

# Responding to climate change

Challenges and solutions on the road ahead



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Strategy

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Companies deal with uncertainty the whole time. Managing risk is the stuff of business. Indeed, the only certain thing in business is you have to manage uncertainty.

Climate change exemplifies this conundrum. In many respects, the regulatory, market and technological environment for companies to plan their climate change responses is uncertain. In other respects, there are clear signals, not least with regard to the overall direction of travel towards cleaner energy and the imperatives of many national policy requirements. What we do know is that waiting for greater clarity from our politicians and policymakers will only mean letting your competitors get ahead of you, if they are not already.

Companies in the energy, utilities and mining industries are on the front-line of climate change challenges. They need to navigate rapidly changing regulation and reporting regimes, markets and technologies that are still in evolution, fluctuating carbon prices and all the other risks that come from a transition to a low carbon economy and a warming planet. But this road also brings new opportunities and new markets for companies in these sectors.

This publication shows how PricewaterhouseCoopers can assist in the areas of strategy, risk, regulation and reporting to optimise operations and deliver leading practice. Our goal is to help companies deliver on their climate change ambitions in a way that brings maximum value and competitive advantage.



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## 02 Climate context

World leaders have reached a degree of consensus around a target of seeking to limit global warming to no more than 2°C. However, the world economy and human activity have been emitting more than the global carbon budget required to limit global warming to this level. To get back on track, carbon intensity would need to be reduced at a rate of 3.5% a year to 2020, four times faster than achieved since 2000. The ambition is there, but the targets look very challenging.

What does this mean for companies in the energy, utilities and mining industries? Power companies are central to plans for a low carbon future, with regulation and carbon pricing driving efficiency improvements, demand management and fuel mix changes. For energy companies and coal miners, the focus is more on their products and how they are used, but the issue is no less central. Whilst for other mining companies and water utilities, adaptation to climate change is as big an issue as decarbonising their operations.

Our clients need to assess the wider risks and opportunities that climate change poses at the broad business strategy level, as well as driving changes at the individual plant and operations level. However, companies grapple with climate change and decarbonisation in a world of uncertainty. The decisions businesses take on climate change and carbon have to be carefully weighed against their assessment of the complex interplay of technological, scientific, policy, regulatory, market and investment factors.

### Global uncertainty

The UN Climate Summit that took place in Copenhagen at the end of 2009 did not result in a clear agreement on carbon reduction. It did, though, affirm a commitment to develop measures to limit warming to 2°C. Within the next few years, we expect to see increasingly persuasive, and increasingly worrying, scientific evidence of climate change and greater understanding of potential impacts. This is likely to result in increased urgency and a rapid scaling-up of regulatory and other responses.

The speed and scale of these responses will determine whether the goal of 2°C is achievable, never mind the more ambitious 1.5°C target also referenced in the Copenhagen Accord. With recent indications of an acceleration of warming, the realism of these ceilings will also be tested. Commercial prudence and corporate responsibility should lead chief risk officers or risk committees to consider the implications of three or even four degrees Celsius of warming, particularly where markets, long-lived assets or supply chains are vulnerable to climate impacts (e.g. coastal regions, activities that are highly reliant on water availability or vulnerable to extreme weather events).

### On the ground reality

Although agreement at the global level remains elusive, national and pan-national policies and legislation have taken shape and continue to be developed with a significant impact on companies. Much of the emphasis of these policies is on climate mitigation (i.e. decarbonisation). However, since Copenhagen, there has been a growing focus on the opportunities that a shift to a low carbon economy will bring – the race for green job creation and green growth has started.

#### European Union (EU) countries

The EU is committed to reduce carbon emissions to 20% below 1990 levels by 2020 and to 30% below if other major economies make similar commitments. Copenhagen did not deliver the progress required to shift to 30%, but a unilateral move is still a possibility, despite strong resistance in many quarters. The EU Emissions Trading Scheme (ETS), the central plank of EU climate policy, is now well established. The ETS is set to evolve further in its third phase post 2012 with a tighter emissions cap and auctioning as the principal allocation method. However, carbon prices in the ETS, and more generally, look set to remain relatively low until economic growth picks up or a more ambitious target is adopted. This will continue to delay investment in low carbon generation and other significant capital investments in reducing emissions. The EU has also set targets for renewable energy and there is a raft of specific national policies to encourage or require renewable generation. The European Commission is developing seven road maps for a major transformation and decarbonisation of Europe's energy system.

