U.S. Business Strategies and Climate Change*

David L. Levy Professor, Department of Management University of Massachusetts, Boston 100 Morrissey Blvd. Boston, Massachusetts 02125 David.Levy@umb.edu

^{*} Paper presented at the conference on "Climate Change Politics in North America," Woodrow Wilson International Center for Scholars, Washington, D.C., May 18-19, 2006, <<u>www.wilsoncenter.org/ecsp</u>>.

Introduction

Significance of corporate strategies in GHG governance

Business, especially in the form of large firms and multinational corporations (MNCs), has *de facto* become a key part of the fabric of global environmental governance (Levy & Newell, 2005). In their role as investors, polluters, innovators, experts, manufacturers, lobbyists, and employers, corporations play a key role in shaping every aspect of society, from the natural environment to popular culture. For example, the technological strategies of leading chemical companies helped shape the content, timeline and implementation of the Montreal protocol for ozone-depleting gases (Falkner, 2005); in a similar way, policies to reduce GHG emissions in the US transportation sector are moving toward the encouragement of consumer adoption of hybrid vehicle technologies. The recognition by governments and NGOs that large firms possess the organizational, technological, and financial resources needed to address environmental issues has stimulated consideration of ways to harness and direct these resources toward desirable goals.

This acknowledgement of corporate potential has occurred, not entirely coincidentally, in a period of growing concern at a 'governance deficit' at the international level. The growing international integration of economic activity, with associated environmental and social impacts that flow beyond national borders, creates greater demand for coordinated responses that strains existing institutional capacity (Slaughter, 2004). According to Newell (2006) (p4 of file, check page no.) "the transnationalization of production and capital and the removal of trade barriers have themselves created the need for orchestrated institutional responses from states." Governance is frequently portrayed as a public good subject to problems of collective action (Ougaard, 2006). Haas (2004: 2) suggests that a "new geopolitical reality is the growing complexity of a globalizing world, whose management requires more holistic or comprehensive policies". Despite this apparent need for more global coordination, states have tended to restrict their regulatory roles, at least in relation to social and environmental impacts (Strange, 1996). Ougaard (2006) points to a global trend toward deregulation and privatization that contributes to the undersupply of governance by states. The inadequacy of existing institutions in addressing transboundary problems has received particular notice in the environmental area, where international externalities resulting from climate change and other environmental issues are starkly obvious (Bierman, 2001; Haas, 2004).

Business has stepped into this breach with various degrees of enthusiasm. Traditionally, business has supported 'market-enabling' or 'constitutive' regimes, such as those for international trade, investment, and finance, while opposing 'regulatory' or 'distributive' regimes, which constrain corporate behavior and address social impacts (Levy & Prakesh, 2003b; Lipschutz, 2005). Nevertheless, business has increasingly been drawn into the structures and processes of international environmental governance, even when the goal has been to defeat a particular initiative. In the climate change issue, for example, business was very active politically in the latter 1990s in efforts directed toward preventing an international regime imposing mandatory caps on emissions of greenhouse gasses. These efforts were coordinated at the international and multi-sectoral level within a working group of the International Chamber of Commerce (ICC), an influential umbrella association, and dedicated issue-specific associations, such as the Global Climate Coalition (Levy & Egan, 2003a; Newell & Paterson, 1998). Industry has also played an increasingly active role in the Intergovernmental Panel on Climate Change (IPCC), a UN panel charged with assessing the science of climate change, even as some business groups have attempted to cast doubt on the validity of the science (O'Riordan, 1997). Somewhat paradoxically, one goal of this corporate political activity was to promote the national rather than the international arena as the appropriate locus of regulation, perhaps because business has more direct power and influence at that level, at least in the United States (Levy & Egan, 1998).

As business becomes more engaged in the governance of global issues, it has begun to assert its voice more enthusiastically as a legitimate actor in global environmental governance. In the case of climate change, the ICC has forcefully asserted industry's significance in a way that discursively constructs a business role in governance out of society's dependence on business for the resources required:

Industry's involvement is a critical factor in the policy deliberations relating to climate change. It is industry that will meet the growing demands of consumers for goods and services. It is industry that develops and disseminates most of the world's technology.... It is industry, therefore, that will be called upon to implement and finance a substantial part of governments' climate change policies (International Chamber of Commerce, 1995).

