



# Cut Carbon, Grow Profits

**Business Strategies for Managing  
Climate Change and Sustainability**

**Edited by Kenny Tang and Ruth Yeoh**

*"I warmly welcome this book. It shows from the ground up what businesses and cities can do to address climate security."*

**RT HON MARGARET BECKETT MP**  
Secretary of State for Foreign & Commonwealth Affairs

# 7

## The Coming Market Shift: Business Strategy and Climate Change\*

Andrew J Hoffman, University of Michigan

*\*This chapter was supported by the Frederick A and Barbara M Erb Institute for Global Sustainable Enterprise at the University of Michigan and the Pew Center on Global Climate Change*

### Introduction

In many respects, the scientific debate is irrelevant. For the business community, climate change represents an impending market shift – one that will both alter existing markets and create new ones. It will not be unlike shifts that have occurred in the past, when consumer needs changed, or technology advanced, and some companies declined while others rose to take their place. In the 1980s alone, computers eliminated the typewriter industry, compact discs replaced phonograph records, and the Bell System's demise wrought structural changes in telecommunications.<sup>1</sup> New competitive environments produce both risks and opportunities, as well as winners and losers.

This market shift will create new supply and demand for emission-reducing technologies, new financial instruments for emissions trading, new mechanisms for transferring technologies globally (i.e. Joint Implementation and the Clean Development Mechanism), and new pressures to retire historic sources of greenhouse gases (GHG). The shift will affect all companies to varying degrees, and all have a managerial and fiduciary obligation to assess their business exposure and decide whether action is prudent.<sup>2</sup> In short, as the market shift of climate change looms on the business horizon, the argument against action is increasingly harder to make.

For many within the business community, the future is a carbon-constrained world and the time for action is now.<sup>3</sup> Companies with this perspective already have engaged in GHG reductions. Yet other companies (particularly in the United States) continue to

resist and deride their proactive competitors with labels such as ‘carbon cartel’ or ‘Kyoto capitalists.’<sup>4</sup> Such resistance is a very risky strategy, however, in the face of the coming market shift.

The debate is thus strategic (not scientific) and companies taking voluntary climate action are not practicing philanthropy or pure social responsibility (although many couch their activities in the language of ‘doing the right thing’). In fact, many companies are agnostic about the science of climate change. They engage the climate-change issue as a way to protect their strategic investments and to search for business opportunities in a changing market landscape.

This chapter seeks to explain the current business phenomenon at three different yet closely related levels of response. First, we look at the early warning signs that suggest a market shift is coming. Second, we identify the various business frameworks that can be and are being used to link climate change to business interests. Third, we describe some specific ways in which companies synergistically integrate climate change and business strategy to contribute to the bottom line.

## **Emergent early warnings: the growing case for climate action**

Climate change and consequent policies to reduce GHG emissions create systematic risk across the entire economy, affecting energy prices, national income, health and agriculture. Climate change also creates regulatory, physical and reputational risks at the sector, industry and company levels.<sup>5</sup> As the competitive environment alters, certain companies, industries and sectors will be more at risk than others. Some see the electric utility, steel and aluminum industries as particularly vulnerable.<sup>6</sup> Others warn of impacts to oil and gas,<sup>7</sup> or to automakers.<sup>8</sup> Some see American companies overall as less prepared than their European and Asian counterparts to handle climate-related policy.<sup>9</sup> Regardless of specific vulnerability, very few business sectors are immune to climate change and the inevitable market shift. All of which leads us to ask: Where are the market signals coming from? How are they promoting the business case for action?

The first place to look is the public policy arena, where there are signs that the enactment of a US national climate policy is very near. In much the same way the US Environmental Protection Agency (EPA) was formed in 1970,<sup>10</sup> individual states are increasingly enacting climate-related legislation, creating a spreading patchwork quilt of state and regional regulation. This motivates some corporations to support the idea of a national policy.

The US Senate took a significant step forward in the summer of 2005 when a solid majority supported a resolution that stated, ‘Congress should enact a national mandatory, market-based programme to slow, stop, and reverse growth of these [GHG] emissions.’ The resolution was followed by Energy Committee hearings on a cap-and-trade bill authored by Senator Bingaman (D-NM) and based on the recommendations of the National Committee on Energy Policy (NCEP). In April 2006, the Energy Committee held a full-day climate conference to discuss design elements of potential legislation,

a process to which dozens of corporations submitted comments. Finally, a new version of the McCain-Lieberman climate bill will likely be released in 2006, and will share the stage with proposed legislation from several other senators, including Bingaman and Feinstein (D-CA).

In a recent survey by the Pew Center on Global Climate Change,<sup>11</sup> some 31 companies reported that US government policy on climate change is coming. The majority of this sample forecast that a national policy will be established sometime between 2010 and 2015, and that it will set the needed price signals for companies to begin reducing their climate impact.