#### United States

The prospects for some form of climate regulation, whether from a bill in Congress or the Environmental Protection Agency, have increased significantly under the new administration. Federal regulation is expected to set targets for carbon emission cuts by imposing caps on specific industries' greenhouse gas (GHG) emissions and imposing a 'linked fee' on petrol companies' output. However, achieving bipartisan consensus in the Senate is proving difficult and the reform is competing for legislative time with other priorities such as financial regulatory reform. In the meantime, many states have enacted their own climate change regulation. California is the most well-known example but many other states have emission targets and some participate in regional cap and trade schemes. At the same time, the US Securities and Exchange Commission (SEC) has made it clear that companies have a duty to disclose risks faced through potential climate change.

#### Australia

New South Wales was one of the first places to introduce carbon trading. Australia was also one of the first countries in the world to introduce a national framework for the reporting and dissemination of information about GHG emissions by companies. But while there is bipartisan political support for a target of 5-25% GHG emissions reduction below 2000 levels by 2020, plans to implement an Australia-wide carbon trading scheme in 2010 have been deferred until the end of 2012 and remain subject to legislative uncertainty. The opposition Liberal party has now joined the National party in opposing the scheme and, with an election due before April 2011, there is increasing uncertainty over whether the scheme will become operational at all. The government's policy is to boost existing investments in clean and renewable energy and support greater energy efficiency measures in order to bring down GHGs in the near term. In the meantime, without a centralised federal mitigation approach, a state-based approach to emissions trading could re-emerge, which could potentially prove confusing and lead to a high compliance burden.

## Carbon emissions reduction map

### European Union

Carbon emissions reduced to 20% below 1990 levels by 2020; 30% if other major economies make a similar commitment. An increased share of renewables in energy use to 20% by 2020. Energy consumption to be cut by 20% of projected 2020 levels – through energy efficiency improvements.

### Russia

Carbon emissions target of 22%-25% below 1990 levels by 2020 (revised from 10%-15%). Share of power to come from renewables – 20% incl. hydropower or 4.5% excl. hydropower by 2020.

### United States

Carbon emissions target of 17% below 2005 levels by 2020 and 83% below 2005 levels by 2050.

### China

A 20% reduction in energy intensity from 2005-2010. A 40% - 45% reduction in carbon intensity by 2020.



### Japan

Carbon emissions to be 25% below 1990 levels by 2020, conditional on extent of global agreement. 60-80% from 2008 levels by 2050.

### South Africa

Limit carbon emissions growth to 10% above 2003 levels in 2020.

### Brazil

Reduce Amazon deforestation by half by 2017. Limit carbon emissions to 36%-39% below business-as-usual levels by 2020.

### Australia

Carbon emissions target of 5%-15% below 2000 levels by 2020; 25% below 2000 levels by 2020 conditional on global agreement on a 450ppm CO<sub>2</sub>e GHG stabilisation target.

## 04 Climate context

# The boardroom climate agenda

Spurred by their own strategic imperatives and by national regulation, companies haven't been waiting for a global policy accord to take action on climate change. The overall direction of global climate discussions and many specific national government policies reinforce a number of themes and trends which already are the focus of action by companies and their boards.

### Energy efficiency – opportunity or threat?

Pressure on margins and cash flows has reinforced the need to manage down energy costs. Across the spectrum, from power utilities to water utilities, from extractive industries to refining and retail, companies are taking action to improve energy efficiency and reduce carbon emissions. It is simply a matter of good housekeeping. This will continue, prompted by higher energy costs and helped by technological innovation. Energy efficiency or fuel-saving measures often have short pay-back periods (two to four years). Access to capital isn't necessarily the key barrier to these actions – the challenge is in identifying projects which are competitive within a company's portfolio.

### Renewable and cleaner energy requirements

Energy policies are requiring an increasing amount of energy to come from renewable sources. Security of supply is a twin driving force, alongside concern about climate change, behind government-mandated targets for renewable energy, not just in power generation but in the heat and transportation sectors which currently rely on fossil fuel.

### Technological development and cross-sector alliances

Climate change presents companies in each of the energy, utilities and mining sectors with important decisions about their footprint and reduction pathway with technology developers. In mining, decarbonisation will have an impact on demand for different minerals. In the oil and gas sector, companies are having to judge the timing of their investment in cleaner fuels. In the power utilities sector, companies are sourcing an increasing amount of power generation from cleaner and renewable sources. In all sectors, these moves are heavily dependent on technological progress and innovation with the need to forge new and, in some cases, bold alliances.

### Regulation and standards

Governments are expected to complement market measures with non-market regulations, such as stricter standards on fuel and energy efficiency in transport, appliances and homes, to encourage more sustainable practices and to drive investment towards low-carbon solutions. Despite pressures to cut 'red tape' elsewhere, we expect to see an acceleration of low-carbon regulation and standards. A particular challenge for oil and gas, utility and mining companies will be to manage the interaction between market mechanisms and regulatory interventions on a global basis.

