

Climate Policy 2 (2002) 3-18



www.climatepolicy.com

# The oil industry and climate change: strategies and ethical dilemmas

# Sybille van den Hove<sup>a,\*</sup>, Marc Le Menestrel<sup>b</sup>, Henri-Claude de Bettignies<sup>c</sup>

<sup>a</sup> MEDIAN, Passeig Pintor Romero 8, 08197 Valldoreix, Spain
<sup>b</sup> University Pompeu Fabra, Ramon Trias Fargas 25-27, 08005 Barcelona, Spain
<sup>c</sup> INSEAD, Boulevard de Constance, F-77305 Fontainebleau Cedex, France

Received 1 September 2001; received in revised form 10 January 2002; accepted 23 January 2002

#### Abstract

This paper explores the different climate change strategies chosen by three major multinational oil corporations: ExxonMobil, TotalFinaElf and BP Amoco. They are referred to, as the 'fight against emission constraints,' 'wait and see,' and 'proactive' strategies, respectively. The justifications given to support these strategies are identified. They cover the business, scientific, political, economic, technological and social dimensions. In a business ethics framework, the issue of climate change brings forth an ethical dilemma for the oil industry, in the form of a tension between profits and CO<sub>2</sub> emissions. The strategies are analysed as three attitudes towards this dilemma: (i) placing priority on the business consequences while weakening the perception that anthropogenic greenhouse gas emissions are causing climate change; (ii) avoiding responsibility; and (iii) placing priority on the need for a modification of the business process while limiting the negative effect in terms of business consequences. In conclusion, we propose that beyond the ethical issues proper to climate change itself, additional ethical issues are raised if society at large is instrumentalised by an industry in its search for profit. Publicly gauging and valorising the ethical commitment of a corporation appear as ways of inducing more collaborative and proactive attitudes by business actors. © 2002 Elsevier Science Ltd. All rights reserved.

Keywords: Ethical dilemmas; Oil industry; Business ethics; Climate change

# 1. Introduction

If international climate policy is to prove effective, government policy-makers will unavoidably need to take all business actors on board, not the least of them the multinational oil corporations. The oil industry is one of the most powerful and global business sectors today and its activities and products are directly linked with rising greenhouse gas emissions. Understanding its climate change strategies and actions is of utmost importance to those policy-makers aiming at constructive participation of the oil industry in

\* Corresponding author. Tel.: +34-93-587-95-36; fax: +34-93-587-95-36.

1469-3062/02/\$ – see front matter © 2002 Elsevier Science Ltd. All rights reserved. PII: S1469-3062(02)00008-6

E-mail address: s.vandenhove@terra.es (S. van den Hove).

the shift to a climate-friendly world. Anyone interested in the politics of climate change will have noticed that oil corporations have adopted dissimilar strategies towards climate change and that discourses and actions associated with those strategies are evolving in time. This paper aims at refining the understanding of such various strategies. It tries to shed light on the processes at work, the stakes, the underlying values, and the options for changes. This is done through empirical illustration and the use of a business ethics framework and the concept of 'business ethical dilemma' to analyse three typical strategies, depicted by the cases of three oil giants: ExxonMobil, TotalFinaElf and BP Amoco.<sup>1</sup> We focus in particular on their strategies towards science, politics and public opinion. The main arguments put forward as justification by the corporations are presented. The strategies are then interpreted as attitudes towards the ethical dilemma that climate change brings forth for the oil industry.

We propose some concluding comments on the substantive and procedural ethical dimensions of oil industry's strategies towards climate change. Although all oil corporations aim at a profitable activity, they differ in their competitive or co-operative attitude towards the constraints that society tries to impose on the ways to reach their goal.

#### 2. Climate change strategies of three oil giants

#### 2.1. ExxonMobil: fight against emission constraints

Although the science of climate change is uncertain, there's no doubt about the considerable economic harm to society that would result from reducing fuel availability to consumers by adopting the Kyoto Protocol or other mandatory measures that would significantly increase the cost of energy. Most economists tell us that such a step would damage our economy and almost certainly require large increases in taxes on gas and oil. It could also entail enormous transfers of wealth to other countries.

# Exxon Mobil CEO and Chairman, Lee Raymond<sup>2</sup>

Ever since climate change became a subject of public and policy concern, ExxonMobil has been the most active major oil corporation in the debate. "Since the 1980s, we started thinking about climate change as a potentially important issue," says Brian Flannery, the Science Strategy and Programs Manager for ExxonMobil's Safety, Health, and Environment Division, "this was in the context of major long term investment projects. The issue held business meaning as a regulatory risk driven by public policy."<sup>3</sup> Since the Rio Summit in 1992, the company's strategic line has been to oppose mandatory restrictions to curb greenhouse gas emissions.

ExxonMobil describes itself as "a science- and technology-based company" (ExxonMobil, 2001), making decisions on the basis of hard facts and rational scientific, economic and technical analysis. "Our public policy positions are based on scientific, economic and technical analysis. And this, even if it is not politically easy. It is very different from BP Amoco and Shell who have other drivers that are mainly of a political nature," says Flannery.<sup>4</sup> While Vidal (2000) characterises ExxonMobil as "a strongly legalist

<sup>&</sup>lt;sup>1</sup> The three companies that existed at the outset of the 1990 decade—Exxon, Elf and BP—have merged with competitors in the late 1990s to form ExxonMobil, TotalFinaElf, and BP Amoco, respectively.

<sup>&</sup>lt;sup>2</sup> Excerpt from ExxonMobil (2001).

<sup>&</sup>lt;sup>3</sup> Interview with Dr. Brian Flannery, The Hague, November 2000.

<sup>&</sup>lt;sup>4</sup> Interview with Dr. Brian Flannery.

corporation, recognising only public authorities' and institutional interlocutors." According to Flannery: "we do not acknowledge the notion of social responsibility as defined by some NGOs. NGOs are not the sole arbiters. We comply with the laws of countries. We maintain and enforce a strict code of ethical conduct for all employees. Consumer behaviour and preferences are powerful indicators of what society wants."<sup>5</sup> In this context, the company has always striven to participate in the debate with a discourse presented as purely scientific, economic, and technological.

In the early days of the debate, Exxon was mainly contesting the science, based on its complexity and associated uncertainties. Its strategy of preventing political action on climate change was chiefly implemented through efforts in denying the existence of a problem. The objective was to convince the public and policy-makers, mainly in the USA, that human-induced climate change was not an issue requiring mandatory restrictions on greenhouse gases emissions. As time went by, efforts were also directed at addressing the economic impacts of the policy proposals under examination, which were viewed by ExxonMobil as unacceptably costly and threatening to the US and the world economies. The uncertain science was deemed insufficient to justify the supposedly certain and massive economic costs that would ensue. In parallel, came more and more arguments against the political foundations of the Kyoto Protocol.

