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LeadingEnergy

Recent Developments in Carbon Markets

Climate Change is bringing with it a host of new challenges for business, as well as opening up new markets and opportunities.

Introduction

While there is still considerable debate over the exact science of climate change, there is now broad consensus that we face a real issue that is impacting on businesses as Governments start to formulate climate change policies.

In this article we look at how successful the European Union ('EU') has been in capturing the cost of emissions, the convergence of energy markets, and the implications regulating carbon has had for investment planning.

Policy Challenges

To date policy action on carbon has had long lead times. The 1997 Kyoto Protocol - the principal multilateral agreement that sets binding targets on emissions for developed counties - took nearly ten years to negotiate and only came into force in February 2005. The EU Emissions Trading Scheme ('EU-ETS') which is the cornerstone of European efforts to reach Kyoto targets was finally introduced in January 2005 after many years of debate on the preferred approach to regulating carbon.

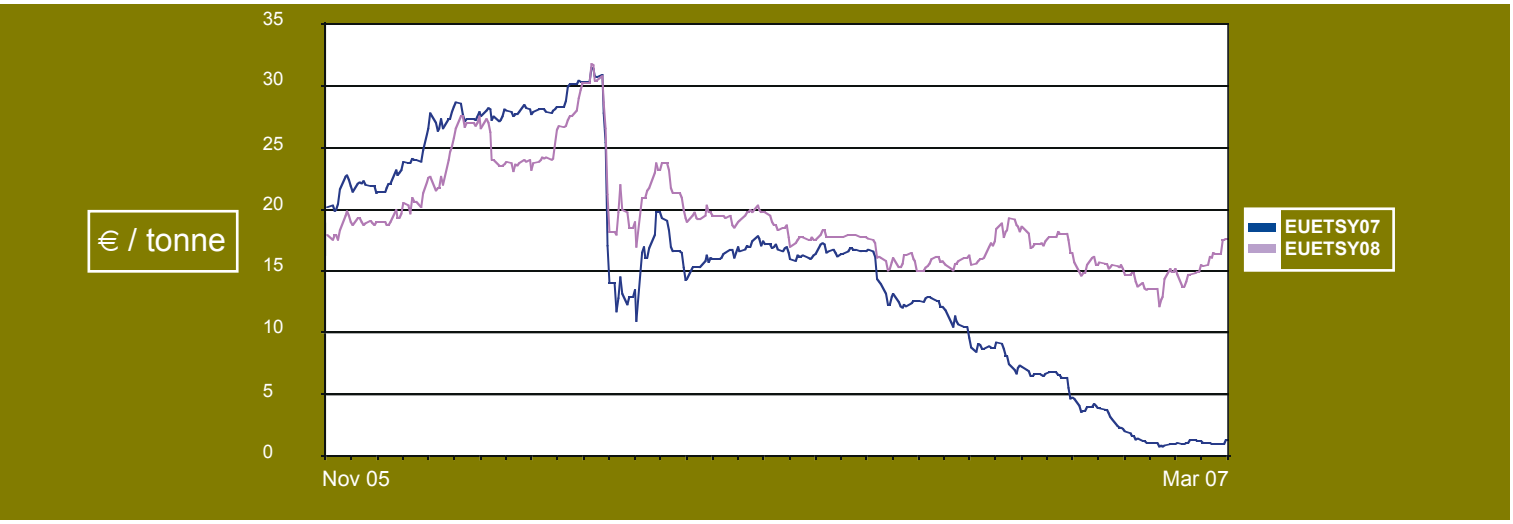
The EU-ETS, however, only accounts for around 40% of the EU's total Greenhouse Gas emissions. Devising effective policy instruments for emissions in other sectors has been more challenging. The biggest concern is the transport sector where, among EU-15 Member States, greenhouse gas emissions increased by 26% over the period 1990-2004 and are projected to increase further to 35% above 1990 levels by 2010, given existing policy measures.

How the Emissions Trading Scheme works

EU-ETS regulates pollution by setting an overall quantity limit or "cap" on emissions from installations covered by the Scheme. By allowing such emission rights to be traded the overall cap will determine the underlying scarcity in the system and this, in turn, will strongly impact the price (or value) of carbon. The economic theory being that companies which are able to reduce emissions most efficiently will undertake reductions and sell the corresponding surplus to those who produce emissions above allowable levels. Assuming reasonable liquidity, this process should create an efficient and cost-effective mechanism for the reduction of emissions.

