

Carbon Futures

Carbon Trading and Market Strategies Post-2012



Carbon trading can have a significant influence on the bottom line and is here to stay. Its future, however, is uncertain and is driven by emerging legislation for the period after 2012. In the face of this uncertainty, what should executives responsible for investment outcomes post-2012 be doing now to ensure they maximize competitiveness and minimize risk?

The most efficient tools in the box

In the global effort to stabilize carbon dioxide in the atmosphere, and mitigate climate change, it is generally agreed that a portfolio of actions is required. Electricity utilities, for instance, are working to increase the share of renewable and low carbon energy sources in the portfolio and are anticipating the future deployment of carbon capture and storage (CCS). In the manufacturing sector, companies are increasing efforts to improve energy efficiency, reduce carbon exposure in the supply chain, and procure lower carbon electricity and heat.

Emissions trading has been described as one of the most economically efficient ways to force emissions cuts. Under a cap-and-trade system, regulation sets the overall level of permitted emissions and companies are given the flexibility to decide whether to make CO₂ reductions, deal in emissions allowances with other companies, or both. In theory, this ensures that emission reductions take place where the cost of reduction is lowest. However, turning the theory into practice depends on having the markets set up properly and there being measures in place to prevent CO₂ leakage.

There is no 'silver bullet'. However, emissions trading is set to be a key part of government strategies to combat climate change, in combination with complementary measures such as efficiency standards, technology solutions, and tariffs.

Uncertain future

The three major mechanisms relating to emissions trading under the current Kyoto Protocol are the Clean Development Mechanism (CDM), Joint Implementation (JI), and Cap and Trade. Of these, the first two could be headed for radical change.

Recent talks organized by the United Nations Framework Convention on Climate Change (UN FCCC) in Ghana tabled a discussion document with 13 proposed changes to CDM, and five proposals to change JI. Critics have highlighted the credibility of major projects in China which reduce HFCs¹. Also much criticised is the cumbersome approach used to determine the additionality and award of carbon credits for emissions reduction projects.

Further stimulus for change was provided by recognition that the CDM and JI in their original form failed to address some important areas related to emissions reduction, including funding for carbon capture and storage, crediting avoided deforestation, and whether to issue carbon credits to nuclear plants. Other options for dramatic change relate to the possible introduction of sectoral targets into CDM and JI, on either a voluntary or a mandatory basis.

Debate and developments continue in the ongoing talks leading up to the last of the current programme of UN FCCC meetings, due to be held in Copenhagen in December 2009. The most fundamental areas of debate are likely to be on the issue of whether developing countries should have to cap their emissions post-2012 and how much developed nations should increase funding for developing countries to help them mitigate and adapt to climate change.

¹ EU ETS Impacts on Profitability and Trade, 2008.

No time to waste

For investors, adopting a ‘wait and see’ approach to investment decisions, without adequate analysis and consideration, is a dangerous decision for three reasons. Some technologies take years to get up to speed and their deployment without experience can be counterproductive. Secondly, agreements can also take a long time to reach conclusion – but the speed with which things change when they do can leave the unprepared at a serious disadvantage. For example, CDM came into force at the beginning of 2006 and already over 1,000 projects have been registered. Thirdly, the decisions you take today will affect your carbon position for years to come; areas such as power generation and transport infrastructure require decisions whose timeframe stretches well beyond 2012.

Key uncertainties for executives

Executives preparing or making investment decisions will benefit most from focusing on certain key areas.

Of paramount importance is knowing your business’s likely CO2 risk exposure post-2012. What direct and indirect costs could you incur from changes currently in discussion or taking place? What additional revenues may be achievable through anticipating changes in regulation that open up new market opportunities? Research by the Carbon Trust² has shown that exposure and opportunity will tend to vary by sector. This is in line with Arthur D. Little research into the costs, risks, options and potential for value creation through emissions trading for companies in a number of different sectors. Do you know your own sector’s position?

