Perspectives on the Global GHG Market

what is happening and why?

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Role of the broker

- Market expertise - brokers see a range of different transactions. This expertise helps:
  - suppliers to structure an attractive offers (partial sales, up-to sales, options, right of first refusal, etc..)
  - buyers to structure a realistic bid
  - Assists both buyer and seller to manage risk and uncertainties

- In the greenhouse gas market, we guide the counter-parties through the deal process.
  - Initial contact
  - Broad terms and conditions
  - CDM Process
  - Formal term sheet
  - Transaction execution

- The greenhouse gas market is driven by politics and legislation. Brokers provide a much needed financial perspective in this new market.

Summary of Marketplace Today

- Activity:
  - Transactions driven by legislation and expectation of legislation -- highly focused compliance market right now..
  - EUETS rules and CDM rules developed and implemented.
  - No rules for JI yet although "advice" to use CDM rules as benchmark
  - Buyers and sellers develop frameworks through discussion and negotiation often through brokers and some direct bilateral
  - Beginnings of secondary market for CERs…
  - Volume -- mostly subject to confidentiality.
- Typical Contract structures:
  - Spot, Forward, Options, Direct project investment
- Payment profile:
  - Upfront (rarely) and Upon delivery (sometimes with cost sharing for transaction costs).

Existing and developing market instruments -- Summary

- Verified Emission Reductions
- Certified Emission Reductions (primary market)
- CERs (secondary market)
- EU Allowances
- Speculative – Emission Reduction Units (ERUs)
- Domestic instruments developing:
  - Canada
  - Japan
- US – RGGI units (combination of regional, national and international units)
- California
- Chicago Climate Exchange
- Others – Climate Trust, Retail units, etc..

CERs and ERUs

Certified Emission Reductions (CERs)

- generated from projects in developing countries that go beyond business-as-usual to reduce greenhouse gas emissions and certified by the CDM Executive Board
- issued to the project developer (or nominee) in the form of an entry in his account in the CDM Registry
- may then be transferred to an EU Member State registry for use in the EU ETS

Emission Reduction Units (ERUs)

- generated from 1 January 2008 from projects in Europe, former USSR, Canada, Japan and New Zealand that go beyond business-as-usual to reduce greenhouse gas emissions
- issued to the project developer (or nominee) by the host government in the form of an entry in his account in the national registry
- may then be transferred to an EU Member State registry for use in the EU ETS

Additions to new instruments

- Insurance and/or guarantee products being developed
  - Banks, insurance companies, etc..
- Contract language becoming standard with make good provisions for non-delivery, etc..
- Traders – moving quickly into secondary "commodity market – towards liquidity…
- UN regulators – issuing sub-accounts to corporates where national registries don't exist..
- Frameworks becoming more sophisticated … but still many growing pains…

Canada

- Current – Notice of Intent to Regulate GHGs
- Canada's Project Green
  - Domestic and International Emission Trading System
    - Climate Fund – Government purchases – 75 – 115 MT/yr
    - Large Final Emitters System 36 + 9 MT
      - Technology Fund – 9 MT
    - Price Cap -- $15.00 CAD – still to be fully defined
  - Partnership Fund (Federal/Provincial) – 55 – 85 MT
  - GHG Programs Other – Policies and Measures – 40 MT
  - Carbon Sinks – 30 MT
  - Consumer Actions – 5 MT
  - Auto Industry – 5.3 MT

Canada

- Government plans to have regulations available late 2005
- Emission Trading System
  - Offset system will begin January 1, 2006
    - ~30 Standard Protocols being developed now
    - Offset program to be as "broad as possible"
  - Allowance/Permit Trading – to begin 2008
  - Access to International Markets – to begin April 2006
- Government of Canada will be the largest buyer in the market – domestically and internationally
  - Climate Fund will purchase domestic offsets and international units AAUs, ERUs, CERs...
  - Many issues associated with this.

