



PEAR Emissions Market Meter
Emerging Markets Commentary
Volume EM- '09 v-6
(released Sep. 15, 2009)



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EXECUTIVE SUMMARY

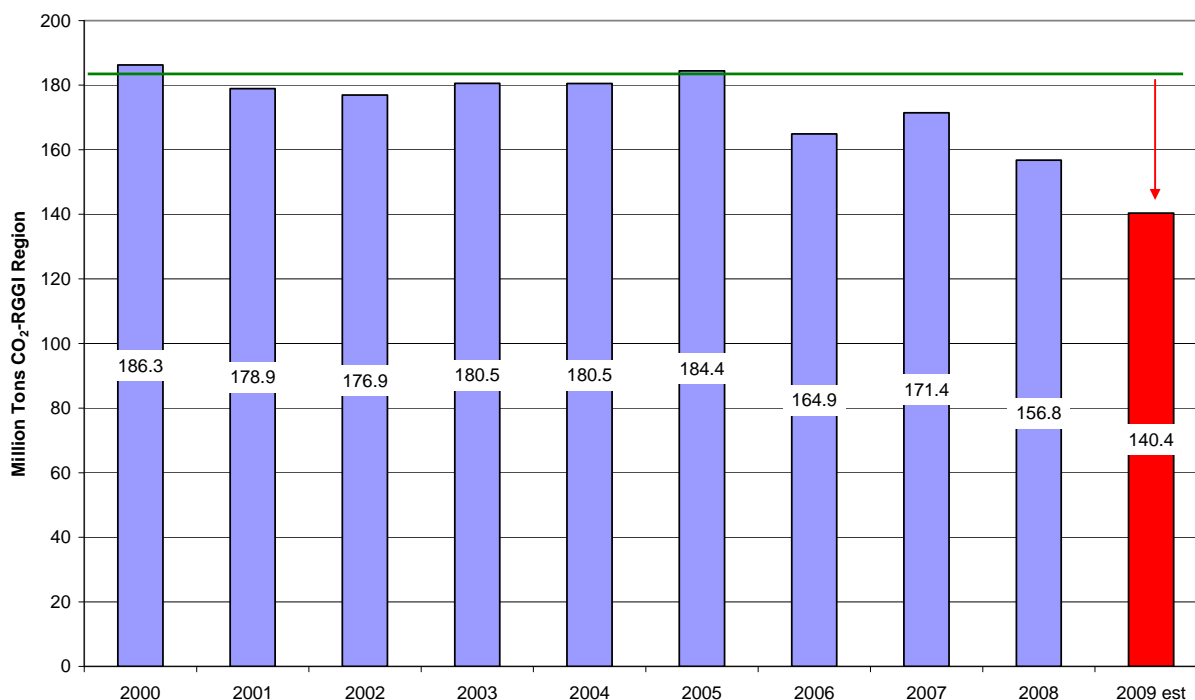
Emerging Markets Commentary- When Auction Meets World: \$2.19 RGGI Allowances

- **RGGI buyers have been haunted for much of the last year by one question:** how long can a market hugely in surplus—even one subject to 100% auction requirements—remain at a significant premium over its minimum reserve price?
 - Last week we got the answer: not much longer. The current vintage offering in the 5th RGGI auction cleared at \$2.19, nearly one-third below the 4th auction clearing price and just 15% above the \$1.86 reserve price.
- Using our best alternative methodology to compile CO₂ emissions for sources in the ten states, **we confirm that emissions have indeed continued to fall in the RGGI region, and fall rapidly--to an expected 140.4 million tons CO₂ in 2009-- but not by as much as has been reported** by those unaware of the missing data problem.
- And most people have the fundamentals wrong: **two of the most commonly cited reasons for the decline in CO₂ emissions are either only partially responsible (recession) or have had no impact (falling natural gas prices,)** at least through the data reported thus far.
- **Whatever logic was holding up the RGGI price, it could not stand for long under such large surpluses.** Over the last six months, we detected a pattern emerging in RGGI market trading: review of secondary market data suggests that prices seem to move appreciably after “heavy volume days.”
- But we **do not expect any eventful return to fundamentals which would threaten the large scale surpluses in the RGGI market going forward.** Even the much-discussed treatment of RGGI allowances under the Waxman-Markey bill seems only to have had little effect on the market. Over time, as surpluses accumulate and auction clearing prices stagnate we expect that any remaining residual planning risk will be diminished.

