

Part 1

Environments

All organizations are subject to an increasing number of constraints on the way in which they conduct their business. By and large, this is not a wilfully perverse excess of totally unnecessary red tape (although small businesses in particular may justifiably bemoan the cost and complexity of compliance), but an attempt to codify the interests of the increasing number of stakeholders who may reasonably claim an interest in a given enterprise. Collectively these stakeholders comprise an organization's environment.

When used with a capital E, Environment has come to be interpreted as synonymous with our stewardship of the planet, a growing awareness that physical resources are effectively held in stewardship for future generations and are not ours to consume with no thought for the consequences. In the first article, by **Schultz and Williamson**, the authors set out a consideration of the possible impact of carbon-trading following ratification of the Kyoto protocol. The article is not a simple read, but its value lies in a treatment of emissions reduction in a strategic and purely businesslike fashion. One, regulation of this type is here to stay; many would argue that it can only get more stringent as the magnitude of the environmental changes already in train becomes undeniable. As we noted above regulation in general is not new; the ability to achieve regulatory compliance effectively and efficiently has long been the hallmark of the successful enterprise. Two, the future will be different, the world will be a different place and therefore customers, suppliers and markets will all change to accommodate the new conditions. Again this is hardly revelatory, few organizations exist in a static equilibrium. Three, in an age where brand value embraces public perception as a major intangible, getting the wrong reputation can have a serious impact on the

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accountants' 'bottom line'. Therefore, the authors argue, business must accept the reality of the situation and start planning now; only by careful and detailed consideration of a range of possible responses can organizations hope to create new (or maintain existing) competitive advantage in a carbon constrained future. It is not just altruism.

The name of Enron has etched itself into public consciousness, above and beyond the plethora of Business School case studies it continues to generate. The post-Enron world is seems likely to be further regulated in the domain of Business Ethics. The article by **Knox and Maklan** addresses the current state of Corporate Social Responsibility (CSR) reporting in the UK and conclude that investment in CSR activity (or perhaps more correctly the prospects for growth in CSR activity) is potentially vulnerable due to the inability of existing systems to show a positive contribution to the 'bottom line'. Now this argument is interesting; given the growing clamour for 'Responsible Business' (following what seems to be an accelerating incidence of episodes of unsavoury ethical behaviour) how should we view the future of CSR reporting? On the one hand, should we feel comforted that firms are prepared to engage in, and report, their performance on such dimensions? Or, on the other hand, should we feel concerned lest, once the current spate of mischief is seen to have abated (possibly due to *reduced* reporting?), a cynical capitalism will only do what it is required to do by either shareholders or governments? The answer probably comes down to an article of faith on the nature of business. Ever the optimist, I lean towards a belief that business will increasingly need to look 'beyond the bottom line' – but that doesn't mean that individuals and lobby groups can afford to relax!

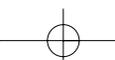
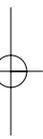
The article by **Engardio and Einhorn** is a quite deliberately provocative piece, included here to provide a cautionary note concerning commonly held notions about globalization. Conventional wisdom still has it that even though your Mobile Phone/Digital Camera/DVD player or what-have-you was manufactured in (say) China, this is fine in the general scheme of things because over here in the West we can retain the knowledge-work aspects, and that will sustain our economies, won't it? Well, perhaps not, as these authors take pains to point out. The concept that the so-called 'Developed West' can retain the brain work while emerging economies get their hands dirty with the more straightforward parts of the supply chain is looking increasingly suspect. It seems that the internet is capable of aiding and abetting the spread of technological design capability rather more quickly than growth in social infrastructure is inflating the local cost-base. Did we really believe that proximity to the process technology of manufacture, coupled with effective systems of education, would not prove to be a potent combination? Be afraid, be very afraid.

