect supply and demand, and accurately reveal the value of allowances and offset credits.

- **Effective Oversight:** The design and oversight of the market is effective in preventing or minimizing fraud, manipulation, and speculative excess.

- **Transparency and the Reporting and Disclosure of Relevant Information:** Transparency in the design and the operation of the allowance and offset credit market builds and retains public confidence.

    - Reporting of relevant information to regulatory authorities and public disclosure of information has important benefits. It enables regulatory authorities to conduct effective oversight and ensure compliance. It also helps to ensure market efficiency, effective oversight, and compliance and enforcement. The release of information can change the decisions of market participants, which impacts the prices of allowances and offset credits. Timely, accurate, coordinated and consistent release of market-relevant information allows all market participants to have equal access to public information.
    - The reporting and disclosure requirements for compliance verification and enforcement balance these benefits against the need for entities to protect certain sensitive information. The potential to disclose certain information that could be used to manipulate the market is also considered. This balancing is consistent with applicable law relating to the disclosure of information.

- **Administrative Simplicity and Cost:** Proposed rules are designed to be understood and enable entities to have a clear compliance path. Administrative costs and transaction costs are minimized for all parties, consistent with the need to provide effective oversight.

- **Accountability:** All entities involved in the allowance and offset credit market, as either regulators or market participants, are accountable for their actions. The responsibility, authority, and capacity to conduct the necessary oversight and take appropriate action are fully defined for all agencies charged with compliance verification and enforcement.

- **Conflicts of Interest:** Conflicts of interest between market participants, monitors, and regulators are prevented.

The principles were revised as a result of further review after the Markets Committee stakeholder workshop and submitted comments. First, "maximum environmental and economic benefit for the public" was explicitly confirmed as the purpose of the principles. A sentence was added to the principle of "Transparency and the Reporting and Disclosure of Relevant Information" to acknowledge that the release of information can change the decisions of market participants. Timely and accurate release of market-relevant information has been more explicitly noted. These additions are in line with the Markets Committee's intent and highlight concepts that stakeholders were interested in seeing expressed explicitly.

3. Background

In 2008, the value of global carbon market was estimated at €92.4 billion. Though trade volumes were expected to continue growing, anticipated lower prices led to a forecast of €62.6 billion in 2009[5,6]. The volume of transactions is growing each year and further growth is expected as cap-and-trade programs are likely to be launched in North America and elsewhere. Numerous financial products are now available to the firms that face a regulatory obligation under the European Union Emissions Trading Scheme (EU ETS) or the Regional Greenhouse Gas Initiative (RGGI) as well as to investors and intermediaries that participate in the trading of carbon allowance-based financial products. It is likely that the WCI regional cap-and-trade program will generate a substantial volume of transactions and the creation of a number of new financial products based on allowances issued by WCI Partner jurisdictions. The recent financial crisis and market turmoil has further highlighted the potential for disruptions to markets and need to properly address market architecture and oversight to ensure that the carbon market works efficiently and effectively in support of the program's environmental and economic goals.

This background section provides an overview of the financial markets that may develop along with the establishment of a cap-and-trade program. It will help explain the role of the different

[5] "Carbon Market Analyst: Outlook for 2009," PointCarbon Research, February 19, 2009.
[6] At October 8, 2009 exchange rates, these values would be $U.S. 136.7 billion and $CAN 144.2 billion in 2008, and $U.S. 92.6 billion and $CAN 97.7 billion in 2009.

participants and institutions in the carbon market and how they might influence the future WCI market. The outline of the section is as follows: Section 3.1 summarizes the foundations of a cap-and-trade program. Section 3.2 defines and describes market architecture and oversight. Section 3.3 outlines oversight of existing financial markets.

3.1 Overview of a cap-and-trade program

In a GHG cap-and-trade program, an emitter must turn in one "allowance" for every metric ton of carbon dioxide equivalent[7] (CO_2e) it emits. An allowance may be a limited authorization to emit GHGs. The regulator(s) implementing the cap-and-trade program issues a limited number of allowances, thus creating a "cap" on emissions. The number of issued allowances can decline over time, resulting in further emissions reductions toward a predetermined goal.

Market participants can buy and sell (i.e., trade) allowances, and the allowances commonly are fungible across the emitters and jurisdictions participating in a cap-and-trade program. The market price for allowances is derived from supply and demand. Supply is determined through establishment of the cap and subsequent issuance of allowances. Allowance demand depends on energy demand and the cost of technologies and strategies that reduce emissions. Emitters will choose whether and how much to invest in allowances, offsets, or reductions of their own emissions based in part on current and projected prices of allowances, offsets, and emission abatement costs. In a well-functioning market, the allowance price will adjust in response to clearly communicated and accurate information aggregated from the broad market. Accurate and timely information about allowance price, trade volume, and current bids and offers helps market participants and observers minimize transaction costs and uncertainty about market activity.

Existing GHG emissions cap-and-trade programs include the EU ETS and the Regional Greenhouse Gas Initiative (RGGI), a collaboration of 10 U.S. states.

3.2 Market architecture and oversight

"Market architecture," for WCI purposes, refers to: 1) the market participants (those who buy, sell, and hold allowances) and institutions that make up a market; and 2) the systems, infrastructure, processes, and tools used by the participants and institutions. "Market oversight" refers to a broad range of activities that ensures allowance and offset credit markets serve the environmental and economic goals of a cap-and-trade program. Oversight includes choices regarding the establishment of a market, the rules governing market participants, and

[7] Some GHGs have a greater climate effect than carbon dioxide (CO_2); for example, methane is about 25 times as potent (Intergovernmental Panel on Climate Change Fourth Assessment Report, 2007, Working Group I Report, p. 212). To treat emissions uniformly, GHGs are referenced to their carbon dioxide equivalent, CO_2e.

monitoring of market activity. The WCI Partner jurisdictions intend to consider these choices in accordance with the principles in section 2 of this white paper.