Emerging Markets Commentary- When Auction Meets World: \$2.19 RGGI Allowances

- For those in the RGGI market there has been only one question: **why are prices trading above the specified minimum auction reserve price¹** when every estimate puts the region so far below the cap?
- Over the past eighteen months, we offered **two theories to explain RGGI prices in excess of the reserve price:**
 - 1) early on, it represented a *transition risk premium*, reflecting the market’s lack of familiarity with 100% auction requirements and concern that speculative buyers might garner large shares and inflate the prices of auctioned allowances, and
 - 2) more recently, we argued it was a *planning risk premium*, i.e., that despite RGGI’s three year compliance period, companies would be averse to covering 2009 emissions with later year allowances, and pay more for the current vintage.

Fig PEMM- EM '09 v.6 EM-1: PEAR Projects RGGI Emissions to Fall -10.5% in 2009 Following -8.5% Drop in 2008, Nearly 40 Million Tons Below Cap



¹ defined by RGGI for all auctions after the first as “the higher of \$1.86 (adjusted for inflation) or 80 percent of the current market price of the allowance vintage being auctioned.”

- As transition risks receded with the near collapse of financial markets last fall (and subsequent marginalizing of financial players in emission markets,) the focus turned to planning risk.
 - Under these conditions, we argued that the fundamentals of a *planning risk premium* would be set by **the incremental cost of the best alternative to a RGGI allowance, which we postulated to be a transmission or wheeling charge** into the RGGI region.
 - Using transmission data for the PJM interfaces, we developed an estimated \$3.35-\$3.50/mWh average cost for transmission, which at an approximation of 1,000 lbs CO₂/mWh translates into \$3.35-\$3.50 per ton CO₂, (where RGGI prices traded for some time.)
- But even perceived *planning risk* for a particular year gets adjusted as the year goes along, and apparently **expectations of the risk in the 2009 allowance acquisition process had softened by the timing of the fifth auction**, held September 9th.
 - The current vintage offering in the 5th RGGI auction cleared at \$2.19, nearly one-third below the 4th auction clearing price and just 15% above the \$1.86 reserve price.

Estimating the RGGI Surplus Going Forward: 2008-2009

- The **RGGI states have added to the uncertainty by their delayed and incomplete release of emissions data**: while the COATS tracking system website has current data reports available, it is hindered on two counts:
 - there is no official RGGI CO₂ emissions total for 2008, (nor any facility or unit-level data that would enable estimates to be made;) and
 - the data released for the first two quarters of 2009 does not include all RGGI-affected units, nor is there any cautionary notice to users of that shortcoming.
- We have developed **an alternative methodology to compile RGGI CO₂ emissions** for sources in the ten states, under which:
 1. we update reported CO₂ emissions directly from continuous emissions monitoring data for Title IV sources reporting to EPA;
 2. we estimate CO₂ emissions using heat input data for non-Title IV CAIR NO_x-affected sources (generally turbines) reporting to EPA, applying assumed CO₂ rates appropriate for their unit; and finally
 3. for sources which are neither Title IV nor NO_x program affected (generally industrial plants with “behind-the-meter” generation) we use an average of their reported emissions for recent periods.
- Based on our methodology, **we confirm that emissions have indeed continued to fall in the RGGI region, and fall rapidly, but not by as much as has been generally reported** in the trade press. It appears that some commentators are unaware of the missing data problem.