Scenario Planning first entered the manager's in 1985 with the publication of a seminal pair of articles by Pierre Wack¹ based on his experiences as Head of Business Environment at Royal Dutch/Shell Group Planning. For all its undoubted power, however, Scenario Planning seems to have struggled to achieve widespread usage. Part of the problem could be that too many consultants have peddled so many different versions that the underlying principles and any generalizeable wisdom fail to shine through. The problem may be compounded by the fact that much of Scenario

Planning is about dealing with uncertainty, pondering the unknown, and therefore may sit a little uncomfortably with the ‘tendency for action’ that lies at the heart of so much traditional management thinking. The article by **Wilson** builds upon such concerns and offers a pragmatic user guide with the intention of assisting would-be users of the technique as they climb the learning curve of Scenario Planning. The author’s emphasis on linking scenarios through strategy development into effective action should help to disarm the critique that scenarios are just ‘thinking about the future’.

Note

- 1 Wack, P., (1985) ‘Scenarios: uncharted waters ahead’, *Harvard Business Review*, September/October, pp. 73–79, and ‘Scenarios: shooting the rapids’, *Harvard Business Review*, November/December, pp. 139–150.



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Gaining Competitive Advantage in a Carbon-constrained World: Strategies for European Business

Karl Schultz and Peter Williamson

Climate Change: A Strategic Issue

The earth is getting warmer, and weather patterns are becoming more erratic. The reason, most climate scientists believe, is because concentrations of “greenhouse gases” have been rising in the atmosphere. The most important of these gases is carbon dioxide, which is emitted when fossil fuels, such as oil, natural gas, and coal are burned. So far, temperatures have increased by an average of about 1 degree centigrade. Projections of future warming are for temperatures to increase by an additional 2 to 5 degrees in the next century – even with measures taken to reduce emissions.

The impacts of this climate change will vary by region. Sea levels are projected to rise by 0.3 to 0.8 metres this century. Some regions will experience more droughts, while others more floods. One leading concern for Europe is that the Gulf Stream, that currently warms Europe, will cease, leaving the continent with a climate similar to Labrador’s. Storms are expected to be more severe, as more energy is in the atmosphere.

Since the late 1980’s the prominence of climate change as an environmental issue (and by extension, as energy issue) has skyrocketed. Many in the policy arena consider it the greatest long-term environmental challenge facing the earth. Some consider it the greatest challenge facing humanity.

Today European businesses may be exposed to climate change in up to three broad ways. First, governments are imposing limits on greenhouse gas emissions. Secondly, some of the impacts of climate change will directly impact the business environment. And finally, public perceptions of corporate behaviour have the potential to impact the bottom line. Before turning to the impacts on corporate strategies and possible sources of competitive advantage, it is worth briefly elaborating each of these drivers of increased business exposure to climate change in turn.

Source: K. Schultz and P. Williamson (2005) *European Management Journal*, 23 (4): 383–91.

Regulatory Actions

The Kyoto Protocol, which was negotiated in 1997 and has been ratified by 134 nations, invokes binding limits on emissions. With Russia's ratification, the treaty went into force on 6th February of 2005. Kyoto's limits are generally viewed as just a small step towards stabilizing atmospheric concentrations of greenhouse gases at a level that will have acceptably manageable consequences on the global environment, human health, natural resources and physical infrastructure.

The European Union is taking a leading position in limiting its greenhouse gas emissions. Starting in 2005 approximately 12,000 industrial facilities were granted allowances to emit carbon dioxide into the atmosphere. Total allocations are designed to create a shortage of allowances in order to stimulate companies to reduce emissions. The total real shortage is debatable, but current estimates place the EU-wide shortage at around 50 million tonnes of carbon dioxide pollution per year. If companies are not able to reduce their own emissions cost-effectively, they have the option to purchase allowances from other facilities that have sufficient allowances, or to purchase project-based credits from other countries throughout the world (Kruger and Pizer, 2004).

It is also important to note that the EU Emissions Trading Scheme (EU ETS) is only a part of the necessary steps that European nations must take in order to comply with their targets under the Kyoto Protocol. In 2008 phase two of the Scheme starts, and it is expected that allocations will be further limited, new industries will face caps on emissions, and additional greenhouse gases, such as methane, will be incorporated into the Scheme. Nations are also developing emissions credit purchasing pools to pay for project-based emissions reductions developed outside of the EU. And additional policies are being implemented, such as carbon taxes and renewable energy purchase requirements.

