

Responding to climate change risks and opportunities



Companies and industries that use a large amount of energy, release significant emissions or have carbon embedded in their products need to address Greenhouse Gas (GHG) exposures and incorporate climate change risks and opportunities into their business processes and decision making.

The insurance sector has a key role to play in helping to mitigate the effects of climate change by providing financial indemnification, compensation and relief against climate change events and by developing new products and solutions that can support emerging GHG and Renewable Energy markets.

The challenge

Climate change presents a huge environmental and economic challenge. Some governments have recognised this by ratifying the Kyoto Protocol, the best available framework for addressing climate change. Other countries, for example the US and Australia, have taken different approaches. However, wherever businesses operate, there will be no escape from domestic policies and the drive for corporate social responsibility initiatives to reduce GHG emissions and act in accordance with the principles of sustainable development.

The EU Emission Trading Directive, which comes into effect from 2005, will have both a direct and indirect financial impact on all businesses operating in the 28 EU countries. It will establish the EU Greenhouse Gas Emissions Allowance Trading Scheme (GHG EATS), which will set CO₂ emission reduction targets – and financial penalties for non-compliance – for a wide range of industries. Although some sectors, such as the chemical industry, will not be included in the Scheme until after 2008, these may still be affected by domestic regulations aimed at reducing emissions and increasing energy efficiency. Indeed, some will fall within the coverage of the EU Scheme from 2005 because their on-site combustion facilities (e.g. generators, furnaces and boilers) alone or in aggregate have a 20 megawatts or greater thermal output.

EU EATS also has implications for bankers, insurers and others providing capital and services to these sectors who will need to tailor existing products and develop additional services to accommodate a carbon constrained economy. The Scheme is likely to affect many other businesses as energy producers seek to pass on the associated costs of compliance to their customers in the form of higher energy and energy related commodity prices.

Estimates suggest that CO₂ emissions constraints may increase electricity prices by 35% in some markets, although increases will vary significantly across EU member states. This is particularly significant for



those industries where energy costs already account for a significant percentage of production expenses, particularly if in addition they face the direct extra costs of complying with emission reduction targets. These higher charges could also impede companies' ability to compete against operators in jurisdictions that do not have climate change obligations to meet.

For global organisations with facilities across a number of different countries both within and outside the EU, defining the risks and opportunities may be complicated. Considerations include:

- where GHG emitting facilities are located
- how countries with climate change obligations are performing against Kyoto targets
- how countries plan to achieve targets (reduce emissions or purchase credits)
- how countries in the EU allocates allowances and determine targets.

Individual EU member states that currently have a significant divergence from Kyoto emission reduction targets may struggle to achieve compliance. The result may be more stringent domestic targets and the need to purchase allowances (tradable emission reduction instruments) from the market to make up shortfalls. Operators in such states may receive less favourable allowance allocations than those in countries that are on target, increasing their costs of compliance.

The differences in the way member states are performing against Kyoto targets and allocating allowances also mean that installations from the same company, that are located in different EU member states, with similar emission profiles may face significant carbon liabilities as well as significant allocations of carbon assets. Such companies need to understand the effects of this and to develop a consistent company-wide approach to addressing exposures and realising assets for installations across Europe. Clearly, companies with similar installations and similar levels of emissions in different EU countries will need to make some complex decisions.

Companies will also need to take into account the impact of operational and strategic issues on their ability to meet emission reduction targets. Operational issues such as business interruptions, plant maintenance, upgrades and shutdowns and strategic issues such as mergers and acquisitions can have positive and negative effects on emissions profiles. Securing financing based on future revenues from the sale of emission reductions from projects, will be another key consideration.

