

## Chapter 4: The business competitiveness versus corporate social responsibility /sustainable development debates

### 4.1 Why are business and industry important to advancing the sustainability debates and ecological modernisation?

In Chapter 2, it was shown that scientists had, in many cases, as long ago as one hundred years ago sounded the alarm of the dangers regarding the consequences and use of asbestos, PCBs, radiation, benzene, lead, soil degradation and salinity from deforestation, and risks of overshoot from over-fishing and over-harvesting of natural resources. In Chapter 3 it was shown that business and their industry group representatives often fought regulation by government that would have forced them to reduce these risks to human health and the environment. There is great concern that increasing global competition and short-term market pressures to deliver quarterly profits, are making it harder for corporations today to take the time required to transform themselves into sustainable and socially responsible corporations. As outlined in Chapter 3, the Dodge versus Ford case in 1913 and the legal structure of the Corporations Act in many countries has led many corporate boards to believe that they had no choice but to pursue profits for shareholders above everything else. There is significant evidence published each year by the Multinational Monitor<sup>1</sup> and CorpWatch in the USA<sup>2</sup> and Corporate Watch in the UK<sup>3</sup> showing that many in business are working to maximise profits even if it means breaking the law. In the 2000 book, *Global business regulation*<sup>4</sup>, Braithwaite and Drahos highlighted that there is still an attitude amongst many business leaders that regards environmental and labour regulation as something that globalisation will provide ways to ‘get around’: that globalisation will make it easier for businesses to move to countries with the lowest environmental, regulatory and labour costs. If the majority of companies in a sector were doing this to be competitive, many business people would wonder if they would have a real choice not to move to these regions of the world as well. Publications like *The Corporation*<sup>5</sup> and *When Corporations Ruled the World*<sup>6</sup> have given voice to these concerns. The evidence these books and corporate watch dog NGOs bring together leads some to question whether the corporation can ever realistically be an agent to help bring about a transition to sustainable development.

As outlined in Chapter 1, business and industry are key agents in the strategy recommended by ecological modernisation to achieve sustainable development. Ecological modernisation has been

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<sup>1</sup> See Multinational Monitor at <http://multinationalmonitor.org/> Accessed 11.01.08

<sup>2</sup> See CorpWatch (USA) at <http://www.corpwatch.org/> Accessed 11.01.08

<sup>3</sup> See CorpWatch (UK) at <http://www.corporatewatch.org/> Accessed 11.01.08

<sup>4</sup> Braithwaite, J. and Drahos, P. (2000) *Global Business Regulation*, Cambridge University Press, Cambridge

<sup>5</sup> Bakan, J. (2004) *The Corporation: The Pathological Pursuit of Profit and Power*, Viking.

<sup>6</sup> Korten, D (1995) *When Corporations Ruled the World*. Kumarian Press. Inc

criticised for this by Foster<sup>7</sup> and York and Rose<sup>8</sup> and by those in the NGO environmental movement. For many years now many NGO environmental groups and academics<sup>9</sup> have been highly suspicious of and argued against any alliances with the corporate sector. This history is overviewed well by Beder.<sup>10</sup> This chapter is a defence of ecological modernisation's recommended role for business actors as part of a broader strategy to ecologically modernise policy and institutions. This chapter argues that a strategic engagement is needed with corporations, business and industry groups to achieve sustainable development for the following reasons.

First, a key strategy to overcome anti-sustainability vested interests is to build pro-sustainability business coalitions. Just as it is naive to expect all business leaders to embrace sustainable development quickly, it is even more naive to assume that existing business anti-sustainability vested interests can be overcome without the creation of new pro-sustainability business vested interests. Of all the barriers to sustainable development outlined in Chapter 3, this thesis argued in Chapter 3 that the greatest is powerful corporate and industry group-style vested interests and their anti-sustainability blocking coalitions. Chapter 3 overviewed a range of literature and publications which shows that corporate vested interests have been remarkably successful at undermining and stopping many aspects of sustainable development now for at least 100 years. In the late 20<sup>th</sup> and early 21<sup>st</sup> century, in many countries pro-sustainability coalitions of progressive businesses and environmental industry groups are forming to represent and lobby for the interests of pro-sustainability businesses. These include The International Business Leaders Forum in the UK convened by Prince Charles, Environment Business Australia and the National Business Leaders Forum for Sustainable Development in Australia and the Chicago Climate Exchange in the USA. There are now significant numbers of businesses in sectors whose direct interests align with sustainable development, such as businesses in the following global sectors: re-insurance and insurance, renewable energy and energy efficiency, waste management and recycling, green building/built environment development, water management, sustainable investment and carbon trading markets, and eco-tourism. In the last two years globally we have seen new and significant coalitions of business form to represent this "environmental business sector" demanding action on sustainability issues especially climate change. A significant example of this was business' intervention in the UN Bali Summit in late 2007. On 30th November 2007, the business leaders of 150 global companies published a communiqué to world leaders calling for a comprehensive, legally binding United Nations framework to tackle climate change calling for a rapid reduction of greenhouse gas emissions and at least 50 per cent cuts by 2050. It has been led by The Prince of

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<sup>7</sup> Foster, J.B. (2002), *Ecology Against Capitalism*, New York, Monthly Review Press

<sup>8</sup> York, R. Rose, E.A. (2003) *Key Challenges to Ecological Modernization Theory*, *Organization and Environment*, 16(3), pp. 273-288

<sup>9</sup> Bakan, J. (2004) *The Corporation: The Pathological Pursuit of Profit and Power*, Viking. P17

<sup>10</sup> Beder, B. (1994) *Revoltin' Developments: The Politics of Sustainable Development*, *Arena Magazine*, June-July 1994, pp. 37-39.

Wales's UK and EU Corporate Leaders Groups on Climate Change, which are developed and run by the University of Cambridge Programme for Industry.<sup>11</sup>

Secondly, compared to many governments, and civil society, business has the resources to innovate to achieve sustainable development if required to operate in institutional and policy frameworks that provide incentives in this direction. From an ecological modernisation perspective, the private sector has an important role to play in commercialising the eco-innovations the world needs to achieve ecological sustainable development. If a corporation or business has already developed cost-competitive alternatives to, for instance, a harmful chemical or industrial process that is causing environmental or social problems, then this is often the critical factor in whether the debate, regarding use of this chemical or process, is resolved and ecological modernisation through the enacting of new regulations relatively swiftly occurs. In chapter three, this was shown through the example of where DuPont had already developed cost-effective replacement chemicals to many of those that destroy the ozone layer was critical in shifting the debate on whether or not the US Government should pro-actively support the Montreal Protocol.

Thirdly, every medium to large sized business' attitudes matter because it only requires a few medium to large corporations with significant resources to form effective blocking coalitions. A good example of this has been the lack of progress on both the climate debates and as a result the necessary government policy and institutional change to co-ordinate a rapid ecological modernisation to decarbonise the economy. The scientific consensus on the basic science of human-induced climate change is now significant. Now it is mainly conservative right wing think tanks in the USA that write articles and papers disputing the IPCC consensus on science of climate change. In the USA it has been shown that most of the remaining 'expert' climate change sceptics' work are either directly or indirectly paid through think-tanks by Exxon Mobil<sup>12</sup>. The Royal Society, Britain's premier scientific academy, has taken the unprecedented step of writing to Exxon Mobile to demand that the company withdraws support for dozens of groups that have "misrepresented the science of climate change by outright denial of the evidence".<sup>13</sup> It referred to the Society's survey which found that Exxon Mobil distributed US\$2.9m to 39 of such groups in the previous year including the International Policy Network ( a London think-tank),and the George C Marshall Institute ( Washington DC). In 2004, the George C Marshall Institute published a report with the Scientific Alliance (UK) asserting that rising global temperatures and carbon dioxide levels in the atmosphere were not connected. The Royal Society also criticised Exxon Mobil's public statements on global warming, as "inaccurate and misleading".

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<sup>11</sup> See Bali Communique at <http://www.balicomunique.com/communique.html>

<sup>12</sup> Beder, S. (1999) *Corporate Hijacking of the Greenhouse Debate*, *The Ecologist*, March/April pp. 119-122.

Ball, J. (2005) *Digging In: Exxon Chief Makes A Cold Calculation On Global Warming*. Wednesday, June 15, the Wall Street Journal

<sup>13</sup> See *Royal Society Letter to Exxon Mobile* at <http://image.guardian.co.uk/sysfiles/Guardian/documents/2006/09/19/LettertoNick.pdf> Accessed 12 January 2008

In the USA, the blocking coalition of a few corporations like Exxon Mobile, the religious right, the right wing media and the Bush administration has not simply held back real action on climate change they have worked actively to roll back what few advances had been made on the environment in the USA over his term in office. In the first one hundred days in office

“President Bush has placed a distinctive mark on U.S. environmental policy, rolling back campaign promises on clean air, reversing Clinton administration initiatives on drinking water, and promoting new oil exploration in previously protected regions such as Alaska whilst also categorically removing the USA from the Kyoto Protocol Process.”<sup>14</sup>

In Australia, a similar blocking coalition made up of coal, oil, gas, mineral processing especially aluminium and steel, cement, plastics and chemicals and paper and pulp companies, right wing think tanks and media plus the Howard Government have similarly been widely judged to have effectively blocked action on climate change. The extent to which Australia climate and energy policy was dictated by these vested interests has been revealed in 2007 publications by Hamilton<sup>15</sup> and Pearce.<sup>16</sup> The effectiveness of these anti-sustainability blocking coalitions in both the USA and Australia is seen as one of the main reasons these countries have made relatively little progress compared to Europe.

The fourth reason industry has such a key role in the achievement of sustainable development is due to the role industry group lobbying has on government policy. Achieving sustainability will involve significant institutional and policy reform of government. As part of the process of developing policy, government often consults with business. Politicians’ careers can be affected at the ballot box by the extent to which they are attuned to the attitudes and wishes of business and the community. A key strategy, therefore, to move the sustainability debates forward is for NGOs, professional institutions and community groups to partner with progressive corporations to create a broader coalition to more effectively push governments for change. In chapter three, the case study of how NGOs and DuPont successfully lobbied the Reagan Administration to gain Ronald Reagan’s active support on the Montreal Protocol illustrates this point. In Australia, this strategy used has been used effectively by NGOs and business to shift the climate debates and put pressure on governments to adopt stronger climate change policy. A significant recent example demonstrating the value of alliances with progressive business leaders has been the work of The Australian Conservation Foundation (An Australian NGO) and six leading Australian businesses, who formed the Australian Business Roundtable on Climate Change in 2005.<sup>17</sup> The Business Roundtable on Climate Change was made up of CEOs from BP, Insurance Australia Group, Origin Energy, Swiss Re, Visy Industries and Westpac

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<sup>14</sup> Ifill, G. (2001) *Bush and the Environment*. Online Newshour. Available At [http://www.pbs.org/newshour/bb/environment/jan-june01/bushenv\\_3-29.html](http://www.pbs.org/newshour/bb/environment/jan-june01/bushenv_3-29.html)

<sup>15</sup> Hamilton, C. (2007) *Scorcher: The Dirty Politics of Climate Change*. Black Ink. Agenda Press

<sup>16</sup> Pearce, G (2007). *The Business Response to Climate Change: Case Studies of Australian Interest Groups*” Doctoral Thesis, Australian National University.

<sup>17</sup> Australian Business Roundtable on Climate Change (2006) *The business case for early action*, ABRCC. Available at [www.businessroundtable.com.au](http://www.businessroundtable.com.au) Accessed 14 April 2007.

with The Australian Conservation Foundation. They commissioned studies by respected organisations like CSIRO and Allen Consulting which found that early action on climate change is far better for business than delaying it. They found that early action on climate change, to achieve a 60 percent reduction in greenhouse gas emissions by 2050, can still achieve strong economic growth.

A similar strategy was used by the World Wildlife Fund Australia who partnered with the Clean Energy Group business coalition. This coalition of business groups, too, commissioned research to investigate whether it was technically and economically possible to achieve significant greenhouse gas emissions reductions in Australia by 2050. This study concludes deep cuts to Australia's greenhouse gases emissions were technically and economically possible.<sup>18</sup>

These reports shifted the climate debates in Australia within the business community. Such reports helped inspire the National Business Leaders Forum for Sustainable Development (NBLFSD)<sup>19</sup> to publicly endorse and support the recommendations of the Australian Business Roundtable on Climate Change.<sup>20</sup> The media coverage of the NBLFSD's endorsement of the Australian Business's Roundtable on Climate Change's work on the front page of the Australian Financial Review, further built support amongst business leaders for deep cuts by 2050. Significantly, the National Business Leaders Forum for Sustainable Development (NBLFSD) not only called for a 60 per cent reduction target by 2050 but also publicly called for a short term target of 20 per cent greenhouse gas emissions from 2000 levels by 2020.<sup>21</sup> This helped to catalyse formal support for these same targets by September 2007, by Environment Business Australia<sup>22</sup> which formally represents over 700 leading businesses in Australia. This very public support for deep cuts to greenhouse gas emissions from a section of the Australian business community has assisted NGO lobbying of government which has now resulted by late 2007 all state governments and the Federal government of Australia committing to a 60 per cent greenhouse gas reduction target by 2050. This public support from significant members of the Australian business community, backed up by significant research, is seen to have played a critical role in driving the shift in Australian climate change government policy and institutional change from early 2006 onwards.

Fifth, historically industry groups representing individual businesses have been amongst the leading representatives of vested interests that have blocked efforts to address sustainable development issues.

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<sup>18</sup> Saddler, H., Diesendorf, M. and Denniss, R. (2004) *A Clean Energy Future for Australia Energy Strategies*, WWF, Canberra Available at <http://wwf.org.au/ourwork/climatechange/cleanenergyfuture/> Accessed 14 April 2007

<sup>19</sup> See National Business Leaders Forum for Sustainable Development: A Framework for Action At <http://www.nblf.com.au/framework.php> Accessed 12.January.08

<sup>20</sup> Smith, M., and Hargroves, K. (2007) *Executive Summary: Action on climate change can help business competitiveness and economic growth*, (Submitted as a call for leadership from the participants of the '8th National Business Leaders Forum on Sustainable Development'), The Natural Edge Project (TNEP). Available At <http://www.naturaledgeproject.net/60by2050.aspx> Accessed 12 January 2008

<sup>21</sup> See National Business Leaders Forum for Sustainable Development: A Framework for Action At <http://www.nblf.com.au/> Accessed 12.January.08

<sup>22</sup> See Environment Business Australia's Media Release "*Business Group Calls for Government to Commit to Greenhouse Targets*" at [http://environmentbusiness.com.au/images/stories/070910\\_business\\_group\\_calls\\_for\\_targets.pdf](http://environmentbusiness.com.au/images/stories/070910_business_group_calls_for_targets.pdf) Accessed 12 January 2008.

Industry groups often represent many businesses across either one or many sectors of the economy. In Australia, the Business Council of Australia, the Australian Chamber of Commerce and the Australia Industry Group are regarded as the most representative and powerful industry groups. As the business case for eco-efficiency and green/clean technology has become more widely understood, business associations and representative industry bodies are looking at ways they can assist their members to constructively address sustainable development. Now in Australia three major industry groups have published Sustainability Action Plans for their sector - The Australian Council of Infrastructure and Development Council's Sustainability Framework<sup>23</sup>, Australian Timber Products, Processing and Paper Council (A3P) Sustainability Action Plan<sup>24</sup> and the Plastics and Chemicals Industry Association Sustainability Framework<sup>25</sup> - and several other industry groups have Sustainability Action Plans in the pipeline. Governments and Industry Groups are realising that industry groups can play a key role to mainstream sustainability rapidly through entire sectors of any economy, through their ability to cheaply co-ordinate and run education and training, identification and implementation of sustainability goals and targets across their respective sectors. It also helps government to bring in policy changes if industry groups have already undertaken thorough consultation with their membership on sustainable development issues to identify opportunities, risks and barriers to change. Hence governments are now funding industry groups to undertake such a process with their members to develop sustainability action plans. The Victorian Environmental Protection Agency (Vic EPA) is seeking to develop sustainability covenants with more industry groups<sup>26</sup> to undertake this sort of work. This will also help to shift the debates through more and more industry groups committing meaningfully to sustainable development. For instance, the Plastics and Chemicals Industry Association has adopted a zero waste goal for plastics to landfill as part of their sustainability process. Plastics make up a significant landfill waste stream. This is but one example of how these sustainability processes being undertaken by industry groups can lead to bolder targets which can help shift specific sustainability debates over coming years.