Overall, the Kyoto target for Europe is estimated to result in an annual shortage of carbon dioxide allowances of over 300 millions tonnes. At a cost to comply with Kyoto estimated at roughly €10 per allowance, the total cost/year may amount to approximately €3 billion. But since trading in allowances began, prices have risen steadily (as evident from the trading data in Exhibit 1) and some observers put the cost burden at between €6 billion and €9 billion. European companies will pay for most of these costs, either directly or indirectly.

But while limits on greenhouse gas emissions set by Kyoto will have significant impacts on industry, it will not even come close to solving the problem of climate change. A drastic reduction in global emissions is necessary to stabilize concentrations in the atmosphere at what will be considered an acceptable level. Kyoto only limits industrialized nations emissions at approximately 5.2% below 1990 levels in the period 2008–2012. World-wide cuts of between 15 and 50% below 1990 levels are necessary to stabilize concentrations at manageable levels and European nations are expected to have to reduce their emissions by even more in order to make this happen. Discussions are already underway to consider next steps beyond Kyoto's period of 2008–2012 (Pearce).

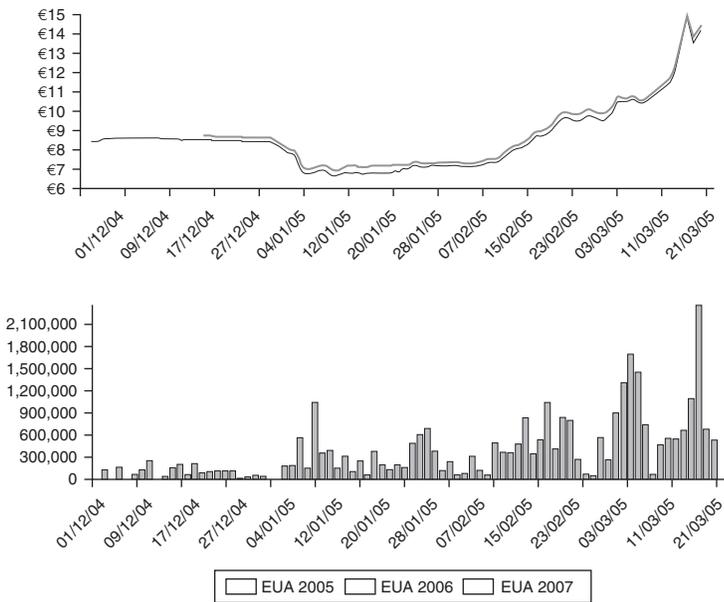


Exhibit 1 *Daily Prices and Trading Volumes of Carbon credits*
(Source: Point Carbon)

Business Impacts of Climate Change

The costs of climate change to EU industry will not all stem from regulations. The direct impacts of climate change on infrastructure, agricultural production, and human health will be varied but very real. Those companies involved in developing countries are likely to be even more exposed, as many of the most severe impacts will face these nations. The U.S. Pentagon prepared a report on the impacts of climate change on international security. It states, “warfare may again come to define human life ... As the planet’s carrying capacity shrinks, an ancient pattern re-emerges: the eruption of desperate, all-out wars over food, water, and energy supplies” (Schwartz and Randall, 2003).

Climate change is a phenomenon that is starting to have a major impact on Swiss Re, its partners, and our clients. The question is no longer whether global warming is happening, but how it’s going to affect our business.

John Coomber, CEO, Swiss Re

The industries most exposed to climate change are not always the obvious, heavy energy users. In fact, one of the industries most likely to be impacted is insurance. A recent study by Swiss Re, the world’s second largest re-insurer, estimated that the costs of claims to insurers from climate change related weather events will be between \$30 and \$40 billion per year in ten years (Swiss Re, 2004).

