Structural Estrangement: How Political and Legal Cultures Dictate Transatlantic Divergence and Convergence of Climate Change Policy

BY

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Declaration

I, Jennifer Crary Hall Thornton, hereby declare that the work presented in this PhD thesis is entirely my own.

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Abstract

The international issue of climate change is appearing on domestic agendas with increasing regularity. More than one hundred nations have now ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change (the Kyoto Protocol), which entered into force on the 16th of February 2005. The importance of the domestic climate change policy process of developed countries is therefore increasing.

Reduction of emissions must take place at the national or sub-national level. International negotiations cannot make reductions; they can only direct that reductions take place. Therefore any international agreement must be enacted into national law for its objectives to be met. An understanding of the factors that influence policy selection will help us to identify what makes an international treaty successful on the national front. Governments, including the United States, are agreed that climate change is an important issue. While each has the same range of policy instruments at their disposal, each chooses to address the problem in different ways.

This thesis focuses on the influence that differing political and legal cultures exert on the development and selection of climate change policies in the United Kingdom and California. It draws on qualitative data collected through interviews with key players in the policy process in the subject jurisdictions in conjunction with analysis of relevant documents, official and otherwise.

The study suggests that the political and legal culture of a jurisdiction plays a major role in the determination of policy, providing new and valuable insights into the policy-making process in the subject jurisdictions. Its findings constitute an argument for giving greater consideration to political and legal cultural issues during international negotiations with the aim of framing international agreements with a greater potential for adoption into domestic law.

This thesis covers the period up to December 2004. Any significant developments between December 2004 and August 2007 affecting the research or the conclusions reached herein have been noted in footnotes.

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Chapter 1 - Introduction

1. Introduction

This thesis is a socio-legal study of the role of culture in the formation of climate change policy in the European Union and the United States of America covering the period up to December 2004. The topic demands a socio-legal analysis because legal aspects of climate change cannot be fully understood unless we see them in their social, economic and cultural contexts. As these contexts vary and change over time because of the change in political configurations and the state of scientific knowledge, law will be called upon to undertake new and potentially unforeseen challenges. However, climate change is an emerging field of study in which law has yet fully to develop its role. If therefore this thesis relied only on legal analysis the picture derived would be partial and incomplete. Indeed, it would hardly inform debate and policy formation and, in fact, could possibly hinder it. It is only through examining this nascent area of law and policy in these various contexts that we are able to understand how the field is evolving.

Socio-legal study or the analysis of law and society can be traced back to Max Weber's work on law and society in the early 20th century (Weber 1978), but has really come to fruition in the last 20 years. It grew out of the study of legal history led primarily by Professor J Willard Hurst of the University of Wisconsin. Hurst was a legal historian, but "his influential works on that subject pointed the way to the social

study of law in American Society"[1] (Macaulay, Friedman *et al* 1995:12). Socio-legal study exists because the operation or function of law, while it produces a rich array of fruits for doctrinal analysis, really only yields empirically useful results when studied within the context of its operation. The field of administrative decision making and law has been a particularly fertile one for socio-legal research. Examples of recent work include studies of decision making by immigration officers (Gilboy 1991) and the regulation of the telecommunications industry (Hall, Scott *et al* 1999). The product of this research has informed the development of policy formation as well as evaluating the utility of it.

2. *Topic and Field of Study*

By its very nature climate change is transnational. It does not lend itself to domestic analysis. There are other areas where transnational government cooperation is required – such as tax and law enforcement. But the way to distinguish climate change from the others is that tax and law enforcement are social constructs. They don't exist unless someone defines them; the effects of climate change are in stark terms "brute facts". They happen whether we acknowledge them or not. The issue is that we are only beginning to understand the scientific aspects of climate change. We have a two-fold problem; on the one hand we are trying to capture what is happening in physical and scientific terms in respect to climate change and on the other hand, as we learn more about these aspects, we are impelled to create policy. Policy and law in relation to climate change therefore always lag behind our interpretation of the scientific data. This lag means that the climate change field is open textured and is

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[1] See Hurst, J W (1950). The Growth of American Law: The Law Makers. Boston, Little, Brown & Co.; Hurst, J W (1960). Law and Social Process in United States History. Ann Arbor, University of Michigan.

necessarily a site of struggle between the competing elements that constitute the members of the climate change field.

According to Pierre Bourdieu a field cannot be defined outside of the context in which it is set. It "consists of a set of objective, historical relations between positions anchored in certain forms of power (capital)" (Bourdieu and Wacquant 1992). In the area of climate change policy the field consists of governments, scientists, accountants, lawyers, businesses, NGOs, the press - really anyone who has any interest in how this policy develops or is affected by its development. All of these groups are struggling over power and who is going to have it. Having this power gives them control over the direction policy development takes.

"Climate Change represents an oddity in government policy. It is a policy that must be sustained over a long period of time and governments are not good at long-term strategy" (Macrory 2001 *Int*). Despite this they are compelled to develop policies. Governments around the world have accepted they need to take action. They are using a wide range of the various policy options at their disposal from "Command and Control"[2] legislation, such as the UK's Climate Change Levy, to "market based instruments"[3], such as the EU Emissions Trading Scheme, to "voluntary

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[2] A "'Command-and-Control' regime is in essence a regulatory approach whereby the government 'commands' pollution reductions (e.g. by setting emissions standards) and 'controls' how these reductions are achieved (e.g. through the installation of specific pollution-control technologies)" Cole, D H and P Z Grossman (1999). "When is Command-and-Control Efficient? Institutions, Technology and the Comparative Efficiency of Alternative Regulatory Regimes for Environmental Protection." Wisconsin Law Review: 887.

[3] Market-based instruments are regulations that are designed to influence behavior through price signals rather than through explicit instructions on pollution control levels or methods. These policy instruments, such as tradable permits or pollution charges, are often described as "harnessing market forces" because if they are properly implemented, they encourage firms or individuals, through economic incentives, to undertake pollution control efforts that are both in the financial self-interest of the firm or individual and that collectively will meet the policy goals of the government Stavins, R N and B W Whitehead (1997). Market-Based Environmental Policies. Thinking Ecologically The next

agreements"[4] such as the California Climate Action Registry. This thesis attempts to understand why the subject jurisdictions have chosen their specific combination of policy instruments. The difficulty of developing and maintaining a long-term strategy is made worse by a number of short-term hurdles that governments face in order to see their climate change policies enacted. Climate change is new, controversial and cross-departmental; governments face these hurdles no matter what their stated position on climate change.

Governments only started to address climate change seriously in the 1980s and the most significant policy developments have occurred in the last ten or fifteen years. The United Kingdom and California were two of the first jurisdictions in the World to respond to the challenges presented by climate change in 1989 and 1988 respectively. It is only recently that there has been enough confidence in the scientific predictions for governments to proceed with policies that require companies to take action.

Controversy around the development of climate change policy has raged since governments first started debating the issue. There have been arguments about whether climate change is actually happening, whether we can or should do anything about it, and if we are going to do something about it whether we are doing the right thing. The European Union and the United States of America argued at the Kyoto negotiations about the best way to combat the increasing emissions of greenhouse

generation of environmental policy. M R Chertow and D C Esty. New Haven, Yale University Press,: 271.

[4] A voluntary agreement is an agreement between government and industry to facilitate voluntary action with a desirable social outcome, which is encouraged by the government, to be undertaken by the participant based on the participant's self interest. OECD (1997). Voluntary Agreements With Industry. Annex I Expert Group on the United Nations Framework Convention on Climate Change Working Paper. Paris, OECD. ELNI, Ed. (1998). Environmental Agreements The Role and Effect of Environmental Agreements in Environmental Policy. London, Cameron May Ltd.

gases; the US wanted to be able to use economic instruments and the EU opposed the use of these so-called flexible mechanisms. Now the US has withdrawn from the Kyoto Protocol and the only way the EU is going to make its commitments is through these flexible mechanisms. There has been subsequent vociferous opposition from business in Europe at the level of the targets that have been set under the EU emissions trading scheme.

In order for governments to make their proposed policies work, people in different government departments with different responsibilities have to communicate and work together. If government departments don't work together you end up with something like the United Kingdom's Climate Change Levy; a tax which it is generally agreed delayed the introduction of the UK's climate change programme and resulted in an emissions trading scheme that was overly complicated and not very effective.

Given these difficulties it is surprising that governments have managed to develop any policies at all. An understanding of how governments have dealt with these difficulties and the cultural factors that have been central in responding to these challenges is important so that we can understand how future policies might develop. Policies are not formed in a vacuum, so it is essential not to study them in a vacuum. It is necessary that we examine factors that surround and influence the sector that we are studying. Philip Stott, a leading contrarian geologist in the field of climatology, has recognised that it is cultural differences between the US and the EU that have led to different policy responses (Stott 2004).

According to Pierre Bourdieu, the juridical field, like all other fields, is "organised around a body of internal protocols and assumptions, characteristic of behaviours and self-sustaining values -- what we might informally term a 'legal culture'" (Bourdieu 1987: 806).

This dissertation looks at the policy options chosen by the United Kingdom and California to try and understand the legal culture of the subject jurisdictions and therefore the reasons why specific policies were chosen. These jurisdictions are placed in context with a historical review of the science and international politics behind the development of international climate change policies and an examination of the policy framework in the European Union and the United States of America. By placing the policies of California and the United Kingdom in the context in which they were set, talking to the people involved in the policy making process and examining the socio-legal reasons behind policy selection, we are better able to understand why the policies were selected and then to develop new policies that will work in each specific jurisdiction.

Very little academic attention has been paid to the practicalities of the democratic decision-making process. Researchers have seemed generally uninterested in making generalised predictions about actual political decision making. Buchanan and Tullock posit that this may be because, at least in part, there is an implicit assumption that participants seek to further the "public interest" without ever actually defining "public interest" (Macaulay, Friedman *et al* 1995:129). In a policy area like climate change, where policy makers are faced with the difficulties identified above, there is no agreed definition of public interest. All sides of the debate claim they are the best placed to look after the public interest.

Certainly, President George W Bush believed he was representing the best interest of Americans when he announced that he would not seek Senate ratification of the Kyoto Protocol and that voluntary commitments by industry would be sufficient to combat climate change. But politicians in California believe they have the best interests of the citizens of the state in mind when they enact policies that limit tailpipe emissions and mandate minimum renewable energy requirements. Both of these jurisdictions agree that climate change is a problem and it needs to be addressed. They both represent the same population, albeit at different levels of government, yet they have very different views on how best to serve the public interest.

In the European Union there is not the clear dichotomy. Both the United Kingdom and the European Union have ratified the Kyoto Protocol. But they have responded to the need to reduce greenhouse gas emissions in different ways; both created emissions trading schemes but they were different, encompassing different gases and different industries.