The New, Constructive Face of Business in Climate Change?

In assuming its new role in environmental governance, business has increasingly adopted a more accommodating and even constructive stance that acknowledges the reality of climate change and its responsibility for addressing the issue. This shift in position can be attributed to many factors, including the increasingly strong scientific evidence of climate change, the growing inevitability of regulatory constraints on carbon, pressure from non-governmental organizations (NGOs), and concerns about corporate reputation and litigation (Wellington & Sauer, 2005). Many companies also see potential market opportunities in new high-margin, low-emission products and technologies, as well as cost savings from lower energy use (Begg, van der Woerd, & Levy, 2005; Margolick & Russell, 2004; Reinhardt, 2000; Romm, 1999). The development of markets for trading carbon credits presents a further stimulus. Some sectors, such as agriculture, insurance, tourism, and real estate, face potential risks from the physical impacts of climate change, such as rising sea levels and more frequent and intense storms. Several groups, such as the Investor Network on Climate Risk and the Climate Group, have played an important role recently in highlighting the financial risks and opportunities facing various sectors and encourage companies to assess and manage these risks rather than ignore them (The Climate Group, 2004). A more proactive stance is likely to provide companies with more influence in shaping the detailed mechanisms of the emerging climate governance regime, such as allocation and trading systems for carbon credits.

A recent report from the environmental group CERES typifies the optimistic view that there has been a sea-change in corporate responses to climate change since the turn of the century:

Companies at the vanguard no longer question how much it will cost to reduce greenhouse gas emissions, but how much money they can make doing it. Financial markets are starting to reward companies that are moving ahead on climate change, while those lagging behind are being assigned more risk... Shareholders and financial analysts will increasingly assign value to companies that prepare for and capitalize on business opportunities posed by climate change (Cogan, 2006: 1).

Some substantial business opportunities clearly do exist. The rapid growth of markets for renewable and clean energy, and for energy efficiency, is one example. Global markets for wind, solar photovoltaic (PV), and fuel cell power are growing at an annual rate of approximately 20%, and are forecast to reach \$115 billion by 2015, from a 2005 base of only \$24 billion (Makower, Pernick, & Wilder, 2006). Markets for associated electronics, materials, construction, and services will also experience rapid growth. The global market for energy efficiency products, currently estimated at \$115 billion, is projected to grow to over \$150 billion by the end of this decade.

This sanguine perspective is buttressed by high-profile corporate initiatives such as 'Beyond Petroleum' from BP and Ecoimagination from GE. These initiatives generally entail substantial public relations and advertising efforts to rebrand the companies as green, particularly around climate change, combined with substantial investments in research and development for low-emission technologies and products. Many other companies, mostly large Western and Japanese MNCs, are also undertaking a variety of measures to address their GHG emissions. The Pew Center and the Climate Group have developed profiles of companies with GHG emission targets and provide a series of detailed case studies illustrating the accompanying benefits (Margolick et al., 2004; The Climate Group, 2004). Organizations such as Pew, the Climate Group, and the World Resources Institute have played an important role in publicizing these corporate efforts, convincing other companies of the business case for action, and mobilizing business to provide political support for regulatory proposals.

CERES lists five key ways in which many companies are responding more positively to climate change (Cogan, 2006): they are establishing climate change task forces to integrate responses across functions, divisions, management levels, and countries; they are articulating their positions in their communications with the public and policy makers; they are disclosing climate-related risks and opportunities in financial and other documents; they are developing accounting systems for tracking emissions and projecting savings relative to a baseline; and they are incorporating climate change into strategic planning processes that affect resource allocation for R&D, production, and marketing.

Despite all this attention to positive moves by business on GHG emissions, there are still serious grounds for concern. The United States seems as unlikely as ever to sign onto Kyoto or to implement a mandatory national system for GHG abatement, and prospects are dim for bringing major developing countries into a binding regime. The

plethora of GHG governance initiatives at regional and city levels are generally quite weak, comprising voluntary measures or very modest mandatory caps combined with very flexible implementation mechanisms. Significant opposition remains even to these mild measures; Massachusetts pulled out of a proposed Regional Greenhouse Gas Initiative in early 2006, apparently over business competitiveness.

