

# Oil Companies and Climate Change: Inconsistencies between Strategy Formulation and Implementation?

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## 1. Introduction

A significant share of global greenhouse gas (GHG) emissions stems from the activities of multinational oil companies. In 2004, GHG emissions from production operations of the three oil majors BP, ExxonMobil, and Shell were about 330 million tons of CO<sub>2</sub> equivalent.<sup>1</sup> This amounts to as much as half of the total GHG emissions of the UK, the second largest EU emitter.<sup>2</sup> And yet, emissions from company production are small relative to the emissions that result from the consumption of sales of hydrocarbon products. BP, for instance, estimates that the consumption of its products in 2004 resulted in 1376 million tons of CO<sub>2</sub>.<sup>3</sup> This is more than Germany's total annual emissions, which stood at around 1000 million tons of CO<sub>2</sub> in 2002.<sup>4</sup> Accordingly, whether multinational oil companies make efforts to reduce the GHG emissions from their production and their products does make a difference for the mitigation of climate change.

Multinational oil companies have formulated varying climate strategies.<sup>5</sup> At the one end of the scale is ExxonMobil, which has not fully acknowledged the potential impact of GHG emissions and remains opposed to the Kyoto Protocol.<sup>6</sup> Accordingly the company is generally seen as having adopted a reactive strategy. Conversely, Shell and BP are regarded as proactive oil companies, not only because they have acknowledged the challenge of climate change, but also because they support the Kyoto Protocol and have set targets for greenhouse gas emissions in their business operations.

1. BP 2005a; Shell 2005a; and ExxonMobil 2005a.

2. EEA 2004.

3. BP 2005a.

4. EEA 2004.

5. See for instance Skjærseth and Skodvin 2001; Skjærseth and Skodvin 2003; and Skjærseth 2005.

6. This article focuses on the period 1998 to 2005. It is not meant as a comment on current corporate strategies toward climate change, but rather a study of the relationship between corporate climate strategies and implementation.

The *political* consequences of these contrasting statements and goals are quite well documented.<sup>7</sup> ExxonMobil has aimed to prevent a strong US climate policy and put the entire Kyoto Protocol out of action by lobbying against any binding targets and timetables for the US. ExxonMobil and the US fossil fuel industry were instrumental in Washington's rejection of the Kyoto Protocol. By contrast, BP and Shell have made efforts to exploit new market opportunities for a viable climate policy, setting an example in corporate GHG reporting and verification as well as developing internal emissions trading schemes that have partly inspired the initiation of the EU emissions trading scheme (EU ETS).

Whereas differences in the *formulation* of corporate climate strategies and their political implications are fairly well understood, less is known about differences in *implementation*. The relationship between climate strategy formulation and implementation is important in revealing what oil companies actually do to reduce the impact of their business operations on the problem of climate change. Some scattered observations indicate that the relationship between strategy formulation and what companies do in practice is not clear-cut. ExxonMobil, for example, has made significant investments in co-generation that have increased energy efficiency and accordingly reduced GHG emissions from its refineries. Shell, on the other hand, has made some coal-based investments in energy production that are not in accordance with a proactive climate strategy.<sup>8</sup>

This article examines the relationship between oil companies' climate strategy formulations and the investments they make in measures to reduce GHG emissions from their own production operations as well as from the consumption of energy products. Do the companies' efforts reflect their strategies? If not, how can we explain inconsistency between strategy formulation and implementation? The analysis of the last question is somewhat exploratory and less conclusive than the discussion of the first. Still, we consider the available data to be sufficient to enable us to investigate propositions which may serve to explain these inconsistencies.

The article is part of a broader project on investment strategies of major oil and gas companies carried out between 2002 and 2005. Data collection is partly based on a database report on similarities and differences in business strategies of major upstream oil and gas companies prepared for this project.<sup>9</sup> Analyses of corporate annual reports, other company position papers, media reports and secondary studies have also been important. Some oral information has been collected from companies in cases where written material was insufficient. Although no systematic interviews have been conducted for this article, it draws

7. See *ibid*, footnote 5.

8. Eikeland, Hasselknippe, and Andreassen Sæverud 2004.

9. Eikeland, Hasselknippe, and Andreassen Sæverud 2004. This article deviates, however, from the broader project in two important ways. First, it draws on a broader data-set in mapping strategies and implementation. Second, and most importantly, it aims at explaining the relationship between corporate climate strategies and implementation.

on several interviews with ExxonMobil and Shell conducted for an earlier study on climate change strategies in the oil industry.<sup>10</sup>

The article focuses on the period 1998 to 2005 and is structured as follows.<sup>11</sup> Section two presents the conceptual framework. We discuss the meaning of strategy formulation and implementation, and present possible explanations for deviations between climate strategy formulation and implementation at three levels: within the company, in different regional political contexts, and at the international level. Section three presents the climate strategy formulations of the three companies in the period 1998–2005. General measures and investments/divestments in climate-friendly activities are catalogued in section four of the article, before explanations for observed deviations are discussed in section five. Finally, we conclude with an assessment of policy implications from our discussion.

