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January 18, 2011

The Honorable John Boehner
The Speaker
United States House of Representatives
Washington, D.C.

Dear Mr. Speaker:

On behalf of the Interagency Working Group for the Study on Oversight of Carbon Markets (Working Group), I am pleased to transmit to Congress the Working Group's *Report on the Oversight of Existing and Prospective Carbon Markets*.

Section 750 of the Dodd-Frank Wall Street Reform and Consumer Protection Act established the Working Group to "conduct a study on the oversight of existing and prospective carbon markets to ensure efficient, secure, and transparent carbon markets, including oversight of spot markets and derivative markets."

The Working Group is composed of the following members: the Chairman of the Commodity Futures Trading Commission (CFTC), which serves as the group's Chairman, the Secretary of Agriculture, the Secretary of the Treasury, the Chairman of the Securities and Exchange Commission, the Administrator of the Environmental Protection Agency, the Chairman of the Federal Energy Regulatory Commission, the Chairman of the Federal Trade Commission and the Administrator of the Energy Information Administration.

I am very grateful to the Working Group members and their staff for their hard work in generating this report.

Sincerely,

Gary Gensler
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The Honorable Joseph R. Biden, Jr.
President of the Senate
United States Senate
Washington, D.C.

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Report on the Oversight of Existing and Prospective Carbon Markets

Interagency Working Group for the
Study on Oversight of Carbon Markets

January 18, 2011

Report on the Oversight of Existing and Prospective Carbon Markets

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I. Introduction and Background

A. Congressional Charge and Process

On July 21, 2010, the Wall Street Reform and Consumer Protection Act (Dodd-Frank Act or Act) was enacted.¹ Section 750 of the Act establishes an interagency working group to “conduct a study on the oversight of existing and prospective carbon markets to ensure efficient, secure, and transparent carbon markets, including oversight of spot markets and derivative markets.”

The interagency group is composed of the following members or designees: the Chairman of the Commodity Futures Trading Commission (CFTC), who serves as the Chairman of the interagency group, the Secretary of Agriculture, the Secretary of the Treasury, the Chairman of the Securities and Exchange Commission (SEC), the Administrator of the Environmental Protection Agency (EPA), the Chairman of the Federal Energy Regulatory Commission (FERC), the Chairman of the Federal Trade Commission² (FTC) and the Administrator of the Energy Information Administration (EIA).

In carrying out this study, the Act also directs the interagency group to consult with representatives of exchanges, clearinghouses, self-regulatory bodies, major carbon market participants, consumers, and the general public, as the interagency group determines is appropriate. To this end, the CFTC solicited public comments through both informal consultations and a formal comment process focusing on key questions raised by Section 750.³ Twenty-three written submissions were received.⁴ Many of the

¹ Dodd-Frank Wall Street Reform and Consumer Protection Act, Public Law No. 111-203, 124 Stat. 1376 (2010).

² The CFTC notes that the text of Section 750(a)(7) of the Act references the “Commissioner of the Federal Trade Commission” as a member of the interagency group, and the CFTC interprets this text as a reference to the Chairman of the Federal Trade Commission.

³ This included a request for comments that was posted on the CFTC website (<http://www.cftc.gov/PressRoom/PressReleases/pr5937-10.html>) and published in the Federal Register (75 Fed. Reg. 72816, (Nov. 26, 2010).

comments focused on the general success of existing emission trading programs and regulatory authorities. Others suggested a possible tension between the environmental purpose of carbon markets on the one hand, and economic efficiency and flexibility on the other hand, particularly with regard to whether trading should be limited to regulated exchanges. There were several comments about specific market design issues, and many expressed views about offset regulation. These comments were considered in preparation of the report, and the issues that they raised are discussed in the sections that follow.

B. Study Objectives and Organization

Carbon markets already exist in the United States — and others are being planned — as a result of state policies to reduce greenhouse gas (GHG) emissions, as well as some voluntary initiatives. In addition, over the past several years, a number of legislative proposals have been introduced in Congress to create a federal cap-and-trade program for GHGs. If such a program were adopted in the future, it would give rise to a nationwide carbon market.⁵ Markets also exist in the U.S. for the trading of sulfur dioxide and nitrogen oxide emission allowances under Environmental Protection Agency (EPA) programs.

This study provides an analysis of the regulatory oversight of carbon markets. Section II provides an overview of carbon markets, including a discussion of the programs that give rise to carbon markets, existing and prospective carbon markets, and the basic structure of carbon markets. Section III presents an introduction to market oversight, including the objectives of market oversight regulation, and the methods used to achieve these objectives. Section IV presents a description of certain economic features of carbon markets that are relevant for evaluation of market oversight provisions. Section V

⁴ The written submissions are available at <http://comments.cftc.gov/PublicComments/CommentList.aspx?id=911>.

⁵ The interagency group notes that, in remarks on November 3, 2010, while describing a federal cap-and-trade program as one way of reducing GHG emissions, President Obama indicated that he would be looking for other means to reduce those emissions. President Barack Obama, White House Press Conference (Nov. 3, 2010).

provides an overview of the regulatory regime applicable to domestic carbon markets. Section VI builds off the foundation established in the prior sections to provide recommendations for effective oversight of carbon markets.

II. Overview of Carbon Markets

A. Environmental Programs That Give Rise to Carbon Markets

Cap-and-trade emission allowance programs and carbon offset programs are two types of market-based environmental policies that can give rise to carbon markets. These are discussed in turn below.

1. Cap-and-Trade Programs

A cap-and-trade program is a market-based policy instrument for controlling the aggregate amount of pollution emitted from a group of sources regulated by that program. Such a program establishes an overall cap, or maximum limit, on the collective emissions from all regulated sources in order to achieve a desired environmental effect. The cap is achieved by creating a limited number of tradable emissions allowances equal in number to the level of the cap. Regulated sources are required to surrender to a designated authority one allowance for every unit of pollution that they emitted during the relevant compliance period.⁶ With accurate emission monitoring, careful reconciliation of emissions with allowances, and effective enforcement of penalties for non-compliance, such a program can ensure achievement of an aggregate cap on emissions from regulated sources. At the same time, by simply requiring regulated sources to surrender allowances to cover their emissions, and by permitting allowance trading among market participants, such a program provides flexibility regarding how sources choose to reduce their emissions to comply with the cap, and regarding how the emission reductions necessary to meet the aggregate cap are ultimately distributed across regulated sources. In the

⁶ An emission allowance is generally defined as a limited authorization to emit a given quantity of a regulated pollutant.

context of a cap-and-trade program for GHG emissions, it is the opportunity to trade emission allowances that gives rise to carbon markets.

Relative to more traditional approaches to environmental regulation, such as technology standards or traditional performance standards, a cap-and-trade program has the potential to offer at least two advantages as a policy instrument for reducing GHG emissions. First, it can be designed to provide a degree of environmental certainty regarding resulting aggregate emission levels that is not typical with traditional regulation. For example, with cap-and-trade programs, even as new regulated emission sources emerge, the aggregate emission limit for regulated sources remains unchanged.⁷ Second, by allowing flexibility regarding how sources choose to reduce their emissions, and regarding how emission reductions needed to meet the aggregate cap are distributed across sources, a cap-and-trade program has the potential to achieve a given aggregate reduction in emissions from a group of regulated sources at a lower cost than more traditional forms of regulation.

2. Carbon Offset Programs

Carbon offsets are reductions in net GHG emissions that result from activities voluntarily undertaken by sources or sectors that are not subject to mandatory emission limits. For example, sources of offsets could include domestic agriculture, forestry, mining, timber harvesting and waste disposal, as well as international emission reduction efforts. A source participating in an offset program creates or receives one offset credit for each certified unit of emissions that it avoids or sequesters on a voluntary basis. Demand for offset credits can arise as a result of a cap-and-trade program or in a voluntary market.⁸

⁷ It should be noted, however, that the greater the certainty is regarding environmental outcomes, the less certainty there can be regarding the program's cost.

⁸ Offset credits may also be sought by private entities whose emissions are not regulated, but who nonetheless choose voluntarily to purchase offset credits to offset, or compensate for, emissions resulting from their activities. For example, some air travelers choose to purchase carbon offsets to offset emissions associated with their flight. Such transactions in offset credits are often referred to as being part of a "voluntary offset market."

The authority implementing a cap-and-trade program may permit regulated sources to surrender offset credits to cover some of their emissions, potentially subject to certain restrictions. Allowing the use of offset credits in a cap-and-trade program can reduce the cost of that program by expanding the scope of emission reduction measures that can be employed to comply with the aggregate emission limit. Where offset credits are permitted as one means of meeting compliance obligations associated with a cap-and-trade program, trading in offset credits would become a part of the broader carbon market developed in response to that program. Assuming there are no limiting restrictions or mitigating factors, if the market price of offset credits is no greater than that of emission allowances, regulated entities would willingly purchase those credits as a cost-effective means of meeting their compliance obligations.

3. The Role of Markets in Cap-and-Trade and Offset Programs

Markets play a central role in the success of cap-and-trade and offset programs. As noted above, an underlying advantage of these programs, as an alternative to traditional regulation, is their ability to achieve well-defined aggregate environmental goals at lower costs – in theory, at the lowest possible cost.⁹ However, a condition for achieving low costs is that markets provide transparent and timely information about current and future market clearing prices associated with meeting the aggregate environmental goals. Markets should also allow efficient transactions at these prices for all participants facing investment and operational decisions to reduce emissions. To the extent markets fail to meet these conditions, the aggregate cost of achieving the environmental goals will be higher, potentially compromising one of the key reasons for pursuing such programs over traditional approaches to environmental regulation.

A well-functioning market for emission allowances and offsets provides a common platform for all firms to balance supply and demand of emissions (and consequent reductions), and to establish a single market-clearing price. Individual firms can then

⁹ See, e.g., Thomas Tietenberg, 2006, *Emissions Trading: Principles and Practice*, 2nd edition. Washington: RFF Press.

rely on this market price to make abatement choices and to become either buyers or sellers of allowances or offsets, depending on each firm's emission reduction costs relative to the market price. The market may also provide a central location for firms to transact business without having to seek out one another individually. It is important that these markets exist and provide market-clearing prices not just for current emission allowances or offsets, but also for emission allowances and offsets into the future, as firms face investment decisions with long-term emission consequences.

In addition to establishing the market-clearing price, to achieve low compliance costs, markets should also provide relatively easy access to transactions at these prices for all participants facing mitigation decisions. Significant explicit or implicit transaction costs will prevent otherwise desirable trading activity from taking place.¹⁰ Such inefficiencies are undesirable in any market. However, in allowance and offset markets, they could potentially compromise a key reason for pursuing market-based environmental policies; namely, the ability of market-based policies to achieve significant cost savings over traditional approaches.

