

## MEMORANDUM

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**TO:** RGGI, Inc.  
RGGI Participating States

**FROM:** David Patton  
Pallas LeeVanSchaick

**DATE:** March 20, 2009

**RE:** RGGI Auction 3 on March 18, 2009

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As the Market Monitor for the RGGI CO<sub>2</sub> allowance market, Potomac Economics monitors the conduct of market participants in both the primary auctions and the secondary market to identify indications of market manipulation or collusion. We also review the administration of the auctions by World Energy. This memorandum summarizes our findings regarding RGGI Auction 3, which was held on March 18, 2009.

We observed the auction as it occurred and have completed our review and analysis of its results. Based on our monitoring of participant conduct in the auction, we find no material evidence of collusion or manipulation by bidders. The vast majority of bids were consistent with competitive expectations.

Participation in the vintage 2009 auction was robust with 50 separate entities submitting bids to purchase 2.5 times the available supply of allowances. This liquidity contributed to a clearing price of \$3.51/ton that is consistent with the underlying supply and demand fundamentals governing the CO<sub>2</sub> allowance market. It is also encouraging that compliance entities or their affiliates, which should value the allowances most highly, purchased 78 percent of the allowances in the auction. Although the total quantity of bids submitted declined from the previous auction, the quantity of bids priced above \$3/ton was relatively consistent. The decline of total bids reflects a reduction in the quantity of bids submitted at relatively low-price levels.

For the first time, a small number of allowances were auctioned from a future control period (the 2012 vintage year). Participation in the first auction for vintage 2012 allowances was also substantial with 20 entities submitting bids to purchase 2.3 times the available supply of allowances. Similar to the vintage 2009 auction, compliance entities or their affiliates purchased most of the allowances (93 percent) in the vintage 2012 auction. The first auction for vintage 2012 allowances resulted in a clearing price of \$3.05/ton, which provides useful information to the market regarding the value of allowances in future control periods.

Based on our review of the administration of the market, we found that:

- The auction was administered in a fair and transparent manner in accordance with the noticed auction procedures and limitations.

- The auction results were consistent with the market rules and the bids received.
- Sensitive information was treated appropriately by the auction administrator.
- There were no indications of hardware or software problems, communications issues, security breaches, or other problems with the auction platform.

In summary, the results of our monitoring of RGGI Auction 3 raise no material concerns regarding the auction process or its results. An appendix to this memo provides additional information about the market for RGGI CO<sub>2</sub> allowances and outcomes of the auction.

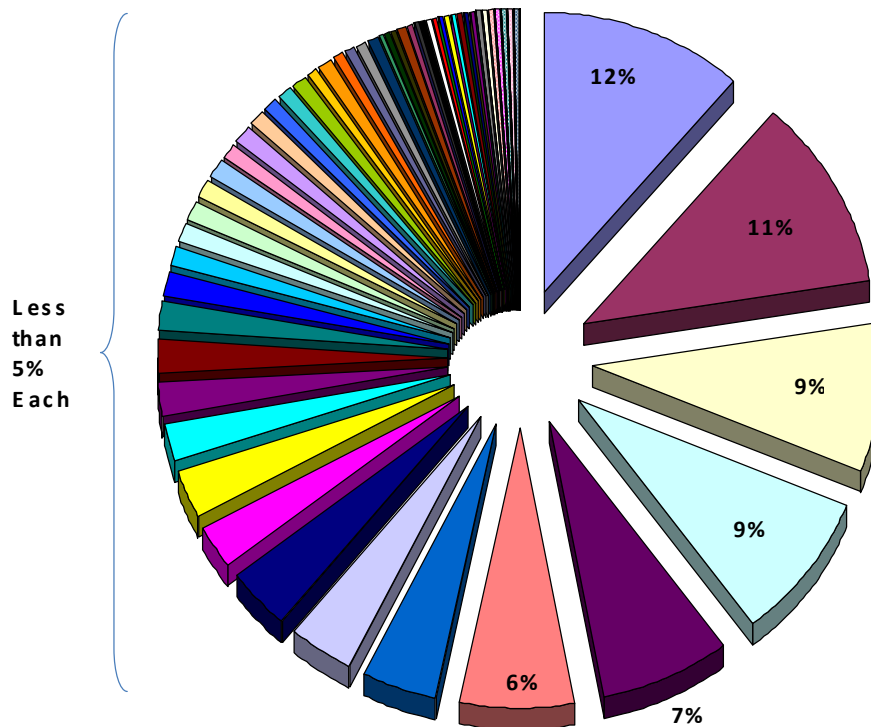
**APPENDIX**

**A. Dispersion of Projected Demand**

*The wide dispersion of projected demand for RGGI allowances across compliance entities facilitates the competitive performance of the auction.*

The following figure shows the relative shares of projected demand for RGGI allowances by compliance entity. The largest compliance entity represents only 12 percent of the total projected demand for allowances. Almost half of the projected demand is composed of entities that each account for less than 5 percent of the total demand. Participation by a large number of entities facilitates the competitive performance of the auction.