## 2. Climate Strategy Formulation and Implementation

### 2.1. *Defining Strategy Formulation and Implementation*

The climate strategy of a company is revealed both through the company's objectives and goals concerning climate change and the actual mobilization of resources (or failure of such) to achieve those objectives and goals. We consider a company's statements of objectives and goals as its climate strategy formulation, while actual mobilization of resources is defined as its climate strategy implementation. The motives and processes behind the development of objectives may vary.<sup>12</sup> At company level, we may first distinguish between strategy formulation processes rooted in the expectations of external stakeholders, and processes evolving from internal processes. Objectives may reflect a company's external public relations position rather than the outcome of an internal process of strategy formulation. Second, we may distinguish between the extent to which internal processes involve many or few planners. Objectives may reflect the preferences of a few senior executives rather than a broad-based consensual process.

Companies' environmental and climate strategies have been categorized in various ways. The business environmental management literature tends to distinguish between reactive/defensive, proactive/offensive, indifferent, and innovative strategies.<sup>13</sup> With regard to climate change strategies, these categories have been further refined and specified.<sup>14</sup> For the purpose of this article, which is to understand the relationship between strategies and implementation rather

10. Skjærseth and Skodvin 2003.

11. 1998 was chosen as a starting point because that was when Shell withdrew from the reactive Global Climate Coalition and, like BP, took a proactive stance on climate change.

12. See Bourgeois and Brodwin 1984; and Mintzberg 1993.

13. See Steger 1993.

14. On this see e.g. Levy and Kolk 2002; and Kolk and Pinkse 2005.

than different strategies, we apply a simple distinction between reactive and proactive strategies. Notice that reactive does not mean passive: a reactive company anticipates external change and works actively against it. The difference between proactive and reactive thus lies in the *direction* of response rather than the level of activity. Given a certain environmental risk inherent in a company's activities, a proactive company motivated by profits and survival will exploit the market opportunities created by regulations of greenhouse gas emissions, and will support or go beyond environmental regulation. Conversely, a reactive company will deliberately leave the market opportunities created by regulations of greenhouse gas emissions unexploited and actively oppose environmental regulation.

The essence of a reactive strategy formulation is active denial of responsibility for the environmental problem at hand—as opposed to a proactive strategy which means acceptance of responsibility. Accordingly, a company that acknowledges the problem of human-induced climate change, that is in favor of the Kyoto Protocol and has adopted GHG emission targets, will be seen as having a proactive climate change strategy formulation.<sup>15</sup> In contrast, a company that does not acknowledge the problem of human-induced climate change, that opposes the Kyoto Protocol and has not adopted emission targets, is defined as a company with a reactive climate strategy formulation. As shown in the next section, each of the three companies selected for closer scrutiny here belongs to one of these two extreme categories of climate change strategy formulation.

Implementation of a company's climate strategy in its business operations includes the mobilization of resources to accomplish the strategy, with the establishment of a proper organizational structure and investments and measures affecting GHG emissions from company operations.<sup>16</sup> Actual investments demonstrate genuine commitment to implementation, since investments are most directly related to the application of climate-friendly technologies and accordingly emission reductions. We will thus pay particular attention to the investment/divestment aspect of implementing the climate strategies of the three companies studied here.<sup>17</sup>

15. Skjærseth and Skodvin 2003, 15. Since we are concerned with the relationship between strategy formulation and implementation, we have omitted the fourth indicator suggested by Skjærseth and Skodvin (2003) in their definition of the more overarching "climate strategy." The fourth indicator, the degree of reorientation in the company's core business, is related to investments and is instead treated as part of the climate strategy implementation in this article.
16. Since the focus is on how strategy formulation affects the companies' own business operations, we have not analyzed the political consequences of strategy formulations, for instance lobbying.
17. It might be argued that supply chain management should have been included as part of how a company implements a strategy in its business operations. However, available data do not allow a proper analysis of this in relation to climate change; moreover, we do not believe that including supply chain management would have altered the main conclusions in this article substantially.

## 2.2. *Explaining the Relationship between Strategy Formulation and Implementation*

We seek explanations for the relationship between strategy formulation and implementation at three levels: (1) at the company level, 2) in the political framework conditions in different regions where the companies operate, and 3) at the level of international climate cooperation.<sup>18</sup> At company level, the interrelation between objectives is one key to coherence and consistency.<sup>19</sup> The inherent conflict between an oil company's core business and climate mitigation, and how this conflict is handled, is important for the relationship between climate strategy formulation and implementation. One approach to this conflict is not to acknowledge responsibility for the challenge of climate change, i.e. to adopt a reactive climate strategy formulation. And one explanation for investments that may seem inconsistent with a reactive strategy may simply be that these investments are in line with the core business of the company, i.e. they serve as a means of serving other company goals. For companies that have chosen a proactive climate strategy formulation, the inherent goal conflict may have to be dealt with later, in the implementation phase.

As previously noted, there may be varying motives behind a proactive climate strategy formulation and different ways to deal with interrelated objectives. First, a proactive climate strategy may simply reflect a company's external public relations position—"as a facade to impress outsiders."<sup>20</sup> It is tempting to assume this motive will result in implementation failure. However, we would expect some degree of consistency between statements and action, owing to the reputation risks facing companies that fail to live up to their aspirations and standards. Strong language and mission statements will not only create expectations among the public at large and environmental organizations, but also among employees, shareholders and investors. This is particularly the case with multinational oil companies because they have well-known brand names and high visibility.<sup>21</sup>

Fear of damaging the company image is probably not enough to ensure consistency between a proactive climate strategy formulation and implementa-

18. This overall approach is based on Skjærseth and Skodvin 2003. Here, the first company level explanation is referred to as the Corporate Actor (CA) model which is based on contributions from the business environmental management literature. The CA model focuses on factors internal to the companies. The second model, referred to as the Domestic Politics (DP), is based on the assumption that even multinational companies are heavily influenced by the political context of their home-based countries where they have their historical roots, have located their headquarters and often have their main activities. The DP model is based on theories of state-society relationships. The last perspective is referred to as the International Regime (IR) model. This model takes us from domestic to international politics, and is based on the assumption that the key sources of corporate strategies are found within the context of international regimes rather than in the political context of the companies' home-base countries. This model is based on international regime approaches and emphasizes how international environmental regimes may trigger changes in corporate strategy choice.