These themes are set to intensify over the next five years

## Carbon management

Business is investing in carbon/energy management systems and key performance indicators which are integrated in their operations rather than being just an annual number-crunching exercise. Ultimately this information should inform investment decisions, as well as being used for reporting and compliance purposes. It therefore needs to be readily available and reliable. For long-term or strategic investments in infrastructure or energy projects, both producing and consuming companies need to understand a project's sensitivity to different policy, carbon price and climate scenarios.

## Reporting and compliance

The requirements for business to report credible or verified GHG data are increasing. Even within the same jurisdiction a company may submit emissions data in multiple formats for different purposes or regulations. Investing in a robust and flexible data management system will enable companies to meet these changing obligations.

## Carbon markets

Copenhagen hasn't given the boost to carbon markets that many had hoped for, but carbon pricing is probably here to stay. In the absence of a common (global) price for carbon, at least for the foreseeable future, companies will face uncertainty (and opportunity) in determining facility locations. The shadow price of carbon should cover a range of scenarios and vary for different national outcomes. Recent VAT frauds and phishing scams have underlined the need to apply the same rigorous standards and controls to carbon market trading as to other financial and energy markets.

## Taxation

Companies need to ensure their tax work is aligned with their overall sustainability efforts to ensure maximum benefit from rapidly changing grant and incentive opportunities and emissions trading markets around the world. For example, in the US alone, there are literally hundreds of different state and local tax incentives available to a company for renewable energy and energy efficiency projects at any given time – not to mention those available at the federal level. Tax planning and reporting considerations need to be part of companies' strategies for managing emissions allowances and hedging any obligations to surrender emissions allowances for compliance purposes.

## Case study

### The European Commission: CCS & renewables competition advice

#### Background

In late 2008 EU ministers agreed that 300 million carbon allowances, valued at approximately Euro 4.5bn, from the New Entrant Reserve will be set aside for the co-financing of innovative carbon capture & storage (CCS) and renewables projects. The European Commission needed to consider how best to encourage, select and support these demonstration and innovative projects.

#### Our approach

PricewaterhouseCoopers brought extensive experience of public procurement, CCS and carbon markets to support the Commission in assessing the implications of different options and developing the preferred approach.

#### Outputs

We provided analysis and policy recommendations to the Commission in the early stages of the process to design a methodology for the selection of projects and disbursement of the allowances. This included:

- evaluating options for the apportionment of allowances between different technology categories;
- the organisation of the award process and design of the competition;
- the treatment of project risk and how to manage carbon price risk.

PwC also identified the main steps and resources required to implement the Commission's preferred approach.

# 06 Our response to your climate challenges

## Strategy

Climate change carries considerable risks for companies but it also presents significant opportunities. Regulators and policy makers are reshaping the business and market environment in ways that can have a significant major impact in our sectors. Investors' perceptions of risk are changing, helped by an increasingly vocal NGO community and customer awareness, particularly in the B2B sectors, which in turn is driving demand for products and services that mitigate or offset the negative effects of climate change.

At PricewaterhouseCoopers we refer to these as 'climate change value drivers'. Understanding, managing and maximising these value drivers is fast becoming a key requirement for businesses around the world and something which the investment community as well as other stakeholders increasingly expect companies to be able to demonstrate.

Companies that fail to take a strategic view of climate change and carbon management risk being downgraded by the investment community, losing competitive advantage and seeing shareholder value erode. The threats, and the opportunities, are multi-dimensional, spanning sectors and geographies. For example, changes in the energy fuel mix and vehicle transportation technologies, will have implications for mining companies with rising demand for elements such as uranium, platinum and silicon. Oil majors are supporting the protection of rainforests, in part to relieve regulatory pressures on the energy sector, but also because of the opportunities in biomass.

In the power utilities sector, companies are already seeking global leadership positions in renewable power generation and nuclear power. Companies are collaborating across sectors to develop cost-effective carbon sequestration and storage solutions. R&D and demonstration projects today are likely to translate into industry standards and core competences within a decade, with regulation driving growth as well as threats to traditional technologies.

A growing number of companies are offering carbon free or carbon offset products to their consumers, as well as energy and carbon management services, and new opportunities will come across the value chain as the world changes to a low-carbon economy.

### Strategy checklist

Are you setting your growth and shareholder value strategies to take full account of climate opportunity and climate risk?

What are the implications for your operational portfolio and market positioning? How different will they need to be in ten years time?