CERES notes that climate change is widely ignored in major industrial sectors, such as coal, food product and airline companies, and that US-based companies are lagging considerably behind their European and Japanese counterparts (Cogan, 2006). The US auto industry, despite the introduction of new hybrid models in 2006, continues to oppose raising CAFE standards or their extension to heavier vehicles (Hakkim, 2005b), and is vigorously contesting efforts by California and New York to exert direct regulatory control over vehicular carbon emissions (Hakkim, 2005a). At a global level, GHG emissions are still accelerating and many countries are likely to miss their Kyoto targets. It appears that any emission reductions gained from new technologies are more than offset by inexorable growth in demand for electric power and in automobile and air travel.

The remainder of this paper traces the history of business responses to climate change and explores in more depth the political economy of corporate strategies. A model of business engagement with the issue is presented that explains these seemingly paradoxical phenomena, coexistence of all these corporate efforts with continued hostility no impact on economic structures or aggregate emissions.

History of Corporate Responses to Climate Change

Climate change presents a profound strategic challenge to firms. Despite the considerable attention given to the potential economic opportunities presented by climate change, the primary issue facing many sectors is the 'regulatory risk' of higher costs for fuels and other inputs, and lower demand for energy-intense products (Wellington et al., 2005). Measures to control the emissions of GHGs directly threaten firms that produce fossil fuels as well as firms that depend on these fuels, such as airlines and chemical companies. Other sectors, such as automobile and aircraft manufacturing, are indirectly dependent on fossil fuels. Other energy intense sectors include cement, paper, and aluminum. Companies also face considerable 'competitive risk', as changes in prices, technologies, and demand patterns disrupt sectors and entire supply chains. Investments in research and development is highly risky, as low-emission technologies, such as those for renewable energy, frequently require radically new capabilities that threaten to undermine the position of existing companies and open the industries to new entrants (Anderson & Tushman, 1990; Christensen, 1997). Moreover, the unpredictable path of technological evolution makes the task of choosing among competing technologies a treacherous business (Arthur, 1989).

It is therefore not surprising that a wide range of sectors responded aggressively to the climate change issue in an attempt to forestall regulation of GHG emissions. During the 1990s, U.S.-based companies were particularly active in challenging climate science, pointing to the potentially high economic costs of greenhouse gas controls, and lobbying government at various levels. Businesses from across the range of affected sectors formed a strong issue-specific organization, the Global Climate Coalition, to coordinate lobbying and public relations strategies (Gelbspan, 1997; Leggett, 2000; Levy et al., 2003a). Meanwhile, U.S. energy and auto companies invested little in new technologies that could deliver short to medium term emission reductions (Levy, 2005).

Despite the common threat, there has been a striking variation in the responses of companies across sectors and countries. European industry was far less aggressive in responding to the issue, and displayed a greater readiness to invest in technologies that might reduce greenhouse gas emissions. These divergent strategies defy simple explanation, particularly in the oil industry, where companies on both sides of the Atlantic are large, integrated multinationals with similar profiles and strategic capabilities (Rowlands, 2000). Studies of the oil and automobile industries have pointed to the institutional environment of these firms as important determinants of their strategic responses (Levy & Kolk, 2002; Levy & Rothenberg, 2002; van de Wateringen, 2005). Corporate strategies are derived from perceptions of economic interest that are mediated by the different cultural, political, and competitive landscapes in the US and Europe. Expectations concerning markets, technologies, regulatory responses, consumer behavior, and competitor reactions varied among the companies according to their individual histories, headquarter location, and membership in particular industry organizations. Senior managers of European companies tended to believe that climate change was a serious problem and that regulation of emissions was inevitable, but were more optimistic about the prospects for new technologies. American companies, by contrast, tended to be more skeptical concerning the science, more pessimistic regarding the market potential of new technologies, and more confident of their political capacity to block regulation.