**Figure 1: Projected Demand for RGGI Allowances  
Shares by Compliance Entity**



**B. Dispersion of Bids in Auction 3**

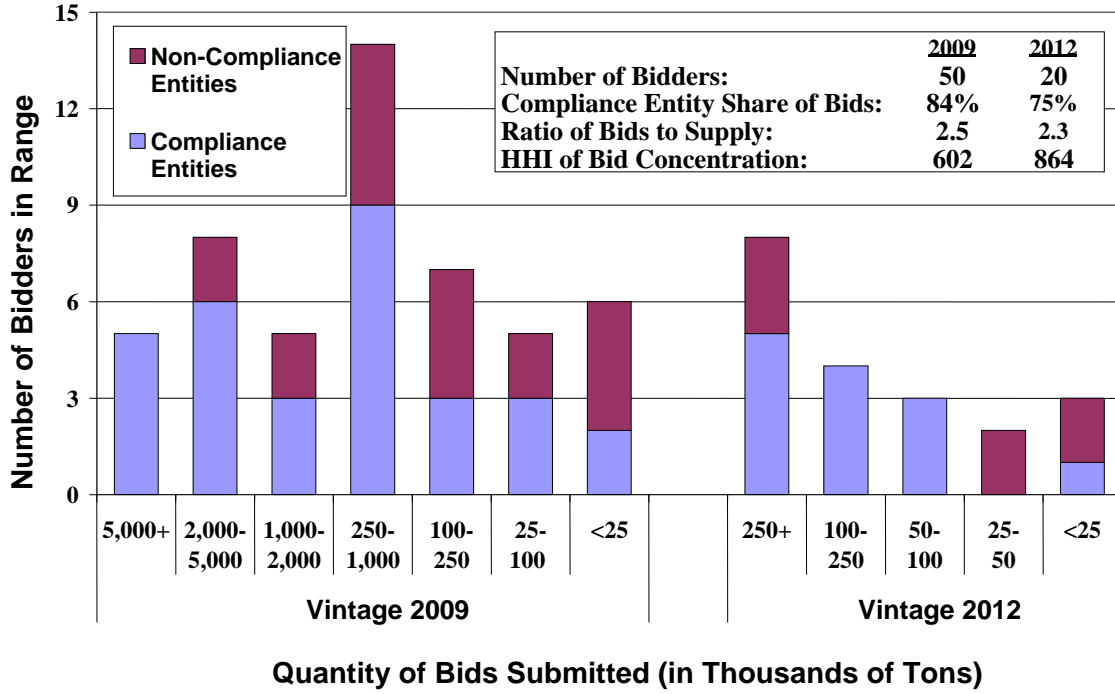
*Large amounts of bids were submitted relative to the available supplies in both auctions, and the bids were widely dispersed across both compliance entities and non-compliance entities. These are both positive indicators regarding the competitiveness of the auction.*

The following figure summarizes the quantities of bids submitted in the two auctions by the 50 bidders. In the auction for vintage 2009 allowances, most of the bidders that submitted a large number of bids (e.g., at least 2 million tons which is 6 percent of the available supply) were compliance entities. Overall, compliance entities accounted for 84 percent of the quantity of bids submitted in the vintage 2009 auction. Although the total quantity of bids submitted declined from the previous auction, the quantity of bids priced above \$3/ton was relatively consistent. The decline of total bids reflects a reduction in the quantity of bids submitted at relatively low-price levels.

In the auction for vintage 2012 allowances, most of the bidders that submitted a large number of bids (e.g., at least 100,000 tons which is 5 percent of the available supply) were compliance entities. Overall, compliance entities accounted for 75 percent of the quantity of bids submitted in the vintage 2012 auction.

In addition to demand exceeding supply by 2.5 to 1, the bid quantities were widely distributed among the 50 bidders in the 2009 vintage auction. The concentration of bids, using the Herfindahl-Hirschman Index (“HHI”), was very low at 602 in the 2009 vintage auction. Fewer entities submitted bids in the 2012 vintage auction, leading the concentration of bids to be somewhat higher, although the HHI of 864 is still relatively low. The HHI is a standard measure of concentration calculated by squaring each entity’s share and then summing the squares across all entities (hence, the index ranges from 0 to 10,000). The low concentration of bids and high ratio of bids to the available supply indicates that the auction was liquid.

