International Climate Change Commitments – Where Exactly do Carbon Investments and Emissions Trading Fit?

Henry Derwent
President/CEO

How are we doing? Not so good
Pledges – Copenhagen and Beyond

<table>
<thead>
<tr>
<th>Region</th>
<th>Declared country targets and actions</th>
<th>Simulated scenarios</th>
<th>Source: OECD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia &amp; New Zealand</td>
<td>Australia: -5% to -25% from 2000; New Zealand: -10% to -25% from 2010</td>
<td>Low &amp; Fragmented: +10.5% from 1990 (20% offsets); High &amp; Linked: -11.5% from 1990 (20% offsets)</td>
<td>Source: OECD ENV-Linkages model, as described in OECD (2009).</td>
</tr>
<tr>
<td>Canada</td>
<td>-17% from 2005 domestic reductions; max. 10% credits from COM</td>
<td>Low &amp; Fragmented: +3% from 1990 (10% offsets); High &amp; Linked: +3% from 1990 (10% offsets)</td>
<td>Source: OECD ENV-Linkages model, as described in OECD (2009).</td>
</tr>
<tr>
<td>EU27 &amp; EFTA</td>
<td>EU27, Liechtenstein and Switzerland: -20% to -30% from 1990, Norway: 20% to 40% from 1990, Iceland: 30% from 1990, Monaco: 30% from 1990</td>
<td>Low &amp; Fragmented: -20% from 1990 (20% offsets); High &amp; Linked: -30% from 1990 (20% offsets)</td>
<td>Source: OECD ENV-Linkages model, as described in OECD (2009).</td>
</tr>
<tr>
<td>Japan</td>
<td>-25% from 1990</td>
<td>Low &amp; Fragmented: -25% from 1990 (20% offsets); High &amp; Linked: -25% from 1990 (20% offsets)</td>
<td>Source: OECD ENV-Linkages model, as described in OECD (2009).</td>
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<tr>
<td>Russia</td>
<td>-15% to -25% from 1990</td>
<td>Low &amp; Fragmented: -15% from 1990 (10% offsets); High &amp; Linked: -25% from 1990 (20% offsets)</td>
<td>Source: OECD ENV-Linkages model, as described in OECD (2009).</td>
</tr>
<tr>
<td>United States</td>
<td>-17% from 2005</td>
<td>Low &amp; Fragmented: -3.5% from 1990 (20% offsets); High &amp; Linked: -3.5% from 1990 (20% offsets)</td>
<td>Source: OECD ENV-Linkages model, as described in OECD (2009).</td>
</tr>
<tr>
<td>Non-EU Eastern Europe</td>
<td>Ukraine: -20% from 1990; Belarus: 5% to -10% from 1990; Croatia: 5% from 1990</td>
<td>Low &amp; Fragmented: -16% from 1990 (20% offsets); High &amp; Linked: -16% from 1990 (20% offsets)</td>
<td>Source: OECD ENV-Linkages model, as described in OECD (2009).</td>
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<tr>
<td>Brazil</td>
<td>-36% to -26% from BAU</td>
<td>Low &amp; Fragmented: -36% from BAU (20% offsets); High &amp; Linked: -39% from BAU (20% offsets)</td>
<td>Source: OECD ENV-Linkages model, as described in OECD (2009).</td>
</tr>
<tr>
<td>China</td>
<td>Carbon intensity: -40% to -45% from 2005</td>
<td>Low &amp; Fragmented: -0.2% from BAU (20% offsets); High &amp; Linked: -0.5% from BAU (20% offsets)</td>
<td>Source: OECD ENV-Linkages model, as described in OECD (2009).</td>
</tr>
<tr>
<td>India</td>
<td>Carbon intensity: -20% to -25% from 2005</td>
<td>Low &amp; Fragmented: +45% from BAU (20% offsets); High &amp; Linked: +35% from BAU (20% offsets)</td>
<td>Source: OECD ENV-Linkages model, as described in OECD (2009).</td>
</tr>
<tr>
<td>OPEC Exporting countries &amp; Mideast</td>
<td>Indonesia: -26% from BAU; Iran: -20% from BAU; South Africa: -34% from BAU; many other pledges (incl. Costa Rica, Maldives, Marshall Islands)</td>
<td>Low &amp; Fragmented: -8.5% from BAU (20% offsets); High &amp; Linked: -8.5% from BAU (20% offsets)</td>
<td>Source: OECD ENV-Linkages model, as described in OECD (2009).</td>
</tr>
<tr>
<td>Rest of the World</td>
<td>Korea: -30% from BAU, Mexico: -30% from BAU, South Africa: -34% from BAU; many other pledges (incl. Costa Rica, Maldives, Marshall Islands)</td>
<td>Low &amp; Fragmented: -6% from BAU (20% offsets); High &amp; Linked: -6% from BAU (20% offsets)</td>
<td>Source: OECD ENV-Linkages model, as described in OECD (2009).</td>
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</tbody>
</table>