By 2000, a convergent trend could be discerned as key firms on both sides of the Atlantic appeared to move toward a more accommodative position that acknowledged the role of GHGs in climate change and the need for some action by governments and companies, despite continuing uncertainty. In the oil and automobile industries, companies were beginning to invest substantial amounts in low-emission technologies, and were engaging a variety of voluntary schemes to inventory, curtail, and trade carbon emissions. No obvious dramatic scientific, technological, or regulatory developments can account for these changes. Levy (2005) has argued that this shift is related to convergent institutional pressures. The impact of MNCs' countries of origin on corporate strategies is likely to diminish over time as industries become more international in scope. A strong case can be made that the international oil and automobile industries constitute coherent institutional fields, with cognitive, normative, and regulatory pressures inducing some measure of convergence (Scott & Meyer, 1994). Given the keen awareness of interdependence, companies are likely to copy each others' moves to prevent rivals gaining undue advantage (Chen & Miller, 1994). Industry interdependence also takes a collaborative form, within industry associations and in a number of alliances and joint ventures. Executives read the same trade journals and the same studies of industry trends. The automobile industry is not far behind the oil industry in terms of globalization.

The emergence of climate change as a "global issues arena" itself constitutes an institutional context that provides some convergent pressure. MNCs have little choice but to develop unified company-wide positions toward such issues, even when some subsidiaries dissent from the corporate stance. Indeed, most of the large MNCs in the automobile and oil sectors have formed internal cross-functional "climate teams" for precisely this purpose. The

network of actors involved in a global issues arena interact frequently and develop their own organizational and institutional frameworks. In the climate case, the senior managers responsible for climate-related strategy know each other well and meet regularly at the international negotiations and at other conferences and industry-level activities.

The shift in the position of American industry can also be linked to changing competitive dynamics, strategic miscalculations, the evolution of new organizations supportive of a proactive industry role, and the diffusion of "win-win" discourse articulating the consonance of environmental and business interests. Efforts by the Global Climate Coalition and other industry groups to challenge the science sometimes produced a damaging backlash. Environmental groups in Europe and the US issued a number of reports that noted industry support for some climate skeptics, and attempted to frame the issue as big business using its money and power to distort the scientific debate (Corporate Europe Observatory, 1997; Gelbspan, 1997; Hamilton, 1998). The growth of new organizations committed to a climate compromise further undermined the GCC's claim to be the voice of industry on climate. Eileen Claussen, a former US Assistant Secretary of State for Environmental Affairs and negotiator at the climate change negotiations, formed the Pew Center on Global Climate Change in April 1998. The Pew Center provides not only a channel of policy influence for member companies, but also a vehicle for legitimizing the new position. Other companies in sectors associated with low carbon technologies have increasingly exerted their collective voice. The Business Council for Sustainable Energy, for example, which has affiliates in the US and Europe, represents insulation manufacturers and the fragmented renewable energy sector. Increasingly, however, it has attracted larger companies engaged in natural gas and electronic controls, including Honeywell, Enron, and Maytag.

These organizational realignments have been accompanied by the growth of the 'win-win' discourse of "ecological modernization" (Hajer, 1995) and a broader acceptance of the 'precautionary principle'. The need to reconcile economic strategy with this acknowledgement of the case for precautionary action makes 'win-win' discourse very attractive. Ecological modernization puts its faith in the technological, organizational, and financial resources of the private sector, voluntary partnerships between government agencies and business, flexible market-based measures, and the application of environmental management techniques (Casten, 1998; Hart, 1997; Schmidheiny, 1992). The concept is reinforced by claims of significant cost savings from industry, such as BP's announcement in January 2003 that its success in reducing emissions by 10% (relative to 1990) had also generated \$600 million in cost savings.

The win-win paradigm is a key discursive foundation for a broad coalition of actors supporting the emerging climate compromise. A number of industry associations, such as the Business Council for Sustainable Energy, and the World Business Council for Sustainable Development, have adopted this language. Influential environmental NGOs in the US, especially the World Resources Institute and Environmental Defense (Dudek, 1996) have initiated partnerships with business to pursue profitable opportunities for emission reductions. Governmental agencies find win-win rhetoric attractive for reducing conflict in policy making. In the US, the joint EPA/Department of Energy Climate Wise program describes itself as "a unique partnership that can help you turn energy efficiency and environmental performance into a corporate asset" (US DoE, 1996).

