RGGI Inc.

ANNUAL REPORT ON THE MARKET FOR RGGI CO_2 ALLOWANCES: 2009

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RGGI, Inc., on behalf of the RGGI Participating States

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POTOMAC ECONOMICS

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The Regional Greenhouse Gas Initiative (RGGI) is a cooperative effort by participating states to reduce emissions of carbon dioxide (CO_2), a greenhouse gas that causes global warming.

RGGI, Inc. is a non-profit corporation created to provide technical and administrative services to the CO_2 Budget Trading Programs of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont.

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I. EXECUTIVE SUMMARY

The Regional Greenhouse Gas Initiative ("RGGI") began full operation on January 1, 2009, becoming the first mandatory cap-and-trade program to limit CO_2 emissions in the United States. Currently, approximately 95 percent of the emissions from the electric power generation sector in ten states in the northeast and mid-Atlantic regions are regulated under the program. RGGI distributes emissions allowances to the market primarily through auctions, making it distinctive among existing cap-and-trade programs. 91 percent of the allowances in circulation at the end of 2009 initially entered the market through one of the auctions. By the end of 2009, the RGGI participating states conducted six successful auctions, selling a total of 172 million allowances for $494 million.

This report evaluates activity in the market for RGGI allowances in 2009, focusing on the following areas: allowance prices, trading and acquisition of allowances in the auctions and the secondary market, participation in the market by individual firms, and market monitoring.

Allowance Prices

Allowance prices decreased considerably during the first year of the program as short-term 2009 vintage futures prices fell 41 percent from an average closing price per short ton of $3.80 in the first quarter of 2009 to $2.26 in the fourth quarter. The auction clearing prices of 2009 vintage allowances exhibited a similar pattern, falling from $3.51 in the March 2009 auction to $2.05 in the December 2009 auction. This reduction likely reflects changes in expectations regarding the future uses of allowances. Futures prices were volatile in the initial months of the program but gradually became more stable during the period, which is not surprising given that this is a new market. Accordingly, expectations of future volatility (implied by option trading) also declined over the period.

Trading Patterns and Acquisition of Allowances

Compliance entities consistently acquired the majority of allowances in each of the first six auctions, purchasing 79 percent of the 2009 vintage allowances and 93 percent of the 2012 vintage allowances. Although non-compliance entities purchased substantial quantities of allowances in the auctions, they sold the majority of these in the secondary market. Consequently, by the first week of January 2010, 96 percent of the allowances in circulation were held by compliance entities. This is consistent with expectations given that compliance entities account for nearly all of the demand for allowances.

Activity in the secondary market for RGGI allowances grew considerably during 2009. This is reflected in the average daily volume of trading of CCFE-listed contracts, which rose from 0.5 million in the first quarter of 2009, peaked at 4.8 million in the third quarter, and fell to 2.0 million in the fourth quarter.

Participation in the Market by Individual Firms

Participation in the market by a large number of firms promotes competition and helps ensure that the prices in the auctions and in the secondary market reflect the value of allowances. Hence, it is a positive signal that large numbers of firms submitted bids in each of the 2009 vintage offerings in the first six auctions. In each auction, the number of bidders that were compliance entities ranged between 31 and 43, while the number of bidders that were non-compliance entities ranged between 12 and 27.

Likewise, a large number of firms participated in the trading of CCFE futures contracts during 2009. The CFTC reported that 23 to 33 firms held significant futures positions at a given time during the year, although a relatively small number of firms accounted for most of the positions in 2009 vintage contracts. The net long positions of four firms accounted for an average of 68 percent of the total long positions in 2009, while the net short positions of another four firms accounted for an average of 66 percent of the total short positions.

The holdings of allowances were widely distributed across firms after the first full year of market operation. The largest holding of first compliance period allowances by a single firm was by a compliance entity that held 15 percent. The top ten compliance entities, which collectively account for 66 percent of the demand for allowances, held 71 percent of the allowances, while non-compliance entities collectively accounted for just 4 percent of holdings. Thus, the holdings of allowances reflect that firms have generally purchased quantities consistent with their expected needs.

Market Monitoring

As the RGGI Market Monitor, we evaluate the conduct of market participants in the auctions and in the secondary market to identify potential anti-competitive conduct. In addition, the Commodity Futures Trading Commission ("CFTC") evaluates trading in the secondary market consistent with its role as the regulator of futures and option markets in the U.S. We also assess whether the auctions were administered properly by World Energy Solutions.

In our reviews of the first six auctions, we find no material concerns regarding the auction process, barriers to participation in the auctions, or the competitiveness of the results. Participation in the 2009 vintage offerings has been robust with at least 46 firms submitting bids in each auction. Although interest in the small number of allowances auctioned for the second compliance period has been more limited, we find no evidence of anti-competitive conduct or barriers that would impede wider participation. Further, we found that the auctions were administered in accordance with the noticed rules and bids received.

We find no evidence of anti-competitive conduct in the secondary market for allowances. Furthermore, it is encouraging that many firms have been active in trading allowances and allowance futures, and that firms have generally purchased quantities of allowances that are consistent with their expected needs.

II. BACKGROUND ON THE ALLOWANCE MARKET

RGGI began full operation on January 1, 2009, becoming the first mandatory cap-and-trade program to limit CO_2 emissions in the United States. Cap-and-trade programs work by setting an aggregate emissions limit for a particular class of emitters, and requiring them to acquire a number of allowances sufficient to cover their emissions. Firms that own allowances can decide whether it is more profitable to use them to cover their emissions or to sell them to an emitter that can use them more efficiently. In this manner, cap-and-trade uses market forces to reduce overall emissions in the most cost-effective ways.

RGGI is a collaborative effort of ten states in the northeast and mid-Atlantic regions to reduce overall CO_2 emissions. Electricity generating plants with more than 25 MW of capacity (known as "CO_2 budget sources") must acquire a number of allowances sufficient to cover their emissions by the end of each compliance period. Firms that own budget sources (known as "compliance entities") can acquire allowances through a variety of means, including by purchasing them in the quarterly RGGI auctions or in the secondary market for allowances.

The market for RGGI allowances has several key elements, which are discussed in this section: compliance obligations, the CO_2 Allowance Tracking System, the primary market for allowances, and the secondary market for allowances.

Compliance Obligations

CO_2 budget sources are fossil fuel-fired electricity generating plants with more 25 MW or more of capacity. Shortly after the end of each compliance period, compliance entities, which are firms that own CO_2 budget sources, must submit a sufficient number of allowances to cover their emissions during the compliance period. The first compliance period is from 2009 through 2011, and the second compliance period is from 2012 through 2014.

CO_2 Allowance Tracking System ("COATS")

COATS is the registry for RGGI allowances. Each RGGI allowance has a unique serial number and can be used to satisfy one short ton of compliance obligations. When firms trade allowances in the secondary market, the seller must record the transfer of ownership in COATS before the buyer is recognized as the owner.

Primary Market for RGGI Allowances

The participating states have taken the approach of primarily using auctions rather than free allocations as the primary means for distributing allowances to the market. Accordingly, the primary market for RGGI allowances consists mainly of the quarterly auctions. Thus far, 91 percent of the allowances in circulation initial entered the market through one of the auctions.

Quarterly auctions have occurred regularly since September 2008. 2009 vintage allowances were sold in two "pre-compliance" auctions, which were held in September and December 2008 before the first compliance period began. Since the March 2009 auction, the majority of allowances have been sold for the first compliance period. A small number of allowances have also been sold for the second compliance period.

Additional allowances can also be awarded for approved emissions offset projects (project-based greenhouse gas emissions reductions or carbon sequestration that occurs outside the capped electricity generation sector). In 2009, there was a one time award by certain participating states of early reduction allowances (ERAs). ERAs were awarded for qualifying CO_2 emissions reductions achieved at CO_2 budget sources during 2006 through 2008, prior to the start of the first compliance period. A relatively small number of allowances are also allocated by individual states, consisting of a mix of fixed-price allowance sales and free allocations. Regardless of how allowances initially enter the market, they can be traded to other firms in the secondary market.

Secondary Market for RGGI Allowances

The secondary market is important for several reasons. First, it gives firms an ability to obtain allowances at any time during the three months between the RGGI auctions. Second, it provides firms a way to protect themselves against the potential volatility of future auction clearing prices. Third, it provides price signals that assist firms in making investment decisions in markets affected by the cost of RGGI compliance.

The secondary market for RGGI allowances comprises the trading of physical allowances and financial derivatives, such as futures and options contracts. A physical allowance trade occurs when the parties to the transaction register the transfer of ownership in COATS. Futures, options, and other financial derivatives are called "exchange-traded" when they are traded on a public exchange, and are called "over-the-counter" ("OTC") when they are not traded on one of the public exchanges. Many financial derivatives eventually result in the transfer of physical allowances (i.e., the transfer is registered in COATS), but this may occur months or years after the parties enter into a financial transaction.

Standard futures and options contracts for RGGI allowances are traded on two public exchanges: the Chicago Climate Futures Exchange ("CCFE") and the Green Exchange, an initiative of the New York Mercantile Exchange ("NYMEX"). Three categories of standard contracts are traded on these public exchanges:

- Futures – Under these contracts, two parties agree to exchange a fixed number of allowances of a certain vintage year at a particular price at a specific point in the future (called the "delivery month"). At the end of the delivery month, the contracted number of allowances must be physically transferred to the buyer's account in the COATS registry and funds must be transferred to the seller. The vintage year refers to the compliance year of the allowance that is to be transferred. One standard futures contract equals 1,000 RGGI allowances. [1]

[1] A futures contract requires parties with an open interest to post financial assurance in an account with the exchange until the contract reaches expiration. The exchange continually withdraws and deposits funds according to changes in the prices of the contracts in which the party has interest. For example, if a firm buys a contract for 1,000 allowances at $3.50/allowance, the purchasing firm (firm with a long position)

- Call Options – Call options give the purchaser the option to buy a fixed number of allowances of a certain vintage year at a particular strike price at any time prior to the expiration date. For example, suppose a firm holds a call option with a 2009 vintage year, $5 strike price, and June 2009 expiration date. If the price of the corresponding futures contract rose to $5.75, the firm could exercise the option to buy allowances at $5 and immediately sell them at $5.75. Alternatively, if the price of the futures contract stayed below $5, the firm would let the option expire without exercising it. One standard options contract can be exercised for 1,000 RGGI allowances.

- Put Options – Put options are similar to call options but they give the purchaser the option to *sell* a certain number of allowances of a particular vintage year at a specified strike price any time prior to the expiration date.