19. Andrews 1987, 15.

20. Mintzberg 1993, 41.

21. Kolk 2000, 89.

tion in situations of goal conflict. Whether new goals like climate change will be prioritized is likely to depend upon the extent to which climate strategies are well integrated in the company. Bourgeois and Brodwin<sup>22</sup> distinguish five ideal types of strategy implementation. The main difference between these types or models is the time and energy invested and the number of planners involved in strategy formulation versus implementation. If there are few planners involved, the organization will have to be “manipulated into implementation.”<sup>23</sup> This will increase the need for organizational effort in the implementation phase. We assume that such commitment is likely to be stronger if the corporate climate strategies are rooted or integrated in the leadership of the company and if there have been established clear lines of accountability for the issue including the top management of the company.<sup>24</sup> Conversely, we would expect almost instant implementation if the strategy formulation process is based on consensual decision-making that involves many planners.

The second cluster of explanatory factors concerns the political context in the various regions where the companies operate. Previous analysis of corporate climate strategies has shown that the relationship and interplay between company internal factors and political context is important for understanding why the oil majors have adopted different climate strategies.<sup>25</sup> This line of reasoning is equally relevant when it comes to explaining the relationship between strategy formulation and implementation. Governmental regulation has been seen as an important factor behind the “greening” of industry since the UN Conference on Human Development in Stockholm in 1972.<sup>26</sup> A viable climate policy based on clear targets and mandatory policy instruments can reduce uncertainty, create regulatory pressure, and provide market opportunities for companies. The three companies examined here are truly multinational, with operations in both the EU and the US (as well as throughout the world). In contrast to the US, the climate policy of the EU is based on clear reduction targets for GHG emissions and mandatory policy instruments. With differing regulatory framework conditions, the three companies are squeezed between two different climate policy contexts. Previous empirical findings indicate that there is a stronger push “upward” for reactive companies that are based in the US and have significant operations in Europe than the other way around.<sup>27</sup> We thus assume that the link between climate strategy and implementation will be strong if the climate strategy is in line with the climate policy in the most important markets. If not, the companies will experience conflict between company goals and the political context in the implementation phase, possibly leading to mismatch between formulation and implementation.

22. Bourgeois and Brodwin 1984.

23. Bourgeois and Brodwin 1984, 260.

24. IISD 1992; Kolk 2000, 72; and Rowlands 2000.

25. Skjærseth and Skodvin 2003.

26. Falkner 1996.

27. Skjærseth and Skodvin 2003.

Finally, we seek explanation for the relationship between strategy formulation and implementation at the global level. Goal conflict may evolve between corporate climate strategy formulations and changing international commitments, particularly the Kyoto Protocol and related commitments. In the run-up to the 1992 UN Framework Convention on Climate Change (UNFCCC), all major oil companies vigorously opposed any mandatory regulation of GHG emissions, and the UNFCCC did not oblige the parties to undertake such action. The match between the climate strategies of the major oil companies and international commitments was thus high. Since then, however, the climate regime has developed despite continuing opposition from parts of the affected industry. Today, the Kyoto Protocol has entered into force without the US, but still stands as a potent international political force that has affected, and will probably continue to affect, what multinational oil companies do in the field of climate change on either side of the Atlantic. Even though the Kyoto Protocol can provide energy-intensive companies in the US with a competitive advantage if energy prices in Annex B countries increase, we assume that the link between climate strategies and implementation will be strengthened when corporate climate strategy formulations increasingly fall into line with international commitments and developments in the climate regime.

In conclusion, then, we expect a high degree of consistency between climate strategy formulation and implementation if:

- climate strategies are integrated in the leadership of the company and clear lines of accountability within the top management have been established;
- climate strategies involve many planners and are based on consensual decision-making;
- the climate strategy is in line with climate policy in the most important markets;
- climate strategies are increasingly in line with relevant international commitments.

We can thus expect a high degree of consistency between strategy and implementation if climate strategies are well integrated in the company and increasingly in line with developments in regional and global climate policy. Here it should be noted that “lack of consistency” may also refer to companies that do *more* than their strategies would suggest.

### 3. Climate Strategy Formulations

We have considered the oil companies’ statements of objectives and goals as climate strategy formulation. More specifically we assess the companies’ strategy formulation according to whether they acknowledge the problem of human-induced climate change, are in favor of the Kyoto Protocol, and have adopted GHG emission targets. Since it is the official positions that interest us here, we

have analyzed the companies' annual reports and annual environmental reports in order to categorize the climate strategy formulations.

ExxonMobil, Shell, and BP are among the largest companies in the world—irrespective of sector. In the prelude to the UNFCCC, these companies were united in their opposition to binding climate targets. Action on global warming was seen as a threat since the oil industry earns its livelihood from oil, gas, and coal—the main sources of emissions of greenhouse gases.