Instrumental to the implementation of Exxon's strategy was its participation in industry and lobby groups. Exxon is a prominent member of the American Petroleum Institute (API), the major US petroleum industry trade association, and was, from the date of its creation in 1989, a board member of the Global Climate Coalition (GCC), one of the most influential US lobbying front group on the climate issue. <sup>6</sup> "At the time, and until Kyoto," says Rafe Pomerance, former Deputy Assistant Secretary for Environment and Development at the US State Department, "the trade associations were the key players [on the US scene] and the companies were on a lower level. The API and the GCC were very hostile to action on climate change (...). They were key to defeating President Clinton's 1993 BTU tax proposal, through lobbying the Congress<sup>7</sup> (...). The BTU tax was a climate move in the mind of Clinton but he did not play it as a climate measure, for political reasons."<sup>8</sup> The strategy of the GCC and the API to fight against mandatory climate policy at US and international levels rested on two main pillars: "raising questions about and undercutting the prevailing scientific wisdom"<sup>9</sup> on climate change in order to cast doubts in the mind of the public and policy-makers on the existence of a problem, and attacking the policy proposals on economic grounds.

On the science, these groups criticised the 1995 Intergovernmental Panel on Climate Change (IPCC) review process that led to the drafting of the summary for policy-makers on the grounds that it was

<sup>&</sup>lt;sup>5</sup> Interview with Dr. Brian Flannery.

<sup>&</sup>lt;sup>6</sup> Until recently, GCC members included trade association and private companies from the fossil fuel, mining, transportation, and heavy manufacturing sectors, as well as from agriculture and forestry. For an account of the GCC actions seen from the environmental NGO point of view, see Leggett (2000).

<sup>&</sup>lt;sup>7</sup> One can read on API's website that: "when our members' interests are under attack, API acts as the industry's crisis communications manager. When a BTU energy tax was proposed in 1993, API created an effective coalition to stop the tax in its tracks" (http://www.api.org/about/valueadd.htm, February 2001).

<sup>&</sup>lt;sup>8</sup> Interview with Mr. Rafe Pomerance, Amsterdam, November 2000. Before joining the State Department, Mr. Pomerance served as a senior executive in a number of US environmental organisations.

<sup>&</sup>lt;sup>9</sup> Quoted from an API internal memo leaked to the press in 1998. The memo also states that: "unless 'climate change' becomes a non-issue, meaning that the Kyoto proposal is defeated and there are no further initiatives to thwart the threat of climate change, there may be no moment when we can declare victory for our efforts" (Cushman, 1998); full text at http://www.corpwatch.org/trac/feature/climate/culprits/bigoil.html, January 2001.

politicised and biased. In June 1996, for instance, the George Marshall Institute <sup>10</sup>, the API, and the GCC personally attacked an IPCC lead author, Dr. Benjamin Santer. An op-ed article by Dr. F. Seitz in the Wall Street Journal, charged Santer with having made unauthorised and politically inspired changes to Chapter 8 of the IPCC Second Assessment Report, hence, with being responsible for "disturbing corruption of the peer-review process" (Seitz, 1996, Stevens, 1996). Chapter 8, because it addresses the question of attribution of climate change to human activities, is key to the overall IPCC conclusion of the plausible existence of a discernible human influence on global climate. Exxon was also directly very critical of the summary: "[T]he executive summary of the [IPCC] report, the part most people read, was heavily influenced by government officials and others who are not scientists. The summary, which was not peer-reviewed, states that: 'the balance of evidence suggests a discernible human influence on climate.' You'll note that this is a very carefully worded statement, recognising that the jury is still out, especially on any quantifiable connection to human actions. The conclusion does not refer to global warming from increases in greenhouse gases. Indeed, many scientists say that a great deal of uncertainty still needs to be resolved" (Flannery, 1999). Other criticisms of mainstream climate change have been articulated through the more or less direct funding of individual scientists holding the contrarian view-the so-called 'climate sceptics'-and by amplification of their access to the media and policymakers.

Economic arguments against mandatory climate policy included the threat of losses of jobs and of competitiveness in the US, of higher gasoline prices, and of overall huge negative impacts on the US economy. "Our view is that the [Kyoto] Treaty has powerful implications in economics, investment, trade competitiveness, and employment terms," says Flannery.<sup>11</sup> These arguments are grounded in a series of economic models, some of which have been funded by ExxonMobil or the API, directly or indirectly, with the aim of providing models that are presented as more realistic and more transparent in their assumptions.<sup>12</sup> These models have in turn been criticised on the grounds of inaccurate assumptions such as a restricted set of policy options, non-inclusion of the negative impacts of climatic changes, flaws in modelling procedures, non-inclusion of secondary benefits of climate policy in terms of health, environment and technological development, non-inclusion of savings from improved energy efficiency, etc. (Krause, 1997; Cool the Planet, 1999).

In 1997, the GCC concentrated its efforts on fighting to prevent significant climate policy outcomes from the international negotiations. The tactics consisted of ensuring that the US Senate would not ratify any binding commitment on targets and timetables. To this end, the GCC pursued its efforts aimed at raising doubts about the integrity of the mainstream science of climate change, by pointing to the uncertainties and gaps in scientific knowledge. Meanwhile, the GCC put together a vast advertisement campaign in the US against any international agreement that would aim at emissions reduction. The main theme of the campaign was "the UN Climate Treaty isn't Global ... and it won't work." As William O'Keefe, formerly vice-president of API and chairman of the GCC describes it: "we only had one public relations campaign, prior to Kyoto. It cost \$ 12 million. The GCC participated, but did not have the money to finance it alone. This campaign was very effective. The reason why, is that fairness is very

<sup>&</sup>lt;sup>10</sup> An ultraconservative US institute aiming to provide "rigorous, unbiased technical analysis of scientific issues with impact on public policy" (source: http://www.marshall.org, February 2001) and chaired by Dr. Seitz, one of the most active US 'climate sceptics'—scientists which strongly disagree with the IPCC climate science.

<sup>&</sup>lt;sup>11</sup> Interview with Dr. Brian Flannery.