The central purpose of a market mechanism is to aggregate and transmit price information. Market participants require complete, accurate, and unambiguous disclosure of price information on a regular and timely basis to make informed decisions about investments and transactions. In the case of a cap-and-trade program, emitters will use the current and expected price of allowances to assess whether to spend money to reduce emissions or to purchase additional allowances. The carbon market is used to determine the price of allowances, reflecting underlying supply and demand.

A lack of information or inaccurate information in the marketplace can lead to prices that do not accurately reflect the real marginal cost of reducing emissions. Such misinformation would distort emitters' investment decisions, which could raise the overall costs to regulated entities and the public. Market transparency and effective oversight helps ensure an efficient market with prices that more accurately reflect the marginal cost of emissions abatement, as well as preventing distortion of the price through, for example, attempts to manipulate the market.

Given the importance of information in determining prices in markets, market oversight typically includes requirements for disclosure of certain market-relevant information in a systematic and transparent manner. For example, in a carbon market, the accurate and timely disclosure of emissions data can be of particular importance. In addition to the disclosure of information publicly, regulators will want to collect information needed to analyze the market and to ensure that market participants are following the rules and laws that govern a market. This commonly includes collecting data regarding:

- the types of instruments being traded;
- bid, offer, and settlement prices;
- trade volumes and net changes for each contract type;
- the location of trades;
- the number and value of open positions held by market participants;
- price movements;
- changes in price relationships among futures in different delivery months, on different trading facilities (e.g., exchanges), and between futures and the cash markets;
- trade liquidity and severity of price changes; and
- market news and rumors.

Regulators can require that information be provided by market participants to support this analysis. This information can be supplemented with publically or commercially available information. While transparency is important for efficient market operation, some information

may reveal competitive positions that would do more to assist manipulation than prevent it. Consequently, care must be exercised in determining which information will be disclosed publicly. Information reporting and disclosure will be at the heart of many decisions to be made on market oversight.

Regulatory authorities may allow one or more exchanges or other commercial marketplaces to offer trading services. In that circumstance, the regulatory authorities may gather and distribute information so that market participants can have good information on which to base their trading decisions. The regulatory authorities also monitor the potential risks of these marketplaces that may affect the securities marketplace operations. Prior to operation and then typically on an ongoing basis, the regulatory authorities assess a marketplace against core operating criteria and evaluate risk to the public and market participants, market integrity, and market efficiency. Examples of core operating criteria include public interest mandates, good corporate governance requirements, conflict management mechanisms, rule-making, -monitoring and -enforcement, clearance and settlement, fair access and fees, and information sharing and cooperation with regulators. Market regulation tools may also include software systems that allow surveillance to determine breaches in market integrity rules, identify suspicious trading patterns, and accurately identify who is trading and when.

3.3 Existing markets as models

There are a variety of market structures that can serve as useful models for the WCI Partner jurisdictions as they create a regional cap-and-trade system. Given the newness of allowance and offset credit markets, the committee examined longstanding markets in securities and commodities for examples of what a fully developed carbon market might look like. For the purposes of this paper only, we use “allowances” to mean both allowances and offset credits, and collectively refer to trading of allowances, offset credits, and their derivatives as a “carbon market.”

Securities include stocks and bonds, and represent part ownership of a corporation or debt. Like allowances, they are issued in limited numbers and have serial numbers that allow tracking of ownership of a particular unit.

Commodities are goods that are interchangeable with other goods of the same type.[8] For example, as long as a bushel of grain meets certain standards, the purchaser is indifferent to its source. In contrast to fixed issues of securities, commodity supplies may fluctuate over time depending on economic conditions and production factors—for example, grain supplies depend

[8] “Commodity,” Investopedia, retrieved August 3, 2009. http://www.investopedia.com/terms/c/commodity.asp

on the weather in producing regions. Because most are not financial instruments but goods, commodities usually have non-negligible storage costs. “Energy commodities” refers to commodities like oil and natural gas.

There are significant differences between allowances and traditional securities and commodities. First, because allowances may be limited authorizations to emit GHGs, their possession may not imply ownership of property. Second, covered entities must submit allowances for compliance with regulations on GHG emissions.

Participants trading allowances in existing carbon markets have generally treated them as commodities. Many firms that are covered in existing cap-and-trade programs require energy commodities as inputs. As with commodities, allowance prices reflect global economic conditions and demand more than the decisions made at an individual corporation, which affect the value of that corporation’s stock.

Despite differences with commodities and securities markets, there are important lessons from these that can guide the development of the WCI’s carbon market. By examining the regulations that have proven to be effective, as well as the types of market problems that occurred in the past and the proposed solutions, the WCI Partners are identifying best practices in market regulation that can ensure a transparent, efficient carbon market.

3.3.1 Types of markets

If the market for allowances were to resemble those for securities and commodities, it would have several interrelated facets:

- The distribution of allowances by WCI Partner jurisdictions, such as through auctions, would comprise the primary market.
- Trading of allowances after the initial distribution would comprise the secondary market.
- A part of the secondary market important and distinct enough to be treated separately in this paper is the derivatives market. Derivatives are instruments whose value is derived from an underlying instrument—in this case, allowances.