The total emissions cap is set within National Allocation Plans ('NAPs') prepared at the Member State level and subject to review by the European Commission ('EC'). NAPs for Phase 1 (2005 – 2007) were the subject of extensive consultation and negotiation and, in a number of cases (including the UK) proved highly contentious. This is not surprising, since the underlying methodology employed for allocation - known as grandfathering - effectively grants emission rights to individual companies free of charge. These emission rights are based on estimates of allowable emissions and are issued as a carbon allowance formally known as an European Union Allowance ('EUA'). Hence, national governments and the EC were required to balance the need to ensure sufficient underlying scarcity (to achieve environmental objectives) with the practical ability of companies to organise and adjust to a new market-based policy instrument in a fairly short timescale.

Daily EUA2007 and EUA2008 Prices November 2005 – March 2007



EUA European Union Allowance

Source: Bloomberg

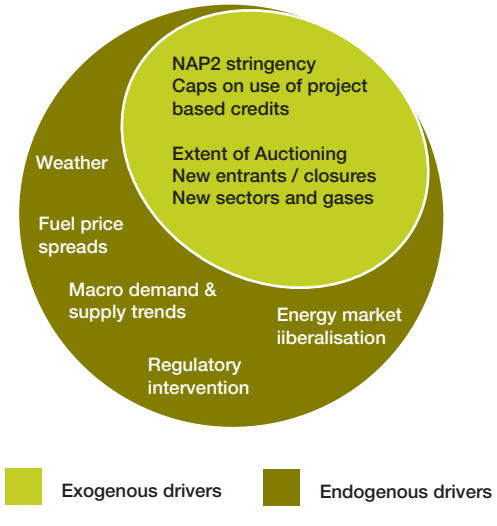
The results of the EU Emissions Trading Scheme to date

Following the release of the first year's emissions data to the market in April 2006, it became clear that insufficient scarcity was created in the initial allocation round and prices for Phase 1 carbon contracts have been bearish ever since, as illustrated above.

In reality understanding emission levels has been a complex task. Many companies have been able to undertake some efficiency improvements to reduce emissions immediately and at low cost or no cost for short term gain. More significant capital investments to address more significant abatement opportunities, however, will need planning, regulatory approvals and implementation and the lead time may be long. Hence, many commentators have noted that during Phase 1 of the EU-ETS (2005-2007), companies have not undertaken major investment for compliance purposes and so carbon prices may not reflect the real marginal abatement cost. Over the longer term, companies will probably seek to allocate capital to maximise returns, with carbon as one of a number of decision parameters. But this assumes that the regulatory visibility on carbon is broadly aligned to capital project lifetime which, again, may be a challenge.

Decisions by the EC on the first of the NAPs for Phase 2 of the Scheme (2008-12) to be reviewed suggest that a greater level of stringency will be applied. This is reflected in an increasing spread between the value of the forward contracts for 2008 (EUETSY08) and the spot prices under the current allocation (EUETSY07) but there are clearly a range of other factors that will also drive expectations of carbon prices.

Market drivers for carbon prices under EU-ETS



Source: PricewaterhouseCoopers

Growth in the project-based carbon credits market

In order to provide additional flexibility to governments and companies facing binding emissions targets, the Kyoto rules also allow certain types of emission reduction activities undertaken outside of national boundaries to contribute to domestic targets. This aligns with the economic principle that, given the nature of the global warming problem, abatement should be undertaken wherever it is most cost-effective to do so.

The methodology employed is often referred to as "baseline and credit." This involves the development of a robust counterfactual scenario that considers the likely emissions in the absence of the project activity and compares those with the emissions attributable to the project. These scenarios are subject to much regulatory scrutiny (by both 'host' countries and the respective UN agencies) and are required to undergo independent validation to ensure integrity.