<sup>&</sup>lt;sup>12</sup> Influential among these are studies by WEFA and by the Charles River Associates, for which the API provided funding (O'Keefe, 1998a). Also widely used are studies by the US Energy Information Administration of the DOE.

important to the American people. And the Treaty, by not being global, is not fair. Another important thing is the economic impacts on them. This campaign did galvanise public opinion and helped the passing of the [Byrd–Hagel] Senate resolution. But it did not prevent [Vice-President] Al Gore from going to Kyoto and agreeing to something that President Clinton had said just 60 days before that he would not do".<sup>13</sup>

The GCC was indeed instrumental to the passing the Byrd–Hagel Senate resolution in July 1997 which states that: "the United States should not be a signatory to any protocol to, or other agreement regarding, the UNFCCC of 1992, at negotiations in Kyoto in December 1997, or thereafter, which would: (A) mandate new commitments to limit or reduce greenhouse gas emissions for the Annex I Parties, unless the protocol or other agreement also mandates new specific scheduled commitments to limit or reduce greenhouse gas emissions for Developing Country Parties within the same compliance period, or (B) would result in serious harm to the economy of the United States (...)."<sup>14</sup> O'Keefe recalls: "we had regular meetings with members of the Congress to discuss our positions and views. In 1997, at the request of Senator Byrd, a democrat, and Senator Hagel, a republican, we communicated a lot with members of the Congress to get them to support their resolution. It ended as a 95–0 vote, so it was really a bipartisan one."<sup>15</sup> In effect, this resolution lowers the chances of ratification of the Protocol by the US Senate. And it significantly delays the entry into force of the Protocol which is de facto much harder to trigger without US ratification.<sup>16</sup> It also damaged US diplomatic credibility during the Kyoto talks since it evidenced the lack of consensus amongst the legislative and executive branches of the US government.

This was not the only influence of US industry opponents to binding action—including ExxonMobil on the US political process. From 1990 to 2000, the oil and gas industry contributed more than \$ 122 million in political donations. Exxon alone is reported to have officially contributed some \$ 2.9 million in political donations at federal level from 1991 to 1998.<sup>17</sup> As Pomerance, from the State Department, puts it: "this created a political climate that made things difficult [for the Administration] (...). The oil industry has also had a strong influence by de-legitimising the science and by using the Congress as a voice for their own agenda".<sup>18</sup>

By inducing the Senate to require immediate reduction commitments from developing countries, Exxon and its allies in the GCC have been successful in reopening the debate on developing countries participation, pointing to the future rise in their emissions, and contesting the underlying principles of the Climate Convention: the common but differentiated responsibilities of countries (in particular, the historical responsibility of developed countries) and the principle of equity.<sup>19</sup> It is on the basis of such principles that the Treaty calls for developed countries to demonstrate that their are taking the lead in modifying long-term trends in human induced greenhouse gas emissions. Meanwhile, in a speech before the World Petroleum Congress in Beijing in October 1997, Exxon's CEO, Lee Raymond, was urging developing countries to resist climate policies: "before we make choices about global climate policies, we need an

<sup>18</sup> Interview with Mr. Rafe Pomerance.

<sup>&</sup>lt;sup>13</sup> Interview with Mr. William O'Keefe, January 2001.

<sup>&</sup>lt;sup>14</sup> US Senate Resolution 98, 105th Congress, 1st Session.

<sup>&</sup>lt;sup>15</sup> Interview with Mr. William O'Keefe.

<sup>&</sup>lt;sup>16</sup> On the entry into force issue, see e.g. Grubb et al. (1999).

<sup>&</sup>lt;sup>17</sup> Source: Centre for Responsive Politics (http://www.opensecrets.org) see also van den Hove et al., 2001, Exhibit 3.

<sup>&</sup>lt;sup>19</sup> Or at least, 'equity' as defined in the UNFCCC, clearly those groups propose a different understanding of equity, as demonstrated by the PR campaign on 'unfairness' of the Treaty.

open debate on the science, an analysis of the risks, and a careful consideration of the costs and benefits. So far this has not taken place and until it has, I hope that the governments of this region will work with us to resist policies that could strangle economic growth".<sup>20</sup>

It is around the end of 1998 that Exxon's strategy appeared to evolve to a more moderate stance, where climate change started to be characterised as a legitimate potential long-term risk, albeit in prudent terms. While at the beginning of 1998, one could read on Exxon's website that: "it appears that climate variability is still too large and complex a subject for current measurements and projections to be able to determine whether reliable links exists between human activity and future global warming" (Hamilton, 1998), in 1999, Flannery was writing that: "Exxon does not believe that uncertainty is an excuse for doing nothing. We acknowledge that global climate change is a legitimate concern and we are taking steps now that we believe will lead in the right direction" (Flannery, 1999). And in 2000 op-ed ad, the company was further stating that: "science has given us enough information to know that climate changes may pose long-term risks. Natural variability and human activity may lead to climate change that could be significant and perhaps both positive and negative" (ExxonMobil, 2000). Against this milder position on the existence of the problem and the need for action, ExxonMobil's focus shifted towards the acceptable means to tackle with the issue, which—ExxonMobil believes—is technology development induced by market forces, not mandatory measures. "As one of the world's leading science and technology organisations, ExxonMobil is confident that technology will reduce the potential risks posed by climate change" (ExxonMobil, 2000).<sup>21</sup>

How effective has ExxonMobil's strategy been from a business standpoint? First of all, ExxonMobil together with its partners in US lobby groups—has been instrumental to the hindrance of US ratification of the Kyoto Protocol. In terms of delaying international and national actions on climate change, there is no doubt that ExxonMobil's strategy succeeded. When asked whether there was any sign that ExxonMobil's position on climate change was affecting its business, Flannery clearly responded with a short and definite "no".<sup>22</sup> And as far as image is concerned, the company does not seem to feel the urge to green its image. As noted by the Financial Times, Exxon did not take the opportunity of its merger with Mobil to "recast its image." To the contrary, "ExxonMobil reintroduced itself to customers and clients with studied plain-speaking as 'the world's premier petroleum and petrochemical company' (...). The US company, which is now the world's largest publicly traded oil group and an industry icon of capital productivity, would rather let the numbers behind its enviable financial performance speak for themselves" (Durgin, 2000). More recently, however, small cracks in the company's position have appeared. For instance, in the midst of an active consumer boycott campaign launched by environmental NGOs in 2001-the 'StopEsso' campaign<sup>23</sup>-a senior Vice-President of ExxonMobil, Rene Dahan, was calling for accelerated research on energy-saving technologies, arguing that 'if climate change is confirmed in 10-15 years' time, we cannot afford to get there to find that the only way of dealing with this is to choke off world economic prosperity.' He insisted, however, that this position did not constitute a switch in the company's position and was unrelated to the boycott (Buchanan and Houlder, 2001).

