CARBON ASSET MANAGEMENT

Experience Sharing
IETA B-PMR Carbon Emission Trading Seminar
26/09/2013
Seoul
Agenda

- Carbon Market Fundamentals
- 4 Business Cases
- Lessons Learned and Conclusions
EU Carbon Market Prices

- Booming commodity prices (oil > 100 $)
- Credit crisis
- Fukushima & German nuclear exit
- Euro crisis
- EU Commission fails to gain support for EUA backloading plan
- EU Parliament approves EUA backloading plan

This is the size of ONE TONNE CO₂
Take up the challenge - reduce every way YOU can. Now!
Fundamentals of Carbon Market

- Economic Growth
- Weather
- Fuel Prices
- Carbon Price
- Regulatory Developments
- Offsets and Links with Other Systems

Fundamentals of carbon market are all about supply and demand.
Business Case 1: Buy Permits vs. Internal Abatements

- Opt for the best option
  - Company A (cost < market): Set up internal abatement projects
  - Company B (cost > market): Purchase permits from Company A

- Important considerations
  - Requires initial investment
  - Emission reductions may be delayed
  - Certainty on future carbon price is crucial

**Conclusion:**
*Company A sells permits to Company B*
Business Case 2: Offsets

Means to meet obligations
- Invest in offset projects
- Buy permits
- Invest in internal abatements

Important considerations
- Lowest cost solution, but take volume risk into account
- Certainty on future carbon price is crucial for any projects

**Conclusion:** Invest in offsets

External offset projects: tend to be available at a lower cost

(Korean) Internal abatement projects: tend to be more costly
Business Case 3: Borrow vs. Buy & Bank vs. Sell

- A market for future/forward contracts could help companies compare expectations.

**Yearly Allocation**

<table>
<thead>
<tr>
<th></th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100k</td>
<td>95k</td>
<td>90k</td>
</tr>
</tbody>
</table>

**Carbon Price Expectations**

Conclusion: Actions today depends on the view of the future.
Business case 4: Yield Arbitrage

2. Store the commodity as inventory.
3. Deliver the inventory into the forward contracts. Repay the financing. Remaining cash is profit.
Lessons Learned & Conclusions

- Construct internal forward price curve based on supply and demand
- Continuously monitor your carbon position and plan ahead
- Proactively participate; gain experience by trial and error
- Don’t let opportunities slip by; not deciding is also taking a position on the future

Conclusion: *Carbon is more than a Policy Tool; it is also a source of opportunities*
THANK YOU

Eric Boonman
Head of Carbon Origination, Statkraft Global Environmental Markets
Amsterdam, the Netherlands

DIRECT  +31 20 7957 830
MOBILE  +31 627 876 617
EMAIL  eric.boonman@statkraft.com

www.statkraft.com