These strategic and organizational shifts can also be related to convergent competitive forces. On the economic level, competitive pressure and interdependence

compelled companies to respond to each other's moves. For example, Toyota's commercial launch of the Prius, a hybrid electric-small gasoline engine car, in the Japanese market in 1998, took the industry somewhat by surprise. Honda leapfrogged Toyota and was the first to launch a hybrid in the US market, in December 1999. Most American executives were initially dismissive of the prospects for the car in the US, recalling that GM's electric vehicle had generated thousands of "pre-orders" which evaporated once the car was on the market in late 1995. Nevertheless, the US auto companies were nervous that they might fall behind a competitor, and announced plans for their own hybrid vehicles, a number of which were launched in 2006.

In the oil industry, Exxon's recalcitrant position can perhaps be explained in terms of idiosyncratic firm-specific factors. A highly regarded internal scientist has played a leading role in the company's climate strategy, the company's tightly centralized structure has allowed for few dissenting voices, and its strong financial position provides no pressure for change. Texaco, by contrast, felt compelled to reevaluate its strategy as oil prices fell below \$15 a barrel at the end of the 1990s. Recently, however, even Exxon appears to be softening its stance.

One reason for convergent strategies in the oil industry is that firms are moving toward a common view of the future of the oil industry in which regulatory constraints on carbon are no longer a serious threat. All the companies expect oil production to peak around 2020 to 2030, with a slow subsequent decline; renewables are not expected to pose major threats to oil and gas before mid-century due to cost and infrastructure limitations. All the oil companies are well diversified into natural gas, the demand for which is booming, primarily for power generation. Oil is used primarily for transportation, with no commercially feasible substitutes on the horizon, and any improvements in fuel efficiency are more than offset by growth in vehicle sales and miles traveled, particularly in developing countries. Biofuels such as ethanol from corn can slowly be incorporated into existing infrastructure and business models. Air transportation is also growing rapidly, and in any event is not covered by Kyoto.

Business Responses in the Context of a Weak Carbon Regime

The emerging climate regime needs to be understood as a relatively loose system of international governance involving significant contestation as well as collaboration among states, firms, non-governmental organizations (NGOs) and multilateral institutions (Levy et al., 2003b; Newell et al., 2006). Within this system, states act as economic agents concerned about their 'competitiveness' (Palan, 1997), while firms are important political actors with significant policy influence. The fragmentation and flexibility of the current governance system has facilitated its evolution but is also a fundamental source of weakness.

The specific mechanisms and targets agreed by the parties to the Kyoto Protocol helped to bring reluctant countries on board and accommodate industry opposition. The main elements of the Protocol include mandatory but modest emission targets, which are substantially weakened by broad and flexible mechanisms for implementation and by weak enforcement (Grubb, Vrolijk, & Brack, 1999). The inclusion of carbon sinks introduces considerable uncertainty and room for creative accounting due to the difficulty in establishing baselines and measuring changes. The ability to buy carbon credits in international emission trading schemes, which the EU had tried to limit, enables countries of the former Soviet Union to sell large amounts of "hot air" credits that they have available due to the collapse of their industrial base since 1990. This greatly diminishes the need for buyers of carbon credits to reduce domestic emissions from industry, transportation, or power generation. The Clean Development Mechanism and Joint Implementation reduce the adjustment burden and create profit opportunities for firms selling low-emission technologies.

Many argue that Kyoto is fast becoming irrelevant, and that the more significant regime structures are growing organically from the initiatives of NGOs, companies, and authorities at multiple levels (Lee, 2003). More than half the states in the US are addressing climate change in some manner; many are drafting climate change action plans and enacting renewable portfolio standards, which require a growing percentage of generation to be from renewable sources. Eight northeastern states are implementing an ambitious regional carbon cap-and-trade system for power generators, and California's legislature in 2002 began the process of regulating carbon emissions from automobiles; New York announced its intention to follow suit. The European Trading Scheme, a carbon cap-and-trade system, commenced operation in January 2005 and covers the power, iron, steel glass, cement, ceramic, pulp and paper industries.

