Opportunities in the Emerging Carbon Trading Markets

Seth Baruch

QualityTons
Overall Theme

• If you are reducing methane emissions in the United States, you may be able to monetize those reductions, selling credits to various buyers in the US.

• Why? Various voluntary and mandatory programs to reduce GHG emissions are now emerging.
Overall Carbon Market

1. Voluntary and Retail Market
2. Kyoto Market

- The value of the global aggregated carbon markets was $10 billion in 2005.
- Some predict this new financial market will be worth $25-30 billion in 2006.
Voluntary Carbon Market

Table 2: Volumes Exchanged and Number of Transactions per Market Segment

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Project-Based Transactions</th>
<th>Compliance</th>
<th>Voluntary</th>
<th>Retail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>17,976,538</td>
<td>0</td>
<td>17,907,448</td>
<td>69,090</td>
</tr>
<tr>
<td>1999</td>
<td>35,423,491</td>
<td>0</td>
<td>35,265,724</td>
<td>157,767</td>
</tr>
<tr>
<td>2000</td>
<td>17,094,425</td>
<td>387,933</td>
<td>16,507,407</td>
<td>199,085</td>
</tr>
<tr>
<td>2001</td>
<td>13,004,103</td>
<td>4,724,591</td>
<td>8,161,652</td>
<td>117,860</td>
</tr>
<tr>
<td>2002</td>
<td>28,776,967</td>
<td>14,676,748</td>
<td>13,893,209</td>
<td>207,010</td>
</tr>
<tr>
<td>2003</td>
<td>77,641,815</td>
<td>70,429,780</td>
<td>6,773,367</td>
<td>438,669</td>
</tr>
<tr>
<td>2004</td>
<td>107,010,089</td>
<td>104,600,758</td>
<td>2,299,050</td>
<td>110,281</td>
</tr>
<tr>
<td>2005 (Jan.-April)</td>
<td>42,863,095</td>
<td>39,823,182</td>
<td>2,995,000</td>
<td>44,913</td>
</tr>
<tr>
<td>Total</td>
<td>339,790,524</td>
<td>234,642,992</td>
<td>103,802,856</td>
<td>1,344,675</td>
</tr>
</tbody>
</table>

Note: All volumes are for vintages up to 2012 only. Data for retail incomplete.

Notice growth from ’04 to ’05
Two types of transactions

- Allowance-based transactions (cap and trade)
- Project-based (offsets)

Offsets: You reduce a ton of CO2-eq. in your facility, someone else can buy it to meet their own GHG requirement.
Voluntary Markets

- According to the World Bank's, 6.05 million tons of voluntary offsets were traded in 2005, worth approximately $43 million.

- Volume was 200% higher than in 2004, the value increased 700%.

- Criteria for additionality, vintages, acceptability of old vintages, prices and contract terms vary significantly.

- **Not a standardized commodity**

- Prices can range from $1.50 to $4.50 per ton
Motivations

• Many US companies doing voluntary efforts to reduce GHG emissions are turning to emissions trading to reduce their overall GHG emissions profile.

• Tradable units are Verified Emission Reductions (VERs) and have been trading since 1999.

• Internal corporate GHG commitments
• Desires to be “carbon neutral”
• Possible early-action compliance under future regulatory regimes in the US.
• Speculators looking to get cheap tons that might be sold as offsets under a reg. regime
Chicago Climate Exchange

- North America’s only voluntary, legally binding GHG reduction system.
- How it Works: voluntary, but if you join, must reduce 1% per year from baseline
- Members can trade allowances
- Offsets Eligibility – if you’re a large direct emitter, you need to join.
- Methane reductions from O&G sector would have to be brought to the Offsets Committee
## CCX Prices

<table>
<thead>
<tr>
<th>Vintage</th>
<th>Price</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>$4.20</td>
<td>0.10</td>
</tr>
<tr>
<td>2004</td>
<td>$4.15</td>
<td>0.15</td>
</tr>
<tr>
<td>2005</td>
<td>$4.25</td>
<td>0.15</td>
</tr>
<tr>
<td>2006</td>
<td>$4.15</td>
<td>0.10</td>
</tr>
<tr>
<td>2007</td>
<td>$4.15</td>
<td>0.05</td>
</tr>
<tr>
<td>2008</td>
<td>$4.15</td>
<td>0.10</td>
</tr>
<tr>
<td>2009</td>
<td>$4.10</td>
<td>0.10</td>
</tr>
<tr>
<td>2010</td>
<td>$4.10</td>
<td>0.10</td>
</tr>
</tbody>
</table>
## CCX Offset Locations

**Offsets and Early Action Credits Issued as of September 7, 2006**  
(Metric tons of CO2)

<table>
<thead>
<tr>
<th>Vintage</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offsets Issued</td>
<td>483,600</td>
<td>485,700</td>
<td>466,800</td>
<td>62,100</td>
</tr>
<tr>
<td>Early Action Credits</td>
<td>-</td>
<td>114,200</td>
<td>17,200</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>483,600</td>
<td>599,900</td>
<td>484,000</td>
<td>62,100</td>
</tr>
</tbody>
</table>
Emerging Regulatory Programs

**RGGI in the Northeast**

- CO2 allowances
- Starts in 2009
- Eligible offsets include energy efficiency -- reduction in gas usage in buildings (comm & res)
- Offsets can be anywhere as long as reg. agency in both states agree on offset standards
- There is the potential to expand offsets eligibility
Other States

• California just approved cap and trade system; offsets eligibility not yet spelled out
• Other states exploring about GHG reduction programs:
  -- North Carolina
  -- New Mexico
  -- Oregon
  -- Arizona
  -- Colorado
How Can Credits Be Sold

• Baseline determination (example of AM0023)
• Monitoring protocol
• Annual Verification – 3rd Party
• Entering into a Contract
• **Credibility: Vintage and “Additionality” – something beyond what is going on anyway. This is important.
Considerations

• Price
• Number of years to sell
• Credibility of offsets
• Contract risks – non-delivery?
• Could offsets be even more valuable when regulatory regimes are established?
• Some people buy at $2.50 and sell at $5.50 – is there a middle-man?
Example of One Buyer

- What is buyer looking for?
- 100,000 TCO2eq/year minimum
- Link to CDM Methodologies as way to enhance credibility
- Price?
- Can start as of 1/1/2000, but future VERs are better
- No geographic limitations
- Seller must have clear title
Compliance Market

- EUAs worth $8.2 billion traded in 2005 -- 322 million tCO2e. 40x increase over the previous years’ volumes.

- In 2005, 374 million tCO2e CERs were transacted valued at $2.7 billion; average price was $7.23.

- Increase of 300% from past year in terms of volume and 500% increase in value.

- 1st Quarter 2006 – average price shot up to $11.45 per tCO2e

- 1st Quarter 2006 – 79 million tons transacted, worth $900 million.
Figure 3: Annual volumes (million tCO₂e) of project-based emission reductions transactions (up to 2012 vintages) and annual average price in US$ per tCO₂e

Source: IETA and World Bank
Implications for Gas Star Partners

You can monetize credits, but …

• It takes commitment
• Need to be precise about baseline and monitoring methodology
• Need to undertake and pay for verification
• Need to understand contracts and who the buyer is
• Need to understand that there is some skepticism in the market, which a seller should want to avoid
• The market is clearly going to grow with regulatory frameworks developing, but many of the criteria are not yet set.
• New projects vs. on-going or already implemented projects
Contact Information

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