4. Existing and Prospective Environmental Markets

At this time, there is only one mandatory emission allowance program for greenhouse gas emissions in the United States. The Regional Greenhouse Gas Initiative (RGGI) is an agreement among the governors of ten Northeastern and Mid-Atlantic States to cap and reduce the amount of carbon dioxide (CO₂) that certain power plants are allowed to emit. To reduce emissions, each of the RGGI states is using a market-based cap-and-trade approach.¹¹ Regulated entities covered by RGGI first faced compliance obligations for

¹⁰ Examples of explicit transaction costs include trading commissions and fees. Examples of implicit transaction costs include the difference between the price at which an asset can be bought and sold in the market (the bid/ask spread) and adverse price impacts that traders may experience when seeking to buy or sell in large quantities.

¹¹ Because of the recent economic conditions and unanticipated changes in fuel prices, the cap on emissions that was originally set when the RGGI program was first established has not proven to be a binding constraint on emissions. Since the period when the RGGI states adopted emission caps, electric power sector emissions in those states have fallen substantially as a result of the recent economic downturn that reduced energy demand, as well as changes in fossil fuel prices that have led to reduced petroleum-fired

their 2009 emissions. Emission allowances distributed by the states (primarily via auction) are the predominant instrument used for demonstrating compliance with the RGGI states' emission limits. An independent market monitor is charged with monitoring the performance and efficiency of allowance auctions and the secondary allowance market under the RGGI system. Regulated entities may also meet part of their compliance obligation by obtaining and surrendering offset credits, which are awarded by participating states for certain qualifying emission reductions achieved outside the scope of the program's emission coverage.¹²

California is currently establishing what would become the second mandatory emission allowance program for GHG emissions in the U.S., taking effect in 2012. California's mandatory allowance program would initially cover GHG emissions associated with California's electricity use and with activities at large industrial facilities. In 2015, this program would be expanded to cover the GHG content of transportation fuels, as well as other fuels distributed to entities whose emissions are not already covered by the cap. As is the case with RGGI, in addition to using state-issued emission allowances to demonstrate compliance, regulated entities would be allowed to use certified emission offset credits to cover a percentage of their emissions.

Other regional initiatives are also in the development stages. California is one of seven Western states and four Canadian provinces participating in the Western Climate Initiative (WCI), a partnership formed in 2007 to develop and implement a joint strategy for reducing GHG emissions. Along with RGGI and WCI, the Midwestern Greenhouse Gas Reduction Accord is another regional collaborative effort of states working to identify and implement collaborative state-level strategies for reducing GHG emissions, which may involve the use of an emission allowance program.

and coal-fired generation, and increased natural-gas-fired generation. Nonetheless, RGGI allowance prices have maintained value as a result of a few policy design choices adopted by the RGGI states: auctioning most allowances, employing a reserve price in selling allowances at auction, and permitting the banking of allowances for use in future years.

¹² As of the date of this report, no RGGI offset credits have been issued.

In addition to mandatory programs, voluntary emission allowance and offset programs have been established for GHG emissions. The Chicago Climate Exchange (CCX) was one such program. CCX operated from 2003 to 2010. Corporations and other entities that voluntarily participated in this program committed to legally binding obligations that they comply with agreed-upon emission limits by surrendering emission allowances and/or offset credits to cover their GHG emissions. The CCX issued both the emission allowances and offset credits used in this program. In addition to CCX, numerous programs have emerged to allow for the certification and voluntary purchase of offset credits outside of any mandatory compliance program.

In considering the oversight of existing and prospective U.S. carbon markets, it is also instructive to draw on experiences from foreign emission allowance programs for GHG emissions and U.S. emission allowance markets for other pollutants. The most prominent in these respective categories are the European Union Emission Trading Scheme (EU ETS) and EPA programs for sulfur dioxide (SO₂) and nitrogen oxide (NO_x) emissions.

The EU ETS was launched in January 2005 and covers CO₂ emissions (and, in some cases, nitrous oxide emissions) from about 12,000 entities across the European Union. The scheme is based on the cap-and-trade principle. Each member state must develop a national registry, in which covered entities must open accounts to register their emission allowance allocations and track transfers of allowances at the entity level. Each year, regulated entities must surrender enough allowances to cover their verified emissions, or face significant fines. In addition to using allowances, regulated entities may also meet part of their compliance obligation by surrendering international offset credits from mechanisms established under the Kyoto Protocol. The program will be expanded in 2012 to include airlines and in 2013 to encompass additional gases and industries (petrochemicals, ammonia, and aluminum).

The Clean Air Interstate Rule (CAIR), promulgated by EPA in 2005, was designed to address interstate transport of ozone and fine particulate matter (PM_{2.5}) pollution. To do so, CAIR developed three separate cap and trade programs that could be used to achieve

the required emissions reductions — the CAIR NO_x ozone season trading program, the CAIR annual NO_x trading program, and the CAIR SO₂ trading program.¹³ The rule specifies a phased implementation with declining emissions caps in each of the two phases. In order to meet the emissions reduction requirements, tradable allowances are issued to the participating states, which, in turn, allocate them to the affected sources so they can be used to cover unit-level emissions.

In addition to CAIR, EPA's Acid Rain Program, which was established in the Clean Air Act Amendments of 1990 to reduce SO₂ emissions from power plants throughout the United States, remains in effect. Similar to CAIR, it sets yearly aggregate emission caps, and sources must obtain and surrender emission allowances to demonstrate compliance. The program permits allowance trading, as well as banking of allowances for use in the future. There is an annual reconciliation process to compare actual emissions to the number of allowances held, and penalties are imposed on any units that are not in compliance. The majority of allowances are distributed for free by EPA to regulated sources, but there is a small annual auction component in which any party meeting certain criteria may bid on allowances.

EPA's role in allowance trading is to record allowance transfers that are used for environmental compliance and to ensure at the end of the year that a source's emissions do not exceed the number of allowances it holds. To accomplish this, EPA maintains an Allowance Management System (AMS). The AMS tracks the issuance of allowances, the number of allowances held by a person or company, allowance transfers, and allowance deductions for compliance purposes. EPA does not collect any information about allowance prices or transaction terms. If a source's emissions exceed its allowances, the source must pay a penalty and surrender allowances for the following year to EPA as excess emission offsets.

¹³ Following the program implementation, on July 11, 2008, the U.S. Court of Appeals for the D.C. Circuit issued an opinion vacating and remanding the rule. *North Carolina v. EPA*, 531 F.3d 896 (D.C.Cir), *on rehearing in part*, 550 F.3d 1176 (D.C.Cir 2008). However, parties to the litigation requested rehearing of aspects of the Court's decision, including the vacatur of the rules. On December 23, 2008, the Court granted rehearing only to the extent that it remanded the rules to EPA without vacating them. On July 6, 2010, EPA proposed the Transport Rule as a response to the Court remand of CAIR, which is intended to replace CAIR when final.

B. Carbon Market Structure

Under the broad umbrella of the term “carbon market,” there are at least three distinct but interrelated markets about which decisions need to be made regarding design and oversight, namely: primary markets, secondary markets, and derivatives markets.

1. Primary Markets for Introducing Allowances and Offset Credits

Under any carbon market, a mechanism is needed to introduce emission allowances and offset credits into the marketplace. This entry point is the primary market. With respect to allowances, entry can occur by the government distributing allowances directly to market participants, either free of charge or at a predetermined price; by the government auctioning allowances to the highest bidders; or by some combination of the two.

If allowances are directly distributed, programs should specify who will receive allowances, how many allowances each recipient will receive, and whether to allocate them freely, or at a predetermined price. Alternatively, if some or all emission allowances are auctioned, rules must be established regarding auction design. Among other considerations, these rules will relate to: the type of auction to be employed (e.g., uniform versus discriminatory price, single versus multi-round, and open versus sealed-bid); how frequently allowances are auctioned; who can participate in auctions; whether there will be limits on the price or size of bids; and various other rules associated with the implementation and operation of the auctions.

Along with decisions that are unique to either the direct distribution or auctioning of allowances, one decision that is common to both approaches relates to when allowances are introduced. Cap-and-trade programs may establish emission limits for years, and perhaps decades, into the future. It should therefore be determined when to introduce into commerce those allowances that are associated with future years’ emission limits. Although allowances associated with a given year’s emission limit certainly need to be

introduced before entities face compliance obligations for that year, some or all allowances associated with that year's emission limit could be introduced years in advance.

The initial creation and certification of offset credits involve some unique issues that are not present with the primary issuance of allowances. To protect the economic and environmental integrity of carbon markets, the authority charged with certifying and issuing offset credits for qualifying emission reduction measures should address several considerations in order to ensure that credits entering into commerce reflect real, verifiable reductions in GHG emissions. The most significant of these considerations relate to additionality, permanence and liability, leakage, and emission reduction measurement uncertainty.¹⁴ Also, whereas emission allowances are created by an administrative action, the creation of offset credits results from investments and other economic activity that entities take to reduce their emissions. The creation of offset credits may therefore involve a number of transactions among market participants before offset credits are certified by the relevant authority. For example, to finance particular emission reduction measures, an entity may engage in transactions involving the sale of offset credits that it expects to be awarded for those emission reductions. Such offset credits that have not yet been certified are sometimes referred to as primary credits, whereas credits that have been certified are sometimes referred to as secondary credits.

2. Secondary Markets

Once emission allowances and offset credits have been introduced through a primary market, the efficient functioning of carbon markets depends on the ability of entities to freely trade them in response to changes in their demand for allowances and offsets. For example, even if an allowance auction were to lead to an efficient allocation of

¹⁴ An offset is "additional" if it results in a reduction that would not have occurred in the absence of the offset system. An offset is "permanent" if it is not simply a delayed emission, or an emission reduction that is subsequently reversed by a directly-related subsequent increase in emissions. When offsets are reversed within some time period, the question of liability is raised; i.e., who is responsible for making up for the reversed offset. "Leakage" refers to the possibility of an offsetting activity in one area leading to increased emissions elsewhere. For additional discussion of these issues *see* Congressional Budget Office, "The Use of Offsets to Reduce Greenhouse Gases," Economic and Budget Issue Brief, August 3, 2009.

allowances at the time of the auction, changes in market participants' emission reduction costs and operations — or in their expectations about the future — will lead market participants to trade allowances in order to minimize their compliance costs. This trading occurs in the secondary, or resale, markets, which are also referred to as cash markets.

There are at least four aspects of the structure of secondary markets that are relevant to a discussion of market oversight: the types of transactions that occur; the means by which and venues through which transactions occur; the entities that participate in the markets; and the provision of information (including price transparency) regarding secondary market activity. Although these features can emerge organically as private actors seek to meet the needs of market participants, they can also be influenced through regulation of market conduct, structure, participants, and information provision.