BP was the first of these companies to change from a reactive to a proactive climate strategy formulation. In 1996, it withdrew from the oppositional Global Climate Coalition (GCC), which was characterized as the most powerful lobby organization in climate policy.<sup>28</sup> BP then accepted the climate change problem as diagnosed by the Intergovernmental Panel on Climate Change (IPCC) and gave its support to the Kyoto Protocol. In 1998 BP's strategy formulation developed further in a proactive direction when the company adopted GHG emission reduction targets aimed at reducing its greenhouse gas emissions by 10 percent (relative to 1990 levels) by 2010.<sup>29</sup> In 2002, a new target of no increase in net emissions by 2012 compared to 2001 levels was set, regardless of any organic growth in the company's businesses.<sup>30</sup> Throughout the period studied (1998–2005) BP's climate strategy formulation has remained proactive, and the company's statements with regard to the scientific basis for the concern about human-induced climate change have developed in accordance with IPCC assessments about the connection between anthropogenic GHG emissions and global climate change. In its 2004 *Sustainability Report* BP acknowledges climate change as "one of the greatest challenges in the 21st century" and states that "as a major supplier of energy, BP believes it has a responsibility to take a lead in finding and implementing solutions to climate change."<sup>31</sup> In its 2000 environmental report BP also refers to the importance of internationally agreed solutions to mitigate climate change, especially the market mechanisms included in the Kyoto Protocol.

Shell followed BP and withdrew from the GCC in 1998. Throughout the period studied, Shell has acknowledged the challenge of climate change and stated that precautionary measures are needed. In 1998, the company also stated its support for the Kyoto Protocol and adopted a reduction target, intending to reduce emissions by 10 per cent (relative to 1990 levels) by 2002. In 2002, Shell introduced a new reduction target—a 5 percent reduction of GHG emission from facilities worldwide by 2010, below 1990 levels. In addition, Shell's businesses—upstream as well as downstream—have targets for energy efficiency improvements to be met by 2007. Shell's goal is to end continuous flaring by 2008.<sup>32</sup> In conclusion, both BP and Shell have since 1998 acknowl-

28. Raustiala 2001.

29. BP 1999; and Victor and House 2006.

30. Ibid.

31. BP 2005a.

32. Ibid.

edged the problem of human-induced climate change in accordance with the prevailing assessments of the scientific bodies of the United Nations. The companies are in favor of the Kyoto Protocol and have adopted GHG emission targets in their business operations. Their strategy formulations accordingly belong in the *proactive* category.

In sharp contrast to these two European companies, ExxonMobil has in the years 1998–2005 continued to oppose mandatory greenhouse gas regulations. The company took the stance that climate change is an important issue, but that it did not believe that the scientific knowledge available at the time justified mandatory restrictions. The Kyoto Protocol was dismissed as an unrealistic alternative, and ExxonMobil did not establish explicit GHG emission reduction targets and measures for its own operations. Hence, its climate change strategy formulation was clearly reactive. A new formulation first incorporated in the 2001 sustainability report might, however, be an indication that ExxonMobil has taken a small step away from the extreme end of the spectrum: “ExxonMobil recognizes that although scientific evidence remains inconclusive, the potential impacts of greenhouse gas emissions on society and ecosystems may prove to be significant.”<sup>33</sup>

From these climate strategy formulations, we would expect Shell and BP to have invested significantly more than ExxonMobil in activities to reduce GHG emissions in the whole period under study.

#### 4. Implementation of Climate Change Strategies

The core business of an oil company, the production of oil and gas, inevitably leads to emissions of greenhouse gases both in the production process and with the end users’ consumption of the products. Most investments in the companies in the period studied were directed at protecting their “core competencies” in upstream oil and gas production, through mergers and acquisitions as well as geographical spread into new regions. Differences in these investments will not be used as an indicator of differences in implementation. Our focus is investments/divestments compatible with the core business but with an effect on GHG emissions. These investments are related either to the companies’ upstream and downstream oil and gas production, or to changes in consumption patterns in the energy markets. The latter type of investment, e.g. in renewable energy, could change a company’s portfolio and make the core business of oil and gas less important over time.

Upstream and downstream oil and gas activities lead to emissions of two greenhouse gases in particular: carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>).<sup>34</sup> Main investments that can reduce GHG emissions at production facilities are:

33. ExxonMobil 2001.

34. Emissions of CO<sub>2</sub> stem primarily from flaring and combustion of fuels for energy production; flaring and venting are the main sources of CH<sub>4</sub> emissions.

- energy efficiency improvements, upstream and downstream<sup>35</sup>
- reduction of venting and flaring
- CO<sub>2</sub> capture from the companies' production facilities and subsequent storage or use for improved oil recovery.

Investments related to consumption patterns in the energy markets that affect the emissions of GHG generally take the form of investments in other energy sources (renewables, coal) than oil and gas which may affect total GHG emissions from end consumption of energy products. Investment data on these activities vary in terms of reliability and comparability, but seem sufficiently reliable for the purpose of this study—to identify comparative relationships between strategy formulation and implementation.