Finally, as discussed in Chapter 3, the attitudes and actions of business matter because, since the mid-1990s, business corporations have constituted the majority of the 100 largest 'economies' in the world.<sup>27</sup> Therefore due to business' sheer global scale and the size of their current ecological

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<sup>23</sup> Toyne, P. Tate, A. Hargroves, K. Smith, M. (2003) *Sustainability Framework for the Future of Australia's Infrastructure Handbook* – Australian Council for Infrastructure and Development.

<http://www.naturaledgeproject.net/AusCIDhandbook03.pdf.pdf>

<sup>24</sup> Prosser, M. Smith, M. Hargroves, K. Toyne. P (2006) *Australian Plantation, Products and Paper Industry Council's* (A3P) Sustainability Action Plan - Performance, People and Prosperity. A3P. <http://www.a3p.asn.au/keyissues/sustainability.html>

<sup>25</sup> PACIA (2007) *Sustainable Leadership Framework. Plastics and Chemicals Industry Association.*

<http://www.pacia.org.au/index.cfm?menuaction=mem&mmid=021&mid=021.026.001>

<sup>26</sup> See Victorian Environment Protection Authority's *Sustainability Covenants* Available at

[http://www.epa.vic.gov.au/bus/sustainability\\_covenants/default.asp](http://www.epa.vic.gov.au/bus/sustainability_covenants/default.asp)

<sup>27</sup> Anderson, S. and Cavanagh, J. (1996) *The Top 200, The Rise of Global Corporate Power*, The Institute for Policy Studies, Washington, DC

footprint, whether or not business decides to support sustainability will be a significant factor in whether ecological sustainable development is achieved.

Thus this thesis argues that, whether business genuinely embraces issues like climate change and more broadly sustainable development directly effects

- a) whether or not ecological modernisation is able to be enacted by governments
- b) whether the sustainability debates move on and are resolved.

Due to limited space in this chapter, I will not focus on specific debates on specific issues. Rather, I will devote this chapter to the issues that influence whether companies genuinely embrace and truly walk the talk on corporate social responsibility/sustainable development or not. I have tried to cover as many of the important aspects of these debates as possible. But, since there are many aspects to this debate, part of the discussion of this topic is covered in Appendices 4 and 5.

#### **4.2. Will Purposeful Policy Action by Governments on Sustainable Development Harm Business's International Competitiveness?**

As discussed in chapters 2 and 3, historically many businesses have been concerned that sustainable development or corporate social responsibility is a threat to their competitiveness, profitability and shareholder value. The first issue which is a significant factor in whether or not corporations and businesses embrace sustainable development is their perception and understanding of what makes them competitive? Business' perception of this issue can significantly influence whether sustainability debates move forward and whether or not governments have enough political will for ecological modernisation policy and institutional reform. For instance, in Australia from 1996-2007, one of the main arguments, from a number of businesses against Australia ratifying Kyoto, committing to deep cuts to greenhouse gas emissions and policy change has been the perception that it would harm international competitiveness of those businesses. A paper by the Australia Institute analysed this issue in depth.<sup>28</sup> It found that a company's competitiveness could be disadvantaged internationally by the imposition of a carbon tax or an emissions trading scheme if all the following conditions exist:

- The industry is particularly emissions-intensive
- The industry is trade exposed
- The trade exposure is with companies in developing countries that do not have to meet emissions caps under the Kyoto Protocol.

This paper by the Australia Institute<sup>29</sup> showed that creating a carbon signal either through a carbon tax or an emissions trading scheme would effect a very small part of the Australian economy which contributes only 1.5 per cent to GDP and 19 per cent of merchandise exports. The vulnerable exports

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<sup>28</sup> Saddler, H. Muller, F. Ceuvas, C. (2006) *Competitiveness and Carbon Pricing: Border Adjustments for Greenhouse Policies*. Discussion Paper no. 86, Australia Institute, Canberra, April.

<sup>29</sup> Ibid.

included aluminium and alumina, steel and non-ferrous metals, liquefied gas and gold. Their research showed that not even half of these exports went to developing countries. This paper recommended that Australia ratify the Kyoto Protocol and implement a carbon tax or an emissions trading scheme. It examined all the options for dealing most effectively with the competitiveness problem including wholesale exceptions, negotiated agreements, offsetting tax deductions and financial incentives for energy efficiency improvements.

There is a great deal of experience in Europe of these different options for dealing with the competitiveness problem. The UK was one of the first countries to implement a national emissions trading scheme and a carbon tax, and they have done so in such a way that it has helped business competitiveness overall rather than harming it. In the UK, heavy energy using companies can apply to sign a Climate Change Agreement (CCA) Program<sup>30</sup> whereby a company agrees to commit to achieving a certain carbon reduction target or improving their energy efficiency, and in return receives exemption from 80 percent of the carbon tax. Over 12,000 large energy using UK companies have<sup>31</sup> performed far better than expected in cutting emissions of carbon dioxide. In 2002, thousands of companies achieved cuts totalling nearly three times above the agreed targets. The CCAs have been very successful in improving energy efficiency in the existing sectors. In aggregate they have beaten their targets by the equivalent of 1 million tons of carbon (MtC) a year in the first target period (to 2002) and by 1.4 MtC a year in the second target period (to 2004).<sup>32</sup> Through this process these businesses in the UK are saving over US\$650 million from reducing greenhouse gas emissions.<sup>33</sup> Economic modelling by the UK Treasury Department has found that the UK's sophisticated approach to addressing climate change which has encouraged business to become more energy efficient has helped economic growth rather than harmed it.

The 2001 paper by The Australia Institute made the case for a different approach from the UK whereby a carbon price signal is maintained in full within the domestic economy, but instead compensated through a border tax adjustment. This means that the government would pay the exporter of say aluminium exports a rebate to offset the increased costs in production caused by the carbon tax or emissions trading scheme. But the rebate would only be paid at the point of export thus ensuring that all companies producing and selling within Australia would be subject to the carbon price signal. Border tax adjustments are not a radical idea. They are already in use in a number of tax

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<sup>30</sup> House of Commons Environment, Food and Rural Affairs Committee (2004–2005) *Climate Change: looking forward, Ninth Report of Session*. Available at [www.publications.parliament.uk/pa/cm200405/cmselect/cmenvfru/130/130i.pdf](http://www.publications.parliament.uk/pa/cm200405/cmselect/cmenvfru/130/130i.pdf). Accessed 14 April 2007.

<sup>31</sup> Kirby, A. (2007) *UK Industry Succeeding: UK Beats Greenhouse Gas Targets*, BBC News Online. Available at [www.defra.gov.uk/environment/ccl/pdf/cca\\_aug04.pdf](http://www.defra.gov.uk/environment/ccl/pdf/cca_aug04.pdf). Accessed 14 April 2007.

<sup>32</sup> UK Government (2006) *Explanatory Memorandum to the Climate Change Agreements (eligible facilities) (amendment) Regulations*. Available at [http://www.opsi.gov.uk/SI/em2006/ukxiem\\_20061931\\_en.pdf](http://www.opsi.gov.uk/SI/em2006/ukxiem_20061931_en.pdf). Accessed 14 April 2007.

<sup>33</sup> Kirby, A. (2007) *UK Industry Succeeding: UK Beats Greenhouse Gas Targets*, BBC News Online. Available at [www.defra.gov.uk/environment/ccl/pdf/cca\\_aug04.pdf](http://www.defra.gov.uk/environment/ccl/pdf/cca_aug04.pdf). Accessed 14 April 2007.

systems in a number of countries including in the Australian GST system and the European value added tax. OECD studies of the effects of border tax adjustments on the cement and steel industries show that they can result in carbon taxes having a negligible effect on the international competitiveness of the steel and cement industries.<sup>34</sup>

There are other ecological modernisation policies that can assist business' competitive advantage and help encourage environmental sustainability. Two examples of note are 'feebates'<sup>35</sup> and Germany's Best Available Technology legislation.<sup>36</sup> The Germans have developed an ingenious form of regulation that helps drive better environmental outcomes whilst making German industry more competitive. The rest of Europe, including Eastern Europe, have now followed Germany's lead. The German Best Available Technology legislation does not involve mandating specific technologies as many in the US assume. Rather, the German Government upwardly adjusts standards that industry has to meet based on the standards met by the best and most cost effective available technologies. In theory then, whenever a new and improved technology is created globally, German industry is expected to meet the environmental standard achieved by that technology. Of course, regulatory practice is more flexible, ambiguous and much less instantaneous. However, it is sufficient to provide significant incentive for German firms to develop new technologies that make it cheaper for them to meet the competition from the best available technologies globally.

Feebates, very simply, combine both a fee on the most environmentally harmful brands of a certain product, whilst providing income to governments, allowing them to provide a rebate to encourage consumers to purchase the most environmentally benign products.

Operationally feebates are very simple. Take the example of the car. If you bought a new car, you would pay an extra fee if it were an inefficient user of fuel, or alternatively get a rebate if it were energy-efficient. The neutral point would be set so that fees and rebates balanced, so it becomes neither an inflationary measure nor a disguised tax.

The key benefit of feebates is that they would ensure that industry knows that there will be clear market signals to the consumer to purchase more efficient products, thereby stimulating innovation in the right direction for sustainability. But government would still need to work with industry to phase in feebates to ensure industry has time to respond. To reduce administrative costs, feebates can be targeted at those consumer products that have the largest ongoing environmental impacts, such as cars and, within the home, refrigerators and washing machines.

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<sup>34</sup> OECD (2005) *The Competitiveness Impact of CO2 Emissions Reduction in the Cement Sector*, OECD, Paris. OECD (2003) *Environmental Policy in the Steel Industry: Using Economic Instruments*, OECD, Paris.

<sup>35</sup> von Weizsäcker, E., Lovins, A. and Lovins, H. (1997) *Factor Four: Doubling Wealth, Halving Resource Use*, Earthscan, London.

<sup>36</sup> Braithwaite, J. and Drahos, P. (2000) *Global Business Regulation*, Cambridge University Press, Cambridge.

When feebates are coupled with best available technology regulation, eco-taxes and the emissions trading schemes, this can give business significant potential long-term competitive advantage in the field of environmental technologies. As Professor Michael Porter, Harvard Business School, wrote as far back as 1991:

“As other nations have pushed ahead, US trade has suffered. Germany has had perhaps the world's tightest regulations in stationary air-pollution control, and German companies appear to hold a wide lead in patenting and exporting air-pollution and other environmental technologies. As much as 70% of the air pollution-control equipment sold in the US today is produced by foreign companies. Britain is another case in point. As its environmental standards have lagged, Britain's ratio of exports to imports in environmental technology has fallen from 8:1 to 1:1 over the past decade. In contrast, the US leads in those areas in which its regulations have been the strictest, such as pesticides and the remediation of environmental damage. Such leads should be treasured and extended. Environmental protection is a universal need, an area of growing expenditure in all the major national economies and a major export industry. The strongest proof that environmental protection does not hamper competitiveness is the economic performance of nations with the strictest laws.”<sup>37</sup>

These are just a taste of the range of options and approaches available to governments to allow them to take a lead with industry, and the community, to achieve sustainable development in a way that does not harm competitiveness of industry but rather helps it. This discussion shows how easily business' fears of international competitive disadvantage from sustainable development can be fairly addressed by effective ecological modernisation of policy. Other examples of how smart regulation and policies like this will be outlined in the Appendices for Chapter 7 and 8. But business leaders and industry groups have been very slow to accept and recommend such ecological modernisation policy changes. This is because of deeply ingrained perceptions of what determines business competitiveness and a range of pressures and incentives in the market place that currently reward the status quo and a short-term focus on profit results for corporations. Hence we will explore these issues now in more detail and demonstrate the rationale for ensuring corporate incentives reward environmentally and socially sustainable behaviour rather than the other way around.

## **4.2 What determines business competitiveness?**

As discussed in chapters two and three, historically many businesses have been concerned that sustainable development or corporate social responsibility is a threat to their competitiveness, profitability and shareholder value. Historically, business and industry groups have often fought the implementation of environmental regulation and attempts to raise the wages and standards of workers out of fear that it would reduce shareholder returns. These actions have arisen out of a belief about

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<sup>37</sup> Porter, M. (1991) 'Green Competitiveness', Scientific American, 5 April.

what makes companies competitive. Business managers have often been taught that the way to improve the competitiveness of a company is to grow to a large scale and through scale ensure access to the lowest cost inputs—whether they are capital, labour, energy or raw materials. This has been true in the past. Because technology changed slowly in the past, a comparative advantage of a business could be achieved through low-cost inputs, cheap resources, and wages and so on. This is known as the theory of comparative advantage, developed by the famous 19<sup>th</sup> century economist David Ricardo. In today's increasingly complex world of globalisation and the rapid development of new technologies, Ricardo's theories of comparative advantage are no longer sufficient to understand competitive advantage. The globalisation of companies, trade, communications and regulations, in conjunction with economic deregulation and tariff reduction, has created intense competition in the marketplace. This has meant that cheap raw materials, components and technology are now available from many sources globally. Since the fall of the iron and bamboo curtains, hundreds of millions of low-paid workers have been added to the world's workforce. Hence, competing on low wage and resource costs is a race more difficult to win in the long term.

The sole focus on competitive advantage from cheap labour, cost cutting and cheap natural resources is no longer a strategy to guarantee lasting competitive advantage of firms. This occurs for several reasons. First, it is relatively easy for other companies in other resource-rich developing nations to imitate companies based on resource extraction. Firms competing on low labour and resource costs also leave themselves exposed if there are changes in other countries that result in even lower labour and resource costs. For instance, a rival firm may be granted subsidies by the government of another country which enables them to beat your price in the market place, no matter how efficient you are. Secondly, technology has delivered greater options to firms in the developed world for reducing the relative advantage of cheap labour and resource conditions in the developing world. As Porter explained in detail in *Competitive Advantage: Creating and Sustaining Superior Performance* and *The Competitive Advantage of Nations*<sup>38</sup>, 'In the 1980's, manufacturing firms often moved production to high labour-cost locations to be close to markets, not the reverse. The usage of materials, energy and other resource-based inputs has been substantially reduced or synthetic substitutes developed. Modern materials such as engineering plastics, ceramics, carbon fibres, and the silicon used in making semiconductors are made from raw materials that are cheap and ubiquitous'. In *The Competitive Advantage of Nations*, Porter demonstrated that there are firms which have succeeded in achieving international competitive advantage whilst doing the exact opposite of these standard assumptions.

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<sup>38</sup> Porter, M. E. (1985) *Competitive Advantage: Creating and Sustaining Superior Performance*, The Free Press, New York and London. Porter, M. (1990) *The Competitive Advantage of Nations*, The Free Press, New York (reprinted in 1998)

**Table 4.1: Traditional assumptions of what creates competitiveness are not always true**

<b>Cheap and abundant Labour</b>	Germany, Switzerland and Scandinavian countries have done well for decades with high wages and shortages of labour.
<b>Interest rates, government deficits, and exchange rates</b>	There are many nations that have enjoyed rising living standards with budget deficits (Korea, Italy and Japan), appreciating currencies (Germany and Switzerland), and high interest rates (Italy and Korea) over the last 30 years.
<b>Possessing abundant, cheap raw resources</b>	From the 1970s to the 1990s resource poor nations like Singapore, Japan, Korea, Switzerland, and Germany prospered. Singapore achieved a rise in per capita GDP, in the 15 years from 1980 to 1995, that resource rich USA needed 50 years to accomplish.
<b>Labour-Management relations</b>	It is not easy to generalise here, as unions are very strong, for instance, in Germany and Sweden with representation by law in management (Germany) and on boards of directors (Sweden). Both nations over the last 30 years have prospered, contradicting the view that strong unions will lead to loss of competitiveness.