3. Methodology

3A. MULTI-PERSPECTIVE

It is important to understand differences and similarities in the legal culture of the subject jurisdictions. This thesis looks to explain why the subject jurisdictions have selected the specific policy instruments they have in order to meet their climate change objectives.[5] It does this through an analysis of the political and legal culture of

[5] This research does not attempt to determine whether these policies have been effective or whether they were the right polices for the subject jurisdictions.

each jurisdiction. Since this thesis is an interdisciplinary study, it draws on aspects of comparative law, sociology, history, political science and anthropology. It attempts to elaborate on the issues behind the selection of policy instruments. It will examine the extra-legal aspects of the legislative process, especially the cultural inputs. Every country's legal system is different and they vary according to cultural tradition, economics and politics (Macaulay, Friedman *et al* 1995:9)

3B. DOCUMENTARY SOURCES[6]

To do this, this study was a product of multi-research techniques and a variety of data collection methods were used. Climate change was placed in its scientific and historical context analysing the contents of various international and multilateral foundational documents including:

- The United Nations Framework Convention on Climate Change (the Climate Change Convention);
- The Kyoto Protocol to the Climate Change Convention (the Kyoto Protocol);
- Documents prepared by the subject governments that have been filed with:
  - The United Nations Framework Convention on Climate Change (UNFCCC);
  - The Intergovernmental Panel on Climate Change (IPCC); and
  - The European Union (EU); and
- Law review, newspaper and magazine articles

The domestic climate change programmes of the subject jurisdictions were analysed to provide the current state of climate change regulation.[7] To do this the following types of domestic foundational documents were analysed:

- Preparatory documents - Papers prepared for submission to the Conferences of the Parties (COPs);
- Legislation prepared by the subject jurisdictions to meet their climate change obligations;
- Documents prepared by government departments of the subject jurisdictions which discuss their climate change policies;
- Constitutions of the subject jurisdictions, both written and unwritten; and
- Comments made by organisations interested in the subject jurisdictions' climate change programmes.

To obtain empirical data, interviews were conducted with individuals in the subject jurisdictions.

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[6] The importance of the documents identified in this section will be explained through-out the thesis.

[7] Only those policies that specifically have as their purpose climate change mitigation were examined in this research. The author recognises that many different policy areas will have an effect on a jurisdiction's greenhouse gas emissions but an examination of the political and legal cultural factors behind the development of climate change policy requires that only those policies specifically developed to address climate change be studied

To understand the unwritten and subtle manoeuvres that lie behind the selection of policy instruments I interviewed a range of people involved in the selection, rejection, or advocacy of various policy instruments. Qualitative methods of research were chosen because the current literature is inadequate to tell the complete story. The full political and cultural ramifications of the story can only be learned through conducting a contemporary oral history of the climate change project. An oral history provides the narrative thread that enables us to interpret the varieties of official documentation. It is through this qualitative analysis that an ethnographic description is built that will then allow me to "decode the "unwritten musical score according to which the actions of agents, each of whom believes she is improvising her own melody are organised"" (Bourdieu and Wacquant 1992:8).

To do this, I have interviewed people in the following groups:

- Government agencies;
- NGOs;
- The press;
- Multinational corporations;
- Trade associations;
- Market makers; and
- Independent Advisors such as lawyers, accountants, consultants and economists.

These groups were chosen through an initial review of newspaper, magazine and journal articles that discussed developments in the subject jurisdictions' climate change policy. Specifically, I was looking for groups interested enough in climate change policy to comment to the press or write on any of these developments. After the relevant groups were identified, a combination of sources was used to develop a set of initial people to be interviewed. These sources included:

- Government officials involved in the development of climate change policy;
- Attendees at international climate change negotiations;

- Speakers' lists from relevant conferences;
- Participants in government committees;
- Senior officers of climate change, environmental and government policy NGOs;
- Heads of relevant departments in multinational corporations; and
- Individuals referenced in newspaper, magazine or journal articles.

The initial set of potential interviewees was then reviewed and confirmed with James Cameron, a world recognised expert in climate change policy (Thomas 2002 *Int*). The contact details for most of the potential interviewees were relatively easy to find through searches on the World Wide Web. There were problems finding a few people who had just changed government departments or joined new companies. Only one person in all those I contacted refused to speak with me or provide another person within his organisation.

Names of additional potential interviewees were collected through snowball sampling. At the completion of each interview, the interviewees were asked to identify other potential interviewees. These people were then contacted to arrange a possible interview. Interviews were conducted until such time as no new people or no additional relevant information was forthcoming.

The interviews were focused semi-structured interviews that allowed the respondents to frame their responses within their own terms of reference and so not preclude anything of interest and use. It was not intended that the interviews be a random sample. Not only was the research of a preliminary nature, but I aimed to capture individuals from the leading groups involved in the policy selection process, thus trying to ensure that no salient individual or organisation was omitted and the field destroyed. Pierre Bourdieu has emphasized "the importance of capturing the salient members of a field, otherwise a researcher risks 'mutilating the object [he/she has]

set out to construct"' (Bourdieu and Wacquant 1992:243; Flood and Boon 1999:603). Interviews were tape-recorded when the interviewee allowed this and generally lasted between one and two hours.

We discussed only those jurisdictions that were relevant to the particular interviewee. Some of the interviewees were only involved in the policy process in one jurisdiction, but they may have had thoughts on or experiences with other jurisdictions. Each of the interviewees' answers led to more relevant questions. As there was a large amount of information available on the policy instruments used by each subject jurisdiction and statements made by the interviewees' organisation it was possible to triangulate sources and to test the reliability of the data obtained from the interviewees.

4. The Thesis and Its Structure

Because the field of climate change policy is necessarily emerging and transnational, the approach I've taken to try and capture these elements is to compare the key members of the field namely the EU and the US. Because these are overarching political structures of a federal kind, in order to comprehend the dynamics of policy formation in climate change I selected two salient units of these structures, namely the United Kingdom and California.

It is the core of this thesis that the main responses to climate change have been a mix of public and private policies. Policy formation in this area embraces both the public and private sectors. It is vital to understand the interaction of the two. The reason it is necessary to take a cultural approach is because the commitment of states and

entities to different approaches varies according to social, political and economic aspects. As a contrast with other areas of administrative decision making and regulatory activity, such as immigration, which tend to be finally located in one field, namely the state sector, climate change by its very nature must be located in both the state and private sectors. This can be understood when we come to look at how climate change occurs and who affects climate change policy.

The research is arranged in three parts. The first part provides background on the development of climate change as an issue. Included in this part are the science of climate change and the history of climate change as an international issue, bringing the reader up to February 2004. Information on the development of the science and the history surrounding the development of international climate change policy was gathered through archival analysis of government documents and documents produced by groups attempting to influence the legislative process surrounding the development of international climate change policy.[8]

The second section contains the case studies of the United Kingdom and California and the contextual chapters on the European Union and the United States of America. The case studies examine in detail why each of these jurisdictions have chosen their specific collection of policy instruments. The contextual chapters provide the setting for the case studies. These chapters review the history of climate change policy in the EU and the US and lay out these jurisdictions' current climate change policy. The commentary on these policies was obtained from various news sources around the world. Interviews were not conducted for these jurisdictions

[8] This is a PhD is in law and policy and therefore the underlying scientific literature has not been reviewed as it is beyond the expertise of the author. In addition, the many interviewees have stated that they rely on summaries and commentaries on the current state of the scientific research.

directly. However, they often were addressed in interviews for the case study jurisdictions. If any relevant information was obtained during the interviews it was included where appropriate in these chapters.

The final part provides the concluding analysis. This part reminds the reader of the context in which the research was set and reviews the results of the analysis of the subject jurisdictions. The dominant members of the field are identified, as are the members whose power is waning. It is this former group that will set the agenda for the development of policy in the subject jurisdictions. Understanding of their roles as perceived by other members of the field as well as themselves is essential to understanding how policies have developed in the past and how they may develop in the future. This may sound obvious but it is only by studying the things we take for granted that we can really understand them (Bourdieu 1987: 810-811).

A set of appendices provides short chapters on the political and legal structure of the subject jurisdictions as they relate to the development of the jurisdictions' climate change policies. The chapters on the EU and the US also examine the relationship each entity has with the case study jurisdiction. There are also appendices that identify the individuals interviewed for this dissertation and provide a list of abbreviations.

The range of states considered in this research is restricted to those states in Annex I to the Climate Change Convention[9] and their political subdivisions. This has been

[9] Annex I states are Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Czechoslovakia, Denmark, European Economic Community, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, Netherlands, New Zealand, Norway, Poland,

done because Annex I states are currently the primary emitters of the greenhouse gases regulated under the Kyoto Protocol.[10] Without the participation of these countries there could be no solution to the climate change problem.

Several criteria were used in the choice of the European Union, the United Kingdom, the United States of America and California as the primary empirical focus. In particular these jurisdictions exhibit different characteristics essential to the comparative assessment of why different legal instruments are chosen to respond to the demands of climate change as an international and domestic political issue. Specifically these jurisdictions:

- Are all Annex 1 states;
- Have distinctive political systems and patterns of relations between state and civil society;
- Experience distinctive sets of global and regional influences on policy formulation and implementation;
- Demonstrate common as well as divergent responses to global warming; and
- Have declared climate change policy orientations that range along a continuum from pro-active to wait-and-see.

The European Union negotiated the Kyoto protocol as a block; when examining the EU's climate change policy it is important to understand why it did this. There are a number of issues to consider including:

- Climate change is an area of mixed competence in the European Union;
- Negotiating for an EU-wide target allowed some members states to increase their greenhouse gas emissions while others decreased theirs;
- The disadvantage of negotiating as a single entity is that everything must be agreed by the collective and then presented to the international community;

Portugal, Romania, Russian Federation, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom of Great Britain and Northern Ireland, and United States of America.

[10] OECD countries are currently responsible for two-thirds of emissions of greenhouse gases. Developing countries are growing quickly and it is forecast that by 2025 their emissions will account for two-thirds of the global emissions of greenhouse gases Sharing the Greenhouse (1997). *The Economist*.

- The Member States have very different requirements when it comes to climate change policies;
- The Commission has limited authority in key areas for solving climate change, namely tax and energy policy;
- The Commission and the Member States are constantly battling for power; and
- Each Member State is distinctive in its location within the power hierarchy in the EU.

I have chosen to examine the United Kingdom's climate change policies because it was an early mover in developing national policies and advocating international action. The UK first studied the potential ramifications of climate change on its economy before many other European countries and before the EU. It developed and launched an emissions trading scheme before any other European country, giving industry based in the UK the opportunity to learn about carbon trading before the EU scheme came into effect. On the international stage from Margaret Thatcher to Tony Blair UK Prime Ministers have advocated action. It has acted as a bridge between the US and the rest of the European Union attempting to broker an international agreement in the face of often diametrically opposing views.

When assessing the United States' response to climate change it is important to consider the activities of the states as well as the federal government because:

- The US federal government is a government of limited powers and therefore will not be able to mandate all of the cuts necessary to meet its Kyoto obligations;
- The role of the federal government and the relationship with the states is constantly changing (e.g. federalism);
- All states will have obligations for cutting their greenhouse gas emissions set by the federal government;
- Each state is distinctive in its location within the power hierarchy in the US; and
- The different migration patterns in the states have had an effect on the development of the political and legal culture.

I have chosen to look specifically at the state of California because California established its equivalent of the Environmental Protection Agency before the federal Clean Air Act was passed. Because of this it can take action beyond that taken by the federal government under the Clean Air Act. Also, if California chooses to take action, other states may opt into California's programme. Although California has not necessarily been the most active state in combating greenhouse gases recently, it has a long history of working to reduce carbon dioxide emission because of its battle with air pollution. California is also the fifth largest economy in world. Its individual emissions exceed many signatories to the Kyoto Protocol. Any action that California decides to take will have an effect on global emissions.

It is this profile of similarities and differences that makes the choice of the United Kingdom and California a useful study of the differential impacts of culture on the selection of policy instruments used to meet the demands climate change place on the international and domestic political agenda.