Policy is not the only arena in which movement toward a carbon-constrained world can be observed. On the financial front, mainstream investors are beginning to take notice of climate change.<sup>12</sup> Financial services companies like Goldman-Sachs, Bank of America, JP Morgan, Chase, and Citigroup have adopted guidelines for lending and for asset management aimed at promoting clean energy technologies.<sup>13</sup> The Carbon Disclosure Project is another barometer of this development. When the project began in 2002, 35 institutional investors endorsed a letter requesting disclosure of information on GHG emissions through a questionnaire that was distributed to *Fortune* 500 companies. In 2003, 95 institutional investors with \$10 trillion in assets endorsed the letter. By 2006, those numbers had climbed to 211 institutional investors with \$31 trillion in assets.<sup>14</sup>

On the corporate side, the intersection of fiduciary responsibility and climate strategy is coming into focus, particularly around the 'materiality' of GHG emissions under the Sarbanes-Oxley Act of 2002.<sup>15</sup> Some companies (and their directors) could face lawsuits based on their carbon emissions. Some already do. Eight states and New York City have filed an unprecedented lawsuit against five of America's largest power companies, demanding that they cut CO<sub>2</sub> emissions.<sup>16</sup> Such developments have led some major insurers to express concerns about Directors' and Officers' exposure to liability if climate risk is not properly disclosed. Company shareholders are equally concerned. The number of shareholder resolutions requesting financial risk disclosure and plans to reduce GHG emissions increased from 20 in 2004 to 30 in 2005.

Energy prices continue to rise, affecting all areas of the economy. This only strengthens the business case for energy efficiency and associated GHG reductions. In 2003, the Pew Center on Global Climate Change conducted a scenario planning exercise involving top global industry, academic, and government experts. In the published results, the worst-case energy price inputs projected out to 2035 were all surpassed by 2006.<sup>17</sup> In the marketplace, consumers are feeling the pinch of rising energy and fuel prices and are searching for new products to lower costs, such as hybrid vehicles and energy-efficient appliances. The Carbon Trust forecasts that climate change could become a mainstream consumer issue by 2010, placing existing corporate brands at risk.<sup>18</sup>

National energy concerns are pushing the frontiers of technology, and US President Bush laid out new priorities for energy research in his 2006 State of the Union address. Future planning for domestic and foreign energy supply increasingly draws attention to the development of various high-efficiency coal combustion options.<sup>19</sup> Beyond coal, clean-energy markets continue to exhibit dramatic growth. Global wind and

solar markets reached US\$11.8 billion and US\$11.2 billion, respectively, in 2005. This was an increase of 47 per cent and 55 per cent over 2004.<sup>20</sup> Kleiner Perkins Caulfield & Byers, a leading venture capital firm, has announced a set-aside fund of US\$100 million for investments in technologies that provide cleaner energy, transportation, air and water. Partner John Doer states, 'This field of greentech could be the largest economic opportunity of the 21st century. There's never been a better time than now to start or accelerate a greentech venture.'<sup>21</sup>

Also coming into focus are the physical risks of climate change, especially in the wake of recent natural disasters. The insurance industry is understandably concerned about the US\$46 billion in losses related to natural catastrophes in 2004. Additionally, Swiss Re estimates that total insured natural catastrophe property and business-interruption losses reached US\$83 billion for the industry in 2005. Future events will disproportionately affect vulnerable industry sectors, such as agriculture, fisheries, forestry, health care, insurance, real estate, tourism and offshore energy infrastructure (oil rigs and pipelines).<sup>22</sup> Informing all these concerns, the scientific community continues to develop research and data around issues of glacial melts, sea level rise, ocean acidification, and associated impacts on global water currents.<sup>23</sup> In fact, for the vast majority of the scientific community, the issue is not whether climate change is happening, but what can be done to slow its progress and mitigate its effects.<sup>24</sup>

All of these signals present a compelling case for companies to pay attention to climate change. The number of American companies addressing the issue has risen notably since 2003.<sup>25</sup> Indeed, a changing competitive environment is creating the most compelling reasons to address climate change. It impacts companies through partners in the supply chain. (Wal-Mart has recently announced that it will initiate a programme to show preference to suppliers who set goals for aggressively reducing GHG emissions.<sup>26</sup>) It impacts companies through competitors in the marketplace. (Toyota has been able to take market share from other automakers in part through its expansion into hybrid drive trains.<sup>27</sup>) In sum, all the signals warn: 'Businesses that ignore the debate over climate change do so at their peril.'<sup>28</sup>

## Linking climate change to business interests

While the strategic benefits of adopting voluntary GHG reductions are as varied as the companies undertaking them (see Table 1), the universal key to financial success is a company's assessment of its strategic positioning vis-à-vis GHG emissions. As a baseline model, companies have sought strategic benefits from voluntary GHG reductions within seven general frameworks: (1) operational improvement; (2) anticipating and influencing regulations; (3) accessing new sources of capital; (4) improving risk management; (5) elevating corporate reputation; (6) identifying new market opportunities; and (7) enhancing human resource management.<sup>29</sup> Each presents new kinds of questions to help companies ascertain their vulnerability under a climate change protocol.