Fig PEMM OS-09 v.6 EM-4: Imports of Power into RGGI Region Fall After Steady Growth in Share of Total Retail Sales, Down -6.8% June 2009 YTD

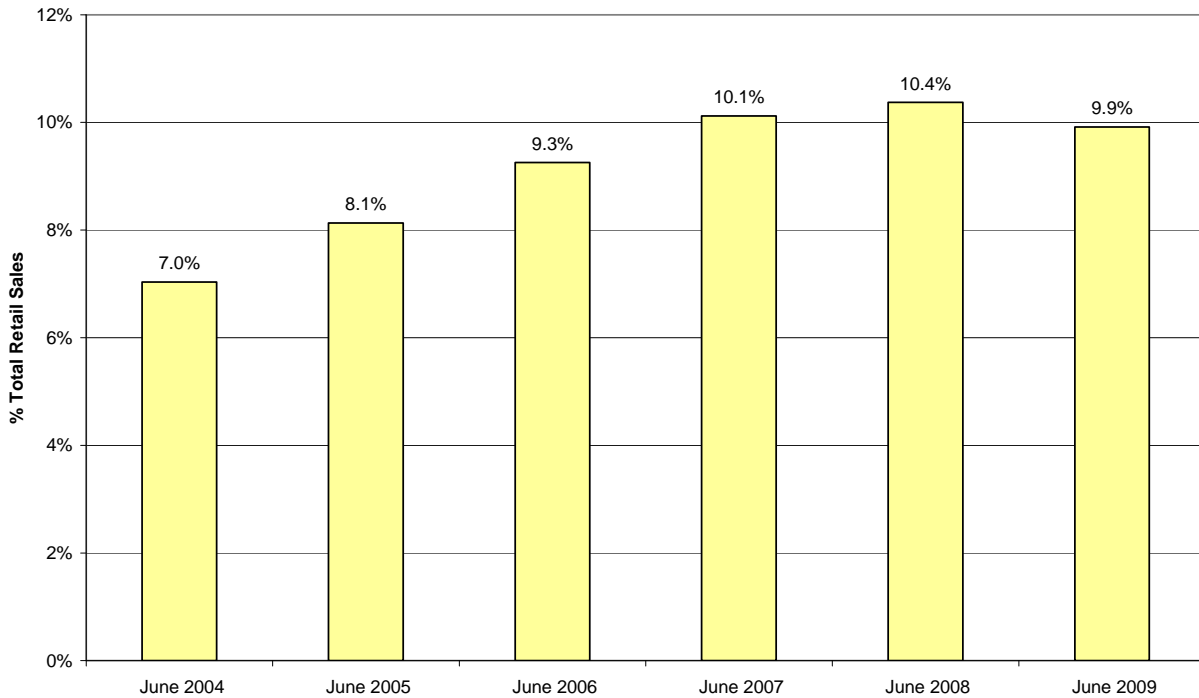
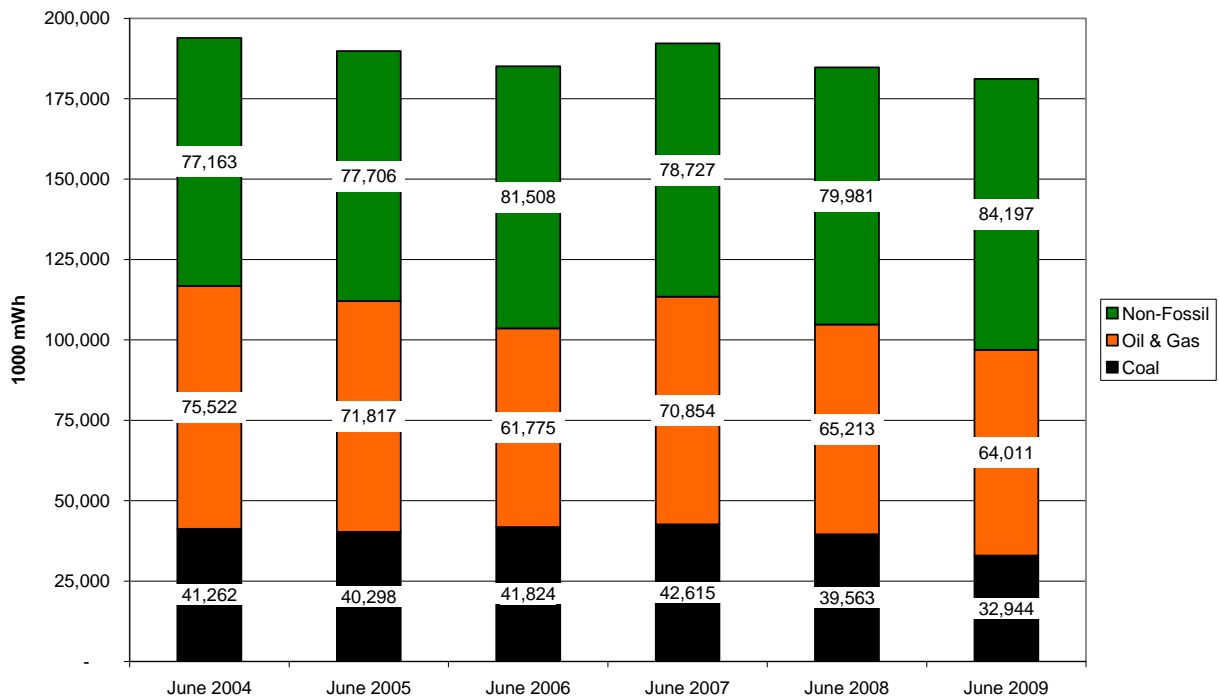