<sup>&</sup>lt;sup>20</sup> Cited in Hamilton (1998). The speech is no longer available from ExxonMobil's web page. See also the comments on this speech in Business Week (Raeburn, 1997).

<sup>&</sup>lt;sup>21</sup> See Dahan (2001) for a recent presentation of how ExxonMobil justifies its climate change position.

<sup>&</sup>lt;sup>22</sup> Interview with Dr. Brian Flannery.

<sup>&</sup>lt;sup>23</sup> See http://www.stopesso.com/index.php.

But overall ExxonMobil gained valuable time during which no climate policy came as a constraint on its activities. And this makes good sense for ExxonMobil's executives who say that "if there indeed is a climate problem, it is a long-term problem for which we have plenty of time to develop appropriate responses".<sup>24</sup>

#### 2.2. TotalFinaElf: wait and see

The former Elf Aquitaine Group is ready to commit to a reduction of 15% of its  $[CO_2]$  emissions in 2010.

# Elf Aquitaine CEO, Philippe Jaffré<sup>25</sup>

In 1985, the issue of global warming was raised at a meeting of the executive committee of Elf Aquitaine for the first time. Subsequently, the group started monitoring the scientific and political evolution of the issue.

In 1997, a few days before the Kyoto meeting, the CEO of Elf Aquitaine, Philippe Jaffré, announced in an interview that "the Elf Aquitaine Group is ready to commit to a reduction of 15% of its  $[CO_2]$ emissions in 2010" (Jaffré, 1997, our translation). This decision was based on an acknowledgement that "the consensus within the scientific community appears to be stronger and stronger in affirming that a climatic warming is happening. A number of facts are not disputable. First there is a rise in greenhouse gas concentrations, in particular carbon dioxide (CO<sub>2</sub>). Second, these gases have an effect on the climate. What is not measured is the extent of this effect and the potential for natural regulation via the carbon cycle" (Jaffré, 1997). To Jaffré, however, it is a long-term problem which "leaves us time to react." This announcement did not constitute a firm commitment. It was presented as an agreement to comply with the 15% emissions reduction goal that constituted the negotiation position of the European Union. But it was conditional on equal commitments from other nations. The other condition put forward was the necessity for geographical flexibility in fulfilling the commitment: "it seems possible to reduce our total world emissions by 15% in 2010. But such a reduction is only possible if we account for our activities in the entire world. We could not achieve this result solely for our European activities" (Jaffré, 1997).

The Kyoto conference passed, and Elf did not publicly go much further on the issue. As stated by Bernard Tramier, Senior Vice-President Environment and Industrial Safety for the merged TotalFinaElf Group: "it was a commitment taken before Kyoto, it is more difficult for us to comply with it after [what happened in] Kyoto." <sup>26</sup> Furthermore, the years after Kyoto have seen the merger of Elf with TotalFina. "Amongst the three companies united in the new group, only Elf had a quantitative reduction commitment," says Tramier. "Today, our position is that we are going to reduce our emissions, but we do not yet know by how much. It will depend on the rules of the game—in particular on accounting rules—which will be imposed on us". <sup>27</sup>

Concerning its influence on the scientific debate over climate change, Elf was always very clear: "when we are confronted with an issue that raises fears (...) our attitude is scientific: it is that of the

<sup>&</sup>lt;sup>24</sup> B. Flannery and G. Ehlig, March 2000, cited by Skjaerseth and Skodvin (2000).

<sup>&</sup>lt;sup>25</sup> Jaffré (1997, our translation).

<sup>&</sup>lt;sup>26</sup> Interview with Mr. Bernard Tramier, Paris, January 2001.

<sup>&</sup>lt;sup>27</sup> Interview with Mr. Bernard Tramier, Paris, January 2001.

'Cartesian doubt.' We then turn to the scientific community in which we have confidence" (Jaffré, 1997). And Tramier confirms: "none of the three companies of the TotalFinaElf group has ever contested the principle of climate change."<sup>28</sup> As for the US lobby groups, he recalls: "we have never been members of the GCC. Note that, in terms of publicity, some have achieved great benefits by conspicuously leaving this coalition. We are indeed members of the API, but this is completely different because API is the industry trade association, and membership is normal when one operates, even on a small scale, in the US".<sup>29</sup>

On the political process, TotalFinaElf does not acknowledge much influence either. In France, says Tramier, "the possibility [to participate] was not offered much to us by the authorities (...). At the international level, before the merger none of the three companies carried much weight. The game was lead by the big groups. We were more or less midway between two extreme positions (Exxon-Mobil on one side, BP Amoco and Shell on the other) and for this, were sometimes considered as the voice of reason."<sup>30</sup> TotalFinaElf did not make much use of industry groups to participate in the political process at the European level. "We have underestimated their influence. But this is changing. We realise that we need to be more present in this process of influencing the politics. But this is more for reasons of competition amongst companies than to influence the political process for itself (...). What we need to do is to influence the process in order to have a simple and efficient system as an outcome".<sup>31</sup>

Clearly, with the exception of the 1997 emissions reduction announcement, TotalFinaElf has publicly taken a low key position on the climate change issue. It concentrated on gathering information and knowledge, waiting to see where the international negotiations would lead. With the merger, although company documents now acknowledge the necessity of "effectively taking into account the concept [of sustainable development] in all [the Group's] activities," (TotalFinaElf, 2001, our translation) the publicly displayed strategy on climate change is not yet very elaborate. The group's documents state that: "TotalFinaElf adheres to the conclusions of the Kyoto Conference on climate change and will participate in the necessary efforts to reach greenhouse gas emissions reduction objectives which have been agreed to by the Nations, and this without waiting for the elimination of scientific uncertainties" (TotalFinaElf, 2001, our translation). The group participates in simulation exercises on flexibility mechanisms. It also plans to reduce its own emissions, although, given uncertainties on the evolution of the world's energy consumption, on the rules of flexibility mechanisms, on financial incentives and on the inclusion on carbon sinks, "a quantitative commitment cannot be taken today with sufficient accuracy and credibility" (TotalFinaElf, 2001, our translation). Finally, the group aims at developing more efficient products in terms of greenhouse gas emissions, and at developing new energy resources.

From a business standpoint, Elf's—and subsequently TotalFinaElf's—strategy on climate change has been generally positive. Given the developments on the political scene, both at international and national levels, which have been fairly slow since the Kyoto Conference, there was no urgency for the company to take a strong public position on the issue. TotalFinaElf is advancing step by step in the construction of its climate change strategy, and its overall environmental strategy. The group prefers not to communicate beforehand on its future positions and actions.

<sup>&</sup>lt;sup>28</sup> Interview with Mr. Bernard Tramier.

