Climate Change and the Oil Industry: Common Problems, Different Strategies

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1. Introduction

The primary focus of most academic climate policy studies has been the robustness of climate science and the development of international negotiations and institutions, in which states, and sometimes societies, have been pinpointed as the key players. Systematic comparative studies of multinational and even global nongovernmental actors have been in short supply.[1] This research lacuna is particularly glaring since, as we shall see, the position of a major nonstate actor—the oil industry—may be crucial to US climate policy and thus the viability of the whole climate regime.

* One main source of information for the analysis is in-depth interviews with the following companies, institutions, and organizations: ExxonMobil, represented by Brian P. Flannery, Science Strategy and Programs Manager, Safety, Health and Environment, Gary F. Ehlig, Senior Advisor, Public Affairs Department, and Giuseppe De Palma, Vice President, European Union Affairs; Shell International, represented by Gerry Matthews, Advisor; Group Policy Development & External Affairs; Shell Nederland B. V., represented by Ir. Henk J. van Wouw, Manager Environmental Affairs; American Petroleum Institute, represented by Phillip A. Cooney, Climate Team Leader, and, William O'Keefe, Solutions Consulting; The European Petroleum Industry Association (EUROPIA), represented by Valérie Callaud, Deputy Secretary General; The European Commission, Directorate-General XI, represented by Marianne Wenning, Deputy Head Climate Change Unit; The Dutch Ministry of Housing, Spatial Planning and the Environment, represented by Barend van Engelenburg; Pew Center on Global Climate Change, represented by Eileen Claussen, Executive Director, and Sally C. Ericsson, Director of Outreach; Global Climate Coalition, represented by Glenn F. Kelly, Executive Director and CEO, and Eric Hold; Greenpeace/USA, represented by Iain MacGill, Senior Policy Analyst; Greenpeace International, represented by Paul Horsman, Oil Campaigner Greenpeace International Climate Campaign; World Resources Institute, represented by Kevin A. Baumert, James J. MacKenzie, and Jennifer Finlay. The interviews were conducted in the period from March to November 2000.

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1. For two exceptions, see Rowlands 2000; and Newell 2000.

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Major European and American oil companies have apparently chosen significantly different climate policy strategies.[2] The European company Shell supports the Kyoto Protocol; it has set an ambitious goal to reduce its own greenhouse gas (GHG) emissions and has invested in renewable energy. Conversely, the big American oil company ExxonMobil opposes the Kyoto Protocol; it has not set any reduction targets for its own GHG emissions, nor does it have any immediate plans to invest in renewable energy. ExxonMobil's main message to Shell is: Good luck! ExxonMobil has no faith in investments in renewable energy as a good business strategy in either the short or the long term.[3] Together with BP Amoco, ExxonMobil and Shell represent the three biggest private-owned oil companies in the world and are now often referred to as "the three sisters."[4]

The oil industry earns its livelihood from oil, natural gas and coal—the main sources of emissions of greenhouse gases—and will be severely affected by regulatory measures to curb GHG emissions. With its multinational companies linked in worldwide operations, the oil industry constitutes a global industry operating in a global market. The business opportunities and challenges offered by the problem of climate change would thus apparently be the same for large oil companies. This would imply, however, that the climate strategy of each individual oil company also would be the same. The striking differences in the climate strategies of the large oil companies thus represent a puzzle.

This article aims at describing and explaining these differences by taking a closer look at how different the climate strategies of the oil companies as represented by the Shell Group and ExxonMobil actually are, and exploring why companies choose different strategies. This approach can improve our understanding of the mechanisms that trigger action among the large oil companies in this issue area and can thus provide lessons for effective regulation.

In section two of the article, we discuss and present the analytical framework for analysis. Section three presents and compares the climate strategies of the Royal Dutch/Shell Group and ExxonMobil. Section four and five explore two alternative explanations to the differences in corporate strategies identified in section three. One explanation focuses on company specific features while the other is concerned with differences in the political context in which the companies operate. In section six we conclude by summarizing our findings and briefly discussing some implications for international climate policy.

2. See Grubb 1999. It should be noted that there are also differences in climate strategy among European and American oil companies. For example, other US-based oil companies such as Chevron and Texaco have chosen more ambitious approaches than ExxonMobil, but they nevertheless oppose the Kyoto Protocol.
3. Personal communication with B. P. Flannery and G. Ehlig, Irving, Texas, March 2000.
4. The European company BP Amoco has adopted a similar climate strategy to Shell, see Rowlands 2000.

2. Analytical Framework for Analysis

What are the sources of corporate strategy choice? In the following discussion, two analytical models for analysis, focusing on two main sources of explanation, are presented. The first model—the *Corporate Actor* (CA) model—is based on the business environmental management literature, and focuses on a set of company-specific features that may determine corporate strategy choice. With a point of departure in the CA model we assess three basic factors that can shape a company's climate strategy: environmental risk, environmental reputation, and organizational learning.

An increasing body of literature questions the validity of the claim that international economic integration or globalization has produced the "global corporation," which owes allegiance to no state.[5] Rather, the claim is made that multinational corporations operate within enduring political structures that continue to account for striking differences between multinational corporations. The second model presented in this analysis—the *Domestic Politics* (DP) model—seeks to capture this aspect by focusing on the broader domestic political context within which the companies operate as the primary source of oil companies' strategic choice on the climate issue. The model is based on the assumption that the strategies of companies are explained by state–society relationships. This perspective allows us to assess the societal demand for and governmental supply of climate policy in the US and the Netherlands/Europe and their implications for oil industry activities in these regions.

Our approach thus complements and extends Rowlands' analysis of the climate strategies of BP Amoco and ExxonMobil.[6] Rowlands' main emphasis is on the impact of company-specific features linked to the carbon-intensity of the companies and their main geographical areas of operation, and finds that these factors do not provide satisfactory explanations to the significant differences identified in the strategies adopted by the two companies. Rather, Rowlands suggests that other factors such as nationality may be equally or more important to explain the differences in the companies' strategic approaches to climate change. In our analysis we explore this hypothesis in more depth by focusing more explicitly on the domestic political context of corporate activities. While the international political context of corporate activities constitutes a source of corporate strategy choice, it is reasonable to expect that this factor has limited explanatory power in this case. Relevant international agreements represent an equal political framework for both European and American oil companies, and they cannot regulate corporate activity directly. However, this does not imply that international institutions and processes are unimportant for understanding the climate strategies of the companies. The point is that given that the international context is equal to both companies, this factor can hardly explain differences in their strategies.