Futures and options contracts are generally important because they allow firms to manage risks associated with unforeseen swings in commodity prices. Futures allow firms to lock-in the prices of future purchases or sales. Options allow firms to limit their exposure to price volatility. Call options protect the purchaser if the price of the commodity increases, while put options protect the purchaser if the price of the commodity decreases. Although options provide less certainty than futures contracts, they are more attractive to some firms because they require less financial security.

Public exchanges are attractive to firms that need a simple way to trade standard products. Moreover, public exchanges effectively eliminate the risk of default by counter-parties, since the exchange constantly monitors the account holdings of each participant to ensure that they have posted sufficient financial security to meet their obligations.

OTC trading is attractive to firms that prefer contracts with non-standard provisions. Firms with on-going business relationships may have other ways to manage the risk of default by the other party.[2] Compliance entities may prefer to buy RGGI allowances bundled with other goods and

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must put $3,500 in an account (or whatever share of the entire liability the exchange requires). If the futures price declines to $3/allowance, the exchange transfers $500 from the account of a firm with a long position to the account of a firm with a short position(firm that sold a contract), and the firm with a long position is only required to keep $3,000 in the account. At the end of the delivery month, allowances are exchanged for funds according to the closing price on the last day of the month.

[2] For instance, firms may enter into forward contracts rather than futures contracts. The primary difference

services from their fuel suppliers or operations service providers. The OTC market allows parties to create contracts specifically tailored to their needs. In general, much more information is available about trading on public exchanges than trading in the OTC market.

between a futures contract and a forward contract is that a futures contract typically requires parties with an open interest to post financial assurance which the exchange draws upon or adds to until the contract reaches expiration, while a forward contract requires that all financial settlement occur at expiration.

III. ALLOWANCE PRICES

The market for RGGI allowances consists primarily of purchases in the quarterly auctions, as well as trading of allowances and allowance futures, forwards, and options contracts in the secondary market. Information is publicly available about the market value of allowances from the auction clearing prices four times per year, while the prices of trades on the CCFE and transaction prices recorded in COATS provide price information on a more frequent basis.

This section of the report summarizes prices in the market for RGGI allowances in 2009. The first figure shows clearing prices in the RGGI auctions and transaction prices in the secondary market, while the second figure illustrates how the delivery month of a futures contract for RGGI allowances affects its price. The third figure analyzes the trading of options contracts on the CCFE to determine what they imply about expectations of allowance prices in the future.

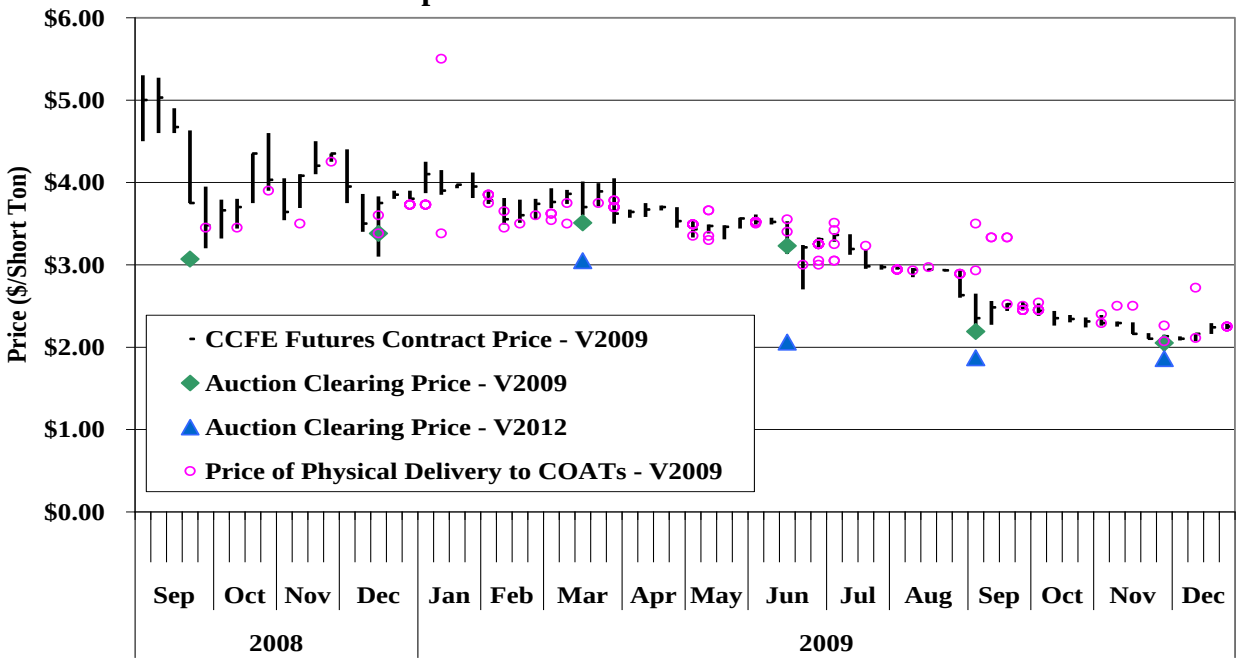
Prices in the Auctions and the Secondary Market

Figure 1 summarizes prices in the auctions and the secondary market on a weekly basis from September 2008 to December 2009. September 2008 was the first month when an auction was held, and it was the first full month of trading for CCFE futures contracts. CCFE futures contract prices are summarized for each week by a black vertical line from the minimum transaction price to the maximum transaction price in the week and by a black horizontal tick mark at the closing price at the end of the week. CCFE futures prices are shown for the benchmark contract, which was the contract for 2009 vintage allowances for December 2009 delivery. The volume-weighted average price of physical deliveries in COATS of 2009 vintage allowances are shown by a pink circle for each day when a transaction took place at a price that was recorded by the transacting parties.[3] The figure also shows the auction clearing prices of

[3] Parties are required to report the transaction price if there is an underlying financial transaction related to the transfer of allowances between accounts.

2009 vintage and 2012 vintage allowances in the first six RGGI auctions, which were held every three months from September 2008 to December 2009.

Figure 1: Allowance Prices in the Auctions and Secondary Market
September 2008 to December 2009



Allowance prices fell substantially during the 16 months shown in Figure 1. CCFE futures prices decreased 44 percent from an average closing price of $4.06 in the last four months of 2008 to $2.26 in the fourth quarter of 2009. After initial declines leading up to Auction 1 in September 2008, futures prices were usually between $3.50 and $4.00 from October 2008 to May 2009 and then fell from June through the end of 2009.[4]

CCFE futures prices were volatile in the initial months of trading, but gradually became more stable during the period. The historic volatility of futures prices fell from 56 percent in the fourth quarter of 2008 to 35 percent in the first quarter of 2009, 23 percent in the second quarter,

[4] From October 2008 to May 2009, 60 percent of the daily closing prices fell between $3.54 and $4.00, while 20 percent were lower and 20 percent were higher.

24 percent in the third quarter, and 19 percent in the fourth quarter.[5] Futures prices generally fluctuated most around the times of the six quarterly auctions.

The auction clearing prices of 2009 vintage allowances were initially lower than futures prices in Auction 1, but then generally converged more closely to futures prices. The auction clearing prices of 2009 vintage allowances increased from $3.07 in September 2008 to peak at $3.51 in March 2009 before falling to $2.05 in December 2009. Because the allowances can be banked for future compliance periods, their prices reflect the expected uses of the allowances over many years. The variations in prices over the period indicate changes in these expectations, which are not unusual in a new market.

The prices of transactions recorded in COATS were generally consistent with CCFE futures prices during the period. Many of the physical deliveries in COATS occurred in the first week of a particular month as a result of the expiration of the previous month's futures contract. Several business days after futures contracts reach expiration, allowances are exchanged for funds according to the closing price on the last day of the expiration month.[6, 7] Accordingly, many of the transaction prices recorded in COATS are consistent with the prices of futures contracts in the previous week.

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5 Historic volatility is a measure of the standard deviation of the day-over-day percentage change in price. Volatility is normally expressed as an estimated standard deviation for a one year period, even if it is calculated from a shorter period of time.

6 Physical deliveries in COATS generally occur on the third business day following the expiration day of the futures contract. For instance, contracts for December 2009 delivery resulted in transfers in COATS on January 6, 2010.

7 A futures contract requires parties with an open interest to post financial assurance in an account with the exchange until the contract reaches expiration. The exchange continually withdraws and deposits funds according to changes in the prices of the contracts in which the party has interest. For example, if a firm buys a contract for 1,000 allowances at $3.50/allowance, the purchasing firm (firm with a long position) must put $3,500 in an account (or whatever share of the entire liability the exchange requires). If the futures price declines to $3/allowance, the exchange transfers $500 from the account of a firm with a long position to the account of a firm with a short position(firm that sold a contract), and the firm with a long position is only required to keep $3,000 in the account.

The prices of physical deliveries in COATS were substantially higher than CCFE futures prices in some cases. Such cases can occur when the delivery results from: settlement of a forward contract signed at an earlier date when the futures price was higher or lower,[8] the exercise of an option with a strike price substantially higher or lower than the futures price, or settlement of a contract bundling the sale of allowances with additional services. Hence, the usefulness of the transaction prices reported in COATS is limited by the fact that transferring parties do not necessarily report all of the important details related to the transaction.

Figure 1 also shows the clearing prices for the 2012 vintage allowances that were sold in the four auctions from March 2009 to December 2009. Like the 2009 vintage allowances, the 2012 vintage allowances fell from $3.05 in Auction 3 to $2.06 in Auction 4, $1.87 in Auction 5, and the auction reserve price of $1.86 in Auction 6.[9] In the four auctions with 2009 vintage and 2012 vintage offerings, the 2012 vintage allowances cleared at a significant discount to the 2009 vintage allowances, ranging from as much as 36 percent in Auction 4 to as little as 9 percent in Auction 6. These fluctuations reflect changes in expectations over time regarding external factors and conditions that affect the relative value of the two vintages of allowances. During the period shown, trading of 2012 vintage allowances in the secondary market was very limited, so the auction clearing prices are the primary source of information regarding the market value of 2012 vintage allowances.

Allowance Futures Contract Prices by Delivery Month

RGGI futures contracts are defined by a vintage year and a delivery month, and each contract trades as a distinct product at a distinct price. The previous figure illustrates the importance of the vintage year, while the following figure shows how futures prices vary according to the

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8 The primary difference between a futures contract and a forward contract is that a futures contract typically requires parties with an open interest to post financial assurance which the exchange draws upon or adds to until the contract reaches expiration, while a forward contract requires that all financial settlement occur at expiration.