Canada – Issues

- GOC has guaranteed "Price Cap" to LFEs – not to cost them more than $15.00/tonne – are implications for tax-payers
  - No clear decision on how this will be implemented
  - Industry – not doing much as a result
  - GOC is taking on the risk for anything above $15.00
  - GOC also taking risk because although it has a defined target – 6% below 1990 levels – which translates into ~29% below BAU by end of 2012
    - Have implemented emissions intensity approach for LFEs – to allow for economic growth
    - GOC takes risk that emissions intensity reductions will not be equal to absolute tonnage the GOC needs

Canada – Issues

- Liquidity will be an issue as GOC will be the major purchaser in the market
  - Not sure how this will play out – but will reduce potential for development of secondary market – as GOC a natural Compliance Buyer.

- Many "Unknowns" still to be clarified in Canada

- System is innovative as allows for capped and non-capped sectors to participate as well as average Canadian
  - But may lead to unknown costs in the future

Recap of EU ETS

- Mandatory cap-and-trade scheme, started 1 January 2005
- Instrument: 1 EU Allowance (EUA) = 1 tonne CO_2eq
- Covers about 45% of European CO_2 emissions
- Included sectors:
  - energy activities (about 70% of scheme emissions)
  - production and processing of ferrous metals
  - mineral industry (cement, glass, ceramics)
  - pulp, paper and board production
- CO_2 only
- Consideration for new sectors (Aviation being actively considered) and gases can opt in from 2008
- Fine for non-compliance €40 from 2005; €100 from 2008; and you have to make good the under-compliance too
- Can use CERs and ERUs for compliance, in addition to EUAs

European Allowances (EUAs)

- Defined in Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003
- When surrendered to the regulator, 1 EUA enables an installation included in the scheme to emit 1 tonne of CO2
- EUAs exist as an entry in electronic registries (one per Member State)
- Anyone may open one or more registry account
- EUAs are issued by each Member State to operators of installations included in the scheme, once its national allocation plan is approved by the EC

Trading options

EUAs

- traded over-the-counter, on screen and by voice
- OTC trades are in multiples of 5000
- transactions are currently forward (delivery 1 December); most activity is currently in 2005 delivery, though some trading out to 2009
- OTC spot trading starting to happen
- options market expected to follow the spot market (6 months?)
- Exchanges: futures on IPE/EXC and Nordpool; spot on EEX and Powernext (multiples of 1000) – the one that CO2e transacts on on behalf of

CERs/ERUs

- contracted under long-term purchase agreements
- emerging 'secondary' market traded as if they were EUAs

Trading

EUA Performance

- Market infrastructure, contracts and conventions are all in place Some 150 million EUAs have changed hands to date – this means a market that is daily active, and sometimes very intense
- Exchanges (especially IPE/EXC and Powernext) are well established and have picked up material volumes

CER/ERU Performance

- No material ERU activity (lack of rules and longer time horizon)
- CER activity restricted by resource constrained CDM process, and by high EUA prices (CER sellers are waiting for CER higher prices)