Have you considered how climate change can help you move into new markets or radically reshape existing markets?

Do you have a clear view of the carbon value and exposure inherent in your current operations and the moves you need to make to manage and shift your carbon footprint?

Are you making a dedicated effort to turn energy saving and energy efficiency into business advantage for you and for your customers?

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### Sustainability and climate change strategy

- PricewaterhouseCoopers provides strategic advice geared to identifying and managing strategic sustainability risks and opportunities. We use future sustainability scenarios and modelling to stress test those strategies and explore the implications for the business.
- We assist clients in developing sustainability strategies, change management solutions, performance management, reporting and stakeholder engagement solutions.
- We advise on sustainability policy and governance issues as well as key performance indicators and incentives.

### Transaction support, due diligence and accounting advisory

- PricewaterhouseCoopers helps clients to assess climate-change risks and opportunities in corporate mergers and acquisitions and financing transactions and to understand the value implications.
- We undertake a systematic review of the risks and liabilities arising from a transaction, and assess their financial reporting impacts. This includes risks related to operational environmental performance, legal compliance, reputation and stakeholder pressures.
- We also provide ongoing transaction support, in transaction negotiations, and in the development of systems to manage significant risks and liabilities.

### Carbon footprint and carbon market opportunity

- We advise companies on the approach they are taking to their own carbon footprint and the opportunities open to them in carbon markets.
- We help companies measure and monitor their carbon footprint and ensure that carbon data is independently verified.
- We help companies forecast carbon growth and set reduction targets, optimise abatement and compliance strategies, and identify and leverage new carbon opportunities.

## Case study

### BHP Billiton

#### Background

As part of its response to climate change, BHP Billiton issued a directive requiring facilities whose energy consumption and corresponding emissions exceed a predetermined threshold, to undertake a detailed analysis of the opportunities to reduce energy consumption and carbon emissions.

#### Our approach

As part of the response to this global move, PwC has commenced working with BHP Billiton Base Metals in Chile to investigate and develop greenhouse and energy abatement cost curves at three mine-site locations. We are applying our abatement cost curve methodology. This includes:

- conducting and facilitating workshops with local operational personnel to identify abatement opportunities;
- screening and costing of the identified projects;
- modelling the abatement options to derive a cost per unit of energy and greenhouse gas abated.

#### Outputs

The assignment has enabled BHP Billiton to be able to identify and prioritise low cost energy and greenhouse gas abatement opportunities for implementation whilst providing a key input into group level energy and greenhouse gas reduction strategy.

### Assessing carbon capture and storage solutions on a gas-fired powerplant in Kårstø, Norway

#### Background

Deployment of carbon capture and storage (CCS) will be an important strategy for reducing CO<sub>2</sub> emissions. A central part of the Norwegian government's approach is the creation of a full-scale post-combustion CCS facility on a gas-fired powerplant in Kårstø, Norway.

#### Our approach

The Norwegian oil and energy department needed to consider alternative CCS solutions for the Kårstø plant. PwC assisted in the development of a study outlining the needs, effects and costs of implementing CCS at Kårstø.

#### Outputs

We created a needs assessment and looked at a range of alternative solutions with regard to the capture facility, transportation and storage. In addition, the cost of the project was calculated on a socio-economic basis. The final report was used to inform the government's investment decision.

# 08 Our response to your climate challenges

## Risk

Technological risk. Market risk. Trading risk. Physical risk. The risks that arise from climate change and carbon are many and considerable. How should companies time their investments in new processes and technologies? What will be the winning technologies? What are the implications for end markets and product portfolios? What will be the most optimal carbon trading strategy? What are the dangers to physical infrastructure from climate change-related weather events and sea level rises?

Companies need to consider both first order and second order risks. The ‘first order’ physical risk of climate change to companies’ infrastructure and operations is already becoming evident. For example, large consumers of water for activities such as power generation and mining in Australia have faced major impacts on their respective supply chains as a result of periods of prolonged drought.

‘Second order’ risks arising from changes in a company’s business climate are potentially even more hazardous. Companies face a dilution in value if they do not stretch their risk horizons fully to address these. They need to plan in ways that will allow them to manage the risk of major market change. For example, will a key end market for petroleum diminish as the electric car becomes dominant or will we see step changes in engine efficiency that will enable cars to travel much further on a litre of petroleum?

In interpretive guidance issued in February 2010, the US Securities and Exchange Commission explains how companies have a duty to disclose climate change risks material to them. In its guidance, the SEC takes a rather broad view of climate-related risk. It includes not just the direct consequences of regulation on companies but goes on to ask companies to consider other indirect risks such as market demand for goods. Walmart’s 2010 announcement of its intention to reduce 20 million tons of GHG emissions in its supply chain by 2015 highlights the decarbonisation trend and implications for fossil fuel energy supply and other carbon intensive production.