9 Bids submitted in the auction must be priced at or above the auction reserve price, which was $1.86 in each of the first six auctions.

delivery month. The delivery month of the contract determines when the actual exchange occurs of funds for allowances, so a firm that buys a futures contract for delivery in 13 months rather than in one month is able to hold the funds for an additional year. Since the firm can earn interest on these funds for one year, it might be willing to pay more for a contract with delivery in 13 months, and its willingness to pay more would depend on interest rates. [10] Hence, in a very liquid market for allowances, the prices of futures contracts with different delivery months should be consistent with interest rates over the period.

When the prices of futures contracts with different delivery months are not consistent with interest rates, it may provide an opportunity for arbitrage. For example, suppose an allowance futures contract for delivery next year is trading at a price significantly higher than a contract for delivery this year, and suppose the spread between the two contracts exceeds what would be expected based on interest rates. A firm could profit by borrowing money at close to the rate of interest on treasury bills to buy the futures contract for delivery this year while selling the futures contract for delivery next year. In this manner, the market tends to bring the prices of different futures contracts into a consistent relationship based on interest rates.

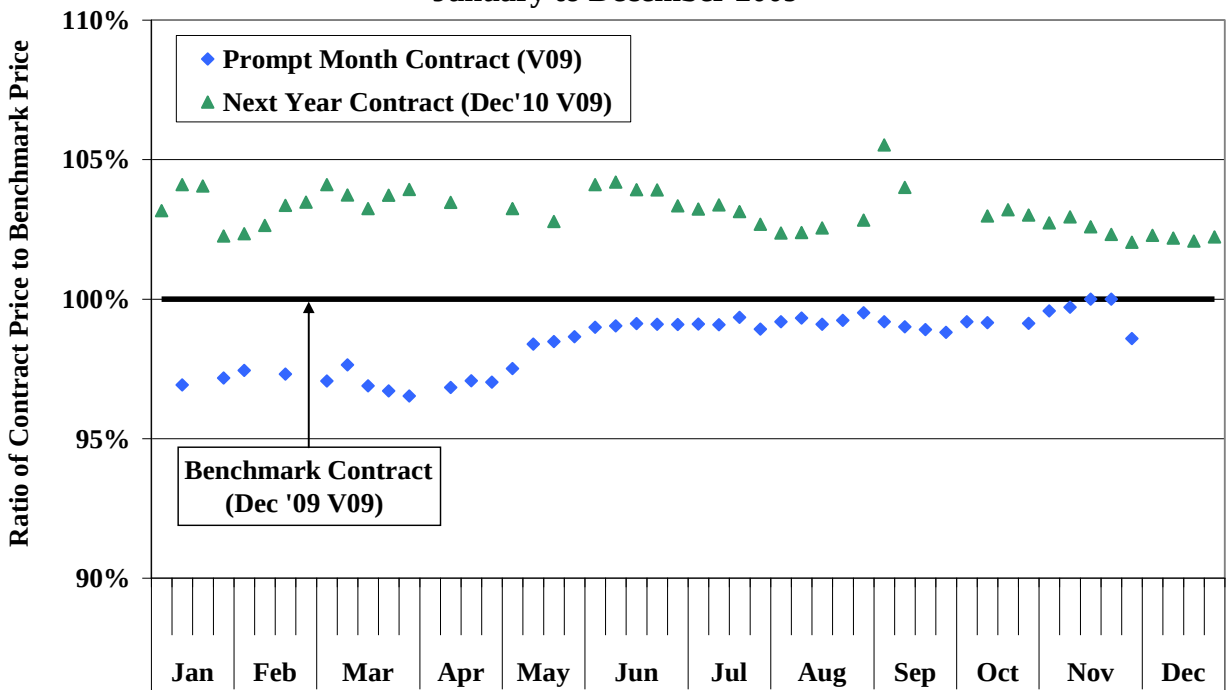
Figure 2 summarizes the relative prices of three categories of 2009 vintage futures contracts: the prompt month contract, the benchmark contract, and the next year contract. The prompt month contract is the contract with the nearest date of delivery.[11] The benchmark contract, which is for December 2009 delivery, has accounted for the majority of trading volume on the CCFE since RGGI futures have been traded. The next year contract is the contract for December 2010 delivery. The daily closing prices of the prompt month contract and the next year contract are

[10] Firms that purchase futures contracts must deposit funds to satisfy margin requirements until the delivery of the contract. Firms can satisfy margin requirements by depositing cash, U.S. Treasuries, or other readily marketable securities. Hence, firms have the opportunity to earn interest on the funds they use to satisfy margin requirements.

[11] For example, in February 2009, the prompt month contract was the contract for February 2009 delivery. In October 2008, the prompt month contract was the contract for December 2008 delivery, since there were no exchange-traded futures contracts for October or November 2008 delivery.

shown as percentages of the daily closing price of the benchmark contract.[12] The figure shows weekly average percentages, which are based on days in 2009 when the volumes of the contracts were greater than zero.

Figure 2: Allowance Futures Prices by Delivery Date
January to December 2009



The figure shows that the prompt month contract generally closed at a 2 to 4 percent discount to the benchmark contract (i.e., 96 to 98 percent of the benchmark contract price) in the first four months of 2009, and then the discount decreased to approximately 1 percent or less from June through the end of 2009. The discount in the first four months was larger than would be expected based on the yields on treasury bills, which were always less than 0.5 percent for a duration of less than one year during 2009. The reduction in the discount for the prompt month contract to a level more consistent with treasury yields coincided with the substantial increase in trading volumes in the second quarter of 2009, which is shown in Figure 5.

[12] The daily closing price is the Settlement Price as defined in Section 2604 of the CCFE Rulebook. The Settlement Price can be based on factors such as a volume-weighted average of trade prices before market close, the mid-point between the best bid and best offer before market close, and the time value between

The next year contract generally closed 2 to 4 percent higher than the benchmark contract throughout the period. This is higher than the differential that would be expected based on treasury yields, which were 1.5 percent or less throughout 2009. Trading volumes for the next year contract were light until the end of 2009, which likely explains why the relative prices of the next year contract and the benchmark contract were less consistent with treasury yields. It is also possible that some inconsistencies arise from the particular methods used to calculate the daily closing price when trading is thin.

Expected Volatility of Allowance Prices

Cap-and-trade markets are designed to give firms efficient incentives to reduce and/or offset emissions. In the short-term, high-emitting generators will operate less frequently in favor of low-emitting generators. In the long-term, the market will affect the decisions of firms to develop offset projects, retire older inefficient generation, and perform maintenance that increases fuel efficiency and lowers carbon-intensity. Predictable allowance prices reduce the risks associated with making long-term investments in reducing emissions. Since allowance prices can be volatile, the availability of futures and options contracts allows firms to protect themselves from the risks of such investments.

The trading of option contracts for RGGI allowances provides insight about the market expectations of allowance prices in the future.[13] Several standard methods are available for estimating the expected volatility of allowance prices based on the prices and characteristics of option contracts that are traded. Such estimates are known as the *option-implied volatility,*[14]

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the delivery months of contracts.

[13] The price of an option contract depends primarily on two factors: (i) the expected value of an allowance relative to the strike price of the option, and (ii) the expected volatility of an allowance over the period until the expiration date. When call option prices and put option prices move in opposite directions, it signals a change in the expected price of allowances. Conversely, when call option prices and put option prices move in the same direction, it signals a change in the expected volatility of allowance prices.

[14] The option-implied volatility of an allowance refers to the expected standard deviation of the distribution of allowance prices one year in the future. For example, if the expected value of the price one year in the future is $1 and the option-implied volatility is 25 percent, this implies that the probability that the price

The following scatter plot reports the option-implied (i.e., expected) volatility of RGGI allowance futures contracts, which can be inferred from the trading of options contracts in 2009.[15] The vertical axis shows the option-implied (expected) volatility of allowance futures prices, and the horizontal axis shows the trade date. The figure excludes option contracts where the difference between the futures price and the strike price of the option exceeded 15 percent of the futures price.[16] The figure also excludes contracts if fewer than two auctions occurred between the trade date and the expiration date. This is because historic prices suggest that allowance prices become more volatile around the time of each quarterly auction, so excluding contracts with short times to maturity reduces variations in implied volatility that are driven by the timing of the trades within a particular quarter.

will be within 25 percent of $1 (i.e., between $0.75 and $1.25) is 68.2 percent assuming that the price is distributed log-normally.

15 Black's model for valuing futures options is used to estimate the option-implied volatilities of RGGI allowance futures prices.

16 Option contracts with large differences between the strike price and futures price tend to produce higher estimates of option-implied volatilities than contracts where the strike price and futures price are similar. This phenomenon is known as the "volatility smile." By excluding option contracts with large (i.e., greater than 15 percent) differences, it helps isolate variations in the option-implied volatility that result from changes in the expected volatility of allowance prices.

Figure 3: Option-Implied Volatility of Allowance Futures Prices
January to December 2009

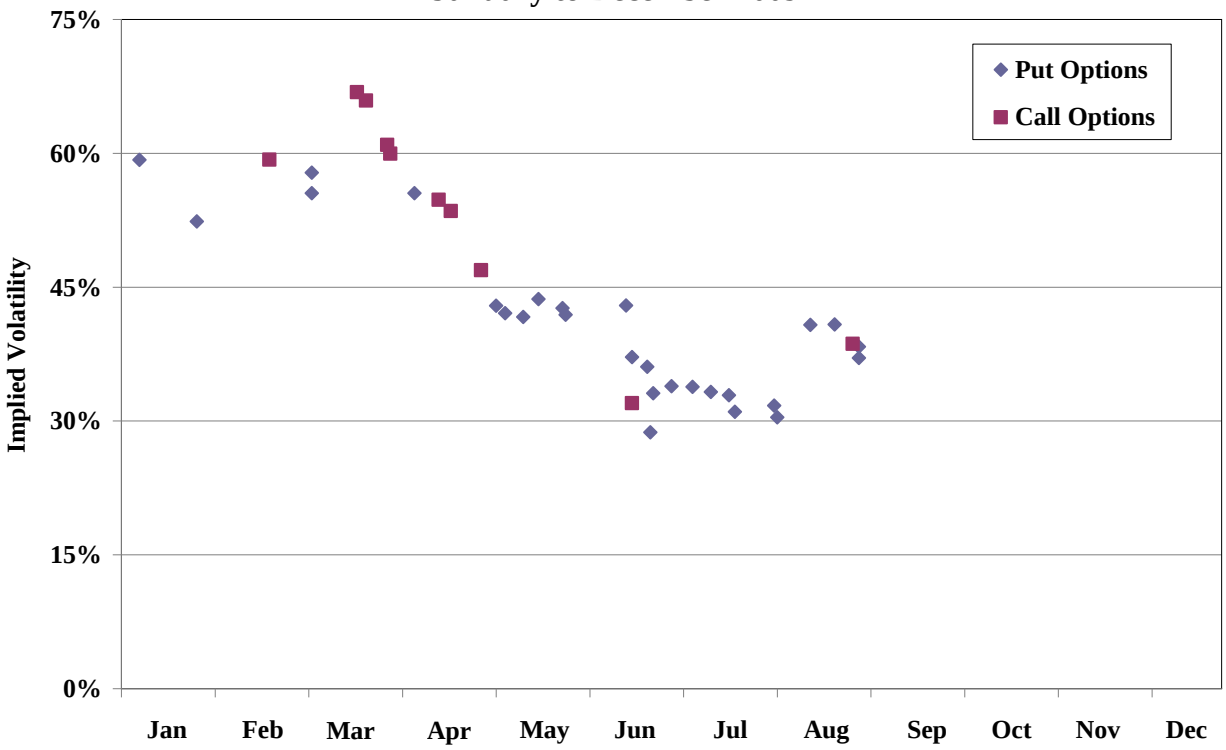


Figure 3 shows that option-implied volatilities ranged between 50 and 70 percent from January through March, fell considerably from March to June, and then generally ranged between 30 and 40 percent from June through August. In the last four months of 2009, no options were traded on the CCFE that fit the criteria for inclusion in the figure. In general, the volume of option trading fell toward the end of the year, which suggests that market participants were less concerned about volatility risk in those months.