Table 1 A Select List of Companies Taking Voluntary Action to Reduce GHG Emissions

ABB	DuPont	Manitoba Hydro	SC Johnson
Air Products	Entergy	Maytag	St Lawrence Cement Inc
Alcan Aluminum	Equity Office	MeadWestvaco Corporation	STMicroelectronics
Alcoa	Properties Trust	Miller Brewing Company	Stora Enso
American Electric Power	Ford Motor Company	Motorola	Suncor Energy
Baxter International	General Motors Corporation	National Renewable Energy Laboratory	Sunoco
Boeing	Georgia-Pacific	Norm Thompson Outfitters	Temple-Inland Inc
BP	Hewlett-Packard Company	Novartis	Toyota
California Portland Cement	Holcim	Ontario Power Generation	TransAlta
CH2M Hill	Holcim (US) Inc	Pechiney	United Technologies
Cinergy Corporation	IBM	Pfizer Inc	Waste Management Inc
the City of Chicago	Intel	PG&E Corporation	Weyerhaeuser
Cummins Inc	Interface Inc	Rio Tinto	Whirlpool
Deutsche Telekom	International Paper	Rohm and Haas	Wisconsin Energy Corporation
DTE Energy	John Hancock Financial	Royal Dutch/Shell	
	Lockheed Martin		

## Operational improvement

In this framework, the links between climate change and business interests are forged when reductions in GHG emissions expose opportunities for process optimization (such as lower energy costs, reduced material utilization rates, minimized emissions, and decreased costs of transportation.<sup>30</sup> Energy efficiency is the first and central issue for any assessment of the economics of GHG reductions. In conjunction with their GHG reduction programmes, some companies have begun to ask, 'How energy efficient are our operations? Is our company at the limits of efficiency?' These companies have found economic gains waiting in energy-use reductions both as complex as plant alterations and as simple as lighting upgrades.

Going further, an assessment of GHG emissions and reduction opportunities often reveals new insights into taken-for-granted or under-studied operational parameters. Not all operational improvements lie within the operating plant. Some companies have found more benefit in focusing on improvements in transportation or distribution.

## Anticipating and influencing climate change regulations

While regulatory compliance is typically viewed as a cost of doing business, the regulatory terrain of climate change is complex and emerging on many levels. In order to think strategically about climate change regulations, business managers must adopt a multi-pronged approach. Managers must be aware of developments in policy standards at the international, national and regional levels. They must be prepared to respond, if and when those standards emerge. And, they must be able to assess whether they can have an influence on the shape those standards will take. If a company can influence the final form of climate programmes to align with their own internal plan, they will deflect the need for operational change in order to comply. Their competitors, on the other hand, will have to adapt existing operations. Companies that can anticipate and influence regulations are, in effect, setting their own programmes as the regulatory standard. For example, BP's expertise in cap-and-trade earned the company an advisory role in designing the United Kingdom GHG Emissions Trading System.<sup>31</sup> Similarly, Shell's experience with their own emissions trading desk won them an advisory role in developing the European Union's (EU) Trading Directive. These national and international programmes incorporate distinct elements reflecting the companies' special experience and expertise in GHG trading.

## Accessing new sources of capital

The availability of capital is directly related to the issue of GHG trading. In many cases, governments are introducing financial incentives to reduce GHGs. At the outset, the dividends are likely to come from government subsidies. Going forward, they will come more and more from inter-firm trading as trading directives (like that in the EU and UK) go into effect. How much money is at stake? Richard Sandor, chairman of the Chicago Climate Exchange, estimates the market could be as large as the existing US\$5 billion annual market for sulphur dioxide.<sup>32</sup> The World Bank foresees a US\$10 billion market in GHG emissions by 2006.<sup>33</sup> CO2e.com estimates the range from US\$10 billion to US\$3 trillion by 2010.<sup>34</sup> Others estimate it could be as large as US\$100 billion per year after the Kyoto Treaty goes into effect.<sup>35</sup>

Of course, these estimates include contingencies that must be weighed into the calculation of any climate change strategy. One such contingency is the inclusion of carbon sinks and the exclusion of trade ceilings, which sends conflicting signals through the market. Other contingencies depend on who participates. According to the research group Climate Strategies, the market will be about US\$9 billion if the EU, Japan, Canada, Australia and New Zealand are potential buyers. This market figure would increase substantially if the United States were to join the group.

## Improving risk management

In the strategic framework of risk management, greenhouse gas reductions can reduce financial risks. According to the Coalition for Environmentally Responsible Economies (CERES), US\$7.4 trillion in corporate assets today potentially are threatened by climate change.<sup>36</sup> This leads the Coalition to conclude that corporate board members, senior

executives, and institutional investors can no longer ignore such costs, and would be negligent in their fiscal responsibilities should they do so. The risks are enormous. They are both physical (the results of droughts, floods and hurricanes) and financial (the effects of GHG liabilities on share price and asset valuation).

## **Elevating corporate reputation**

Greenhouse gas reductions also present an opportunity to enhance a corporation's reputation. This can have an impact on a variety of important constituencies, including, but not limited to, voters who influence future policy, jurors who sit in judgment on legal cases, investors who consider environmental investment strategies, communities that influence corporate expansion and new construction, reporters who write about a company's initiatives, activists who protest a company's operations, employees who produce goods and services, and the consumers who purchase those goods and services.

## **Identifying new market opportunities**

Greenhouse gas reductions can expose important information and insights for guiding new strategic directions. Companies can exit increasingly risky business areas in favor of more secure options by measuring environmental costs and risks associated with product or process lines. New market opportunities also emerge when a company remains alert to changes in consumer preference, media attention, community concerns, and regulatory programme trends.

## **Enhancing human resource management**

At the core of all these strategies lies an often overlooked and under-rated initiative: the engagement of the workforce. Technological and economic activity may be direct causes of climate change, but it is the culture of an organization that guides the development of solutions.

The organizational implications of climate change involve both quantifiable and non-quantifiable benefits. First, implementing strategies for GHG reductions requires substantive changes, in both the structure and the culture of an organization. Such changes include, among others, reward systems, training programmes, management philosophy, employee involvement, reporting requirements, data collection, and analysis. In all of these and more, companies must engage workers as partners in identifying and enacting strategies for – and reaping the benefits of – reducing GHG emissions.