<sup>&</sup>lt;sup>29</sup> Interview with Mr. Bernard Tramier.

<sup>&</sup>lt;sup>30</sup> Interview with Mr. Bernard Tramier.

<sup>&</sup>lt;sup>31</sup> Interview with Mr. Bernard Tramier.

# 2.3. BP Amoco: proactive

We must now focus on what can and what should be done, not because we can be certain climate change is happening, but because the possibility can't be ignored. If we are all to take responsibility for the future of our planet, then it falls to us to begin to take precautionary action now.

# BP Chief Executive, John Browne<sup>32</sup>

Until BP's withdrawal from the GCC in 1996 and, more visibly, until BP CEO John Browne's landmark speech at Stanford University in May 1997, BP's strategy regarding climate change did not differ significantly from that of all the other major oil corporations. As a member of both the GCC and the API, BP was participating to the efforts of these groups to deny the existence of the problem, to influence public opinion, and to prevent any political action on the issue.

The radical shift in strategy that BP operated a few months before Kyoto came as a surprise to many observers, but also to competitors in the oil industry. BP's new strategy was based on a recognition of the scientific assessment of the existence of a serious risk of human induced climate change by the IPCC. As Browne put it, in Stanford: "[T]here is now an effective consensus among the world's leading scientists and serious and well-informed people outside the scientific community that there is a discernible human influence on the climate, and a link between the concentration of carbon dioxide and the increase in temperature" (Browne, 1997). However, he also pointed to the remaining "large elements of uncertainties." From this premise, he proposed a conclusion that action was needed, which was rooted in the precautionary principle: "the time to consider the policy dimensions of climate change is not when the link between greenhouse gases and climate change is conclusively proven but when the possibility cannot be discounted and is taken seriously by the society of which we are part" (Browne, 1997). The framework in which he placed his analysis is the recognition of a need for "a re-thinking of corporate responsibility".

BP Amoco appears to acknowledge a public demand for corporate social responsibility. Since the mid-1990s a combination of studies and surveys have pointed to the need for multinational corporations to pay more attention to the social and environmental responsibility dimensions of their actions.<sup>33</sup> For the oil industry, it has coincided with various public relations disasters such as, in particular, Shell's involvement in human rights issue in Nigeria, Total's involvement in Burma, or Shell's Brent Spar crisis.<sup>34</sup> BP took the issue of social responsibility seriously<sup>35</sup> and used it to frame its proactive climate change positioning. "It is important to see that our position is argued in an ethical sense, but as business persons. We are responsible to our shareholders, our employees, the local populations, and the environment. This constitutes an enlargement of responsibility," says Klaus Kohlhase, Senior Environmental Adviser to BP Amoco.<sup>36</sup>

<sup>&</sup>lt;sup>32</sup> Browne (1997).

<sup>&</sup>lt;sup>33</sup> See for instance, the Burson Marsteller opinion leader survey: "The Responsible Century?" summary at http://www.bm.com/ insights/corpresp.html, or the "Millennium Poll on Corporate Social Responsibility," summary at http://www.environics.net/eil. <sup>34</sup> On the Brent Spar, see Leggett (2000), Neale (1997), Grolin (1998). Note that the two almost simultaneous crises for Shell— Nigeria and the Brent Spar—seem to have been instrumental in initiating a huge corporate reorganisation process based on more transparency, corporate responsibility and later, sustainable development (Knott, 1999).

<sup>&</sup>lt;sup>35</sup> BP first complemented its "Annual Report and Accounts" by environmental reports, then in 1999 by a combined environmental and social report. Finally, in 2000, BP Amoco proposed a combined financial, environmental and social report. See http://www.bpamoco.com/alive.

<sup>&</sup>lt;sup>36</sup> Interview with Mr. Klaus Kohlhase, The Hague, November 2000.

Through 1997 and 1998, BP progressively made public a multi-action plan on climate change based on increased research and development, addressing BP's own operations, and developing the solar energy business. As of 2001, BP's climate change action plan also includes an internal greenhouse gases reduction target (10% reduction in 2010 compared to 1990), an internal emissions trading system (BP Amoco, 1999), collaborations to create energy-efficient new technologies, the promotion of flexible market instruments, and active participation in the climate change policy debate. <sup>37</sup>

Will BP Amoco deliver on its strategy and yield positive results in ecological terms? Proactive strategies encompass at least one built-in incentive for corporations to act on what they say. As pointed by Müller: "they do care about their image, and this induces them to act as they say. When there are proactive companies, the role of NGOs and consumers becomes that of watchdog elements." <sup>38</sup> This role is made more effective by the rapid development of information and communication technologies, which gives more power to civil society through stronger connections and the possibility of by-passing governments and putting direct pressure on corporations to behave in a more socially acceptable manner.

As for the effectiveness of BP Amoco's climate change strategy in terms of business results, it is probably too early to judge, since it is a long-term positioning strategy. In particular, effects on competitiveness are hard to detect as of today. The question is are they losing something now? The answer is no, BP Amoco does not seem to have experienced negative impacts from its strategy. It probably costs them a bit in terms of money and efforts, but BP Amoco people do not comment on this. The group did experience positive effects in terms of image. However, this could backfire if at some point the public and stakeholders feel that the company does not live up to its promises. On another important level, BP Amoco clearly improved its legitimacy as a participant to the political process, at least in European circles, and probably world-wide. Overall, in the words of Kohlhase: "it is important to understand the significance of the process here: every year now, climate change is a topic for the board at BP Amoco (...). We have been learning a lot and we are improving our understanding of the options. These last two aspects put us in a good position to face the issue".<sup>39</sup>

Another test for BP Amoco's good faith on its proactive climate strategy is going to be the evolution of its position while the Bush Administration—with all its ties to the oil business—is in power in the US.

### 3. Justifications of strategies and the underlying ethical dilemma

#### 3.1. Arguments and justifications for the strategies

To better grasp the differences between possible strategies, we now look at how corporations justify their strategic choices on climate change.

From a business standpoint, corporations that choose the 'fight against emission constraints' strategy consider that climate change policies represent a threat to their business and, as such, should be fought against. Moreover, climate action could lead to more stringent regulatory constraints, and additional command and control regulations are bad for business, they contend. In particular, world-level environmental regulation is bad and the Climate Treaty—and its Kyoto Protocol—could create an undesirable precedent. They often claim that industry has already done a lot in terms of improving its energy efficiency and that

<sup>&</sup>lt;sup>37</sup> Source: Browne (1998) and BP Amoco website: http://www.bp.com.

<sup>&</sup>lt;sup>38</sup> Interview with Dr. Benito Müller, The Hague, November 2000.