We can see immediately from the patterns shown in Table 1 that the relationship between strategies and implementation is roughly as expected. There is generally a high level of consistency between what the companies say and what they do. ExxonMobil has a reactive climate strategy formulation, and has not adopted any significant measures to reduce greenhouse gas emissions in its operations. Moreover, it has invested in a narrower range of activities aimed at reducing GHG emissions compared to BP and Shell. This is particularly evident concerning investments in renewables and carbon capture and storage (CCS). After experiencing financial loss when it ventured into the renewable energy business in the 1970s, ExxonMobil has not invested in renewable energy.<sup>36</sup> Neither has ExxonMobil emphasized carbon capture and storage, as indicated by its non-participation in the Carbon Capture Project (CCP)—the first significant international industry initiative aimed at further research and development of the measure.

Also the cases of BP and Shell reveal a high degree of consistency between the companies' proactive climate strategy formulations and their actual measures and investments for reducing greenhouse gas emissions. Both companies have introduced general measures intended to trigger GHG-reducing investments at company production facilities, including internal emissions trading schemes in the periods 1999–2002 (BP) and 2000–2002 (Shell). Moreover, both companies achieved their respective 10 per cent reduction targets referred to above. Since 2000, Shell has also been incorporating carbon costs in major projects. In addition, the two companies have adopted energy-saving programs, and have made investments in reduction of flaring and venting as well as investments in R&D on carbon capture and storage which are in line with the proactive formulations of their climate strategies. For investments concerning consumer patterns, both BP and Shell have divested themselves of coal mining

35. It is often difficult to distinguish between investments aimed specifically at increasing energy efficiency, and energy efficiency improvements as a consequence (or side-effect) of general technological development. Because of the significant impact on GHG emissions resulting from increased energy efficiency, we will nevertheless include these investments as GHG-reducing investments.

36. Eikeland et al. 2004.

**Table 1**  
Measures and Investments 1998–2005 \*

	BP	ExxonMobil	Shell
<b>Company production facilities</b>			
<i>General measures</i>	Yes	No, but has started reporting of GHG emissions	Yes
<i>Energy efficiency</i>	Yes, both general measures and co-generation	Yes, significant investments in co-generation	Yes, emphasis on improvements that can be achieved with little or no capital investment
<i>Flaring and venting</i>	Yes	Yes	Yes, but the company has difficulties in meeting flaring regulations in Nigeria
<i>Carbon capture and storage</i>	Yes, significant	Some involvement in R&D	Yes, involvement in R&D
<b>Consumer patterns</b>			
<i>Divestment in coal mining</i>	Yes	Yes	Yes
<i>Investments in power generation based on coal</i>	No information on such investments in annual reports	Yes, but minor	Yes, significant
<i>Investments in renewables</i>	Yes	No	Yes

\* In relative terms

involvement and made significant investments in renewable energy—in sharp contrast to the absence of renewable investments by ExxonMobil. By 2003 Shell and BP figured as two of the main manufacturers of solar power, each responsible for around 20 percent of total solar power installed globally. In addition both companies have committed resources to wind energy.<sup>37</sup>

Nevertheless, Table 1 indicates some deviations from our main expectations. Shell has done somewhat less than expected, whereas BP's activities are mainly in line with its strategy formulation. In addition we can see that ExxonMobil has in fact done somewhat more than its reactive climate strategy formulation would suggest. Notice that these deviations are relative to the companies' own strategies and do not suggest that Exxon has accomplished more than Shell in absolute terms.

The deviations in ExxonMobil's implementation concern energy efficiency, flaring and venting, coal and reporting of GHG emissions. First, ExxonMobil has made investments in energy efficiency—co-generation—that have had a significant effect on CO<sub>2</sub> emissions from the company's operations. Starting already in the 1970s, by 2005 ExxonMobil had installed around 3300 MW of co-generation at its refineries, chemical plants, and natural gas processing plants worldwide.<sup>38</sup> Second, ExxonMobil has made investments aimed at reducing flaring, like the 73 percent reduction at the Baytown refinery in Texas which also has resulted in the development of a flaring reduction manual.<sup>39</sup> ExxonMobil is also said to perform relatively well, and considerably better than Shell, with regard to flaring in Nigeria, the country where by far the largest portion of flaring takes place.<sup>40</sup> Another deviation from the general pattern is ExxonMobil's investments in coal mining in the period studied, which implies a reduction of the carbon content of the company's portfolio. Finally, early in 2003, ExxonMobil decided to report its greenhouse gas emissions, and the company is now backing mandatory reporting.<sup>41</sup> In the case of Shell, the inconsistencies between formulation and implementation concern energy-efficiency, flaring, CCS, and power production based on coal.<sup>42</sup> First, Shell's investments in co-generation seem minor compared with both ExxonMobil and BP. Shell has

37. Ibid.

38. ExxonMobil 2005a. According to the company itself, investments in co-generation have reduced CO<sub>2</sub> emissions by 8 million tons per year. Energy conservation efforts have from 1999 to 2003 saved enough energy to supply European households with electricity for one year. Co-generation investments in 2004 and planned investments in 2005 will amount to US \$ 1 billion (ExxonMobil 2005a).

39. Ibid.

40. ERA 2005. Estimates of CO<sub>2</sub> emissions from flaring in Nigeria vary between 34 million tons and 70 million tons annually. "Natural gas flaring has contributed more emissions of greenhouse gases than all other sources in sub-Saharan Africa combined" (ERA 2005).