In essence, many companies face increasing energy and compliance costs as well as social and environmental responsibilities. However, these new considerations present significant opportunities as well as risks. Taking early action and engaging with European governments on allocation methodologies could produce reduced costs and significant advantages once the Scheme starts in 2005. Those that are unprepared will find it more difficult to achieve targets and may well face higher costs of compliance. Being proactive and prepared can enhance environmental performance and generate additional value. The way that companies address these issues and develop appropriate strategies will have far reaching effects on their corporate competitiveness, profitability and shareholder value.

Designing carbon risk strategies

Companies facing carbon constraints need a robust and systematic approach to risk assessment and solution development. It is important to identify, prioritise and quantify key climate change risks impacting on key performance indicators. Once the impacts are fully understood and prioritised, it is necessary to focus on those critical risks that have the potential to cause the greatest financial impact and are most likely to occur.

Risk assessment and strategy development include:

- quantifying in meaningful financial terms those carbon assets and liabilities which represent the greatest risk and opportunity
- allocating carbon risks and costs to investment, operational and strategic processes
- assessing the impact of national and regulatory regimes on different corporate locations
- improving understanding of the relationships between business activities and emissions
- evaluating compliance strategies, measuring the value of internal abatement options versus emissions trading
- modelling marginal costs of abatement under different price and project scenarios
- analysing and benchmarking performance against industry peers.

This information will be vital for developing the optimum carbon risk strategies that can reduce the financial impact of climate change obligations and maximise opportunities to generate additional revenues.

A key process is identifying the range of revenue value streams available from renewable energy and emission reduction projects and providing innovative solutions to capture, protect, secure and maximise these new value streams.

Emissions trading and emission reduction projects

Both the EU Scheme and Kyoto make provisions to enable emission trading amongst obligated operators. Emissions Trading is a market based mechanism, which sets an overall cap on aggregate emissions, while giving companies the flexibility of determining how and where the emissions reductions will be achieved. By allowing participants the flexibility to trade allowances, overall emissions reductions will be achieved in the most cost-effective way possible. This also provides significant opportunities for companies that can reduce their internal emissions cost effectively or develop projects in other locations that result in GHG emission reductions.

The Kyoto protocol and the EU Scheme make specific provisions for a range of emission reduction projects which can be used to generate emission reduction credits which can be sold to offset obligations in other locations and provide additional revenue streams. These comprise:

- **energy efficiency** - changing and optimising business processes to conserve and improve energy use
- **renewable energy** - energy generated using the sun, sea, wind or biomass
- **fuel switching** - shifting from a carbon intensive fuel such as coal or oil to a less intensive fuel such as gas or renewable energy use
- **waste to energy** - capturing and combusting GHG emissions from landfill
- **land use, land use change and forestry** - avoiding or sequestering (absorbing) CO₂ through afforestation/ reforestation, soil and land conservation measures.

Certain types of project, including many renewable energy projects provide significant scope for reducing emissions. Carbon revenues from a typical landfill gas to energy project can contribute about US\$15 per megawatt hour, potentially increasing project internal rates of return by 5 percentage points or more. Project sponsors, developers, manufacturers and energy purchasers can capitalise on the emission reduction opportunities to maximise value. These opportunities include not only the sale of technology that delivers energy or power with lower or zero CO₂ emissions but also the use of monetisation i.e. the ability to claim and transact the financial benefits of environmental products associated with Greenhouse Gas emission reductions and other environmental benefits for the betterment of project balance sheets.