Source: Adapted from Porter, M (1990)

Over the past three decades there has been a significant change in understanding of what creates lasting competitiveness of the firm. Porter showed, in *Competitive advantage: Creating and Sustaining Superior Performance* and *The Competitive Advantage of Nations*, that globalisation, the shortening timeframe of technical innovation and the rise of the multinational corporation mean that the ability to innovate processes in advance of one's competitors is the key to increasing productivity gains and competitive advantage today:

"Competitiveness is not merely greater efficiency based on working harder or even working smarter. It is not merely doing things better, but doing better things. It requires firms with the know-how to capture greater value in the market place not just by being more efficient at what they do, but also in choosing where to compete. The new paradigm of international competitiveness is a dynamic one, based on innovation. Competitiveness at the industry level arises from superior productivity; either in terms of lower costs than rivals or the ability to offer products with superior value (value adding) that justifies a premium price. Detailed case studies of hundreds of industries, based in dozens of countries, reveal that internationally competitive companies are not those with the cheapest inputs or the largest scale, but those with the capacity to improve and innovate continually. Competitive advantage, then, rests not

on static efficiency or on optimising within fixed constraints, but on the capacity for innovation and improvement that shift the constraints."<sup>39</sup>

Increasingly therefore, the companies that are most competitive, achieving the greatest productivity gains, are not those with access to the lowest-cost inputs. Rather, they are those firms who constantly innovate to become the best in the world.

Because technology is constantly changing, the new paradigm of global competitiveness requires the ability to innovate rapidly for new emerging markets. This is evidenced by the fact that the most competitive companies are those that employ the most advanced technology and methods in using their inputs. A major study by McKinsey & Co<sup>40</sup> of over 1,000 companies in 15 sectors over 36 years, found that innovating to become the best in new emerging markets was a key element of success. Companies that have simply stuck to 'business as usual' appear to under-perform the market. For example, faced with the threat of the personal computer, IBM continued to insist on picturing tomorrow as an extrapolation of today and assumed the demand for the PC would not be great enough to warrant a change in strategy. In doing so, the company's market value fell by an estimated US\$70 billion. As capital markets become less forgiving of long-term under-performance this has led to corporate life-spans shrink. The average life of companies on the Standard & Poor's index fell from over 65 years in the 1920s and 1930s to around 10 years by 1998. Too often, corporations are slowed down by their fears about cannibalising their own markets, potential customer channel conflicts, or the dilution of earnings. As Foster and Kaplan write

"The market has no lingering memories or remorse. It has no mental models. The market does not fear cannibalisation, customer channel conflict or dilution."<sup>41</sup>

McKinsey and Company's work also showed that newer companies that had seized these new opportunities tended to exhibit higher profit rates than established companies (See Figure 4.1).

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<sup>39</sup> Porter, M. E van der Linde, C (1995) "Toward a New Conception of the Environment-Competitiveness Relationship," *Journal of Economic Perspectives*, (IX- 4) Fall 1995, pp. 97-118.

<sup>40</sup> This database McKinsey has developed since 1962 and is discussed in many books including Foster, R and Kaplan, S. (2001) *Creative Destruction. Why Companies that are Built to Last Underperform the Market and How to Transform Them*. Currency Publishing. Baghai, M. Coley.S and White, D. (1999) *The Alchemy of Growth Kickstarting and Sustaining Growth in Your Company*.

<sup>41</sup> Foster, R. and Kaplan, S. (2001) *Creative Destruction: Why Companies that are Built to Last Under-Perform the Market and How to Transform Them*, Doubleday, New York p20.



Figure 4.1: Business Performance over Time

(Source:McKinsey and Company, 2002)

David White and Philip Stern<sup>42</sup> found a similar trend in the Australian marketplace in their report *Creation and Destruction:Sustaining Corporate Growth*. Their report showed significant changes with the composition of Australia's top 100 companies from 1990 to 2002. White and Stern wrote in the introduction to their report

"We show that corporations have surprisingly short lifespans. Of all the companies that were listed on the original Dow Jones Industrial Average stock index of 1896, only one survives today. And the turnover of companies on Australia's top 100 list since 1990 has been nothing short of astounding."<sup>43</sup>



Figure 4.2: Of Australia's top 100 companies (measured by market capitalisation) in 1990; only 39 were still in the top 100 list in March 2002, (Source Grady, K 2002<sup>44</sup>)

<sup>42</sup> White, D. Stern, P. (2002) *Creation and Destruction:Sustaining Corporate Growth*. Available At <http://www.pjpl.com.au/creation.pdf> Accessed 3 February 2008

<sup>43</sup> Ibid p5

<sup>44</sup> Grady, K (2002) *Climate Change - A Business Perspective* Karen Grady, General Manager Business Council of Australia

The 61 newcomers<sup>45</sup> to the top 100 significantly out-performed the older public companies. They delivered returns<sup>46</sup> to shareholders of 29 percent a year for five years between 1997 and 2002. Those companies that continued B in the top 100 from 1990 delivered returns of only 14 percent a year over the same period.



Figure 4.3: Comparison of revenue for companies that have climbed into, survived in or slipped from the Top 100 BCA companies. (Source Grady, K 2002<sup>47</sup>)

Why can newer companies perform so well while older companies decline? The explanation – as put forward in *The Alchemy of Growth*<sup>48</sup> – is that the companies that grow have the ability to create new businesses that create new sources of profit. They do so by innovation in their existing businesses and building new ones. In addition, as revenue streams mature, businesses must have others ready to take their place and the the pace of replenishment must exceed the the pace of any decline in existing businesses if growth is to continue.

<sup>45</sup> They included ipos, privatisations, demutualisations, restructurings and 'climbers'

<sup>46</sup> Comprising dividend and capital gains

<sup>47</sup> Ibid.

<sup>48</sup> Baghai, M. Coley, S and White, D. (1999) *The Alchemy of Growth: Kickstarting and Sustaining Growth in Your Company*. Orion Business Books. London.

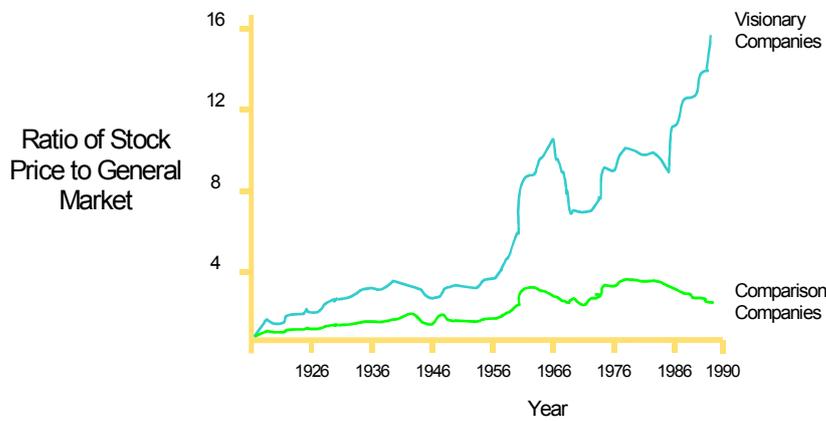


**Figure 4.4: Comparison of the number of BCA members from different sectors in 1992 and 2002. (Source: Grady, K. 2002<sup>49</sup>)**

Another critical study in this area is Collins and Porras's<sup>50</sup> *Built to Last: Successful Habits of Visionary Companies*, which showed that the stock prices of visionary companies were up to 15 times more profitable than the market average when compared with their major competitors. Such companies, which included 3M, Boeing and General Electric, all out-performed their major competitors in stock price, often by a factor of ten or more. Significantly, all these companies had a strong culture and principled ideology, stable management and tended to recruit CEOs from within the company who knew the company backwards. The Collins and Porras study compared 18 pairs of visionary and comparison companies. Their detailed analysis found that visionary companies were generally driven more by ideas and innovation than purely profit driven than the comparison companies in 17 out of the 18 pairs. Collins & Porras do not suggest that visionary companies ignore profitability. Rather they suggest that, over the long term, companies that have been driven more by ideas and innovation, as well as profit, achieve greater success.

<sup>49</sup> Grady, K (2002) *Climate Change - A Business Perspective* Karen Grady, General Manager Business Council of Australia

<sup>50</sup> Collins, J. and Porras, J. (1994) *Built to Last: Successful Habits of Visionary Companies*, Century, London



**Figure 4.5: Stock Price for Visionary Comparison Companies**  
(Source: Collins & Porras<sup>51</sup>, 1994)

The Collins & Porras study<sup>52</sup> is one which supports the 'benefits over the long run' argument so often advanced by proponents of corporate social responsibility. Collins & Porras' visionary companies were not apparent in a ten year view of profitability or 'most admired'. However, they yielded markedly better returns than their peers did over the long term (50+ years). This suggests we should be extremely careful with our understanding of the role of time in our assessment of sustainable development/corporate social responsibility practices and business success.

### 4.3: What will the next wave of innovation be?

For these reasons there is increasing awareness that companies can not afford to miss the next waves of innovation. Many people are asking what will be the next wave of innovation. In order for a wave of innovation to occur there needs to be a significant array of relatively new and emerging technologies and a recognised genuine need and potential for expansion in the market that is leading to a market expansion.

A range of publications from 1997-2005 have brought together significant evidence to suggest that sustainable development will be a significant part of the next waves of innovation.<sup>53</sup> These publications have argued that it was possible to achieve significant decoupling of companies' profits from their environmental load. There are many reasons why it is in businesses interests to decouple profits from their use of resources and their environmental load. The main benefits of seeking to achieve increasing profits whilst reducing environmental pressures for a company are now identified.

<sup>51</sup> Ibid.

<sup>52</sup> Ibid.

<sup>53</sup> Hawken, P., Lovins, A. and Lovins, L. H. (1999) *Natural Capitalism: Creating the Next Industrial Revolution*, Earthscan, London

von Weizsäcker, E., Lovins, A. and Lovins, L. H. (1997) *Factor Four: Doubling Wealth, Halving Resource Use*, Earthscan, London

Weaver, P., Jansen, J., van Grootveld, G., van Spiegel, E. and Vergragt, P. (2000) *Sustainable Technology Development*, Greenleaf Publishing, Sheffield, UK

Hargroves, K. and Smith, M.H. (eds and co-authors) (2005) *The Natural Advantage of Nations: Business Opportunities, Innovation and Governance in the 21st Century*, Earthscan/James and James Publishing, London. Available at [www.thenaturaladvantage.info](http://www.thenaturaladvantage.info) Accessed 12.01.08

WorldWatch Institute (2008) *State of the World 2008: Innovations for a Sustainable Economy*. WorldWatch Institute. Available At <http://www.worldwatch.org/stateoftheworld> Accessed 12.01.08

#### 4.4 Benefits of Decoupling Profits from Environmental Pressures

First, there is significant evidence that there are many available opportunities for greater resource productivity in the economy. Some of business' most significant costs are capital and inputs, such as construction, raw materials, energy, water and transportation. It is therefore in business' interests to minimise these costs, and hence the amount of raw materials and other inputs that they need to create their product or provide their service. Business produces either useful products and services or unsaleable waste. How does it assist a business to have plant equipment and labour tied up in generating waste? Table 4.2 below lists numerous ways that companies can profitably reduce waste through identifying and implementing resource productivity opportunities. Addressing such opportunities therefore gives businesses numerous options to reduce production and process costs and create new product differentiation.

**Table 4.2: Design for Environment can assist a firm's competitive advantage both by reducing process costs and through helping the firm to create product differentiation.**

(Source: Adapted from Porter, M and van der Linde, C (1995a).<sup>54</sup>)

<p>Design for Environment can improve Processes and reduce costs through</p> <ul style="list-style-type: none"> <li>• material savings from better design</li> <li>• increases in process yields and less downtime through designing-out waste and designing the plant and process to minimise maintenance and parts</li> <li>• better design to ensure that by-products and waste can be converted into valuable forms</li> <li>• greater resource productivity of inputs, energy, water and raw materials to reduce costs</li> <li>• reduced material storage and handling costs through 'just in time' management</li> <li>• improved OH&amp;S</li> <li>• improvements in the quality of product or service.</li> </ul>	<p>Design for Environment provides benefits to reduce costs and create product differentiation</p> <ul style="list-style-type: none"> <li>• higher quality, more consistent products</li> <li>• lower product costs (for instance, from material substitution, new improved plant efficiencies)</li> <li>• lower packaging costs</li> <li>• more efficient resource use by products</li> <li>• safer products</li> <li>• lower net costs to customers of product disposal</li> <li>• higher product resale and scrap value products that meet new consumer demands for environmental benefits.</li> </ul>
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The literature contains convincing empirical evidence of widespread and significant inefficiencies within firms in the modern economy<sup>55</sup>. This area of writing is known as x-inefficiency literature. Empirical research in the approach to measuring x-inefficiency has shown that the actual performance

<sup>54</sup> Porter, M. and van der Linde, C. (1995a) 'Green and Competitive: Ending the Stalemate', Harvard Business Review, September–October, pp121–134 Porter, M. and van der Linde, C. (1995b) 'Toward a New Conception of the Environment–Competitiveness Relationship', Journal of Economic Perspectives, vol IX-4, Fall, pp97–118

<sup>55</sup> Button, K. Weyman-Jones, T. (1992) 'Ownership Structure, Institutional Organization and Measured X-inefficiency', American Economic Review, May, pp439–445.

of firms in many industries falls significantly below that of the observed efficiencies of the most efficient firms in those industries, typically 65–97%. The wise implementation of resource efficient strategies can, therefore, be cost-effective in both the short and longer terms. By reducing, remanufacturing, recycling, and reclaiming or on-selling, businesses can realise immediate cost savings. Porter's key point here is now backed-up by books such as *Factor 4: Doubling Your Wealth and Halving Your Resource Usage*<sup>56</sup> and *Natural Capitalism: The Next Industrial Revolution*.<sup>57</sup> As the Stern Review commented

“An increasing number of private and public sector organisations are discovering the potential to reduce the cost of goods and services they supply to the market. A study of 74 companies drawn from 18 sectors in 11 countries including North America, Europe, Asia, and Australasia revealed gross savings of US\$11.6 billion, including:

- BASF has reduced GHG emissions by 38% between 1990 and 2002 through a series of process changes and efficiency measures which cut annual costs by 500 million euros at one site alone;
- BP established a target to reduce GHG emissions by 10% on 1990 levels by 2010, which it achieved nine years ahead of schedule, while delivering around US\$650 million in net present value savings through increased operational efficiency and improved energy management. Between 2001 and 2004, the organisation contributed a further 4MtC of emission reductions through energy and flare reduction projects.”<sup>58</sup>

Such eco-efficiency savings can be equal to a company's current profit margin. When viewed with this perspective, the value of such savings suddenly becomes attractive to busy CEO's. Governments increasingly are running eco-efficiency<sup>59</sup> programs or providing incentives to encourage business to invest in such measures. The Australian Federal Government's Eco-Efficiency Program<sup>60</sup> involved over 200 businesses, all demonstrating significant eco-efficiency and financial savings.

Now also numerous studies<sup>61</sup> and empirical evidence<sup>62</sup> has demonstrated that firms can achieve further competitive advantage through greater eco-design of products (reducing process costs) to produce

<sup>56</sup> von Weizsäcker, E., Lovins, A. Lovins, L. H. (1997) *Factor Four: Doubling Wealth, Halving Resource Use*, Earthscan, London.

<sup>57</sup> Hawken, P., Lovins, A. Lovins, L. H. (1999) *Natural Capitalism: Creating the Next Industrial Revolution*, Earthscan, London

<sup>58</sup> The Climate Group (2005) *Carbon Down, Profits Up*. The Climate Group. Available At [www.theclimategroup.org/](http://www.theclimategroup.org/) Cited in Stern, N. (2006) *The Stern Review: The Economics of Climate Change*, Executive Summary Cambridge University Press, Cambridge, p10. Available at. [http://www.hmtreasury.gov.uk/media/8AC/F7/Executive\\_Summary.pdf](http://www.hmtreasury.gov.uk/media/8AC/F7/Executive_Summary.pdf). Accessed 14 April 2007.

<sup>59</sup> WBCSD (2000). *Eco-Efficiency: Creating More Value with Less Impact*. World Business Council for Sustainable Development.

WBCSD (2000). *Measuring Eco-Efficiency: A Guide to Reporting Company Performance*. World Business Council for Sustainable Development.