5. Doremus et al. 1998; and Pauly and Reich 1997.
6. Rowlands 2000.

2.1. The Corporate Actor Model

As the demand for a stronger priority of environmental issues by industry has increased, a separate business environmental management literature has developed in which a broad spectrum of factors to explain corporate environmental strategy choice have been suggested.[7] From this literature, three factors with particular relevance to the issue area of climate change stand out: environmental risk, environmental reputation, and capacity for organizational learning.[8]

1. Environmental risk: Following the logic of Rowlands' argument, it can be assumed that the more carbon intensive the fossil fuel portfolio of the companies is, the higher their risk of being subject to more stringent regulation, and the more likely they are to resist such policies.[9] Most multinational oil companies have their main activities in coal, oil and gas. The argument thus relates to differences in the *relative* importance of coal and oil versus natural gas in the companies' portfolio of fossil fuel activities. According to this logic, oil companies with relatively more emphasis on coal and oil are more likely to adopt a reactive climate strategy than oil companies with a larger relative emphasis on natural gas.[10]

2. The company's environmental reputation: A key factor for a company's perception of market opportunities and risk is also linked to its experience with public exposure and criticism in relation to environmental (and political) incidents. This would imply that companies with experience of strong public scrutiny are more likely to respond to an enhanced public concern for climate change by adopting a proactive climate strategy.

3. The company's capacity for organizational learning:[11] Post and Altman[12] suggest that organizational devices to improve communication, co-ordination and management across divisions and organizational levels, and monitoring of future environmental trends and reward systems for environmental performance may serve to move a company towards more proactive environmental strategies. This factor is particularly linked to the companies' anticipation of the role of and demand for renewable energy in the future. It is assumed that companies with a high learning capacity in these terms are more likely to adopt a proactive climate strategy.

7. See, for example, Post and Altman 1992; Roome 1992; Steger 1993; Ketola 1993; Hass 1996; and Ghobadian et al. 1998.
8. These factors enable us to corroborate Rowlands' results as well as to explore the impact of other corporate characteristics.
9. Rowlands 2000, 346.
10. The extent to which this argument is valid also depends upon the market opportunities offered by an environmental protection stance. With a risk of being targeted by regulatory measures, there is also a risk of increases in production costs and hence incentives for buyers to switch to substitutes where available. See Steger 1993, 152.
11. Other internal sources of corporate strategy choice are corporate leadership and ownership structures. Leadership has in particular been related to the role of Sir John Browne in leading BP towards a proactive climate strategy (Rowlands 2000). With regard to ownership structures, both corporations under scrutiny here are privately owned.
12. Post and Altman 1992.

2.2. The Domestic Politics Model

The DP-model is a well-established approach within political science.[13] We intend to apply this model for understanding corporate strategies by suggesting that key sources of corporate behavior can be found at the domestic political level rather than in the companies themselves. Corporate responses to common problems may be traced back to societal demands for environmental protection, governmental supply of environmental policies and the political institutions[14] linking supply of and demand for such policies.

1. Societal demands for environmental protection: Today, multinational companies have generally become more sensitive to societal demands, and corporate social responsibility (CSR) is a key topic in most boardrooms. Societal demands is here understood in terms of public values and attitudes to environmental issues as well as actors translating public support for environmental protection into political power. ExxonMobil and Shell are potentially exposed to societal demands in all countries and continents in which they operate. Still, there is reason to assume that societal demands affect corporations differently depending upon where they have their historical roots, where they have located their headquarters and concentrated most of their activities, particularly their petroleum product sales which are directly exposed to the public at large. Organized societal interests, such as environmental groups and other interest groups, hold a powerful tool for inducing specific modes of corporate behavior: consumer behavior. On the one hand, consumer campaigns and boycotts of petroleum products like gasoline can affect the companies' market share. On the other hand, some companies may be willing to respond to "green" consumers' willingness to pay a higher price for clean energy products. While the latter mechanism provides companies with business opportunities such as renewable energy, the former exposes companies to pressure.

2. *Government supply of environmental policy*: Public policy is not only driven by societal demands. Governments often have the will and capacity to act independently. Corporations' response to governmental supply of environmental policy is likely to depend upon the "strength" of climate policy in terms of targets and policy instruments. As societal demands, a strong climate policy may create pressures and opportunities as well as reducing uncertainty. Ambitious GHG reduction targets and mandatory policy instruments such as regulation and economic instruments send a clear signal to target groups. Combined with an ambitious policy on renewable energy, company response is likely to be proactive and can be seen as a function of reduced uncertainty with regard to the market opportunities associated with a proactive strategy. In addition, company response can reflect a desire to avoid further costs of governmental regulation.[15]

13. Underdal and Hanf 2000.
14. By political institutions we mean corporate channels in which nongovernmental and governmental organizations meet to consult and negotiate.
15. Estrada et al. 1997, 16.

Conversely, public voluntary programs such as those geared toward energy efficiency are optional commitments often used as a first step in the exploration of a new policy area.[16] Such instruments are often associated with a high level of uncertainty with regard to future regulation.

3. Political institutions linking demand for and supply of environmental policy: Corporations do not only represent a potential target for societal demands and governmental policies, they represent in themselves a societal interest group with a potential to influence governmental policies.[17] Governmental decision-makers, on the other hand, are left with a choice between stimulating cooperation aimed at consensus-building between industry and decision-makers, and a more conflict-oriented strategy based on imposition.[18] These strategies determine who is included in the decision-making processes, to what extent and in what way. The aim of a collaborative strategy is to raise awareness and promote social responsibility among companies. In return, companies expect their interests to be taken into account in the design of relevant policy. Conversely, a conflict-oriented approach aims to avoid regulatory capture; that is, where the regulated takes control over the regulator. A conflict-oriented strategy is thus likely to produce resistance among target groups in terms of a reactive strategy among companies.

Against this backdrop, we assume that strong societal demands for climate policy, governmental supply of a stringent policy, and a consensus-oriented approach to regulation will promote a proactive strategy among multinational oil companies.