Chapter 2 - The Science of Climate Change

"Climate change is a historical fact, as illustrated by the ice ages. Part of the controversy today is the extent to which human activities are responsible for changes in the climate system" (Shogren and Toman 2000:5). While there are many uncertainties, scientists generally agree "[e]missions of greenhouse gases and aerosols due to human activities continue to alter the atmosphere in ways that are expected to affect the climate" (IPCC 2001a:5).

Scientists have been studying the warming of the earth's surface for almost 175 years. "As early as 1827 the French scientist Fourier suggested that the Earth's atmosphere warms the surface by letting through high-energy solar radiation but trapping part of the longer-wave heat radiation coming back from the surface" (Grubb, Vrolijk *et al* 1999:3). "The greenhouse effect is caused by the Sun's radiation that is reflected off the Earth's surface and trapped by carbon dioxide (CO_2) and other greenhouse gases (GHGs) in the atmosphere. This natural greenhouse effect increases the global mean temperature by about 15°C; warm enough to sustain life on Earth. By burning fossil fuels and releasing more CO_2 into the atmosphere, humans have altered this basic mechanism leading to an additional human induced greenhouse effect also known as 'global warming'" (Oberthür and Ott 1999:3).

The current state of scientific research on climate change is addressed by the Intergovernmental Panel on Climate Change (IPCC). Its reports are the authoritative assessment of the state of climate change research around the world. The IPCC issued its Third Assessment Report (TAR) in October 2001. It "addresse[d] policy relevant to scientific, technical, and socio-economic dimensions of climate change. It

concentrate[d] on findings since 1995 and pa[id] attention to both regional and global scales, including non-English literature to the extent possible" (IISD 2001:2). It found "about three-quarters of the anthropogenic emissions of CO_2 to the atmosphere during the past 20 years is due to fossil fuel burning"(IPCC 2001a:7). And that "globally, it is very likely that the 1990s was the warmest decade and 1998 the warmest year in the instrumental record, since 1861" (IPCC 2001a:2).

The Beginning of Climate Change Research

Svante August Arrhenius, a Swedish chemist and Noble Laureate, published the first major scientific article recognising global warming in 1896. He found "that the carbon divide allows solar radiation to pass unimpeded through the atmosphere, but sequesters a portion of the energy (heat) as it is reradiated by the Earth" (Bernarde 1992:2). Arrhenius also calculated that the doubling of CO_2 would produce a 6°F (3.3°C) increase in mean global surface temperature (Bernarde 1992:2).

Arrhenius' findings did not lead to more research. In fact, climate change as an area of research attracted very little interest until the late 1950s. In 1956 Gilbert Plass of Johns Hopkins University challenged the then common belief that "water vapor absorbed as much of the sun's long-wave radiation as carbon dioxide" (Bernarde 1992:2). This re-examination established CO_2 as the major "greenhouse gas". He found that a "relatively small change in the average temperature can have a large effect on the climate" (Bernarde 1992:2). Finally, in this same paper, Plass noted that "the burning of fossil fuel . . . had greatly disturbed the CO_2 balance. If all this additional CO_2 remains in the atmosphere, there will be 30% more CO_2 in the atmosphere at the end of the twentieth century that at the beginning. Man's activities are increasing the average temperature by 1.1°C per century" (Bernarde 1992:3).

The Building of a Scientific Consensus

The International Geophysical Year, 1957, "provided the foundation for a global scientific community dedicated to understanding planetary processes and human influence on them, and established a network of monitoring stations" (Grubb, Vrolijk *et al* 1999:4). It also provided the necessary funding to get many projects started (Keeling 1998). Roger Revelle and Hans Suess of the Scripps Institute of Oceanography questioned the then common assumption that the oceans absorbed the vast majority of the anthropogenic CO_2 (Mintzer and Leonard 1994:46). They warned, in language that would later be echoed by Margaret Thatcher, that "[h]uman beings are now carrying out a large-scale geophysical experiment of a kind that could not have happened in the past nor be repeated in the future" (Bernarde 1992:3). They went on to say "within a few centuries we are returning to the atmosphere and oceans the concentrated organic carbon stored in the sedimentary rocks over hundreds of millions of years" (Bernarde 1992:3). This article appeared in the obscure Swedish journal *Tellus* read only by research meteorologists and geo-climatologists. It would be more than 30 years before its significance was recognised (Bernarde 1992:3).

Charles Keeling and Robert Bacastow, also of the Scripps Institute of Oceanography, started the first significant scientific experiment to measure the change in CO_2 in the atmosphere. Their research, also funded through the International Geophysical Year, placed gas analysers near the summit of Mauna Loa in Hawaii, the South Pole station of the US Antarctic Program and on ships and planes. The research lasted until 1978 and conclusively proved for the first time that concentrations of CO_2 were increasing

in the atmosphere. Their research also disproved the commonly held assumption that large amounts of CO_2 that were being emitted were being harmlessly absorbed into the oceans (Kopp and Thatcher 2000:5).

"If the severe economic and political repercussions that are likely on a world scale are to be avoided, a technological commitment must be made in the next few years and a world strategy arrived at with enlightenment and wisdom. Though humanity may not be able to foresee the consequences of the 'great experiment' clearly enough to control them, we cannot afford not to try!" (Bernarde 1992:2).

This is a warning issued by scientists from the US Department of Energy's Oak Ridge National Laboratory in 1977. They predicted that by the year 2075 if CO_2 levels doubled then mean global temperatures would rise by 1° to 5°C. With limited urgency the scientists warned that society's use of fossil fuels would "make it difficult . . . to adjust . . . to non-fossil fuel use quickly enough to avoid eventual severe consequences" (Bernarde 1992:3).

The article however fell on "deaf ears" (Bernarde 1992:4). The scientists knew there was a potential problem, but no one was listening. Professor Daniel Bodansky in his seminal (Esty 2000:318) article, *the United Nations Framework Convention on Climate Change: A Commentary* said awareness was finally raised as the result of several scientific developments. First, Keeling and Bacastow's data provided conclusive proof that CO_2 levels were rising and the oceans were not absorbing it. Second, in the 1980s research to examine the role of other trace gases in global warming showed that gases such as methane, nitrous oxide, and chlorofluorocarbons had an effect roughly equal to that of CO_2 "indicating that the problem was twice as serious as

previously thought" (Bodansky 1993:459). Third, increased computer power allowed the creation of more complex climatic models. The advent of satellite sensing data combined with the increase in computing power permitted scientists to represent the atmosphere in three dimensions and take into account some of the principle climatic feedback mechanisms. These new models gave scientists increased confidence in the accuracy of their predictions. Based on the new data in 1979 a US National Academy of Sciences panel concluded "that, if the concentration of carbon dioxide (sic) in the atmosphere continues to increase, 'there is no reason to believe that these changes will be negligible'" (Bodansky 1994:47).

Bodansky posited that scientific evidence alone was probably not sufficient to spur the international community into action. He believed three things worked to catalyse government and public interest. First, a number of scientists publicised the threat of global warming. Second, the discovery of the ozone hole in 1987 demonstrated that anthropogenic activity could affect the global atmosphere. Third, the testimony of James Hanson, a NASA scientist, before a US Senate subcommittee in 1988 put climate change on the front page of most American newspapers (Bodansky 1993:459).

Establishment of the IPCC

In 1985 the International Council of Scientific Unions (ICSU) held a conference in Villach, Austria that recommended "the establishment of an Advisory Group on Greenhouse Gases 'to make continuous scientific assessment and review of greenhouse gases and the progress being made to a more complete understanding of their nature and extent'. Against this background, the World Meteorological Organisation (WMO) Executive Council (in June 1988) paid particular attention to

establishing an intergovernmental mechanism to carry out internationally co-ordinated scientific assessments of the magnitude, timing and potential impact of climate change and welcomed the initiatives of the Secretary-General in establishing the Intergovernmental Panel on Climate Change (IPCC) and noted with appreciation the co-operation and positive response of the Executive Director of UNEP in this matter" (Director's Office World Climate Research Programme 2001).

Since its establishment in 1988, the IPCC has prepared a series of comprehensive assessments, special reports and technical papers, providing scientific information on climate change to the international community, including policy-makers and the general public. This information has played an important role in the negotiations under the UNFCCC.

"The purpose of the IPCC is to assess the scientific, technical and socio-economic information relevant to understanding the risks associated with human-induced climate change. The IPCC does not undertake new research, nor does it monitor climate-related data, but bases its assessments on published and peer-reviewed scientific and technical literature. Its Secretariat is located in Geneva and is staffed by both WMO and UNEP employees" (IISD 2001:1-2). The IPCC's mission is to pool scientific and policy experts from as many countries as possible to create a consensus report on the current state of climate change research. Its members are both proponents and opponents of the science of climate change. Its reports are published every five years; all members of the panel agree the contents of these reports.

The IPCC is a consensus-based organisation composed mostly of scientists. For this reason it is perceived to be a very conservative organisation (Cameron 2001 *Int*). It does not rush to judgement and is not known to overstate its concerns.

"The current structure of the IPCC includes three working groups and a Task Force on National Greenhouse Gas Inventories:

Working Group I addresses the scientific aspects of the climate system and climate change;

Working Group II addresses the scientific, technical, environmental, economic and social aspects of the vulnerability (sensitivity and adaptability) to climate change; and the negative and positive consequences (impacts) for ecological systems, socio-economic sectors and human health, with an emphasis on regional sectoral and cross-sectoral issues; and

Working Group III assesses the scientific, technical, environmental, economic and social aspects of the mitigation of climate change, as well as the methodological aspects of crosscutting issues" (IISD 2001:2).

"The current Bureau of the IPCC was established in 1997. It has 30 members representing all six WMO regions (Africa, Asia, South America, North and Central America, South-West Pacific, Europe)" (IISD 2001:2). One of the key documents produced by each of the Working Groups is the Summary for Policy Makers (SPM). These documents are meant to summarize their findings in a way in which policy makers and the general public can understand and use them. As the international politics of climate change is understood to have a greater impact on domestic policies

the preparation of the SPMs has become increasingly political with many delegations now staffed by professional diplomats rather than scientists.

The Current State of Scientific Research

The scientific community today has unprecedented consensus on the science of climate change. To encourage "individuals, businesses and governments . . . to take prompt action to reduce emissions of greenhouse gases" sixteen academies of science[11] issued a joint statement on the science of climate change in July 2001 (Royal Society 2001). This statement reaffirmed the position of the IPCC as "the world's most reliable source of information on climate change and its causes" and struck out at the climate sceptics calling their doubts unjustifiable (Royal Society 2001). But Bjorn Lomborg whom I will discuss later has questioned this.

The most recent report from the IPCC, the Third Assessment Report (TAR), was finalised in October 2001.[12] It, like the previous reports, is composed of three individual reports prepared by the Working Groups, a Summary for Policy Makers[13] (SPM) and technical summary of each working group report, and a Synthesis Report.

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[11] Australian Academy of Sciences, Royal Flemish Academy of Belgium for Sciences and the Arts, Brazilian Academy of Sciences, Royal Society of Canada, Caribbean Academy of Sciences, Chinese Academy of Sciences, French Academy of Sciences, German Academy of Natural Scientists Leopoldina, Indian National Science Academy, Indonesian Academy of Sciences, Royal Irish Academy, Accademia Nazionale dei Lincei (Italy), Academy of Sciences Malaysia, Academy Council of the Royal Society of New Zealand, Royal Swedish Academy of Sciences, and Royal Society (UK).

[12] There have been various special reports issued by the IPCC since the publication of the TAR. These reports look at very specific issues such as technology transfer, Land Use, Land Use Change and Forestry, Clean Coal; they are not an assessment of the status of global scientific research on climate change as are the FAR, SAR, and TAR.