The pattern of option-implied volatility is broadly consistent with the historic volatility over the period (see discussion of Figure 1).[5] Both volatility metrics reflect that there was relative uncertainty regarding the value of RGGI allowances in the first quarter of 2009, and that this uncertainty was reduced considerably by the summer of 2009.

IV. TRADING AND ACQUISITION OF ALLOWANCES

This section evaluates the trading and acquisition of allowances in the primary and secondary allowance markets. Firms initially acquire allowances in the primary market, mainly by purchasing them in the quarterly auctions.[17] Firms then buy and sell allowances in the secondary market. Secondary market activity can be observed from information about the trading of futures, forwards, and options contracts on public exchanges and in the OTC market, as well as from the transfers of ownership recorded in COATS. This section traces the movement of allowances from their initial introduction to the market and through the secondary market.

The first figure in this section summarizes how allowances were distributed in the auctions between compliance entities and non-compliance entities. The second figure summarizes the volume of trading of allowances and allowance futures. The third figure illustrates the overall shift in ownership through the secondary market from non-compliance entities to compliance entities. The fourth figure summarizes the registered holdings of allowances in COATS after the first full year of operation for the RGGI allowance market.

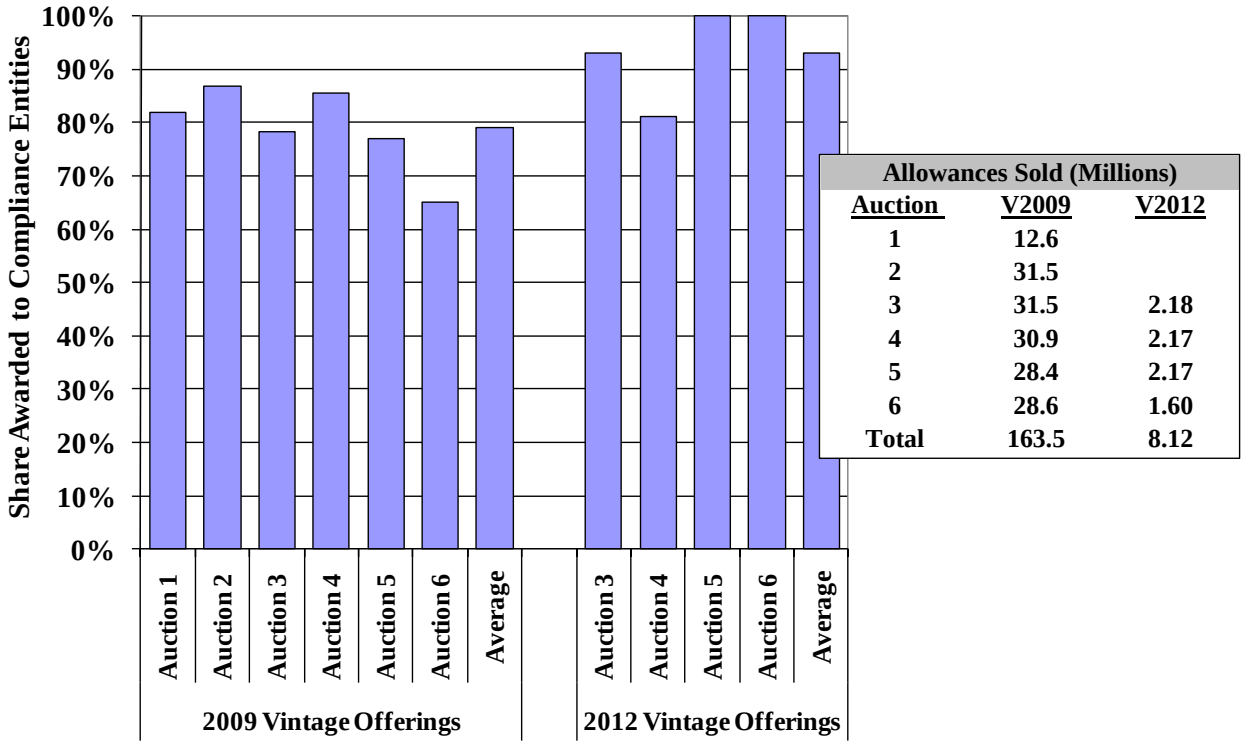
Distribution of Auction Awards

The following figure reports the quantity of allowances awarded in each offering of the first six auctions. The bars show the percentage of allowances in each offering that was purchased by compliance entities, while the remaining share in each offering was purchased by non-

[17] However, some allowances are also allocated by individual states directly to individual entities (through free allocation or fixed-price sales) or awarded for greenhouse gas emissions reductions or carbon sequestration achieved through approved offset projects (project-based emissions reductions or sequestration occurring outside the capped electric generation sector). In 2009 there was a one-time award by certain states of early reduction allowances (ERAs). ERAs were awarded for qualifying CO_2 emissions reductions achieved at CO_2 budget sources during 2006 through 2008, prior to the start of the first compliance period.

compliance entities.[18] Two additional bars report the average percentage of allowances of each vintage that was purchased by compliance entities.

Figure 4: Distribution of Auction Awards
Auctions 1 – 6



Allowances Sold (Millions)		
Auction	V2009	V2012
1	12.6	
2	31.5	
3	31.5	2.18
4	30.9	2.17
5	28.4	2.17
6	28.6	1.60
Total	163.5	8.12

The figure shows that compliance entities have consistently purchased a substantial majority of the allowances sold in each of the first six auctions. Overall, compliance entities purchased 79 percent or 129 million of the 2009 vintage allowances and 93 percent or 7.5 million of the 2012 vintage allowances. Participation from non-compliance entities was significant in the 2012 vintage offerings of Auctions 3 and 4, while non-compliance entities did not participate in the last two 2012 vintage offerings of 2009. Consequently, compliance entities purchased 100 percent of the allowances in Auctions 5 and 6. The high share of allowances purchased by

[18] Throughout this report, the compliance entity category includes corporate affiliates of compliance entities. In some cases, a firm that does not have stock ownership in a budget source is categorized as a compliance entity if it is believed that the firm has substantial control over the operation of a budget source and/or responsibility for acquiring RGGI allowances to satisfy the owner's compliance obligations.

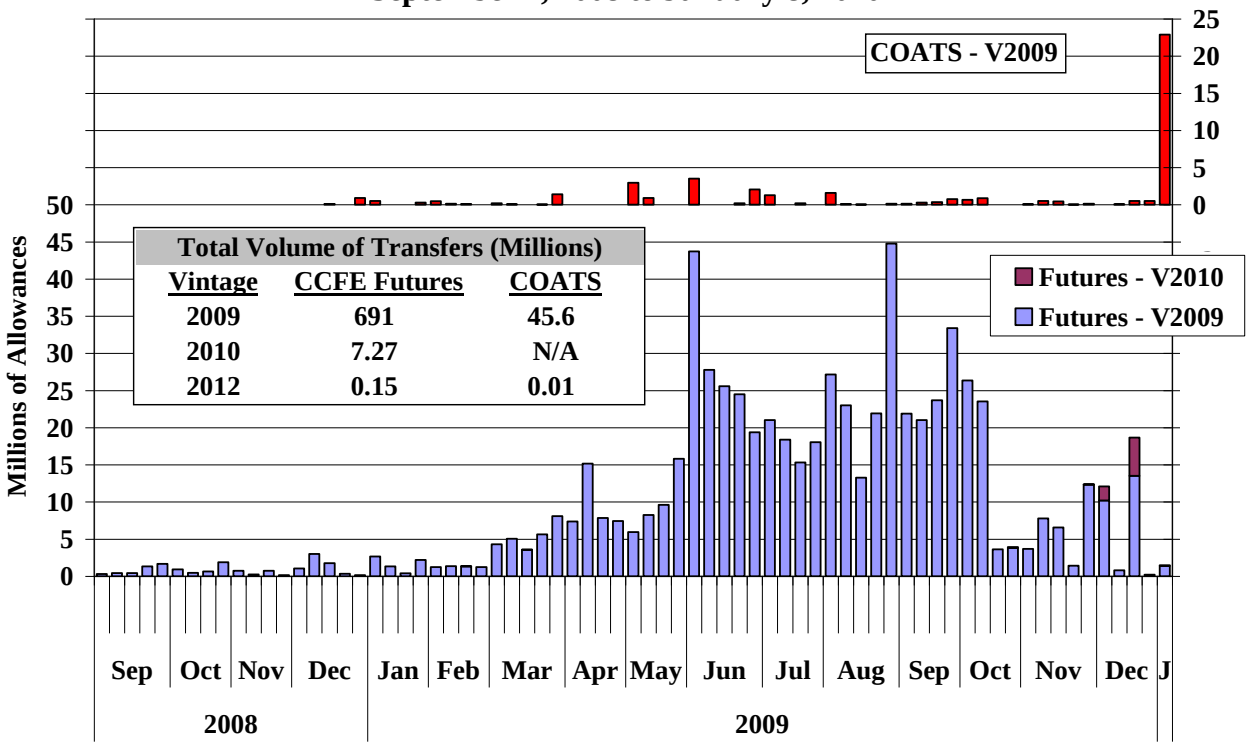
compliance entities is consistent with our expectations given that they constitute nearly all of the demand for allowances.