<sup>60</sup> See Department of Environment, Water Resources, Heritage and the Arts at <http://www.environment.gov.au/settlements/industry/corporate/eecp/industry.html> Accessed 13 January 2008

<sup>61</sup> Hart, S., and G. Ahuja (1996) 'Does it Pay to be Green? An Empirical Examination of the Relationship between Emission Reduction and Firm Performance', *Business Strategy and the Environment* 5: 30-37

‘cleaner and greener’ goods and services (product/service differentiation).<sup>63</sup> Porter *et al* feature a number of examples of this in their papers.<sup>64</sup>

Secondly, numerous experts recognise that there is now a critical mass of enabling eco-innovations that make integrated approaches to sustainable development economically viable. And finally, increased environmental regulation, markets and levies driven partly by the ratification of the Kyoto Protocol is creating new markets in many areas of the economy.

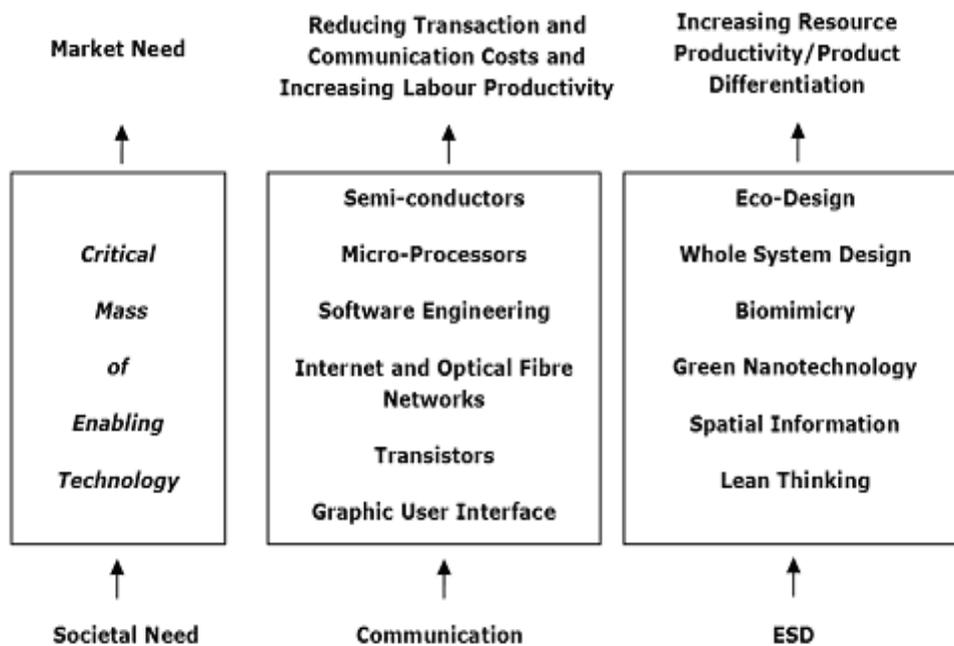


Figure 4.6: A critical mass of innovations meeting real market needs creates new waves of innovation (Source:TNEP<sup>65</sup>, 2005)

Schaltegger, S. and T. Synnestvedt (2002) ‘The Link between “Green” and Economic Success: Environmental Management as the Crucial Trigger between Environmental and Economic Performance’, *Journal of Environmental Management* 65: 339-46.

Waddock, S., and S.B. Graves (1997) ‘The Corporate Social Performance–Financial Performance Link’, *Strategic Management Journal* 18.4: 303-19.

Schmidheiny, S. (1992) *Changing Course: A global business perspective on development and the environment*, Boston: MIT Press.

Halliday, C.O., Schmidheiny, S., Watts, P. (2002) *Walking the Talk, The Business Case for Sustainable Development*, World Business Council for Sustainable Development. Greenleaf Publishing.

<sup>62</sup> Innovest Strategic Value Advisors (2004) *Corporate Environmental Governance: A study into the influence of Environmental Governance and Financial Performance* Prepared November 2004 p10

McDonough, M. and Braungart, M (2002) *Cradle to Cradle – Remaking The Way We Make Things*, North Point Press, NY  
Hawken, P., Lovins, A.B. and Lovins, L.H. (1999) *Natural Capitalism: Creating the Next Industrial Revolution*, Earthscan, London

<sup>63</sup> The Department of Environment, Water Resources, Heritage and the Arts (2001) *Product Innovation: The Green Advantage: An Introduction to Design for Environment for Australian Business*. The Department of Environment, Water Resources, Heritage and the Arts.

<sup>64</sup> Porter, M. Kramer, M (2006) *Strategy and Society: The Link between Competitive Advantage and Corporate Social Responsibility*. Harvard Business Review, December 2006. Harvard. Porter, M. and van der Linde, C. (1995a) ‘Green and Competitive: Ending the Stalemate’, Harvard Business Review, September–October, pp121–134 Porter, M. and van der Linde, C. (1995b) ‘Toward a New Conception of the Environment–Competitiveness Relationship’, *Journal of Economic Perspectives*, vol IX-4, Fall, pp97–118

<sup>65</sup> Hargroves, K. and Smith, M.H. (eds and co-authors) (2005) *The Natural Advantage of Nations: Business Opportunities, Innovation and Governance in the 21st Century*, Earthscan/James and James Publishing, London. Available at [www.thenaturaladvantage.info](http://www.thenaturaladvantage.info) Accessed 12.01.08

If the last wave of innovation, ICT, was driven by market needs such as reducing transaction costs, there is significant evidence that the next waves of innovation will be driven by the twin needs to simultaneously improve productivity whilst lightening our environmental load on the planet. (See figures 4.6 and 4.7.) According to The State of the World 2008 report

“Clean tech” has rapidly grown to be the world’s third-largest recipient of venture capital, trailing only the Internet and biotechnology...Around the world, innovative responses to climate change and other environmental problems are affecting more than US\$100 billion in annual capital flows as pioneering entrepreneurs, organizations, and governments take steps to create the Earth’s first “sustainable” global economy.”<sup>66</sup>

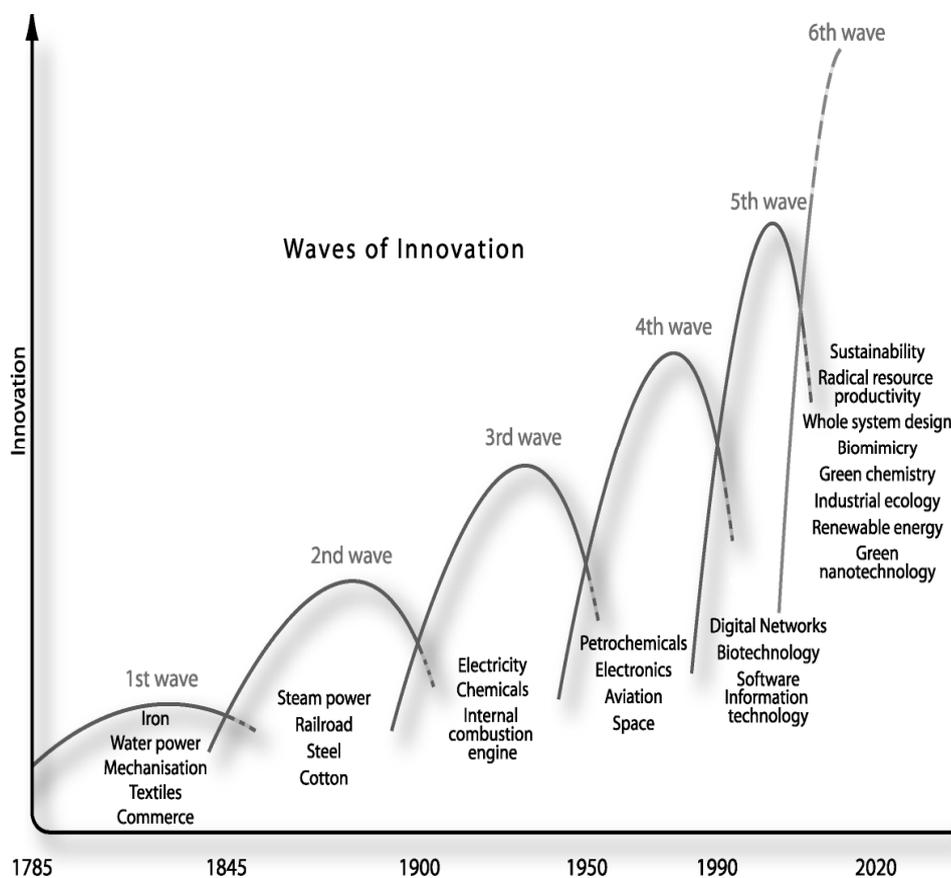


Figure 4.7: Waves of Innovation of the First and Next Industrial Revolution (Source: TNEP<sup>67</sup>, 2005)

The scale of change needed to genuinely achieve large scale greenhouse gas reductions and sustainable development this century may see ‘creative destruction’ in traditional sectors in how they

<sup>66</sup> WorldWatch Institute (2008) *State of the World 2008: Innovations for a Sustainable Economy*. WorldWatch Institute. Available At <http://www.worldwatch.org/stateoftheworld> Accessed 12.01.08

<sup>67</sup> Hargroves, K. and Smith, M.H. (eds and co-authors) (2005) *The Natural Advantage of Nations: Business Opportunities, Innovation and Governance in the 21st Century*, Earthscan/James and James Publishing, London. Available at [www.thenaturaladvantage.info](http://www.thenaturaladvantage.info) Accessed 12.01.08

deliver services. As Philip Stephens recently wrote in the UK's *Financial Times*, 'Business is about to discover that the shift towards a low-carbon economy is irreversible. Going green is about staying competitive. The steady trickle of companies signing up to do their bit to reduce carbon emissions is turning into a sizeable river.'<sup>68</sup> The Stern Review concurs stating that:

"Tackling climate change may also have far reaching effects on the efficiency and productivity of economies. Schumpeter developed the concept of creative destruction to describe how breakthrough innovations could sweep aside the established economic status quo, and unleash a burst of creativity, investment and economic growth which ushers in a new socio-economic era. Historical examples of this include the introduction of the railways, the invention of electricity and more recently, the IT revolution."

We are already seeing this occur in many industries where there is a significant expansion of markets for sustainable solutions (See Table 4.3).

**Table 4.3: Fast growing markets**

Climate Change Mitigation	The Stern Review states that "Markets for low carbon energy products are likely to be worth at least US\$500bn per year by 2050, and perhaps much more. Individual companies and countries should position themselves to take advantage of these opportunities." <sup>69</sup> In 2006, an estimated US\$52 billion was invested in wind power, biofuels, and other renewable energy sources, up 33 percent from 2005. Preliminary estimates indicate that the figure soared as high as US\$66 billion in 2007. Carbon trading is growing even more explosively, reaching an estimated US\$30 billion in 2006, nearly triple the amount traded in 2005. <sup>70</sup>
Investment with environmental and social sustainability criteria.	Over 180 investment firms, totalling US\$8 Trillion worth of investments, have now signed the UN Principles of Responsible Investment <sup>71</sup> . Three of the four largest fund managers in Australia have also signed up in early 2007. These include BT Financial Group, AMP Capital Investors and Colonial First State Global Asset Management.  54 banks, representing 85 percent of global private project finance capacity, have endorsed the Equator Principles, a new international standard of sustainability investment. Another sign of dramatic change is the 575 environmental and energy hedge funds now in existence, most of them formed in the last few years. <sup>72</sup>

<sup>68</sup> Stephens P (2007). *Bend or bust for big business*. UK Financial Times. Available At <http://www.businessday.co.za/articles/opinion.aspx?ID=BD4A363984> (Accessed April 2007)

<sup>69</sup> Stern, N. (2006) *The Stern Review: The Economics of Climate Change: Executive Summary* Cambridge University Press, Cambridge, p10. Available at [www.hm-treasury.gov.uk/media/8AC/F7/Executive\\_Summary.pdf](http://www.hm-treasury.gov.uk/media/8AC/F7/Executive_Summary.pdf). Accessed 14 April 2007.

<sup>70</sup> WorldWatch Institute (2008) *State of the World 2008: Innovations for a Sustainable Economy*. WorldWatch Institute. Available At <http://www.worldwatch.org/stateoftheworld> Accessed 12.01.08

<sup>71</sup> UNEP FI Principles of Responsible Investment (2007) *Principles for Responsible Investment hit \$8 trillion mark on first year anniversary* n.d [http://www.unpri.org/media/PRI\\_media\\_release\\_29-04-07.php](http://www.unpri.org/media/PRI_media_release_29-04-07.php) (Accessed May 2007)

<sup>72</sup> Ibid.

Greener Building Design	In the USA, by 2004 the Green Building market is already worth US\$300 billion and features everything from environmentally sound New York skyscrapers <sup>73</sup> to homes and shopping malls. There is much more to this, however, than simply environmentally sound buildings; namely the lifespan of the built environment as a whole.
Renewable Energy	<p>Since 2003, Clean Energy Technologies - solar, biofuels, geothermal, tidal and hydropower – produced more electricity globally than nuclear energy ever has. With a global market of AU\$74 billion, which is forecast to grow fourfold by 2015. The global market for wind energy has averaged 40% growth annually in cumulative capacity over the last five years.<sup>74</sup> The global turnover of wind generation equipment is estimated at US\$1.5 billion per year, and total industry turnover is estimated to reach between US\$5 and \$10 billion<sup>75</sup>.</p> <p>The global wind turbine market is expected to grow, driven by improved cost structures and supportive government policies. Both Germany and the UK have renewable energy targets of 10% by 2010, and California has a renewable energy target of 20% by 2017. The annual export market for wind manufacturing products from Asia has been estimated at \$110 million.<sup>76</sup></p> <p>China's Tenth Five Year Plan (2001 – 2005) calls for a nearly five-fold increase in wind capacity to 1.5 GW. The Philippines plans to introduce over 3,500 MW of renewable capacity by 2012, and New Zealand has introduced a renewable energy target similar in scale to the Mandatory Renewable Energy Target in Australia.</p>
Recycling and Remanufacturing	In the USA the re-manufacturing market is now worth almost US\$53 billion dollars. The USA recycling sector is worth over US\$250 billion per annum. A recent report by the Recycling Coalition Group <sup>77</sup> found that the industry created more than 56,000 public and private sector recycling facilities, with 1.1 million jobs, US\$236 billion in gross, annual sales, US\$37 billion in annual payroll.
Eco-Tourism	Eco-tourism involves responsible travel to natural areas that helps conserve the environment whilst improving the well-being of local people. It is growing at around 30% per annum, which is significantly higher than the annual rate of growth of 4% for tourism as a whole. Also, studies show that tourists are more willing to pay extra for eco-tourism than standard tourist packages.

Take the car industry, for instance, where companies that have innovated for sustainable development, like Toyota with their hybrid car the Prius, are increasing market share compared to GM and Ford who backed the high energy SUV market to continue. With high oil prices the SUV market in the US has

<sup>73</sup> Rocky Mountain Institute (1998) *Green Development Services latest CD-ROM of European green buildings*, <http://www.rmi.org/store/p385pid958.php> World Green Building Council <http://www.worldgbc.org/about.htm>

<sup>74</sup> Australian EcoGeneration Association (2003) *EcoGeneration Magazine*, Issue 12 June/July 2002, p. 12.

<sup>75</sup> Gipe, P. (2002) *Soaring to new heights – the world wind energy market*, Renewable Energy World, July-August.

<sup>76</sup> Sinclair Knight Merz, (2001) *Portland Wind Energy Project Environmental Effects Statement and Planning Assessment Report*: Summary Document, p. 17.