[13] As this PhD is in law and policy, this review of the current state of scientific research is based on the Summaries for Policy Makers and not the underlying scientific research. The Summaries for Policies Makers are what the policy makers and policy influencers in the subject jurisdictions are relying on when discussing policy options so I am also relying on it.

The Third Assessment Report of Working Group I (WGI) "builds upon past assessments and incorporates new results from the past five years of research on climate change."[14] The preparation and review of the WGI's TAR involved the participation of 122 co-ordinating lead authors and lead authors, 515 contributing authors, 21 review editors and 337 expert reviewers. The Second Assessment Report (SAR) released in 1995 "concluded: 'The balance of evidence suggests a discernible human influence on global climate'. That report also noted that the anthropogenic signal was still emerging from the background of natural climate variability. Since the SAR, progress has been made in reducing uncertainty, particularly with respect to distinguishing and quantifying the magnitude of responses to different external influences. Although many of the sources of uncertainty identified in the SAR still remain to some degree, new evidence and improved understanding support an updated conclusion" (IPCC 2001a:10).

Using this as its base the TAR of WGI described "the current state of understanding of the climate system and provide[d] estimates of its projected future evolution and their uncertainties" (IPCC 2001a:2). It found "concentrations of atmospheric greenhouse gases and their radiative forcing have continued to increase as a result of human activities" (IPCC 2001a:7). The evidence to support this included among other things:

- "The atmospheric concentration of carbon dioxide (CO_2) has increased by 31% since 1750. The present CO_2 concentration has not been exceeded during the past 420,000 years and likely not during the past 20 million years.

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[14] *Climate change* in IPCC usage refers to any change in climate over time, whether due to natural variability or as a result of human activity. This usage differs from that in the Framework Convention on Climate Change, where *climate change* refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods.

The current rate of increase is unprecedented during at least the past 20,000 years;

- About three-quarters of the anthropogenic emissions of CO_2 to the atmosphere during the past 20 years is due to fossil fuel burning. The rest is predominantly due to land-use change, especially deforestation;

- The atmospheric concentration of nitrous oxide (N_2O) has increased by 46 ppb (17%) since 1750 and continues to increase. The present N_2O concentration has not been exceeded during at least the past thousand years. About a third of current N_2O emissions are anthropogenic (e.g., agricultural soils, cattle feed lots and chemical industry);

- Since 1995, the atmospheric concentrations of many of those halocarbon gases that are both ozone-depleting and greenhouse gases (e.g., CFC_{13} and CF_2C_{12}), are either increasing more slowly or decreasing, both in response to reduced emissions under the regulations of the Montreal Protocol and its Amendments. Their substitute compounds (e.g., CHF_2C_1 and CF_3CH_2F) and some other synthetic compounds (e.g., perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6)) are also greenhouse gases, and their concentrations are currently increasing; and

- The atmospheric concentration of methane (CH_4) has increased by 1060 ppb (151%) since 1750 and continues to increase. The present CH_4 concentration has not been exceeded during the past 420,000 years. The annual growth in CH_4 concentration slowed and became more variable in the 1990s, compared with the 1980s. Slightly more than half of current CH_4 emissions are anthropogenic (e.g., use of fossil fuels, cattle, rice agriculture and landfills). In addition, carbon monoxide (CO) emissions have recently been identified as a cause of increasing CH_4 concentration" (IPCC 2001a:7).

They have also concluded

- "there is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities" (IPCC 2001a:10);

- Emissions of CO_2 due to fossil fuel burning are virtually certain[15] to be the dominant influence on the trends in atmospheric CO_2 concentration during the 21st century (IPCC 2001a:12); and

- After greenhouse gas concentrations have stabilised, global average surface temperatures would rise at a rate of only a few tenths of a degree per century rather than several degrees per century as projected for the 21st century without stabilisation (IPCC 2001a:17).

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[15] This term is defined in the SPM to indicate judgemental estimates of confidence greater that 99% that a result is true IPCC (2001a). Summary for Policy Makers: A Report of Working Group I of the Intergovernmental Panel on Climate Change. Shanghai, IPCC: 20.

The findings of WGI set the context for Working Group II (WGII) whose assessment was finalised in February 2001 and assessed "the sensitivity, adaptive capacity, and vulnerability of natural and human systems to climate change, and the potential consequences of climate change" (IPCC 2001b:3). The report was written by 183 coordinating lead authors and lead authors, and 243 contributing authors. The review process was overseen by 440 government and expert reviewers and 33 review editors (IPCC 2001b:3).

WGI concludes that *inter alia* the globally averaged surface temperature has increased by 0.6°C ± 0.2°C over the 20th century and that, for the range of scenarios developed in the IPCC *Special Report on Emissions Scenarios* (SRES), the globally averaged surface air temperature is projected by models to warm 1.4°C to 5.8°C by 2100 relative to 1990, and the globally averaged sea level is projected by models to rise 0.09m to 0.88m by 2100. These projections indicate that the warming would vary by regions and be accompanied by increases and decreases in precipitation. In addition, there would be changes in the frequency and intensity of some extreme climate phenomena (IPCC 2001b:3).

WGII expressed four basic reasons for concern: Risks to Unique and Threatened Systems, Distribution of Impacts, Aggregate Impacts, and Risks from Future Large-Scale Discontinuities. "The report consider[ed] the effects of climate change on water resources, terrestrial ecosystems and human health. It also addresse[d] regional concerns, vulnerabilities and adaptive capacities" (IISD 2001:1-2). It found "the potential for large-scale and possibly irreversible impact poses risks that have yet to be reliably quantified" (IPCC 2001b:6).

WGII had the following specific comments on adaptive capacity, vulnerability, and key concerns for the subject jurisdictions in this PhD.

Europe	Adaptive capacity is generally higher in Europe for human systems; southern Europe and the European Arctic are more vulnerable than other parts of Europe
	Summer runoff, water availability, and soil moisture are likely to decrease in southern Europe, and would widen the difference between the north and drought-prone south; increases are likely in winter in the north and south (*high confidence*)[16]
	Half of alpine glaciers and large permafrost areas could disappear by end of the 21st century (*medium confidence*).
	River flood hazard will increase across much of Europe (*medium to high confidence*); in coastal areas, the risk of flooding, erosion, and wetland loss will increase substantially with implications for human settlements, industry, tourism, agriculture, and coastal natural habitats
	There will be some broadly positive effects on agriculture in northern Europe (*medium confidence*); productivity will decrease in southern and eastern Europe (*medium confidence*)
	Upward and northward shift in biotic zones will take place. Loss of important habitats (wetlands, tundra, isolated habitats) would threaten some species (*high confidence*)

[16] In this Summary for Policymakers, the following words have been used to indicate judgmental estimates of confidence (based upon the collective judgment of the authors using observational evidence, modelling results, and theory that they have examined): *very high* (95% or greater), *high* (67-95%), *medium* (33-67%), *low* (5-33%), and *very low* (5% or less).

	Higher temperatures and heat waves may change traditional summer tourist destinations, and less reliable snow conditions may impact adversely on winter tourism
North America	Adaptive capacity of human systems is generally high and vulnerability low in North America, but some communities (e.g., indigenous peoples and those dependent on climate-sensitive resources) are more vulnerable; social, economic, and demographic trends are changing vulnerabilities in subregions.
	Some crops would benefit from modest warming accompanied by increasing CO_2, but effects would vary among crops and regions (*high confidence*), including declines due to drought in some areas of Canada north of current production areas, and increased warm-temperate mixed forest production (*medium confidence*). However, benefits for crops would decline at an increasing rate and possibly become a net loss with further warming (*medium confidence*).
	Snowmelt-dominated watersheds in western North America will experience earlier spring peak flows (*high confidence*), reductions in summer flows (*medium confidence*) and reduced lake levels and outflows for the Great Lakes-St Lawrence under most scenarios (*medium confidence*); adaptive responses would offset some, but not all, of the impacts on water users and on aquatic ecosystems (*medium confidence*).
	Unique natural ecosystems such as prairie wetlands, alpine tundra, and cold-water ecosystems will be at risk and effective adaptation is unlikely (*medium confidence*).

	Sea-level rise would result in enhanced coastal erosion, coastal flooding, loss of coastal wetlands, and increased risk from storm surges, particularly in Florida and much of the U.S. Atlantic coast (*high confidence*).
	Weather-related insured losses and public sector disaster relief payments in North America have been increasing; insurance sector planning has not yet systematically included climate change information, so there is potential for surprise (*high confidence*).

Working Group III (WGIII) "assesse[d] the scientific, technical, environmental, economic and social aspects of the mitigation of climate change" (IPCC 2001c:3). WGIII noted "climate change is a problem with unique characteristics. It is global, long term (up to several centuries), and involves complex interactions between climatic, environmental, economic, political, institutional, social, and technological processes" (IPCC 2001c:3). It considered "options for cutting greenhouse gas emissions by reviewing: technologies available for controlling emissions; steps that can be taken in the industry and energy sectors to promote a transition to a cleaner energy future; contributions through carbon sequestration by forestry and agriculture; policies for achieving cost-effective and "no-regrets" emissions reductions; and ways to overcome political, cultural and institutional barriers to mitigation." (IISD 2001:1-2). Among its conclusions was "there is no single path to a low emissions future and countries and regions will have to choose their own path" (IPCC 2001c:8) and "National responses to climate change can be more effective if deployed as a portfolio of policy instruments to limit or reduce greenhouse gas emissions . . . Each government may apply different evaluation criteria, which may lead to different portfolios of instruments" (IPCC 2001c:12).

The Climate Sceptics

The climate sceptics first began challenging the growing scientific consensus just as climate change reached the front pages of the world's newspapers. They made three basic arguments:

- That not enough is known about climate change to justify action;
- That global warming might be a good thing; and
- The scientific research demonstrates that climate change is not a problem

Their basic message was "the scientific base for a greenhouse warming is too uncertain to justify drastic action at this time" (Singer 1992:394). Generally, the climate sceptics agreed that the increase in atmospheric greenhouse gases over the past one hundred years was due to human activity (Singer 1999:184-185). However, they did not subscribe to the "warming scenarios being popularly described" (Lindzen 1992:1). They argued that global warming may be a good thing. In the 1970s the US National Academy of Sciences and the National Research Council were predicting that the climate was cooling with potential disastrous consequences for the economy (Singer 1992:400). The sceptics argued that "If cooling was bad, then warming should be good" (Singer 1992:400). The warmer night temperatures would translate into longer growing seasons and fewer frosts. Singer concluded in a 1992 article "that if significant warming were to occur in the next century, the net impact may well be beneficial" (Singer 1992:401).

Hugh Ellsaesser, a scientist at Lawrence Livermore National Laboratory, stated "I strongly believe that greenhouse warming has been greatly exaggerated and its effects distorted, largely for the same purpose that motivated the tailors of 'The Emperor's New Clothes'" (Ellsaesser 1992:404). He believed that climatic models were overstating the amount of warming "by at least two to three fold" and that increased

CO_2 would exert a primarily beneficial effect on the environment (Ellsaesser 1992:404). It is his assertion that climate modellers began publishing climate change data because scientific journals would no longer accept papers on the general circulation models. So they ran their models with increases in CO_2 to see what would happen. The resulting change in the climate could be measured by subtracting the current climate models from the models with the increased CO_2. This assumes the current climate models are accurate. Ellsaesser argues that they are not accurate and so the resultant climate change models could not be accurate (Ellsaesser 1992:412).