Allowance Trading Volumes

The following figure summarizes the volume of trading in CCFE-listed futures contracts as well as transfers of allowances between unaffiliated parties that are recorded in COATS on a weekly basis from September 2008 to January 8, 2010. The first full week of January 2010 is shown in the figure because that is when allowances were transferred between COATS accounts as a result of the delivery of CCFE, NYMEX, and OTC contracts with a December 2009 delivery month. The bottom portion of the figure shows the weekly volume of trading on the CCFE for 2009 vintage and 2010 vintage futures contracts against the left vertical axis. The top portion of the figure shows the weekly volume of allowance transfers between unaffiliated firms that are reported in COATS against the right vertical axis. The table reports the total volumes over the period shown in the figure for each category shown in the figure. The table also reports the total volumes for the 2012 vintage year.

The volume of trading in RGGI futures contracts grew considerably from September 2008, which was the first full month when RGGI futures contracts were listed on the CCFE, through 2009. The average daily volume of trading increased from 0.2 million in the last quarter of 2008 to a peak of 4.8 million in the third quarter of 2009. However, trading fell sharply in the fourth quarter of 2009 to 2.0 million allowances per day. Since the first quarter of 2009, the volume of trading has exceeded the number of allowances that were auctioned in the quarter.

Figure 5: Volume of Trading of Allowances and Allowance Futures
September 1, 2008 to January 8, 2010



The majority (99 percent) of trading volume was of contracts for 2009 vintage allowances. 72 percent of the 2009 vintage futures contracts traded were for the benchmark contract (i.e., December 2009 delivery). Trading of contracts for 2009 vintage allowances with delivery after 2009 became more prevalent in December 2009 when 42 percent of the trading volume was of contracts for December 2010 delivery. Likewise, trading of 2010 vintage futures contracts became more common at the end of 2009, accounting for 16 percent of the total trading volume in December 2009. Trading of contracts for 2012 vintage allowances was not significant during the period.

The volume of allowance transfers between the COATS accounts of unaffiliated firms was much smaller than the volume of trading of futures contracts on the CCFE. This is to be expected since much of the futures trading volume never results in the transfer of allowances in COATS. For example, a particular firm may buy futures contracts for 100,000 allowances and sell futures contracts for 70,000 allowances in a particular month for a total trading volume of 170,000 allowances. If the contracts are for prompt month delivery, it would result in the transfer of just

30,000 allowances as reported in COATS. Otherwise, if the contracts are for delivery after several months or years, sales of futures contracts would tend to reduce further the ratio of the number of allowances transferred in COATS to the volume of futures trading.

50 percent of the allowances transferred between the COATS accounts of unaffiliated firms occurred in the first full week of January 2010. These transfers likely occurred as a result of the final maturity, expiration, or delivery of December 2009 contracts that were traded on the NYMEX, the CCFE, or the OTC market. Likewise, most of the COATS transfers shown in the figure prior to January 2010 occurred in the first week of a particular month, most likely as a result of the maturity, expiration, or delivery of the prompt month contracts.

Acquisition of Allowances in the Secondary Market

This part of the section discusses how the ownership of allowances has changed as a result of trading in the secondary market.[19] Changes in the ownership of allowances are quantified using two measures:

- *Open Interest* – This is the net amount of futures contracts that have been purchased or sold by a particular firm, but that have not reached delivery. For example, if a firm sells 100 contracts to another firm, it will have an open interest, or short position, of 100 contracts. If the firm then buys 40 contracts, these will partly offset its short position, resulting in an open interest, or short position, of 60 contracts. The total open interest in the market can be determined by summing across all of the long positions of firms (or alternatively, by summing across all of the short positions).

- *Net Purchases/Sales of Allowances* – This is the net change in the amount of allowances in a firm's COATS account that have resulted from trading (rather than the auction or a state allocation). For example, if a firm purchases 100,000 allowances from another firm, and then sells 30,000 allowances, the firm's net purchase of allowances would be 70,000. The total net change in allowance holdings in the market can be determined by summing across all of the net purchases of individual firms (or alternatively, by summing across all of the net sales).

[19] This excludes the majority of allowances, which are held by firms that purchased them directly in the auction or received them through allocations by one of the Participating States.

Information on the open interest in CCFE futures contracts comes from Commitment of Traders ("COT") reports, which are published by the Commodity Futures Trading Commission ("CFTC").[20] In 2009, the COT reports did not include information on 2010 vintage and 2012 vintage contracts, so the following analysis includes open interest in 2009 vintage futures contracts only. Information on the ownership of actual allowances comes from COATS.

Figure 6 summarizes net changes in ownership as of the first week of each month from November 2008, which was the first full month when COATS was in service, to January 2010.[21] The figure does not include purchases and sales of allowances for the second compliance period. The information on ownership is aggregated across firms by category. Futures open interest is shown separately for Commercial firms and Non-Commercial firms, where a Commercial firm is one that is "engaged in business activities hedged by the use of the futures or option markets."[22] Net purchases and sales of allowances are shown separately for compliance entities and non-compliance entities. In many cases, Compliance entities are likely designated as Commercial firms and non-compliance entities are designated as Non-Commercial firms, but there are some non-compliance entities that are designated as Commercial.

The figure shows that the positions of firms trading futures steadily increased throughout the period until January 2010. The total open interest of Commercial and Non-Commercial firms rose to 25 million allowances in the first week of December 2009 before falling to 11 million allowances in January 2010 after the delivery of futures contracts for December 2009 delivery. In the first week of January 2010, the delivery of the futures contracts was responsible for a large share of the increase in net purchases and net sales shown in the figure.

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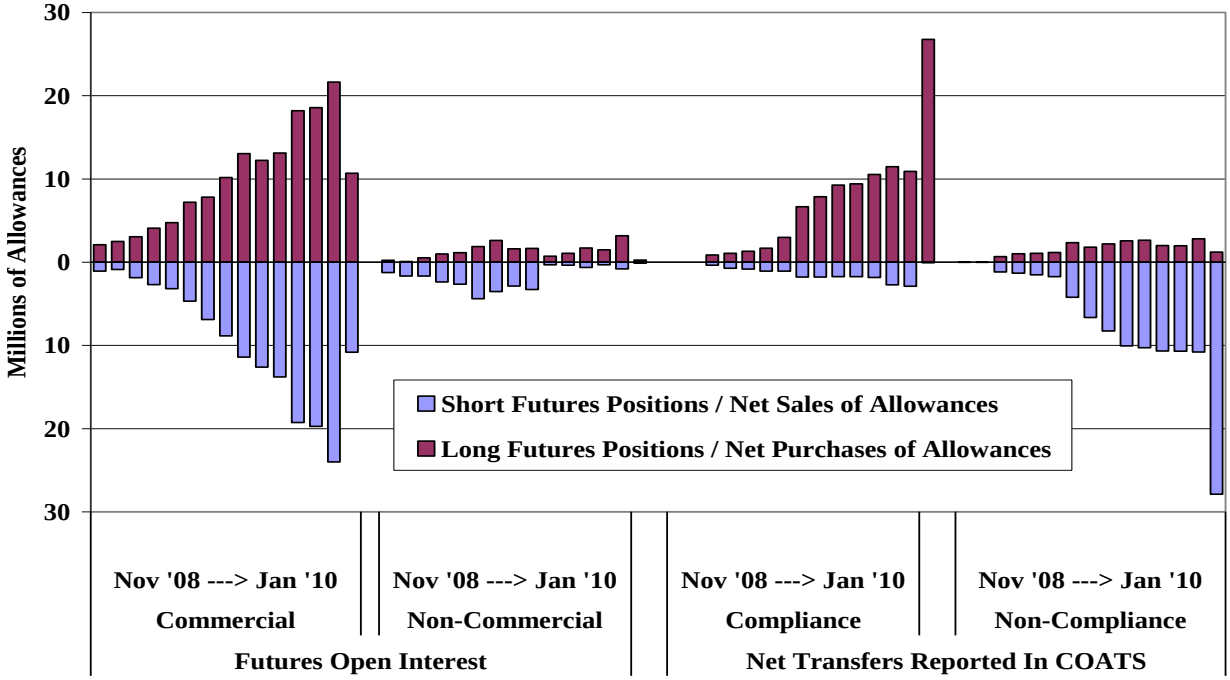
[20] Each day, firms with an open interest of 25 contracts (1 contract is for 1,000 allowances) or more are required to report their positions to the CFTC. Each Tuesday, the CFTC publishes a summary of the long and short positions of firms in the market known as the Commitment of Traders report.

[21] The futures open interest is based on futures positions at the end of the first Tuesday of each month, while the net purchases and sales are based on registered holdings in COATS at the end of the third business day of each month, which is after delivery was made on contracts from the previous month.

[22] See CFTC Regulation 1.3(z) and CFTC Form 40.

Figure 6: Futures Open Interest and Net Transfers of Allowances
November 2008 to January 2010



Commercial firms accounted for a large majority of the long and short positions during period. In December 2009, Commercial firms held 87 percent of the long positions and 97 percent of the short positions. After the delivery of December 2009 contracts, 98 percent of long positions and 99 percent of short positions were held by Commercial firms.

The total net change in ownership of allowances from the secondary market gradually increased during most of the period to 14 million at the beginning of December 2009 and then jumped to 28 million in the first week of January 2010. This is because most of the changes in ownership occurred as a result of the delivery of CCFE, NYMEX, and OTC contracts with maturity, delivery, or expiration of December 2009.

The figure shows that compliance entities generally used the secondary market to increase their holdings of allowances, while non-compliance entities generally sold allowances in the secondary market that were originally acquired in one of the first six auctions. By the first week of January 2010, compliance entities had acquired 27 million allowances through the secondary market, while non-compliance entities had been net sellers of a similar quantity.

The total net purchase of allowances through January 2010 (28 million) is smaller than the gross volume of transactions between unaffiliated firms (46 million as shown in Figure 5). This is because some firms have both purchased and sold allowances in the secondary market such that the net change in their position is smaller than the total volume of their transactions.

The aggregate open interest in futures contracts and net purchase of allowances provides a sense of the overall change in allowance ownership through the secondary market. As of January 2010, the overall change in allowance ownership totaled 39 million (although this excludes futures positions for vintages after 2009 and it excludes transfers of allowances for the second compliance period). The overall change in ownership is substantial, but still much smaller than the 180 million first compliance period allowances that were acquired in the first six auctions and in state allocations. Hence, the auctions are still the principal means by which firms have acquired allowances (assuming that open interest in OTC contracts is modest).

Registered Allowance Holdings

The following figure combines information on the acquisition of allowances from the auctions and state allocations with information on the purchase and sale of allowances in the secondary market. Together, this information provides a summary of the holdings of allowances in COATS accounts according to whether the allowances were acquired through the primary market or the secondary market. The figure reports the following categories of allowances:

- *Awards and Allocations – Retained in Receiving COATS Account* – These allowances are held in the COATS account of the firm that purchased them in an auction or acquired them through a state allocation.
- *Awards and Allocations – Sold in Secondary Market* – These allowances were purchased in an auction or acquired through a state allocation and then sold in the secondary market.
- *Net Purchases in Secondary Market* – These allowances are held in the COATS account of a firm that purchased them in the secondary market.