Wishes and Pledges

To 2020 (OECD)

To 2050 (Climate Tracker)
Delivering the Pledges

GOVERNMENTS HAVE TO ACHIEVE SOME COMBINATION OF:

- Reducing carbon-intensity of electricity generation
- Improving industrial energy efficiency
- Improving domestic energy efficiency – building stock and equipment/gadgets
- Avoiding deforestation
- Reducing transport carbon intensity and energy use
- Sequestration – biological or geological
- Demand reduction

THE TOOLS AT THEIR DISPOSAL ARE:

- Accelerating technology
- Continuing subsidy
- Direct regulation
- Persuasion
- Taxes
- Capping (and trading)

MARKETS HELP BUT:

- Markets and offsets achieve no reductions by themselves
- They redistribute caps or other obligations *at lower cost*

The theoretical structure of the global carbon market

[Diagram showing the structure of the carbon market with labels京都 1 (Kyoto Land), Kyoto 2, Kyoto 3, Non-Annex1 (Dev’g Countries), NA1 (Projects), and Trading Scheme.]
How much from the Markets?

Compare 2008 Primary CDM Market €4.5bn (World Bank)

The Economics remains the same

Lowest cost emissions reductions often found in non-OECD countries......

...and limiting access to them is bad for GDP, even if good for Govt revenues
Politics rises against Economics: the Principles and Pitfalls of Offsetting

- Purchasing indulgences: corporates or individuals
- "Anyway" tonnes: Can’t trust foreigners
- "Anyway" tonnes: Can’t trust baselines
- Contaminated currency (and exchange/linking)
- Putting off domestic investment, even if assets stranded
- International negotiations:
  - "Supply only" days are over
- EUETS over-supply
- (But isn’t this what trading means?)
- Is supplementarity a sufficient answer?
- But voluntary markets are doing nicely

The Carbon Markets and the CDM

- CDM: to transfer resources and technology and to help Annex 1 countries meet their targets
- Perhaps the only tangible success of the UNFCCC system

<table>
<thead>
<tr>
<th>Carbon Market Evolution, values ($ billion), 2004–10</th>
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<tbody>
<tr>
<td>EU ETS Allowances</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>2005</td>
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<tr>
<td>2006</td>
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<td>2007</td>
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<td>2008</td>
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<tr>
<td>2009</td>
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<tr>
<td>2010</td>
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</tbody>
</table>

Note: Numbers may not add up due to rounding.
Squeezing the CDM from all directions

- A byword for delay and heavy transaction costs
- Increasing political risk – type, location and market management
- No demand, no CDM
- Rivalry from alternative standards?
- Collapse of primary market issuance

CDM as a Negotiating Tool?

“for advanced developing countries and highly competitive economic sectors, the project based CDM should be phased out in favour of moving to a sectoral carbon market crediting mechanism” (EU Communication 28 Jan 2009)
Offset Supply and Demand 2013–2020