There are also many initiatives underway in the private sector, as companies realize the inevitability of the need to adjust to a carbon-constrained world. Many companies, often in partnership with environmental NGOs, have begun to inventory their emissions and seek ways to reduce them. More ambitiously, several private initiatives have been established to create carbon trading systems among participating companies. The World Bank Prototype Carbon Fund (PCF) was established in 2000 as a "publicprivate partnership" between a few national governments, including the Netherlands, Sweden, Japan, and Canada, and 26 companies, including Hydro Quebec, Daimler-Chrysler, Shell-Canada, BP-Amoco, and numerous Japanese firms. The Fund's purpose is to raise \$140 million for investments in renewables and efficiency in developing countries, projects that will earn carbon credits for the investing companies. The Chicago Climate Exchange opened for business in October 2003 with twenty-two members, including American Electric Power and Ford. The members have committed to reducing emissions from North American operations by one percent a year for four years, and can engage in trading to meet those commitments.

While the momentum of this fragmented multi-faceted regime is clearly gathering pace and encompasses many diverse social and economic sectors, the effectiveness of these efforts at reducing emissions remains in doubt. It is unclear what all the voluntary efforts add up to in the absence of a firm global cap and meaningful enforcement. Initial trades on the Chicago Climate Exchange have been priced very cheaply, at just under \$1 per ton of CO^2 , suggesting that the cap is not very stringent. The RGGI program is designed to prevent the price of carbon credits exceeding \$7 a ton, which is insufficient to drive substantial innovation or efficiency measures.

Understanding the Paradox

There appears to be a significant disjuncture between the vast amount of time and energy devoted at multiple levels and by many different actors to addressing GHG emissions, and the paucity and slowness of change in production patterns, consumer behavior, and

ultimately emissions. Here I argue that the emerging climate regime and the role of business in its governance can best be characterized using a neo-Gramscian lens as a contested process of assembling an historical bloc. At one level, actors engage in negotiation, alliance formation, and compromise, in an effort to build a hegemonic coalition of firms, governmental agencies, NGOs, and intellectuals with the capacity to establish policies, norms, and institutions that structure the regime in particular ways. The Gramscian approach reflects the negotiated nature of international environmental agreements; even the most powerful states are generally unable to impose a particular agreement on the international community, though they may be able to block or delay for some time. Similarly, business is unable to directly determine state policies or write the rules for the regime. This is not, however, a pluralist story of interest group bargaining among equals; business has substantial instrumental, structural, and discursive power, providing strong policy influence (Levy et al., 1998; Newell et al., 1998). The emerging climate regime illustrates both the significant role of business and the contested and contingent nature of hegemony (Levy et al., 2005).

The formation of an historical bloc refers to a configuration of economic, discursive, and organizational forces that is capable of providing some cohesion and stability to the regime by aligning and coordinating actors' perceived interests. The notion of hegemony, in this sense, is similar to the concept of field stabilization in institutional theory. Participation in industry associations or national organizations informs the ways in which firms perceive their economic interests. Companies as well as countries will consent to a regime if they see that policy measures present only minor economic threats or even some opportunities. Perceptions of economic threat and opportunity depend on initial competitive locations of firms and their capacity to compete in new markets for low-emission technologies. The specific mechanisms of the regime, such as emission trading, might provide economic incentives that are attractive to firms with appropriate capabilities. The diffusion of the win-win discourse encourages firms to think that they can benefit economically from environmental investments,

For a stable regime to emerge, major actors also have to share some common frames regarding scientific understanding of the issue and policy approaches to mitigation and adaptation. It is by no means guaranteed that economic and discursive forces will provide sufficient coordination of interests to produce a hegemonic coalition capable of stabilizing a regime. Organizations such as Pew provide a degree of legitimacy and a shared normative and cognitive perspective on the issue. Nevertheless, the difficulty in accommodating the fossil fuel industry and energy-dependent countries such as the US and Australia accounts for the fragility and flexibility of the Kyoto Protocol, and the weakness of regional efforts. A corollary implication is that the climate regime does not necessarily address the central problem in any adequate way.