3. Comparison of the Climate Strategies of ExxonMobil and the Shell Group

What are the current strategies pursued by the Shell Group and ExxonMobil towards the climate issue? As noted above, there is a distinction between reactive and proactive strategies towards climate change. Measuring differences in current strategies, however, is by no means a simple task. The public profile of a corporation may diverge significantly from their actual behavior, for strategic or practical reasons. This aspect is particularly valid in this case since this is a relatively new issue area on the political agenda while oil companies operate with a long-term investment horizon. We therefore have to rely mainly on a set of "soft" indicators, which nevertheless can provide a clear indication of the kind of climate policy futures the two companies are preparing for. The indicators considered in this study comprise the following:

- The corporations' acknowledgement of the problem of a human-induced global climate change;

16. OECD 1999.
17. Risse-Kappen 1995.
18. Jänicke 1992; and Andersen 1993.

- Its position on the Kyoto Protocol;
- Self-imposed GHG emission reduction targets for its own operations;
- The level of commitment in its climate strategies, operationalized in terms of the extent of organizational change implied by the strategy.

Of the two companies, ExxonMobil is the most reluctant in its acknowledgement of the problem of a prospective human-induced climate change. While ExxonMobil acknowledges climate change as a "legitimate concern," it does not accept that the problem is sufficiently scientifically substantiated to legitimize costly policy regulation.[19] ExxonMobil is also explicitly opposed to the Kyoto Protocol. Thus, ExxonMobil does not have any targets for GHG emission control or reduction. On the contrary, its position is that if there indeed is a climate problem, it is a long-term problem for which there is plenty of time to develop appropriate responses.[20] ExxonMobil does not anticipate governmental regulation of its activities in this area. Its response to climate change is thus currently dominated by research activities on energy efficiency and decarboni-zation of fuels. Currently, ExxonMobil does not systematically report its GHG emissions. For the time being, therefore, ExxonMobil responds to the climate problem on an "as needed"-basis, and its strategy can be characterized as reactive.

The Shell Group, on the other hand, acknowledges the climate problem as a real problem requiring concerted action by governments. In 1997, Group Managing Director Phil Watts maintained that the oil industry has "the privilege of being part of the solution" to this problem.[21] Accordingly, Shell explicitly supports the Kyoto Protocol and has adopted an aim to reduce its GHG emissions by 10% from their 1990 levels by 2002. Shell also has approached the problem by improved energy efficiency and decarbonization of fuels. In contrast to ExxonMobil, however, Shell's decarbonization strategy has had implications for its business orientation: In 1997, Shell announced that the Group's coal assets were under strategic review with the aim of divestment,[22] and the sale was completed in July 2000. Moreover, in October 1997, the Shell Group established a fifth core business—Shell International Renewables—with an investment plan of US$ 0.5 billion over the next five-year period.[23] Shell also

19. Flannery 1999.
20. Personal communication with B. P. Flannery and G. Ehlig, March 2000.
21. Watts 1997.
22. *The Guardian*, 19 November 1997, available online at http://www.globalpolicy.org/finance/alternat/carbon/ct11_19.htm; and Shell 1999.
23. As noted by Rowlands 2000, it is difficult to assess the cause-effect relationship between a proactive strategy to climate change and a strategy of decarbonization of fuels and renewables—it is not at all obvious which is cause and which is effect. In this context, however, Shell itself has presented its divestment in coal as an integral part of its climate strategy (see, for instance, *The Guardian*, 19 November 1997). With regard to its investment in renewable energy sources, Shell emphasizes the business opportunities in this area as its main motivation (van der Veer 1999). While these events all took place in 1997, Shell's shift in climate strategy was announced before its decision to divest its coal assets and invest in renewables. On the basis of the chronological

has assigned a cost to CO_2 emissions in its investment decisions for new major projects.[24]

In January 2000, Shell launched an internal GHG emissions trading system called the Shell Tradable Emission Permit System (STEPS). Businesses representing 30% of the GHG emissions from the Shell Group's operations are now using tradable emission permits to help meet their self-imposed emissions targets.[25] In this system, participants are rewarded for reducing their emissions wherever the cost is lower than the price of a GHG emission permit. In this way it provides incentives for environmental performance by direct reward. ExxonMobil does not have any reward system comparable to STEPS in the climate area.

In contrast to ExxonMobil, it may be argued that Shell's approach to climate change may have much more significant long-term implications for its organizational structure and business orientation and reflects a higher level of commitment.

This brief comparison of the two companies indicates that there are significant differences in their approaches to the climate problem. Although the differences in their approaches are more visible in their public profiles than in their current operations, they can nevertheless be read as a signal of what kind of futures the companies are preparing for. The following two sections analyze the extent to which these differences can be explained by the two models discussed in sections 2.1 and 2.2.

4. Explaining Climate Strategy: Company-Specific Features

In section 2.1 we suggested that three main company-specific features might be particularly important as determinants of corporate environmental strategy choice: environmental risk, the corporation's environmental reputation, and its capability of organizational learning.

4.1. Environmental Risk

The environmental risk associated with the oil industry's operations in relation to the climate problem are analyzed in terms of each corporations' main areas of activity—now and in the future (reserves). This gives us an indication of the companies' relative emphasis of coal and oil versus gas in their fossil fuel portfolio. This approach also gives an indication of the extent to which the companies operate in the same market, and thus whether they are confronted by the same challenges and opportunities in their choice of strategy to deal with this problem.

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order of these events and Shell's own stated motivation, therefore, Shell's actions on coal and renewables are treated as effects in this analysis, rather than as causes of its climate strategy.

24. Shell 2000a.
25. Shell 2000c.

Shell and ExxonMobil have very similar portfolios in the sense that their key business areas are oil and gas exploration and production and chemicals manufacturing. Production figures for the two companies show close similarities. ExxonMobil's 2000 production includes 2,6 million barrels daily of crude oil and natural gas liquids and 10,3 billion cubic feet daily of natural gas available for sale.[26] The corresponding figures for Shell include 2,3 million barrels daily of crude oil and natural gas liquids and 8,2 billion cubic feet daily of natural gas available for sale.[27] Until 1999, both companies produced coal. In 1999, Shell's production of coal rose 20% relative to 1998, to 17,1 million tonnes.[28] ExxonMobil's coal production in 1999 rose 12.6% relative to 1998, to 16,9 million tonnes.[29]

The companies are comparable also in terms of net income and return on average capital employed. In 1999, both ExxonMobil and Shell had a net income approximating US$8 billion, with an approximate 10–12% return on average capital employed (respectively).[30] Similarly, both ExxonMobil and Shell have major oil and gas reserves. In 2000, ExxonMobil's worldwide total reserves were 11,6 million barrels of crude oil and natural gas liquids and 55,9 billion cubic feet natural gas, which represents a replacement ratio of 110%. The corresponding figures for Shell are 8,8 million barrels of crude oil and natural gas liquids and 50,8 billion standard cubic feet natural gas, which represents a replacement ratio of 136%.[31]