With regard to transaction types in the secondary markets, straightforward purchases and sales of actual emission allowances and offsets for immediate delivery are likely to be the most prevalent transactions. However, some market participants may seek to implement long-term emission reduction strategies or otherwise undertake trades to manage their risk profile that could be achieved by other types of transactions, such as forward agreements, repurchase agreements, and short sales.

Like derivatives, discussed below, secondary trading of physical allowances and offsets could occur through two broad channels. First, it could occur on one or more regulated, multilateral exchanges, which are particularly well-suited to standardized and straightforward transactions. Second, trading could occur directly between two counterparties, potentially intermediated by one or more third parties, in what is often referred to as over-the-counter (OTC) trading. Among other things, OTC trading tends to support participants who need more tailored transaction types, as discussed further below.

Given that emission allowances and offsets are compliance instruments, regulated entities that face a compliance obligation will likely be active participants in secondary allowance and offset markets. For a variety of reasons, other entities that have no compliance

obligation may also wish to participate in the secondary carbon markets. These entities may seek to: act as intermediaries between regulated entities seeking to trade allowances and offsets (e.g., brokers); provide liquidity to regulated entities (e.g., market makers or dealers); or trade on their own account, with the goal of either profiting off of their trades, or using those trades as a means of offsetting other financial exposure (e.g., hedgers). The last category could include a variety of businesses whose financial position is indirectly tied to carbon prices. For example, firms that produce emission reducing technologies have no compliance obligations but face financial exposure from carbon price changes.

A final defining feature of secondary markets is aggregation and generation of market information. Effective oversight could serve a role in promoting market transparency by ensuring that information is publicly available. In considering transparency in a secondary market, it is important to distinguish between information that is made publicly available, and that which is provided to regulators. Whereas the latter will depend entirely on what regulations are established, the former will be influenced both by private sector demand for and supply of information, and by any regulations that may compel or influence the provision of certain information. Examples of market information that increase transparency include: pre-trade information, such as bid and offer prices and quantities; post-trade information, such as prices and quantities of recently completed transactions; information on the supply of allowances and offsets, including the total number of allowances and offsets in circulation and the distribution of ownership; and information on the demand for allowances, such as the total emissions of regulated entities, and the aggregate trading activity of classes of participants.

3. Derivative Markets

The creation of a market for emission allowances or offset credits will also give rise to associated derivatives markets. A derivative contract is a financial instrument whose value is based on, or derived from, the value of an underlying asset (e.g., a stock), commodity (e.g., wheat and oil) or measurable event (e.g., weather or a bankruptcy). In

carbon markets, derivative contracts could be based on the price of carbon emission allowances or offset credits.

a. Background on Derivatives

The primary uses of derivative contracts are for hedging and speculation. The use of derivatives emerged historically from the need of producers and consumers of commodities to manage, or hedge, their exposures to price risk — the risk of disadvantageous movements in the price of an underlying asset. For example, a natural gas producer and an electric power supplier that consumes natural gas may wish to hedge their respective exposure to future fluctuations in natural gas prices. The natural gas producer (seller) would like to protect against the possibility that natural gas prices will fall in the future, while the electric power supplier (buyer) would like to hedge against an increase in natural gas prices. A derivative contract based on the price of natural gas can provide a mutually beneficial arrangement between the two parties to offset or limit the risk to each of a price swing in either direction.

For example, if the price of natural gas is currently \$3 per million British thermal units (MMBtu), the producer may be concerned about a drop in price to \$2/MMBtu due to abnormally mild winter temperatures in the delivery month. By agreeing to a contract based on future delivery at the current market price \$3/MMBtu, the natural gas producer protects himself from a decline in price. On the other hand, if a purchaser of natural gas (the electric power supplier) believes prices will increase instead of decrease, he may want to take the opposite side of this contract to hedge the potential for a price increase. Even if there is no offsetting hedger demand for this contract, an investor capable of managing price fluctuations in natural gas may provide liquidity to the market by taking the opposite side of the contract. Derivatives markets therefore help parties who have price exposure to an underlying asset to transfer their risk to other parties — either other hedgers or speculators — who are capable of assuming this risk.

Market participants could also seek to enter derivative contracts to actively gain exposure to the price of an underlying commodity (e.g., natural gas as discussed above) in an attempt to realize profits through the successful anticipation of price movements, or to take advantage of a perceived mispricing within a given market, or between related markets. Given that emission allowance and offset prices will be subject to unpredictable fluctuations, it is expected that carbon market participants likely will engage in derivative transactions.

Commonly traded types of derivative contracts include futures, options, and swaps¹⁵. Because futures are generally required to be traded on an organized exchange they tend to be standardized, which promotes liquidity, and market participants' positions are collateralized and centrally cleared, which mitigates counterparty credit risk. Options give the purchaser the right, but not the obligation, to buy or sell a particular asset at a predetermined price by a set expiration date.

Swaps are derivative contracts that are negotiated between two parties either directly (i.e., principal-to-principal), through an intermediary such as a broker or dealer, or on an electronic trading platform that is designed to permit customization of contracts. In a classical swap, the two parties – or counterparties – exchange cash flows on regular dates over the life of the contract (or according to contract terms).

In general, the terms of a derivative contract will stipulate whether the transaction must be settled through physical delivery of the underlying asset or by cash payment. In a physical delivery contract, the parties must abide by the delivery terms – i.e., delivering or receiving a specific quantity and type of the underlying asset, sometimes at a specific location – if the contract is held to maturity or expiration. In practice, most exchange-traded physical delivery contracts are closed out, or offset, with opposite positions prior to maturity. If the terms of the contract stipulate cash-settlement, the difference (if any)

¹⁵ "Swaps" here is used in a broad sense to loosely describe OTC derivative transactions. A specific statutory definition of a swap, New Commodity Exchange Act (CEA) Section 1a(47), was added by Section 721(a)(21) of the Dodd-Frank Act and will be further defined by the SEC and CFTC.

between the price of the underlying asset as specified in the contract and the market value of the asset at the settlement date is paid in cash by one party to the other.

b. Exchange Versus OTC Trading

As noted above, derivative contracts can be traded on organized exchanges or bilaterally in the OTC market. Exchange-based and OTC derivative markets are distinguished by, among other things, the types and attributes of contracts that can be traded through each venue, market participants' ability to manage counterparty credit risk, the types of market participants that are eligible to trade, and the degree of transparency of market information.

Exchanges offer a number of beneficial attributes, including pre- and post-trade transparency, a centralized marketplace for buyers and sellers, highly standardized contracts, collateralization (margining) of positions, and centralized clearing and settlement of trades. Because exchange-traded derivative contracts are standardized as to their terms and specifications, traders can readily offset or unwind their positions if it becomes necessary or advantageous to do so.¹⁶ Moreover, standardization can help promote liquidity which can enable participants to trade large numbers of contracts more quickly and with potentially lower transaction costs.

One of the main benefits of the OTC market is that it allows market participants to engage in transactions of customized derivative contracts that facilitate the hedging of or gaining exposure to market factors, or to otherwise meet their unique risk-management needs. Also, the ability to engage in OTC trading can be particularly important in the early years of a market. Because exchanges use multilateral trading platforms and central

¹⁶ Indeed, some traders may use futures contracts (including contracts with physical-delivery settlement), mainly to manage price risk. In order to avoid taking delivery of the underlying commodity, many such contracts are extinguished through offset before maturity. Contract offset is accomplished by traders entering into a new contract opposite the initial position that cancels that obligation.

clearing, they generally rely on standardized contracts.¹⁷ The OTC market permits new transaction types to emerge, which, over time, may become sufficiently standardized and commonplace to sustain migration to an exchange platform.

Another difference between exchange-traded and OTC derivatives is how they address counterparty credit risk, which is the risk that one party to a derivative transaction will default on payment or otherwise not abide to the terms of the contract. Exchanges manage counterparty credit risks by requiring collateralization or margining of market positions and by providing for centralized clearing of transactions. Margin is the amount of money or other collateral required to be deposited with a broker, clearinghouse, or other intermediary in order to guarantee a market participant's performance on a contract. A clearinghouse is an organization that matches and stands in the middle of every trade submitted for clearance in order to guarantee its performance, such that the clearinghouse becomes the seller to every contract buyer and the buyer to every contract seller. Exchange-traded futures are categorically subject to margin and clearing requirements. OTC swaps, on the other hand, generally are not, meaning that credit risk is borne solely by the swaps counterparties. The passage of the Dodd-Frank Act, however, means that swaps, as defined by the Dodd-Frank Act, will be subject to margin and clearing requirements – although the specific application of, and potential exceptions to, this requirement remain to be determined, as will be discussed further in Section V. In short, some market participants seek or need the credit risk protections that come with exchange-traded transactions, while others may find the capital costs (i.e., margin requirements) associated with those credit risk protections less desirable. To the extent that OTC derivatives transactions may continue to be arranged without exchange- or clearinghouse-style collateral requirements, some market participants in carbon derivatives may find such OTC contracts to be a cost-effective alternative to exchange traded contracts.

¹⁷ OTC derivatives transactions, by contrast, lack the fungibility and central clearing of standardized contracts. Whereas market participants can readily offset an exchange-traded futures position, they can only exit OTC contracts by renegotiating with the original counterparty to cancel the contract or by obtaining their consent to transfer the position to a third party willing (and able) to assume the position.

A few different motivations may drive entities' participation in carbon derivatives markets. As noted above with respect to secondary carbon markets, regulated entities that face a compliance obligation will be active participants in derivative markets, although entities that have no compliance obligations may also wish to participate. Some of these other entities may participate to hedge indirect exposure to allowance and offset prices. Others may seek to act as brokers, dealers, or other market intermediaries. Finally, some entities may participate as investors seeking to profit from anticipated price movements.

The collective trading activity of investors – and specifically their willingness to take the opposite side of a derivative contract – can amount to a deep source of market liquidity for hedgers seeking to take market positions to mitigate their risk exposure. Despite the liquidity that investors provide, concerns are nevertheless sometimes raised that permitting this sort of investment activity in derivative markets may lead to asset prices becoming detached from fundamentals of supply and demand in the underlying commodity, or that certain investors may attempt to manipulate the market in order to influence price movements in the underlying commodity. Regulatory tools that are used to prevent manipulation, fraud and other abuses include position limits (with appropriate hedging exemptions) and accountability provisions, reporting requirements, and effective surveillance. Futures exchanges in general pose no outright restrictions on who may participate, and are open to hedgers, investors, other intermediaries, and even individuals. Participation is instead based on prospective market participants' ability to meet the exchange's financial or other eligibility requirements; market participants who do not meet these requirements generally must trade through an eligible intermediary that does.