The UN Regulatory frameworks governing the project-based credit market include:

- Clean Development Mechanism ('CDM') covers projects in countries without any emission targets under Kyoto, typically developing nations. Reductions from CDM projects generate Certified Emission Reductions ('CERs'), which can be sold in international markets and used for compliance purposes. The CDM has shown strong growth in recent years and estimates suggest a potential pipeline of around 1.5 billion tonnes of CERs may be generated up to 2012.
- Joint Implementation ('JI') applies to projects in countries that have agreed to an emissions target; typically other industrialised countries and economies in transition. Reductions from eligible JI projects generate Emission Reduction Units ('ERUs').

Subject to certain conditions being met, CERs generated from projects that started as early as 2000 can be used for compliance or hedging purposes. In contrast, ERUs can only be used for compliance from 2008.

EUAs under the EU-ETS are the primary instrument traded within an increasingly established market and are subject to rigorous monitoring and verification requirements. Project-based credits (CERs and ERUs), on the other hand, are typically bought on a forward basis and are subject to a range of risks (regulatory, technical and credit among others) that result in them trading at a discount to EUAs.

Because there is not yet a transparent or homogeneous market for project-based credits - transactions tend to be done on a bilateral basis with tailored and confidential terms - the pattern of prices for CERs is quite opaque and subject to wide variations, reflecting project-specific risk profiles.

The Convergence of Energy Markets

In Europe, where energy markets are actively traded, linkages have been established between gas, coal, carbon and electricity prices as operators have had to integrate the cost of carbon into their operating decisions to maximise power station profitability. The Department for Environment Food and Rural Affair's ('DEFRA') estimate that around one-third of the overall increase in wholesale electricity prices in the UK can be attributed to carbon.

Under a marginal pricing mechanism, as in New Zealand, the price of carbon can impact the merit order of plant. In the UK where a similar electricity market to New Zealand exists, switching from coal to gas to generate electricity emerged as the key method used to reduce emissions and improve profitability. As gas prices rose and the demand for coal became greater, the price of carbon rose and the demand for credits required to offset coal usage also increased. The price of carbon effectively promoted gas fired generation in the merit order.

The peak in carbon pricing occurred in March 2006, driven by high gas prices, the demand for coal and the possibility of an especially cold winter. The significant price readjustment in April 2006 was caused by the first release of emissions data which revealed that insufficient scarcity of emissions was created in the initial allocation round resulting in large and unexpected surpluses of allowances.

Carbon implications for investment

It is clear that globally electricity markets now distinguish between the dark spread (the differential between power prices and the coal price component of generation costs) and the green spread (the differential after taking into account the cost of the carbon allowance associated with generating the power). Operating companies are now taking carbon impacts into account in their investment decisions, and investors are looking to benefit from the potential upside.

The short-term nature of carbon regulation, both within the EU-ETS (initial allocations for three years, with subsequent allocations every five years, with little lead time) and under Kyoto (post-2012 regime?), combined with significant volatility during a period of price discovery in the carbon markets, are a major disincentive to long-term investment. The power sector, in particular, has argued strongly that it requires a much longer regulatory horizon (10 year carbon trading windows or more) if major investment shifts to cleaner generation are to occur.

Despite this lack of regulatory visibility, carbon is being recognised as a value driver for investment in new generation capacity and is increasingly becoming interlinked with other energy market themes – particularly security of supply.

Outlook for carbon-free energy sources

Carbon-free sources of energy will benefit from the introduction of emission trading schemes especially in markets such as New Zealand where fossil fuelled power stations are the price setters. By establishing a sustainable market mechanism for limiting carbon emissions, the market drivers to determine what is the best form of renewable generation to deliver carbon savings have been somewhat nullified.

The carbon price mechanism should bring forward tidal, hydro and wind projects that will have the benefit of much greater scale and replicability. This has already been seen in the UK market, in the form of RfPs for feasibility studies in tidal, hydro, and nuclear power sectors.

The timing and manner of delivery of such investment will vary enormously by location and the nature of the electricity supply industries in the country or region concerned.

Conclusion

The creation of a carbon market has already stimulated the need for cleaner investment through increased energy prices. In Europe, carbon-free projects are benefiting from structurally higher prices. All of these developments, however, would benefit from improved visibility around the regulatory horizon for carbon prices.

Globally there is uncertainty about the real marginal abatement costs and how to best attribute emission levels at a State level. Markets are therefore still in a period of price discovery while the science of understanding emission levels and how they are allocated is refined.

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