Measured in terms of the breadth of activity the companies are engaged in within a single region, the main regions for both companies are USA and Europe. There are differences between the two companies, however, in the relative importance of the European and the US markets. While the European market is most important to Shell, the US market is most important to ExxonMobil. Shell's total petroleum product sales in Europe were more than the double of their sales in the US in 1998.[32] Similarly, ExxonMobil sold significantly more petrol in the US than in Europe and about twice as much in the US than Shell.[33]

The overall picture of the two companies, therefore, is that in terms of core business areas, exploration and production volume, resource reserves, and net income, they are very similar and highly comparable. This indicates that they operate in the same global market, although there are differences between them in terms of the relative importance of the European and the US markets. Until 1999, the main areas of activity for both companies have been coal, oil and gas. Given this high degree of correspondence, the observed differ-

26. ExxonMobil 2000.
27. Shell 2000b.
28. Shell 1999.
29. ExxonMobil 1999a.
30. Shell 2000a.
31. ExxonMobil 2000; and Shell 2000b.
32. Shell 1998.
33. ExxonMobil 1998.

ence in their climate strategies thus cannot be explained by their fossil fuel portfolio alone.

4.2. Environmental Reputation

Both Shell and ExxonMobil have experience with public exposure and criticism in relation to environmental and political incidents related to their operations. The legal process against Exxon is still not concluded, 11 years after the 240,000-barrel Exxon Valdez oil spill in Prince William Sound in Alaska in 1989. Exxon has spent US$2.2 billion on the cleanup, in addition to large payments in compensation and damage claims, totaling $3.5 billion that the corporation has spent on the spill.[34]

The Shell Group has also been severely exposed to public indignation as a result of several incidents of both an environmental and a political nature. In the 1980s Shell was subjected to a massive, worldwide consumer boycott for its operations and activities in South Africa. In 1995, Shell was exposed to strong public criticism when it was indirectly linked to serious violations of human rights in Nigeria and in relation to its attempted deep-sea disposal of the redundant North Sea installation, Brent Spar. Both companies, therefore, have been exposed to serious public criticism.

It is interesting to note that while Greenpeace initially only targeted Shell on the climate issue, the recent change in US climate policy by the Bush administration has also brought about a renewed public interest in ExxonMobil's actions and inaction in this area. In April 2001, Greenpeace International announced its climate campaign against US oil companies—including ExxonMobil—with an aim "to hurt their markets outside the United States until they withdraw their support for the Bush administration's rejection of . . . the Kyoto Protocol."[35]

Exxon's response to the Exxon Valdez accident has been directed towards the prevention of similar accidents: modifications of tanker routines, the institution of drug and alcohol testing programs for employees in sensitive positions, more rigorous training programs, more extensive periodic assessments of vessels and facilities and so on.[36] In 1995, Shell initiated a major reorganization process of the whole corporation, partly in response to the public scrutiny it experienced.[37] The incidents related to Shell activities thus seem to be perceived, by Shell, as a real threat to its corporate legitimacy and credibility. In short, both

34. *Valdez Bulletin.* Available online at http://www.exxon.mobil.com/news/publications/valdez_bulletin/990310.html
35. Greenpeace International 2001.
36. *Valdez Bulletin.* Available online at http://www.exxon.mobil.com/news/publications/valdez_bulletin/990310.html
37. Personal communication with Gerry Metthews, Shell International, Washington, March 2000, and Ir. Henk J. van Wouw, Shell Nederland B. V., November 2000. See also Neale 1997; and Shell 1996.

companies have been exposed to serious incidents that have been damaging for their reputation, although their responses have varied.

4.3. Capacity for Organizational Learning

Shell and ExxonMobil have until recently operated with significantly different organizational designs. The Shell Group has emphasized decentralization since its origin in 1907—the "McKinsey-derived matrix structure" which lasted from 1959 to 1995.[38] The matrix structure was unusually complex and the company had, for instance, no corporate headquarters.

During this period, Exxon's organizational structure can be described as the opposite of Shell's. Exxon has always been characterized by a very strong degree of centralization. However, the merger with Mobil brought about significant structural changes. First and foremost, ExxonMobil has moved from a multifunctional, geographically based regional organization to twelve global functional businesses organized in four core business areas.[39] Each of the functional units is accountable for their worldwide operations and performance. After the merger, therefore, the new company has somewhat relaxed the very strict central control of the organization, permitting branch offices and operative entities a larger degree of autonomy than previously.[40]

Shell, on the other hand, has moved away from the extraordinary level of decentralization towards a more centralized organizational design. In January 1996, the Service Companies were re-organized into four (now five) business operations co-ordinated by a Corporate Centre.[41] According to Neale, the new structure "re-creates a single, functional, line of command, and is intended to deliver 'greater clarity of roles and responsibilities'."[42] Thus the two companies, which until recently constituted opposite extremes in their choice of organizational design, have now moved towards each other and may be characterized as more similar than ever before. Shell's recent reorganization, however, also seems to have served to enable Shell to make better use of existing institutional devices for an enhanced organizational learning capacity.

Since 1971, Shell has explicitly addressed issues of uncertainty in its strategy formulation through scenario planning. The scenario approach is based on the understanding that "the only competitive advantage the company of the future will have is its managers' ability to learn faster than their competitors."[43] Today, Shell's scenario approach constitutes a central element in its formulation of a climate strategy. Shell anticipates a future in which low-carbon and renew-

38. Neale 1997.
39. ExxonMobil 1999b.
40. Personal communication with B. P. Flannery and G. Ehlig, Irving, Texas, March 2000; see also ExxonMobil press release, 2 December 1999, available online at http://www.ExxonMobil.
41. Neale 1997; and Shell 1996.
42. Neale 1997, 101. Citation by Neale from Shell 1996.
43. de Geus, cited in Neale 1997, 96.

able energy sources may cover as much as up to 50% of world energy demands by 2050, and this is the reason for Shell's investment in this field. The scenario approach enables a continual assessment of trends and developments that may affect its business in the future. ExxonMobil does not have a similarly structured approach to and assessment of future trends that may affect its business.

Thus both companies have instituted vertical structures equipped to ensure cross-divisional communication, co-ordination and management, which is essential for implementing a coherent company strategy worldwide. With its scenario planning, however, Shell nevertheless has a larger capacity for organizational learning than ExxonMobil.