A final aspect of derivatives markets relevant to consideration of market oversight is the promotion of pre- and post-trade market transparency. By aggregating supply and demand of various market participants, organized exchanges serve a price discovery function in which prices and trades are transparent and observable to other market participants. The availability of reliable price signals is valuable to end users when planning resource allocation and investment activities over a long time horizon.

Moreover, regulators have access to market information from exchanges that supports their market oversight functions. Market information from exchanges is also generally available to the public, though perhaps on a slightly delayed basis. In contrast, OTC derivative markets to date have tended to be opaque; prices have not been transparent, and there has been no centralized aggregation of prices, trades and positions. The Dodd-Frank Act, however, addressed many concerns about the opaqueness of the OTC market by authorizing the SEC and CFTC to oversee OTC trading in swaps and security-based swaps (as each term is defined under the Dodd-Frank Act), and by requiring the public reporting of certain details of all swaps and security-based swaps.

III. Introduction to Market Oversight

A. Objectives of Market Oversight

The purpose of markets is to bring together participants to determine prices at which to buy and sell goods or services. The prices generated in a market serve as the basis for how participants in the economy as a whole, and specifically within a market for a particular good or service, make allocation decisions with respect to the amount of the good or service to consume or produce. That is, prices factor into the allocation of supply and demand for goods and services in an economy.

The objective of market oversight is to ensure that price determination in a market is accomplished efficiently, fairly, and openly so as to reflect the forces of supply and demand. To accomplish this, regulators often focus on four areas of concern that potentially influence how well a market functions. These are facilitation of price discovery, market transparency, optimal market participation, and prevention of manipulation, fraud and other abuses.¹⁸

¹⁸ Market regulators also focus on the financial integrity of transactions and contracts, as well as the level of systemic risk in markets. The concern is that a counterparty to a contract may fail in meeting its financial obligation, creating losses to the opposite counterparty, and potentially throughout a market where widespread linkages exist between counterparties. Such financial risks are typically dealt with by some type of system or methods to reduce the risk of counterparty defaults and to monitor the positions and financial standing of significant market participants. One example of such a system is the clearinghouse associated with a futures exchange, which takes the opposite side of every contract that it clears and

1. Facilitation of Price Discovery

To ensure that market participants make appropriate decisions regarding the use of allowances versus the adoption of emission abatement measures, prices should accurately reflect the market-wide marginal cost of reducing emissions. Participants with the least costly abatement alternatives below this price have an incentive to pursue those measures, while participants with higher cost abatement alternatives have an incentive to rely on the use of allowances or offsets.

2. Market Transparency

Generally, market transparency refers to the availability and timeliness of information available to market participants. In practice, as previously noted, there are many potential sources of information that might be available and useful to participants. With respect to trading, transparency is broken into two categories, pre-trade and post-trade transparency. Information related to pre-trade transparency typically involves knowledge about the willingness of participants to transact in a market—for example, the price and quantity at which participants are willing to buy or sell. Post-trade transparency, alternatively, refers to information regarding trades that have taken place—for example, price and volume. The degree of market transparency depends on the extent to which information is available, the timeliness of that information, and to whom it is available. In addition, it is important that market participants have information about market fundamentals. In a market for allowances and offsets, market fundamentals would include information that allows participants to assess current and future supply and demand conditions for allowances and offsets.

controls financial risk through the imposition of margin requirements. Another method of controlling financial risk is through the posting of collateral as a guarantee of payment. Although financial risk is an important aspect of market regulation, the focus of this report is on market function and those aspects of regulation that may impact that function.

Transparency is generally desirable in a market because it allows market participants to make informed decisions. For example, the existence of information on executed prices for emission allowances permit covered entities to make informed decisions regarding the choice between purchasing allowances and instead engaging in some form of emission abatement. However, maximum transparency may not be the optimal choice for regulators to pursue to the extent that it may, for example, reveal confidential business information or hinder the execution of large trades. The goal and challenge of regulatory oversight is to ensure that proper levels of transparency exist in markets.

3. Adequate Market Participation

Price discovery is often best achieved when markets are generally open to a broad cross-section of participants. At a minimum, carbon markets should provide access to end-users of allowances and offset producers so that such entities would be free to trade allowances and offsets. However, markets that are restricted only to such entities may not have sufficient participation, or liquidity, to facilitate efficient price discovery. In such cases, market intermediaries, speculators, and investors often fill supply or demand voids by standing ready to buy or sell from market end-users on a continuous basis. Such participants also may enhance the price discovery process by collecting and bringing information to the market. Nonetheless, excessive speculation can lead to market distortions, and regulatory oversight needs to ensure that such activity remains within prudent levels.

4. Prevention of Manipulation, Fraud and Other Abuses

For markets to operate effectively, it is important that they are free of manipulative and fraudulent activities.¹⁹ In both cases such activity tends to distort prices, leading to decisions by market participants and end-users that are not economically efficient. For example, if an entity or group of entities were able to manipulate the value of allowances or offsets up, emitters might be encouraged to invest in relatively expensive abatement technologies when a non-manipulated market would have signaled otherwise. Likewise, fraud in the market might also cause erroneous price signals to enter the market, leading participants to transact at prices that do not reflect underlying supply and demand conditions. In addition to the direct price distorting effects that manipulation and fraud in the market cause, such events can erode confidence in the market, leading to a decline in liquidity, price discovery, and the overall economic efficiency of the markets. Regulatory oversight will need to give special consideration to how the design of the underlying secondary carbon market and the design of the underlying GHG policy may influence the potential for instances of market abuse and manipulation in the carbon markets.

B. Regulation of Market Activities

Typically the tools used by regulators to oversee markets impact the market oversight objectives identified above. The tools generally fall into one of six categories: market design, review and oversight; market self-regulation programs and responsibilities; position reporting; transaction monitoring; price and volume reporting; and position and participation limits.

1. Market Design Review and Oversight

¹⁹ For the definition of these terms, see CFTC Glossary, available at <http://www.cftc.gov/ConsumerProtection/EducationCenter/CFTCGlossary/index.htm>.

Market oversight typically begins with a review of the design of the markets themselves. Market design includes everything from what is traded on a market, to how it is traded, to who can trade on and who is responsible for overseeing and enforcing the rules of the market.²⁰ For highly centralized markets, such as futures markets, the design elements and rules for participation can be quite extensive. Typically, the design elements of exchange markets emphasize fair and equitable trading practices, financial integrity, public access, transparency, protection of market participants and the prevention of manipulation. However, even for less centralized trading markets, such as OTC markets, there is a need for regulators to review and evaluate the design of the market and oversight structure to ensure that the market will meet the regulatory objectives. The Dodd-Frank Act provisions addressing swap transactions, for example, have extended CFTC and SEC regulatory review and oversight to swaps and security-based swaps, which historically have been largely unregulated.

Market design review and oversight is usually accomplished through some type of designation or registration process. For example, futures and securities exchanges are required to go through a review process whereby the CFTC or the SEC evaluates the proposed rules of the exchanges to make a determination that they meet the regulatory objectives of the applicable federal acts that govern them. Similarly, major participants in these markets, such as brokers and dealers, who are integral to the functioning of the market, must register with market regulators and agree to abide by the rules governing their behavior and practices in the market. Other agencies, such as the FERC, may use somewhat different regulatory approach to ensure the same goal of appropriate market design.

2. Market Self-Regulation Programs and Responsibilities

In overseeing exchanges, regulators often have employed self-regulation by the industry to serve as the first line of oversight of activity in the market. As discussed above, a

²⁰ Note that market design issues discussed here, while applicable to carbon markets, are separate from and additional to issues associated with the design of the underlying GHG policy that gives rise to a carbon market.

condition of being designated as a market is that exchanges have certain rules and conditions in place that govern activity in the market. The responsibility of the exchange, then, is to ensure that those rules are being enforced. Thus, exchanges are expected to maintain adequate resources and staff to oversee the activity on their markets, correct problems when they arise, and when necessary to discipline participants that break the rules.

To ensure that exchanges and other self-regulatory organizations are fulfilling their self-regulatory obligation, regulators periodically perform reviews or audits to evaluate how well exchanges meet their responsibility. For example, the CFTC's Division of Market Oversight conducts regular examinations of each designated contract market's (DCM) ongoing compliance with core principles through the self-regulatory programs operated by the exchange in order to enforce its rules, prevent market manipulation and customer and market abuses, and ensure the recording and safe storage of trade information. These reviews, which are made public without confidential information, are known as rule enforcement reviews (RERs).

3. Position and Market Reporting

A critical tool used to monitor commodity and commodity derivative markets for potential manipulation and fraud is the reporting of the positions of market participants. In addition, such reporting can serve as the basis for increasing transparency in the markets. By example, the CFTC operates a comprehensive system of collecting information on market participants as part of its market surveillance program. Market data and position information is collected from exchanges, clearing members, futures commission merchants (FCMs), foreign brokers, and traders. The CFTC and CFTC-regulated futures exchanges employ a comprehensive large-trader reporting system (LTRS), where clearing members, FCMs, and foreign brokers (collectively called reporting firms) file daily reports with the CFTC. CFTC staff reviews the positions of large traders along with other market information to assess whether a particular trader or

traders may be placing themselves in a position to unduly affect market prices. Thus, through reporting programs, regulators gain a measure of transparency into the markets.

Information on traders' positions and trading can also be used to produce greater public transparency of market activity. For example, the CFTC publishes a weekly report, referred to as the Commitments of Traders Report, which summarizes the positions of traders in the markets for futures and options contracts. Combined with other information collected by the CFTC, the report breaks down the composition of trading in markets by trader classification. Through these reports, the public and market participants are able to gauge the level of trading by various trader categories and to see how the composition of markets changes through time.

4. Transaction Monitoring

The direct monitoring of transactional data, including orders and executed trades, serves as a primary means of identifying fraudulent and other abusive practices in markets. Such abusive practices include, among other things, wash trading, prearranged trading, accommodation trading, customer fraud, fictitious sales, price distortion and manipulation, trading ahead of and trading against customer orders, and front running.²¹

The CFTC maintains a trade practice surveillance program intended to preserve the economic functions of U.S. futures and option markets under its jurisdiction by monitoring trading activity to prevent fraud against individuals and the broader markets, and thereby promote customer protection and market integrity. In addition, the CFTC's surveillance program plays a critical role in inter-exchange surveillance, consolidating data from multiple U.S. exchanges and those overseen by foreign regulators to create a seamless, fully-surveilled marketplace.

²¹ For the definition of these terms, see CFTC Glossary, available at <http://www.cftc.gov/ConsumerProtection/EducationCenter/CFTCGlossary/index.htm>.