In this white paper, references to the “secondary,” “spot,” or “cash” markets mean the approximately instant trading of allowances themselves, while derivatives markets will be treated separately.

Examples of derivatives include:

- Futures: Standardized contracts (i.e., contracts that are fungible with one another) to deliver something (e.g., allowances) at a certain price on a certain date in the future.

- Forwards: Non-standardized contracts to deliver something at a future date. The price may be fixed when the contract is executed, or may be determined at a time in the future.

- Options: A contract that gives the purchaser the right to buy or sell something at a certain price before a certain date.

- Swaps: A contract to exchange one thing for another.

Derivatives products are generally either "physically settled" or "cash settled," meaning the transaction involves an exchange of goods or solely of money.

Derivatives can be used to manage the risks inherent in fluctuating prices. This is often referred to as "hedging." For example, a natural gas-fired power plant may prefer to hedge against the possibility of an increase in natural gas prices by buying a future. A natural gas producer may similarly want to guarantee a price for some part of its production, and consequently may sell a future. Other firms may be willing to accept some risk of price volatility for the possibility of a higher return, or are confident of their analysis of whether prices will rise or fall. They trade derivatives even though they are not producers or consumers of a good. This motive for trading is commonly called "investing" or "speculating."

Derivative products may serve an important function in a carbon market. The WCI cap-and-trade system, for example, will create a long-term obligation for covered entities. Some of those entities may find it necessary or desirable to lock in future prices to provide certainty to customers, investors, or regulators. Because many of the allowances issued during a compliance period will likely be submitted for compliance, derivative products may provide one of the few options for managing this long-term risk. In addition, derivatives markets may give emitters a sense of the long-term trends in allowance prices, allowing emitters to justify and finance investment in reducing their emissions. Moreover, derivatives may reduce volatility in commodities markets, by accelerating the incorporation of new information into asset prices[9,10].

[9] E.g., "Populists and Theorists: Futures Markets and the Volatility of Prices," David S. Jacks, Explorations in Economic History 44, p. 342 – 362, 2007, http://www.sfu.ca/~djacks/papers/publications/populists.pdf (Accessed October 8, 2009).

3.3.2 Market participants

A WCI carbon market could involve diverse participants who may trade to satisfy a compliance obligation, purchase for resale to emitters, speculate on the price of allowances, or diversify an investment portfolio. Entities that could participate in the carbon market may include compliance entities, investors, brokers and other intermediaries. Each entity would play a different role in the market.

Even if compliance entities receive allowances without charge from a government, the number may not be equal to their obligation, perhaps due to growth or contraction in their emissions or policy decisions on the quantity or formula for distribution. These entities may then choose to purchase additional allowances from the primary or secondary market, or sell allowances they will not require for compliance or for other reasons. In early 2009, industrial facilities in the EU ETS sold allowances, many freely allocated, to raise cash when other finance avenues became more difficult.[11]

Many compliance entities may desire to use allowance derivatives to limit the risks inherent to them in higher or lower prices. Allowance prices will likely rise and fall as new information is incorporated by market participants. Information that may influence prices includes weather data and forecasts, emissions data, economic data and forecasts, and policy choices by governments.

Though they would not be required to hold allowances for compliance, other categories of participants could play market roles. Brokers and other intermediaries may, for a fee, arrange trades of allowances or derivatives between parties, or provide advice or other services. Investors may desire to be market participants to profit from trading.

The WCI Partner jurisdictions have received oral and written comments from stakeholders suggesting that market participation be limited to compliance entities. Many of these comments referred specifically to auctions, which are the subject of a separate WCI white paper, but may also be addressed in the context of secondary and derivatives markets. The concerns expressed can be summarized as:

1) That participation by non-compliance entities will increase the price of allowances.
2) That participation by non-compliance entities increases the chances of market manipulation.

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[10] "The Impact of Energy Derivatives on the Crude Oil Market," Jeff Fleming and Barbara Ostdiek, http://www.rice.edu/energy/publications/docs/Flemming_ImpactEnergyDerivativesCrudeOilMarket.pdf (Accessed October 8, 2009).

[11] E.g., "Carbon Markets 2009," IFSL Research, July 2009, http://www.ifsl.org.uk/upload/Carbon_Markets_2009.pdf (accessed October 1, 2009).

3) That participation by non-compliance entities will limit access to allowances.

The first concern may be related to questions regarding the role of speculation in markets: particularly speculation in energy markets as the price of oil rose rapidly in late 2007 and 2008 to a peak of $147 per barrel on July 11, 2008. Whether oil prices during this period reflected an understanding of underlying supply and demand, or may have been driven by "excessive" speculation, is a question that will not soon be resolved. Investors *can* play important roles in competitive markets by increasing liquidity and accepting risk. A healthy market is "liquid," meaning there is a sufficient number of buyers and sellers in the marketplace to allow trading to take place. Larger numbers of market participants make it more likely that there will be counterparty (i.e., another party willing to participate in a trade). Derivatives transactions are often described as a transfer of risk from one entity to another. Investors are often willing to act as counterparties and accept the risk. A market with less liquidity may be subject to more price volatility and it may be more difficult for entities needing to buy allowances to locate willing sellers. Consequently, concerns about potential "excess" speculation by investors must be weighed against these benefits of allowing investors access to the carbon market.