Depending on the industry and company, the exposure to climate change will be positive or negative, and may include:

- Access to water resources.
- Supply chain challenges caused by weather, infrastructure strains (shipping, inventory).
- Risks to capital stock from sea level rise and weather (infrastructure).
- Changes in customer needs (caused, for instance, by changes in economies, product demand related to weather, resource availability, etc.).
- Country investment risk caused by changes in national political and security conditions.

The Public Perception Effect

A study of the impacts of the oil giant Exxon Mobil's stance on climate change, which generally is viewed as less interested in mitigating its greenhouse gas emissions than its peers, BP and Shell, indicated that the company may face a number of risks, including a hit on its brand value [in excess of \$2 billion], and problems with staff retention, recruitment, and political access amounting to between \$10–\$50 billion. In addition, its exposure to litigation risk from the damage of climate change could potentially exceed \$100 billion. Each year at Exxon's annual shareholder meeting a resolution, most recently supported by 20% of votes, is proposed that demands justification for the company's position (Exxon Mobil Corporation, 2004).

Different companies will face varying degrees of exposure to public perceptions. Some companies will benefit by being seen as contributing to solving the climate problem, such as renewable energy producers, while others will face inherent criticism because of the product that they produce – however necessary it is for the economy to function. Also, those companies with strong brand names and a significant retail component to their sales will be more exposed than companies that sell to industry. As such, coal companies, whose principal customer base are electric-power producers, will be less exposed (at least to public perceptions) than oil companies, that sell petrol to consumers directly.

Threat or Opportunity?

The total costs of these impacts to a business will differ markedly depending on whether a company's exposure derives from its direct emissions, indirect emissions (such as its purchase of electricity from a carbon emitting utility or from sale of a product that results in emissions, like coal or automobiles), or from the impacts of climate change on the business (as we saw above). The challenge for management lies in reducing the totality of these costs and the associated risks including handling the possibility of a shortage of emissions allowances, managing the risks to the company's credit rating, and re-thinking the optimal portfolio of energy sources in a carbon-constrained world. This means developing a broad and comprehensive strategy for managing the new

environment. Perhaps most interesting of all, it means looking for new opportunities to gain competitive advantage in a carbon constrained world. As we will see below, if handled correctly, climate change can be an opportunity to steal a march on rivals, not just an unwelcome problem to be dealt with.

But are European businesses approaching the issue strategically? A recent survey by Price Waterhouse Coopers suggested not. Among 75 major European utilities, one of the most exposed of industries, less than half have a climate change strategy (Point Carbon, 2004). Yet a parallel study of U.S. electric utilities exposure to greenhouse gas emissions constraints concluded that between 10 and 35% of the total market capitalization was at risk (CERES 2003). This level of exposure obviously demands top management attention. But from a competitive advantage standpoint, its relative exposure that counts. Here the results look even more startling: another respected study found that the value at risk because of climate change varied between companies by a factor of nearly 60 times (Innovest Strategic Value Advisors 2002).

Opportunities in Managing Carbon Constraints

While most European businesses will face additional costs associated with carbon constraints, there are three areas of opportunity to gain competitive advantage:

1. By minimising the additional costs more effectively than competitors.
2. Differentiating your product by bundling carbon credits into your offering.
3. Turning your capacity to supply carbon credits into a profit centre.

Each is worth consideration in turn.

Minimising the Additional Costs

While the market price of emissions constraints is dependent on many factors outside the control of most companies, like weather and fuel prices, the strategic company will be able to both reduce its own costs and adapt to changes by taking a number of measures that may include:

- Diversifying your fuel consumption to allow for flexibility to exploit to divergent price trends that competitors that are locked in to one fuel source cannot enjoy.
- Active carbon asset management to reduce potential exposure to carbon price fluctuations.
- Public/shareholder public relations: enhance sales or share price.