41. Eikeland et al. 2004.

42. No information on investments in co-generation is found in Shell's sustainability report or on the company's website. Repeated requests to Shell in order to check the validity of this information received no response.

launched an energy efficiency program, Energise TM, to help downstream operations reduce their energy consumption, but this focuses on improvements that can be achieved with little or no capital investment. The majority of savings are accordingly made through improving operational practices. Today there has been an estimated 350 000 tons of CO<sub>2</sub> avoided per year.<sup>43</sup> In comparison BP's investments in co-generation of more than 4000 MW are comparable to those made by ExxonMobil. BP claims that they have saved around 6 million tons of CO<sub>2</sub> emissions each year compared to emissions from conventional electricity supply.<sup>44</sup> Second, the proactive strategy formulation would lead us to expect that Shell would achieve at least as much as required by governmental regulations concerning flaring reduction in Nigeria, but the company has not been able to meet governmental regulations or its own targets.<sup>45</sup> Some sources even state that flaring from Shell's operations in Nigeria has increased since 2003.<sup>46</sup>

CCS is the third area where Shell does not fully live up to its proactive strategy formulations. Shell is involved with funding several R&D projects together with industrial partners, governments and research institutions, and unlike ExxonMobil is participating in the industry-driven CCP. Shell also set up a carbon capture team within the company in 2002, indicating an increased focus on CCS.<sup>47</sup> However, unlike BP, Shell has not undertaken investments in full-scale carbon storage on production facilities where the company is an operator. In comparison to BP, Shell therefore seems less committed to actual implementation of this measure in the period studied. Shell is also involved in significantly fewer R&D projects on carbon capture and storage than BP. Unlike Shell, BP is developing a full-scale CO<sub>2</sub> storage project at one of its sites, the In Salah gas field in Algeria, resulting in the storage of 900,000 tons of CO<sub>2</sub> annually. BP also heads the plans for the world's first gas-fired hydrogen power station in Scotland, incorporating CO<sub>2</sub> capture and injection for enhanced oil recovery. It should be mentioned that Shell is one of several partners involved in this.

A final deviation from the main pattern expected from Shell's proactive statements is found in the company's investments in coal-based power generation, equaling 3000 MW. These investments were undertaken through its subsidiary, InterGen, in which Shell was still involved until 2005.<sup>48</sup>

To sum up, BP emerges as the only company with significant measures and investments in all activities that can reduce GHG emissions in the period studied. ExxonMobil has done somewhat more than its reactive climate strategy would suggest, Shell somewhat less than its proactive strategy would suggest. In

43. Shell 2005c.

44. [www.BP.com](http://www.BP.com).

45. US EIA 2004; ERA 2005; SPDC 2005; Shell 2005a; and Friends of the Earth 2005.

46. ERA 2005.

47. [www.shell.com](http://www.shell.com).

48. Shell 2005d.

the next section, we try to account for the deviations found between strategy and implementation.

## 5. Explaining the Relationship between Strategy Formulations and Investments

Considering the risk of damaging their reputation, it is hardly surprising that the companies tend to do what they say they will. Still, there are some striking relative inconsistencies between statements and actions. First, why do Shell's investments not reflect the company's proactive strategy formulation to the same extent as that of BP? And how can we explain the fact that ExxonMobil's implementation is somewhat "greener" than its reactive strategy formulation indicates? Again, it should be borne in mind that the analysis is to some extent explorative, seeking to put forward well-founded hypotheses rather than conclusive answers.

### 5.1. Shell and BP: Company-internal Differences?

BP and Shell are European companies and Europe is an important market for both. Since the climate policy of the EU and the international climate regime thus work in the same direction in relation to BP and Shell's proactive statements, we are mainly left with company-specific features in order to understand the relative differences. According to the first assumption, a high degree of consistency between strategies and implementation can be expected if strategies are integrated in the company leadership, and if there is a clear designation of accountability. Is it so that the climate strategy of Shell is less integrated in the company leadership than in the case of BP? In fact, several factors do indicate a stronger leadership commitment to the proactive formulations in BP than in Shell.

A first factor supporting this proposition is the personal capabilities of Lord John Browne, BP Chief Executive since 1995. Lord Browne is regarded by many observers as unique among the executives of large oil companies in his efforts to understand the long-term forces at work, and it is claimed that he played a key role in leading the company towards a proactive strategy on climate change in the first place.<sup>49</sup> Secondly, there has not only been a strong leadership focus on climate change in the company: there has been *continuity* in focus, partly because BP has had the same chief executive since 1995 in the time period studied here. In the same period Shell has had several chief executives.

Integration of climate strategies in the company leadership is necessary if a company is to take the risks connected with being a pusher or an early mover in a particular field.<sup>50</sup> Differences in leadership commitment and continuance

49. Kolk 2000; and Rowlands 2000.

50. IISD 1992; and Kolk 2000.

with regard to risk are visible in the whole period studied: there is a clear tendency for BP to make the first proactive moves while Shell plays the part of the more risk-averse follower (cf. section 3). This pattern has been exemplified recently with the case of CCS. This is a risky and forward-looking climate mitigation measure, since there are at present few national regulations which make it profitable.<sup>51</sup> There is also uncertainty related to the actual crediting of the emission reductions under the UNFCCC. Moreover, when it comes to carbon capture from energy generation in contrast to carbon separation from a gas stream, the technology is yet not fully mature.<sup>52</sup>

Despite the absence of national regulations which make carbon storage profitable, in 2004 BP started the world's second system of full-scale CO<sub>2</sub> separation from a production field's gas stream, in Algeria.<sup>53</sup> The separated CO<sub>2</sub> is subsequently stored in a geological formation. The final investment decision was taken by the BP Chief Executive.<sup>54</sup> This project occupies a prominent place in the company's sustainability report as well as on the BP web page, and is repeatedly referred to by the BP Chief Executive.<sup>55</sup> Similar prominence is accorded the Miller project in Scotland,<sup>56</sup> which includes injection of CO<sub>2</sub> for enhanced oil recovery in the BP-operated Miller field, and may become a reality in a few years' time.