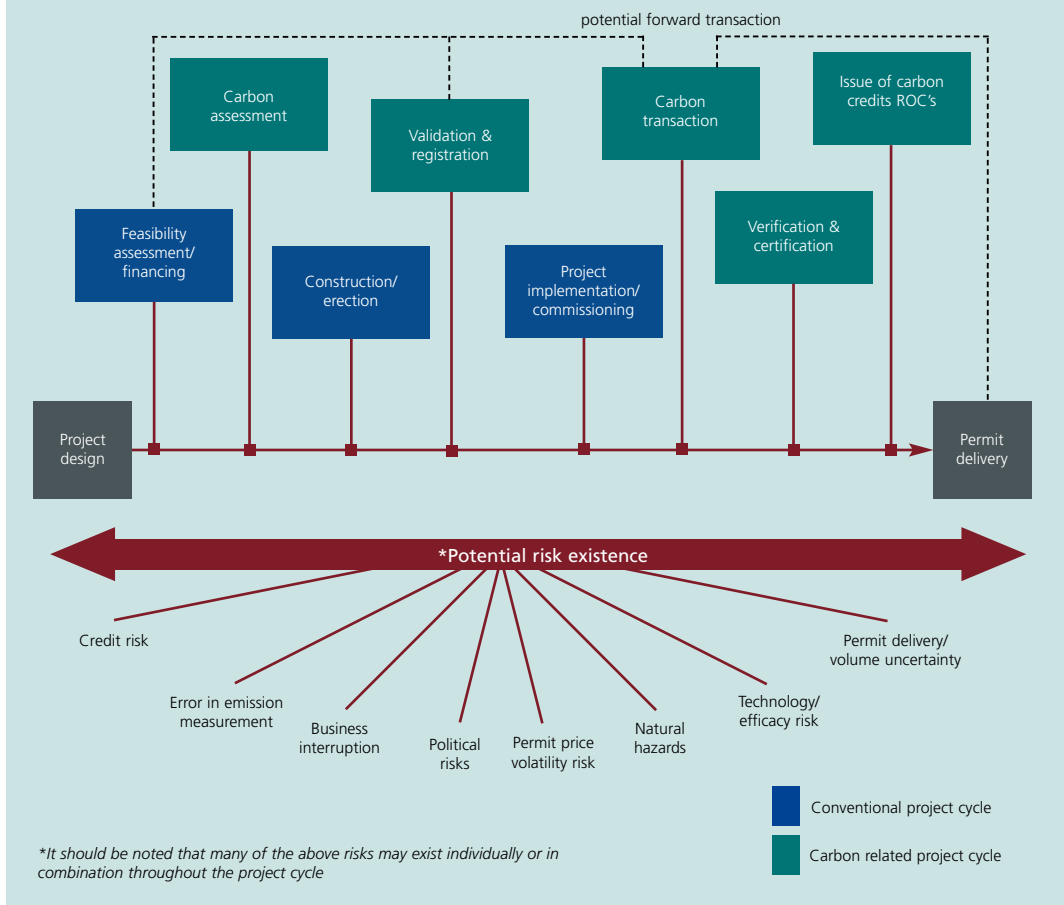
However, projects to reduce emissions present their own risks, from the feasibility and design stages through to financing, construction, operation and decommissioning. Additionally, as markets for carbon 'credits' continue to emerge and develop, there will be numerous related trading risks that may have significant financial impacts. These include:

- **regulatory risks** - for example risks associated with project approval, validation, verification
- **political risks** - for example risks associated with changes to climate change policy and obligations
- **carbon financing risks** - including the inability to secure finance based on carbon revenue streams
- **performance/efficacy risk** - for example risks associated with the projects delivering unexpected credit shortfalls
- **credit risk** - for example failure to deliver credits as contracted
- **non-compliance risk** - for example non-compliance penalties associated with climate change legislation
- **price risk** - for example energy and carbon price volatility
- **resource supply/variability risk** - for example risks associated with sourcing long-term and consistent fuel/resource supply.

Factoring in the carbon component in a project cycle can help identify the critical risks associated with the underlying project, transaction of permits and externalities, all of which can impact on the success of the project - see diagram overleaf.



Emission reduction project cycle



The role of the insurance sector

It may be possible to mitigate some financial and operational risk exposures using conventional as well as new and non-traditional insurance products and markets. In fact, some insurers and reinsurers appreciate the strategic business importance of climate change more than other financial services providers. They are increasingly aware of the effects of climate change and global warming such as more frequent and severe flooding, storms, droughts, fires, and heat waves. Of key concern for some are the credit and liquidity problems that could arise from increasing weather related insured losses which may affect the availability and extent of coverage, particularly in the property/casualty and agricultural markets. Research has shown a doubling every 10 years of weather related losses with over US\$60bn of losses alone in 2003¹. To date, few insurers have begun factoring climate change risks into their underwriting decision making.