4.4. Discussion

Similarities rather than differences dominate the picture of the company-specific features characterizing the Royal Dutch/Shell Group and ExxonMobil. The companies operate in the same areas of activity and their operative statistics also show a very large degree of similarity. Also both companies have experience with public scrutiny in relation to their activities. We have detected a slight difference between the two companies in their capacity for organizational learning, where Shell to a larger extent than ExxonMobil has institutionalized systems for monitoring environmental trends. Even on this dimension, however, after Shell's 1995 reorganization, the centralized structure of the two companies is similar. Thus, our analysis indicates a similarity that implies that the differences we have identified in the companies' approaches to the climate issue cannot be explained by these company-specific factors alone. It is important to note that while the two companies operate in the same global market, we have identified differences in the relative importance of the European and the US markets that provide an important backdrop for exploring the impact of factors related to the political context in these regions.

5. Explaining Climate Strategy: Political Context

With Shell's recent reorganization, both the Shell Group and ExxonMobil are multinational corporations firmly linked to a home-base country, from which their corporate strategies on issues such as climate change are developed and implemented. Shell is a European company closely linked to the Netherlands. Two faces of Shell appear in the Netherlands: Shell Netherlands B. V. and Shell International. Shell Netherlands constitutes a relatively large part of the Shell Group. For example, Shell's refining capacity in the Netherlands is more than twice as high as in the US. Shell International is located in the UK, but heavily influenced by Dutch culture, society and policy. This influence is effectively channeled through ownership (the Shell Group is 60% Dutch owned), representation in the boards of management and in the climate unit in Shell International. As pointed out by one observer: "Shell has its backbone in the Nether-

lands."[44] The identified differences between the two companies in the relative importance of the European and US markets, moreover, imply that national imprints overlap with market exposure in terms of risks and opportunities.

The significant differences observed in climate strategies between the two companies are thus possibly linked to differences in the domestic political contexts in which they are located. We investigate this proposition in terms of three factors: societal demands for climate policy, governmental supply of climate policy, and institutional linkages between demand and supply.

5.1. Societal Demands for Action on Climate Change

Societal demands for environmental protection may affect consumer behavior and corporations' reputation, and may thus affect how corporations engage in activities associated with environmental risk.

First, a number of studies have shown that Europeans have been much more receptive to proactive measures on climate change than North Americans.[45] Secondly, this difference appears particularly strong between the Netherlands and the US. The Netherlands is among the "greenest" countries in the world. Until the mid-1990s the environment was regarded as the most important societal problem in the Netherlands. In 1995, 60% of the population in the Netherlands was willing to pay higher prices for environmentally friendly products. Over 40% of the population was willing to pay higher taxes, if necessary, for an improved environment and was even willing to accept a lower standard of living.[46] This has led Shell to use the Netherlands as testing ground for the society's willingness to pay for environmental protection in general, and clean energy in particular.[47] From the mid-1990s there came a slight downward trend, when the environment shared its leading position with other issues such as crime and unemployment.[48]

While the environment is a leading issue on the political agenda in the Netherlands, environmental issues in the US have seldom been a major factor in national elections. Environmental protection is ranked in the US as issue number 8 in a recent Gallup poll and global warming is located at the bottom of the spectrum in spite of increased concern between 1999 and 2000.[49] According to Skolnikoff,[50] the role of public opinion is unclear because climate change is not a major issue on the public's agenda. A Gallup poll released in connection

44. Personal communication with Barend van Englenburg, 28 November 2000. Ministry of Housing, Spatial Planning and the Environment.
45. See Rowlands 2000 for comparisons of attitudes to climate change.
46. Ministry of the Environment 1997.
47. Personal communication with Barend van Engelenburg, 28 November 2000. Ministry of Housing, Spatial Planning and the Environment.
48. In the Netherlands, involvement in environmental issues, attention paid to environmental problems, and environmentally friendly behaviour has been monitored since the 1980s. See Bartels 1995.
49. Saad and Dunlap 2000.
50. Skolnikoff 1997.

with the Kyoto negotiations indicates that Americans are not willing to accept costs or a large share of the international burden to reduce the problem.[51]

Differences in public opinion are also reflected in the "strength" of the green movement and particularly the political parties—which all are important actors in translating public support for environmental protection into political power. In Europe and the Netherlands, environmental NGOs follow roughly the same fluctuations as public opinion and the Dutch "green" parties have had a relatively stable and high electoral basis since 1984. In 1998, political parties with green ties increased their share of seats in parliament—from 5 to 11 seats—thus indicating that the decline in Dutch awareness has been modest. The sensitivity of other political parties to public environmental concern helps explain why the Dutch greens have not had even stronger support.[52] Shell has been repeatedly exposed to campaigns and boycotts initiated by the "green" movement in Europe. For example, boycotts of Shell's petrol stations linked to the Brent Spar incident showed that losses from the boycott could be higher than the dumping alternative.[53]

While the environmental movement in the US is a vital force in American society and is generally held to be a significant factor concerning domestic environmental problems, it is not equally influential in relation to international problems.[54] Moreover, environmental NGOs are considered to be less influential in the US as compared to Europe.[55] The US party system is also significantly different from the Dutch system owing to the dominance of two parties and the lack of proportional representation. Two-party "winner-take-all" systems tend to be less sensitive to new societal demands than multiparty systems based on proportional representation.[56]

Thus, ExxonMobil and Shell have been exposed to significantly different societal pressures and opportunities on the issue of climate change. Societal demands are likely to have created market opportunities for clean energy for Shell and made Shell more vulnerable to consumer campaigns and loss of reputation in this issue area.

5.2. Governmental Supply of Climate Policy

In April 1993, then US President Clinton announced that the US had committed itself to reducing emissions of GHGs to their 1990 levels by the year 2000.

51. Gallup and Saad 1997.
52. Tak 1994, 11.
53. Estrada et al. 1997.
54. Dunlap 2000.
55. For example, Greenpeace-US in Washington D.C. has found it difficult to raise funding on climate change owing to low public concern even though US climate policy may be crucial to a viable climate regime (personal communication with Iain MacGill, Greenpeace, Washington D.C. 23 March 2000). The Bush administration's recent defection from the Kyoto Protocol, however, may also serve to raise public awareness of this issue, particularly as a result of the worldwide outrage that this move has caused.
56. Skjærseth 2000a.