The second concern implies either that more market participants increases the ease or risk of manipulation, or that non-compliance entities might attempt market manipulation while compliance entities would not. However, a larger number of market participants would most likely make manipulation more difficult, not less, by increasing liquidity and making control of a significant proportion of allowances by one or a few persons harder. Moreover, there is no assurance that a non-compliance entity is more likely to attempt market manipulation than a non-compliance entity, or that no compliance entity would attempt market manipulation. Limiting market participation to compliance entities would exclude some number of potentially beneficial participants, with no certainty that the risk of market manipulation would decrease.

The third concern is that non-compliance entities may hold allowances for some period of time, making them unavailable to compliance entities who may need them for compliance. There are many possible reasons for holding allowances; the auction design recommendation report commissioned by RGGI identifies five:[12] speculation; allowance market manipulation; electricity market interference; competitive advantage; and external compliance. In none of these cases would market risks be reduced by restricting the market to compliance entities, save potentially external compliance. When restricting a market reduces liquidity, in fact, the risks are increased. "External compliance" is the possibility of another cap-and-trade program accepting WCI allowances in lieu of its own, without any reciprocal acceptance of the program's

[12] "Auction Design for Selling CO2 Emission Allowances Under the Regional Greenhouse Gas Initiative," Charles Holt, William Shobe, Dallas Burtraw, Karen Palmer, Jacob Goeree, October, 2007, section 9, "Hoarding of Allowances," http://www.rggi.org/docs/rggi_auction_final.pdf (Accessed October 6, 2009).

allowances by WCI jurisdictions. Though this risk might be enhanced by allowing non-compliance entities to participate, it is nevertheless very small, as it has not been proposed by the existing GHG cap-and-trade programs, RGGI and the EU ETS.

In addition to considering whether participation limits are desirable, WCI Partner jurisdictions will consider whether they are practical.

One consideration is how to determine who has a compliance obligation, including when that determination is made. The determination could be made the moment a facility emits beyond the cap-and-trade emission threshold of 25,000 metric tons in a calendar year; when it submits its verified emissions report showing emissions in excess of the threshold; at the "compliance event" after the end of a three-year compliance period when it must submit allowances to cover its emissions; or perhaps other choices. Each of these approaches may have different implications for who would be considered to have a compliance obligation for purposes of participation in the market. For example, if a smaller entity will not cross the emissions threshold until November in a given year, would it be forbidden to obtain allowances earlier? This implies that larger entities would be able to start trading earlier than smaller ones. To prevent this, the WCI Partner jurisdictions could allow an entity to participate in the market in anticipation of having a compliance obligation. However, if "anticipation" of an obligation is sufficient, then there would have to be procedures for who determines whether that anticipation is adequately grounded, and when, as well as any the penalties and recourse if the estimates used to anticipate an obligation are incorrect or fraudulent.

Another practical consideration for participation limits is to evaluate whether such limits are enforceable. One example is a person otherwise excluded by participation rules purchasing some fractional interest in a facility that was a compliance entity, with an agreement that the person could trade as a representative of the entity. A second example from derivatives trading is that the Chicago Climate Futures Exchange (CCFE) has been the most active platform for derivative trading of RGGI allowances. The CCFE determines its own membership. WCI states and provinces may not have jurisdiction over either the exchange or traders, so rules about allowable participation may be impossible to enforce.

The Markets Committee continues to evaluate arguments for and against limiting participation by the type of entity, and is investigating markets beyond the financial markets for examples of participation limits and their effects.

3.3.3 Exchanges and OTC transactions

Securities and commodities trading encompass a variety of markets, physical and electronic, where buyers and sellers meet to trade. The U.S. Commodity Futures Trading Commission (CFTC), for example, oversees at least four kinds of markets for trading commodity derivatives.

The markets vary in their restrictions on participation (e.g., some are limited to large investors, assumed to be sophisticated in their evaluation of risks) and contracts offered. The type of market is often defined by a regulator's choices about transparency, participation, and other requirements.

Here two particular kinds of markets are highlighted: exchanges and over-the-counter (OTC) markets, which represent ends of a spectrum in regulation. Exchanges are associated with a higher degree of oversight and transparency. They are centralized marketplaces that offer standardized contracts that are fungible with one another and generally require "clearance." Federal law in the United States and provincial law in Canada generally require exchanges to set rules implementing governance principles on market manipulation, publication of trading information, fair and equitable trading, emergency authority, and more.[13]

In "clearing," a central organization becomes the buyer to the seller and the seller to the buyer—that is, it becomes the counterparty to both sides. The clearing organization, therefore, assumes the obligation to complete the transaction even if one party is unable to perform its part. Most clearing organizations associated with exchanges perform clearing only for members, who set the clearing organization's rules and collectively shoulder the risk of default of any one party. This diffusion of risk facilitates trading by reducing counterparty credit risk to a single entity, the clearing organization; the clearing members have a financial incentive to set their rules to keep the risk of default low. Clearing organizations typically require members to post "margin," liquid collateral (such as cash or government bonds) against the risk of default on a contract.

OTC transactions are executed directly between private parties. There is typically little public disclosure of the contract terms for OTC trades. Some of the contracts are less standardized, and the counterparty credit risks are associated with the specific parties to the transaction. OTC trades are generally subject to less regulatory oversight than exchanges, although both U.S. and Canadian lawmakers are considering proposals to increase regulation of OTC instruments. At the same time, OTC contracts may help to develop new types of standardized contracts, especially in new markets. OTC instruments may provide initial products that evolve into standardized contracts.