<sup>&</sup>lt;sup>39</sup> Interview with Mr. Klaus Kohlhase.

it is really in other sectors—such as, e.g. agriculture—that the real emission reduction potentials lie. They are also sceptical towards new investments in renewable energy technologies, insisting that in the past they lost a lot of money already in renewables and that they won't make the same mistake twice. From a societal standpoint, those corporations point to the supposed huge economic costs of action and to the dramatic negative impacts it would have on competitiveness, jobs, investment, and on the economy in general. They know what is good for the economy, they claim, because they are the economy, and as such, they make a positive contribution to the political debate by pointing to those implications. They affirm that increased investments in renewable technologies will take away investment resources from other important societal areas such as, e.g. health and education. Moreover, they do not see public pressure as growing, rather they see the whole climate change issue as blackmail from the green lobby. At the international level, they view the Kyoto Protocol as inequitable since only developed countries have legally binding emissions reduction or limitation commitments, a situation which they claim will put developed countries that technological development will soon enough provide the right solutions to the climate change issue.

A less avowed justification of this strategy is that it is a way to gain precious time, during which corporations will be able to develop alternative business strategies and products. Corporations opting for the 'fight against emission constraints' strategy also seem to be quite convinced that governments are not in a position to impose much on them.

The main justification for the 'wait and see' strategy is that, because the science of climate change is still the object of violent debates, it is too early for corporations to play a direct role in the policy process, either for or against it. Becoming too proactive might be costly and time consuming, but fighting against emission constraints can be damaging in terms of image and credibility. Another strong justification is that for a long time fossil fuels will still be needed, and the demand for these will grow whatever the international decisions on climate change. In this framework, if all oil corporations have the same constraints, the playing field will remain levelled. Hence, it will always be time to act later, depending on the evolution of the regulatory context. Now is the time to gather information and knowledge, and start thinking about future business strategies and products. From a political standpoint, those firms do not believe that international agreements have much power of influence anyway. And they are quite convinced that the US will not ratify the Kyoto Protocol and that the EU will not go ahead without the US.

Justifications proposed by proponents of the 'proactive' strategy reflect a vision of the world as becoming more complex and more dynamic. Accordingly, business practices should become more dynamic and proactive. In this way, those firms also aim at securing a position from which they will be able to take part in the policy design process and orient it in directions that suit them—e.g. more market instruments, less command and control regulations.

From a business standpoint, the 'proactive' strategy is presented as necessary to face the threat that climate change policy poses to the oil industry. Those firms anticipate important shifts in their business conditions, so they want to be able to adapt in time. To them, climate change is the most significant and powerful environmental issue to ever exert influence on the economy. It is an issue that will shape policy for decades to come. Markets could soon be influenced, as products with high carbon content such as coal and oil lose favour. Hence, they believe that they cannot afford to not have a dynamic strategy on climate change. If the world is carbon constrained, then carbon is a cost and it is good business practice to take costs seriously, they say. They want to remain a growth industry and believe that if they fail to address the climate challenge and find solutions, they will survive, but decline into dull utilities, selling yesterday's product. So, they want to stay ahead of the competition on new energy technologies. However, they also know that

fossil fuels will still be needed for a long time, so recognising the existence of an issue won't make them lose their core business for a long while. They insist that there is a tradition of long-term thinking in the oil industry and that, climate change being a long-term issue, they can and should start acting on it today. In particular, this could bring them credit for early action. Also, if the oil market cake is due to shrink in the long term, they want to secure a larger share of it. In the shorter term, reducing their own greenhouse gas emissions reduction may lower their operating costs if made through energy efficiency gains.

Additionally, starting with their own internal targets and actions is a way to acquire the necessary knowledge and managerial skills in case of entry into force of the Kyoto Protocol. They also anticipate that product liability laws might evolve in the coming 10–15 years, which would mean that they could be sued on the impact of their products on the climate. In such a case, showing that they were early-starters would greatly help them in court.

From the point of view of their image and credibility, they think that it is not credible to contest the science and that they have to go from a discussion of the science to a discussion of the impacts on their business. They want to reposition themselves as part of the solution rather than part of the problem. They recognise that the public is requiring more and more environmental consciousness and that it has more and more pressuring power on both firms and governments through the development of information and communication technologies. Also they claim that their proactive stance is a way of accepting their corporate social responsibility. And they believe that this is becoming an ever-stronger corporate imperative. Additionally, it can be a motivating factor to their employees.

There are also less avowed justifications to this strategy. In particular, it can be both good marketing and good lobbying practice to show a green face. Moreover, an announced 'proactive' strategy can be a way to gain time, just as the 'fight against emission constraints' strategy is, since action could be delayed more effectively by acknowledging the existence of a problem then acting slowly than by open denial of the problem.

### 3.2. The oil industry ethical dilemma

Argumentation and justifications can be discussed with regards to their validity independently from the actor who expresses them. But they can also be viewed as strategic attitudes towards the achievement of a given goal. A prominent goal of oil corporations is certainly to make profit. But we have not encountered justifications of the type: "we follow this strategy to make as much profit as possible." This is because the relation between business and society at large remains ambiguous. At one level, the societal role of business is to engage in profitable activities. At another level business is a social activity and cannot have any other justification than to serve the society of which it is part. Because business is a social activity, arguments used to justify it are socially constrained.

This tension inherent to business is the one captured in the notion of a business ethical dilemma. This notion is helpful to better understand the relation between business and society. Here, we use it to refine our understanding of corporation strategies and practices towards climate change. An ethical dilemma occurs in business when the most profitable consequence of a business activity necessitates a process that is detrimental to society. This business ethics approach takes for granted that business aims at a profitable business consequence. But it also includes procedural considerations on the way such consequences are attained. It is not profit in itself that is ethical or unethical: it depends on how this profit is made.

Attitudes towards an ethical dilemma considerably differ depending on whether or not a firm intends to modify its behaviour. Those who do not intend to modify their behaviour will attempt to transform

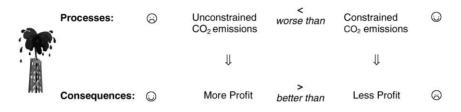


Fig. 1. The oil industry's climate change ethical dilemma.

the dilemma by (a) weakening the reasons to consider the process as detrimental to society, and (b) emphasising the losses associated with the alternative behaviour. Whereas those who intend to adopt the alternative behaviour will attempt to transform the dilemma by (a) strengthening the reasons to adopt the alternative process, and (b) exploring potential additional profits as consequences of the alternative behaviour, possibly by re-framing the scope and horizon of their strategy (Le Menestrel et al., 2001).