Companies need to assess the sustainability of, and make changes to, the carbon-intensive parts of their operations. Without this, they run the risk of them becoming stranded assets as markets and regulation move on to favour low carbon or carbon free alternatives.

All companies need to manage the cost of carbon within their operations and maximise the carbon value they are able to achieve from carbon trading, offsetting and similar mechanisms. Their carbon exposure and performance carries both immediate and long-term financial implications. In day-to-day operations, robust carbon management is vital to ensure compliance and to minimise costs under carbon trading, carbon taxation or other carbon limitation mechanisms.

### Risk checklist

Can you be sure you have identified the climate change and carbon-related risks that your company is exposed to? Are you also being explicit about which risks you are choosing not to mitigate? This is a good check on whether management’s risk appetite aligns with the board’s and investors.

Have you defined a clear approach to managing all these risks? Is it robust and in line with your company’s risk appetite and business requirements?

Are the rest of your key business strategies – investment, M&A, product development, R&D etc – aligned with your climate change and carbon risk strategy? Have you integrated climate change risk management throughout your operations?

Have you priced carbon risk into all your investment decisions – in current operations, greenfield investment and acquisitions? Do you have sufficient information to manage the risks in your M&A transactions and to negotiate effectively on price?

What are the risks for your company from emission trading schemes? Do you know the incurred and expected additional earnings volatility due to emission trading schemes?

Have you assessed your company’s vulnerability to climate change? Have you looked beyond asset vulnerability to potential disruption of your markets, your supply chain and your workforce? Have you looked at cross-sectoral interdependencies (e.g. with transport and telecoms)?

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Companies face considerable carbon market risk. The International Emissions Trading Association's (IETA) fifth annual GHG Market Sentiment Survey of carbon market participants, conducted on behalf of IETA by PricewaterhouseCoopers, indicates that confidence in the long-term viability of the carbon price signal is slipping. Continued regulatory uncertainty, at both the international and national level, is having a negative impact on carbon markets and wider emissions reduction efforts. Nonetheless, carbon markets remain the preferred mechanism, ranked above measures such as tax incentives or direct government support, to drive low carbon investment.

#### **Embedding climate change risks into company risk assessment processes**

- PricewaterhouseCoopers helps identify and assess the range of potential risks – regulatory (e.g. cap and trade), operational (e.g. changing technology, impacts to raw materials), market (e.g. customer demands for lower carbon products) and reputational issues among others. Performing a comprehensive risk assessment will help management to more effectively prioritise the risks and ensure that the appropriate responses are in place.
- We advise which risks are material for disclosure. In light of the existing rules and SEC interpretive guidance, management needs to determine which of the climate-related risks are material and thus warrant disclosure in regulatory filings.
- We work with companies to ensure information presented is consistent. Many already publish a wide range of climate-related information through sustainability or corporate social responsibility reports or through initiatives such as the Carbon Disclosure Project. Controls need to be in place to ensure all related information is presented consistently.

#### **Carbon management**

- PricewaterhouseCoopers assists clients in data collection, analysis and reporting, analysing exposure and options, and optimising value by managing their carbon assets and liabilities. We help clients integrate carbon value into financial reporting, risk management, and capital budgeting.
- We help clients determine the value of their emissions allowances and credits as well as other assets and liabilities with values linked to carbon.
- We work with both buyers and sellers of carbon credits in all the main carbon markets, offering a full range of transaction services, including financial advice, tax structuring, auctions and carbon due diligence.

#### **Climate risk mapping**

- PricewaterhouseCoopers helps clients to build climate change resilience into their businesses. We can map current and future climate risks (including extreme weather, climate shifts and water stress) across companies' value chains and investment portfolios. This enables our clients to identify vulnerabilities, and assess the adequacy of risk management strategies and cost implications.
- We undertake present-day climate risk assessments to quantify current climate risk exposure, risk drivers and expected losses, prioritise high risk sites, and optimise risk mitigation and insurance purchasing strategies.
- We perform future climate risk assessments to identify high risk operations, incorporate climate change risks into asset allocation decisions, develop adaptation actions into strategies, and support climate risks disclosure.

## Case study

### Masdar (Abu Dhabi Future Energy Company)

#### **Background**

Masdar needed to develop a set of rules and procedures to manage their carbon origination and trading business.

#### **Our approach**

PricewaterhouseCoopers conducted a comprehensive review of carbon funds, and selected utilities and banks, to assess current practices of portfolio risk management, trading strategies and governance structures.