There is no doubt that Shell is also positioning itself strategically for a more carbon-restricted future through research and development of CCS technology, but statements from the company chairman, Lord Oxburgh, indicate that Shell has no ambitions of being a leader in the field: "Carbon capture and sequestration (CSS) is simply just one of the technologies available.[. . .]. It's an economic niche area where we do not have the expertise, but which is available if necessary. We are not pushing this, but global warming has to be taken seriously."<sup>57</sup> Actions underline the chairman's words. Unlike BP, Shell has not taken the costly and risky step of actually implementing the technology at a production facility, and its involvement is also less convincing in terms of cooperative R&D projects—Shell is involved in 8 compared to BP's 23.<sup>58</sup>

With regard to accountability, there seem to be several circumstantial and organizational barriers against a similar integration of climate change in the leadership of Shell. The company's more complicated organizational and leadership structure may not have encouraged the same personal engagement. Both

51. The one exception is Norway, when in 1996 the partly state-owned oil company, Statoil, started injecting CO<sub>2</sub> separated from the gas stream at one offshore gas field into a geological formation nearby. The investment was declared profitable partly due to the Norwegian CO<sub>2</sub> tax.

52. IPCC 2005, 12. The world's first commercial-scale system for CO<sub>2</sub> capture and deposits in a saline aquifer was implemented on Statoil's Sleipner West gas field in the Norwegian North Sea.

53. BP 2005b.

54. Personal communication with Iain W. Wright, BP, 20 September 2005.

55. BP 2005a; and BP 2003.

56. BP 2005b.

57. Europe Information Environment 2005.

58. IEA 2005. BP's leadership ambitions in the field of carbon storage are in line with similar ambitions of the government in its home base country, the UK.

the ownership and the management structure of the Shell group has been extremely complex ever since Shell Trading and Transport and Royal Dutch Petroleum merged their interests in 1907, becoming the Royal Dutch/Shell group.<sup>59</sup> However, the two companies kept their separate identities, and until recently Shell T&T was incorporated under British law, and Royal Dutch under Dutch legislation. In 1995, Shell started a process of reorganization which led to a stronger degree of centralization.<sup>60</sup> This also involved a clearer designation of responsibility for environmental and social issues within the top management of the company. Internal and external procedures to follow up the environmental and social responsibilities were also established.<sup>61</sup> Despite this reorganization, the overarching complicated organizational structure related to the ownership structure with two parent companies remained unchanged. While we lack sufficient data to be conclusive in our discussion, the most recent case of mismanagement by Shell in the time period studied here at least indicates that this structure has been the cause of accountability problems within the company leadership. In 2004, Shell once again had to admit poor management, this time concerning overstatements of the oil and gas reserves by more than 20 percent,<sup>62</sup> and complicated organizational structure was partly blamed.<sup>63</sup> The solution has been to unite Shell into one single parent company with headquarters under a single leader and one board. The aim is to make the company more accountable.<sup>64</sup> It remains to see if this change will also make other strategic choices—like environmental goals—more integrated in the leadership of the company. At least the general challenges the former company structure created have been recognized by the current CEO: “We sometimes had the right ideas and were early with trends, but we were slower to execute them than our competition.”<sup>65</sup>

Our second proposition was that there is a high degree of consistency between climate strategy formulation and implementation if climate strategies involve many planners and are based on consensual decision-making. One possible additional explanation is thus that BP’s climate strategy is based on more planners and a higher degree of consensus than is the case with Shell. Our data point to the contrary. Shell is actually well-known for an unusually high degree of participation and consensual decision-making.<sup>66</sup> The emphasis on reaching decisions by consensus has implied that decision-making in Shell involves “an unusually high level of internal discussion.”<sup>67</sup> Responsibility for developing environmental strategies for the operating companies has rested with a sig-

59. Estrada et al. 1997; Skjærseth and Skodvin 2003; and Thayer Robbins 2001.

60. Skjærseth and Skodvin 2003.

61. PIRC 1998.

62. Shell 2004. Overstatements of oil reserves led to the departure of Phillip Watts as Shell chief executive; he was replaced by Jeroen van der Veer.

63. CNN 2004.

64. CNN 2004; *Dagens Næringsliv* 2005; and Shell 2005b.

65. Shell CEO Jeroen Van der Veer to CNN in 2004.

66. Neale 1997; and Estrada et al. 1997.

67. Neale 1997, 96.

nificantly higher number of committees in the case of Shell as compared to BP.<sup>68</sup> As noted above, traces of the old structure are still visible even though Shell now has changed towards a more centralized company. The positive impact of many planners and consensual decision-making on implementation has apparently been counterbalanced by Shell's complex organizational structure, problems of accountability and relatively weak leadership commitment.

In sum, there are several factors pointing in the direction that the relative difference between BP and Shell in implementing similar proactive climate change statements can be traced back to the company level. Leadership commitment, organizational complexity and resulting accountability appear to be more important explanatory factors than the number of planners and type of corporate decision-making.