Bargaining over regime structures and processes engages actors in a complex set of strategic maneuvers in the economic, technological, and political spheres. Gramsci's concept of "war of position" is useful for describing a struggle coordinated across multiple bases of power to defend or advance one's position in the face of an issue such as climate change. One implication is that the traditional distinction between political and market strategies is unsustainable; any threat to an industry's markets, whether from regulation, environmental NGOs, or technological innovation, is simultaneously an economic threat and a challenge to hegemonic stability. Similarly, corporate response strategies to such threats, including research and development, mergers, or lobbying, are both economic and political in nature. Actors' interests are not given and fixed in this process; rather, they renegotiate conceptions of their own interests as a result of shifting institutional influences, technological and market developments, and strategic interactions with other actors. The emerging regime reflects the outcome of this bargaining process, in terms of economic, organizational, and discursive structures that align conceptions of interest of major actors and that are relatively stable.

The US provided an explicit assurance that industry interests would be integrated into the regime at the negotiations in Geneva in July 1996, when the US first agreed to a binding international agreement. Chief negotiator Tim Wirth promised that the US would pursue "market-based solutions that are flexible and cost-effective", and that "meeting this challenge requires that the genius of the private sector be brought to bear on the challenge of developing the technologies that are necessary to ensure our long term environmental and economic prosperity" (Wirth, 1996). The price of accommodation with industry is that environmental goals are compromised.

References

- Anderson, P., & Tushman, M. L. 1990. Technological discontinuities and dominant designs: a cyclical model of technological change. *Administrative Science Quarterly*, 35: 604-633.
- Arthur, W. B. 1989. Competing technologies, increasing returns, and lock-in by historical events. *The Economic Journal*, 99(394): 116-131.
- Begg, K. G., van der Woerd, F., & Levy, D. L. 2005. *The business of climate change*. Sheffield, UK: Greenleaf.
- Bierman, F. 2001. The emerging debate on the need for a World Environment Organization. *Global Environmental Politics*, 1(1): 45-55.
- Casten, T. R. 1998. *Turning off the heat*. Amherst, New York: Prometheus Books.
- Chen, M.-J., & Miller, D. 1994. Competitive attack, retaliation and performance: an expectancy-valence framework. *Strategic Management Journal*, 15: 85-102.
- Christensen, C. M. 1997. *The innovator's dilemma: when new technologies cause great firms to fail*. Boston: Harvard Business School Press.
- Cogan, D. G. 2006. Corporate governance and climate change: Making the connection. Boston, MA: CERES.
- Corporate Europe Observatory. 1997. The weather gods: How industry blocks progress at Kyoto Climate Summit. Amsterdam: Corporate Europe Observatory.
- Dudek, D. J. 1996. Emission budgets: creating rewards, lowering costs and ensuring results. New York: Environmental Defense Fund.
- Falkner, R. 2005. The business of ozone layer protection: corporate power in regime evolution. In D. L. Levy, & P. J. Newell (Eds.), *The business of global environmental governance*. Cambridge, MA: MIT Press.
- Gelbspan, R. 1997. The heat is on. Reading, MA: Addison Wesley.
- Grubb, M., Vrolijk, C., & Brack, D. 1999. *The Kyoto Protocol: a guide and assessment*. London: RIIA/Earthscan.
- Haas, P. M. 2004. Addressing the global governance deficit. *Global Environmental Politics*, 4(4): 1-15.
- Hajer, M. A. 1995. *The politics of environmental discourse: ecological modernization and the policy process*. Oxford: Clarendon Press.
- Hakkim, D. 2005a. Battle lines set as New York acts to cut emissions, *New York Times*. New York.
- Hakkim, D. 2005b. Fuel rule change for big S.U.V.'s seen as unlikely, *New York Times*. New York.
- Hamilton, K. 1998. The oil industry and climate change. Amsterdam: Greenpeace International.
- Hart, S. L. 1997. Beyond greening: strategies for a sustainable world. *Harvard Business Review*, 75: 66-76.
- International Chamber of Commerce. 1995. Statement by the International Chamber of Commerce before COP1 March 29 Berlin.
- Lee, J. 2003. The warming Is global but the legislating, in the U.S., is all local, *New York Times*: electronic edition. New York.
- Leggett, J. 2000. *The Carbon war: Dispatches from the end of the oil century*. London: Penguin books.