5. Price and Volume Reporting

As discussed previously, one of the primary functions of markets is price discovery. Price discovery provides value to the economy through the information conveyed to direct participants in a market as well as more broadly to other entities that may engage in activities related to the market. Public price reporting requirements, therefore, serve to ensure that price information is distributed to those who value its information content. In tandem with price reporting, regulators often require the reporting of volume information, which serves as a validation of the robustness of price data and can transmit additional information signals related to activity levels in markets.

In the case of carbon markets, the prices of allowances or offsets (and derivatives based thereon) are expected to serve as important signals to all direct and indirect participants in the market. For example, for covered entities, the price of allowances or offsets sends direct signals as to whether emissions should be covered by the purchase of allowances or whether other, less costly, means should be sought out to reduce emissions. In the broader economy, the price of allowances or offsets, as well as futures prices, can send signals to developers of abatement technologies, providing insight into what and when certain types of technologies might become economically feasible to develop. As a result of the value that such information conveys to domestic markets, and even internationally, regulators typically seek to have such information broadly disseminated.

6. Position and Participation Limits

Although markets primarily exist to serve the economic interests of those having a direct interest in the good or service being traded, other participants may contribute to the efficiency of operation of a market, and yet others may have financial exposure to those goods or services that they wish to hedge. For example, in a futures market or a market for a physical commodity, those having the most direct interest in the market might be producers and users of a commodity. However, if trading was limited to only producers or users, the market for those products might not be very efficient because that would not

reflect the market views or demands of others who have interests in the commodity. As one example, firms that produce technologies whose value is affected by carbon prices may have views on, and/or wish to hedge indirect financial exposure to carbon prices.

Furthermore, at times when producers are seeking to sell commodities, sufficient buying interest on the part of users might not exist. Likewise, users might find insufficient selling interest at times they were looking to buy commodities. As a result of these natural mismatches in supply and demand, other participants often characterized as speculators or investors, market makers and dealers or arbitrageurs, enter the markets to bridge liquidity gaps, both temporally and geographically, and facilitate activity in the market.

Regulators recognize the value that comes with broad participation in markets, including the value that market facilitators bring to the market in terms of providing liquidity and information. However, in certain circumstances the activity or positions of certain participants can cause markets to not function efficiently or, in the case of a manipulation, not reflect fundamental supply and demand conditions. In markets such as futures markets, or potentially a secondary carbon market, where delivery of large amounts of a commodity potentially must occur during a limited time frame, care should be exercised to ensure that sufficient supplies are available to satisfy delivery demands. When supplies are not available, conditions may exist that would allow an entity or group of entities to command an artificial price to supply the market.

To deal with potential manipulative circumstances, position limits are often used to ensure that no single party is able to attain such significant control over the supply of a commodity that it could essentially dictate prices. Through the use of position limits and monitoring of participant positions, regulators would be in a position to reduce the possibility of manipulations and market disruptions.

IV. Economic Features of Carbon Markets Relevant to Market Oversight

In most respects, emissions markets operate no differently than markets for other commodities. Under the CEA the definition of a commodity is quite broad, extending from physical commodities such as corn, wheat, oil or gold to financial instruments such as interest rates or foreign currency.²² This suggests that the same principles that guide the development of market oversight provisions for other markets should do so for carbon markets. Likewise, the basic features that are generally necessary to facilitate efficient, transparent, and secure markets (e.g., robust participation, liquidity, information, and effective oversight) are also needed for carbon markets, and the general tradeoffs that should be considered in establishing the regulatory framework for carbon markets are the same as are present in other markets.

In evaluating similarities and differences between carbon markets and other markets for physical commodities or financial instruments, as well as their implications for achieving efficient, transparent, and secure carbon markets, a few features of carbon markets should be considered. This section describes some of the distinguishing features of carbon markets. Section IV.A. describes certain features that will be present in any carbon market, as a result of the inherent characteristics of emission allowances, and carbon emission allowances and offsets in particular. Section IV.B. describes how other carbon market features will depend on the design of such a market and the underlying GHG policy. Finally, Section IV.C. describes some basic characteristics of participants in a carbon market.

A. Inherent Characteristics of Carbon Markets

²² New CEA section 1a(9), 7 U.S.C. §1a(9), as added by Section 721(a)(4) of the Dodd-Frank Act reads:

The term “commodity” means wheat, cotton, rice, corn, oats, barley, rye, flaxseed, grain sorghums, mill feeds, butter, eggs, *Solanum tuberosum* (Irish potatoes), wool, wool tops, fats and oils (including lard, tallow, cottonseed oil, peanut oil, soybean oil, and all other fats and oils), cottonseed meal, cottonseed, peanuts, soybeans, soybean meal, livestock, livestock products, and frozen concentrated orange juice, and all other goods and articles, except onions (as provided in by the first section of Public Law 85–839 (7 U.S.C. 13–1)) and motion picture box office receipts (or any index, measure, value, or data related to such receipts), and all services, rights, and interests (except motion picture box office receipts, or any index, measure, value or data related to such receipts) in which contracts for future delivery are presently or in the future dealt in.

Emission allowances and offsets have certain inherent characteristics. For example, allowances are limited authorizations to emit a specific amount of pollution whose ownership can be recorded in a book-entry system. Further, unless policymakers choose to differentiate them, allowances are a perfectly homogenous good.²³

Other defining features of allowances arise from the fact that they are compliance instruments created by the government as part of an emission reduction program. First, the value of allowances depends solely on their being accepted by the government for compliance purposes, and will be influenced by various policy decisions that can change over time, and that can affect the total supply of, or demand for, allowances. Second, ownership of allowances and changes therein, will likely have to be registered with the government, so that an entity's compliance with emission limits, including the use of allowances, can be tracked. Third, although there may be continuous trading in allowances, the timing of the ultimate demand for allowances will depend on the schedule that the government sets for demonstrating compliance, not based on any underlying economic need that is present in other commodity markets. Although the compliance true-up periods would be pre-determined, in a carbon market they are unlikely to occur any more frequently than annually, and need not occur for all regulated entities at the same time.

Perhaps more so than is the case for other types of emission allowances, because the vast majority of carbon dioxide emissions are directly tied to the combustion of fossil fuels, there will be significant interactions between carbon markets and markets for fossil fuels. Depending on who must surrender emission allowances, there could be very direct relationships between the price of carbon allowances and differences in the prices of other highly traded commodities. For example, as has been proposed in some past legislation, if future federal legislation requires petroleum refiners to surrender carbon allowances to cover the GHG emissions associated with the ultimate combustion of fuel

²³ GHG allowances could be differentiated, though would not necessarily be differentiated, according to the year(s) in which they can be used for compliance purposes. However, because GHGs are a global, rather than local, pollutant, within a given cap-and-trade program, GHG allowances typically are not differentiated (and likely would not be differentiated in future programs) with respect to where under that program's jurisdiction they can be used for compliance.

they produce, changes in the price of carbon allowances will directly lead to changes in the spread between oil and wholesale gasoline prices. This is because, along with oil, carbon allowances would become a key input to the production of gasoline.

In addition to these potential direct relationships, indirect linkages between carbon allowance prices and the prices of highly traded energy commodities can also be expected. For example, a key potential source of emission reductions in the electric power sector is the displacement of existing coal-fired generation with natural-gas-fired generation, which has lower emissions, or the replacement of both coal-fired and natural-gas-fired generation with renewable and nuclear generation sources that do not have GHG emissions. As a result, changes in gas and coal prices could lead to changes in carbon prices. By making such emission reductions less costly, falling gas prices could lead to reductions in carbon prices. Interactions between these markets could also flow in the other direction, whereby changes in carbon prices indirectly lead to changes in fuel prices, and could be quite complex — changing over time in response to changes in the level of fuel prices, and the availability and cost of various technologies.

The inherent characteristics of carbon allowances described above have several implications for how carbon markets will function. For example, unlike physical commodities such as oil or natural gas, and more like derivatives and other financial instruments, book entry allowances can be traded among market participants instantaneously and at minimal cost, irrespective of the participants' locations. As a result, in any prospective federal carbon market, although there may be multiple venues for trading, there will be a single national economic market for allowances and offsets. Allowances and offsets will therefore not be susceptible to the kinds of location-specific price fluctuations in physical commodity markets that can arise in response to geographically localized supply and demand imbalances. Furthermore, because there are no limits to, or costs associated with, physical storage of allowances,²⁴ and because regulated entities only need to use allowances on a periodic (e.g., annual) basis, carbon markets should be less susceptible to the kinds of price fluctuations that can arise in

²⁴ As with any commodity, there is still a cost of capital associated with holding allowances.

physical commodity markets as a result of temporary supply and demand imbalances. Thus, although carbon markets may still exhibit non-trivial price variability, particularly in the early stages of their development, key sources of volatility in energy markets will not be present in carbon markets.

Another implication of the inherent characteristics of carbon allowances and offsets is that secondary and derivatives markets for those allowances and offsets will be very closely linked with one another, more so than is the case for physical commodities. This difference, described in more detail below, is important to consider in evaluating the regulatory framework for secondary and derivatives markets, particularly to the extent that these two frameworks may differ from one another. In energy commodity markets, futures contracts for physical settlement typically pertain to the delivery of a particular grade of fuel, in a particular quantity, at a particular location and time.²⁵ If market participants do not offset their positions in such futures contracts prior to termination of trading in those contracts, they must abide by the specified delivery terms. Although these futures contracts provide valuable opportunities to hedge against price fluctuations, they are typically poor substitutes for secondary market transactions because market participants may need a different amount of the commodity delivered to a different location, with a different delivery schedule.²⁶ Consequently, market participants offset the vast majority of physical-settlement futures contracts in energy commodities before trading in those contracts expires, and there can be meaningful differences in the prices observed in spot and futures contracts. By contrast, because allowances themselves are standardized products that are easily transferable, futures contracts providing for near-term physical delivery of allowances and offsets (e.g., “prompt month” futures contracts)

²⁵ For example, a highly traded New York Mercantile Exchange crude oil futures contract requires delivery of 1,000 barrels of a particular grade of crude oil (light sweet crude) at Cushing, Oklahoma, on a particular schedule during the month specified by the futures contract.

²⁶ In some commodities, such as oil, there can also be differences between the attributes of the commodity to be delivered under the futures contract, and the attributes of the specific commodity of interest to the buyer or seller.

can serve as very close (though perhaps not perfect) economic substitutes to secondary market transactions for all market participants.²⁷

A final feature of carbon markets that reflects an inherent characteristic of allowances is that, given that a registry of allowance ownership would likely exist for purposes of enforcing compliance with the underlying GHG policy, the authority implementing that policy is likely to have far greater knowledge of allowance ownership at any given time than is typically possible with respect to knowledge of ownership of physical commodities. This enhanced information, relative to what regulators may be able to obtain in other markets, should improve regulators' abilities to conduct effective market oversight.