In order to maximise its own opportunities for increased premium income as well as meet the requirements of its clients, the insurance sector needs to extend and adapt existing products to take account of climate change risks. It also needs to meet the new insurance requirements of the emerging clean energy and renewable energy industries by designing innovative risk and insurance products and services.

Underwriters have a key role to play in helping to mitigate the effects of climate change and hedging their own future exposure to these effects. They should be looking at providing indemnification, compensation and relief against climate change events and developing new products and solutions that can support the emerging GHG and renewable energy markets.

¹ Source: *The Carbon Disclosure Project 2003, Innovest Strategic Value Advisors*

Conclusion

Initiatives and legislative requirements aimed at countering climate change are driving businesses to transform the way they operate in all sectors of the economy including energy, power/utilities, natural resources, transportation, heavy industry, finance, insurance and banking. With the emergence of these new risks come new opportunities.

In addition to providing in-house broking, risk engineering, insurance and consultancy assistance,

Marsh can work with its sister companies Putnam and NERA to help clients understand and positively manage their carbon risks. Putnam can provide investment related valuation and analysis for new carbon assets and liabilities whilst NERA offers economic analysis and understanding of market structures, regulatory incentives and instruments relevant to climate change policies.

For further information, please contact a member from our Marine & Energy Practice, alternatively your usual Marsh representative.



National Allocation Plans

Each EU member state is required to draw up a National Allocation Plan (NAP) for submission to the European Commission by the end of March 2004. The Plan has to set out the total number of emission allowances, each representing one tonne of CO₂, to be allocated to the industry sectors covered by the EU ETS. It also has to show how this total allocation is to be distributed between individual installations included in the Scheme.

The installations covered by the EU ETS from the beginning of 2005 include: the electricity generation industry; oil refineries; the iron and steel industry; the minerals industry; and paper, pulp and board manufacturing.

Failure to meet emission reduction targets will result in heavy penalties. An installation will be fined Euros40 for each tonne of CO₂ by which it exceeds its target in the first compliance period (2005-2008), rising to Euros100 in the second compliance period (2008-2012). Such installations may also be required to make up any shortfall by purchasing allowances from the allowance trading market.

The Commission may expand the Scheme to include other industry sectors (for example, chemicals and aluminium) in the second trading phase 2008-2012. Currently, only CO₂ emissions are included in the Scheme but it may be expanded to include other greenhouse gases, such as sulphur, hexafluoride and methane, in the second trading phase.

UK NAP draft

On 19 January 2004, the UK Department for the Environment, Food and Rural Affairs and the Department of Trade & Industry jointly published for consultation their draft National Allocation Plan, setting out how greenhouse gas emission allowances will be allocated to the 1500 operators of UK installations for the first phase of the EU Emissions Trading Scheme, which runs from 2005 to 2007. These installations represent 46% of the UK economy's emissions and must achieve emission reductions of 5.5 million tonnes of carbon dioxide by 2010.

The government's national goal is to move towards a 20% reduction in CO₂ emissions by 2010. The UK's

initial allocation of allowances for the first phase of the Scheme will be 714.5 million. Allowances which is consistent with an overall reduction in emissions of 16.3%. This 'pot' represents a possible value of 3.5 to 10.7 billion Euro assuming a price of between 5 to 15 euros per EU allowance. However, the overall level of allowances to be allocated in the UK in phase 2 of the Scheme (which runs from 2008-12) will be strengthened to be consistent with the trading sector's contribution to achieving the 20% goal. There is a link to the consultation document at:

<http://www.dti.gov.uk/consultations/current>



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