Product Differentiation Through Bundling

There are a number of opportunities for companies to gain competitive advantage by understanding the carbon constraints throughout their supply chain and customer

base, and thus anticipating and reacting strategically to these needs. For example, a fuel supplier might be able to secure low cost carbon credits and offer electric utilities short on allowances a combination fuel and credit product that matches its customer's allowance needs. Likewise a bank or insurance company may through its contacts with energy companies producing credits be able to offer a package of finance/insurance and carbon credits to offset emissions from new build. A manufacturer with caps on its emissions who is able to chose different fuels to supply production would be able to track the energy and allowance prices to come up with the lowest production costs.

Turning Carbon Credit Supply into a Profit Centre

Many European companies will also be in a strong position to supply credits for what is likely to be a growing market. Some companies will find that emissions reductions at their facilities are significantly less costly than the price of a traded allowance. Others will be in a position to source emissions credits from projects specifically designed to offer low cost reductions, in developing countries and economies in transition. For instance, a power generator with skills in producing power from methane that would otherwise be emitted to the atmosphere may be able to develop projects, create carbon credits, and then use these to either offset its own emissions or sell the credits – possibly to strategic partners or electricity customers who have a choice of power supplies.

The opportunities are not limited to heavy industry. Some traders speculate that the carbon credit market may become the largest traded commodity in the world. Investors, traders, insurance companies and of course consultants all may benefit from the creation, supply and transaction of emissions credits.

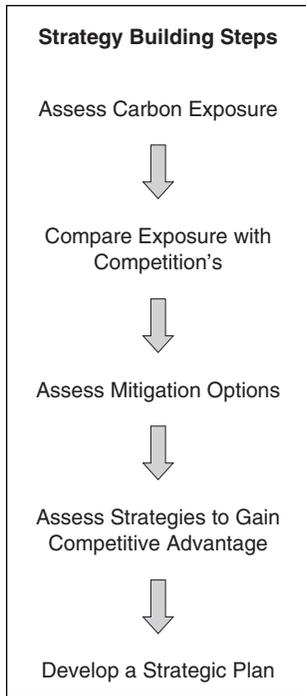
From Strategy to Action

To turn these strategic ideas into an action plan companies will need to follow the rigorous, five-step process outlined below.

Assess Your Carbon Exposure

For those companies with caps placed on their emissions, this may at first glance seem to be a simple issue. However, for all companies the uncertainties in future policies, climate change patterns, and public sentiment mean that this task is not straightforward.

The first step for companies is to understand what their emissions are, both direct and indirect. As we have already noted, a distinction has to be made between a company's direct emissions, and indirect emissions, from, for instance, purchase of electricity from a carbon emitting utility on one side, or from sale of a product that results in emissions, such as an energy resource like coal or automobiles. Corporate emissions inventory guidelines have been developed for most industries. (For instance, corporate inventory guidelines prepared by the World Resources Institute. See www.wri.org) And those



companies already facing caps their historical, direct emissions already have a starting point to which an estimate of their indirect emissions needs to be added. It is also important to divide these emissions by type of greenhouse gas (because methane, for example, is weighted at 15 times carbon dioxide), by facility, and by risk depending on whether emissions are currently capped, are likely to be capped, or are likely not to be capped.

Once the emissions are accounted for, it is next important to quantify in financial terms the current and future carbon liabilities. A reasonable assumption for companies facing caps on their emissions is to use the current European Allowance price and the expected shortage (or surplus) of allowances that the company holds. Preparing different scenarios for future prices and expected shortages will also be important.

The company will also need to estimate the financial impact of its indirect exposure to climate change regulations. These may include increases in power prices, and the ability for companies to switch fuels between lower and higher greenhouse emitting fuels. The company's demand for other commodities facing carbon exposure, such as cement and steel, will also be important to calculate.

As with greenhouse gas regulatory exposure, it will also be important to consider the exposure to climate change events. Are corporate assets vulnerable to any of the expected climate change impacts? Are customers likely to face changes in their purchasing habits because of climate change?

Finally, to complete a thorough audit of a company's carbon exposure, it is critical to gauge customer and shareholder sentiment. Do customers view the company as environmentally responsible? How do existing and potential shareholders, especially large institutional investors, rate the company's activities?