**Figure 2: Quantity of Bids Submitted by Entity  
By Type of Entity and Quantity Bid**



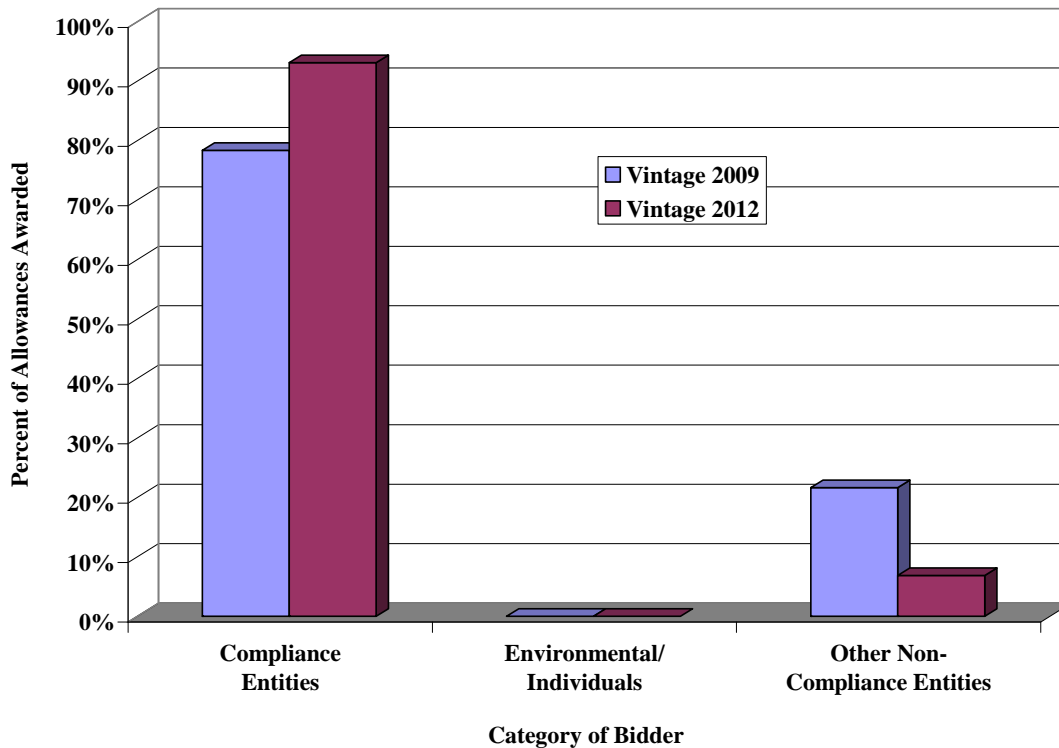
**C. Summary of Purchases of Allowances in Auction 3**

*The purchase of most allowances by compliance entities and their affiliates is encouraging, because compliance entities generally value the allowances most highly. In the auction for 2009 vintage allowances, awards were widely distributed across 42 bidders with four bidders purchasing two million tons or more, nine bidders purchasing one million tons or more, and 18 bidders purchasing 250,000 tons or more. In the auction for 2012 vintage allowances, awards were distributed across 12 bidders with three bidders purchasing approximately 75 percent of the allowances and six additional bidders each purchasing 25,000 tons or more.*

The following figure shows the quantity of allowances purchased in the auction by each of three types of entities:

- *Compliance Entities:* This includes all compliance entities and their affiliates.
- *Environmental/Individuals:* This includes non-compliance entities describing themselves as “Environmental Groups” or “Individual Person” in their qualification application.
- *Other Non-Compliance Entities:* This includes all other non-compliance entities.

**Figure 3: Quantity of Allowances Awarded  
By Type of Entity**



The following table shows the quantity of allowances purchased by each bidder in the auctions. The identity of each bidder is masked, and the bidders are ranked according to the amount of allowances awarded in the auction, from largest to smallest.