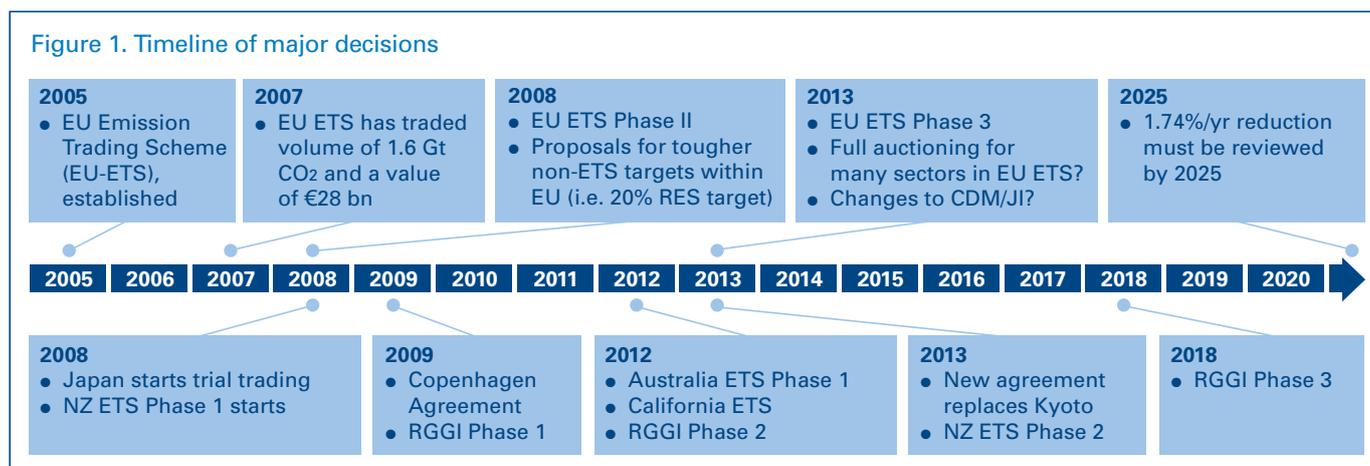
The geography of your business operations is also an important consideration in relation to exposure and opportunity. For example, your European operations will have to consider issues such as how many carbon credits can be imported to use for compliance with the European Emissions Trading Scheme (EU ETS) post-2012? In the US you will have to understand how state and federal emissions trading schemes will dovetail; in developing countries you will have to understand the opportunities available from CDM or its successor. This all ties into a question of where should investments be made now to optimize your response in the future?

The process of acquiring carbon credits is itself a geographical issue. In some regions, they have to be paid for; others operate a free allocation system. About to come on board in the EU is a system of auctioning credits, which will have a significant financial impact across many sectors. In a future that includes international trading schemes in addition to the EU ETS, will credits be convertible across nations, cap and trade zones, and/or industries?

It is also vital to know how much ability you have to pass additional costs on to your customers. What impact would such action have on the competitiveness of your goods and services produced in (say) the EU, compared with imports from countries with different mechanisms in place?

Finally, investment attention needs to be focused on the technologies that will benefit your business most, both through carbon emissions reduction, becoming a preferred partner for your customers and other companies in your supply chain, and through new revenue generation (e.g. technology solutions which can help other companies to reduce their carbon exposure).

Figure 1. Timeline of major decisions



² EU ETS Impacts on Profitability and Trade, 2008.

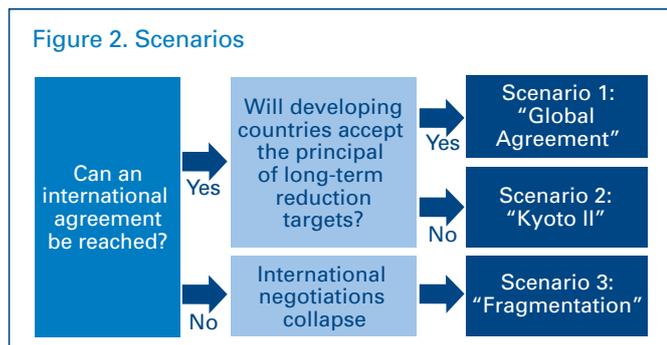
Scenarios to aid strategic thinking

Working with leading organizations, ADL has developed a structured method for developing scenarios that help companies address a complex, uncertain future.

In relation to the difficult area of carbon trading, we have developed three scenarios. These “Carbon Futures” emerge from considering the outcome of two critical areas of uncertainty post-2012.

The first is whether it is actually possible to reach full international agreement. If not, then the resulting scenario – Fragmentation – depicts what happens when international negotiations collapse.

The second fundamental question is, if international agreement is reached, whether the mechanisms put in place are robust, making the markets function as markets should and preventing leakage. A positive answer delivers the scenario Global Agreement; a negative answer leads to a scenario we call Kyoto II.



Common features of all three scenarios show areas that will matter for investment decisions, whatever the future holds. For example, technology support, consumer interest, some form of voluntary market, and isolated cap and trade markets – e.g. EU ETS and US regional schemes – feature across the board.

The scenarios differ markedly in the clarity achieved around policy and regulation; they also differ in the degree of success that the mechanisms enjoy in opening up a large, liquid, international market for emissions trading. Further differences emerge in the costs of doing business in various countries and regions, depending on whether they have emissions targets or not; and hence in the optimum geography of a given company's carbon related investments. This all has a significant impact on the level of investor confidence, both today and in the future.