4. Oversight in existing markets

Market oversight activities include:

[13] E.g., "Designation of boards of trade as contract markets," 7 U.S.C. §7.

- Establishment of rules for market participants, including standing rules for participants and rules for trades;

- Information collection and analysis to track market activity and verify compliance with market rules and laws (market monitoring);

- Information release to the public; and,

- Enforcement actions in response to suspected violations of rules or laws.

As stated above, there could be many participants in the Western Climate Initiative—compliance entities, exchanges, clearing organizations, investors, brokers, etc.—each of which play different roles in the marketplace. Current practices in market regulation provide useful models for policymakers designing cap-and-trade systems to limit greenhouse gas emissions.

4.1 U.S. market oversight

In the United States, there are four federal agencies whose current experience regulating markets and/or emissions provide useful lessons for the WCI carbon market: the CFTC, the Securities and Exchange Commission (SEC), the Federal Energy Regulatory Commission (FERC), and the Environmental Protection Agency (EPA).

In the federal U.S. climate debate, it appears that allowances and offsets will be treated as a commodity. Futures contracts linked to allowances issued by RGGI states are already trading on CFTC-regulated exchanges. Further, several bills pending in Congress would clarify the definition of a commodity to specifically include allowances and offsets.

The U.S. Commodity Exchange Act (CEA) directs the CFTC and/or self-regulatory organizations (SROs) comprised of industry participants to establish restrictions for regulated transactions[14] that include: (i) trading limits, (ii) position limits, (iii) prohibition of fraud, false reporting and deception, (iv) prohibition of meretricious transactions, (v) registration requirements for market professionals, (vi) reporting and recordkeeping requirements, and (vii) prohibition against falsely holding oneself out as a market professional.

The CFTC has created different regulatory regimes for the following market participants:

- Boards of Trade: The CEA defines at least four categories of boards of trade, each with a different level of CFTC regulation and oversight and a different level of required self-

[14] The CEA exempts certain transactions from regulation. See 7 U.S.C. §§7a, 6 for more detail. These exemptions are a significant part of the definition of OTC markets.

regulation.[15] Designated contract markets (DCMs) are the most closely regulated category. In order to qualify as a DCM, the board of trade must meet designation criteria set out in 7 U.S.C §§ 7, 7a. Examples of designation criteria include the ability to prevent market manipulation by enforcing rules with respect to the "financial integrity of transactions," proper activity by members, public access to contract specifications, and access to information required to carry out its operations. The Food, Conservation and Energy Act of 2008 requires the CFTC to regulate electronic commodities markets in the same manner as DCMs in order to detect and prevent manipulation and to limit speculation in U.S. electronic energy markets.[16]

- Clearing houses: Clearing houses must register with the CFTC and be designated a derivatives clearing organization (DCO) before providing clearing services for regulated commodities.[17] Clearing organizations that only clear exempt contracts are not required to register with the CFTC. Clearing houses are discussed in further detail below.
- Intermediaries: Agents trading on behalf of a principal must register with the CFTC. In addition, they are often subject to "various financial, disclosure, reporting, and recordkeeping requirements."[18] Types of intermediaries include futures commissions merchants, introducing brokers, commodity pool operators, and commodity trading advisors. Any individual or firm wanting to "conduct futures-related business with the public" must register with the National Futures Association, an independent organization authorized to process intermediary registration with the CFTC.[19]

4.2 Canadian provincial market oversight

Regulation of Canadian securities and commodities markets is performed by a combination of provincial regulatory authorities and SROs. SROs exercise authority derived from a range of sources, including provincial legislation, delegation of authority from securities regulators and

[15] We say "at least four categories" because the statute is unclear in a number of areas. For example, 17 U.S.C. § 1a, defines something called an "alternative trading system" that appears to be highly unregulated. It is difficult to determine the scope or breadth of such alternative trading systems from the rest of the statute.
[16] The CFTC also regulates other categories of trading facilities, including derivatives transaction execution facilities, exempt board of trade, exempt commercial markets. Each category is subject to different levels of regulatory oversight.
[17] "Derivatives Clearing Organizations," 7 USC § 7a-1; Commodity Futures Trading Commission, http://www.cftc.gov/industryoversight/clearingorganizations/index.htm (Accessed May 28, 2009).
[18] "Intermediaries," Commodity Futures Trading Commission, http://www.cftc.gov/industryoversight/intermediaries/index.htm (Accessed May 28, 2009).
[19] "Registration of Intermediaries," Commodity Futures Trading Commission, http://www.cftc.gov/industryoversight/intermediaries/registration.html (Accessed May 28, 2009); "Who Has to Register," National Futures Association, http://www.nfa.futures.org/registration/who_has_to_register.asp (Accessed May 28, 2009).

agreement by members to follow rules established by their respective SRO. A more detailed description of Canadian capital markets oversight is presented below:[20]

- Provincial Market Regulatory Authorities: Provinces differ in regulation requirements for exchange and OTC derivatives. In Ontario, OTC derivatives and exchange-traded derivatives are administered by the Ontario Securities Commission (OSC) and are regulated under the Securities Act (Ontario) ("OSA")—if OTC derivatives qualify as securities under the OSA—and the Commodity Futures Act (Ontario) (CFA), respectively. The CFA defines "commodities" to include emissions and emission credits.[21] Like Ontario, Manitoba has commodity futures legislation that specifically regulates exchange-traded futures and options on futures. Other derivative products (generally OTC derivatives) are regulated under the Securities Act (Manitoba). In Quebec, the Quebec Derivatives Act (QDA) applies to both exchange-traded and OTC derivatives. British Columbia, as with several other provinces, regulates exchange-traded derivatives. It regulates OTC derivatives as "securities" under its securities legislation but effectively exempts them from many aspects of its securities regulations.