For each firm, its holdings of allowances in COATS are equal to the sum of its *Awards and Allocations – Retained in Receiving COATS Account* and its *Net Purchases in Secondary Market*.

The following two examples illustrate how the categories of allowances are calculated:

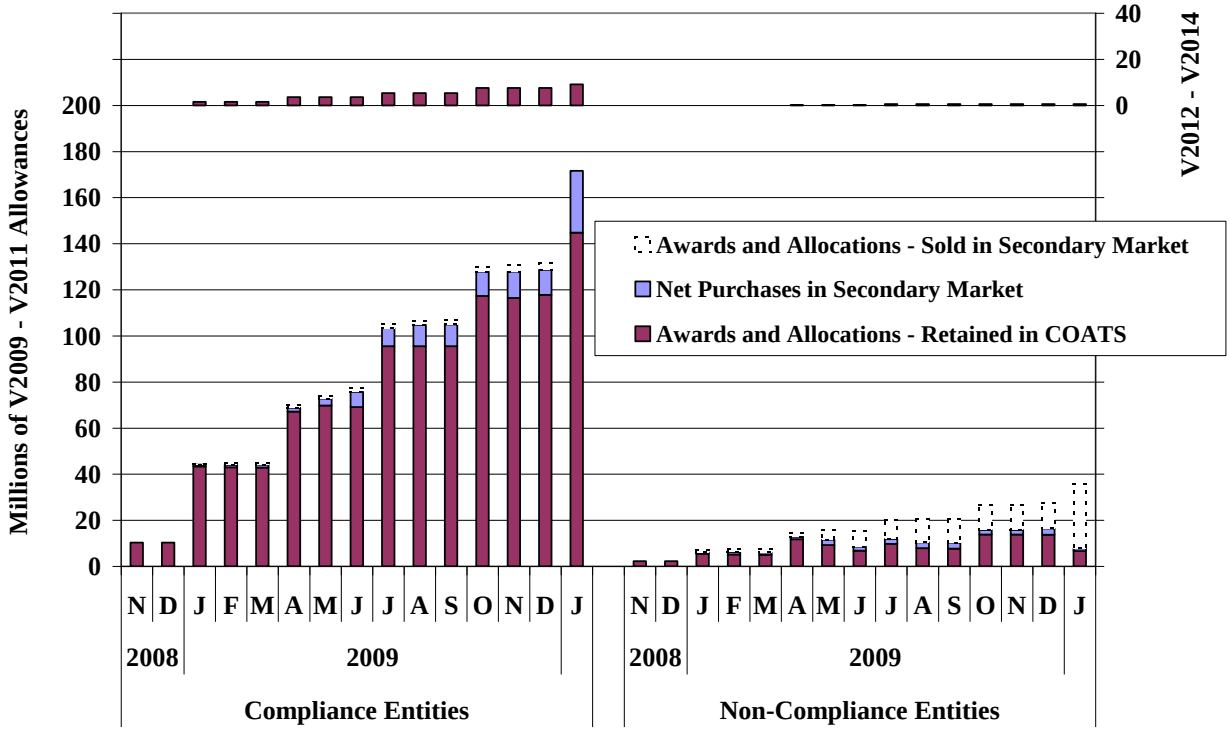
- If a firm purchased 50,000 allowances in an auction, purchased 100,000 allowances in the secondary market, and then sold 70,000 allowances in the secondary market, the firm would contribute:
  - 50,000 allowances to *Awards and Allocation – Retained in Receiving COATS Account*, and
  - 30,000 allowances to *Net Purchases in Secondary Market*.[23]
- Alternatively, if a firm purchased 50,000 allowances in an auction, purchased 100,000 allowances in the secondary market, and then sold 140,000 allowances in the secondary market, the firm would contribute:
  - 10,000 allowances to *Awards and Allocations – Retained in Receiving COATS Account*, and
  - 40,000 allowances to *Awards and Allocations – Sold in Secondary Market*.

Figure 7 shows the three categories of allowances as of the first week of each month from November 2008 to January 2010. The information is aggregated separately for compliance entities and non-compliance entities. The bottom portion of the figure shows allowances with vintages in the first compliance period against the left vertical axis, while the top portion of the figure shows allowances for the second compliance period against the right vertical axis.

The figure shows that throughout the period, the majority of allowances have been held by compliance entities that acquired most of their allowances through the auctions and/or state allocations. As of the first week of January 2010, 172 million allowances from the first compliance period were held by compliance entities, and 84 percent of these had been acquired through the auctions and allocations. By this time, compliance entities had been net sellers of less than 0.1 million allowances.

[23] The calculation does not consider the serial numbers of individual allowances. Hence, in the example, it would not matter whether the 70,000 allowances sold had originally been acquired in the auction or in the secondary market.

Figure 7: Sources of Allowances Held in COATS Accounts
November 2008 to January 2010



On the other hand, the figure shows that the majority of allowances acquired by non-compliance entities in the auctions and/or allocations were subsequently sold in the secondary market. As of the first week of January 2010, non-compliance entities had acquired 34 million allowances from the first compliance period in the auctions and/or state allocations, and they had sold 81 percent of these in the secondary market.

The figure shows that the holdings of second compliance period allowances have not changed significantly as a result of trading in the secondary market. Furthermore, virtually all of the second compliance period allowances are held by compliance entities that acquired them in the auctions.

In summary, compliance entities have purchased the vast majority of the allowances in the auctions, and they have generally increased their holdings through purchases in the secondary market. This is consistent with expectations for compliance entities in general, and the next section evaluates the purchases and holdings individual firms.

V. PARTICIPATION IN THE ALLOWANCE MARKET

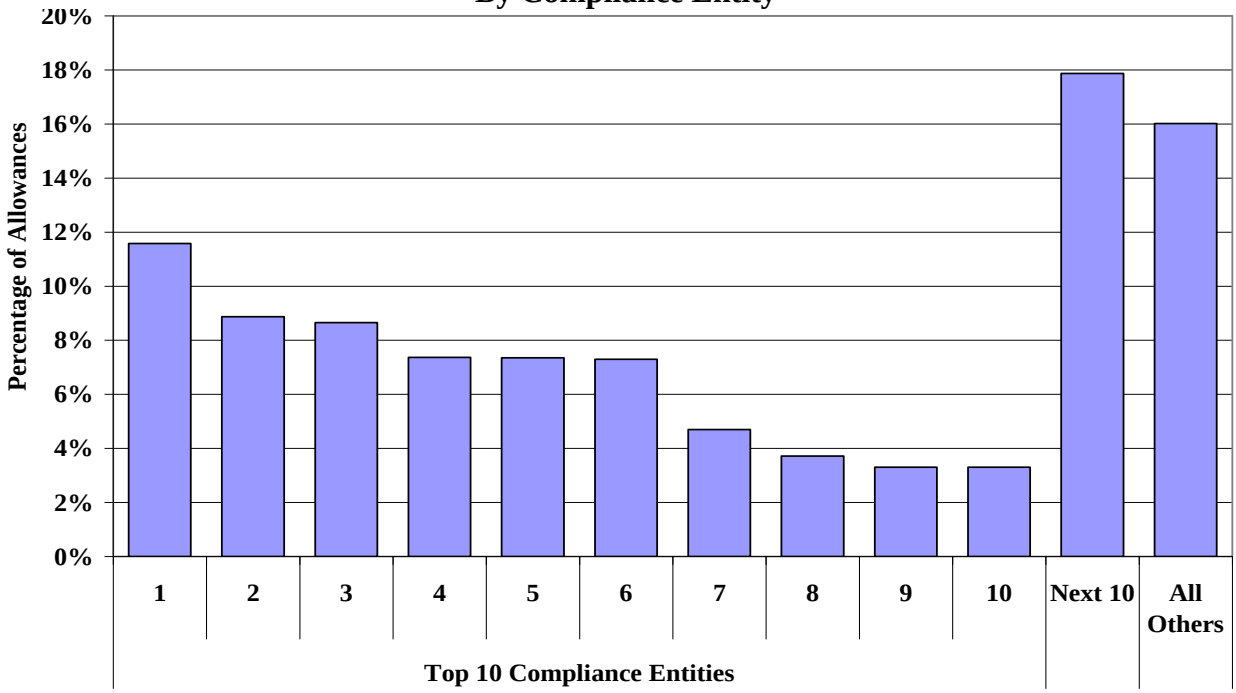
This section evaluates participation by individual firms in the allowance market. Participation by a large number of firms tends to promote competition, which helps ensure that allowance prices are determined efficiently. Over time, firms that need allowances for compliance should be able to acquire them through the auctions and/or the secondary market, and the holdings of individual firms should be relatively consistent with their potential uses for allowances.

The first part of this section examines the demand for RGGI allowances. The second part of the section evaluates the breadth of participation in the auctions. The third part of the section analyzes the acquisitions by individual firms relative to their demand for allowances. The last part of the section summarizes the amount of participation in the trading of allowance futures contracts.

Demand for RGGI Allowances

The following figure summarizes the projected demand for RGGI allowances of individual compliance entities. We project demand of each compliance entity for RGGI allowances based on historical emissions patterns and expected changes in future market conditions. The projected demand is shown for each of the top ten compliance entities (i.e. the ten firms with the highest projected demand), the second ten compliance entities as a group, and all other compliance entities as a group. The projected demand is reported in Figure 8 as a percentage of the total projected market demand.