B. Characteristics of Carbon Markets That Will Depend on Design of the Underlying Greenhouse Gas Policy

Although the above features of carbon markets result from inherent characteristics of emission allowances and offsets, other features of carbon markets will depend on decisions by policymakers in designing the underlying GHG policy. These decisions can have implications not only for market oversight, but also for the broader economic impacts and environmental efficacy of the market. Although there is a broad consensus on some aspects of policy design, as evidenced by the consistent incorporation of such design provisions in existing policies and many past Congressional proposals for a federal policy, other design aspects are less broadly agreed upon and will require careful consideration in developing any future policy. The discussion below offers just a few examples of decisions that fall into these two categories of relative acceptance, as a complete accounting of design decisions that could influence market oversight is beyond the scope of this report.

²⁷ Consistent with this point, a study of the EU ETS found that “the share of physical delivery in the European CO₂ futures market is significantly higher than in other derivatives markets, i.e. futures are not only used for hedging strategies, but as a means of buying or selling allowances.” See European Commission, “Technical Aspects of EU Emission Allowances Auctions: Consultation Paper,” 2009, p. 14. Available at: http://ec.europa.eu/clima/consultations/0002/cons_paper.pdf.

One example of a policy design feature with implications for market oversight is a provision that permits allowance banking. Allowance banking refers to the ability of market participants to hold unused allowances over time for use in future compliance periods. Reflecting the limited effect of the exact timing of GHG emissions on the ultimate environmental damage caused by those emissions, most existing and proposed GHG policies permit allowance banking.²⁸ Allowance banking gives regulated entities the flexibility to implement cost-minimizing responses to changes in emission reduction costs over time, whether such changes are predictable (e.g., those arising from increasingly stringent emission caps over time), or unanticipated (e.g., those arising from unexpected technological or economic changes).

Allowance banking has at least three implications for market oversight. First, if banking is allowed, the current price of allowances will incorporate the market's expectations of allowance prices in future years. As a result, banking will lead to closer linkages than would otherwise exist between allowance prices in the secondary market and the prices of certain allowance derivatives. Second, allowance banking can help mitigate price volatility by providing an inventory of allowances that can be drawn on in response to unanticipated price shocks. Third, depending on expectations about the cost of meeting future years' emission targets, banking could lead to the accumulation of substantial allowance inventories by entities seeking to minimize their long-run compliance costs. For example, economic modeling of past legislative proposals for federal GHG cap-and-trade programs suggests that, under some of those programs, the inventory of banked allowances could grow to exceed the annual use of allowances for compliance purposes within a few years of a program's implementation. In years in which allowances are banked for future use, this banking behavior could reduce the amount of freely available deliverable supplies that, in the absence of banking, could otherwise be used to meet emission compliance requirements or delivery obligations on derivative contracts. Under

²⁸ The environmental damage from greenhouse gas emissions depends on the total concentration of greenhouse gases in the atmosphere. Further, emissions of carbon dioxide, the primary greenhouse gas, can affect the atmospheric concentration of greenhouse gases for one hundred or more years after the emissions occur. As a result, for a given amount of emissions (emission reductions), the exact timing of emissions (emission reductions) has limited impacts on the resulting long-run climate change damages (benefits from emission reductions).

certain conditions a reduced deliverable supply could heighten concerns with respect to the potential for manipulation, or encourage the speculative holding of allowances. On the other hand, in future years in which inventories of banked allowances are available, those banked allowances could increase the deliverable supply relative to what would have been available in the absence of prior banking behavior. In considering any measures to address potential concerns about manipulative or speculative activity, it will be important to recognize that the accumulation of substantial allowance inventories may be indicative of regulated entities' efforts to minimize the cost of meeting the long-run emission targets through providing additional supply in later years when compliance costs might be higher.

Although the opportunity to bank allowances is an example of a design feature of the underlying GHG policy that has been commonly employed, a variety of other design features that are still being debated could also have significant implications for the performance of carbon markets. Examples of such features include provisions that allow regulated entities to “borrow” for present use allowances that could otherwise only be used in future years, and various cost-containment provisions that would make additional supplies of allowances (above and beyond those initially provisioned for) available for sale at a predetermined price.²⁹ These features could, among other effects, dampen price escalations that could otherwise result from unanticipated supply and demand imbalances, and reduce opportunities to manipulate carbon markets. Thus, these features offer examples of how Congress can address the underlying concerns of price volatility and market manipulation not only through market oversight provisions, but also through the design of the underlying GHG policy itself.³⁰

²⁹ Allowances that are “borrowed” for present use may either already be in circulation or they may not yet be issued. In the former case, if “borrowing” is permitted, this may not explicitly involve borrowing of an allowance. Rather, it may simply involve permitting an entity to use an allowance already in its possession for compliance purposes earlier than that allowance otherwise would be able to be used.

³⁰ At the same time, depending on their design, some of these cost-containment features of underlying GHG policies can themselves be subject to strategic behavior by market participants, an issue that deserves close scrutiny in designing them. See A. Stocking (2010), “Unintended Consequences of Price Controls: An Application to Allowance Markets,” Congressional Budget Office Working Paper 2010-06, available at: <http://www.cbo.gov/ftpdocs/118xx/doc11871/PriceControlsCapTrade.pdf>.

However, these various design features have cross-cutting implications that also can affect the overall economic cost and/or environmental efficacy of a market-based climate policy. For example, depending on how they are designed, provisions that make an additional supply of allowances available at a predetermined price could lead to a net increase in cumulative emissions, relative to what was originally anticipated. Likewise, some have raised concerns about borrowing because, unlike banking, it introduces a risk of increasing cumulative emissions if compensating emission reductions are not achieved in the future. As a result of these cross-cutting considerations, choices among many of the important GHG policy design features with implications for market oversight must consider more than just the implications for the specific policy objectives noted in Section III.A.

C. Market Participants

In evaluating market oversight provisions in the context of carbon markets, the characteristics of the set of market participants to whom those provisions would apply are another important consideration. Entities may wish to participate in carbon markets for a variety of reasons. Those with compliance obligations may have to either directly or indirectly participate in the market in order to ensure that they have allowances or offsets to meet their obligations, and to hedge financial exposure to allowance and offset price movements. In addition, if carbon markets allow for the use of carbon offsets, entities may wish to participate in the market to sell offsets that they produce, or to hedge against exposure to changes in the market price of credits that they expect to produce. Others that do not directly face compliance obligations may nonetheless wish to participate in carbon markets to hedge against indirect financial exposure to allowance and offset prices, to participate as intermediaries or liquidity providers in the market, or to make investments based on expected future price movements.

The number, identity, and characteristics of participants in carbon markets depend, in part, on policy decisions regarding whose emissions are covered by the carbon market. For example, although RGGI covers only emissions from electric generating units, the

EU ETS covers a broader set of emission sources, including emissions from various manufacturing facilities. As a result, it is difficult to characterize generically the participants in carbon markets. Nonetheless, two additional points about the characteristics of market participants are worth noting for purposes of considering market oversight provisions.

It is likely the case that, under any carbon market, the degree of sophistication of market participants will vary. Some participants will likely be heavily involved in, and experienced in, trading various energy commodities. On the other hand, others may be less experienced, and more inclined to rely on intermediaries to conduct any necessary trading in carbon markets.

In addition, while some carbon market participants will be producers of carbon offsets, there are no producers of allowances in carbon markets. Allowances are produced by the government. This stands in contrast to physical commodity markets, where both producers and consumers of the commodities actively participate in the markets. Given the respective financial implications of changes in physical commodity prices for producers and consumers, these two groups are natural counterparties in market transactions intended to hedge against price changes. By contrast, in allowance markets, there will not be any allowance “producers” to constitute a set of natural counterparties for regulated entities that want to hedge against the risk of high allowance prices.³¹ This situation suggests that market participants without direct compliance obligations or economic connections to allowance markets may need to play a relatively greater role in providing liquidity to those seeking to hedge against allowance price risks than would typically be the case in commodity markets where both producers and consumers are present.

³¹ However, it should be noted that, although there are no allowance producers *per se*, other entities may naturally have financial hedging interests similar to producers in typical commodity markets. For example, producers of non-emitting electricity (e.g., nuclear and renewable) may wish to hedge against the possibility of allowance prices falling, as such changes in prices could reduce their income through effects on wholesale electricity prices. Furthermore, once allowances are auctioned or distributed, entities with a net long position may wish to hedge their position to protect against reductions in the value of their position.

V. Carbon Market Oversight

This section provides an overview of the oversight regime for the three types of markets that collectively make up the broader construct of a carbon market: the primary market, secondary market, and derivative market. As is described below, some elements of this oversight regime derive from existing statutory authority that, absent new legislation, is applicable to any existing and prospective carbon market. On the other hand, other elements of the oversight regime for carbon markets can arise from the specific statute that gives rise to those markets. In this case, the oversight regime may be specific to particular carbon markets, and the regime applicable to prospective markets would depend on statutory authority underlying the program that gives rise to those markets.

A. Primary Markets

As previously noted, there are a few ways in which allowances and offset credits are introduced into circulation. Allowances can be introduced via direct distribution or auction, or some combination of the two approaches. On the other hand, offset credits are created as a result of voluntary emission reduction measures adopted by various possible entities. Three key areas of oversight relating to the primary markets include: tracking of the initial ownership of allowance and credits upon their introduction into circulation, oversight of allowance auctions, and oversight of the creation and verification of offset credits.

The environmental and economic integrity of any emission allowance market depends fundamentally on the ability to track and verify the ownership of allowances and offset credits, as well as their ultimate retirement associated with regulated entities using them to meet their compliance obligations under the emission reduction program. In existing allowance markets, the regulatory entity charged with implementing the underlying emission reduction program has developed systems and regulations to fulfill this oversight role as a part of its authority to implement the program. For example, the relevant regulatory authorities in the states participating in the RGGI program have established the RGGI CO₂ Allowance Tracking System (RGGI COATS) to, among other

things, record and track the ownership of emission allowances and offset credits. Likewise, in the U.S. Acid Rain Program, the EPA maintains an AMS, which records and tracks the ownership of allowances associated with that program. In any prospective carbon market, the authorizing statute would need to provide an implementing entity with the authority to conduct this oversight activity.