- Exchanges: There are currently three commodity futures exchanges located in Canada: Bourse de Montréal (the "Bourse") in Quebec, ICE Futures Canada in Manitoba, and the Natural Gas Exchange ("NGX") in Alberta. All of these exchanges are recognized (or authorized) by the provincial securities regulatory authority in their home jurisdiction, and are recognized or exempted from recognition in other provinces where they carry on business. Exemptions are granted on the basis of reliance on the regulation of the exchange by its home jurisdiction regulator (the "lead regulator" model).

- Clearing Houses: Regulation of clearing houses also varies by province. For example, Quebec is the only jurisdiction to require mandatory recognition of clearing houses. The Canadian Derivatives Clearing Corporation (CDCC)—the clearing house for contracts traded on the Bourse—is recognized as a SRO in Quebec and is under the oversight of the Autorité des marchés, financiers (AMF).[22] In Ontario, clearing houses can apply to the Ontario Securities Commission (OSC) for recognition under the CFA. Recognized clearing houses would file their rules and regulations with the OSC and be subject to rules regarding governance, access, fees, risk controls, financial viability, and

[20] Provincial governments are currently considering proposals to reform market regulation, including a role for the federal government. It should however be noted the federal initiative is currently the subject of a constitutional challenge.
[21] Under OSC Rule 14-502 – Designation of Additional Commodities
[22] "CDCC (Mx)," Canadian Derivatives Clearing Corporation, http://www.cdcc.ca/accueil_en.php (Accessed October 28, 2009).

information sharing. The OSC has authority to make any decision with respect to those rules. However, no clearing houses are currently recognized under the CFA. British Columbia legislation does not require a clearing agency to be recognized but permits its BC Securities Commission to recognize them. Manitoba has the ability to designate a clearing agency as recognized, and has issued a recognition order for ICE Clear Canada, the clearing house of ICE Futures Canada.

- Intermediaries: Ontario's CFA requires registration of advisers (including commodity trading advisers, commodity trading counsels or commodity trading managers) and dealers (referred to as futures commission merchants or FCMs). Registrants are subject to various requirements imposed by regulation, for example requirements relating to capital, record-keeping, and proficiency. Registrants are also subject to the general record-keeping and compliance review provisions of the CFA. FCMs are required to be members of the Investment Industry Regulatory Organization of Canada (IIROC), a recognized SRO, and to participate in the Canadian Investor Protection Fund, an approved compensation fund. British Columbia requires registration in order to trade in a security or exchange contract. In Manitoba, trading under CFA requires registration as a FCM and the firm must be a member of IIROC. Quebec's QDA, in addition to requiring registration of advisers and dealers, also requires that any person other than a "recognized regulated entity" that seeks to "create or market" a retail off-exchange derivative must be qualified by the AMF and that the derivative must also be approved by the AMF.

The IIROC is a national SRO responsible for overseeing trading activity in the Canadian equity markets. The organization monitors regulated firms and their registered employees to ensure compliance with market integrity rules, including post-trade reviews of trading data to identify any manipulative trading patterns that violate the Universal Market Integrity Rules (UMIR).[23] The IIROC prosecutes violations of UMIRs and refers other violations to the appropriate securities regulatory authority.

The oversight of trading in commodity futures contracts is conducted by the commodity futures exchanges themselves. The Bourse and ICE Futures Canada are recognized as SROs by their respective lead regulators and are required to maintain a separate regulatory division with defined regulatory, compliance, market surveillance and disciplinary responsibilities. They are also required to establish rules to govern and regulate all aspects of their business and internal affairs and to prevent fraudulent and manipulative acts and practices by participants. Regulatory divisions of these exchanges perform real-time monitoring of trading activity to detect trading infractions and market manipulation, conduct investigations and discipline

[23] "Market Integrity Rules – UMIR," Investment Industry Regulatory Organization of Canada, http://www.iiroc.ca/English/ComplianceSurveillance/RuleBook/Pages/UMIR.aspx (Accessed October 8, 2009).

exchange participants. The exchanges also impose and monitor position limits for each of their listed contracts.

All futures contracts traded on the three Canadian futures exchanges are cleared by their respective designated clearing house. Each of these clearinghouses acts as central counterparty to each transaction, manages the financial risk and oversees the final settlement of contracts. Clearing houses impose margin requirements, monitor the financial risk of their members in real time and may issue intra-day margin calls when needed.

4.3 European Union Emissions Trading Scheme market oversight

As part of its efforts to fight against climate change, the European Community ratified the Kyoto Protocol on April 25, 2002, establishing a goal of reduction in greenhouse gas emissions from all 15 Member States of 8% below 1990 levels for the period 2008 – 2012.

The establishment of a cap for a category of GHG emitters was designed to assist Member States and the European Union to meet their commitments to the Kyoto Protocol, while allowing companies to comply at the lowest cost by participating in the purchase and sale of emission allowances. The EU ETS covers around 10,500 installations across the 27 Member States of the European Union plus three other States. The ETS is designed to work in successive and independent phases. The first phase took place from January 2005 to December 2007. The second runs from January 2008 to December 2012 and corresponds to the compliance period of the Kyoto Protocol. The third phase will run from 2013.[24]

The legal framework of the trading scheme does not regulate how and where allowance trading takes place. Companies with commitments may trade allowances directly with each other, or they may buy or sell via a broker, bank or other allowance market intermediary. The Community Independent Transaction Log (CITL) records the issuance, transfer, cancellation, retirement and banking of allowances that take place in the registry.