Second, the adoption of greenhouse emissions strategies can improve a company's morale and consequently increase the retention rates of its skilled workers. Lower recruiting and training costs notwithstanding, a strong company morale contributes significantly to the attraction and retention of a high calibre workforce. Such organizational benefits may be difficult to quantify, but they are real.



We mentioned at the beginning of this section that addressing climate change and the coming market shift require a company to ask new types of questions about new types of issues. Table 2, below, offers a snapshot of the key questions that require attention within the frameworks outlined above.

Table 2 Questions for Exploring the Strategic Benefits of Voluntary Greenhouse Gas Reductions<sup>37</sup>

### **Operational improvement**

- What is the energy efficiency of your operations, and can you improve it?
- Do you know how to measure your company's production of carbon dioxide and other greenhouse gases (methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride)?
- Do you know the available technologies or alternatives for reducing emissions and the cost/benefit trade-offs associated with each?

### **Anticipating and influencing climate change regulations**

- Do you know how to monitor and forecast the development of GHG regulations at the state, federal and international levels?
- Can you influence the form of those regulations?

### **Accessing new sources of capital**

- Do you know how to conduct commodity trading of GHG emissions and are you aware of government subsidies for efforts to reduce GHG emissions?

### **Improving risk management**

- Are any of your operations at risk due to the natural consequences of climate change and do you know the financial implications of that exposure?
- Do you know how to quantify your emissions and the financial liabilities that may incur should a GHG disclosure scheme go into force?

### **Elevating corporate reputation**

- How is your company's market reputation improved or harmed by its posture towards GHG reductions?
- Do you have good relations with key constituencies that care about that posture?

### **Identifying new market opportunities**

- Are there alternative product or process lines that you could be exploring that will become more attractive as GHG reduction programmes proliferate?
- Are there products or services (including GHG credits) that your company can sell to other companies who have decided to embark on voluntary GHG reduction programmes?

## Enhancing human resource management

- Are your employees concerned about GHG emissions?
- Would voluntary reduction initiatives improve morale, increase the retention rates of skilled workers, lower the costs of recruiting and training new ones, or attract and retain higher calibre applicants?

## Integrating climate change and business strategy

In today's business world, several companies already have a history of experience in working with climate-change issues. These are the companies now trying to shift their climate-related strategy from one focused on risk management and bottom-line protection to one that emphasizes business opportunity and top-line enhancements. While this does not mean that all such initiatives are singularly driven by the issue of climate change, nonetheless, climate change is a market shift that further enhances the value proposition of the initiative. Goldman Sachs, for example, identifies three climate-related ways to add value to the company portfolio: protect reputation, enhance competitive position, and develop new products.<sup>38</sup>

Some companies have focused their efforts on fundamental technology shifts. DuPont, for example, has identified the most promising growth markets in the use of biomass feedstocks. These can be used to create new bio-based materials such as polymers, fuels and chemicals, applied biosurfaces, and biomedical materials. The company's goal is to have 25 per cent of its revenue come from such non-depletable resources, and today is two-thirds of the way toward meeting that goal. One promising development is the Sorona<sup>®</sup> polymer, a result of the joint venture between DuPont and Tate & Lyle plc. In 2006, DuPont will produce 1,3-propanediol, the key building block for the new polymer, using a proprietary fermentation and purification process based on corn sugar. This bio-based method consumes less energy, reduces emissions, and employs renewable resources instead of traditional petrochemical processes.

Another promising development is the 2006 creation of a partnership between DuPont and BP to develop, produce and market a next generation of biofuels. The two companies have been working together since 2003 to develop materials that will overcome the limitations of existing biofuels. The first product to market will be biobutanol, which is targeted for introduction in 2007 in the UK as a gasoline bio-component. This biofuel offers better fuel economy than gasoline-ethanol blends and has a higher tolerance of water contamination.<sup>39</sup> Both of these developments represent a significant change in product lines and research focus for DuPont, and one that dramatically reduces the company's environmental footprint. DuPont's R&D leadership predicts that over 60 per cent of DuPont's future business will come from the use of biology to reduce the use of fossil fuels.

Alcoa is another experienced corporation that believes future climate policies will create market opportunities, in their case by expanding aluminum recycling. Recognizing that aluminum produced from recycled materials requires only five per cent of the energy needed to make primary aluminum, and that energy prices probably will continue to

rise, the company has pledged that 50 per cent of its products (excluding raw ingot sold to others) will come from recycled aluminum by 2020. Alcoa views increased recycling as one of the company's more significant long-term strategic opportunities. Another one is the expected boost in demand for aluminum as a material for lighter weight vehicles. Alcoa has developed 'Dura Bright' commercial truck wheels that are lower in mass than conventional wheels, and do not require polish or scrubbing. Current Alcoa data indicate that a ten per cent reduction in vehicle weight typically yields a seven per cent reduction in GHG emissions.