In existing emission allowance markets, the rules and procedures governing the design, implementation, and oversight of auctions have been established by the agencies authorized by statute to conduct the auctions and, in some cases, by the statute itself.³² Similarly, in any prospective carbon market in which auctions would be employed, the authorizing statute would need to identify and give relevant authorities to the entity that would be charged with implementing auctions, and that statute could also stipulate certain aspects of auction design, implementation, and oversight. In designing, implementing, and overseeing allowance auctions, consideration needs to be given to several issues relevant to the oversight of carbon markets, including the implications of the auctions for efficiency, participation, price discovery, and the potential for manipulation of carbon markets. In addition, other considerations, such as unique market conditions or broader economic and environmental policy objectives, may also influence the desired auction design and implementation. Several studies associated with the development of auctions in existing and prospective carbon markets provide detailed discussions of decisions relating to auction design, implementation, and oversight, and their implications for a variety of policy considerations, including efficiency, price discovery, participation, and potential for manipulation in carbon markets.³³

³²In the U.S. Acid Rain Program, while leaving certain auction design features to the discretion of the EPA Administrator, the authorizing statute includes a few requirements regarding the design of the auctions, including that they be open to any person, and that winning bidders pay the allowance price that they bid (i.e., that the auction be a discriminatory price, rather than uniform price, auction). See 42 U.S.C. §7651o(d)(2).

³³ For example, see C. Holt, W. Shobe, D. Burtraw, K. Palmer, and J. Goeree (2007), “Auction Design for Selling CO₂ Emission Allowances Under the Regional Greenhouse Gas Initiative,” available at: http://www.rggi.org/docs/rggi_auction_final.pdf; WCI Markets Committee (2010), “Markets Committee Task 6: Auction Design White Paper,” available at: <http://www.westernclimateinitiative.org/the-wci-cap-and-trade-program/program-design>; and Commission of the European Communities (2010), “Impact Assessment: Accompanying document to the Commission Regulation on the timing, administration and other aspects of auctioning of greenhouse gas emission allowances pursuant to Article 10(4) of Directive

Where offsets are permitted as a compliance instrument in a mandatory emission allowance program, to ensure the environmental and economic integrity of that program, the authorities creating the emission allowance program have specified the rules governing the creation of offset credits. These rules relate to which types of voluntary emission reduction measures may be eligible to generate offset credits, what procedures must be followed to generate credits (such as monitoring and verification of emission reductions), which entities oversee the certification of credits, and what limits are imposed on the use of offset credits. For example, under the RGGI program, offset credits can be generated by five categories of activities, and state regulatory agencies are responsible for verifying the creation of any credits. Legislation establishing any new GHG allowance program that permits the use of offset credits would need to establish rules and procedures addressing similar issues, or require that a relevant authority develop such rules and procedures. Currently, in the U.S., several organizations have established protocols and standards with respect to the creation of carbon offsets. Under any prospective carbon trading program, however, these protocols and standards would not automatically apply, and the authorizing statute would need to establish laws that would apply to offsets.

To the extent that offset credits are not employed as a means of meeting mandatory compliance obligations in an emission allowance program, but rather are used voluntarily for other purposes, oversight of the creation of such credits is less stringent. Historically, numerous organizations have created their own monitoring and verification protocols for voluntary offset credits, although such self-established protocols vary considerably.³⁴ In October 2010, the FTC proposed revisions to its “Guides for the Use of Environmental Marketing Claims,” including revisions that would represent the first FTC guidance on

2003/87/EC,” Commission Staff Working Document, available at: http://ec.europa.eu/clima/documentation/ets/docs/ia_auctioning_final.pdf.

³⁴ For a review of various offset protocols and standards, see A. Kollmuss, M. Lazarus, C. Lee, and C. Polycarp (2008), “A Review of Offset Programs: Trading Systems, Funds, Protocols, Standards and Retailers,” Stockholm Environment Institute, available at: http://sei-us.org/Publications_PDF/SEI-ReviewOffsetPrograms1.1-08.pdf.

the marketing of carbon offsets.³⁵ The proposed guidance states that carbon offset marketers should have competent and reliable scientific evidence to support their carbon offset claims, should disclose if an offset purchase funds emissions reductions that will not occur for two years or more, and should not advertise a carbon offset if the activity that forms the basis of the offset is required by law.

B. Secondary Markets

As discussed above, the secondary market for allowances and offsets involves those transactions in which allowances and offsets are actually bought and sold following their initial entry into commerce in the primary market. This is in contrast to the derivative markets, which are primarily risk management and price discovery markets where the price of the contract is tied to the price of the allowance and actual transfer of an allowance may not occur. There are two types of secondary cash market transactions, spot transactions and forward contracts. In a spot transaction, one party sells an allowance to another party for immediate delivery of the allowance. In a forward transaction, the parties agree to a price or method to fix a price with delivery of the allowance taking place at a later date.

No set of laws currently exist that apply a comprehensive regulatory regime – such as that which exists for derivatives – specifically to secondary market trading of carbon allowances and offsets. Thus, for the most part, absent specific action by Congress, a secondary market for carbon allowances and offsets may operate outside the routine oversight of any market regulator.

³⁵ 75 Fed. Reg. 63552 (Oct. 15, 2010), available at: <http://www.ftc.gov/os/fedreg/2010/october/101015greenguidesfrn.pdf>; further information is available at: <http://www.ftc.gov/green>

In a prospective carbon market where allowances would be created through government regulation, there would need to be at least some minimal level of regulation and oversight tracking allowance ownership, which can change through secondary market trading. For example, as noted previously, under the EPA Acid Rain Program, the EPA creates and issues allowances and maintains an electronic registry to keep track of outstanding allowances. Under the RGGI program, participating states are responsible for distributing or auctioning allowances, and the allowances are tracked through the RGGI COATS platform.

Offset markets also would involve some level of regulation and oversight for the creation and tracking of the offsets once they are created and certified. The agency charged with certifying and registering the creation of offsets, or tracking allowance ownership, may also have some authority to register and track those offsets.

In terms of overseeing or regulating the actual trading of either allowances or offsets in the secondary markets, there is no comprehensive oversight authority that has been granted to a particular regulator or regulators to oversee secondary market trading. Because the CFTC has broad enforcement authority to pursue manipulation of a commodity's price in interstate commerce, the agency would have the authority to bring actions against individuals or entities believed to be involved in the price manipulation of allowance and carbon offsets. There would also be some authority on the part of the CFTC to obtain information on allowance holdings and the trading of traders that also hold positions in the futures markets. However, absent specific action by Congress, neither the CFTC nor any other federal agency may have any authority to routinely monitor trading in the secondary markets or to create rules or regulations that would apply to these markets.

Finally, with respect to allowances or offsets that might be traded on an organized exchange, the rules of the exchange itself would apply to trading on the exchange, much as the rules of a futures exchange apply to trading on that exchange. However, whereas the rules of a futures exchange are created and enforced under the CEA and CFTC

regulations, rules on a secondary market exchange for carbon allowances and offsets would – absent specific statutory requirements -exist only under the direction of the exchange and essentially would be enforced by contract between the exchange and entities choosing to trade on the exchange.

C. Derivatives Markets

Carbon allowances and offsets are traded as the underlying commodity component of derivatives transactions, including swaps, futures and options contracts. Under existing law, which applies until the Dodd-Frank Act becomes effective in July 2011, carbon derivatives receive various levels of oversight depending on whether they are traded on a Designated Contract Market (DCM), are a Significant Price Discovery Contract (SPDC), or are executed bilaterally between Eligible Contract Participants (ECPs) or Eligible Commercial Entities (ECEs).

Emissions contracts that are traded on DCMs³⁶ are under the oversight of the CFTC and regulated in the same manner as any other commodity derivatives contract traded on a designated contract market. The board of trade³⁷ must comply with a number of core principles to maintain its designation as a contract market and to be able to list and trade futures and options contracts. Those core principles are focused on compliance with rules, ensuring that contracts are not readily subject to manipulation, monitoring of trading, position limitations or accountability, daily publication of trading information, execution of transactions, financial integrity of contracts, and protection of market participants, among other things.

CFTC regulations require the board of trade to monitor and enforce compliance with the rules of the contract market such as trade practice surveillance programs and rule enforcement standards. Only contracts that are not readily susceptible to manipulation are

³⁶ Futures and options contracts on emission allowances and offsets are listed on the Chicago Climate Futures Exchange and the Green Exchange.

³⁷ Current CEA defines a “board of trade” in Section 1a(2), 7 U.S.C § 1a(2) as “any organized exchange or other trading facility.”

eligible to be listed. To certify that a contract is not readily susceptible to manipulation, the board of trade submits the rules setting forth the terms and conditions of the contract, a description of the cash market for the commodity on which the contract is based, and a demonstration that (a) the terms and conditions, as a whole, will result in a deliverable supply such that the contract will not be conducive to price manipulation or distortion, and (b) that the deliverable supply reasonably can be expected to be available to short traders to be sold to long traders at its market value in normal cash marketing channels. The board of trade must monitor trading to prevent manipulation, price distortion, and disruptions of the delivery or cash-settlement process and to adopt position limitations or accountability levels for speculators, where necessary and appropriate. The board of trade must make available to market authorities, market participants, and the public information concerning the terms and conditions of the contracts and the mechanisms for executing transactions on or through facilities of the contract market as well as settlement prices, volumes, open interest, and opening and closing ranges for actively traded contracts on the contract market. The board of trade must provide a competitive, open, and efficient market and mechanism for executing transactions. Additionally, the board of trade must establish and enforce rules to protect market participants from abusive practices committed by any party acting as an agent for customers.

Exchange-traded carbon allowance and offset futures and options contracts are subject to speculative position limits. Those speculative position limits are certified by the board of trade and cannot exceed a quarter of the economic deliverable supply. Economic deliverable supply is that portion of the supply of a specified commodity that is in position for delivery against a futures contract. For example, Treasury bonds held by long-term investment funds are not considered part of the economically deliverable supply of a Treasury bond futures contract. Under the Dodd-Frank Act, OTC environmental swaps will also be subject to the speculative position limit regime adopted by the CFTC. The CFTC currently is in the process of developing rules and regulations for OTC derivatives speculative position limits.

The CFTC Reauthorization Act of 2008³⁸ significantly broadened the CFTC's regulatory authority with respect to Exempt Commercial Markets (ECMs)³⁹ by creating a new regulatory category – ECMs on which SPDCs⁴⁰ are traded – and treating ECMs in that category as registered entities under the CEA. When the CFTC makes a SPDC determination, the ECM on which the SPDC is traded must assume, with respect to that contract, all the responsibilities and obligations of a registered entity and must comply with core principles as discussed above. CFTC rules impose increased information reporting requirements on ECMs to assist the CFTC in making prompt assessments of whether particular ECM contracts may be SPDCs. In addition to filing quarterly reports regarding its contracts, an ECM must promptly notify the CFTC concerning any contract traded in reliance on the exemption in section 2(h)(3) of the CEA that averaged five trades per day or more over the most recent calendar quarter, and that either: (1) had its price information sold by the exchange to market participants or industry publications or (2) had daily closing or settlement prices that were within 2.5% of the contemporaneously determined closing, settlement or other daily price of another contract on 95 percent or more of the days in the most recent quarter. The issuance of an affirmative SPDC order subjects an ECM with a SPDC to the full application of the CFTC's regulatory authorities. To date, no carbon derivatives have been declared to be SPDCs. Moreover, as of the effective date of the Dodd-Frank Act in July 2011, the provisions allowing ECMs will be repealed.