<sup>77</sup> Recycling Coalition Group; <http://www.nrc-recycle.org/>, Globally; <http://www.grn.com/grn/directo/buspages.htm>

collapsed whilst demand for hybrid cars has never been higher. This has led to Standards and Poors downgrading the share rating of GM and Ford in the US to 'junk bond' status. Toyota's profits for 2004-5 are significantly higher than for GM and Ford. GM and Ford have just announced plants will close whilst Toyota has announced record profits. The success of the Toyota Prius Hybrid car, which has exceeded 1 million in global sales, and Toyota's fuel efficient cars is an example of first mover advantage. There is significant evidence throughout recent history that companies gain lasting competitive advantage if they are the first movers. Early movers reap long-term benefits from having built significant positive brand recognition, loyalty, and having been the first with a product to build relationships with suppliers and distribution chains. By innovating for new and emerging markets in sustainability, companies can position themselves for long-term competitive advantage from this first mover advantage. There are many rapidly growing markets related to sustainability in many countries. (See table 4.3.) Those companies that miss these opportunities risk yielding significant competitive advantage to their competitors. So whilst any company can benefit from investments in eco-efficiencies at any time, companies will benefit more from green product differentiation if they are amongst the first to market. As the McKinsey study, highlighted earlier, *Innovating for New Emerging Markets*, demonstrated, new market segments are crucial to the success of a firm. Porter showed, in *The Competitive Advantage of Nations*, that being the first into a new market is one of the best ways to create lasting competitive advantage, both in domestic and international markets. Those companies that first perceived a new opportunity and seized it have since gone on to be industry leaders. This is true of a remarkable number of organisations globally, and applies to many industries including automotive (Ford), aircraft (Boeing), cosmetics (Max Factor, Body Shop), men's razors (Gillette), recycling (Visy Industries), and motorcycles (Honda). In addition to Toyota, now other major companies are seeking to gain early mover advantage in this new wave of innovation in sustainability

- Wal-Mart announced in 2006 a US\$500 million climate change commitment including initiatives to increase truck fleet fuel efficiency by 25 per cent in three years and double it in 10. They project that such efficiency improvements will reap significant bottom line benefits, making it even tougher for their competitors. Wal-Mart has also developed a strategy to influence its 60 000 suppliers to produce lower-carbon products.
- In May 2005, General Electric announced 'Eco-magination', a major new business driver expected to double revenues from cleaner technologies to US\$20 billion by 2010. In May 2006, the company reported revenues of US\$10.1 billion from its energy efficient and environmentally advanced products and services, up from US\$6.2 billion in 2004.
- BP has exploited its marketing and technology management capabilities, developed through the fossil fuel businesses, to build a market leading position in renewable energy technologies, particularly solar cells. BP's differentiation has been heightened by:

- the decisions by all the other major US energy companies, except Amoco, to divest their alternative energy businesses
- the decision by many of the oil companies to play a visible role in resisting the adoption of effective climate change policies.

Similarly, two carpet companies, Interface, Inc. and Collins and Aikman have chosen to differentiate their products by investing in materials that can be almost completely recycled into new carpets. These are not isolated case studies, nor do they apply only to billion-dollar companies. All businesses can benefit from eco-efficiency investments. Many studies and reports have consistently shown that eco-efficiencies and cleaner production provide numerous ways to improve the triple bottom line, and thereby enable companies across all sectors<sup>78</sup> begin the journey to genuine sustainable development<sup>79</sup>.

These are not isolated case studies, nor do they apply only to billion-dollar companies. As we will show, actual experiences reported in many studies and reports have consistently shown that eco-efficiencies, eco-innovation and cleaner production provide numerous ways to improve the triple bottom line, and thereby begin the journey to genuine sustainable development<sup>80</sup>. These offer great hope that it is now possible to end the stalemate and for companies and boards of directors to see sustainable development as an opportunity for new profit rather than as a new cost that has to be opposed. Professor Michael Porter summarises the key insight that are still not being seen by many:

“Environmental improvement efforts have traditionally overlooked these (whole) systems costs. Instead, they have focused on pollution control through better identification, processing, and disposal of discharges or waste—costly approaches. In recent years, more advanced companies and regulators

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<sup>78</sup> See Department of Environment, Water Resources, Heritage and the Arts at

<http://www.environment.gov.au/settlements/industry/corporate/eecp/industry.html> Accessed 13 January 2008

<sup>79</sup> Michael E. Porter and C. van der Linde, "Green and Competitive: Ending the Stalemate," Harvard Business Review; Sept-Oct, (1995) and "Toward a New Conception of the Environment-Competitiveness Relationship," Journal of Economic Perspectives, (IX- 4) Fall (1995), pp. 97-118.

Hart, S., and G. Ahuja (1996) 'Does it Pay to be Green? An Empirical Examination of the Relationship between Emission Reduction and Firm Performance', Business Strategy and the Environment 5: 30-37

Synnestvedt (2002) 'The Link between "Green" and Economic Success: Environmental Management as the Crucial Trigger between Environmental and Economic Performance', Journal of Environmental Management 65: 339-46.

Waddock, S., and S.B. Graves (1997) 'The Corporate Social Performance–Financial Performance Link', Strategic Management Journal 18.4: 303-19.

Schmidheiny, S. (1992). *Changing Course: A global business perspective on development and the environment*. Boston: MIT Press. Halliday, C.O, Schmidheiny, S, Watts, P, "Walking the Talk, The Business Case for Sustainable Development", World Business Council for Sustainable Development. Greenleaf Publishing 2002

<sup>80</sup> Michael E. Porter and C. van der Linde, "Green and Competitive: Ending the Stalemate," Harvard Business Review; Sept-Oct, (1995) and "Toward a New Conception of the Environment-Competitiveness Relationship," Journal of Economic Perspectives, (IX- 4) Fall (1995), pp. 97-118.

Schaltegger, S., and F. Figge (1997) Environmental Shareholder Value (WWZ/Sarasin Basic Research Study No. 54; Basel: WWZ). Schaltegger, S. and T. Synnestvedt (2002) 'The Link between "Green" and Economic Success: Environmental Management as the Crucial Trigger between Environmental and Economic Performance', Journal of Environmental Management 65: 339-46.

Waddock, S., and S.B. Graves (1997) 'The Corporate Social Performance–Financial Performance Link', Strategic Management Journal 18.4: 303-19.

Schmidheiny, S. (1992). *Changing Course: A global business perspective on development and the environment*. Boston: MIT Press. Halliday, C.O, Schmidheiny, S, Watts, P, "Walking the Talk, The Business Case for Sustainable Development", World Business Council for Sustainable Development. Greenleaf Publishing 2002

have embraced the concept of pollution prevention, sometimes called source reduction, which uses such methods as material substitution and closed-loop processes to limit pollution before it occurs. But, although pollution prevention is an important step in the right direction, companies must ultimately learn to frame environmental improvement in terms of resource productivity. Today managers and regulators focus on the actual costs of eliminating or treating pollution. They must shift their attention to include the opportunity costs of pollution—wasted resources, wasted effort and diminished product value to the customer. At the level of resource productivity, environmental improvement and competitiveness come together. This new view of pollution as resource inefficiency evokes the quality revolution of the 1980s and its most powerful lessons. Today, many business people have little trouble grasping the idea that innovation can improve quality while actually lowering cost. But as recently as 15 years ago, managers believed there was a fixed trade-off. Improving quality was expensive because it could be achieved only through inspection and rework of the ‘inevitable’ defects that came off the line. What lay behind the old view was the assumption that both product design and production processes were fixed. As managers have rethought the quality issue, however, they have abandoned that old mind-set. Viewing defects as a sign of inefficient product and process design—not as an inevitable by-product of manufacturing—was a breakthrough. Companies now strive to build quality into the entire process. The new mind-set unleashed the power of innovation to relax or eliminate what companies had previously accepted as fixed trade-offs.”

There are several more critical reasons, in addition to those listed above, why innovating for sustainability is so important for companies’ competitive advantage in addition to the two reasons already covered.

#### **4.5 Additional benefits of decoupling profits from environmental pressures and negative social outcomes**

There are numerous other drivers, in addition to pressures to innovate, for business to pursue sustainable development and considered collectively, they provide significant drivers for change. (See Table 4.4)

**Table 4.4: Emerging Drivers for Sustainable Development: Global and Local**

<b>Economic and Business Opportunities</b>	<ul style="list-style-type: none"> <li>** Increase Productivity, Create Product Differentiation</li> <li>** Lean Thinking, Total Quality Management</li> <li>** Ethically/Socially Responsible Investment</li> <li>** Reduce Risk of Consumer Boycott, NGO Activism</li> </ul>
<b>People and Populations</b>	<ul style="list-style-type: none"> <li>** ↑ Population in Developing Countries</li> <li>** ↓ Population in the Developed World</li> <li>** Urbanization and Migration</li> </ul>

<b>Enabling Technologies</b>	** ICT, ET, Spatial Data, Renewable Energy,
<b>Environmental Crisis</b>	** Need to restore Natural Capital ** Environmental Disasters ** Climate Change, Desertification ** Toxics, Insurance Blowouts
<b>Global Inequality, Deep Divide</b>	** Access to Clean Water, Sanitation ** Trade Barriers, Free vs. Fair Trade ** Environmental Refugees
<b>Staying Ahead of Regulation</b>	** Global, National and Local

*Source:* Adapted from a table developed by the RMIT Global Sustainability Institute, Australia.

An example of one of these additional drivers is that the multi-billion dollar reinsurers, such as Swiss Re, are reviewing their provision of CEO's professional indemnity insurance, based on their efforts to reduce greenhouse gas emissions.

"With all the talk of potential shareholder lawsuits against industrial emitters of greenhouse gases, the second largest re-insurance firm, Swiss Re, has announced that it is considering denying coverage, starting with directors' and officers' liability policies, to companies it decides aren't doing enough to reduce their output of greenhouse gases."

Jeffrey Ball, Wall Street Journal, 7 May 2003

'Emissions reductions are going to be required. It's pretty clear', Christopher Walker, managing director for a unit of Swiss Re recently told *The Wall Street Journal*<sup>81</sup>. 'So companies that are not looking to develop a strategy for that are potentially exposing themselves and their shareholders'. In addition, many companies are adopting sustainable development as part of their strategic planning to improve intangible assets, such as reputation for adhering to basic standards and basic community expectations. Reputations that have been built over decades can, fairly or unfairly, be ruined in a matter of days through the internet, email, global communications and media. With the internet there is nowhere left to hide.

"Information technology has empowered civil society to be the true guardians of democracy and good governance everywhere. In a sense, [civil society] has been the new superpower—the people determined to promote better standards of life in larger freedom."

Kofi Annan, United Nations Secretary-General<sup>82</sup>

<sup>81</sup> *ibid*

<sup>82</sup> Civil Society Organizations and Participation Programme (CSOPP). (2000). Civil Society Organizations and Participation Programme - home page. Available at: [www.undp.org/csopp/CSO/](http://www.undp.org/csopp/CSO/) Accessed 20.10.2007

The three year campaign by the US's Rainforest Action Network against Citibank's policy of loaning to projects that directly or indirectly harm the environment is an example of this.<sup>23</sup> It has led to 19 large banks signing onto the new Equator Principles. These principles require potential projects over a prescribed gross project amount to undergo an environmental assessment to produce an environmental impact statement (EIS) and an environmental management plan (EMP) before being approved for a loan. This list of banks includes ABN AMRO Bank, N.V, Bank of America, Barclays plc, CIBC, Citigroup Inc., Credit Suisse Group, ING Group, Royal Bank of Canada, The Royal Bank of Scotland, and the Westpac Banking Corporation. The Equator banks are based in Europe, North America, Japan and Australia. In the year to October 2003, they arranged over 78% of project finance lending. The Equator Principles have rapidly set a new market standard and transformed project financing. The Equator Principles will achieve a global coverage as more financial institutions adopt them. While that is proceeding, some of those banks that have not signed are, nonetheless, following its procedures, because they know that they set the new standard against which they will be measured. In addition the promoters of the projects are anticipating and prepare to meet the requirements of the Equator Principles in their planning to raise funds in the project finance market. With the present coverage, the success of project borrowing is likely to depend increasingly on the extent of compliance of projects with the Equator Principles. Many companies are concluding that they cannot afford not to invest in being socially responsible. Business-as-usual is becoming a high-risk occupation, due to the potential for:

- consumer boycotts and bad publicity
- higher insurance premiums or withdrawal of coverage
- regulatory requirements, fines and penalties
- competition from more eco-efficient producers
- class-action law suits and legal expenses
- personal liability for corporate negligence.

It is not surprising then, that the *Financial Times*/Price Waterhouse Coopers' *Most respected companies* survey of 750 CEO's across Europe listed increasing pressure for social responsibility and increased environmental demands as two of their top three concerns. As well as providing companies with strategic insurance against numerous risks, a pro-active sustainable development strategy delivers a range of benefits to business, such as attracting the highest talent in the job market. Harvard Business School's experts have long proven that most important area to ensure long-term business success is human capital. A recent book by Stanford Professor Jeffrey Pfeffer carefully reviewed the research evidence on the characteristics of high performing organizations.<sup>83</sup> He concluded that the most critical factor was human resource practices. Global studies indicate that better employers have

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<sup>83</sup> Pfeffer, J. (1998) *The Human Equation: Building Profits by Putting People First*, Harvard Business School Press. Boston.

higher revenue, higher profit growth and higher investment returns<sup>84</sup>. Westpac Australia, for instance, has found that 50 per cent of graduates chose Westpac over other Australian banks explicitly because of its proactive Corporate Social Responsibility approach. This is not unique to Westpac. The Best Employer Survey found that 61 per cent of 20 year olds will not apply for a job if they are uncomfortable with the company values<sup>85</sup>. The survey also found that a company's reputation as an employer is important in a candidate's decision to work for them in almost 9 out of 10 cases, and 86 per cent would not work for a company with a bad employer reputation which offered a higher salary than a company with a good reputation.<sup>86</sup>

#### 4.6 Critics of the Business Case for Sustainable Development

One of the weaknesses of Porter *et al*'s work<sup>87</sup> and many authors arguing for a business case for sustainable development to date, however, was that their arguments were based on a small number of case studies and not thorough statistical sectoral analysis. However, since Porter's 1995 paper there have been numerous more systematic studies done that have, overall, confirmed Porter's basic argument. A wide range of studies have in the last 10 years shown that companies that perform better, environmentally and socially, than the market average actually can perform as well or out-perform the market even with the current short-term profit focus. The research literature shows clear links between improved sustainability performance on the environmental and social dimensions, and a company's financial results<sup>88</sup>.

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<sup>84</sup> Hewitt Associates (2004) Summary of Findings Report, Hewitt Best Employers in Australia & New Zealand Study, n.d <http://was7.hewitt.com/bestemployers/anz/pdfs/studyhighlight2004.pdf> (Accessed May 2007)

<sup>85</sup> See Hayes Best Employer Survey At <http://www.careerone.com.au/jobs/job-search/job-market-insider/pid/1588> (accessed May 2007)

<sup>86</sup> Ibid

<sup>87</sup> Porter, M.E. and C. van der Linde, "Green and Competitive: Ending the Stalemate," Harvard Business Review; Sept-Oct, 1995 and "Toward a New Conception of the Environment-Competitiveness Relationship," Journal of Economic Perspectives, (IX- 4) Fall 1995, pp. 97-118

<sup>88</sup> Hart, S., and G. Ahuja (1996) 'Does it Pay to be Green? An Empirical Examination of the Relationship between Emission Reduction and Firm Performance', Business Strategy and the Environment 5: 30-37

Schaltegger, S., and F. Figge (1997) Environmental Shareholder Value (WWZ/Sarasin Basic Research Study No. 54; Basel: WWZ). Schaltegger, S. and T. Synnestvedt (2002) 'The Link between "Green" and Economic Success: Environmental Management as the Crucial Trigger between Environmental and Economic Performance', Journal of Environmental Management 65: 339-46.

Waddock, S., and S.B. Graves (1997) 'The Corporate Social Performance-Financial Performance Link', Strategic Management Journal 18.4: 303-19. Wagner, M. (2001) *A Review of Empirical Studies Concerning the Relationship between Environmental and Economic Performance: What Does the Evidence Tell Us?* (Lüneburg, Germany: University of Lüneburg, Centre for Sustainability Management).

Schmidheiny, S. (1992). *Changing Course: A global business perspective on development and the environment*. Boston: MIT Press. Halliday, C.O, Schmidheiny, S, Watts, P, (2002) "Walking the Talk, The Business Case for Sustainable Development", World Business Council for Sustainable Development. Greenleaf Publishing.