Fig PEMM OS-09 v.6 EM-5: RGGI CO₂ Tons Drop Due to Sharp Fall in Coal Output (Down -17%) With Non-Fossil Up 5% While Generation Falls -1.9% YTD 2009



- On this basis, we are pegging the 2008 CO₂ emissions total at 156.8 million tons for 2008, down -8.5% from the official 171.4 million 2007 figure; and we get 62.3 million tons in the first half of 2009;
 - If we assume on a first-pass basis that first half emissions represent approximately the same share of total year emissions in 2009 that they did in 2008 (at 44.4%), then **we would extrapolate to 140.4 million tons for entire year 2009, fully 40 million tons below the cap**, (see **red bar** in *Fig. PEMM '09-EM v.6-1.*)
 - In the next section, we will look at the viability of this simplifying constant share assumption, to see if the underlying sources of change in RGGI generation could support such an extrapolation.

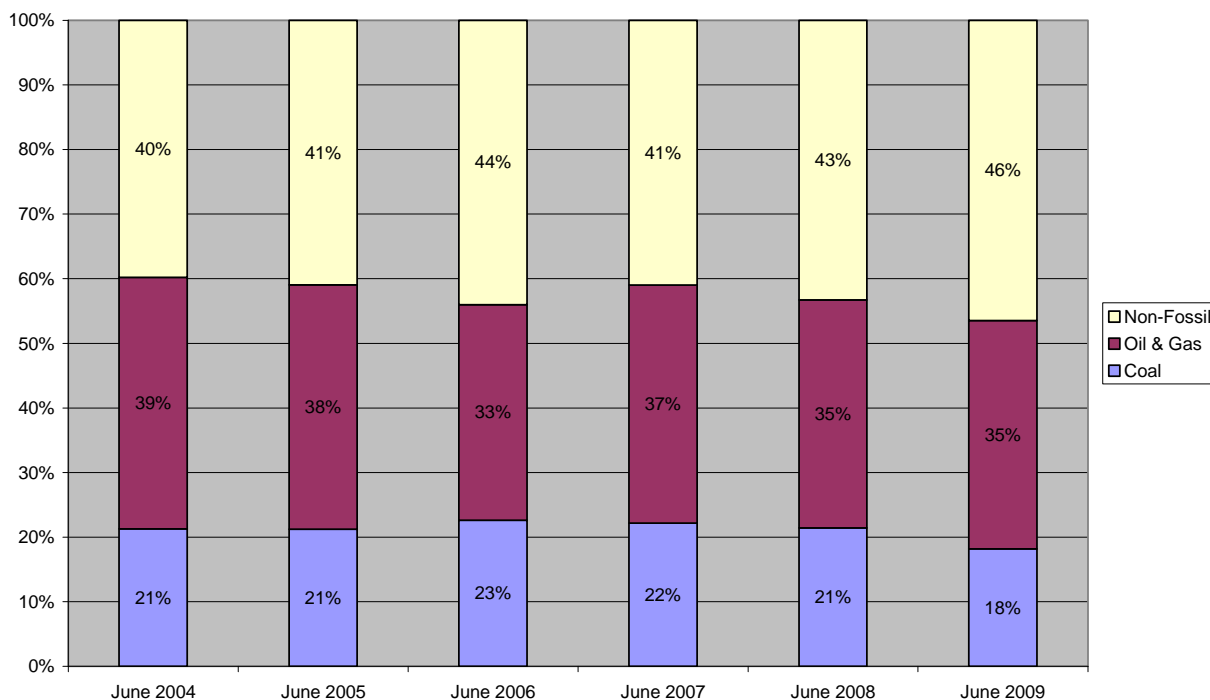
- But first, we must consider RGGI allowance trading over the past year since the auction cycle began to see if we can detect the impact of the two types of risk identified in pricing. **Clearly, if planning risk (or some other logic) was holding up the RGGI price, it could not stand for long under surpluses we estimated at 22% of the total annual budget.**
 - It is also important to note that anyone unaware of the missing data problem on the RGGI website would have mistakenly only magnified the estimated budget,
 - e.g., a recent Air Daily estimate put the potential RGGI 2009 surplus at over 70 million tons.

- In addition to highly competitive auctions, both the RGGI secondary market and futures markets have been actively traded, and prices have been in steady decline since March, under the expectations induced by:
 - three auctions clearing at successively lower prices, and
 - repeated estimates of larger and larger surpluses, partly influenced by recession economics and lower gas prices.

- **As these recessionary expectations played out, we began to detect a pattern in emerging RGGI market trading:** intriguingly, review of the daily COAT's secondary market transactions data suggests that prices seem to move appreciably after “heavy volume days.” On these occasions, RGGI allowances:
 - 1) trade repeatedly throughout the day,
 - 2) usually across a wide range of volumes, and
 - 3) with significant intra-day variability in the price of the reported trades.

- **We identified four such “heavy trading volume” days since March.** In *Fig. PEMM '09-EM v.6-2* they are annotated with a vertical blue line connecting trades in the same day, with a **yellow triangle** at the daily maximum and a **red triangle** at the daily minimum.
 - We noted the following pattern: after the high volume days, the next reported trades occurred at or near the daily maximum, and thereafter declined in a steady fashion.
 - It is possible that on these days, the market could be said to be “testing” the near term demand for RGGI allowances at a wide range of volumes, and then responded as demand “tapered off” with steadily lower price bids. We will be watching for more such occurrences, even as prices re-adjust post-auction.

Fig PEMM OS-09 v.6 EM-6: RGGI Coal Generation Share Down to Historic Low, With Gas Unchanged While Non-Fossil Generation Share Rises to 46%



Lower CO₂ Tons, Certainly; But Why?