#### **Outputs**

Our work supported Masdar's objectives of being a leader in developing low-carbon projects. We provided expert advice on:

- approaches to carbon risk management;
- valuation of a portfolio of Emissions Reduction Purchase Agreements (ERPAs) and issued carbon credits;
- the treatment of credits for delivery post 2012.

# 10 Our response to your climate challenges

## Regulation

Governments everywhere are introducing taxes, incentives and regulation as part of their sustainability and climate change policies, presenting businesses with new opportunities and risks. There is a growing, complex interplay between climate change and energy policy and a variety of different regulatory approaches through trading, incentive payments, taxation and environmental regulation.

### Regulation checklist

Have you got a firm hold on the climate change and carbon compliance obligations that you need to comply with in different jurisdictions around the world?

What are the risks for your company from emission trading schemes? Do you know the incurred and expected additional earnings volatility due to emission trading schemes?

Do you have clear frameworks, governance and controls in place to mitigate the risks associated with emission trading schemes?

How confident are you that you have taken full account of changes in regulation? In Europe, how will your expenses for carbon emissions change in the third phase of EU ETS post 2012?

Are you making the most of opportunities arising from green technology stimulus and other initiatives in your region?

Is your legal and tax department involved in your company's overall 'green' strategy?

### Tax checklist

Which environmental taxes do you currently pay? How much are they as a proportion of your total tax contribution?

Are you proactively managing your exposure to environmental taxes and the tax impact of environmental regulation?

Are you using the tax incentives available to you and considering these as part of your investment strategy?

Have you considered the tax implications of changing consumer and business preferences in relation to your supply chain, business model and product range?

Do you understand all the tax implications of the emissions trading schemes which you (or one or more of your global subsidiaries) are part of, or have obligations under?

Have you properly scoped the tax implications of investments or projects both at home and in foreign jurisdictions (e.g. under the Clean Development Mechanism (CDM)) which form part of your response to climate change and sustainability?

In Europe, a market-led cap and trade framework is well established and a price for carbon looks likely to become increasingly important in other major economies, leading to compliance obligations and additional costs. It will also lead to changes in operations, competitive positioning in an industry, cost and risk management challenges, carbon asset development opportunities and financial reporting.

As well as the cap and trade framework, the European Commission's Strategic Energy Technology Plan aims to accelerate the development and large-scale deployment of low carbon technologies. This research, development and demonstration programme has been estimated at Euro 60bn to Euro 65bn over the next ten years (divided between the different European industrial initiatives), shared by industry and EU funding.

In the US, tax incentives play a key role in the regulatory framework. The available incentives encourage even relatively simple additions to existing facilities, as well as large investments, offering tax credits, opportunities to transform credits into cash, favourable depreciation, lease-back options, and corporate image enhancement benefits that are often immediate. With additional climate change and energy tax legislation ahead, the tax opportunities associated with energy efficiencies are not going away.

In Australia the National Greenhouse and Energy Reporting Act 2007 (the NGER Act) introduced a national framework for the reporting and dissemination of information about GHG emissions, greenhouse gas projects, and corporate energy use and production. The first annual reporting period began on 1 July 2008.

Internationally, the Clean Development Mechanism (CDM) is the principal mechanism under the Kyoto Protocol to incentivise companies and governments to invest in projects to reduce greenhouse gas emissions. Asia is currently the biggest source of CDM credits, with the potential to generate 80% of the global market for these credits. According to a recent study by the World Bank, China could potentially account for half of the world's CDM market, with a value of between US\$2-8bn per year. The future of the project-based CDM is a critical issue in the UN climate negotiations. Alternative sectoral mechanisms to promote more widespread engagement by the private sector are being considered. Resolution of these issues is likely to have a significant impact on investment patterns in developing countries.

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### Meeting compliance requirements

- PricewaterhouseCoopers helps clients keep up to date with, and anticipate, environmental, carbon and energy legislation and regulation.
- We ensure that companies are complying with the relevant environmental legislation and regulations in each of the countries in which they have a presence.
- We undertake readiness checks, legal reviews and accounting treatments for environmental (including carbon) assets/liabilities and compliance programmes.
- We can help advise on the implications for operations and investment decisions that arise from geopolitical variations in regulation.

### Making the most of incentive schemes

- PricewaterhouseCoopers helps clients to structure their investments to take maximum advantage of the incentives available.
- We help companies position themselves in relation to national and supranational authorities to influence the development of new incentive mechanisms.
- We help to identify additional funding opportunities for research and investment projects. Our services cover the whole process of identifying and assessing relevant incentive schemes, developing the application itself, right through to reporting and final settlement of grant awards.