Verschoor, C. (1999) 'Corporate Performance is Closely Linked to a Strong Ethical Commitment', Business and Society Review 104.4: 407-

Repetto, R., and D. Austin (2000) *Pure Profit: The Financial Implications of Environmental Performance* (Washington, DC: World Resources Institute)

Pfeffer, J. (1998) *The Human Equation: Building Profits by Putting People First*, Harvard Business School Press. Boston  
 Natural Capitalism: The Next Industrial Revolution can be freely downloaded from [www.natcap.org](http://www.natcap.org), Ernst von Weizsäcker, A Lovins, and H Lovins *Factor Four: Doubling Wealth, Halving Resource Use* (Earthscan 1997). William McDonough & Michael Braungart, "Cradle to Cradle – Remaking the way we make things" North Point Press, 2002

In 2007, at the United Nations summit on corporate responsibility, Goldman Sachs released a report which found that sustainability leaders out-performed the general stock market by 25 per cent over the previous two years and out-performed their same sector peers by almost 75 per cent over the same period.<sup>89</sup> Innovest's 2004 extensive report, *Corporate Environmental Governance: a Study Into The Influence of Environmental Governance and Financial Performance*, stated:

"The literature review found strong evidence for the existence of a positive relationship between environmental governance and financial performance. In 51 of the 60 studies reviewed, a positive correlation was found between environmental governance and financial performance '...results from fund, sector and company analysts are all generally positive.'" <sup>90</sup>

As of 2004, Innovest's extensive study clearly show that, sector by sector, companies that are environmental leaders are financially out-performing the laggards. Companies with good corporate environmental governance and proactive stances on greenhouse gas reductions generally out-perform the rest of the sector, according to data across numerous sectors.

"How companies perform on environmental, social, and strategic governance issues is having a rapidly-growing impact on their competitiveness, profitability, and share price performance."<sup>91</sup>

Dr. Matthew Kiernan, founder and CEO of Innovest Strategic Value Advisors

There is evidence that the average share price movement of firms with strong environmental governance responses out-perform the lagging companies (ie: those with below average carbon rating). In the forest and paper products sector, the performance difference was 43% over a four-year period.<sup>92</sup> (See Figure 4.8)

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([http://www.mcdonough.com/cradle\\_to\\_cradle.htm](http://www.mcdonough.com/cradle_to_cradle.htm)) Birkeland, J 'Design for Sustainability', EarthScan 2002 (<http://www.eplpress.com/contents/C725.htm>).

<sup>89</sup> Baue, B. (2008) *State of the World 2008. Chapter 13 Investing for Sustainability*. WorldWatch Institute. Earthscan, London.

<sup>90</sup> Innovest Strategic Value Advisors (2004) *Corporate Environmental Governance: A study into the influence of Environmental Governance and Financial Performance* Prepared November 2004 p10

<sup>91</sup> Ibid.

<sup>92</sup> ibid, p12

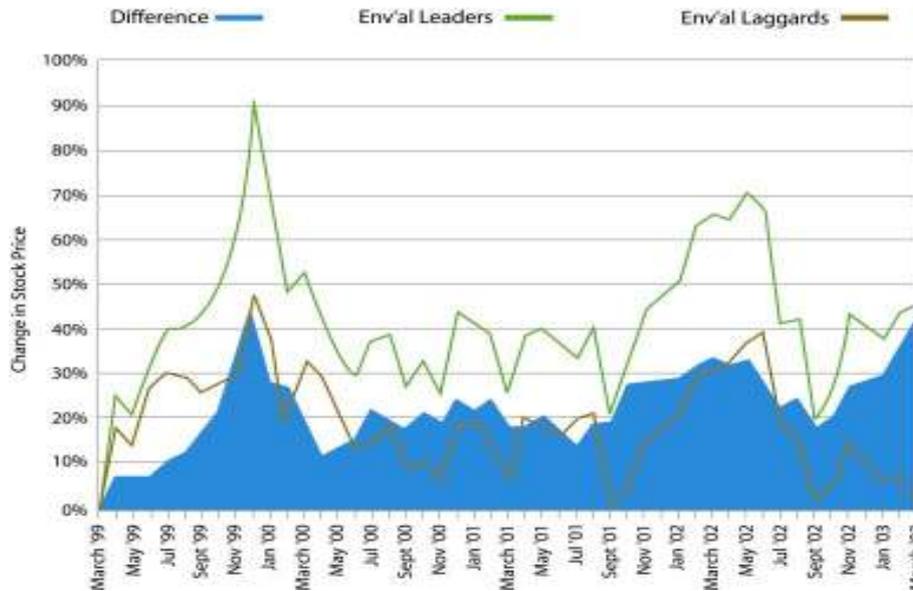


Figure 4.8: Percentage change in total return of environmental leaders vs. laggards in the forest and paper products sector 1999-2003<sup>93</sup>

The same is true in the oil and gas industry, where companies with a pro-active climate/carbon management strategy out-performed their peers by 11.8% over a three-year period.<sup>94</sup> (Figure 4.9)

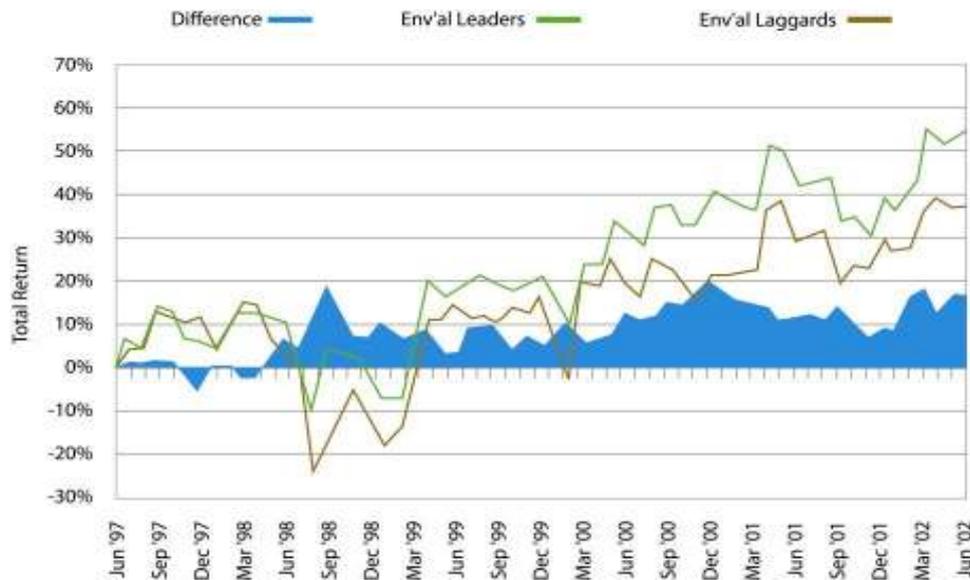


Figure 4.9: Percentage change in total return of environmental leaders vs. laggards in the oil and gas sector 1999-2003<sup>95</sup>

Sectors such as pulp and paper and oil and gas both have significant greenhouse gas emissions, but it is the energy supply sector (electric utilities) that is the largest single source of global greenhouse

<sup>93</sup> ibid,p13

<sup>94</sup> ibid,p13

<sup>95</sup> ibid,p43

gases. In this sector, over three of the last four years for which there are figures available, the percentage change in total return of environmentally leading electric utilities was 39% above that of below average environmental energy utility performers. Electric utilities in the United States exhibited the same pattern according to Innovest over this same period.

Research by AMP Capital suggests similar trends are emerging in Australia.<sup>96</sup> A number of studies by AMP Capital regarding the performance of Socially Responsible Investment (SRI) managers in Australia show that the median SRI fund out-performs the ASX200<sup>97</sup> over the medium term<sup>98</sup>. (See Figure 1 below) Of the top 5 performing fund managers in Australia last year, 3 of them were SRI funds<sup>99</sup>.

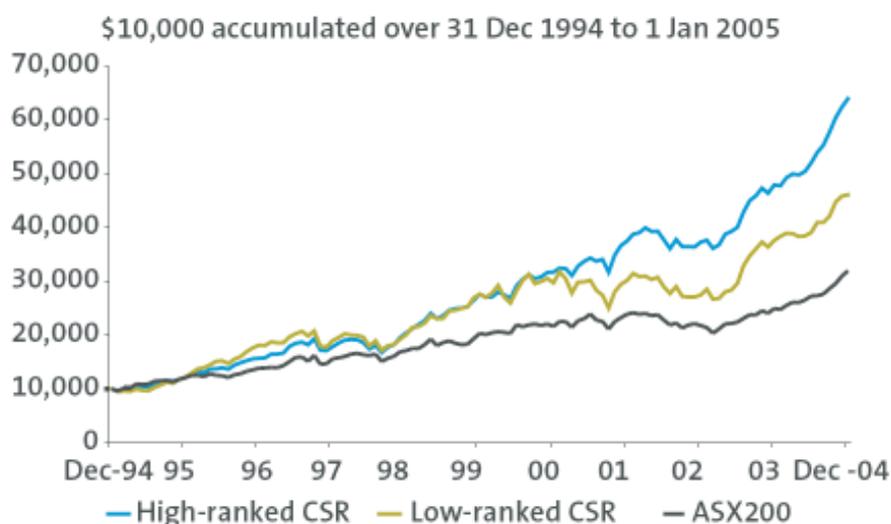


Figure 4.10: Financial Performance of CSR firms versus ASX200 (Source: AMP Capital<sup>100</sup>)

In addition, there is a new literature showing clear links, in companies in the emerging economies of the world, between improved sustainability performance on the environmental and social dimensions, and a company's financial results.<sup>101</sup> As WestLB Panmure investment analysts write<sup>102</sup> in relation to Corporate Social Responsibility (CSR):

"Many companies now regard CSR as an important value driver and are willing to allocate resources to the internal development of this topic. CSR has found its place in management theory. It is now not

<sup>96</sup> AMP Capital Investors (2002) *SRI Performance and Style Review*, which includes an extensive review of other literature. Available at: <http://www.ampcapital.com.au/corporatecentre/research/sriresearch.asp> (Accessed May 2007)

<sup>97</sup> ASX200 refers to the Australian Stock Exchange Top 200 companies

<sup>98</sup> Medium term refers to one, two, three and five years to 31 March 2006

<sup>99</sup> Taken from the universe of all 66 active managed funds

<sup>100</sup> Rey, M. Nguyen, T. (2005) *Financial payback from environmental & social factors*. AMP Capital Investors n.d (<http://www.ampcapital.com.au/pdf/corporatecentre/sri/researchpapers/SRIFinancialPaybackFullReport.pdf?DIRECT>) (Accessed May 2007)

<sup>101</sup> SustainAbility, International Finance Corporation and Ethos Institute (2002) *Developing Value: The Business Case for Sustainability in Emerging Markets* (London: SustainAbility).

— and UNEP (United Nations Environment Programme) (2001) *Buried Treasure: Uncovering the Business Case for Corporate Sustainability* (London: SustainAbility).

<sup>102</sup> Garz, H, Volk, C, Gilles, M, (2002) *More Gain than Pain, 'SRI: Sustainability Pays Off'*, WestBL Panmure.

only regarded as compatible with the idea of shareholder value according to Alfred Rappaport and with Michael Porter's theory of competitive advantage, but also are exemplary implementations of them."<sup>103</sup>

WestLB Panmure refer to numerous empirical studies done over the last 30 years to back this up, including a report from Margolis and Walsh in 2001, which focused on the US equity market and covered 95 studies that overall showed a high correlation between CSR and financial performance.

In 2003, globally there were four stock-market indexes that tracked 'sustainable businesses': the Domini 400 Social Index in the US, the NPI Social Index in Britain, the Janizi Social Index in Canada, and the Dow Jones Sustainability Group Index for international shares. Three of these indexes, the Domini 400, the NPI and the Dow Jones Sustainability Group, have all been around long enough to now have a track record which can be compared to the main markets. In the five years to August 2001, the Dow Jones Sustainable Index (DJSI) out-performed the Dow Jones Global Index, with an annualised return of 15.8%, compared with 12.5%. This is profoundly significant as they have out-performed their ethically neutral counterparts.

#### 4.6.1 Neo-Classical critiques of the Business Case for Sustainable Development

Another important area of debate occurs over to what extent significant resource efficiency opportunities still exist throughout the economy? Neo-classical critiques<sup>104</sup> of Porter *et al's*<sup>105</sup> work identifies correctly "a key assumption; namely that the validity of the business case for sustainable development rests on the assumption of "pre-existing opportunities for cost savings or profitable product enhancements that have, for some reason, gone unrealized".<sup>106</sup> Such unrealized efficiencies should not be significant under the traditional microeconomic assumptions of profit maximization and perfect competition. However, as the evidence thus far in this chapter has shown, eco-efficiency opportunities appear to be pervasive in actual practice.<sup>107</sup>

Detailed technical analysis by energy efficiency experts<sup>108</sup>, such as Hawken et al<sup>109</sup>, von Weizsäcker et al<sup>110</sup>, and Smith et al<sup>111</sup> and numerous government eco-efficiency programs<sup>112</sup> show that 30-75 per cent

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<sup>103</sup> Ibid.

<sup>104</sup> Palmer K, Oates WE, Portney PR. (1995) *Tightening Environmental Standards: the Benefit-Cost or the No-Cost Paradigm?* Journal of Economic Perspectives 1995;9(4):119–32

<sup>105</sup> Porter ME, van der Linde C. (1995) *Green and competitive: ending the stalemate*. Harvard Business Review 1995;73(15):120.

Porter ME, van der Linde C. (1995) *Toward a new conception of the environment–competitiveness relationship*. Journal of Economic Perspectives 1995;9(22):97.

<sup>106</sup> Paton, B. (2001) 'Efficiency Gains within Firms Under Voluntary Environmental Initiatives', Journal of Cleaner Production, vol 9, pp167–178

<sup>107</sup> Ibid.

<sup>108</sup> See Industrial Energy Analysis at <http://industrial-energy.lbl.gov/> Accessed 13 January 2008

<sup>109</sup> Hawken, P., Lovins, A. and Lovins, L. H. (1999) *Natural Capitalism: Creating the Next Industrial Revolution*, Earthscan, London

<sup>110</sup> von Weizsäcker, E., Lovins, A. and Lovins, H. (1997) 'Factor Four: Doubling Wealth, Halving Resource Use', Earthscan, London.

eco-efficiency opportunities commonly exist throughout most sectors of the economy due to design, market, informational and institutional failures.<sup>113</sup>

Some economists, without the benefit of engineering technical training, are understandably suspicious of such claims. The key point here is that, even if the global average eco-efficiency potential is half this value, existing within a range of 15-37.5 per cent, this is still significant. Yet some neoclassical economists question whether or not even these modest efficiency gains exist. Hence we now briefly overview this important debate .

#### 4.6.2 Neo-Classical Microeconomic Assumptions

Classical microeconomic theory, which assumes “*that firms maximize profits and that they operate in perfectly competitive markets, struggle to explain the success of private initiatives or voluntary government partnership eco-efficiency initiatives*”<sup>114</sup> referenced so far in this chapter.”<sup>115</sup>

This is because the success of eco-efficient strategies rests on the fact that pre-existing opportunities for cost savings or profitable product enhancements that have, for some reason, gone unrealized. As Paton explains,

“Classical microeconomic theory assumes that the firm maximizes profits by incorporating an optimal mix of labour, capital and other inputs in accordance with a standard production function, using fixed technologies freely available to all industry participants. It assumes that under perfect competition any in-efficiencies will be eliminated. Under these assumptions, efforts to reduce pollution then would be expected to add costs to an idealized firm, which has already maximized its profits, through already implementing any cost effective cost cutting strategies. This highly stylized picture of the firm in conventional microeconomic analysis denies what may be the most significant motivation for pursuing sustainable development strategies, namely eliminating economic inefficiencies within the firm.”<sup>116</sup>

As outlined in Chapter 3, market, information and institutional failures have been shown by Stiglitz to be more endemic than previously thought. The results concerning whether or not market failures are endemic or not, which were summarised in Chapter 3, are important for these debates about microeconomic assumptions.