- More critically, our analysis suggests that **the conventional wisdom regarding on the role of these recessionary expectations in the decline in RGGI emissions was incorrect**, at least through the data reported thus far.
- Slower economic growth in the Northeast did indeed contribute to a -2.4% decline in retail sales through June, from 206 million to 201 million mWh, see *Fig. PEMM '09-EM v.6-3*. But **lower retail electricity sales in RGGI translated to lower electricity imports into the region**, (*Fig. PEMM '09-EM v.6-4*) moderating the drop in internal generation in the ten states, which actually fell -1.9% compared to last year, see *Fig. PEMM '09-EM v.6-5*.
 - Remarkably, through April, RGGI generation actually increased 1% year to date; so while recession was a factor in lower emissions, through April RGGI generation was unaffected; year-to-date it is moderated through lower import demand.
- **Nor does gas competition tell the story:** while coal generation fell dramatically (-16.7%) in the RGGI region year-to-date, natural gas generation fell as well, (down -2.5% through June.)
 - Non-fossil generation was up 5.3% – primarily through improved nuclear availability—and it displaced coal.
- From a generation mix perspective, **non-fossil generation rises to a six year high through June at 46%, while coal falls to a six year low at 18%**, and gas remains unchanged from last year, see *Fig. PEMM '09-EM v.6-6*.

PEMM '09 v.6-7: Top Four RGGI States Detailed Summary Coal Utilization Status

Reported Heat Input

State	Plant	Million mmBtu					
		2007	2008	%CH	2008 Q1Q2	2009 Q1Q2	%CH
CT	AES Thames	15	12	(-19%)	8	7	(-6%)
CT	Bridgeport Harbor Station	27	31	15%	14	6	(-61%)
DE	NRG Indian River	41	40	(-1%)	21	10	(-52%)
NJ	BL England	17	11	(-36%)	5	2	(-66%)
NJ	Chambers Cogen LP	24	24	1%	12	8	(-34%)
NJ	Deepwater	5	3	(-41%)	2	0	(-76%)
NJ	Hudson	26	26	(-1%)	10	8	(-21%)
NJ	Logan	15	17	14%	9	6	(-31%)
NJ	Mercer	32	24	(-24%)	15	5	(-67%)
NY	AES Cayuga	23	22	(-5%)	11	9	(-25%)
NY	AES Greenidge	8	7	(-8%)	3	2	(-38%)
NY	AES Somerset	52	50	(-4%)	23	22	(-5%)
NY	AES Westover	6	5	(-24%)	1	-	(-100%)
NY	Black River	6	6	10%	3	1	(-72%)
NY	Danskammer	27	27	(-1%)	13	11	(-18%)
NY	Dunkirk	36	38	7%	18	13	(-30%)
NY	Huntley	28	24	(-13%)	14	9	(-35%)
NY	Lovett *	16	4	(-77%)	4	-	(-100%)
NY	Rochester 7 *	14	3	(-80%)	3	-	(-100%)
NY	Trigen Syracuse	6	6	(-1%)	3	1	(-66%)
	Grand	438	396	(-10%)	197	125	(-36%)
CT		42	43	3%	22	13	(-42%)
DE		41	40	(-1%)	21	10	(-52%)
NJ		119	105	(-11%)	52	28	(-45%)
NY		221	191	(-14%)	96	67	(-30%)

Notes * Retired

- From a unit-specific perspective, the throttling back of coal-fired generation appears to be across the board: **in the four states with the largest reductions in coal, virtually every coal unit indicates a reduction in heat input year to date** through June, see *Fig. PEMM '09-EM v.6-7*.

Conclusion: No Surprises

- But we **do not expect any eventful return to fundamentals which would threaten the large scale surpluses in the RGGI market** going forward. A reversion to more typical coal generating mix share would be associated with a swing of 5-7 million tons of CO₂, barely a dent in a 40 million ton margin, (which would tend to reinforce our simplifying constant share assumption for 2009).

- Even the **much-discussed treatment of RGGI allowances under the Waxman-Markey bill seems to have had little effect** on the market. Over time, as surpluses accumulate and auction clearing prices stagnate we expect that any remaining residual planning risk will be diminished.