**Table 1: Quantity of Allowances Awarded by Bidder**

<b>Bidder</b>	<b>Number of 2009 Allowances Awarded</b>	<b>Bidder</b>	<b>Number of 2012 Allowances Awarded</b>
Bidder 1	7,877,000	Bidder 1	543,000
Bidder 2	4,160,000	Bidder 2	543,000
Bidder 3	3,263,000	Bidder 3	540,000
Bidder 4	2,480,000	Bidder 4	225,000
Bidder 5	1,800,000	Bidder 5	100,000
Bidder 6	1,740,765	Bidder 6	100,000
Bidder 7	1,686,000	Bidder 7	42,513
Bidder 8	1,550,000	Bidder 8	38,000
Bidder 9	1,250,000	Bidder 9	33,000
Bidder 10	672,000	Bidder 10	5,000
Bidder 11	600,000	Bidder 11	4,000
Bidder 12	563,000	Bidder 12	2,000
Bidder 13	450,000		
Bidder 14	449,000		
Bidder 15	442,000		
Bidder 16	300,000		
Bidder 17	300,000		
Bidder 18	250,000		
Bidder 19	247,000		
Bidder 20	225,000		
Bidder 21	200,000		
Bidder 22	190,000		
Bidder 23	150,000		
Bidder 24	125,000		
Bidder 25	100,000		
Bidder 26	100,000		
Bidder 27	75,000		
Bidder 28	70,000		
Bidder 29	50,000		
Bidder 30	34,000		
Bidder 31	25,000		
Bidder 32	20,000		
Bidder 33	17,000		
Bidder 34	13,000		
Bidder 35	12,000		
Bidder 36	6,000		
Bidder 37	5,000		
Bidder 38	5,000		
Bidder 39	5,000		
Bidder 40	5,000		
Bidder 41	1,000		
Bidder 42	1,000		

**D. Summary of Bid Prices in Auction 3**

*The distribution of bid prices submitted in the auction indicates that the demand for allowances was elastic, which is a signal that the results were competitive.*

The following table reports several statistics regarding the bid prices for bids submitted in Auction 3. The median and mean bid prices are weighted by the quantity of each bid.

	<u>2009</u>	<u>2012</u>
<b>Bid Prices:</b>		
<b>Minimum</b>	<b>\$1.86</b>	<b>\$1.86</b>
<b>Maximum</b>	<b>\$10.00</b>	<b>\$4.40</b>
<b>Average (Median)</b>	<b>\$3.33</b>	<b>\$2.80</b>
<b>Average (Mean)</b>	<b>\$3.24</b>	<b>\$2.78</b>
<b>Clearing Prices:</b>	<b>\$3.51</b>	<b>\$3.05</b>



**E. Names of Potential Bidders in Auction 3**

In accordance with Section 2.8 of the Auction Notice for CO<sub>2</sub> Allowance Auction 3 on March 18, 2009, the Participating States are releasing the names of Potential Bidders in Auction 3. The states defined potential bidders as: “Each Applicant that has been qualified and submitted a complete *Intent to Bid.*” The list of 63 Potential Bidders is as follows:

Adirondack Council Inc.	Index Capital Group LLC
Aeolus Fund II Master Fund, Ltd.	J. Aron & Company
AES Eastern Energy, LP	JP Morgan Ventures Energy Corporation
ANP Funding I, LLC	J-Power USA Development Co., Ltd.
Astoria Generating Company, LP	Lake Road Generating Company, L.P.
Barclays Bank PLC	Logan Generating Company, LP
BG Dighton Power, LLC	Louis Dreyfus Energy Services, LP
Boston Generating, LLC	Macquarie Cook Power Inc.
Brick Power Holding, LLC	Massachusetts Bay Transportation Auth.
Brookfield Energy Marketing Inc.	Massachusetts Muni. Wholesale Elec. Co.
Calpine Energy Services, LP	Masspower
CE2 Carbon Capital, LLC	Mercuria Energy Trading
CE2 Environmental Markets, LP	Merrill Lynch Commodities, Inc.
CE2 Environmental Opportunities I, LP	Michael Forlini
Chambers Cogeneration, LP	Milford Power Company, LLC
Connectiv Energy Supply, Inc.	Millennium Power Partners, LP
Conn. Municipal Electric Energy Coop.	Mirant Energy Trading, LLC
Consolidated Edison Energy, Inc.	National Grid Gen. dba National Grid
Constellation Energy Commodities Group	New Athens Generating Company, LLC
C-Quest Capital, LLC	NRG Power Marketing, LLC
Craig Hart	Power Authority of the State of New York
DigiLog Global Environmental Master Fund	PSEG Energy Resources & Trade, LLC
Dominion Energy Marketing, Inc.	Public Service Company of New Hampshire
DTE Carbon LLC	RBC
Dynegy Marketing and Trade	Rochester Gas and Electric Corporation
Element Markets, LLC	Saranac Power Partners
Evolution Markets, Inc.	Selkirk Cogen Partners, LP
FES Fund I LLC	SUEZ Energy Marketing NA, Inc.
FPL Energy Power Marketing, LLC	Tradax Energy, Inc.
H.Q. Energy Services (US) Inc.	TransCanada Power Marketing Ltd.
Hess Corporation (G)	Universal Carbon, LLC
Indeck-Olean Limited Partnership	