<sup>111</sup> Smith, M., Hargroves, K., Stasinopoulos, P., Stephens, R., Desha, C. and Hargroves, S. (2007) *Energy Transformed: Sustainable Energy Solutions for Climate Change Mitigation*, Griffith University, ANU and The Natural Edge Project (TNEP), Australia

<sup>112</sup> See Department of Environment, Water Resources, Heritage and the Arts at <http://www.environment.gov.au/settlements/industry/corporate/eecp/industry.html> Accessed 13 January 2008

<sup>113</sup> Lovins, A, Lovins, L. H. (1997) *Climate: Making Sense and Making Money*, Rocky Mountain Institute, Colorado

<sup>114</sup> See Department of Environment, Water Resources, Heritage and the Arts at <http://www.environment.gov.au/settlements/industry/corporate/eecp/industry.html> Accessed 13 January 2008

<sup>115</sup> Paton, B. (2001) ‘*Efficiency Gains within Firms Under Voluntary Environmental Initiatives*’, *Journal of Cleaner Production*, vol 9, pp167–178

<sup>116</sup> Ibid.

Debates due to the use of classical microeconomic assumptions, which

“play down such market failures, arise in two contemporary debates in energy and environmental policy (concerning the “Porter hypothesis” and the “energy efficiency gap debate”) which focus on the potential for voluntary and mandatory regulatory environmental initiatives to increase economic efficiency within the firm, and the barriers preventing (many companies from addressing these opportunities.”<sup>117</sup>

#### 4.7 The Porter Hypothesis

The “Porter hypothesis” hypothesizes that environmental improvements (including energy conservation) and economic efficiency can be mutually re-inforcing rather than mutually exclusive<sup>118</sup>. Porter<sup>119</sup> has suggested that pollution correlates with resource wastage:

“Pollution is a manifestation of economic waste and involves unnecessary or incomplete utilisation of resources... Reducing pollution is often coincident with improving productivity with which resources are used”<sup>120</sup>

From this reasoning, Porter argues that

“properly designed environmental regulation can trigger innovation that may partially or more than fully offset the costs of complying with them.”<sup>121</sup>

This has come to be known as the Porter Hypothesis (PH), namely that pollution and business costs can be simultaneously reduced.

Jaffe and Palmer<sup>122</sup> present three distinct variants of PH. In their framework, the “weak” version of the hypothesis is that environmental regulation will stimulate certain kinds of environmental innovations, although there is no claim that the direction or rate of this increased innovation is socially beneficial. The “narrow” version of the hypothesis asserts that flexible environmental policy instruments such as pollution charges or tradable permits give firms greater incentive to innovate than prescriptive regulations, such as technology-based standards. Finally, the “strong” version posits that properly designed regulation may induce innovation that more than compensate for the cost of compliance.<sup>123</sup>

As Paton explains, under the Porter hypothesis,

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<sup>117</sup> Paton, B. (2001) ‘*Efficiency Gains within Firms Under Voluntary Environmental Initiatives*’, Journal of Cleaner Production, vol 9, pp167–178

<sup>118</sup> Porter ME, van der Linde C. (1995) *Green and Competitive: Ending the Stalemate*. Harvard Business Review;73(15):120.  
Porter ME, van der Linde C. (1995) *Toward a New Conception of the Environment–Competitiveness Relationship*. Journal of Economic Perspectives 9(22):97.

<sup>119</sup> Porter, M. (1991) “*American Green Strategy*” Scientific American 264, 168. Porter, M. and C. van der Linde (1995) “*Towards a New Conception of Environment-Competitiveness Relationship*” Journal of Economic Perspective 9, 97-118.

<sup>120</sup> Ibid

<sup>121</sup> Ibid

<sup>122</sup> Palmer, K. Oates, W. E, Portney, P. R. (1995) *Tightening Environmental Standards: the Benefit-Cost or the No-Cost Paradigm?* Journal of Economic Perspectives 1995;9(4):119–32

<sup>123</sup> Lanoie, P. Laurent-lucchetti, J. Johnston, N. Ambec, S. (2007) *Environmental Policy, Innovation and Performance: New Insights on the Porter*. Available At [http://www.hec.ca/iea/cahiers/2007/iea0706\\_planoie.pdf](http://www.hec.ca/iea/cahiers/2007/iea0706_planoie.pdf) Accessed 2.02.2008

Companies acting to improve their environmental performance may — under appropriate circumstances — simultaneously increase profits. Similarly, economic inefficiencies imbedded in organizations provide opportunities for appropriately designed policy interventions to improve economic efficiencies, while simultaneously increasing environmental efficiency. Porter and van der Linde detailed evidence from a wide range of industries to indicate that firms often gain competitive advantage from their efforts to improve environmental performance. The key element of Porter and van der Linde's argument is the concept of product and process innovation offsets. Product improvements occur when resource productivity improvements increase revenues through product differentiation or lower costs, whether on product inputs or reducing customers' costs, — for instance by lowering product-related waste disposal or energy costs.

In summary, process offsets occur when environmental improvements reduce costs by raising process yields, reducing machine downtime and maintenance or reducing the cost of process inputs. Porter and van der Linde argue that “offsets will be common because reducing pollution is often coincident with improving the productivity with which resources are used”.<sup>124</sup>

However, Palmer *et al*<sup>125</sup> counter “Porter and van der Linde's empirical studies with a model that predicts that such inefficiencies should be relatively rare.”<sup>126</sup> Palmer *et al*'s model is a classic example of how the assumptions of an economic model inevitably lead to a certain conclusion. Palmer *et al* uses traditional microeconomic assumptions that “firms maximize profits and that they operate in perfectly competitive markets. Under these assumptions a firm cannot reduce emissions without raising marginal costs.”<sup>127</sup> The importance of Palmer *et al*'s work is that it identifies (correctly) a key assumption, that the validity of the Porter hypothesis rests on “pre-existing opportunities for cost savings or profitable product enhancements that have, for some reason, gone unrealized”.<sup>128</sup> Such unrealized efficiencies should not be significant under the traditional microeconomic assumptions, but as the evidence outlined thus far in this chapter has shown, eco-efficiency opportunities appear to be pervasive in actual practice.<sup>129</sup>

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<sup>124</sup> Porter, M. and C. van der Linde (1995) “Towards a New Conception of Environment-Competitiveness Relationship” *Journal of Economic Perspectives* 9, 97-118.

<sup>125</sup> Palmer, K. Oates, W. E, Portney, P. R. (1995) *Tightening Environmental Standards: the Benefit-Cost or the No-Cost Paradigm?* *Journal of Economic Perspectives* 1995;9(4):119–32

<sup>126</sup> Paton, B. (2001) ‘*Efficiency Gains within Firms Under Voluntary Environmental Initiatives*’, *Journal of Cleaner Production*, vol 9, pp167–178

<sup>127</sup> *Ibid*

<sup>128</sup> *Ibid*

<sup>129</sup> *Ibid*

#### 4.7.1 The Energy Efficiency Gap Debate

The “energy efficiency gap” is the second important debate in this area.<sup>130</sup> It focuses on the underlying factors causing unrealized opportunities to reduce energy consumption to persist in companies. This debate looks at the question of why many some businesses ignore cost effective energy efficiency opportunities<sup>131</sup> while others choose to invest time and energy into identifying and implementing energy efficiency opportunities which achieve significant cost savings. This work is important because there should not be a different response to the same economic opportunities if business’s behaviour is rational. The “energy efficiency gap” literature has investigated the question of what barriers exist to work against business’s from undertaking energy-saving investments which improve the bottom line. This literature identifies behavioural barriers arising from principal-agent problems, other information asymmetries, and bounded rationality<sup>132</sup>.

The debate over the energy efficiency gap is fundamentally important to current debate concerning the potential economic impacts of policies to reduce global greenhouse emissions<sup>133</sup>. As Paton explains

Topdown economic modelling estimates, based on conventional microeconomic assumptions, assume that existing energy demand patterns are optimally adjusted to prevailing market prices. As a result, reductions in greenhouse-gas emissions can only be purchased at the expense of a reduction in the output of other goods and services. Therefore, under conventional microeconomic assumptions and policy measures, must harm the economy. On the other hand, bottom-up technological engineering approaches recognize barriers that may have inhibited firms from taking advantage of potentially profitable energy-saving opportunities. Bottom-up estimates typically predict that policy initiatives can induce reductions in energy consumption. As a result, bottom-up estimates typically suggest less economic disruption from programs to reduce global greenhouse gas reductions.<sup>134</sup>

The controversies over the “Porter hypothesis” and the “energy efficiency gap” illustrate the critical role of underlying assumptions about economic efficiency within firms in the formulation of environmental policy. The latest advances in analysis of the Porter Hypothesis debate have been

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<sup>130</sup> Paton, B. (2001) ‘*Efficiency Gains within Firms Under Voluntary Environmental Initiatives*’, Journal of Cleaner Production, vol 9, pp167–178

<sup>131</sup> Jaffe A. B, Stavins R. N. (1994) *The energy-efficiency gap*. Energy Policy 1994;22(10):804–10.

DeCanio S.J. (1993) *Barriers within firms to energy-efficient investments*. Energy Policy;21(9):906–14.

DeCanio Stephen J. (1994) *Why do profitable energy-saving investment projects languish?* Journal of General Management;20(1):62–71.

<sup>132</sup> DeCanio S.J. (1998) *The efficiency paradox: bureaucratic and organizational barriers to profitable energy-saving investments*. Energy Policy;26(5):441–54.

DeCanio S.J. (1994) *Agency and control problems in US corporations: the case of energy-efficient investment projects*. Journal of the Economics of Business 1(1):105–23.

<sup>133</sup> DeCanio S.J. (1997) *The economics of climate change. Background paper, Redefining Progress*, San Francisco, 1997.

<sup>134</sup> Paton, B. (2001) ‘*Efficiency Gains within Firms Under Voluntary Environmental Initiatives*’, Journal of Cleaner Production, vol 9, pp167–178

synthesized in papers by Paten,<sup>135</sup> Lanois *et al*<sup>136</sup>, Wagner,<sup>137</sup> and Osang *et al*<sup>138</sup> and Mohr<sup>139</sup>. They rightly point out that given the mixed nature of the empirical results obtained thus far, assessment of the hypotheses remains an open research question.

However this more recent literature points ways forward both empirically and theoretically to resolve the debates on the Porter Hypothesis.

For instance, Lanois *et al*<sup>140</sup> empirical study tested the significance of the three different variants of the Porter Hypothesis using data on environmental policy, research and development, environmental performance and commercial performance. Their analysis was based upon a unique database which included observations from approximately 4200 facilities in seven OECD countries. In general, they found

“strong support for the “weak” version that stringent but efficient regulation stimulates innovation  
qualified support for the “narrow” version that flexible environmental policy instruments give firms greater incentive to innovate than prescriptive regulations  
and qualified support for the “strong” version as well.”<sup>141</sup>

Theoretically, Alpay<sup>142</sup>, Mohr<sup>143</sup> and Osang *et al*<sup>144</sup> have made significant contributions demonstrating, with their models, conditions under which the Porter Hypothesis does apply. Also theoretically Paten, has shown that neo-classical critiques of the Porter Hypothesis<sup>145</sup> use overly simplistic microeconomic assumptions that fail to acknowledge significant market, informational and organisational failures<sup>146</sup>.

<sup>135</sup> Paton, B. (2001) ‘*Efficiency Gains within Firms Under Voluntary Environmental Initiatives*’, Journal of Cleaner Production, vol 9, pp167–178.

<sup>136</sup> Lanoie, P. Laurent-lucchetti, J. Johnston, N. Ambec, S. (2007) *Environmental Policy, Innovation and Performance: New Insights on the Porter*. Available At [http://www.hec.ca/iea/cahiers/2007/iea0706\\_planoie.pdf](http://www.hec.ca/iea/cahiers/2007/iea0706_planoie.pdf) Accessed 2.02.2008

<sup>137</sup> Wagner, M. (2003) *The Porter Hypothesis Revisited: A Literature Review of Theoretical Models and Empirical Tests*. University of Luneburg. Available At <http://129.3.20.41/eps/pe/papers/0407/0407014.pdf> Accessed 2.02.2008

<sup>138</sup> Osang, T. Nandy. A (2004) *Environmental Regulation of Polluting Firms: Porter's Hypothesis Revisited* Available At <http://faculty.smu.edu/tosang/pdf/regln0803.pdf> Accessed 2.02.2008

<sup>139</sup> Mohr, Robert D. (2002), ‘*Technical Change, External Economies, and the Porter Hypothesis*’, Journal of Environmental Economics and Management, 43: 158-168.

<sup>140</sup> Lanoie, P. Laurent-lucchetti, J. Johnston, N. Ambec, S. (2007) *Environmental Policy, Innovation and Performance: New Insights on the Porter*. Available At [http://www.hec.ca/iea/cahiers/2007/iea0706\\_planoie.pdf](http://www.hec.ca/iea/cahiers/2007/iea0706_planoie.pdf) Accessed 2.02.2008

<sup>141</sup> Ibid

<sup>142</sup> Alpay, S (2001) *Environmental Regulations: Innovation and International Competitiveness. Some New Insights*. Paper Presented at the International Summer School on Economics, Innovation, Technological Progress and Environmental Policy. Seon, Germany, 8-12 September/

<sup>143</sup> Mohr, Robert D., ‘*Technical Change, External Economies, and the Porter Hypothesis*’, Journal of Environmental Economics and Management, 43, 2002: 158-168.

<sup>144</sup> Osang, T. Nandy. A (2004) *Environmental Regulation of Polluting Firms: Porter's Hypothesis Revisited* Available At <http://faculty.smu.edu/tosang/pdf/regln0803.pdf> Accessed 2.02.2008

<sup>145</sup> Palmer, K., Oates, W. and Portney, P. (1995) ‘*Tightening Environmental Standards: The Benefit-Cost or the No-Cost Paradigm?*’ Journal of Economic Perspectives, vol 9, no 4, pp119–132.

<sup>146</sup> Paton, B. (2001) ‘*Efficiency Gains within Firms Under Voluntary Environmental Initiatives*’, Journal of Cleaner Production, vol 9, pp167–178.

Paton's defence of Porter<sup>147</sup> plus other modern studies of the Porter Hypothesis provides a new and significant body of work to help shift the Porter Hypothesis debates forward. We consider some of the key points from these papers next.

#### 4.7.2 New economic perspectives on efficiency within the firm

In recent years, economic theory has developed in its understanding of market failure which helps to explain why potential inefficiencies still exist. Lanoie *et al*<sup>148</sup> summarise this key point well stating that

"Indeed, Ambec and Barla<sup>149</sup> argue that, analytically speaking, for the Porter Hypothesis to be valid, at least one market imperfection is required in addition to the environmental externality. Examples of such market failures include spill-overs in knowledge or in learning-by-doing<sup>150</sup>, or market power.<sup>151</sup> Alternatively, they may arise out of systemic organisational failures within the firm, such as contractual incompleteness<sup>152</sup>, asymmetric information,<sup>153</sup> and agency control problems."<sup>154</sup> Advances in microeconomic theory have begun challenge these basic assumptions of conventional neo-classical theory and point to an explanation of why such inefficiencies still exist within firms.

As Paten explains

"Kreps<sup>155</sup> argues that a "somewhat revolutionary shift in the economic paradigm has begun", based on a partial abandonment of three "canonical principles" — farsighted rationality, purposeful behaviour, and equilibrium. These principles have allowed economists to build a powerful system of deductive reasoning to predict or explain the behaviour of firms and markets. Modifying or abandoning these "canonical principles" has become necessary to increase the ability of economic theory to predict or explain commonly observed economic behaviours. In short it provides a richer picture. One result of these recent advances has been to provide potential explanations for why inefficiencies within firms are so prevalent."<sup>156</sup>

<sup>147</sup> Ibid.

<sup>148</sup> Lanoie, P. Laurent-lucchetti, J. Johnston, N. Ambec, S. (2007) *Environmental Policy, Innovation and Performance: New Insights on the Porter*. Available At [http://www.hec.ca/iea/cahiers/2007/iea0706\\_planoie.pdf](http://www.hec.ca/iea/cahiers/2007/iea0706_planoie.pdf) Accessed 2.02.2008

<sup>149</sup> Ambec, S. and P. Barla (2005) "Quand la réglementation environnementale profite aux pollueurs : survol des fondements théoriques de l'hypothèse de Porter" working paper GREEN, Laval University,.