### Maximising CDM and joint initiative opportunities

- We are a leading adviser on clean development mechanism (CDM) and joint initiative (JI) projects. We have dedicated, experienced and responsive CDM service teams with deep capacity in local developing country markets, supplemented by the global reach of our carbon markets network.
- We utilise a fully integrated financial advisory approach based on real experience in the structuring and execution of CDM deals.
- Our international network of CDM specialists has in-depth understanding and contacts with the key regulatory bodies, as well as extensive contacts with carbon buyers including energy and industrial clients, financial institutions and funds.

### Delivering an optimal tax strategy

- PricewaterhouseCoopers is on hand to assist clients with our full range of tax services arising from new regulation and legislation directed at reducing the effects of climate change and shifting to a low-carbon economy.
- Our services include advice on the most appropriate tax structures for new project investments, effective tax and transfer pricing strategies, and how to respond in a tax-efficient way to new environmental obligations, including those in respect of buildings and energy services.
- We have in-depth knowledge of the international tax issues involved in fund structuring and structuring sustainability and renewable energy investments. Our global network of specialists can assist you with acquisitions and divestments in this area.

## Case studies

### Strengthening verification processes in The Netherlands

#### Background

One of the largest power producers in The Netherlands needed to verify the annual CO2 emission reports of all their production installations going back over a considerable period to 2005.

#### Our approach

PricewaterhouseCoopers delivered the verification checks required but then created significant added value by helping the company to improve their quality control procedures and generally improve the quality of their primary emission data.

#### Outputs

We assessed the adequacy of controls, provided assurance on IT systems, reviewed the reported emission data and issued the verification statements. We then cleared the data in the national registry. Our client has been able to use the advice in our management report on internal controls and other findings to continuously improve its monitoring and reporting process.

### Rio Tinto – in good shape to meet new regulatory requirements

#### Background

The introduction of the National Greenhouse and Energy Reporting Act 2007 (NGER) in Australia has meant that companies have had to report energy usage, energy production and GHG emissions for each of their Australian operations on an annual basis from 2009. PwC was engaged by a leading international mining company, Rio Tinto, to provide a limited assurance opinion in relation to its energy and GHG emissions report under the terms of the Act.

#### Our approach

PwC applied a risk-based assurance approach to the engagement:

- testing included the underlying processes and controls used to capture the data and the technical calculations;
- with operations across Australia and remote facilities, PwC used a national team of experts to conduct the testing procedures.

#### Outputs

PwC conducted the assurance engagement in accordance with the Australian Standard on Assurance Engagements ASAE 3000 'Assurance Engagements other than Audits and Reviews of Historical Financial Information'. The detailed feedback and recommendations for further improvements in the reporting processes has enhanced the company's options for improvements in future years.

# 12 Our response to your climate challenges

## Reporting

Companies are responding to a growing number of mandatory reporting requirements on emission levels. They are also increasingly recognising the importance of communicating their climate change and wider sustainability strategies to investors and the marketplace, the accounting of which is subject to ongoing discussion.

Getting the financial impact of climate change right can be a deal maker or breaker. In the US, for example, five of the world's leading financial institutions – Bank of America, Citi, Credit Suisse, JPMorgan Chase and Morgan Stanley – launched a set of 'Carbon Principles' for evaluating and addressing carbon risks in the financing of electric power projects. These are accompanied, in the case of certain plants, by an Enhanced Diligence Process to further scrutinise the carbon-related risks of the proposed supply option.

The independent verification of each installation's annual emissions is one of the key foundations of emission cap and trade schemes. It is the process by which governments, regulators, participating companies and their financial auditors can be assured that the system is producing real emission reductions and that the instruments traded on the market are fairly valued. Companies operating in multiple jurisdictions can face particular compliance challenges (and potentially higher costs) because regulatory frameworks for verification may not be fully harmonised.

As well as reporting on the company's overall approach to optimising the company's carbon value and climate change strategy, the requirements of specific regulatory regimes present significant reporting challenges. Many jurisdictions mandate annual reporting of carbon emissions and energy use. In Europe, the EU-ETS creates new assets and liabilities worth tens of billions of euros, and presents new and unique challenges for companies falling within the scheme.

The reporting challenge is greater because of uncertainty about specific guidance on carbon accounting at the international level. There are existing standards within International Financial Reporting Standards (IFRS) that can be interpreted in order to arrive at reliable accounting policies. However, the International Accounting Standard Board (IASB) withdrew an interpretation of how to account for emission trading schemes (IFRIC 3) in 2005. The IASB continues to discuss how best to account for emission rights including the question of whether all emission rights should be fair valued no matter what the entity spent in order to acquire them.