Figure 8: Estimated Demand for Allowances in the First Compliance Period By Compliance Entity

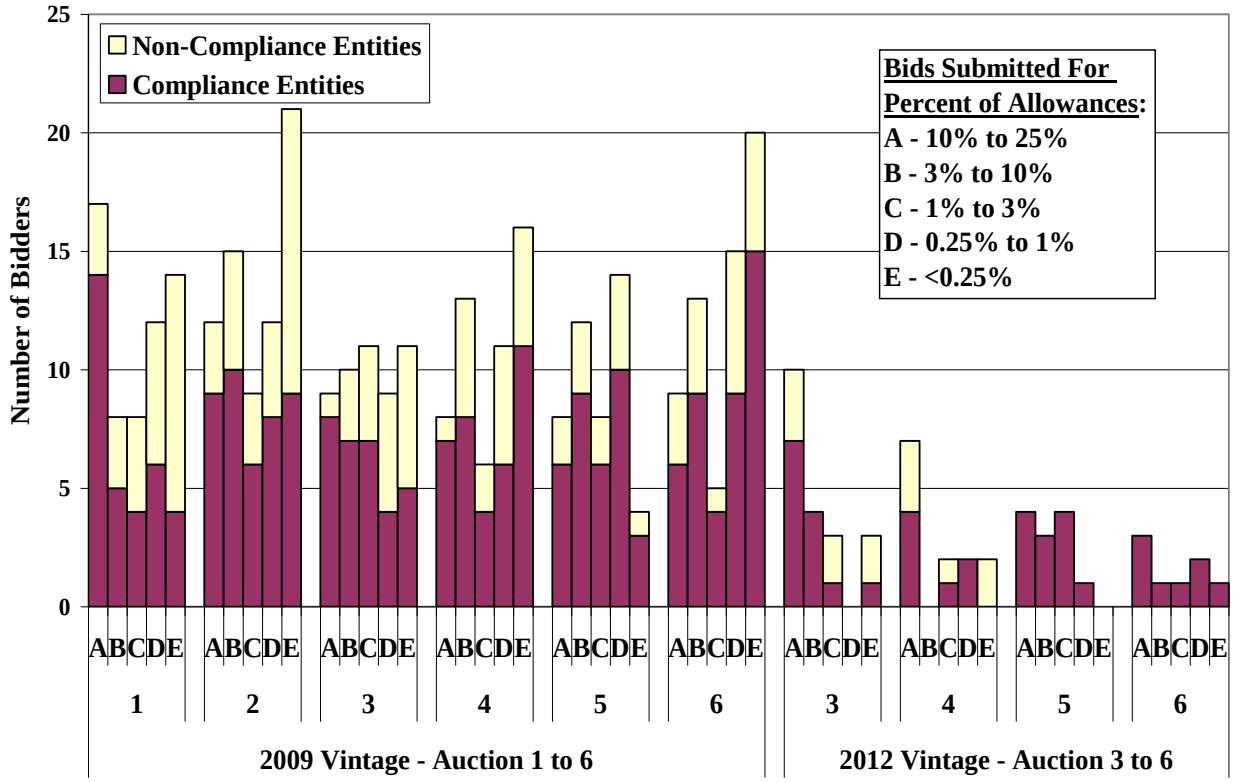


The figure shows that the demand for RGGI allowances is dispersed relatively widely across firms. The largest compliance entity represents less than 12 percent of the total projected demand for allowances. The top ten compliance entities account for 66 percent of the total projected market demand for allowances, while the next ten compliance entities account for 18 percent and all compliance entities that are not among the top 20 firms account for 16 percent.

Participation in RGGI Auctions

The following figure summarizes the breadth of participation in the first six auctions. The figure reports the number of firms that submitted bids in each offering of each auction. The number of bidders is shown separately according to whether they were compliance entities or non-compliance entities. The number of bidders is also shown separately according to the quantity of allowances for which they submitted bids. For example, in the 2009 vintage offering of Auction 3 where 31.5 million allowances were sold, a firm that submitted bids for 500,000 allowances would be counted in the "C: 1% to 3%" category (500,000 ÷ 31.5 million).

Figure 9: Number of Bidders According to the Quantity of Bids Submitted
Auctions 1 – 6



Large numbers of compliance entities and non-compliance entities submitted bids in the 2009 vintage offerings of each of the first six auctions. The number of bidders ranged between a high of 69 in Auction 2 and a low of 46 in Auction 5. The number of bidders that were compliance entities ranged between 31 and 43, while the number of bidders that were non-compliance entities ranged between 12 and 27. In each auction, at least eight firms submitted bids for 10 to 25 percent of the available supply of 2009 vintage allowances, and at least one of the firms was always a non-compliance entity.

A small number of 2012 vintage allowances (8.7 million) were offered for sale in the four auctions that occurred in 2009. Substantially fewer firms submitted bids for the 2012 vintage allowances, which cannot be used to satisfy compliance obligations until the second compliance period. The number of bidders decreased from 20 in Auction 3 to eight in Auction 6. More than five non-compliance entities submitted bids in Auctions 3 and 4, while only compliance entities participated in Auctions 5 and 6.

Participation by a large number of firms promotes competition and helps ensure that the auction clearing price reflects the market value of allowances. Hence, the high level of participation in the 2009 vintage offerings is a positive indicator regarding the competitiveness of the first six auctions. Although fewer firms participated in the 2012 vintage offerings, we have found no material evidence of anti-competitive conduct or significant barriers to participation in our reviews of the bids and the qualification process for the 2009 vintage and 2012 vintage offerings of each auction.

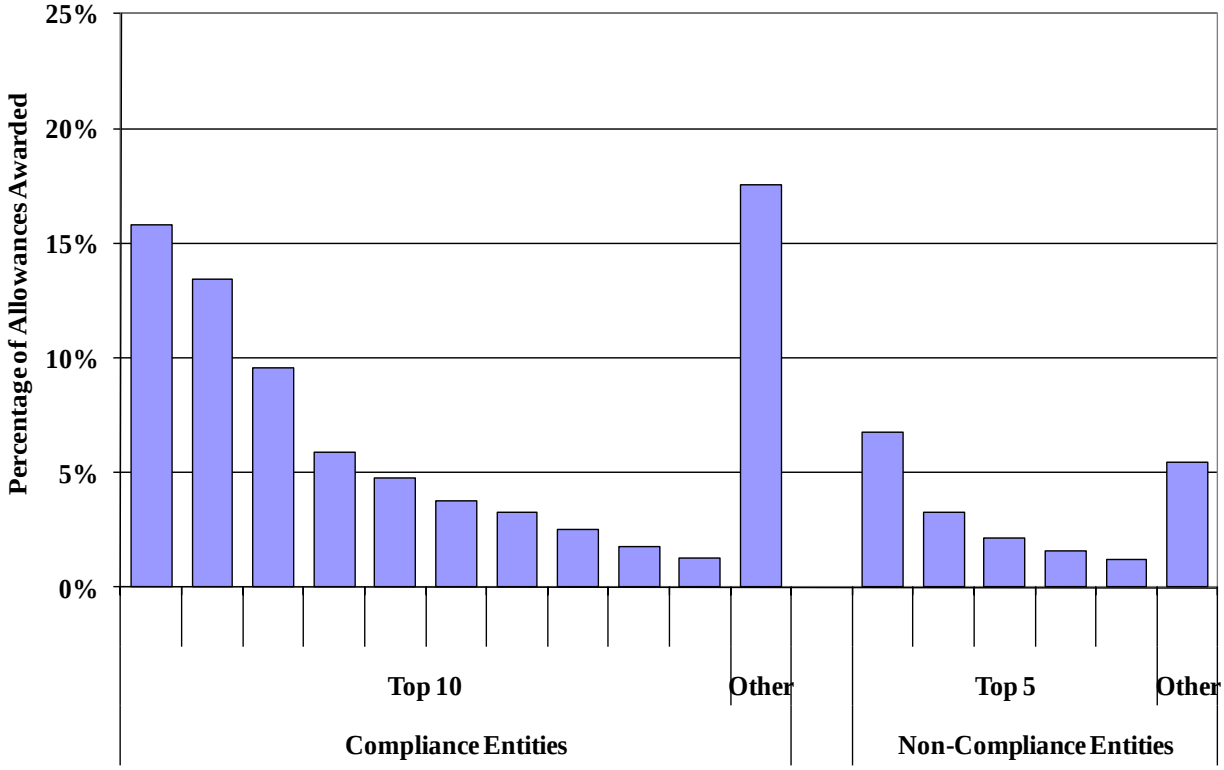
Acquisition of Allowances by Individual Firms

In a well-functioning market, we expect each firm to purchase a number of allowances that is generally consistent with its demand. Individual firms may purchase a larger or smaller share according to how the current price of allowances compares to their expectations of allowance prices in the future. Firms that believe allowances are currently undervalued can be expected to purchase a larger share, while firms that believe allowances are overvalued can be expected to purchase a smaller share. Thus, competition by many firms helps ensure that the current price of allowances in the auctions and in the secondary market reflects reasonable expectations.

The following two figures examine the distribution of allowances across firms following the first full year of the RGGI market's operation. Figure 10 illustrates how broadly allowances were distributed in the first six auctions, while Figure 11 illustrates how the holdings of allowances in COATS accounts were distributed after the close of 2009. The figures show that allowances have generally been acquired by firms in quantities that are consistent with their demand, which is a positive indicator regarding the competitiveness of the market.

Figure 10 reports the quantities of allowances that were awarded to individual firms in the 2009 and 2012 vintage offerings of the first six auctions. The awards are shown for each of the top ten compliance entities (i.e. the ten firms with the highest projected demand), all other compliance entities as a group, each of the top five non-compliance entities based on awards (i.e., the five firms with the largest total awards), and all other non-compliance entities as a group. The top ten compliances entities are ranked in descending order based on total awards rather than demand.

Figure 10: Distribution of Auction Awards
Auctions 1 – 6



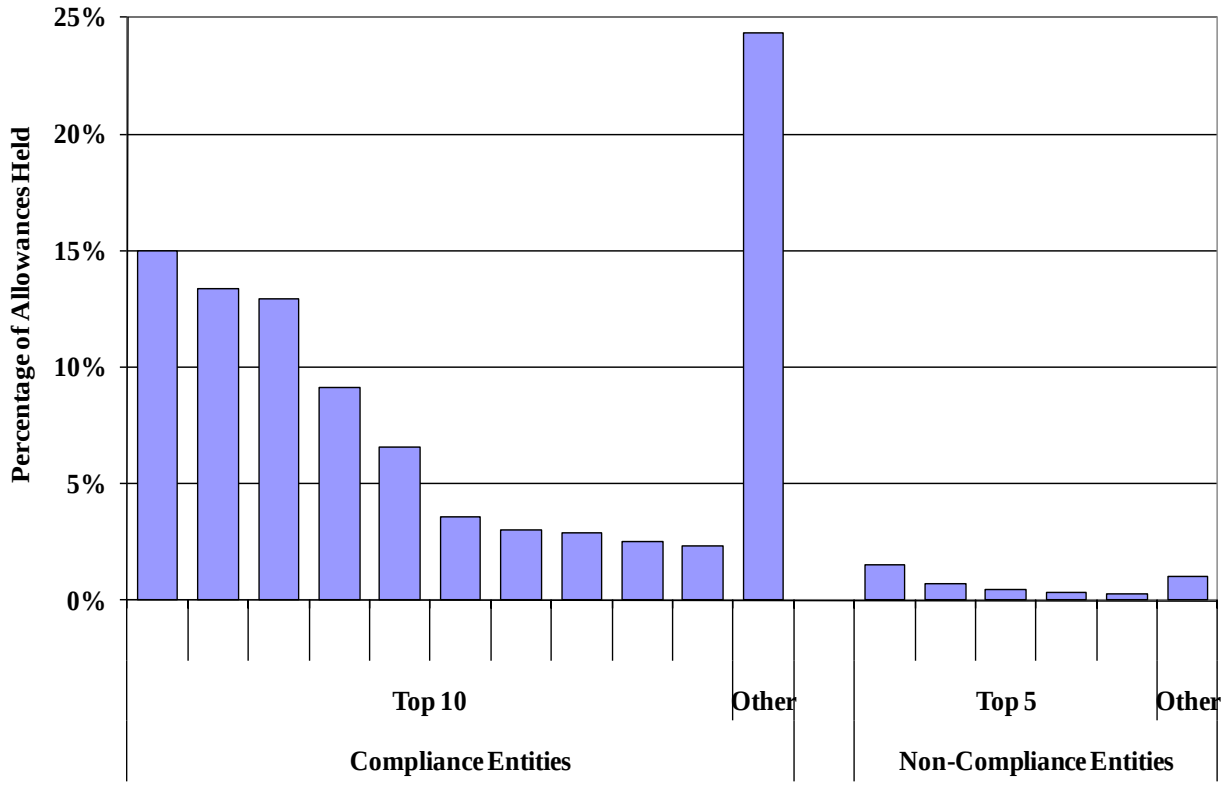
The figure shows that the total awards from the first six auctions were dispersed relatively widely across firms. The largest number of allowances awarded to a single firm went to a compliance entity that purchased nearly 16 percent of the allowances. The top ten compliance entities accounted for 62 percent of the total awards, while the top five non-compliance entities accounted for 15 percent.