Compare Your Exposure with Competitors

Because the carbon issues are ultimately about impacts on a company's competitive advantage, the second key step will be to benchmark a company's exposures with those of its rivals. Although it may not be possible to quantify these as easily as its own, and although it cannot know what strategies its competition may be taking to reduce their own exposure, a general idea will be available that can result in a comparison of the various exposures, and thus help guide strategies to differentiate itself and become more competitive. It is also important to consider substitutes to its product that may be more or less competitive in a carbon constrained market, which will guide the creation of strategies to either defend market share (if a company is more exposed to carbon constraints), or take market share from other industries.

Assess Your Options to Mitigate Carbon Exposure

There are a number of options available to most industries to reduce or at least manage their carbon exposure. These include:

- Investing in plant retrofits or new investments to reduce emissions.
- Investing in projects to offset emissions.
- Purchasing allowances from the emissions market hedges or other risk management tools.
- Divesting from business activities with too much current or potential carbon exposure.
- Lobbying government to influence decisions on future emissions limits.
- Communicating corporate greenhouse-friendly actions with shareholders and the public.

For each of these options, a reasonable assessment of the marginal costs of each action, adjusted for risk, will be useful to decide the most effective strategy.

It is possible that some companies may find that a "do nothing, but watch" strategy is most appropriate. This is probably only applicable for those companies whose overall exposure is minimal, however, and the hidden indirect impacts of the carbon constrained market need to be identified and evaluated before coming to this decision.

Assess Your Opportunities to Gain Competitive Advantage in the New, Carbon Constrained Environment

Companies in all industries will have the potential to differentiate themselves from competitors based on the assessment of future climate change regulations, direct impacts, and public perceptions.

Companies will in most instances also be able to identify actions and investments that will be more profitable in a carbon constrained business environment. By identifying the company's natural strengths (such as relations with companies that have low

cost emission reduction potential), or a customer base faced with very significant carbon exposure (such as electric utilities), managers will be able to develop strategies that differentiate them from their competitors. For instance, fuel suppliers may be in a position to either change their supply to be less carbon intensive than their competitors. This could be direct by producing more greenhouse friendly fuels such as shifting from coal to natural gas, or it could be by securing emissions credits at low cost and then bundling these credits with a fuel sales agreement to meet a customer's emissions allowance needs. As we noted above, it is worth considering the potential of turning the supply of carbon credits into a profit centre.

Develop a Strategic Plan

Once the strategic options are identified, it will be important to create a plan that integrates the various steps and creates clear management of some or all of the following areas:

- Investments
- Divestments
- Purchases
- Hedging strategies
- Sales Strategy
- Public Relations.

Putting the Strategic Approach into Practice

Each industry, and each individual company will have a unique set of carbon exposures and different strategies available to maintain or create competitive advantage in Europe's carbon constrained economy. To better understand some of the basic nuances, and the process to create a corporate carbon strategy, we take the examples of two companies in very different industries, a small cement company and a multinational bank.

The Cement Maker

Following the five-step model, the first task was to assess the company's carbon exposure.

Assessing its carbon Exposure

Cement making is very carbon intensive. In our example, a Portland Cement company with two separate facilities produces a total of 1.8 million tonnes of cement per year, the direct greenhouse gas emissions are calculated for both emissions by identifying accurate emissions factors for its direct fuel consumption of coal, natural gas, propane

and diesel, and emissions from the processing of raw materials into cement. The fuel consumption emissions are estimated to be 220 thousand tonnes of carbon dioxide, and the process emissions are 350 thousand tonnes, for a total of 570,000 tonnes.

Indirect emissions from the consumption of electricity are calculated based on an emissions factor for the power grid in its region. These emissions are estimated to be 25,000 tonnes. The cement maker also considers the emissions from its suppliers (production of limestone, shale, clay, sand and iron) and estimates that the production and transport of these emissions result in an additional 85,000 tonnes of emissions. It then considers the emissions from distributing its cement, and estimates these emissions at 25,000 tonnes.