There is little doubt that the Clinton-Gore Administration struggled to develop viable climate policy instruments, but its influence was limited. Suffice it here to recall the failure of the British thermal unit (BTU) tax, which was defeated in Senate (see 5.3).[57] Current political concern about climate change rests largely on scientific research mainly funded by the US federal government since the late 1950s.[58] US climate policy relies primarily on a number of public voluntary programs aimed at creating markets for more energy-effective technology.[59] These programs are genuinely voluntary and incentives to join them are mainly related to public image considerations. The petroleum industry participates along with other target groups in relevant programs, such as the Climate Wise Natural Gas Star programs. ExxonMobil has generally shown little interest in the programs arguing that none of them have led the company to take action departing from what it would have done in the absence of the programs.[60] The environmental effectiveness of these programs is hotly debated. According to the OECD, public voluntary programs are not likely to perform well in terms of environmental effectiveness.[61]

In November 1989, the Dutch government announced its decision to stabilize CO_2 emissions at the 1989/90 level by 1995 at the latest. In 1995, the CO_2 target was reformulated to 3% reduction by 2000 according to the 1990 level. The Netherlands has stepped up its climate policy since 1989 and is currently using all main categories of policy instruments in climate policy—including regulation, economic instruments and highly structured long term agreements (LTAs). Fourteen industrial sectors were selected as priority target groups involving some 12,000 companies responsible for over 90% of industrial pollution. The latest results show that a 17.4% increase in energy efficiency was achieved by 1998.[62] Economic instruments and regulations have been adopted mainly to support LTAs. The main policy instrument applying to the oil and gas production sector is an LTA concluded between the authorities and 12 companies and ventures in 1996. Oil companies are also affected by general regulation to increase energy efficiency by measures such as an increase in the use of co-generation. In 1995, the Dutch government decided to increase the share of renewable energy to 10% of total energy consumption by 2020. In 1996, the EU followed up with its intention to double its share of renewable sources of energy by 2010. In 1999, three new packages of climate policy instruments and measures were proposed in the Netherlands.[63]

Combined with regulatory pressure, the goals on renewables sent a clear signal to industry and they influenced Shell's decision to establish "Shell Inter-

57. The BTU tax was based on the heat content of fuel. It was expected to raise tax revenues to cut the federal deficit while at the same time leading to reduced GHG emissions by stimulating more efficient consumption of energy.
58. Agrawala and Andresen 1999.
59. US Climate Action Report 1997.
60. Personal communication with B.P. Flannery and G. Ehling, Irving, Texas, March 2000.
61. OECD 1999.
62. Skjærseth 2000b.
63. Ministry of the Environment 1999.

national Renewables" in 1997.[64] In turn, the European Petroleum Industry Association (EUROPIA) has adopted a significantly more proactive position on climate change due to the change in climate strategies of both Shell and BP Amoco.[65]

Dutch authorities are thus sending a clear signal to the industry, creating firm expectations of future regulations, by stepping up climate policy over time. This also leads to less uncertainty with regard to future market opportunities related to renewable energy sources. These signals correspond well with, and are actually linked to Shell's anticipation of a future in which renewable energy sources will account for a significantly increased share of energy demand.

Conversely, US climate policy leaves US companies with a relatively higher level of uncertainty with regard to future regulation and market opportunities. These signals also correspond well with the fact that ExxonMobil does not anticipate serious governmental regulations in this issue-area in the foreseeable future. The Bush administration has thus far proven ExxonMobil right.

5.3. Political Institutions Linking Demand for and Supply of Climate Policy

People and governments, or societies and states, are linked by institutions that channel influence. As noted, this relationship can—in stereotypic terms—be organized either as a conflict-oriented process where the state imposes standards and regulation on target groups excluded from the process, or as a collaborative, inclusive strategy where the state consults and negotiates goals and policy instruments with the target groups.

The US style of environmental regulation is almost the opposite of the Dutch approach. In the mid-1980s, Vogel described the US style as the most rigid and rule-oriented to be found in industrial society.[66] Ten years later, Wallace still holds that "the adversarial, legalistic approach to environmental issues has produced an inflexible, fragmented and confused regulatory system, which stifles innovation and so frustrates industry that opposition to environmental goals seems preferable to seeking creative solutions."[67] This also applies to the US oil industry. The American Petroleum Institute (API) paints a dark picture of an industry under severe pressure, partly due to strict and fragmented environmental regulations.[68] One consequence of this regulatory style is that many US companies have adopted a reactive attitude to environmental problems. Environmental action is taken in response to legislation and the companies abide by the law but do little more.

64. Personal communication with Ir. Henk J. van Wouw, Manager of Environmental Affairs, Shell Nederland B.V. 28 November 2000.
65. Personal communication with Valerie Callaud, EUROPIA, 30 November 2000.
66. Vogel 1986, 21.
67. Wallace 1995, 111.
68. Personal communication with Philip A. Cooney and William O'Keefe, API, Washington D.C., 21 March 2000.

Confrontation between target groups and regulating agencies has been institutionalized in the US since the 1970s. US legislators guarded against the fear of regulatory capture by biasing the Environmental Protection Agency (EPA) towards environmentalists rather than industrialists.[69] Adversarial behavior patterns are further stimulated by the court system. The threat of litigation leads to a lack of trust between regulators and the regulated, making it difficult to establish cooperative patterns. The API, which is heavily influenced by ExxonMobil and strongly resists US ratification of the Kyoto Protocol, on several occasions tried unsuccessfully to communicate with the Clinton-Gore Administration. API's perception is that the Administration has shown little interest in cooperation.[70] In January 2001 Bush Jr. took office and the relationship between API and the US Administration has improved considerably since then.

While formal access to the US administration has been limited, the openness and structure of the US government provides ample room for interested parties to influence the policy process, particularly in Congress.[71] The fate of the BTU tax is quite illustrative. When the tax proposal came to the Senate Finance Committee in 1993, it was clear that the proposal could be killed before a full vote in the Senate if one Democrat voted against it. API and a wide range of other industry interests mobilized by forming the American Energy Alliance to defeat the tax. Senator Boren from Oklahoma was the first to give in, thus sinking the tax proposal.[72]

In contrast, the Netherlands has generally strong neo-corporatist qualities and relies on industry self-regulation within binding frameworks, makes virtually no use of the courts, emphasizes flexibility and focuses intensively on close cooperation between target groups and the authorities, and between different governmental departments and agencies aimed at consensus-building. The Dutch collaborative style is closely linked to a tradition of consensual policy-making owing to the pillarization of Dutch society.[73] Dutch companies are thus used to actively participating in the development and implementation of environmental policy. According to Shell Netherlands, the company has a very good relationship with Dutch authorities on environmental matters.[74]

The use of negotiated agreements in the Netherlands rests on a cooperative tradition and is part of a comprehensive environmental policy in which target groups have participated actively all the way. The way in which the National Environmental Policy Plans (NEPPs) were developed represents a deepening and continuation of the target group approach. In a relatively short time, this