<table>
<thead>
<tr>
<th>Country (group of)</th>
<th>Scenario 1: Enacted and proposed initiatives, unconditioned pledges</th>
<th>Scenario 2: Enacted and proposed initiatives, higher pledges</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Description</td>
<td>Potential demand (MCOe)</td>
</tr>
<tr>
<td>barrel Carbon</td>
<td>EU, as well as Iceland, Liechtenstein and Norway</td>
<td>20 percent below 1990, with differentiation EU ETS and effort sharing</td>
</tr>
<tr>
<td>CDM EU ETS eligible</td>
<td>1,875</td>
<td>1,750</td>
</tr>
<tr>
<td>CDM other</td>
<td>409</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>2,285</td>
<td></td>
</tr>
<tr>
<td>Barclays</td>
<td>New Zealand</td>
<td>NZ ETS: 10 percent below 1990</td>
</tr>
<tr>
<td>CDM EU ETS eligible</td>
<td>1,741</td>
<td>77</td>
</tr>
<tr>
<td>CDM other</td>
<td>1,043</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>2,784</td>
<td></td>
</tr>
<tr>
<td>CDM EU ETS eligible</td>
<td>2,534</td>
<td>516</td>
</tr>
<tr>
<td>CDM other</td>
<td>373</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>2,907</td>
<td></td>
</tr>
<tr>
<td>Deutsche Bank*</td>
<td>Japan</td>
<td>Between 25 and zero percent below 1990</td>
</tr>
<tr>
<td>CDM EU ETS eligible</td>
<td>998</td>
<td>=59</td>
</tr>
<tr>
<td>CDM other</td>
<td>437</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,376</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>

Source: World Bank 2011

Global Offset Supply/Demand

New NAMA etc Mechanism
Special tailored offsets
Domestic offsets
REDD
CCS (in CDM)
VER Methodologies
CERS and ERUs

Larger NA1 Int'l Demand
Australia
California & WCI
EUETS
Japan
NZ
ROK
Taiwan
Voluntary Buyers

A Very Tight Fit

US Federal

A1 Sovereign Demand
The way the global carbon market is going

- Country 1
  - Trading Scheme
  - National Sector or City
  - CDM System and developments
  - National/local standards
  - IFI Standards
  - Global Sector
  - Bilateral systems or deals

- Country 2
  - Domestic Projects

JMRV – An Anomaly or a Trend?

- JBIC’s GREEN programme
- Impatience with the CDM
- Seeing and measuring the benefit of low carbon investment
- If IFIs are to become involved outside the CDM, need carbon due diligence
- Need for ex-UNFCCC harmonisation system, to enable wider market
- Progress in Japan slow and complex
Wobbles in the EU

- EU economic weakness
- Oversupply
- Uncertainty about ETS role
- Just a blip?
- Impact on CERs

So What about Forestry?

- Lots of goodwill, lots of activity
- REDD – a brand without many customers
- Continued suspicion in Europe
- Precious little space on the offset demand side
- Few conventionally economic propositions
- Estimated $5-24bn pa to cover opportunity cost and admin for avoided deforestation in 8 major tropical forest nations (Greig-Gran 2008)
Green NAMA Bonds – a modest advertisement

- wants to raise low-cost finance for low-carbon sectoral investments/policy, including forestry, direct or via special purpose company; must deliver policy and other support; creates borrowing structure

- helps structure and guarantees bonds and de-risks for bond market investors, within rolling total available for country dependent on carbon performance

- approves carbon reduction status of proposal and milestones; could be special unit of IFI or IFIs

- lend in return for low (but guaranteed) coupon, de-risked, separate carbon credit stream, some underlying revenue

Host Country (Developing)

IFI or Annex 1 country

International Green Bond Board (IGBB)

Bond Investors

IETA
INTERNATIONAL EMISSIONS TRADING ASSOCIATION

www.ieta.org
Where the Energy Investment Money needs to be spent

IEA Estimates of additional investment ($46tr) beyond BAU ($270tr) to achieve 50% energy CO2 reductions from 2005 by 2050

Detail: $9.3tr additional (over $23.5tr) Power sector investment

Note dominance of transport
Annual add. 2015-2030 $450bn on $5.2tr (power sector $150bn on $580bn)
More than covered by fuel savings?

Source: IEA Energy Technology Perspectives 2010

Compare the Current RE Boom

Developed and Developing Country Financial New Investment and Small Distributed Capacity

Investment by Technology $bn and 2010:2009 growth

Top 10 investment countries $bn and 2010:2009 growth

Source: UNEP/BNEF 2011
Green Bonds

- The holy grail of tapping the bond market
- Market enthusiasm for renewable investment – at acceptable risk and return
- A carbon-free zone?
- Public and private sector players
- A bubble - without adding to supply by derisking, economic support or additional income streams

Some Recent News (May/June 2011):
- BAML joins Nikko in offering World Bank Green Bonds to retail buyers
- Connecticut joins list of Government Green Bank providers
- Climate Bond Standards board formed
- IBRD and IFC issuances

Source: Climate Bonds