The insurance underwriter, Swiss Re, also is looking at ways in which to augment existing climate change activities and create new business opportunities. Insurance is perhaps the one industry most directly affected by the physical impacts of climate change because it underwrites natural catastrophes and property loss. Since climate change directly affects Swiss Re's core business, with or without regulation, the company is integrating related concerns into its underwriting practices. Notable in this regard are insurance packages for Directors & Officers (D&O) and Business Interruption (BI). Moreover, the company now channels considerable investments into a number of environmentally impacted sectors, including alternative energy, water, and waste management/recycling. Specifically, Swiss Re seeks opportunities representing medium to high risk-return investment profiles: infrastructure (wind farm, biomass, solar); publicly quoted, small- to medium-capitalized growth companies; and cleantech venture capital (the highest risk-return profile). Tightening policy frameworks increase the demand for such projects, and the company's investment strategy is beginning to pay off. The value of Swiss Re's market portfolio rose substantially in 2005, thanks to both a strong share performance and new investments.

Yet another example of climate change/business strategy integration is found among the oil companies. The Shell Group has discovered that their operations, and more importantly their products, are squarely in the middle of the climate controversy. This is an issue the company cannot ignore. In 2005, Shell's operations emitted 105 million metric tons of CO<sub>2</sub>, while downstream combustion of its fossil fuels generated an additional 763 million metric tons. Together, these emissions account for some 3.6 per cent of global CO<sub>2</sub> emissions from fossil fuel combustion.

A primary source of GHG emissions is the flaring of methane gas in exploration and refining operations. Shell is working to end the flaring practice and now captures the gas, either pumping it back underground to enhance well production or feeding it to nearby facilities for power production. When the economics are right, methane can be converted into liquid natural gas (LNG), a major area for potential growth. Looking ahead, the 2005 edition of Shell's *Global Scenarios to 2025* articulates a vision of how worldwide forces may shape markets over the next two decades. The conclusion is that the world and its business enterprise eventually will face a price for carbon. This conclusion justifies Shell's efforts to increase natural gas production (especially LNG), and the company's investments in wind, solar, biofuel, coal gasification, and experimental hydrogen delivery systems – all of this while still working to make its core fossil fuel business succeed in a carbon-constrained world.

## Conclusion

Early warning signals, identifiable business interests, and integrated business strategy all inform us that inaction is not a viable option with regard to the impending market shift caused by climate change. As a start, companies should understand their vulnerability by developing a clear understanding of their emissions profile and of the risks and opportunities this profile creates. Next, companies should understand the possible policy options of future regulation. Finally, companies that have experience with GHG reductions should try to influence policy formation so as to reduce the uncertainty of the market shift.

Companies that are now taking action view those that do nothing as not only missing out on a myriad of near-term financial opportunities, but also setting themselves up for long-term political and financial challenges. Advancing climate regulation, rising energy prices, and the investment community's increasing attention on climate change all bring a fluid business environment into stark relief. The rules of the game are changing in ways that cannot be ignored. In the near term, companies need to be prepared for a carbon-constrained world that will alter existing business models. In the long term, they need to be prepared for a carbon-constrained world in which they will be transformed.

In the end, sustainable climate-related strategies cannot be an add-on to business as usual. Instead, climate-related strategies must be integrated into a company's overall business strategy for success. Linda Fisher, DuPont's Vice President and Chief Sustainability Officer, has articulated this mandate for the entire business community: 'We need to understand, measure, and assess market opportunities. How do you know and communicate which products will be successful in a GHG-constrained world? How should we target our research? Can we find creative ways to use renewables? Can we change societal behavior through products and technologies? The company that answers these questions successfully will be the winner.'<sup>40</sup>

---

## Postscript

The following abbreviated business cases, featuring Cinergy Corporation (now Duke Energy) and Whirlpool Corporation, illustrate in a real-life context the range of issues many companies face as they grapple with climate change and search for strategic solutions.

## Cinergy Corporation<sup>41</sup>

Cinergy Corporation (now Duke Energy) is heavily reliant on coal combustion for the generation of electricity. This makes the company particularly vulnerable to carbon regulation. Yet, according to Chairman and CEO Jim Rogers, addressing GHG emissions is not only the ethically right thing to do, it is also a smart business decision. Rogers believes that US industry soon will face domestic carbon constraints, a prediction that presents Cinergy with a serious strategic challenge. While climate change is a long-term problem, many industries need short-term regulatory and market clarity to properly value potential investments. For power companies like Cinergy, the future of climate policy and carbon regulation will affect strategic decisions about investments in new capacity having an expected life of 40 or 50 years.

'The greatest risk we face is 'stroke of the pen' risk, the risk that a regulator or congressman signing a law can change the value of our assets overnight,' says Rogers. 'If there is a high probability that there will be regulation, you try to position yourself to influence the outcome.'<sup>42</sup> Cinergy is managing this regulatory risk through its voluntary GHG emission reduction programme and its aggressive leadership role within the utility industry. These actions make the company a legitimate participant in the national policy debate, creating the opportunity to work with government, trade associations, environmental organizations, and other stakeholder groups to help shape legislation on GHG emissions.