The climate change ethical dilemma faced by the oil industry can be schematically characterised as a dilemma between the search for a profitable oil industry and the fact that  $CO_2$  emissions induce climatic changes that are potentially highly detrimental to society. More precisely, emitting  $CO_2$  is an unwanted and inescapable side effect of the process that leads to a profitable oil industry. The constraining of  $CO_2$  emissions is primarily considered through its negative impact on profits (Fig. 1).

Some oil companies clearly adopted attitudes that aim at easing the tension between profits and social responsibility. The two typical attitudes are: (a) putting priority on profits over the constraining of  $CO_2$  emissions, and (b) putting priority on the constraining of  $CO_2$  emissions at the expense of profit. Both have their own difficulties and this may explain why some companies prefer to ignore the dilemma.

From the beginning, Exxon followed the issue of climate change seriously. At first, they were fiercely denying the ethical dilemma by denying the negative side effects of emitting  $CO_2$ . Since there was no unwanted side effect to the process chosen by Exxon to make more profits, there was no reason to modify the company's behaviour. Exxon's initial position is quite typical of a 'fight against action strategy': denial of the ethical dilemma is often the attitude chosen at first, in the early days of the emergence of an issue, before the social constraints on justification intensify.

ExxonMobil is now in a phase where it endeavours to weaken the dilemma, if possible to the point where they can argue that in fact it is no real dilemma. When ExxonMobil had to shift to a public recognition of the existence of a problem, the dilemma was acknowledged, but it was—and still is—addressed with priority clearly placed on consequences. This is done through a double line of argument: on the one side they claim that the economic consequences and the side effects of a modified process—one that would produce less CO<sub>2</sub> emissions—are very bad, and on the other side they maintain that the present CO<sub>2</sub>-emitting process is not that bad, business consequences being what matters. Going back to Fig. 1, ExxonMobil is trying to reinforce the inequality in the bottom line and weaken that in the top line. In particular, while avoiding as much as possible the discussion of the negative side effects of oil production and use, ExxonMobil points to the economic side effects of restricting CO<sub>2</sub> emissions which, they say, will be very negative. Then they suggest that it is worse for society to put up with the latter than with the former. They further argue that it is better to have a risk of climate change and a profitable oil industry that can boost the economy and technological development, than to try to reduce the risk—and hence, diminish profits for the oil industry—since it would presumably impact on the whole economy. By concentrating on the negative side effect of the process that would consist of emitting less, they present the process of emitting more

as better from the point of view of society, hence, not that bad. In other words, they argue that the gain in terms of consequences of maintaining a status quo on the process is sufficient to justify their position.<sup>40</sup>

In this light, corporations adopting a 'fight against emission constraints' strategy strive to justify a conservative attitude towards climate change because they intend to maintain their level of profit and their ways of doing.

Corporations adopting a 'proactive' strategy aim at taking advantage of—and at justifying—their intended modification of behaviour. As BP Amoco does, they try to address the dilemma by placing priority on processes. They start by recognising the negative side effects of the process that emits CO<sub>2</sub>, and they try to act on the consequence of the alternative process that involves reducing CO<sub>2</sub> emissions. They try to modify the 'make less profit' consequence, i.e. they try to find ways of making more profit with a changed process. So, they endeavour to solve the ethical dilemma by finding a way to combine a 'right' process with a 'good' consequence: they claim they (and their products) will emit less CO<sub>2</sub> and make more profits. That is, they try to devise a strategy that will put them on the diagonal line joining the top right corner and the bottom left one in Fig. 1. In this sense, corporations adopting such strategy aim at taking the lead in business action on the issue in order to anticipate the future business reorientation that climate change will impose on them. In the short term, BP Amoco's strategy is justified by the possibility of additional profits in two ways. First, reducing their own CO<sub>2</sub> emissions by means of improved energy efficiency could reduce costs, hence, increase profits. Second, the political benefits that they anticipate from their strategy—i.e. benefits in terms of image and lobbying-can have a positive impact on their market share, hence, their profits. In the longer term, their strategy corresponds to a more radical change of activity, whereby they would endeavour to increase their profits by significantly shifting to other energies, most likely first natural gas and hydrogen, and then renewable energies such as solar, wind and biomass. In this manner, they have re-framed the consequences of their strategy, both in term of scope and in term of temporal horizon.

Proponents of the 'wait and see' strategy attempt to avoid the ethical dilemma. They are careful not to reveal their intention to act by avoiding attitudes that may commit them. They wait until the debate clarifies and the stakes become clearer. Hence, they refrain from influencing either the science or the politics. They may remain with the industry and lobby groups that oppose action, but do not hold leadership positions within these groups, rather they follow the stream, and are ready to justify this participation by saying that no industry body can ever exactly reflect their position. They also keep working on more energy efficient processes and products, although not specifically for climate change reasons. They may eventually openly acknowledge the dilemma and declare an intention to act on it when they are convinced that it is a profitable strategy.

# 4. Conclusions

Climate change poses an ethical dilemma to oil companies. They implement various strategies to address it. Some try to weaken the dilemma in order to maintain a status quo on their ways of doing, some acknowledge it and initiate changes in their ways of doing, and some try to avoid the dilemma.

<sup>&</sup>lt;sup>40</sup> Ignoring or downplaying the procedural aspects of business (ethical concerns) is one way of brushing aside business ethical dilemmas. It is interesting to recall that ignoring the consequential aspects (profits) is another way. Typically, those environmentalists who call for immediate drastic reduction of oil production ignore the negative consequences for the oil industry and potential resulting societal impact.

From a business standpoint, as of today, all the strategies considered in this paper have been very profitable to the corporations that favoured them. A lot has remained at the level of discourses. From a societal and ethical standpoint, judging on the ethical quality of a corporation's behaviour is not straightforward and not always possible. Principally, because there might be a discrepancy between what the company says and what it does. This is the question of 'good faith.' No company has yet clearly incurred costs because of its strategy, hence, it is hard to judge whether the 'proactive' ones really act for ethical reasons.<sup>41</sup> This is not to say that it is either necessary or desirable that ethical companies incur costs. The most desirable situations, for all, are obviously those in which it is more profitable for business to be ethical.