The climate sceptics' basic criticisms of the climate science were that the models for predicting climate change were inconsistent with observed fact (Lindzen 1992:2) and that the scientists doing the predicting were changing their model to get the results they sought (Lindzen 1992:2; Leggett 2000).

Richard Lindzen argued that there was no point in trying to reduce the emissions of greenhouse gases, especially carbon dioxide, because the Intergovernmental Panel on Climate Change's (IPCC) first report suggested a 60% reduction of carbon dioxide emissions would be needed to curb global warming and this was not feasible. (Lindzen 1992:6).

Sebastian Oberthür and Hermann Ott in their book on the Kyoto Protocol noted that the climate sceptics criticised the IPCC's measurement methods and claimed that the data did not show a significant warming trend (Oberthür and Ott 1999:10). However, as Obethür and Ott pointed out, the IPCC did not conduct its own research, but rather was there "to assess the state of scientific knowledge taking into account only peer-reviewed work" (Oberthür and Ott 1999:10). It was because of

this approach that the IPCC's findings represented a broad international consensus. JD Mahlam in his article for *Science* magazine on the uncertainties of climatic models argued that if scientists were going to claim that climate change was not happening then they should start their criticism with the broad international consensus achieved by the IPCC (Mahlman 1997:1416).

The former IPCC chairman, Bert Bolin, said that despite the fact that most of the climate sceptics' work was not peer reviewed it was considered and rejected by the IPCC "because of inadequate scientific bases" (Oberthür and Ott 1999:10).

The *New Scientist* suggested in 1997 that the climate sceptics might have begun to challenge the basic tenets of the climate models because of "indignation, coupled with a maverick instinct to buck the trend" (Leggett 2000). It also noted that these climate sceptics had managed to secure lucrative consultancy fees and lecture contracts with entities whose objective was to "undermine international efforts to control emissions of greenhouse gases such as CO_2" (Oberthür and Ott 1999:10; Leggett 2000).

Whatever the motivations of the climate sceptics, their work and comments have now been mostly discredited, and their arguments about the defects of the climate models and the seriousness of the climate change have been rejected. The only debate that remains is what we should do about the fact that the climate is changing.

Bjørn Lomborg's book *The Sceptical Environmentalist* (Lomborg 2001) offers one possible response that the sceptics have taken to heart, namely, that there are better things to spend money on than climate change. In his book Lomborg addresses most

major environmental issues, waste, pollution, energy, water, forests, population growth and climate change. The breadth of the book required most reviewers to concentrate on those areas where they had the most experience (Grubb 2001:1286; Pimm and Harvey 2001:149; Simberloff 2001).

The longest chapter in the book is devoted to climate change. Lomborg acknowledges that "Global warming . . . is almost certainly taking place" (Lomborg 2001:4). But he does not agree with how the world is responding. Lomborg reviewed a number of findings by the IPCC and pointed out where he saw flaws in the reasoning or assumptions. Of the comments on climate change Michael Grubb says "I can only describe his analysis of it as at best inconsequential. On the scientific issues, he does nothing more than place himself firmly at the optimistic end of a wide spectrum of opinion amid legitimate uncertainties, and he picks somewhat selectively from the work of the IPCC to justify his position" (Grubb 2001:1286).

Lomborg is also very critical of the Kyoto Protocol "because independent scientific models suggest that it will have little impact on the scale of global warming and offers very poor value for money" (*The Times of London* 2001a). While Lomborg believes something should be done about climate change *The Times of London* says in its comments "Instead of wasting money on implementing Kyoto, he [Lomborg] says, the world would do better to invest much more than at present in research into renewable forms of energy, such as solar power and nuclear fusion. Should solar power become an economic way of generating energy by the middle of the century, carbon dioxide emissions would decline very steeply" (*The Times of London* 2001a).

Effect of Scientific Research

Whether Lomborg's findings will have any long-term effect on policymaking remains to be seen. The same cannot be said about the conclusions reached by the IPCC Working Groups. Policy makers around the world rely on the findings of the IPCC for the scientific basis for responding to the challenges of climate change. While governments may choose different paths they can do so in the knowledge that the scientific community has reached a consensus: the climate is changing as a result of anthropogenic activity. It is now up to the politicians to decide what to do about it.

Chapter 3 - The Search for International Political Agreement

International political agreement on climate change was never going to be easy. It is a very complicated issue that cuts across all sectors of an economy. In Europe the issue grew in importance out of environmental concerns and has been handled out of environment departments; in the US climate change has always been an economic issue handled cross-departmentally and co-ordinated through the White House. Two of the strongest jurisdictions on the international stage approached the issue from different political and legal cultural perspectives. Despite this and very publicly stated disagreements over the seriousness of climate change as an issue, climate change moved rapidly from a purely scientific issue onto the international political stage.

In the Beginning

In 1979 at the first World Climate Conference scientists "cautiously concluded:

> It can be said with some confidence that the burning of fossil fuels, deforestation and changes of land use have increased the amount of carbon dioxide in the atmosphere by about 15 per cent (sic) during the last century and that it is at present increasing by about 0.4 per cent (sic) per year . . . it appears plausible that an increased amount of carbon dioxide in the atmosphere can contribute to a gradual warming of the lower atmosphere, especially at high latitudes " (Dasgupta 1994:129)

From this meeting it was not long until climate change emerged into the political arena. The calls of the scientists eventually lead to the creation of the IPCC.[17]

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[17] See Chapter on the Science of Climate Change for more discussion of the creation of the IPCC.

The concept was proposed in 1985 at the ICSU conference in Villach, Austria where the invited scientists concluded, "although quantitative uncertainty in model results persists, it is highly probable that increasing concentration of the greenhouse gases will produce significant climatic change" (Bodansky 1993:460). The final conference statement recommended that since "the understanding of the greenhouse question is sufficiently developed, scientists and policy-makers should begin an active collaboration to explore the effectiveness of alternative policies and adjustments" (Bodansky 1993:460). This conference recommended that the organisers take action to "initiate, if deemed necessary, consideration of a global convention" (Bodansky 1994:48).

"Humanity is conducting an unintended, uncontrolled, globally pervasive experiment whose ultimate consequences could be second only to a global nuclear war . . . It is imperative to act now". So said the policy-makers who attended the follow-up to the Villach Conference hosted by Canada in 1988 (Bodansky 1994:49). The conference in Toronto entitled *"The Changing Atmosphere: Implications for Global Security"*. It had as its purpose to bridge the gap between policy makers and scientists on the issue of climate change (Bodansky 1994:48).

It was the high water mark in global climate change policy (Bodansky 1993:462). "As initial actions, the conference recommended:

- A 20 percent reduction in global CO_2 emissions from 1998 levels by the year 2005;
- Development of a 'comprehensive global convention as a framework for protocols on the protection of the atmosphere'; and
- Establishment of a 'World Atmosphere Fund' to be financed in part by a levy on fossil fuel consumption in industrialized countries"(Bodansky 1994:49).

While the recommendations of this conference were not met they did have ramifications for the future of climate change policy around the world. For instance, the conclusions of this conference were directly responsible for the United Kingdom's goal of a 20% reduction in CO_2 emissions by 2010 (Tindale 2001 *Int*). When the Labour party was formulating *"In Trust for Tomorrow"* they drew on this declaration as to what was "possible and achievable. It was intended to drive policy instead of vice versa" (Tindale 2001 *Int*).

The Toronto conference was held as James Hansen, a NASA scientist, was giving evidence stating: "the greenhouse effect has been detected and it is changing our climate now" before the US Senate Energy Committee (Bodansky 1994:48). This statement put global warming on the front page of many American newspapers and firmly moved it onto the political stage. It also ensured that the Toronto conference and its conclusions received significant global press coverage (O'Riordan and Jäger 1996:18).

The IPCC was established just after the Toronto conference. Bodansky asserts that the IPCC was formed in part to reassert political control over what was becoming an increasingly important international and domestic political issue (Bodansky 1993:464-465). It has succeed in this objective. The assessment reports and the summaries for policy makers, published every five years, have become an essential tool for understanding the science behind climate change and the development of policy to address it. Bill Fang of the Edison Electric Institute believes that the Summary for Policy Makers has become so politicised in fact that it can no longer be relied on to provide an accurate summary of the underlying assessments (Fang 2002 *Int*). James Cameron has pointed out that many industrialists lobbied for the IPCC Reports to

become political; they attended the meetings of the IPCC and urged their governments to include language that they believed would benefit their industries (Cameron 2002 *Int*).

Despite the Toronto conference statement and James Hansen's testimony little progress was made towards international political agreement in the late 1980s. The next real breakthrough came in May and June 1990 when the IPCC met to finalise its First Assessment Report. This report became the leading scientific document on climate change and was clearly aimed at policy makers (Bodansky 1993:469). It predicted that if things continued in the same manner, the global mean temperature would rise during the next century by an average of 0.3°C per decade - "a rate of change unprecedented in human history" (Bodansky 1993:469). "This would be the fastest sustained, global rate seen for at least 10,000 years, and compares with a global average temperature difference of only 4°-7° C between now and the last ice age" (Grubb, Vrolijk *et al* 1999:6).

In November 1990, the Second World Climate Change Conference was held in Geneva. It was unique at the time because it had both a scientific and a ministerial component. James Cameron (2001 *Int*) believes this conference was the most significant event in climate change politics because it managed to established a connection between scientific consensus, policy analysis and the negotiation of an international treaty. It was here that the terms of reference for a climate change convention were negotiated (Leggett 2000:20).

The United Nations Framework Convention on Climate Change

As a result of the declarations at the Second World Climate Change Conference the UN General Assembly on December 21, 1990 adopted Resolution 45/212 establishing the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change (INC) (Resolution 45/212 1990). The INC was to complete its work in time for the Convention to be signed at the UN Conference on Environment and Development (UNCED) in Rio de Janeiro in June 1992.

The INC was "charged with drafting 'an effective framework convention on climate change, containing appropriate commitments.' This mandate left open a fundamental question that ran throughout the negotiations: was the INC's task to draft a framework convention – that is, a largely procedural convention, establishing a basis for future action – or a substantive convention committing states to specific measures and policies?" (Bodansky 1993:493). This question was not answered until the end of the INC negotiating process when it considered whether the title should be "UN Convention on Climate Change" or as was ultimately adopted "UN *Framework* Convention on Climate Change" (Bodansky 1993:496). "In the end the Convention lies somewhere between a framework and a substantive convention" (Bodansky 1993:496). It set broad objectives but left specific details to be negotiated at a later date. Given the complexity of the issues involved most commentators agreed it was negotiated remarkably quickly (Bodansky 1993:460; O'Riordan and Jäger 1996:19). [18] This was managed because many of the complex and contentious

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[18] For a detailed discussion of the negotiations that led to the UNFCCC see Bodansky, D (1993). "The United Nations Framework Convention on Climate Change: A Commentary." Yale J of Int'l Law **18**: 451.
, Leggett, J (2000). The Carbon War. London, Penguin Books.)

issue were left to be resolved at a later date. More than 150 countries and the European Community signed the Climate Change Convention.

OBJECTIVES AND PRINCIPLES OF THE CLIMATE CHANGE CONVENTION

The Climate Change Convention defines climate change as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods" (UNFCCC 1992:Art 1(2)). The definition is notable in its stringency of limiting climate change to that which is attributable to human activity (Bodansky 1993:497). The definition used by the Intergovernmental Panel on Climate Change is more inclusive.