### Reporting checklist

Are you putting the communication of your climate change and carbon value strategy at the heart of your reporting to the marketplace or does it remain an 'add on'?

Do you have robust emission reduction strategies and reporting mechanisms in place within your company? Do they form part of the mainstream governance of the company?

Are emissions reductions and energy efficiency measures being captured in key performance indicators that are discussed at board meetings?

How are your future earnings affected by your carbon emissions? What will your expenses be for carbon emissions in the next year?

How aware are you of the ways in which changes to accounting for emission rights being discussed by the IASB will affect your net assets and earnings?

Strategy

Risk

Regulation

Reporting

### Sustainability reporting

- PricewaterhouseCoopers advises on, and helps develop, company strategies for sustainability reporting.
- We help our clients to assess their existing reporting systems, processes and controls over sustainability performance reporting, and determine their readiness for assurance.
- We provide independent assurance over the reliability of information relating to our clients' environmental, social, ethical and economic performance.

### Carbon verification and assurance

- We undertake internal audit and assurance over reported carbon data.
- We offer in-depth knowledge of the regulatory frameworks for verification and accreditation and understanding of technical issues across jurisdictions.
- We are a leading independent EU-ETS verifier, with a network of climate change professionals in all EU member states and worldwide.

### Effective integration of carbon and sustainability reporting into financial reporting

- We help our clients to review governance and reporting systems to ensure effective alignment of new sustainability measures with existing reporting processes.
- We provide up to the minute advice on the accounting and reporting needed to comply with the latest international standards.
- We ensure that companies are making the preparations needed to anticipate new standards and reporting requirements.

## Case studies

### BG Group

#### Background

Sustainability for BG Group is about the conditions for long-term value creation. PricewaterhouseCoopers was engaged by the company to perform an independent assurance engagement in respect of BG Group's 2009 Sustainability Report.

#### Our approach

PwC provided assurance on the report in accordance with ISAE3000 and AccountAbility's AA1000 Assurance Standard. The assurance focused on BG Group's management of its company in line with the three principles of inclusivity, materiality and responsiveness set out within the 2008 revision of the AA1000 standard.

#### Outputs

We conducted a review of a selection of the key sustainability data, including safety statistics, social performance and greenhouse gas data. Our work included interviews and testing at the group head office and asset visits to its operations in Trinidad and India. Our work also included a review of BG Group's GRI application level, where the group achieved the highest application level of 'A+'.

### RWE AG

#### Background

PricewaterhouseCoopers conducted an independent assurance review on RWE's corporate responsibility report 'Make good things happen'.

#### Our approach

The review was conducted in accordance with AA1000 Assurance Standard (AA1000AS) 2008 and International Standard on Assurance Engagements (ISAE) 3000.

#### Outputs

We provided a review of the whole report regarding material details as well as non-financial indicators. We conducted examination procedures at headquarters level – RWE AG – as well as the subsidiaries of RWE Power AG, Essen, Lechwerke AG, Augsburg, and RWE Transgas a.s., Prague. In the run-up to this review, PwC supported RWE in the documentation of relevant data gathering processes for non-financial data and conducted a limited review of 'Environmental Social and Governance KPIs' published in the annual report of RWE AG.

# 14 Checklist

## Checklist

- 1 Do you have a clear vision of how best to maximise growth and shareholder value while taking full account of climate change-related risk and opportunity?
- 2 Have you conducted robust scenario planning and sensitivity analysis to test the validity of your assumptions, planned course of action and return on investment?
- 3 Have you identified the carbon value and exposure inherent in your current operations and the moves you need to make to manage and shift your carbon footprint?
- 4 Do you have a clear view of the implications of climate change and the transition to a low-carbon economy for your operational portfolio and market positioning? How different will they need to be in ten years' time?
- 5 Have you assessed the vulnerability of your business and assets, not just to the direct physical impacts of climate change, but also the potential disruption to your markets, your supply chain and your workforce?
- 6 Are you managing your carbon market risk and price volatility effectively? Have you established the right risk management and governance frameworks to optimise your use of carbon trading and other carbon instruments?
- 7 Are you explaining and reporting your climate change strategy and carbon value story effectively to optimise investors and the markets?
- 8 Do you have robust emission reduction strategies and reporting mechanisms in place? Do they form part of the mainstream governance of the company?
- 9 Are you making effective use of tax incentives, grants and CDM opportunities?
- 10 Do you have a clear understanding of the accounting and tax issues that flow from emission rights and the way international accounting standards are likely to evolve?

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