Finally, it considers the indirect emissions created by its customers. This is a difficult issue to weigh, and it had to consider if substitutes to Portland Cement might be higher or lower in their contribution to greenhouse gas emissions. Its preliminary research indicates that less carbon intensive substitutes, such as use of fly ash in concrete might be favoured in the future, but questions the consistency of resource supply.

It then looked at its overall market value and determined that at an emissions allowance price of €8/tonne, then 570,000 tonnes of direct emissions each year represent a total potential asset value of €4.56 million. However, the manufacturer has been given 520,000 allowances so it is short 50,000 tonnes at a price of €400,000. On the other hand, it expects demand to increase for its product, so the likely exposure is greater. Without changes in its process, it expects to be short 150,000 tonnes in 2007 at an expected value of €1,200,000 and it expects during the second phase of the trading scheme that this shortage will increase. With net revenues of €2.5 million, its exposure is significant.

Looking to the future, the company examined a different set of scenarios for what their allocations are likely to be like starting in 2008. Considering that the allocations are going to be less and allowance prices greater, it assumed for a mid-case scenario that its allocation will drop from 2008–2012, resulting in a shortage valued at 2.5 million, or equal to its current net revenues.

The cement manufacturer then looked at the impacts of carbon constraints on the price of its energy. It assumed that power prices would go up, increasing its costs, and that gas prices would also rise as demand for gas, a less emitting fuel, would go up. Coal prices it assumed would average the same as before the emissions trading scheme, but that the price volatility may increase.

Since its facilities are not very vulnerable to more severe weather, it assumed that this would not be an important issue, but did assume that demand for concrete may increase as the need for new build for sea level rise might increase.

It also considered if its customers would consider the company's position on climate change as an issue, and decided probably, but not to a great extent.

Estimating its Competitors' Carbon Exposure

Ninety five per cent of the cement company's product is sold onto the national market. As such, it looked at each of the top national cement companies, and also looked at the

possible competition from brick making and asphalt production. It also looked at the possibility of foreign companies being less exposed, and thus able to enter the national market. In this case, the cement maker determined that there was little differentiation in the national market, but that cement makers in one neighbouring country may have a favourable allocation of allowances, whereas in another the shortage was greater, making its companies less competitive. However, because of the higher transport costs it became less clear if these differences would amount to anything.

Developing its Options to Mitigate Exposure

Based on the above analysis of its exposure, the cement company then ran through a series of options to mitigate its exposure.

Because it will face a shortage of allowances, it decided to analyse the marginal costs of reducing its direct emissions. It found that it could reduce emissions through a number of investments and changes in purchase decisions, including:

- Increasing its use of gas. However, for this scenario it also looked at projected gas prices and determined that a likely switch may not be cost effective, even with the lowered emissions. However, from 2008 on this scenario becomes economic.
- Alternative energy inputs. It identified biomass fuel as being economic if its price didn't increase. However, an analysis of biomass demand suggested that the company wait before deciding on this option.
- Energy efficiency improvements. It identified six different measures, and found that two were cost effective starting now, and two additional would be economic after 2008. A government grant might help finance four of these measures.
- Supplementary cementing materials. It found that it could input fly ash into its process and indirectly reduce emissions. However, it found there was no current means that this would reduce its direct emissions. Nonetheless, because it had a potential supply at a comparable price to its current inputs, it decides to undertake this to show it is doing what it can to indirectly reduce emissions.

The cement company also approached a developer of a project to reduce methane emissions in Vietnam. It found that this project could generate emissions reductions at lower price than the allowance price. However, it is concerned that this project exceeds its typical investment risk threshold.

The company also discussed the option of purchasing futures contracts with an emissions broker. This option would reduce its exposure risk as the price of acquiring its allowances would be fixed.

The company considered a sales push in a neighbouring country with tighter emissions caps on its cement industry. This option was analysed, and the company calculated that it would be competitive on costs. However, there were additional marketing costs and plans to enter this market were postponed until the (probably more stringent) allocations under Phase II announced in 2007.