- Levy, D. L. 2005. Business and the evolution of the climate regime. In D. L. Levy, & P. J. Newell (Eds.), *The business of global environmental governance*. Cambridge, Mass.: MIT Press.
- Levy, D. L., & Egan, D. 1998. Capital contests: National and transnational channels of corporate influence on the climate change negotiations. *Politics and Society*, 26(3): 337-361.
- Levy, D. L., & Egan, D. 2003a. A neo-Gramscian approach to corporate political strategy: Conflict and accommodation in the climate change negotiations. *Journal* of Management Studies, 40(4): 803-830.
- Levy, D. L., & Kolk, A. 2002. Strategic responses to global climate change: Conflicting pressures on multinationals in the oil industry. *Business and Politics*, 4(3): 275-300.
- Levy, D. L., & Newell, P. J. 2005. *The business of global environmental governance*. Cambridge, MA: MIT Press.
- Levy, D. L., & Prakesh, A. 2003b. Bargains old and new: Multinationals in international governance. *Business and Politics*, 5(2): 131-151.
- Levy, D. L., & Rothenberg, S. 2002. Heterogeneity and change in environmental strategy: technological and political responses to climate change in the automobile industry. In A. Hoffman, & M. Ventresca (Eds.), Organizations, policy and the natural environment: institutional and strategic perspectives: 173-193. Stanford: Stanford University Press.
- Lipschutz, R. 2005. *Regulation for the rest of us: globalization, governmentality and global politics*. London: Routledge.
- Makower, J., Pernick, R., & Wilder, C. 2006. Clean energy trends 2006: Clean Edge, Inc.
- Margolick, M., & Russell, D. 2004. Corporate greenhouse gas reduction targets. Arlington, VA: Pew Center on Global Climate Change/Global Change Strategies International.
- Newell, P., & Paterson, M. 1998. A climate for business: global warming, the state and capital. *Review of International Political Economy*, 5(4): 679-703.
- Newell, P. J., & Levy, D. L. 2006. The political economy of the firm in global environmental governance. In C. May (Ed.), *Global corporate power*. Boulder, CO: Lynne Rienner.
- O'Riordan, T. 1997. Climate Change 1995: Economic and social dimensions. A review. *Environment*, 39(9): 34-39.
- Ougaard, M. 2006. Instituting the power to do good? In C. May (Ed.), *Global corporate power*. Boulder, CO: Lynne Rienner.
- Palan, R. 1997. Differential accumulation and the theory of the competition state.
- Reinhardt, F. L. 2000. *Down to earth: applying business principles to environmental management*. Boston: Harvard Business School Press.
- Romm, J. R. 1999. Cool companies: how the best businesses boost profits and productivity by cutting greenhouse gas emissions. Washington D.C.: Island Press.
- Rowlands, I. H. 2000. Beauty and the beast? BP's and Exxon's positions on global climate change. *Environment and Planning*, 18: 339-354.
- Schmidheiny, S. 1992. Changing course. Cambridge, Mass.: MIT Press.

- Scott, W. R., & Meyer, J. W. (Eds.). 1994. *Institutional environments and organizations*. Thousand Oaks, CA: Sage.
- Slaughter, A.-M. 2004. A New World Order. Princeton: Princeton University Press.
- Strange, S. 1996. *The retreat of the state: the diffusion of power in the world economy*. Cambridge: Cambridge University Press.
- The Climate Group. 2004. Carbon down, profits up. Weybridge, Surrey, UK: The Climate Group.
- US DoE. 1996. Climate Wise DOE/EE-0071, EPA 230-K-95-003. Washington, DC: US DoE.
- van de Wateringen, S. L. 2005. *The greening of black gold*. University of Amsterdam, Amsterdam.
- Wellington, F., & Sauer, A. 2005. Framing climate risk in portfolio management. Washington, DC: World Resources Institute.
- Wirth, T. E. 1996. Statement by Timothy E. Wirth, Under Secretary for Global Affairs, on behalf of the United States of America, at Convention on Climate Change, second Conference of the Parties, July 17. Geneva, Switzerland: United States Mission, Office of Public Affairs.