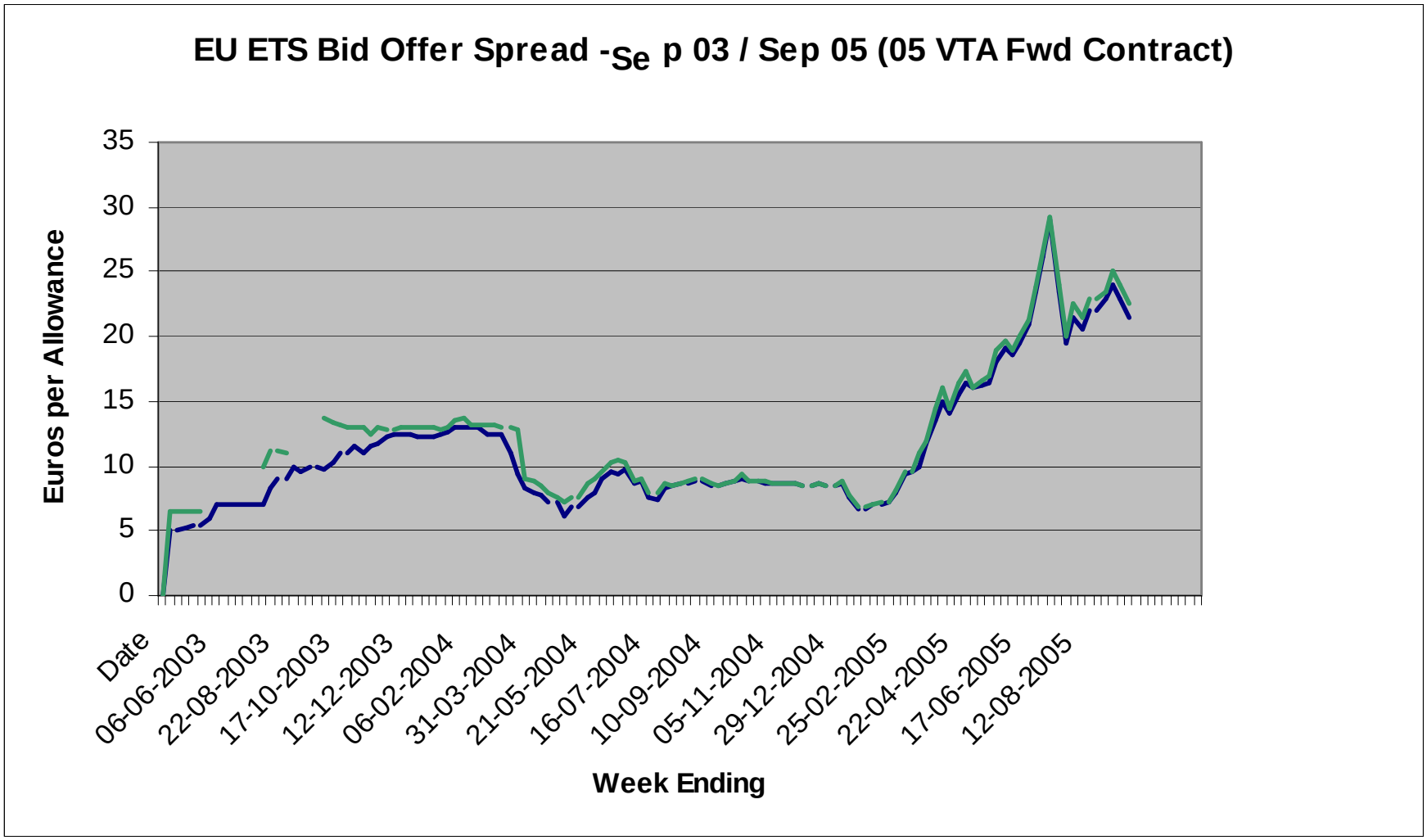
Infrastructure

- Legislation
  - Passed; compliance and transfer rules clear; some loose ends
- Contracts
  - Three OTC contracts accepted and in use
- Regulation
  - General application of financial services regulations is clear enough; more specific treatment expected under ISD
- Legal
  - Generally accepted that EUA is a property right
- Registry
  - Many, but by no means all, registries in place and operational
- Accounting
  - Chaos and uncertainty
- Tax
  - VAT treatment clear, but the rest depends on having some accounting rules

Current Issues

- Eastern Europe not functioning
  - registries
  - the "Polish" issue
- long-term uncertainty delaying investment
  - Phase 2 NAPs
  - Phase 3+
- prices high as a result, which puts off industrial participants
- education of non-electricity installations
- market entry barriers for the smaller players
- accounting
- verification

Historical EUA Pricing



ETS pricing factors

- Trading in the EU ETS is only really liquid for 1 December 2005 delivery
- Most traders in the EU ETS are power companies, and many are short, for the simple reason that no EU allowances have been issued yet in many countries
- In addition, EU ETS trading is significantly affected by short-term trading positions in power and gas. 2005 has seen
  - the highest gas prices in history
  - plus the driest winter in more than a generation

  Both facts mean very high levels of coal-fired power generation. Will these factors continue for the next 8 years?