Article 2 of the Climate Change Convention defines the objective as:

> The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner (UNFCCC 1992:Art 2).

"The non-specific nature of the objective allows for different interpretations while acknowledging the need for adaptation to and mitigation of climate change (Oberthür and Ott 1999:34). Article 3 established the principle of equity and precaution noting "where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures

taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost" (UNFCCC 1992:Art 3(3)). Again the parties allowed for flexibility and different interpretations of how to respond to the challenge presented by climate change. Article 3 recognises that each party faces different national circumstances and these must be taken into account when formulating responses (UNFCCC 1992: Art 4(4)).

While these principles were not translated into legally binding targets the Climate Change Convention did for the first time, in a formal international setting, recognise climate change as a serious threat (Bodansky 1993:454-455). It also set the aim of returning "to 1990 levels the anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol" (UNFCCC 1992: Art 4(2)b). While very few countries will reach this aim, with the US withdrawal from the Kyoto Protocol but affirmation of its commitment to comply with the Climate Change Convention (Bush 2001a), the Climate Change Convention may take on renewed importance.

In addition to the optimistic aims, the Climate Change Convention included substantial obligations. All parties must:

- "Develop national inventories of anthropogenic GHG emissions and removals by sinks;
- Elaborate and implement national and regional programmes containing measures to mitigate and facilitate adaptation to climate change;
- Promote sustainable management of sinks and reservoirs;
- Co-operate in preparing for adaptation;
- Promote and co-operate in the integration of climate policy consideration into other policy areas and international co-operation in related fields (science, technology, education etc.); and
- Report on inventories and relevant policies and measures" (Oberthür and Ott 1999:34-35).

There are additional obligations for developed countries. They must bear the "agreed full costs" (UNFCCC 1992:Art 12) of developing countries' reporting costs and the "agreed full incremental costs" of other implementing measures including emissions mitigation projects (UNFCCC 1992: Art 4(3), 4(4), 4(5); Oberthür and Ott 1999:36). AOSIS ensured there was explicit financial support for developing country adaptation to the adverse effects of climate change. This financial assistance is funnelled through GEF (UNFCCC 1992:Art 21; Oberthür and Ott 1999:36).

INSTITUTIONS AND THE DEVELOPMENT OF THE CLIMATE CHANGE CONVENTION

The Climate Change Convention has been described as a "milestone because it established the institutional framework and some, although rudimentary, procedures that can be used by Parties to further elaborate the provisions of the Convention" (Oberthür and Ott 1999:37). The "most important" (Oberthür and Ott 1999:38) institution established by the Climate Change Convention is the Conference of the Parties (COP) (UNFCCC 1992:Art 7). Among the powers and responsibilities of the COP are:

- "Reviewing the implementation of the Convention and the adequacy of commitments;
- Promoting the development and refinement of methodologies for GHG inventories;
- Assessing the overall effectiveness of the Convention; and
- Fulfilling any other function required for the achievement of the objective of the Convention" (Oberthür and Ott 1999:38).

Three years after the completion of the negotiations of the Climate Change Convention the first COP was held in Berlin in 1995. The result of COP1 was the Berlin Mandate – a pledge by developed countries to begin work on a Protocol to the Climate Change Convention to strengthen their commitment to cut greenhouse gas

emissions by setting specific and binding targets for emissions reductions. The goal was for this protocol to be signed in Kyoto at COP3. (Oberthür and Ott 1999:47).

Negotiations got off to a slow start with many participants trying to agree a domestic strategy and some arguing that nothing should be agreed until the IPCC published its second report (Grubb, Vrolijk *et al* 1999:63; Oberthür and Ott 1999:51). This report was published in December 1995 and found: "The balance of evidence suggests that there is a discernible human influence on global climate" (Oberthür and Ott 1999:51). It was accepted and publicly supported by the United States, a prelude to a significant shift in US climate change policy.

At COP2, July 1996, the US announced for the first time that it would accept legally binding targets on emissions (Grubb, Vrolijk *et al* 1999:56). It argued that "because of its culture and internal political structure, it would be held accountable to any specific commitments made" (Grubb, Vrolijk *et al* 1999:54). The United States believed the Europeans had a tendency to declare targets with no plan for achieving them; therefore if the US was going to agree to targets they should be binding on all signatories. There was however still no agreement on what these targets should be or on how they should be reached and there wouldn't be until the waning moments of COP3.[19]

COP3 in Kyoto was where the details of targets and timetables were going to be worked out. There was little progress over the first week of the meeting with a

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[19] For a detailed discussion of the negotiations that led to the Kyoto Protocol see Grubb, M, C Vrolijk, *et al* (1999). The Kyoto Protocol: A Guide and Assessment, Earthscan and RIIA.; Oberthür, S and H E Ott (1999). The Kyoto Protocol: International Climate Policy for the 21st Century. Berlin, Springer.; Leggett, J (2000). The Carbon War. London, Penguin Books.

deadlock between the US and the European Community. The US was ready to return greenhouse gas emissions to 1990 levels but the European Community wanted deeper cuts. As the conference neared the end, the then US Vice-President Al Gore arrived with new instructions from Washington "to show increased negotiating flexibility if a comprehensive plan can be put into place" (Oberthür and Ott 1999:86).

Oberthür and Ott pointed out in their book on the Kyoto Protocol that the EU's complex internal decision-making structure hampered it in the fast and intense negotiations (Oberthür and Ott 1999:86-87). Working through the night negotiators were able to agree targets that reduced the US average greenhouse gas emissions by 7% from 1990 levels and the EC average greenhouse gas emissions by 8%. The emissions from all industrial countries would come down by 5.2% overall.

The Kyoto Protocol is a consensus document: adopted unanimously so no formal vote was needed to approve it. This consensus, while hard fought, was only achieved by leaving many contentious issues out of the final agreement. There are no rules on how the various "flexible mechanisms" included to assist countries in achieving these targets were to operate, how to measure and verify a country's emissions, and what would happen if a country failed to achieve its targets (Anderson 2000:5).

Policy-makers recognised the defects and set about correcting them. However, little progress was made at either COP4 or COP5. The parties did agree that the final rules for meeting the Kyoto targets would be completed by COP6 at The Hague in November 2000, thus paving the way for ratification and implementation of Kyoto by the ten-year anniversary of the signing of the Climate Change Convention in 2002.

The delegates failed to meet their goal. The negotiations at The Hague collapsed despite last-minute diplomacy by John Prescott, Deputy Prime Minister of the United Kingdom, and Frank Loy, the delegation head from the US. Jan Pronck, chairman of COP6 did not close the meeting but suspended it until further negotiations could take place in the summer of 2001, in the hope that they would still be able to reach an agreement. At the request of the newly-elected US presidential administration, COP6bis was delayed from May 2001 until July 2001. This was to allow the new administration time to formulate a policy and gets its negotiators in place. However, after reviewing the available options, in March 2001, US President George W Bush announced that the US would not seek Senate approval of the Kyoto Protocol, removing the US from the Kyoto Protocol process.[20] The President did promise that the US would come forward with an alternative proposal in time for COP6bis.

With much worry and many stories of the death of the Kyoto Protocol, the delegates reconvened in Bonn in July 2001. At COP6bis there was no certainty as to what would happen. Most commentators and participants did not expect anything significant and all hopes had been placed on COP7 in Marrakech. They believed there would be no agreement while everyone waited to see what the US would put forward. To most observers' surprise the delegates, excluding the US which attended but did not block the consensus, agreed individual quotas for the use of sinks, the rules for the flexible mechanisms (emissions trading, Joint Implementation and the Clean Development Mechanism) and the compliance mechanism (Secretariat Framework Convention on Climate Change 2001a).

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[20] See US Chapter for further details.

This has paved the way for ratification by the signatory countries, and its implementation into domestic law. Domestic climate change policies will now be put to the test to see if they will succeed in ensuring countries meet their obligations.

COP7 was held in Marrakech from 29 October to 9 November 2001. The US still had not put forward any alternative to the Kyoto Protocol; this was understandable given the tragic events in New York and Washington DC on 11 September 2001. At COP7 the international community finalised the work it had begun at COP6bis. The Kyoto rulebook was finalised, covering how to measure emissions and reductions, the use of sinks, how joint implementation and emissions trading will work and the rules for ensuring compliance commitments (Secretariat Framework Convention on Climate Change 2001b).

Where We Are Today

Most commentators agree the US will not return to Kyoto and it is unlikely to put forward an alternative in the near future (Claussen 2002 *Int*). The EU on the other hand has ratified and is moving onto implementation issues. Both these jurisdictions agree "Climate change, with its potential to impact every corner of the world, is an issue that must be addressed by the world" (Bush 2001a). What they don't agree on is how to do this.

If they agree that climate change is a problem and that we should do something about it then why can't they agree on what to do? Perhaps Michael Grubb's comment that a key debate in the Berlin Mandate revolved around a fundamental clash of political and governmental cultures was not true just for the Berlin Mandate, but extends through the entire climate change negotiation process.

Chapter 4 - The EU and Climate Change Policy

The European Union (EU), as a relatively young international organisation, is still attempting to balance power between Member States and Community institutions. As the EU matures as an international institution, many of these challenges can be seen through an examination of its attempts to develop an effective climate change policy.

As was discussed in previous chapters, the cross-cutting nature of climate change makes developing policy difficult for many governments. The addition of the EU into the policy development process increases this complexity by many folds for the Member States. This is not only because of the difficulties surrounding the science of climate change or the inherent problems of trying to make policy predictions for 50, 100 or even 200 years in the future; it is also because climate change is an area of mixed competence within the European Union and the EU has no authority over energy or tax policy, limiting the areas in which it can take action, yet it remains the entity responsible under the Kyoto Protocol for emissions reductions in Europe.

If the EU fails to meet its obligations the so-called "Bubble Group"[21] will burst and then the Member States will be individually responsible for their emission levels; this

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[21] The "Bubble Group" is the colloquial term for the EU's Burden Sharing Agreement which is authorised under Article 4 of the Kyoto Protocol. This article allows parties included in Annex I to reach an agreement to fulfil their commitments jointly (Kyoto Protocol to the United Nations Framework Convention on Climate Change (1998). ILM. **37:** 22.) If the EU as a whole fails to meet its target, then each member state is responsible for meeting its own individual target as agreed with in the Burden Sharing Agreement (Kyoto Protocol to the United Nations Framework Convention on Climate Change (1998). ILM. **37:** 22.)

The EU agreed the contributions of each member state to the overall 8% reduction commitment at the meeting of Environment Ministers of 15-16 June 1998. The Council Conclusions of 16 June 1998 set out each country's commitment and is referred to as the "Burden Sharing Agreement".

is not something the EU wants to happen. It lobbied hard for the "Bubble Group" because it believed that it gave it an economic and emissions reduction advantage over the United States, allowed for fairness and equity within the EU, enabled the EU to make a greater commitment to reduce emissions, reduced the comparative disadvantage if the US did not ratify the Treaty (ie it provided more flexibility), and was consistent with the EU vision to build a single economic entity.

Unfortunately, as of December 2002 the EU has failed to achieve its objective of meeting its international obligation. The European Environment Agency issued a report that said that the EU was projected to reduce its emissions by only 4.7%, well below its international obligation of 8% (European Environment Agency 2002:10).[22] Under existing policies only Germany, Sweden and the United Kingdom are projected to make sufficient reductions to meet their burden-sharing targets (European Environment Agency 2002:10).