But, while Rogers leads Cinergy with a long-term focus, he does not feel that the company can take definitive action on climate change until there are both clear regulatory and market signals to do so. As Kevin Leahy, the company's General Manager of Environmental Economics and Finance, explains, 'The technologies will emerge when CO<sub>2</sub> has a price signal. All we need is a market signal to act, and that market signal will be created by regulation.'<sup>43</sup>

In September 2003, Cinergy formally announced its voluntary GHG emissions reduction programme, with the goal of reducing annual emissions for the years 2010 through 2012 to five per cent below the 2000 baseline. The company's decision to more aggressively embrace climate change is based on a long-term view of the strategic implications of the issue. According to Rogers, 'When your time horizon is short, you're thinking 'stonewall it and it won't happen on your watch.' If you are a steward, you make decisions on a longer time horizon, looking beyond your own tenure. When you think of it that way, your view changes. We look 20, 30, 50 years down the road.'<sup>44</sup>

Rogers identifies six 'signposts' indicating that climate change is an issue to be dealt with head on: (1) individual states are taking action; (2) an increasing number of US Senators are expressing concern about global warming; (3) the Kyoto Protocol was ratified and became law on February 16, 2005; (4) a growing number of shareholder groups are asking companies to quantify the risks associated with GHG emissions;

(5) CO<sub>2</sub> and GHG emissions trading markets are developing in Europe and the United States; and (6) global warming is becoming part of our everyday consciousness. Notably absent from this list is scientific research and analysis. According to Rogers, 'Our decisions are purely business based. The science is interesting, but not truly relevant for our purposes.'<sup>45</sup> Based on these trends, he believes it is his responsibility to prepare the company for the likelihood of operating in a carbon-constrained world.

Looking to the future, coal's abundance and low cost in the United States leads Cinergy to believe that coal will continue to be central to the country's longer term fuel mix. Cinergy's work with environmentalists gave the company an early indication of a potential to break the carbon-environmental impasse. Some environmentalists already were warming to the idea of coal being part of the solution.

The most promising means currently available for utilizing coal in a carbon-constrained world is through the implementation of Integrated Gasification Combined Cycle (IGCC) technology, together with Carbon Capture and Sequestration (CCS). Cinergy has been involved in IGCC research since the early 1990s when it built one of the first demonstration plants in the United States in partnership with the US Department of Energy (DOE) through the Clean Coal Technology Demonstration Programme. In 2004, Cinergy entered into an agreement with GE Energy and Bechtel Corporation to study the feasibility of a commercial scale (600 MW) IGCC generating station.

Ultimately, Cinergy believes that resolving the climate change issue will require a paradigm shift regarding the technologies employed to refine and use energy. All of the technologies being discussed today and deployed over the next 20 to 30 years will continue to utilize fossil fuel as their source of energy. Even hydrogen will likely come from fossil fuels. Although these technologies are more energy efficient and have the capability to capture CO<sub>2</sub>, they are only stop-gap or bridging technologies to be used until low or zero carbon technologies are developed and deployed in the second half of this century.

Looking to that future, Rogers worries how climate change could alter the fundamentals of his industry. 'I worry that we are using 100 year-old technology. There will be a transformative technology. At what point will our generation and transmission lines become obsolete? There are a lot of things you might do, if you think there will be a new technology in 25 years. You need to hit your numbers with a short term view, but you need to run your company with a long term view.'<sup>46</sup>

Having a seat at the policy table and influencing the final legislation will help ensure that it fits with Cinergy's interests and future direction.

---

## Whirlpool Corporation<sup>47</sup>

At the ninth meeting of the Conference of the Parties of the Kyoto Protocol in 2003, Whirlpool became the world's first appliance manufacturer to announce a GHG reduction strategy. But unlike many other companies that have made similar pledges, Whirlpool's approach to climate change involves neither dramatic changes to its operations nor significant bottom line costs. The company's strategy is laser focused on leveraging its current core competencies, and continuing down the same path it has been on for years, that is, bringing the most energy-efficient products to the market. In so doing, Whirlpool is reducing GHG emissions through its consumers. The mantra among the workforce is 'energy efficiency', plain and simple.

In 2003, Whirlpool announced a plan to – by 2008 – decrease total GHG emissions from global manufacturing, product use and end-of-life by three per cent from a 1998 baseline. The company projected increasing sales by 40 per cent over the same period.

Customers are the key to Whirlpool's efforts to address climate change. The company's internal studies conclude that of the nearly 30 tonnes of CO<sub>2</sub> emitted during the life of an average washing machine, over 93 per cent come from the use phase. Of the remaining amount, two per cent come from manufacturing and five per cent come from end-of-life disposal. This is corroborated by a 1992 United Kingdom-based PA Consulting Group study which also shows that over 93 per cent of washer emissions come from use.

The concentration of emissions in the use phase presents an opportunity for focused efforts to reduce those emissions. While the company still seeks energy reductions throughout the supply chain, it has determined that further improvements in the manufacturing process would be hard to find.

Driven by mandatory and voluntary programmes, as well as by competitor pressure and consumer demand, Whirlpool has been engaged in a constant search for energy efficiencies with its appliances. The company (and the industry) has achieved dramatic energy savings over the past 30 years. Compared to models from 1970, today's refrigerators use less than half as much energy and washing machines and dishwashers use approximately one-third as much. Since 1980, the overall percentage of the United States home energy use that is dedicated to appliances has dropped by two-thirds, to between 18 and 20 per cent.

These improvements have not always been easy. In the past, Whirlpool has felt that it was paddling upstream against consumer demand. For example, in 1993 the company was the winner of the Super Efficient Refrigerator Programme (SERP) competition sponsored by the Environmental Protection Agency, the Department of Energy, and 27 national utilities. Though the company received the US\$30 million prize for winning the challenge, and enjoyed the accolades that came with it, some employees felt that the corporate investment far outweighed the reward. In the end, the prize money barely defrayed the development dollars and the company was forced to go to great lengths to generate consumer interest in the product. This experience planted concerns within the company that you cannot get too far ahead of the market. In other words, efficiency gains must not exceed manufacturing costs or consumer demand.