69. Wallace 1995.
70. Interview with Phil Cooney and Bill O'Keefe, API, Washington D.C., 21 March 2000.
71. Skolnikoff 1997.
72. Agrawala and Andresen 1999.
73. Liefferink 1995.
74. Personal communication with Ir. Henk J. van Wouw, Manager of Environmental Affairs, Shell Netherlands, The Hague, 29 November 2000.

approach led to approximately 100 negotiated agreements—covenants—covering all major industrial sectors. Negotiations between the government and industry—particularly the Netherlands Employers' Association (VNO)—produced a broad agreement on ambitious targets, including the CO_2 stabilization target and the goal of increasing energy efficiency by 20% between 1990 and 2000. However, industry ferociously resisted the up-coming carbon/energy regulatory tax and Shell was a key actor in this process at both the Dutch and EU levels.[75] In spite of the wrangling over the Dutch regulatory tax, the Dutch approach to climate policy has created a broad consensus between government and industry. Conversely, the US approach has contributed to creating strong opposition.

6. Conclusion

Our analysis shows that there are striking differences in the ways European-based and US-based oil companies have responded to the climate issue—here represented by the Royal Dutch/Shell Group and ExxonMobil. The Shell Group has adopted a proactive strategy, while ExxonMobil has adopted a reactive strategy. Because the company-specific features of the two corporations are so similar, they alone cannot explain the observed differences in their climate strategies. This observation is in line with Rowlands.[76]

On the other hand, we have identified significant differences in the national political contexts of the companies' home-base countries, suggesting that the explanation for different strategies might lie here. In general, *societal demands* for climate policy have been stronger in the Netherlands than in the US. Societal demands influence corporate strategy mainly through consumer behavior, reputation, and public image considerations.

There are also significant differences in the *governmental supply* of climate policies that have an impact on the companies' responses to the climate issue. The Netherlands aims at increasing the share of renewable energy to 10% by 2020 and has stepped up its climate policy instruments over time, thus sending a clear signal to the companies, which has affected Shell's strategy on renewables. In contrast, current political concern about climate change in the US rests largely on scientific research. The climate policy that has been adopted consists of public voluntary programs, which only sends vague signals to industry of what to expect in the future. Recently, the Bush administration has added to this uncertainty. This is highly consistent with ExxonMobil's perception of a future without serious governmental regulation of GHG emissions.

These differences are also reflected in the political institutions *linking* supply of and demand for climate policy in the two countries. In the US, a legalistic tradition and the exclusion of the oil industry in climate policy has stimulated

75. Schenkel 1998.
76. Rowlands 2000.

an adversarial process characterized by mistrust and intense lobbying efforts. In the Netherlands, the government has developed an inclusive and collaborative approach in which the oil industry has participated actively all the way. This approach thus invites and rewards a more proactive corporate strategy.

The match between expected and actual empirical patterns of the Domestic Politics model is strong, thus supporting this explanatory model. We have also pointed to a number of causal mechanisms at work linking the various dimensions of the DP model to corporate strategy choice in this case. Two mechanisms appear particularly important. First, a strong societal demand for climate policy interacts with a company's perception of the market opportunities offered by environmental protection measures. This may bring about a perception of a reduced risk associated with a proactive strategy. In addition, a proactive strategy reduces the risk of consumer boycotts. Second, a company's anticipation of future climate regulation may be decisive for its strategy choice. ExxonMobil's reactive strategy, for instance, can be viewed as sustainable only to the extent that future US regulation is perceived as unlikely. Whenever the link between demands for and supply of climate policy is strong, these mechanisms will reinforce each other. Thus, the national political context of each company seems to constitute an important determinant for its climate strategies.

The importance of national political context implies that the conditions for changing the climate strategy of reactive oil companies are likely to be located in the political context rather than in the companies themselves. Changes in *international* climate commitments may thus trigger significant changes in the strategies of the oil industry to the extent they affect the national political context in which the companies operate. Societal demands for climate policies, governmental supply of such policies, and the institutions linking demand for and supply of those policy represent—at least partly—changeable conditions. The principal conditions for change are likely to be changes in societal demands and governmental supply. Institutions linking demand and supply are more deeply rooted in specific national policy styles and thus less prone to rapid change.

The interplay between corporate positions and domestic political context may thus hold a potential to move the entire global oil industry towards a more proactive position on climate change. For multinational companies, changes in the companies' climate strategies may have ramifications around the globe. A national authority cannot require a part of a company operating in another country to comply with its climate policy. A multinational company, however, can require its branch offices in various countries to comply with corporate policy—which is likely to reflect the policy of its home country.[77]

The failure to reach an agreement at COP-6 in The Hague illustrates that international climate policy is still in a state of flux almost ten years after the signing of the *United Nations Framework Convention on Climate Change.* Multinational industries, such as the oil industry, are split on the issue. But the recent

77. See also Skodvin and Skjærseth 2001.

exodus of large companies from powerful lobbying groups, such as the Global Climate Coalition, may tilt the industry towards a more ambitious climate policy. The current US administration has, however, brought US climate policy back to square one. The EU is sensitive to US action because the business community supports EU climate policy only if it feels it is operating under equal competitive conditions. Conversely, the US is sensitive to what the EU does since a viable EU climate policy and a Kyoto Protocol in force without the US will put the US under political pressure. In other words, climate policy is today marked by contingent positions among key actors. The final outcome of this dynamic and interactive process is still undecided.

Previous academic work on such processes has focused primarily on states, societies, and international negotiations. To capture the totality of international climate policy processes, our analysis suggests that we have to place more emphasis on powerful multinational actors, such as the oil industry. In the end, this industry may be an important key for the development and implementation of a viable climate regime.

References

Agrawala, S., and S. Andresen. 1999. Indispensability and Indefensibility? The United States in Climate Treaty Negotiations. *Global Governance* 5: 457–482.

Andersen, M. S. 1993. *Ecological Modernization Between Policy Styles and Policy Instruments: The Case of Water Pollution Control*. Aarhus: Institute of Political Science, University of Aarhus.

Bartels, G. C. 1995. *Main Results of Environmental Communication Studies*. The Hague: Ministry of the Environment.

Doremus, P. N., W. W. Keller, L. W. Pauly, and S. Reich. 1998. *The Myth of the Global Corporation*. Princeton, New Jersey: Princeton University Press.

Dunlap, R. E. 2000. *Americans have Positive Image of the Environmental Movement*. Princeton: The Gallup Organization.