CER market instruments

On the buy-side, the CER market is fragmented:

- Primary market
  - forward purchases by corporations
  - forward purchases by buyers' pools, funds and multilateral agencies
  - forward purchases by governments

  different risk/reward appetites from different purchasers…

  …and competition between them
- Secondary market
  - purchase on same terms as European Allowances but still price discounted
- Spot market
  - as soon as CERs exist!
- Tie to EUA Market will develop and short-falls and not-so-short-falls become better known
- Tie to Kyoto Markets will develop as Canada and Japan move forward and;
  - As we begin to understand what will happen post 2012

CER Pricing spectrum

- Prices increase as risk is transferred to the seller:
  - primary market funds/government €5.00+
  - primary market commercial, Japan $6.50 (€5.00)
  - primary market commercial, Europe €8.00+
  - secondary market in line with long-term EUA prices
  - spot – on a par with EUAs (one day)
- Higher prices for delivery in time for Phase 1 of the EU ETS
  - €13.00 for guaranteed 2007 delivery

Determinants of price

- Regulatory risk:
  - Likelihood that project will be recognized by future regulatory regime
- Type of Instrument:
  - EUAs trading higher than CERs and ERUs as no project risk
  - VERs lower – as high regulatory risk
- Segment of the market, structure of the transaction and the distribution of risks between buyer and seller
- Financial stability of project proponent
- If project based -- size of the underlying project and percentage of that project involved in the transaction
  - Cost of validation and potential certification & process
  - Additional environmental and social benefits

Will Prices go up or down?

Canada still an unknown: largest Kyoto gap ~ 270 MT per annum

- Canada a huge buyer in future and have price-cap of $15.00 CAD and CAD government will take on large liability… may limit potential for CER market as may go to Russia and Ukraine…
- Canada is a dormant market right now but how and when they get into the market may have a huge influence on CER prices

- There are lots (hundreds of millions of tonnes) of potential CERs out there with a production cost less than current CER prices
- There are lots of EUAs still not in the market – Eastern Europe
- Market barriers do exist internationally, in the CER, JI and AAU markets, as well as a result of the uncertainty of post 2012.
- Prices have been volatile but will stabilize as uncertainty decreases

Will prices go up or down?

- Pre-2008, CER prices are linked to EUA prices, but there is a large price gap between 2005 EUA prices and 2007 CER prices
  - indications are that the EUA price is more likely to fall to meet the CER price than the other way around
  - but the EUA price is VERY weather sensitive (so may not fall)
- In longer term, CER prices should de-couple from EUA prices
  - there will be more CER supply and many more non-EU ETS buyers
  - use of CERs in EU ETS will be limited
  - so will two-tier pricing emerge? Many think so
- There is much (now quite old) analysis that suggests the 'natural' price of CO2 is unlikely to rise above about US$5.00, assuming no international market barriers
- However market barriers do exist internationally, in the CER, JI and AAU markets, so longer term pricing may well be above this level
- we will have to wait and see…

Longer term dynamics

- Prices in Phase 1 EU ETS depend on supply constraints, natural gas prices and weather…
- From 2008, the carbon market changes significantly:
  - New supply comes on-line:
    - much greater CER volumes will have come to market
    - ERUs from former USSR and (some) projects in Europe, Japan and Canada
    - 'hot air', principally from Russia and the Ukraine
  - New demand materialises:
    - government demand in Europe, Canada (and Japan?)
    - increased corporate demand in Europe, Canada (and Japan?)
    - corporate demand in the Eastern US states (RGGI) and in California

Summary/conclusions

- The markets are developing!
- The markets are trying to compensate for the lack of policy guidance and international linkages.
- The market could become much more efficient with the implementation of the market rules in all Kyoto capped countries and the implementation of infrastructure in both Annex B and non-Annex B countries.
- Opportunities exist for Ecuador if it acts now…
  - Before China and India enter the market on a large scale as they will swamp CDM market as they have so much potential.

Contact us

thank you!

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