<sup>150</sup> Mohr R.D. (2002), "Technical Change, External Economies, and the Porter Hypothesis", *Journal of Environmental Economics and Management* 43(1), 158-168.

<sup>151</sup> Simpson David and Robert L. Bradford (1996), 'Taxing Variable Cost: Environmental Regulation as Industrial Policy', *Journal of Environmental Economics and Management* 30(3), 282-300.

Greaker, M. (2003), 'Strategic Environmental Policy; Eco-dumping or a Green Strategy?', *Journal of Environmental Economics and Management* 45, 692-707.

<sup>152</sup> Ambec, S. and Barla, P. (2006) 'Can Environmental Regulations be Good for Business? An Assessment of the Porter Hypothesis' *Energy Studies Review* 14, 42-62.

<sup>153</sup> Ambec S. and P. Barla (2002), "A theoretical foundation of the Porter Hypothesis", *Economics Letters* 75, 355-360.

<sup>154</sup> Gabel, H.L. and B. Sinclair-Desgagné (2002), 'The Firm, its Procedures, and Win-Win Environmental Regulations' in Henk Folmer et al. *Frontiers of Environmental Economics* (Cheltenham, UK).

<sup>155</sup> Kreps DM. (1997) *Economics — the current position*. *Daedalus*;126(1):59–85.

<sup>156</sup> Paton, B. (2001) 'Efficiency Gains within Firms Under Voluntary Environmental Initiatives', *Journal of Cleaner Production*, vol 9, pp167–178

## 1) The far-sighted rationality assumption

The far-sighted rationality assumption requires that each economic actor base his or her actions on a “detailed probabilistic picture of the future”. Teece<sup>157</sup> argues that this “rational” behaviour really constitutes super or hyper-rational thinking. Behavioural arguments suggest that relaxing the far-sighted rationality assumption allows us to incorporate human cognitive limits into calculations concerning decision making.<sup>158</sup>

This recognition allows us to take into account the simple fact that there is not perfect information all the time upon which our decisions are made. If you do not know how to identify and implement eco-efficiencies or sustainable design chances are you will not do it. Most business leaders and engineers in Australia have no (or at best a little) formal training in how to identify and implement eco-efficiencies or sustainable design opportunities. Also the field of energy, water and materials efficiency moves so quickly that every 12 months best practice has moved on. Hence, unless the corporation has a team of engineers expert in these fields then there is a reasonable chance that the corporation will miss opportunities to further improve their eco-efficiency performance and product design.

These limits also include behaviours motivated by market failures, perverse incentives, political interests rather than economic rationality. Perverse incentives exist for corporations in many countries. There also can be significant institutional and regulatory barriers, disincentives and market failures that are often halt change. For instance, one of the best win-win opportunities for business comes from energy efficiency investment. Significant work has been done demonstrating the benefits in this area since the OPEC oil crisis of the early seventies. But even here there can be disincentives for firms adopting energy efficient best practise. For instance, at the November 2003 Sustainable Energy Authority Victoria (SEAV)/Business Council for Sustainable Energy (BCSE) energy efficiency conference in Melbourne, PricewaterhouseCoopers consultants presented on how the taxation system in Australia discourages investment in energy efficiency. Apparently, if a business maintains old equipment, it can claim 100% of the cost as a tax deduction in that year, but if it improves the equipment (for example by making it more efficient) that is considered to be a capital investment, and the tax deduction can only be claimed over the estimated life of the improved equipment. Even worse, equipment purchased before 1999 is eligible for accelerated depreciation (a higher tax deduction each year) if it is upgraded: but purchase of new equipment is ineligible for accelerated depreciation. So the least attractive option financially for a business is to invest in a new, more efficient plant. Even upgrading efficiency is less attractive than just maintaining equipment. Of

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<sup>157</sup> Teece DJ. Contributions and impediments of economic analysis to the study of strategic management. In: Fredrickson JW, editor. Perspectives on strategic management. New York: Harper Business, 1990.

<sup>158</sup> Kahneman D, Slovic P, Tversky A. Judgment under uncertainty: heuristics and biases. Cambridge: Cambridge University Press, (1982) Conlisk J. Why bounded rationality? Journal of Economic Literature (1996);34(2):669–700.

course, this does not necessarily mean we should change the tax system, because it is designed to take into account many issues. But where are the incentives for energy efficiency to overcome these disincentives?

## 2) The purposeful behaviour assumption

The purposeful behaviour assumption requires that each economic actor “acts purposefully, to achieve a well-defined goal”. Relaxing this assumption permits the firm to be considered as a collection of partially aligned interests, rather than a single, monolithic actor capable of acting purposefully.

The Australian Department of Industry Tourism and Resources Energy Efficiency Best Practice program found cases where there was a lack of communication leading to reduced efficiency. For instance at one of the dairy companies, they were producing over third more steam than needed on average simply because those in the boiler room thought it was their job to produce at all times enough steam for peak usage periods. By simply requiring staff to ring the boiler room ahead of time to inform them when they would need extra steam is now saving this firm over 30% of its energy usage. In other words problems in *vertical coordination*, excessive hierarchy and the communication problems that go with it within a firm may create barriers to change. Directives from top management to focus on issues such as growing market share and nothing else, can prevent an organization from focusing efforts on potential savings from more efficient consumption of energy or other resources. BP globally have started to address this by reducing the number of levels within BP from thirty to four, making BP globally far more responsible to change and opportunities.

Problems in *horizontal coordination* within a firm may also limit its ability to achieve its intended purposes. For example, differences in priorities and incentives among research and development, marketing and manufacturing functions, competition for budgets often inhibit the design of environmentally sound products<sup>159</sup>.

*Short term market pressures* on CEOs and boards of corporations can also prevent longer term investments in eco-efficiencies and “green productivity” gains. In 2004, the BCA published a major report calling for the share-market and shareholders to take a longer-term view of their investments and stop constantly demanding higher and higher profit results over shorter and shorter time spans.<sup>160</sup> The report argued that this constant pressure from the share-market and shareholders—for better quarterly profit results—was preventing even good blue chip companies in Australia from focussing on the investments needed to be competitive, profitable and to perform with good social and environmental outcomes in 2-5 years’ time. Importantly the Australian Shareholders Association supported the BCA, arguing that shareholder value could be undermined in the medium to long term

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<sup>159</sup> Paton B. (1994) *Design for environment: a management perspective*. In: Socolow RH et al, editor. *Industrial ecology and global change*. Cambridge: Cambridge University Press, 1994.

<sup>160</sup> The Business Council Sustainable Growth Task Force. (2004) *Beyond the Horizon: Short-Termism in Australia* Available at [www.bca.com.au/content.asp?newsID=9686](http://www.bca.com.au/content.asp?newsID=9686) Accessed 4.02.2008

by a focus on short-term returns. ASA chairman John Curry said that it was a a ludicrous situation that fund managers competed against one another for rankings on the basis of share price performance and profits and outlook—‘even over a period like a month, ..... The pressure is there to get short-term results’. Mr Curry said that it was difficult to convince investors to take a long-term outlook because this required a change to the fundamental psyche of investment decisions with investors liking to see strong returns—quickly. He said that the immediate commercial pressures were often inconsistent with the creation of an environment that would support sustained growth.

“The problem is we are, most of us, members of managed superannuation funds and we look at those performances every quarter and we say they're good or they're bad, why doesn't the company do something about it. “

Research shows that this pressure on companies from their shareholders and the super funds is currently having a critical effect on whether companies can pursue all that they would wish to do to achieve corporate social responsibility. Such a short-term immediate profit focus leads inevitably to companies being in a position where they feel they have no choice but to oppose any changes to regulation or community attitudes that will add costs to their bottom line. This creates a dynamic where companies feel they have no choice but to fund think tanks and experts to argue against even potential changes that might harm their bottom line. Such short-term profit focus also prevents boards and CEOs from making investments with anything more than a 3–12 month pay back, even though such investments may help the company save or make millions over a 3-5 year period. External pressure from investors and analysts is a serious problem, but it's only half the picture<sup>161</sup>. The other half is the advent of stock options. Stock options are agreements between the company and its top executives that allow the executives to buy the company's stock at prices far below what the public pays. Companies do not pay anything to issue stock options, making it a form of ‘free money’. In Australia in 2001, 45% of an average CEO's compensation was in the form of variable compensation; of this, roughly 57% was in the form of bonuses and 43% was in the form of stock options. Bonuses are usually annual and pegged to short-term performance measures such as annual earnings per share or share price. This focuses CEOs on short-term thinking<sup>162</sup>.

Voluntary initiatives, corporate law reform, better economic incentives, emission trading schemes, and regulations by governments can help ensure CEOs and boards focus their attention on opportunities to improve both economic and environmental performance by addressing these barriers for investment in eco-efficiencies.

### 3) The equilibrium assumption

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<sup>161</sup> Stiglitz, J (2003) ‘The Roaring Nineties: Seeds of Destruction’, Penguin, p143

<sup>162</sup> Ibid.

Let's now assume that a corporation has chosen to pursue sustainable development. There is still no guarantee that they will choose the best options each step of the way. As Paton explains economic models in the past have often assumed the equilibrium assumption.

"The equilibrium assumption requires all parties to adopt their best alternatives, given that all actors will do the same. Relaxing this assumption allows researchers to explore industry dynamics that cannot be described adequately by static equilibrium assumptions.<sup>163</sup> This allows economists to create models closer to what actually happens. These models include the following assumptions about the actors: First, the management team for each firm must attempt to optimize the mix of technologies, marketing programs, and production schedules to compete for current business. Second, it must choose an appropriate portfolio of investments in research and development, market research, process development, and capacity development to prepare to compete in future time periods. Different firms are likely to hold diverse beliefs about consumer desires and competitor strategies for future time periods. Finally, each firm must calculate the appropriate investments in environmental performance improvement and energy efficiencies to meet customer and investor expectations in future time periods. As a result, calculating the most efficient mix of current and future product offerings and production schedules is beyond human computational abilities. In response to this challenge, firms experiment and adjust offerings and production schedules iteratively.<sup>164</sup>

This process then reveals that more often than not at best firms choose a better way but not the best way forward, where there are potentially more efficient solutions which are, however, outside their experience and beliefs. This applies equally to decisions ranging from those about organizational structures and processes and research and development opportunities to energy efficiency and environmental performance. Industries that are not aware of the best solutions can be enormously wasteful in other ways<sup>165</sup>. The pressure to move innovations quickly to market reduces management's ability to focus on efficiency-improvements such as conserving energy and reducing polluting emissions. Consistently with modern economic theory, all recent advances provide explanations for inefficiencies persisting within firms. Research in management strategy complements these economic insights.

In this emerging view, firms are incapable of finding the best way to maximize profits for many reasons, and instead tend to find better ways forward. While firms plainly seek profits, the cognitive limits of managers and the complexity of the task of developing the optimum plans prevent them from achieving the best outcome. Although many firms fail in such an environment, market competition is

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<sup>163</sup> Nelson RR, Winter SG. (1992) *An evolutionary theory of economic change*. Cambridge, MA: Belknap Press of Harvard University Press, 1982.

Nelson RR. Recent evolutionary theorizing about economic change. *Journal of Economic Literature* 1995;33(1):48–90.

<sup>164</sup> Paton, B. (2001) 'Efficiency Gains within Firms Under Voluntary Environmental Initiatives', *Journal of Cleaner Production*, vol 9, pp167–178

<sup>165</sup> Nelson R. The roles of firms in technical advance: a perspective from evolutionary theory. In: Dosi G, Giannetti R, Toninelli PA, editors. *Technology and enterprise in a historical perspective*. Oxford: Clarendon Press, 1992.

not always strong enough to eliminate some firms that are significantly less efficient than the industry leaders.

Under these conditions, opportunities for firms to harbour inefficiencies abound. Relaxing the key assumptions of traditional neo-classical microeconomic theory allows now economists to provide a theoretical foundation to underpin and justify investment by business and government to improve the energy efficiency of the economy.

The recent advances in economic theory described above help to explain why energy and resource inefficiencies within businesses commonly exist and are economically significant. This suggests that wisely devised government environmental policies not only can improve social welfare and well-being but also private benefits. The role of stringent, yet efficient, regulation to stimulate innovation in industry is central to the Porter Hypothesis. Hence the type of regulation affects the likelihood of the Porter Hypothesis holding. Specific and more flexible types of policy instruments for environmental regulation bring about more favourable conditions for innovation and make it more likely for the Porter Hypothesis to hold.<sup>166</sup>

“Integrating these recent advances in microeconomic theory into environmental policy can greatly enrich the ability of this field to understand current innovations in practice and to make significant contributions to the design and evaluation of efficiency-enhancing initiatives by public, private, and non-government actors.”<sup>167</sup>.

## Conclusion

As discussed in Section 1, historically many businesses have been concerned that sustainable development or corporate social responsibility as a threat to their competitiveness, profitability and shareholder value. Historically business and industry groups have often fought the implementation of stronger environmental regulation and attempts to improve conditions and training for workers out of fear that it would reduce shareholder returns, profits and thus economic growth. The evidence emerging around the world shows that this widely held view is incorrect and preventing companies from identifying and creating new sources of value. A wide range of studies have in the last 10 years shown that companies that perform better, environmentally and socially, than the market average actually can perform as well or out-perform the market financially as well. The research literature has demonstrated clear links between improved environmental and social sustainability performance and

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<sup>166</sup> Alpay, S (2001) *Environmental Regulations: Innovation and International Competitiveness. Some New Insights. Paper* Presented at the International Summer School on Economics, Innovation, Technological Progress and Environmental Policy. Seon, Germany, 8-12 September/

<sup>167</sup> For Further Information on these topics please consult Segerson K, Miceli TJ. (1998) *Voluntary environmental agreements: good or bad news for environmental protection?* Journal of Environmental Economics & Management;36(2):109–30.

Segerson K. (1999) *The efficiency of voluntary approaches*. Presentation at European Research Network on Voluntary Approaches (CAVA) Workshop, Copenhagen, Denmark.

a company's financial results.<sup>168</sup> Critics of this line of argument have argued that if such profit making opportunities already exist, then companies would have already identified and implemented it. But recent developments in microeconomic theory and practice have shown that a range of organisational, technical and market failures have prevented companies in the past from realising the eco-efficiency and eco-innovation opportunities of this new wave of innovation in sustainable development for business. The body of evidence in this chapter shows the possibility for non-linear evolutionary, interactive processes (ie: "creativity") in businesses to enable them to make a transition to sustainable development. For instance, one of the major factors in why eco-efficiency opportunities have been missed are "organisational failures", which are by definition, non-linear and complex involving numerous people and variables. Chapter 4 also has pointed out that a focus on sustainability gives permission to staff to re-examine existing processes and be more creative. This again enables the possibility of non-linear creative processes of innovation in business. Finally, Chapter 4 has also discussed how new non-linear innovations in business are possible due to advances outside the business such as from breakthroughs in R&D institutions. Again, this is a non-linear process. A key change needed to help foster non-linear positive changes in business is the encouragement of It is also important in this conclusion to note that one of the most significant changes investment in longer term sustainability orientated business initiatives. There are currently significant barriers to such investment in the financial sector. There are many drivers for short-termism in business including pressures from the stock market and investment funds as well as the current structures of CEO and corporate board remuneration packages. Appendix 4.1 outlines these current drivers for short-termism and how they can be addressed. Appendix 4.1 also considers changes to corporate law that would also assist the rapid mainstreaming of environmental and social sustainable practice into the decision making of corporations.

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<sup>168</sup> Hart, S., and G. Ahuja (1996) 'Does it Pay to be Green? An Empirical Examination of the Relationship between Emission Reduction and Firm Performance', *Business Strategy and the Environment* 5: 30-37

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Finally, as the business case for eco-efficiency and green/clean technology has become more widely understood, business associations and representative industry bodies are looking at ways they can assist their members to constructively address sustainable development. Governments and Industry Groups are realising that industry groups can play a key role to mainstream sustainability rapidly through entire sectors of any economy, through their ability to cheaply co-ordinate and run education and training, identification and implementation of sustainability goals and targets across their respective sectors. This marks a significant shift in the debates on sustainability in the business and industry groups around the world. Appendix 4.2 provides a summary of what a number of Australian Industry groups are doing and publishing on sustainable development for their members.