To try to reduce emissions further the commission has proposed several new climate change policies and has been working to strengthen existing policies. But there is only so much it can do if Member States fail to institute their own emissions reduction programmes. Without these programmes the EU will find it difficult, if not impossible, to meet its international commitments. The case study of the United Kingdom that follows this chapter provides some insight into how and why one Member State has developed its climate change programme. It places a Member State's actions in context within the European Union, attempting to understand how

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[22] The European Environment Agency noted in its most recent report that national projections for emissions of greenhouse gases are not fully comparable because of different underlying assumptions (European Environment Agency (2002). Greenhouse gas emission trends and projections in Europe: Are the EU and the candidate countries on track to achieve the Kyoto Protocol targets? Copenhagen, European Environment Agency: 76.)

one country will meet its European commitments and work with the European Union towards a lower carbon future.

Everything within the EU involves complex political compromises and climate change is no different. This often leads to a policy being the lowest common denominator among the Member States or that the best policy proposals for the Community as a whole are never implemented because domestic political pressures within a Member State require that it be blocked. This does not mean the Community has no climate change policies. It has been working on climate change issues since the late 1980s with the introduction of an inter-service group of Directorates General that looked at the issue and made recommendations on what the Community could do to address the problem. Several important issues regarding the development of a Community climate change policy were identified. These include subsidiarity and the lack of competence in key climate change related areas.

Important Factors in the Development of Climate Change Policy in the European Union

Climate change moved onto the EU political agenda at the high point in environmental regulation in the EU. Many important environmental directives were agreed in the late 1980s and in 1987 the Single European Act (SEA) (SEA 1986) clearly gave the EU competence in the environmental area. The Treaty on European Union (Maastricht 1992) increased this authority by introducing qualified majority voting[23] to some areas of environmental policy and set as an objective "to achieve balanced and sustainable development" (Maastricht 1992:Art 2). I mention this in the

[23] For explanation of qualified majority voting and when it is used see Appendix 1 on the Structure of European Union Government.

context of EU environment policy because climate change has historically been an environmental issue in the EU. It has been handled by Member States' environment departments with economic and foreign affairs departments taking a minor role at best.

SUBSIDIARITY[24]

The principle of subsidiarity is particularly important in the area of climate change policy because subsidiarity "is valid when there is *shared competence* between the EU and the member states" (Dahl 2000:211).The concept of subsidiarity holds that "decisions should be taken at the most appropriate level of government and establishes a presumption that this level will be the lowest available" (Golub 1996:687). Jonathan Golub has argued that this concept has always existed in EU environmental policy although until recently it was implicit.

The principle of subsidiarity was confirmed in the first action programme for the environment in 1973.

LACK OF COMPETENCE IN THE FIELD OF ENERGY POLICY

The concept of subsidiarity is especially important in the field of energy policy where the commission's powers are limited and they are unlikely to be extended in any way. This is despite the fact that the first of the European Communities had energy at its heart, the European Coal and Steel Community.

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[24] A more detailed discussion of subsidiarity and its importance to the development of EU environmental policy and more specifically climate change policy can be found in Appendix 1 on the Structure of European Union Government.

The possibility of an energy policy has been debated numerous times at the European level, dating back to 1962 when a working party adopted a memorandum on energy policy which was designed to allow free movement of energy within the Community (Collier 1997).

Member States have fought hard to keep energy policy with their purviews. When the Single European Act (SEA) was signed there was an attached declaration that stated that new environmental policies would not affect a Member State's ability to develop its own energy policy and Maastricht requires unanimous consent on all policies that might affect a Member State's energy sector.

Despite this the commission has continued to strive towards an EU-wide energy policy. In 1988, the commission issued a special White Paper on Energy Policy (European Commission 1988b). This White Paper proposed policies related to deregulation of the energy sector and therefore harmonisation of the single market. It is through its exclusive competence in issues related to the function of the internal market that the commission has been able to play an increasingly visible role in the development of a community-wide energy policy.

Beyond the drive for harmonisation of the single market, international obligations have increased the role of the European Community in the energy field. Two major treaties have given the Community the history to believe it would be successful in introducing climate-change-related legislation. The first, negotiated in 1979, was the Geneva Convention on Long-range Transboundary Air Pollution (CLRTAP 1979) which was a successful regional agreement. The second resulted from the 1987

Montreal Protocol on Substances That Deplete the Ozone Layer (Montreal Protocol 1987). In 1988 the commission issued a directive on large combustion plants. This directive regulates SO_x and NO_x emissions from power stations and large industrial boilers. Both of these treaties have been successfully integrated into Community law and the obligations created have been met.

Early Development of EU Climate Change Policy

Despite the observations of the previous section, the EU does have a climate change programme and it is constantly working to find ways to make it more successful. It is also important for agenda setting in and by the Member States. In the late 1980s and early 1990s EU climate change policy in itself may not have been very successful in reducing greenhouse gas emissions, but it is important for setting the context of Member States' climate change policy. However, policies that were not specifically identified as climate change may well have contributed to a reduction in, or at least slowed the growth of, EU emissions.[25] For these reasons it is important to

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[25] The 1980 Council Directive 80/1268/EEC of 16 December 1980 on the approximation of the laws of the Member States relating to the fuel consumption of motor vehicles does not reference CO_2. This directive was amended by the 1993 Commission Directive 93/116/EC of 17 December 1993 adapting to technical progress Council Directive 80/1268/EEC relating to the fuel consumption of motor vehicles which does note concerns about CO_2 emissions.

This directive states in the 7th paragraph of the preamble "Whereas, in view of the increasing concern about the environmental effects of carbon dioxide emissions, the fifth programme of action of the European Communities on the protection of the environment approved by the Council on 16 December 1992 provides for a stabilization target of these emissions whereas it is necessary to determine the carbon dioxide emissions of light motor vehicles in the framework of the EC type-approval whereas it is appropriate to base the measurement of carbon dioxide on the test procedure established by Directive 70/220/EEC for the measurement of the air-polluting substances of motor vehicles, and consequently to calculate fuel consumption on the basis of the results of these measurements" (European Commission (1993). COMMISSION DIRECTIVE 93/116/EC of 17 December 1993 adapting to technical progress Council Directive 80/1268/EEC relating to the fuel consumption of motor vehicles does note concerns about CO2 emissions: p. 39.)

understand the development of EU climate change policy and the context for that development.

Initial steps to place climate policy on the EU agenda, excluding the funding of climatology research, began with a 1986 Resolution from the European Parliament (European Parliament 1986). The Fourth Action Plan on the Environment, adopted in 1987 and covering the period 1987 to 1992, made no mention of climate change except to call for further research (European Commission 1987). The first communication from the commission on climate change came in 1988 (European Commission 1988c). This communication summarised the current state of scientific research and the outcome of the Toronto Conference (European Commission 1988a).[26] To place it in context this communication was issued at the same time as the IPCC was established. Following this communication an ad hoc committee of the ten Directorates General (DGs) most likely to be involved in the development of EC climate change policy was convened[27] (Council of Environment Ministers 1990). The relationship between DG XI (environment) and DG XVII (energy) was crucial for the development of EU climate change policy: "DG XI sought to promote environment interests, i.e. coping with the greenhouse problem, while DGXVII's major concern was to promote energy efficiency which in turn would promote energy security" (Skjærseth 1994:27).

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[26] For more information on the importance of the Toronto Conference see chapter 3 on International Political Agreement.

[27] This interservice group consisted of DG I (external relations), DG II (economic analysis), DG III (internal market), DG VI (agriculture), DG VII (transport), DG VIII (development aid), DG XI (environment), DG XII (research), DG XVII (energy) and DG XXI (taxation). The main contributors were DG XI (environment), DG XVII (energy) and DG XXI (taxation).

The European Council (composed of heads of state and government) confirmed the "seriousness of this subject" at the highest level when in June 1990 after meeting in Dublin it "called for early adoption of targets and strategies for limiting greenhouse gases" (Haigh 1996:161). At this meeting the Council issued a declaration on the 'environmental imperative' that stated: "The Community and its Member States have a special responsibility to encourage and participate in international action to combat global environmental problems. Their capacity to provide leadership in this field is enormous" (Haigh 1996:163). The following October the Energy and Environment Council of Ministers met just before the 2nd World Climate Conference to agree a Community-wide CO_2 reduction target. The agreed target was to return emissions to 1990 levels by the year 2000. It should be noted that this was not the same as the burden-sharing agreement created after Kyoto, but was based on individual country commitments (Collier and Löfstedt 1997:10). Initially, there was talk of equitable target sharing, that is, allocating individual targets for CO_2 emissions to Member States according to their development needs. This allowed some less developed member states to increase emissions while others decreased theirs. The agreement was not embodied in a legally binding document and was qualified with the assumption that other developed countries made similar commitments (Haigh 1996:162). "However, as Grubb and Hope (1992) point out, attempts to reach agreement on sharing the target never really got off the ground" (Collier 1997:51). Some commentators have called this agreement an "ambiguous supranational concoction" (Collier 1997:51)

The work done in 1990 in the various Community institutions demonstrated the Community's political commitment to policy making on climate change to the international community. Haigh asserted that these political decisions influenced the

negotiations in Rio and led to the adoption of binding commitments for Annex I countries (Haigh 1996:162). These political statements also provided the commission the encouragement it needed to develop an approach to climate change that was centred at the Community level (Haigh 1996:162).

Reaching agreement on CO_2 targets proved "relatively easy compared to the subsequent discussions about drawing up a CO_2 strategy" (Collier 1997:51). Details of the development of this policy have been discussed at some length by other authors (see eg (Skjærseth 1994; Haigh 1996; Heller 1998). Two commissioners, Ripa di Meana (DG Environment) and Cardosa Cunha (DG Energy), prepared a draft Communication to the Council which claimed CO_2 reductions of 15-20% could be achieved without significant macroeconomic costs. It also called for the strengthening of the energy efficiency programme (SAVE), the establishment a programme on renewable energy (ALTENER) and action in the transport sector. It was also in this document that the proposal for an eco-tax first appeared.

This draft Communication was leaked in May 1991(Skjærseth 1994:28). It identified four major policy elements: a regulatory approach, burden sharing, fiscal policy, and action at the national level. The concept of burden sharing was eventually abandoned and the carbon/energy tax became the cornerstone of the commission's climate change policy (Haigh 1996:163).

The United Nations' Conference on Environment and Development in Rio placed a self-imposed deadline on the EU to finalise a climate change strategy. The EU's desire to be seen as an international leader required that it have some "policy flesh to put on the bones of the political decision to stablize (sic) CO_2 emissions" (Haigh

1996:164). In June 1992, just before the Rio Conference, the commission announced its climate change strategy entitled '*A Community strategy to reduce CO_2 emissions*'. It stated that:

> To stabilise CO_2 emissions within the necessary time, a reduction in the energy demand is required as well as an increase in energy efficiency and a modification of the energy sources used. This objective involves therefore all households and companies and can only be achieved effectively by stimulating technological as well as transport and energy infrastructure development at the same time and by changes in behaviour" (European Commission 1992).

The strategy consisted of four elements:

- SAVE program - A framework directive on energy efficiency; this programme was "intended to promote further improvements in end-use energy efficiency in the Community through a range of provisions" (Haigh 1999:14.5-1);
- ALTENER program - A decision on renewable energies; this programme was to "promote the development and use of renewable energy through the provisions of EC funding" (Haigh 1999:14.4-1);
- A directive on a combined carbon and energy tax; and
- A decision concerning a monitoring mechanism for CO_2 emissions.