Another crucial question when judging on a company's ethical quality stems from the fact that beyond the substantive dilemma that business may face—in our case make more profit or limit  $CO_2$  emissions—there are also procedural ethical issues. These are issues proper to the actions that some oil producers may have taken to prevent the substantive dilemma to be manifest, acknowledged, and acted upon. In this regard, the situation examined here could be compared to the one faced by the tobacco industry at the beginning of the 1990 decade. Not only do the dangers of tobacco pose a business ethical dilemma—coming from a tension between profits and the devastating health effects of tobacco—but also the very attitude of the tobacco industry has raised ethical issues. Examples of influence—or even manipulation—of public opinion, subversion of political bodies and distortion of scientific evidence are now clearly documented to have taken place (Zeltner et al., 2000). These constitute further ethical issues, which have prompted a debate about the controversial attitude of business towards society. The underlying question being whether business should compete or co-operate with society. One can expect that when 'proactive' oil companies will be incurring specific costs as a consequence of their more ethical stance on climate change, they will join forces with society to distinguish themselves from other companies, turning their ethical advantage into a competitive advantage.

Reflecting on the ethical dilemma that climate change creates for the oil industry sheds new lights on the understanding of the various strategies adopted by oil corporations in reaction to the issue. Exposing the non-ethical behaviour of some corporations, and gauging the good faith of the ethical commitments of others by comparing actions to discourses are two ways of inducing more collaborative and proactive business attitudes. Furthermore, emphasising how proactive industry actors come to successfully articulate and frame the 'constrained  $CO_2$  emissions leads to more profits' option, as exemplified—at least at the level of discourses—by BP Amoco, can help in pulling the whole industry towards more sustainable climate strategies. These are potential levers for policy-makers.

#### Acknowledgements

We gratefully thank the interviewees for their time and openness and the anonymous referees for their very helpful comments. Of course any error and the views put forward remain our sole responsibility.

# References

BP Amoco, 1999. Greenhouse gas emissions trading in BP Amoco, November 1999. Available at: http://www.bp.com/alive\_assets/downloads/10000000034161/climatechange.pdf, accessed February 2001.

<sup>&</sup>lt;sup>41</sup> See Le Menestrel (2002) for a discussion of this point.

- Browne, J., 1997. Speech delivered at Stanford University, California, 19 May 1997. Available from: http://www.bp.com/ pressoffice/, accessed January 2001.
- Browne, J., 1998. Address to the Conference Climate after Kyoto. Implications for Energy, Royal Institute for International Affairs, London, 5–6 February 1998.
- Buchanan, D., Houlder, V., 2001. Oil Group Calls for Drive on Saving Energy. Financial Times, 30 October 2001.
- Cool the Planet, 1999. Summary of Activities Global Climate Coalition: 1996–1999. Available from: http://cool.policy.net/proactive/newsroom/release.vtml?id=17382.
- Cushman, J., 1998. Industrial Group Plans to Fight Climate Treaty. New York Times, 26 April 1998.
- Dahan, R., 2001. Environmental performance and policy—an ExxonMobil perspective. In: Proceedings of the Paper Presented at the Oil & Money Conference, London, 29–30 October 2001.
- Durgin, H., 2000. Giant That Sees No Evil. Financial Times, 11 August 2000.
- ExxonMobil, 2000. Global Climate Change op-ed Series. Available from ExxonMobil website: http://www.exxonmobil.com/ news/publications/c\_global\_climate\_change/c\_oped.pdf, accessed February 2001.
- ExxonMobil, 2001. Global Climate Change ExxonMobil Publication. Available from: http://www.exxonmobil.com/news/ publications/c\_global\_climate\_change/c\_index.html, accessed February 2001.
- Flannery, B., 1999. Global Climate Change. Speeches to the European Affiliates of Exxon Corporation. Int. Assoc. Energy Econ. Newslett. Third Quarter, 4–10.
- Grolin, J., 1998. Corporate legitimacy in risk society: the case of Brent spar. Business Strat. Environ. 7, 213-222.
- Grubb, M., Vrolijk, C., Brack, D., 1999. The Kyoto Protocol. RIIA and Earthscan Publications, London.
- Hamilton, K., 1998. The Oil Industry and Climate Change. A Greenpeace Briefing, Greenpeace International. Available at: http://www.greenpeace.org/~climate/industry/reports/.
- Jaffré, Ph., 1997. Interview of Philippe Jaffré CEO of Elf Aquitaine. Le Monde, 24 November 1997.
- Knott, D., 1999. How petroleum firms can shine in ethics debates? Oil Gas J. 97 (50), 136–138.
- Krause, F., 1997. The costs and benefits of cutting US carbon emissions: a critical survey of economic arguments and studies used in the media campaigns of US status quo stakeholders'. In: Proceedings of the Paper Presentation at the GLOBE Conference on Targeting Kyoto and Beyond, Bonn, October 1997.
- Le Menestrel, M., 2002. Economic rationality and ethical behaviour. ethical business between venality and sacrifice. Business Ethics: A Eur. Rev. 2 (2), 157–166.
- Le Menestrel, M., van den Hove, S., de Bettignies, H.-C., 2001. Processes and Consequences in Business Ethical Dilemmas. INSEAD Working Paper 2001/100/EPS/ABA. J. Business Ethics, submitted for publication.
- Leggett, J., 2000. The Carbon War. Global Warming and the End of the Oil Era, 2nd Edition. Penguin Books, London.

Neale, A., 1997. Organisational learning in contested environments: lessons from Brent spar. Business Strat. Environ. 6, 93–103. O'Keefe, W., 1998a, Kvoto's mounting costs, J. Comm., 6 July 1998.

- Raeburn, P., 1997. Global Warming: Is There Still Room for Doubt? Business Week, 3 November 1997.
- Seitz, F., 1996. A Major Deception on Global Warming. The Wall Street Journal, 12 June 1996.
- Skjaerseth, J., Skodvin, T., 2000. Climate change and the oil industry: common problem, different strategies. In: Proceedings of the Paper Presented at the Sixth Session of the Conference of the Parties to the Climate Convention, The Hague, 23 November 2000.
- Stevens, W., 1996. A Hot Center of Debate on Global Warming. The New York Times, 6 August 1996.
- TotalFinaElf, 2001. Profil Environnement, TotalFinaElf brochure.
- van den Hove, S., Le Menestrel, M., de Bettignies, H.-C., 2001. Should Business Influence the Science and Politics of Global Environmental Change? The Oil Industry and Climate Change. INSEAD Case Study no. 4957.
- Vidal, E., 2000. Pétrole et environnement: le défi vert de l'or noir. Impact Entreprises, no. 20, juillet-août 2000, CFIE.
- Zeltner, T., Kessler, D., Martiny, A., Randera, F., 2000. Tobacco Company Strategies to Undermine Tobacco Control Activities at the World Health Organization. Report of the Committee of Experts on Tobacco Industry Documents, WHO July 2000. Available at: http://filestore.who.int/~who/home/tobacco/tobacco.pdf, accessed May 2001.