It is mandatory that each Member State have a national registry. These registries will ensure the accurate accounting of all units under the Kyoto Protocol plus the accurate accounting of allowances under the CITL scheme for greenhouse gas emission allowance trading.[25]

The London-based European Climate Exchange[26] (ECX) provides standardized futures contracts. The underlying unit of trading is EU allowances (EUAs) or certified emission reductions (CERs).

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[24] "Emission Trading System (EU ETS)," European Commission, http://ec.europa.eu/environment/climat/emission/index_en.htm (Accessed October 28, 2009).
[25] "Emission Trading System (EU ETS): Community Independent Transaction Log," European Commission, http://ec.europa.eu/environment/climat/emission/citl_en.htm (Accessed October 28, 2009).

ECX contracts are cleared through ICE Clear Europe. Margin requirements for ECX products are determined by ICE Clear Europe and rates are reviewed on a quarterly basis based on historic price fluctuations of the contract.

In 2007, the traded volume of EUAs totaled 1,443 million, a daily average traded volume of 5.6 million tons (Mt). Around 70% was traded in the brokered over-the-counter market and the rest was traded on exchanges. The ECX accounted for 87% of exchange traded derivatives by volume in 2007, 92% in 2008, and 99% in the first half of 2009.[27,11]

The Financial Services Authority (FSA) regulates providers of financial securities in United Kingdom, including the ECX. The following is a summary of the FSA's scope of regulation:

- The FSA regulates exchanges and clearing houses, under UK Financial Services and Markets Act.
- The FSA does not have any responsibilities specifically relating to the underlying emission markets. Activities conducted by participants in relation to derivative instruments based on emissions allowances fall within its regulatory perimeter.
- The FSA regulates commodities derivatives that are traded for investment purposes.
- The fact that emissions allowances are a dematerialized allowance certificate, as opposed to a physical commodity does not distinguish this market from other commodities markets. The FSA does not consider that a different approach is required regarding the allowance market.
- The FSA does not regulate spot trading of emission allowances.
- The FSA could investigate behavior on the spot trading market if it appears it has an impact on derivatives listed on a regulated exchange.

5. U.S. Federal Proposals

The U.S. executive and legislative branches have presented various proposals for broad reform of financial markets, reform of energy commodity trading, and regulation of carbon markets that would be created by a federal cap-and-trade program.

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[26] "What Are Futures?" European Climate Exchange, http://www.ecx.eu/ECX-EUA-Futures-What-are-Futures (Accessed October 28, 2009).
[27] "Carbon 2008," PointCarbon, http://www.pointcarbon.com/polopoly_fs/1.912721!Carbon_2008_dfgrt.pdf (Accessed October 28, 2009).

The U.S. House of Representatives approved comprehensive climate and energy legislation (HR 2454) in June, 2009 that would create a federal GHG cap-and-trade system.[28] The bill would require:

- Creating a separate regulatory frameworks for the trading of allowances and allowance derivative instruments;
- Including verified offset credits in the definition of "allowances" for the purpose of the market oversight provisions;
- Choosing not to restrict who may trade in the carbon market; and
- Allowing multiple registered exchanges to trade allowance-based instruments rather than requiring that all instruments trade on a single platform.

Rather than specifying all of the rules to govern the markets, the HR 2454 articulates a series of general standards for oversight of the allowance market. The regulator of the allowance market must promulgate regulations that:

- Prohibit fraud, manipulation, excessive speculation;
- Facilitate compliance with emissions limits;
- Ensure transparency;
- Set position limits and margin requirements, as necessary;
- Create a national market system;
- Limit or eliminate counterparty risks, market power concentration risks, and other risks associated with OTC trading;
- Create standards for trading facilities (i.e., exchanges) and clearing organizations; and
- Other requirements necessary to preserve market integrity and compliance.[29]

The bill would amend the Commodity Exchange Act to include allowance-based derivative instruments, thereby treating derivatives in a manner similar to agriculture commodities. In addition to the list of market elements that regulations must address, the legislation also includes detailed enforcement provisions.[30]

Senators Diane Feinstein (CA) and Olympia Snowe (ME) introduced a bill (S 1399) in June, 2009 to regulate a federal cap-and-trade system.[31] The bill includes more specific regulatory provisions for both the allowance and derivative markets and would create a new branch at the CFTC specifically to regulate the carbon market. For example, the legislation would require all allowance trading to occur on a registered carbon trading facility and to be cleared through a single Carbon Clearing Organization. Virtually all allowance-based derivative instruments would have to trade on a designated carbon derivative trading facility. The bill technically permits OTC

[28] American Clean Energy and Security Act, HR 2454, 111th Cong.
[29] HR 2454, § 341(b)(2)&(c)(2).
[30] HR 2454, § 341(b)(3)&(f).
[31] Carbon Market Oversight Act of 2009, S.1399, 111th Cong.

transactions but it defines "private bilateral contract" very narrowly, effectively requiring most, if not all, derivative transactions to occur on registered derivatives trading facilities.