Over the past two years, Whirlpool executives have sensed a market shift as consumers have become increasingly interested in energy efficiency. This, the company believes, is driven by both increasing awareness of climate change and environmental issues, and by increasing energy costs. According to Casey Tubman, Brand Manager of Fabric Care Products, 'In the 1980s, energy efficiency was number ten, eleven or twelve in consumer priorities. In the last four or five years, it has come up to number three behind cost and performance, and we believe these concerns will continue to grow.'<sup>48</sup>

Energy efficiency still requires consumer education. The most efficient washers can cost up to US\$500 more than traditional washers (absent any rebates). However, depending on utility rates, they can save between US\$75 and US\$100 per year, yielding a five-year payback. The educational challenge is making the payback as visible as the purchase price.

Today, the Whirlpool Duet® is a front loading washing machine that uses the horizontal axis orientation to yield efficiencies of 68 per cent less energy, 67 per cent less water, and 50 to 70 per cent less detergent than traditional top loading machines. Most importantly, the machine has been extremely successful in the marketplace and has served to counter the internal resistance that resulted from the SERP experience.

Going forward, Whirlpool believes that the focus on efficiency will have other long-term benefits for the company in terms of market share. According to Tubman, energy efficiency is becoming a source of competitive advantage through brand loyalty. 'Once someone buys a high efficiency device, they never go back to buying a traditional machine.'<sup>49</sup> Whirlpool's market research supports this conclusion. According to Steve Willis, Director of Global Environment, Health and Safety, Whirlpool surveys demonstrate that 'there is a strong correlation between a company's performance in appliance markets and their social response to issues such as energy efficiency and pollution.' While not uniform across products or regions, Whirlpool believes that environmental attributes (water and energy conservation) produce customer loyalty and repeat purchases.

As an added benefit, Whirlpool executives believe that the company's focus on energy efficiency, like its other responsibility efforts, helps to draw and retain employees who feel good about the company and perform better. In Tubman's words, 'The values stay here because the people stay here and the people stay here because the values stay here.'<sup>50</sup>

On the issue of climate-change policy, Whirlpool's primary focus on end-use emissions leads executives to feel strongly that any national policy aimed at addressing climate change must include credit for use-cycle reductions. 'Who gets the use credits?', asks JB Hoyt. 'Should the utility get it? The user? The manufacturer?'<sup>51</sup> End-use emissions is the number one issue, even though the company has been working on emissions reduction for a very long time.

All of this leads to the conclusion that a focus on GHG reductions through energy efficiency is central to Whirlpool's core strategy. A focus on energy efficiency gives the company a premium product well suited for a carbon-constrained future. Even though there is relative technological parity between the product offerings of domestic and European manufacturers, Whirlpool is concerned that Asian-based manufacturers could overrun the domestic market with cheap, less energy-efficient machines. Increased home energy prices resulting from efforts to reduce GHG emissions could be a windfall for Whirlpool as consumers place an even higher premium on energy efficiency. Banking on this future, Whirlpool has stayed the course and has continued to do what it does best –bring energy efficiency into the home.

---

## Notes

- 1 Hoffman A. 'Examining the Rhetoric: The Strategic Implications of Climate Change Policy', *Corporate Environmental Strategy*, 9 (4), 2002, pp.329–337.
- 2 Hoffman A. 'Climate Change Strategy: The Business Logic Behind Voluntary Greenhouse Gas Reductions', *California Management Review*, 47(3), 2005, pp.21–46.
- 3 Margolick M. and Russell D. *Corporate Greenhouse Gas Reduction Targets*, Arlington, VA, Pew Center on Global Climate Change, 2001.
- 4 Hoffman A. 'The "Carbon Cartel" or Wise Capitalists: What is Going on with Voluntary Greenhouse Gas Reductions?' *American Bar Association Air Quality Newsletter*, 9 (1) (November) 2005, pp.3–7.
- 5 Wellington F. and Sauer A. *Framing Climate Risk in Portfolio Management*, Boston, MA, Ceres, 2005.
- 6 Karmali A. 'Best Practice in Strategies for Managing Carbon' in K. Tang (ed.) *The Finance of Climate Change: A Guide for Governments, Corporations and Investors*, London, Risk Books, 2006, pp.259–270.