### *5.2. ExxonMobil: Forced into "Greening" by International and European Developments?*

We now turn to our second question—why ExxonMobil's implementation has been greener than indicated by its reactive strategy formulation.

Starting with the first explanatory level—the company level—it is quite easy to see that some of the climate-emission reducing investments made by ExxonMobil serve fundamental company goals: they are profitable in their own right. This is specifically so with regard to the company's investments in reduction of flaring/venting and investments in co-generation. It therefore seems likely that ExxonMobil's decision to invest in these measures was not related to the issue of climate change and emission reductions, at least not initially. Exxon started investments in co-generation in the early 1970s, well before the question of human-induced climate change was discussed outside limited academic circles. The order of the events clearly indicates that ExxonMobil must have decided on these investments with other objectives in mind than mitigation of climate change.

The case of ExxonMobil's investments in co-generation, however, shows that strategy formulation and strategy implementation are dynamic processes. After climate change caught the interest of global society, culminating in the signing of the Kyoto Protocol in 1997, the company has made rhetorical use of its co-generation efforts in the field of climate change. Thanks to international developments like the ratification of the Kyoto Protocol, ExxonMobil's actions seem to have fed back on the company's formulations, moving them slightly in a "green" direction, as indicated in section 3 of this article.

The other major deviation between ExxonMobil's reactive strategy formulation and actions—that the company began reporting greenhouse gas emissions early in 2003—can, however, hardly be explained as an action that serves other company goals. A plausible explanation here is to be found in the politi-

68. Estrada et al. 1997.

cal framework conditions in Europe. The reason given by the ExxonMobil CEO for backing mandatory emissions reporting was that this is an essential precondition to policies that target emission reductions.<sup>69</sup> And reporting of emissions is crucial for developing schemes to enable emissions trading. ExxonMobil's backing of reporting came at a time when the EU was in the final phase of deciding on its EU emissions trading scheme.

Even though ExxonMobil is tied to the US, the company has significant activities in Europe. With eleven refineries in Europe, it is the continent's number one oil producer.<sup>70</sup> This means, for instance, that ExxonMobil has to pay the Norwegian CO<sub>2</sub> tax and participate in Dutch "voluntary" agreements on energy efficiency and climate policy. More importantly, it has to relate to the European Climate Action Program and participate in EU emissions trading based on the emissions trading directive that was adopted in 2003 and took effect in January 2005. The emissions trading directive includes refineries and oil production installations and pays due attention to common monitoring and reporting. Thus, it would seem that the climate policy of the EU can explain why ExxonMobil decided to report GHG emissions; it represents a regional political force that has pushed Exxon to undertake more climate-friendly investment in line with its core business than its climate strategy formulation might otherwise suggest.

Both regional and international developments can help us understand why ExxonMobil's implementation does not consistently reflect its formulations. Since strategy formulation and implementation are interactive processes, these findings indicate a cautious development towards (more) convergence between ExxonMobil and the European oil majors.

## 6. Conclusions

This article has sought to account for the relationship between oil companies' climate strategy formulations and implementation in the period 1998 to 2005. One conclusion is that there is general consistency between the rhetoric and actions of BP, ExxonMobil, and Shell on the issue of climate change in the time period studied. However, we also found some intriguing deviations from the expected patterns. First, there seems to be a systematic relative difference between Shell and BP when it comes to actions. Second, ExxonMobil is doing somewhat more than what would be expected from its reactive strategy formulation alone.

Relating these findings to our theory-based explanations, we find support for the assumption that a high degree of consistency between proactive climate strategies and implementation can be expected if a proactive climate strategy is integrated in the company leadership and is in line with regional as well as international climate policy and commitments. While all these conditions are present in the case of BP, there seem to have been internal barriers in Shell to a

69. *Planet Ark* 2003.

70. ExxonMobil 2005b.

similar integration of proactive climate statements and goals within the company leadership. In the case of ExxonMobil the explanation for inconsistencies between formulation and implementation lies partly in the fact that its climate-friendly investments serve other company goals. But the increasing goal conflict experienced by the company between its reactive corporate strategy and the political context in which it operates in Europe and globally also help explain the patterns found.

Putting aside the relative differences between BP and Shell, the move of ExxonMobil in a slightly less reactive direction indicates a cautious convergence between the companies' climate strategies in the time period studied here. Recalling that one of the political objectives of ExxonMobil and the reactive positions of the US fossil fuel lobby has been to hinder a strong US climate policy domestically as well as internationally, such convergence could mean that one of the drivers for the reactive federal US policy has started to weaken. Whether this will have implications for the overall US climate policy output is, however, dependent on developments in corporate climate strategies and in other drivers for US policy, not least domestically.

A second related policy implication is connected to one of the main questions in the global climate regime today: how to get negotiations on post-2012 commitments started in a way that can engage the US constructively. Despite the overall tendency for the positions of the EU and the US to conflict, there is a shared emphasis on technology as an important part of the solution to climate change. The Bush administration has taken initiatives for developing multilateral cooperation on technology-oriented solutions to climate change. In its communications on a post-2012 strategy the EU has also highlighted the need to encourage the adoption of new emission-reducing technologies. ExxonMobil has always prided itself on being a science and technology-based company—an attitude in line with a technology-oriented approach to the climate challenge. Against this backdrop, a continuing convergence between US-based and the European-based oil companies may in fact have some positive implications for the prospects of developing a viable international climate policy in the future.

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