In October, 2009, Senators John Kerry (MA) and Barbara Boxer (CA) introduced a new cap-and-trade bill (S.1733) in the U.S. Senate.[32] Rather than set forth specific statutory requirements for oversight of the carbon market, the Kerry-Boxer bill includes a nonbinding "sense of the Senate" provision that calls for:

> "a single, integrated carbon market oversight program--
>
> > "(1) to provide for effective and comprehensive market oversight and enforcement;
> > "(2) to lower systemic risk and protect consumers;
> > "(3) to ensure market liquidity and allowance availability;
> > "(4) to enhance the price discovery function of such markets, ensuring that the price for emission allowances and offset credits reflects the marginal cost of abatement;
> > "(5) to prevent excessive speculation that contributes to price volatility, including the establishment of robust aggregate position limits and margin requirements;
> > "(6) to ensure that market mechanisms and associated oversight support the environmental integrity of the program established under title VII of the Clean Air Act ...;
> > "(7) to establish provisions for market transparency that provide authority, resources, and information needed to prevent fraud and manipulation in such markets;
> > "(8) to establish standards for trading as, and operation of, trading facilities;
> > "(9) to ensure a well-functioning, well-regulated market, including a futures market, designed to manage risk and facilitate investment in emission reductions;
> > "(10) to establish clear, professional standards for dealers, traders, and other market participants;
> > "(11) to provide for appropriate criminal and civil penalties; and
> > "(12) to prevent any excessive leverage by market participants that creates risk to the economy."[33]

In addition to legislation specifically aimed at governing a new federal carbon market, the U.S. Congress is also considering broader market reform proposals that may impact carbon markets. Both the House of Representatives' Financial Services Committee and Agriculture Committee

[32] Clean Energy Jobs and American Power Act, S 1733, 111th Cong.
[33] S 1733 Title VII, Subtitle D.

have approved legislation to regulate swap markets.[34] Under both bills, standardized swap transactions between dealers and large market participants would be required to be traded on an exchange or electronic platform and cleared through a clearing organization registered by the CFTC or the Securities and Exchange Commission (SEC). The bills would grant new authority to the CFTC and SEC to define the term "standardized," and any swap accepted for clearing by a clearing organization would be presumed to be standardized. The clearing requirement would not apply to transactions intended to hedge a commercial risk (e.g., end users of a commodity). Non-cleared transactions would have to be reported to a trade repository or, if a trade repository is not available for the particular transaction, reported directly to the CFTC or the SEC. The bills include new reporting and recordkeeping requirements for any person who enters into a swap that is not cleared or reported to a repository.

On August 11, 2009, the Obama Administration forwarded a proposal to Congress to bring OTC derivatives markets for all types of commodities under regulatory oversight of a combination of banking regulators, the CFTC and/or the Securities and Exchange Commission (SEC).[35] On October 26, 2009, the U.S. Treasury Department and the House Financial Services Committee released a draft bill to address "systemic risk and 'too big to fail' banks."[36] The draft bill would:

- "Create a mechanism for monitoring and reducing the threats that systemically risky firms pose to the financial system.
- "Establish a process for winding down large, financially-troubled non-bank financial institutions in a way that protects American taxpayers and minimizes the impact on the financial system."[37]

6. Conclusion

There are a variety of market structures that can serve as useful models as the WCI Partners create a regional cap-and-trade system. The Markets Committee is considering a number of key issues, including:

- Whether current U.S. and Canadian regulation of commodity markets is appropriate. Allowance-based derivative instruments in the EU ETS and RGGI markets are regulated like commodities, and the U.S. CFTC has jurisdiction over RGGI-based derivative

[34] Over-the-Counter Derivatives Markets Act of 2009, HR 3795, 111th Cong. Reported by the Committee on Financial Services on Oct. 15, 2009. Over-the-Counter Derivatives Markets Act of 2009, HR 3795, 111th Cong. Reported by the Committee on Agriculture on Oct. 21, 2009.
[35] See http://www.treas.gov/press/releases/tg261.htm.
[36] House Committee on Financial Services, Press Release: Financial Services Committee and Treasury Department Release Draft Legislation to Address Systemic Risk, "Too Big to Fail" Institutions, October 26, 2009, http://www.house.gov/apps/list/press/financialsvcs_dem/presstitleone_102709.shtml.
[37] *Id.* The draft legislation is available at http://www.house.gov/apps/list/press/financialsvcs_dem/title_i_discussion_draft_final.pdf (Accessed October 28, 2009).

instruments that trade on exchanges. Based on opinions from outside experts, it may be challenging to structure a derivatives market that does not fall under U.S. CEA. Should the WCI Partners decide to follow existing U.S. and Canadian approaches to commodity market regulation, they may consider establishing relationships with the appropriate market regulators to ensure a properly functioning regional carbon market.

- Whether to place restrictions on OTC instruments. The question of whether to allow OTC trading has received significant attention in the U.S. federal debate regarding the design and regulation of a carbon market. WCI Partners will need to evaluate the potential benefits of and risks posed by OTC instruments, in both secondary and derivatives markets.

- The appropriate transparency and disclosure requirements. There is broad agreement that transparency is a critical element to a well-functioning market. Access to accurate and timely market data helps regulators monitor trading activity, maintains the public's confidence in market fairness and integrity, and allows market participants to make informed investment decisions. Market participants will have access to different types of information and the WCI Partners will need to balance the transparency requirements with the need for confidentiality and the reporting burdens placed on individual market participants. The balance may vary for secondary and derivatives markets.

The WCI's initial market design choices will have a significant influence on overall market activity. By making careful decisions at the outset, the WCI Partners can help ensure a stable, transparent, efficient marketplace that minimize risks of fraud and manipulation