Until the effective date of the Dodd-Frank Act in July 2011, contracts executed in the bilateral, OTC markets between ECPs or ECEs are exempt from CFTC regulation but are subject to certain limited anti-manipulation, fraud, and false reporting authorities.

³⁸ CFTC Reauthorization Act of 2008, Incorporated as Title XIII of the Food, Conservation and Energy Act of 2008, Public Law No. 110-246, 122 Stat. 1624 (June 18, 2008).

³⁹ An exempt commercial market is an electronic trading facility that trades exempt commodities on a principal-to-principal basis solely between persons that are eligible commercial entities. See Current CEA Sections 2(h)(3)-(5), 7 U.S.C. §2(h)(3)-(5).

⁴⁰ A significant price discovery contract is a contract traded on an ECM which performs a significant price discovery function. See Current CEA Section 2(h)(7), 7 U.S.C. § 2(h)(7). ECMs with SPDCs are subject to additional regulatory and reporting requirements.

Title VII of the Dodd-Frank Act amended the CEA, as well as the Securities Act of 1933 and the Securities Exchange Act of 1934, and establishes a comprehensive new regulatory framework for swaps and security-based swaps, including carbon market derivatives, once it becomes effective in July 2011. The legislation was enacted to reduce systemic risk, increase transparency, and promote market integrity within the financial system by, among other things: providing for the registration and comprehensive regulation of swap dealers, security-based swap dealers, major swap participants, and major security-based swap participants; imposing clearing and trade execution requirements on standardized derivative products; and creating rigorous recordkeeping and data reporting regimes with respect to swaps and security-based swaps.

Title VII of the Dodd-Frank Act established the CFTC's authority to regulate OTC swaps, as will be defined in forthcoming CFTC and SEC regulations, and requires swaps⁴¹ to be subject to certain trading, reporting and clearing requirements. The Dodd-Frank Act establishes that only ECPs⁴² may enter into a swap, unless such swap is entered into on a designated contract market (DCM),⁴³ in which case any person may enter into the swap.⁴⁴

A clearing requirement is also established for swaps.⁴⁵ Under this requirement, the CFTC would determine, based on factors listed in the statute, whether a swap, or a group, category, type, or class of swaps, should be required to be cleared. A swap that is required to be cleared must be executed on a DCM or a swap execution facility (SEF),⁴⁶

⁴¹ The definition of swap is found in new CEA section 1a(47), as added by section 721(a)(21) of the Dodd-Frank Act.

⁴² An eligible contract participant is defined in current CEA section 1a(12), 7 U.S.C. §1a(12). Generally speaking, an ECP is considered to be a sophisticated investor.

⁴³ A DCM is a board of trade designated as a contract market under new CEA section 5, 7 U.S.C. §7.

⁴⁴ See new CEA section 2(e), 7 U.S.C. §2(e) as added by section 723(a)(2) of the Dodd-Frank Act.

⁴⁵ See new CEA section 2(h), 7 U.S.C. §2(h), as added by Section 723 of the Dodd Frank Act.

⁴⁶ The requirements for SEFs are set forth in new CEA section 5h, 7 U.S.C. §7b-3, as added by Section 733 of the Dodd Frank Act.

if a DCM or SEF makes the swap available for trading. Swaps that are not required to be cleared may be executed bilaterally. Notwithstanding the above, a swap entered into by a commercial end user⁴⁷ is not subject to the mandatory clearing requirement; however, an end user may opt to submit the swap for clearing.

The Dodd-Frank Act also provides for the registration and regulation of swap dealers and major swap participants.⁴⁸ The new requirements for swap dealers and major swap participants include, in part, capital and margin requirements, business conduct standards, and reporting, recordkeeping, and documentation requirements.

All swap transactions will be required to be reported to swap data repositories.⁴⁹ This information will allow regulators to conduct market monitoring, assess systemic risk and perform other regulatory functions. Additionally, swap transactions will be subject to real-time reporting requirements, which are intended to improve post-trade market transparency and facilitate price discovery.⁵⁰

The Dodd-Frank Act directs the CFTC to adopt position limits for certain futures and options traded on or subject to the rules of a DCM, and swaps that are economically equivalent to such futures and exchange-traded options. Such position limits will apply to both exempt and agricultural commodities, which would include carbon and other environmental derivatives.⁵¹

⁴⁷ Generally, a commercial end user is described in new CEA section 2(h)(7), 7 U.S.C. §2(h)(7), as added by Section 723 of the Dodd Frank act, as a non-financial entity that is using swaps to hedge or mitigate commercial risk and that notifies the Commission as to how it generally meets its financial obligations associated with entering into non-cleared swaps.

⁴⁸ New CEA section 4s, 7 U.S. §6s, as added by Section 731 of the Dodd Frank Act. Swap dealer is defined in new CEA section 1a(49), 7 U.S.C. §1a(49), as added by section 721(a)(21) of the Dodd-Frank Act. Major swap participant is defined in new CEA section 1a(33), 7 U.S.C. §1a(33), as added by section 721(a)(16) of the Dodd-Frank Act.

⁴⁹ New CEA section 4r, 7 U.S.C. §6r, as added by Section 729 of the Dodd-Frank Act.

⁵⁰ New CEA section 2(a), 7 U.S.C. §2(a), as added by Section 727 of the Dodd-Frank Act.

⁵¹ New CEA Section 4a(a), 7 U.S.C. §4a(a), as amended by Section 737 of the Dodd-Frank Act.

Together, the requirements of the Title VII of Dodd-Frank will provide for comprehensive regulation of swaps and security-based swaps. Along with existing regulation of commodity futures and securities exchanges there will be comprehensive regulation of carbon and other environmental derivatives whether they are traded on an exchange, a SEF, or executed bilaterally.

VI. Recommendations for Effective Oversight of Carbon Markets

Section 750 of the Dodd-Frank Act calls for the interagency group to provide “recommendations for the oversight of existing and prospective carbon markets to ensure an efficient, secure, and transparent carbon market, including the oversight of spot markets and derivative markets.” As Section III described, these three goals are interrelated. Market efficiency and effective price discovery are hindered when markets are not protected from fraud and manipulation, when markets lack transparency, or when there is insufficient liquidity. Regulatory oversight should, therefore, guard against these concerns in order to ensure that carbon markets will allow market participants to trade and transfer allowances and carbon offsets, and to hedge price risk, in a fair and efficient manner to help achieve carbon emission reductions cost-effectively.

Consistent with the discussion in Section III, the interagency group recommends that the following objectives guide the market oversight of existing and prospective carbon markets.

Objective 1. Facilitate and protect price discovery in the carbon markets.

Carbon market design and oversight should strive to ensure that carbon markets – including those for allowances, offsets and derivatives – reflect both supply and demand conditions, considering the present marginal cost of achieving emission reductions and market participants’ expectations of future marginal costs of reductions.

Objective 2. Ensure appropriate levels of carbon market transparency.

Regulatory oversight must ensure that proper levels of transparency exist in carbon markets. Both pre-trade and post-trade market transparency measures should exist to provide timely and accurate information to carbon market participants. Transparency can generally increase the efficiency of markets by providing for more informed decision making by market participants. To encourage market participation, transparency provisions should preserve the confidentiality of traders and their positions consistent with commodities and securities laws and provide appropriate exceptions for large or "block" trades. Regulatory oversight provisions also should ensure appropriate provision of fundamental market data relating to aggregate emissions of regulated entities and the supply of allowances and offset credits in the markets.

Objective 3. Allow for appropriate, broad market participation.

Regulatory oversight should ensure that rules regarding market participation allow entities with emission compliance obligations to efficiently meet their obligations and allow offset credit providers to bring those credits to market. More broadly, the rules and trading systems should be designed to encourage market liquidity, facilitate price discovery and allow those directly and indirectly impacted by the regulation of carbon emissions to efficiently hedge associated risks. Open market participation promotes the development of market liquidity and price discovery, which are essential to the efficient functioning of primary, secondary and derivative markets and could facilitate the ability of entities to hedge commercial risks associated with regulation of carbon emissions.

Objective 4. Prevent manipulation, fraud and other market abuses.

Carbon markets should be free of manipulation, fraud and other market abuses. Measures should be in place to prevent price distortions, market fraud and other

manipulative activities and to provide for sufficient transparency for regulators to monitor activity in the market.

The above objectives can be met through a comprehensive regulatory oversight program that recognizes these objectives and provides sufficient regulatory authority to design an oversight structure that will achieve them. With respect to the carbon derivatives market, to a large extent, once the provisions of the Dodd-Frank Act become effective in July 2011, comprehensive oversight of carbon derivative products, whether traded on an exchange or OTC, will be achieved. However, primary and secondary carbon allowance and offset markets will not be subject to the same comprehensive oversight as derivative markets. Various characteristics of carbon market suggest the need to consider whether additional regulation is necessary for primary and secondary carbon allowance and offset markets.

Based on its work to-date, the interagency group would make the following recommendations regarding the oversight of existing and prospective carbon markets:

1. Rely on the existing regulatory oversight program, as enhanced by the Dodd-Frank Act, for both existing and prospective carbon allowance and offset derivatives markets. The current legal framework for oversight of derivative markets, as enhanced by the Dodd-Frank Act when it becomes effective in July 2011, will provide for robust and effective oversight of carbon derivatives markets and closely linked derivative markets, such as those based on energy commodities.
2. Ensure that appropriate oversight mechanisms are in place for primary and secondary allowance and offset markets, reflecting the above objectives and the interdependence of primary, secondary, and derivative carbon markets, and any unique characteristics or circumstances of such markets.

Appropriate oversight for the primary and secondary allowance and offset markets will depend upon market-specific factors, including how primary and secondary markets are

structured and potentially the breadth of the market (e.g., national or regional), and may not be the same for all markets. As such, more detailed work may be necessary to consider the appropriate oversight regime for existing and prospective primary and secondary carbon markets, particularly if or when Congress considers Federal market-based options for reducing GHG emissions. In designing prospective markets, policymakers also should recognize the ability to achieve the above-described market oversight objectives not only through traditional market oversight provisions, but also in part by the design of the underlying GHG policy.