In each of the first six auctions, one or more bidders were awarded 25 percent of the allowances offered, suggesting that a single firm could have acquired up to 25 percent of the allowances auctioned thus far. However, Figure 10 implies that the bidders receiving the largest awards were not the same from auction to auction, which is consistent with expectations given that no single compliance entity has a demand that is estimated to be near 25 percent.

Figure 11 reports the quantities of allowances that were held in the COATS accounts of individual firms in the first week of January 2010, following the delivery of the benchmark

contract and other contracts for December 2009 delivery. The holdings are shown for each of the top ten compliance entities, all other compliance entities as a group, each of the top five non-compliance entities based on holdings (i.e., the five firms with the largest holdings registered in COATS), and all other non-compliance entities as a group. The top ten compliances entities are ranked in descending order based on total holdings rather than demand.

Figure 11: Distribution of Allowance Holdings
January 7, 2010



The figure shows that the total holdings of allowances were widely distributed across firms after the first full year of market operation. The largest holdings of allowances were those of three compliance entities that each held 13 to 15 percent of the allowances. The top ten compliance entities accounted for 71 percent of the total holdings, while non-compliance entities collectively accounted for just 4 percent of the total.

Figure 10 and Figure 11 reflect a pattern of trading in the secondary market that is consistent with the results of Figure 7. Non-compliance entities generally purchased allowances in the

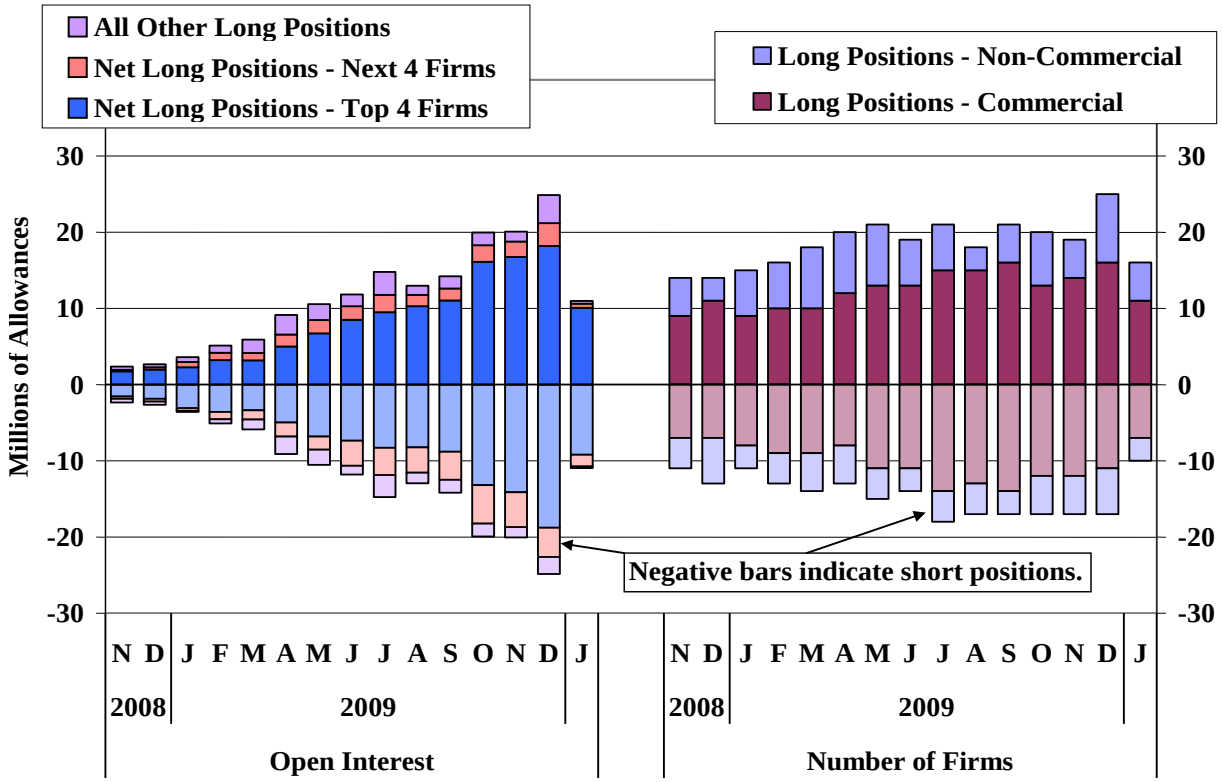
auctions and then subsequently sold most of them in the secondary market. On the other hand, compliance entities generally acquired most of their allowances in the auctions and increased their holdings by purchasing more allowances in the secondary market. As a result, non-compliance entities account for a smaller share of the allowances in Figure 11 than in Figure 10.

Participation in the Allowance Futures Market

The last figure in this section evaluates participation in the market for CCFE futures contracts from November 2008 to January 2010. Information on the open interest in CCFE futures contracts for 2009 vintage allowances is taken from the CFTC's weekly COT report. The COT reports do not yet include information on other vintage years.

The left side of Figure 12 summarizes the concentration of long and short positions in 2009 vintage futures contracts against the left vertical axis. The net long positions are reported for three categories of firms: (i) the four firms with the largest long positions (see "Top 4 Firms"), (ii) the four firms with the largest long positions not including the Top 4 (see "Next 4 Firms"), and (iii) all other long positions. The net long position is defined as a firm's long position minus its short position (assuming its long position is larger than its short position). For example, if a firm has purchased 5,000 contracts for December 2009 delivery and sold 1,000 contracts for December 2010 delivery, it has a net long position of 4,000 contracts. The figure also reports the net short positions for three categories of firms: (i) the four firms with the largest short positions (see "Top 4 Firms"), (ii) the four firms with the largest short positions not including the Top 4 (see "Next 4 Firms"), and (iii) all other short positions. The right side of Figure 12 reports the number of Commercial and Non-Commercial firms with reportable long and short positions against the right vertical axis. The figure reports information based on the open interest reported to the CFTC on the first Tuesday of each month.

Figure 12: Participation in the Futures Market
2009 Vintage Contracts, November 2008 to January 2010



The number of firms taking short and long positions grew gradually through most of the period, peaking in December 2009, and then falling substantially in January 2010. On December 2, 2009, 17 firms held short positions and 25 firms held long positions. After the delivery of December 2009 contracts, 10 firms were left with short positions and 16 firms were left with long positions on January 5, 2010.

A large number of firms have open interest in RGGI allowance futures contracts, although a small number of firms account for a relatively large share of the net long and short positions in 2009 vintage contracts. The net long positions of the top four firms accounted for 54 to 83 percent of the total long positions on the days shown in 2009, while the net short positions of the top four firms accounted for 55 to 86 percent of the total short positions.

Although the COT reports do not provide firm-level information on open interest, they provide an indication of the upper limits of the net long and net short positions in 2009 vintage contracts

of individual firms. At its peak on December 2, 2009, the net long positions of four firms added up to the equivalent of 18 million 2009 vintage allowances, implying that the largest net long position of any single firm was substantially smaller.

Combined with firm-specific information about allowance holdings from COATS, the information on open interest in the COT reports is useful for evaluating the concentration of ownership of RGGI allowances, which is discussed further in Section VI.

VI. DISCUSSION OF MARKET MONITORING

As the RGGI Market Monitor, we evaluate the conduct of market participants in the auctions and in the secondary market to identify potential anti-competitive conduct. In addition, the CFTC evaluates trading in the secondary market consistent with its role as the regulator of futures and option markets in the U.S. We also assess whether the auctions were administered properly by the auction administrator.

Participation in the auctions by a large number of firms promotes competition and helps ensure that the auction clearing price reflects the market value of allowances. Hence, the high level of participation in the 2009 vintage offerings that can be observed in Figure 9 is a positive indicator regarding the competitiveness of the first six auctions. Although interest in the small number of allowances auctioned for the second compliance period has been more limited, we have found no material evidence of anti-competitive conduct or significant barriers to participation in our reviews of the bids and the qualification process for the 2009 vintage and 2012 vintage offerings of each auction. Further, we found that the auctions were conducted in accordance with the noticed rules and bids received.

In our monitoring of the secondary market, we evaluate whether firms could potentially hoard a substantial share of the supply of allowances to influence prices or to prevent a competitor from obtaining allowances. Based on our review of the holdings of individual firms, we find no evidence that hoarding is a significant concern, and that the holdings of individual firms are generally consistent with their expected need for allowances. Moreover, the results of Figure 11 demonstrate the allowances are widely distributed across the COATS accounts of individual firms. Another potential competitive issue is that a firm expecting to purchase allowances in the auction might sell a large number of futures contracts in an effort to push the futures price below the competitive level. Such a firm might profit from buying a large number of allowances in the auction at a discount if the bidding in the auction were influenced by the depressed futures price. The best protection against this strategy is a highly liquid market, because such a strategy would have only a minimal effect on the futures price in liquid market. Hence, it is encouraging that

Figure 12 shows that a large number of firms have been active in trading allowances futures. Nevertheless, the CFTC has access to confidential transaction data, which allows it to monitor for direct evidence of such conduct.