Estrada, J., K. Tangen, and H. O. Bergesen. 1997. *Environmental Challenges Confronting the Oil Industry*. Chichester: John Wiley & Sons.

ExxonMobil. 1998. Annual Report. Source: http://www.exxonmobil.com/.

_____. 1999a. Annual Report. Source: http://www.exxonmobil.com/.

_____. 1999b. Financial and Operating Review. Source: http://www.exxonmobil.com/.

_____. 2000. Annual Report. Source: http://www.exxonmobil.com/.

Flannery, B. P. 1999. Global Climate Change. *International Association for Energy Economics*. Newsletter, Third Quarter: 4–10.

Gallup, A., and L. Saad. 1997. *Public Concerned, Not Alarmed about Global Warming*. Princeton: The Gallup Organization.

Ghobadian A., H. Viney, J. Liu, and P. James. 1998. Extending Linear Approaches to Mapping Corporate Environmental Behaviour. *Business Strategy and the Environment* 7: 13–23.

Greenpeace International. 2001. *Greenpeace to Target US Oil Companies*. Press Release, 26 April.

Grubb, M. 1999. *The Kyoto Protocol: A Guide and Assessment*. London: The Royal Institute of International Affairs.

Hass, J. L. 1996. Environmental ('Green') Management Typologies: An Evaluation, Operationalization and Empirical Development. *Business Strategy and the Environment* 5: 59–68.

Jänicke, M. 1992. Conditions for Environmental Policy Success: An International Comparison. In *Environmental Policy in Europe: Assessment, Challenges and Perspectives*, edited by M. Jachtenfuchs and M. S. Strübel. Baden-Baden: Nomos.

Ketola, T. 1993. The Seven Sisters: Snow Whites, Dwarfs or Evil Queens? A Comparison of the Official Environmental Policies of the Largest Oil Corporations in the World. *Business Strategy and the Environment* 2 (3): 22–33.

Liefferink, D. 1995. *Environmental Policy in the Netherlands: National Profile.* Paper prepared for the workshop: New Nordic Member States and the Impact of EC Environmental Policy. Sandbjerg, Denmark, 6–8 April. Wagening Agricultural University.

Ministry of the Environment. 1997. *Second Netherlands' National Communication on Climate Change Politics.* The Hague.

_____. 1999. *The Netherlands' Climate Policy Implementation Plan.* The Hague.

Neale, A. 1997. Organisational Learning in Contested Environments: Lessons from Brent Spar. *Business Strategy and the Environment* 6: 93–103.

Newell, P. 2000. *Climate for Change: Non-State Actors and the Global Politics of Greenhouse.* Cambridge: Cambridge University Press.

OECD. 1999. *Voluntary Approaches for Environmental Policy: An Assessment.* Paris: OECD.

Pauly, L. W., and S. Reich. 1997. National Structures and Multinational Corporate Behaviour: Enduring Differences in the Age of Globalization. *International Organization* 51 (1): 1–30.

Post, J. E., and B. W. Altman. 1992. Models of Corporate Greening: How Corporate Social Policy and Organizational Learning Inform Leading-Edge Environmental Management. *Research in Corporate Social Performance and Policy* 13: 3–29.

Risse-Kappen, T. 1995. *Bringing Transnational Relations Back In: Non-State Actors, Domestic Structures and International Institutions.* Cambridge: Cambridge University Press.

Roome, N. 1992. Developing Environmental Strategies. *Business Strategy and the Environment* 1, Part 1: 11–25.

Rowlands, I. H. 2000. Beauty and the Beast? BP's and Exxon's Positions on Global Climate Change. *Environment & Planning C: Government and Policy* 18 (3): 339–354.

Schenkel, W. 1998. *From Clean Air to Climate Policy in the Netherlands and Switzerland—Same Problems, Different Strategies?* Berlin: Peter Lang.

Shell. 1996. Annual Report. Available at http://www.shell.com/.

_____. 1998. Annual Report. Available at http://www.shell.com/.

_____. 1999. Annual Report. Available at http://www.shell.com/.

_____. 2000a. The 2000 Shell Report. Available at http://www.shell.com/.

_____. 2000b. Annual Report. Available at http://www.shell.com/.

_____. 2000c. Shell Tradeable Emission Permit System (STEPS). Available at http://www.shell.com/

Skjærseth, J. B. 2000a. *North Sea Cooperation: Linking International and Domestic Pollution Control.* Manchester: Manchester University Press.

_____. 2000b. Environmental "Voluntary" Agreements: Conditions for Making Them Work. *Swiss Political Science Review* 6 (2) Summer.

Skodvin, T., and J.B. Skjærseth. 2001. Shell, Houston, We Have a Climate Problem! *Global Environmental Change* 11 (2): 103–106.

Skolnikoff, E. B. 1997. Same Science, Differing Policies: The Saga of Global Climate Change. MIT Joint Program on the Science and Policy of Global Change. Report No. 22. Cambridge, MA: MIT Press.

Steger, U. 1993. The Greening of the Board Room: How German Companies are Dealing with Environmental Issues. In *Environmental Strategies for Industry: International Perspectives on Research Needs and Policy Implications*, edited by K. Fischer and J. Schot. Washington D.C.: Island Press.

Saad, L., and R. E. Dunlap. 2000. *Americans are Environmental Friendly, but Issue not seen as Urgent Problem.* Princeton: The Gallup Organization.

Tak. 1994. Shades of Green: Political Parties and Dutch Environmental Policy. In *Rhetoric and Reality in Environmental Policy: The Case of the Netherlands in Comparison with Britain*, edited by M. Wintle and R. Reeve. Aldershot: Ashgate.

Underdal, A., and K. Hanf, eds. 2000. *International Environmental Agreements and Domestic Politics: The Case of Acid Rain.* Aldershot: Ashgate.

US Climate Action Report. 1997. Washington DC: Department of State Publications 10496.

van der Veer, J. 1999. *Sustainable Solutions Support Sustainable Business.* Speech, issued 26 May. Available at http://shell.com/library/speech/0,1525,3893,00.html.

Vogel, D. 1986. *National Styles of Regulation: Environmental Policy in Great Britain and the United States.* London: Cornell University Press.

Wallace, D. 1995. *Environmental Policy and Industrial Innovation: Strategies in Europe, the US and Japan.* London: Earthscan.

Watts, Phil. 1997. *Taking Action to Earn Trust—Health, Safety and the Environment.* Speech, issued 22 September, 1997. Available at http://www.shell.com/library/speech/0,1525,2304,00.html.