- 7 Austin D. and Sauer A. *Changing Oil: Emerging Environmental Risks and Shareholder Value in the Oil and Gas Industry*, Washington DC, World Resources Institute, 2002.
- 8 DeCicco J., Fung F. and An F. *Automakers' Corporate Carbon Burdens: Update for 1990–2003*, New York, Environmental Defense, 2005.
- 9 Cogan D. *Corporate Governance and Climate Change: Making the Connection*, Boston, MA, Ceres Inc., 2006.
- 10 Hoffman A. *From Heresy to Dogma: An Institutional History of Corporate Environmentalism*, Stanford, CA, Stanford University Press, 2001.
- 11 Hoffman A. *Getting Ahead of the Curve: Corporate Strategies that Address Climate Change*, Arlington, VA, Pew Center on Global Climate Change, 2006.
- 12 *New York Times*, 'Investors Seek Climate Change Information', *New York Times*, 15 June 2006, C8.
- 13 Epstein P. and Mills E. *Climate Change Futures: Health, Ecological and Economic Dimensions*, Cambridge, MA, Center for Health and the Global Environment, Harvard Medical School, 2005.
- 14 See [www.cdproject.net/](http://www.cdproject.net/), accessed 3 March 2006.
- 15 Smith J. 'The Implications of the Kyoto Protocol and the Global Warming Debate for Business Transactions', *NYU Journal of Law & Business*, 1(2): 511:550, 2005; Ewing K., Hutt J. and Petersen E. 'Corporate Environmental Disclosures: Old Complaints, New Expectations', *Business Law International*, 5(3), 2004, pp.459–515.
- 16 Semans T. and Juliani T. 'Succeeding in a Carbon-Constrained World', *Corporate Strategy Today*, July 2006, pp.21–37.
- 17 Mintzer I., Leonard J. and Schwartz P. *U.S. Energy Scenarios for the 21st Century*, Arlington, VA, Pew Center on Global Climate Change, 2003.
- 18 Carbon Trust, *Brand Value at Risk from Climate Change*, London, Carbon Trust, 2004.
- 19 Pacala S. and Socolow R. 'Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies', *Science*, 305(5686), 2004, pp.968–972.
- 20 Makower J., Pernick R. and Wilder C. *Clean Energy Trends 2006*, San Francisco, Clean Edge Inc., 2006. [www.cleaneedge.com/reports/trends2006.pdf](http://www.cleaneedge.com/reports/trends2006.pdf), accessed 3 March 2006.
- 21 Chea T. 'Doerr Firm Invests in "Green Technology"', *USA Today online*, 10 April 2006. [www.usatoday.com/tech/news/2006-04-10-green-venture-capitalist\\_x.htm](http://www.usatoday.com/tech/news/2006-04-10-green-venture-capitalist_x.htm), accessed 22 June 2006.
- 22 Ceres, *Managing the Risks and Opportunities of Climate Change: A Practical Toolkit for Corporate Leaders*, Boston, MA, Ceres Inc., 2006.
- 23 Lemonick M. 'Has the Meltdown Begun?' *Time*, 27 February 2005, pp.58–59.
- 24 Eilperin J. 'Debate on Climate Change Shifts to Irreparable Harm', *Washington Post*, 29 January 2006, A01.
- 25 Deutsch C. 'Study Says U.S. Companies Lag on Global Warming', *New York Times*, 22 March 2006, C3.
- 26 Birchall J. 'Wal-Mart Sets Out Stall for a Greener Future', *The Financial Times*, 26 October 2005, p.27.
- 27 Bennett O. 'Healthy, Wealthy And Wise Inc. "Sustainability" Used To Be Just For Hippies. In America, It's Now Big Business.' *The Daily Telegraph*, 25 October 2006, p.8.
- 28 Crane D. 'Canada Needs to Develop a Clear Plan on Kyoto', *The Toronto Star*, 18 September 2004, D2.

- 29 Op. cit., Hoffman A. (2005), p.40.
- 30 CO2e.com, *Greenhouse Gas Market Overview*, Toronto, CO2e.com LLC, 2001.
- 31 Buchan D. 'Race to Acclimatize Companies to Scheme for Limiting Greenhouse Effect: The Government Hopes to Lead the way in Pollution Permit Trading', *The Financial Times*, 4 January 2002, p.4.
- 32 'Exchange in Pollution Credits Formed', *Chicago Sun-Times*, 17 January 2003, p.53.
- 33 'Trading in Greenhouse Gases', *Christian Science Monitor*, 24 October 2002, p.8.
- 34 Op. cit., CO2e.com, 2001.
- 35 Nesmith J. 'Rejection of Kyoto Treaty on Climate may Leave U.S. Companies out in Cold', *The Atlanta Journal*, 27 July 2002, 8G.
- 36 Innovest Strategic Value Advisors, *Value at Risk: Climate Change and the Future of Governance*, Boston, MA, Ceres, 2002.
- 37 Op. cit., Hoffman, A. *California Management Review*, 2005.
- 38 Moran M., Cohen A., Swem N. and Shaustyuk K. 'The Growing Interest in Environmental Issues is Important to Both Socially Responsible and Fundamental Investors', *Portfolio Strategy*, Goldman Sachs, 26 August 2005, p.5.
- 39 DuPont, *Press Release: DuPont and BP Announce Partnership to Develop Advanced Biofuels*, Wilmington, Del., DuPont, 2006.
- 40 Op. cit., Hoffman, A. 2006, p.7.
- 41 Material for this case study was drawn from Hoffman A. 'Cinergy: Managing "Stroke of the Pen" Risk', in *Getting Ahead of the Curve: Corporate Strategies that Address Climate Change*, Arlington, VA, Pew Center on Global Climate Change, 2006, pp.64–75.
- 42 Ibid. p.47
- 43 Ibid. p.64
- 44 Ibid. p.39
- 45 Ibid. p.66
- 46 Ibid. p.61
- 47 Material for this case study was drawn from Hoffman, A. 'Whirlpool: Don't Switch Tracks When the Train is Already Moving', in *Getting Ahead of the Curve: Corporate Strategies that Address Climate Change*, Arlington, VA, Pew Center on Global Climate Change, 2006, pp.121–128.
- 48 Ibid. p.6
- 49 Ibid. p.123
- 50 Ibid. p.124
- 51 Ibid. p.127