The company also is a member of its trade association, and could join a working group that would track greenhouse emissions issues.

The company also considered preparing a public relations campaign. Recognising that the company is not particularly large nor is public visibility particularly related to sales, it calculated that this would be a relatively costly option.

Assembling a Strategy for Competitive Advantage

The cement company then took all the options available to it, and prepared a decision model for how to move forward, and when various emissions allowance, energy, and cement prices would warrant taking different steps.

It discovered that the options it identified would likely result in a significantly reduced exposure to greenhouse gas limits, and suspected that its competitors were not looking at all their options as carefully. As such, it thinks it will be able to increase its market share, and even with emissions constraints be in a stronger position.

A Multinational Bank

Assessing its Carbon Exposure

A London-based bank, with offices in Europe and throughout the world, faced no direct caps on its emissions. However, it is a highly visible company with customer perceptions important for its business and it also finances a diverse set of industries, many of which face direct caps on their emissions. Additional investments may be even costlier to cover.

Direct emissions for this company are relatively small, however these are carefully included in the bank's annual corporate social responsibility reports. CO₂ emissions were divided into energy use (indirect electricity consumption) and travel (car, rail, and air travel).

Seventy per cent of the bank's investments are in Europe, and 50% of its investments are in the industrial sectors facing emissions caps. The bank reviewed the exposure of its clients to emissions caps, and also the likely impact different investments would have on future exposure. It found that it had invested in a disproportionately high percentage of companies with heavy exposure, including a number of manufacturing facilities dependent on coal-fired facilities for production. It also had some investments in tourism and port facilities that had the potential to be impacted by changing temperatures and sea-level rise.

Of the non-European investments, it calculated that 30% of these were in countries where caps on emissions already existed or were likely as these countries had Kyoto targets. Twenty% of the remaining investments were in the United States and Australia, countries not ratifying Kyoto, but with some State government programs capping emissions. Investments in these countries were viewed as being relatively unexposed to carbon, but facing a higher degree of long term regulatory uncertainty. The remaining 50% of investments outside of Europe were in countries without Kyoto targets, but nearly one third of these investments could generate emissions reduction credits.

Estimating its Competitors' Carbon Exposure

A careful analysis of the competition showed that this bank is moderately exposed. While it has invested a higher percentage into heavily exposed industries than the average, its investments overseas that could generate emissions credits mitigates this somewhat.

Developing its Options to Mitigate Exposure

The bank considered the following options:

- Do nothing. This was rejected because although it had no direct exposure, its indirect investment exposure was significant.
- Augment its sustainable development investment criteria to include a demand for quantification of emissions exposure, and proposed means of minimizing these exposures.
- Undertake a progressive divestment strategy from some of the most exposed and at risk industries – in particular coal fired power in Europe, and some climate sensitive infrastructure and service investments.
- Serve as an important facilitator and financier of emissions credit creation, and supply these credits (through a separately regulated subsidiary) to many of its European clients short on allowances. It was in a position in overseas emissions generation.
- Strengthen its corporate sustainability message to include a climate change policy. This was viewed as important to maintain good customer relations.

Assembling a Strategy for Competitive Advantage

As the result of adopting a number of these varied measures the bank has significantly lowered risk of its investment portfolio, and created a stronger retail banking image. The emission generation and trading arm also created a new profit centre for the bank.

Conclusion

Managers and boards in most industries are only beginning to come to terms with the new realities of a carbon constrained economy. Our key message in this article is the need to take a strategic approach. First, to ensure that your company looks beyond its direct emissions to properly assess the exposure both to indirect emissions and to the impacts climate change itself will have on your business. Second, to make sure you unearth opportunities to gain competitive advantage over your rivals by developing strategies to creatively minimize the additional costs, differentiate your product by bundling in carbon credits, and turning the capacity to supply carbon credits into a profit centre for your company. The bottom line is that carbon, just like capital, human resources and products, is now a strategic part of the new competitive game.

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