Impact of Scenarios on Business

ADL have assessed the impact of each scenario on the bottom line of two hypothetical global players

Figure 3. Business impact

2015 snapshot carbon prices	Scenario 1 Global agreement	Scenario 2 Kyoto II	Scenario 3 Fragmentation
EU	High	High	Medium
North America	High	Medium	Low
BRIC	Low	Zero	Zero
Example costs to businesses	Scenario 1 Global agreement	Scenario 2 Kyoto II	Scenario 3 Fragmentation
Global electric utility company active in EU & BRIC; EBITDA: £15 billion	€5.2 billion (34% of EBITDA)	€4.4 billion (29% of EBITDA)	€2.75 billion (18% of EBITDA)
Global steel manufacturer active in EU, North America & BRIC; EBITDA: £6 billion	€2.4 billion (40% of EBITDA)	€1.5 billion (25% of EBITDA)	€1 billion (17% of EBITDA)

Note: Calculations based on ADL analysis; High carbon price=€40/t; Medium carbon price=€25/t; Low carbon price=€15/t (prices are at 2008 value)

We have assumed that in all three scenarios, carbon credits will be fully auctioned and that carbon prices increase from Scenario 3 to 1, due to tighter caps and regulations.

In the short to medium term (i.e. 2015 in our example), Scenario 1 has the biggest financial impact, however, in the long term carbon prices in Scenario 1 will drop as the clean-tech development rate increases and low carbon solutions become more affordable.

What is important here, is that companies who base their plans on only one of these scenarios (or ignore the cost of CO2 post 2012 entirely), are at serious risk of being exposed if one of the other scenarios occur. Companies need to understand the different futures, and have a carbon strategy which is flexible enough to deal with a range of scenarios.

Mapping a path forward

The ‘carbon winners’ of tomorrow are busy developing strategies, processes and organizational structures to integrate carbon trading into their overall business strategy.

Key strategic considerations include:

- a) **Risk strategy** – assessment and management of exposure to carbon prices. For example, equipment manufacturers have to decide whether it is better to sell energy efficiency equipment and partner with a broker, or become more actively involved in carbon markets. An understanding of market risk is critical here. Also crucial in this area is the development of an ability to help set – or at least respond to – emerging standards, as we can confidently expect more regulatory attention in the future.

- b) **Investment strategy** – a full cost-benefit analysis of capital expenditure today versus purchasing carbon credits in the future. Factored in should be a quantification of the other benefits of reduction today (e.g. the positive impact of increased energy efficiency on the bottom line). A balanced portfolio of investments, appropriate to your individual business, is likely to be best way forward – e.g. including investments in both clean technology and carbon markets.
- c) **Technology strategy** – a robust, systematic approach for developing solutions to address internal/external footprints and market opportunities. This approach will consider which technologies are the highest priority, and whether they should be purchased, developed in-house, or developed through a partnership or acquisition.

Key process considerations include:

- a) **Developing experience** – learning from opportunities and risks presented by today’s carbon markets in order to manage future activities better. Experience of carbon credit trading today will also help companies to extract value from the carbon markets of the future.
- b) **Assessing carbon exposure** – this includes assessing product and supply chain risk and identifying and developing mitigation options for current and future activities across all international operations.
- c) **Engaging in political and regulatory debate and processes** – this is important for companies wishing to shape the future of climate change action and requirements.

Key organisational considerations include:

- a) **Partnering** – establishing arrangements with financial organisations and companies, which create new business models and build on complementary strengths. An example is the Orbeo joint venture founded by Rhodia and Société Générale in 2006.
- b) **Looking to new geographies** – in particular this should consider the rapidly growing economies of the BRIC countries. Where different parts of the world are employing different mechanisms, company decision makers need to understand what the differences are, and how to harness them properly. It is important to differentiate between aspects of organization that need to be uniform through the company’s global operations, those that should be tailored on a location-specific basis, and how to create the linkages that will enable optimum leverages of strengths and opportunities.

If you would like to discuss the Carbon Futures in relation to your own business strategy, and explore ways of integrating carbon trading smoothly and effectively into your business, why not contact your local Arthur D. Little office.

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About Arthur D. Little

Arthur D. Little, founded in 1886, is a global leader in management consultancy; linking strategy, innovation and technology with deep industry knowledge. We offer our clients sustainable solutions to their most complex business problems. Arthur D. Little has a collaborative client engagement style, exceptional people and a firm-wide commitment to quality and integrity.

Our Global Carbon Advisory Service (GCAS), within our Sustainability and Risk Practice help manage the complexity and confusion surrounding carbon management debates driven by policy, consumers, supply chain for both companies and investors by providing solutions that embrace the complexity and unlock value. We pull together environmental, economic, policy drivers for carbon into something that makes corporate strategy development manageable. We understand the role of emerging and potential technologies and mechanisms in addressing climate change and we have the breadth that is necessary, in terms of timing, from short to long term, geographically with teams across Europe, USA, SE Asia, and measures that include energy supply, energy demand, efficiency and behavior. For further information please visit www.adl.com/gcas

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