With Rio over and a strategy for combating climate change within the EU, the commission moved on to try to implement its plans. The European Union ratified the United Nations Framework Convention on Climate Change in December 1993.

During the 1990s the EU and Member States took significant steps to address climate change domestically beyond their international obligations. Most member states adopted climate change plans and to a greater or lesser extent have implemented those plans. An EU-wide emissions trading scheme has been approved

by the Council of Ministers and is due to begin trading in 2005[28];[29] and the monitoring mechanism is up and running more effectively since amendments in 1999. Further amendments have been proposed to bring the monitoring mechanism up to date with the requirements of the Kyoto Protocol (European Commission 2003d). The carbon tax makes regular appearances on the policy agenda; the commission sees the carbon tax as essential to meet its climate change objectives so the proposal is repeatedly withdrawn or modified to try to reach some sort of consensus on a programme. In early 2004 discussions continue about how it might work and be made acceptable to those Member States still opposed to the idea.

EU Climate Change Programmes

The European climate change programme isn't a single programme, but a grouping of policies, some new and some old, which have the overall aim of reducing greenhouse gas emissions in the EU and improving energy efficiency. The policies that the commission includes in its climate change programme are:

- European Climate Change Programme;
- Monitoring Mechanism;
- CO_2/Energy Tax;
- Emissions Trading; and
- Renewable Energy Programmes – Renewable Energy Directive, SAVE and ALTENER.

The development of these policies will be reviewed in the remainder of this chapter. The framework for these policy objectives first began to take shape in early 2000.

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[28] The first trade took place between Nuon Energy Trade and Wholesale and Shell Trading, a part of Shell Oil, on the 27 February 2003 (European Council for an Energy Efficient Economy. (2003). "Shell and Nuon first CO2 traders." Retrieved 11 December 2003, 2003, from http://www.eceee.org/latest_news/2003/news20030311.lasso.)

[29] Since this thesis was submitted the EU ETS has commenced trading. Phase 1 is nearing the end of its trading period; Member State requests for Phase 2 allocations have been made and acted upon by the Commission and negotiations over the design of Phase 3 have begun.

The commission published two documents that it intended as the launching point for the Community's climate change programme. The first was a communication on policies and measures to reduce greenhouse gas emissions which launched the European Climate Change Programme (ECCP) (COM (2000)88). The second was a Green Paper on an EC emissions trading scheme (COM (2000)87) (Haigh 1999:14.2-6).

1. EUROPEAN CLIMATE CHANGE PROGRAMME

The commission launched the European Climate Change Programme (ECCP) in March 2000 with the goal of identifying and developing all the necessary elements of an EU strategy to implement the Kyoto Protocol. This process involved "all the relevant groups of stakeholders working together, including representatives from the commission's different departments (DGs), the Member States, industry and environmental groups" (European Commission 2002).

With the initial focus on energy, the transport industry and flexible mechanisms, six working groups[30] were set up in the summer of 2000 to recommend cost-effective options for the reduction of greenhouse gas emissions.

The Environment Council adopted *Conclusions Concerning Community Policies and Measures to Limit Emissions of Greenhouse Gases* in October 2000 (Environment Council 2000). This confirmed the framework of the ECCP, but also set priorities in the fields of transport, energy efficiency and industry sectors taking into account the

[30] The working groups were Flexible Mechanisms, Energy Supply, Energy Consumption, Transport, Industry - including a sub-group on fluorinated gases - and Research.

environmental impact and cost-effectiveness of the measures. The European Parliament also adopted a resolution on the ECCP that confirmed the policies, whether adopted at the national or community level, which were the priorities of the EU climate change strategy (European Parliament 2000b).

The ECCP interim report issued in November 2000 confirmed the "uncertainties and difficulties" (European Commission 2000a:4) that many Member States faced in meeting their Kyoto commitments. The commission found that this reinforced the important role of the EU measures and policies to "supplement" (European Commission 2000a:4) the Member States' climate change strategies. This interim report also identified measures under discussion by the various working groups which were elaborated in annexes and additional reports prepared by the working groups.

The final report and those of the working groups were published in June 2001. The working groups' report identified 42 possible measures, which could lead to some 664-765 $MtCO_2$ equivalent emissions reductions that could be achieved against a cost lower than €20/tonne CO_2eq (European Commission 2001c:45). This is about double the emissions reduction required for the EU in the first commitment period of the Kyoto Protocol. However, the commission noted that at the time this report was published the EU was between 6.6% and 8% from its Kyoto target (European Commission 2001c:5). The ECCP was considered a "launch pad" for the overall EU strategy, not a "final destination" (European Commission 2001c:45). This final report did not analyse all EU programmes that may have some effect on greenhouse gas emissions. However, it was linked to these initiatives and comments were provided when appropriate.

The follow-on from the final report was a communication from the commission on the implementation of the ECCP. This Action Plan outlined the priorities the commission set for itself to implement in 2002 and 2003 (European Commission 2001a). These priority actions represented an emissions reduction potential of 122-178 $MtCO_2eq$. It also set out the basis for additional research the commission planned to undertake in other areas, such as CO_2 sequestration (sinks) in agricultural soils and forests.

At the same time, the commission put forward a proposal for a Council decision on the ratification of the Kyoto Protocol (European Commission 2001f). The Council decision was issued on 25 April 2002 (European Council 2002). The ratification process was completed on 31 May 2002 with the depositing of the ratification instrument with the Secretariat of the UNFCCC (European Commission 2002).

The second phase of the ECCP was to run between 2002 and 2003. Its objective was to implement the priorities identified in the first phase of the ECCP. Various working groups were also examining how the EU could make the best use of flexible mechanisms and sinks. A final report on this phase of the ECCP was published in May 2003 (European Commission 2003e). It reported on the implementation of Phase 1 commitments and outlined the future plans for action under the ECCP.

2. THE MONITORING MECHANISM

The monitoring mechanism was "the first item of EC legislation to be adopted that specifically deals with global warming" (Haigh 1999:14.2-1). The Directive was

adopted on 24 June 1993 by the Council of Environment Ministers (European Council 1993:31). It established a monitoring mechanism in the Community for anthropogenic CO_2 and other greenhouse gas emissions not controlled by the Montreal Protocol. The Directive had two objectives: firstly to provide the commission with a mechanism to monitor progress towards the target of stabilisation of CO_2 emissions at 1990 levels by the year 2000 and to fulfil the reporting requirements under the 1992 Climate Convention; and secondly, to require each Member State to "devise, publish, implement and periodically update national programs for limiting their anthropogenic emissions of CO_2" (European Council 1993:Art 2.1). The purpose of this is to allow the commission to make annual evaluations of the Member States' climate change programmes. This provides the basis for the assessment of the Community's progress towards the stabilisation objective.

Under the original directive two evaluation reports were issued. The first was issued on 10 March 1994 and covered the period 1990-1993 (European Commission 1994:6). The second report was issued on 14 March 1996 (European Commission 1996:1). In these reports the commission concluded that the information provided was still not sufficient to evaluate progress towards the Community stabilisation target in a satisfactory way.

Nigel Haigh argued that the title does not convey the full importance of this piece of legislation because it required the commission to "evaluate data on greenhouse gases reported by the Member States but Member States are to devise, publish and implement national programmes for limiting their anthropogenic emissions of CO_2 and other greenhouse gases in order to contribute to commitments in the Climate

Change Convention and Kyoto Protocol and to an EC target" (Haigh 1999:14.3-1). While the monitoring mechanism in its initial form promised great things towards meeting the EU's internal commitment and obligations under the UNFCCC, in practice it was almost a total failure. Member States virtually ignored the reporting requirements and the evaluations of national programmes and assessments of progress towards the stabilisation goal have been treated in the same way (Hyvarinen 1999:193).

The Monitoring Mechanism, Decision 93/389/EEC, was revised in April 1999[31] (European Council 1999) to allow for the updating of the monitoring process in line with the inventory requirements incorporated into the Kyoto Protocol. The amendments were intended to strengthen the reporting programme requirements for the Member States. The Member States' reports must include (a) information on actual progress and (b) information on projected progress. Member States are required to submit by 31 December inventory data for the two previous years, any updates of previous years (including the base year 1990) and their most recent projected emissions for the years 2005, 2010, 2015 and 2020 (Lacasta, Dessai *et al* 2002:384). It was envisaged that the monitoring mechanism would play a key role in ensuring that the EU and Member States stay on track towards their targets under the UNFCCC and the Kyoto Protocol. It is also a recognition of the role that Member States must play in the reduction of greenhouse gas emissions.

The first progress report under the revised Monitoring Mechanism, Decision

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[31] As a follow-on to this revision the Commission put forward a directive which established a scheme to monitor the average specific emissions of CO_2 from new passenger cars (European Commission (1999b). Directive 1999/94/EC of the European Parliament and of the Council of 13 December 1999 relating to the availability of consumer information on fuel economy and CO2 emissions in respect of the marketing of new passenger cars: p. 16.)

99/296/EC, was released in November 2000 (European Commission 2000d). In this report the commission found Member States making progress in reporting emission inventories and on national policies/measures and projections. This good news was tempered with the note that much remains to be done with regard to the completeness, accuracy and comparability of the data, especially those on projections. The report confirmed that the EU was likely to stabilise emissions at 1990 levels by the year 2000 as required by the UNFCCC. Most of these reductions have been the result of the reunification of Germany and the unintended consequence of the "dash for gas" resulting from privatisation in the UK's energy sector (Grubb, Vrolijk *et al* 1999:81). However, the commission also noted that compliance with the ambitious Kyoto target of -8% would prove much harder for the EU and its Member States. It concluded that common and coordinated policies and measures at EU level would become an increasingly important element to supplement and reinforce national climate strategies. These policies and measures are found in the ECCP.

The second progress report (European Commission 2001g) told much the same story. "The Community's greenhouse gas emissions were 4 per cent lower than 1990 levels, and that at best with current measures only a stabilisation of emissions will have been achieved by 2010" (Haigh 1999:14.3-5).

The third progress report was released on 3 February 2003 (European Commission 2003d). In this report the Commission confirmed the EU had met its greenhouse gas stabilisation target as required by the UNFCCC. However, the aggregate Member States' projections suggest that existing policies and measures will not be sufficient to reach the Kyoto target. The 'business-as-usual' scenario (with existing measures)

suggests that in 2010 EC emissions will have decreased by only 4.7% leaving a gap of 3.3% to the Kyoto target (European Commission 2003d:4).

Two days after the third progress report was released, on 5 February 2003, the commission presented a proposal for a decision for a revision of the monitoring mechanism (European Commission 2003a). This proposal expands upon the previous decisions to include the flexible mechanisms and registries. It is intended to increase the transparency of the Member States' emissions and forecasts.

3. CARBON/ENERGY TAX

The idea of an EU-wide carbon/energy tax was first raised in 1991 (European Commission 1991). This document laid out the framework for the proposed tax. This proposal began the series of concessions the commission would make to try and get agreement on the proposal over the years. The initial tax rate was proposed at US$ 3 per barrel in 1993 rising to US$ 10 per barrel over a seven-year period; it allowed for special treatment of energy-intensive industries and the revenues were to be used to offset other taxes. (Delbeke and Bergman 1998:3). Further refinements were introduced in 1992 (European Commission 1992).

Angela Liberatore, a European Commission project officer and former academic at the European University Institute, has put forward several possible political reasons for the carbon/energy tax. One is the need or desirability for the European Community to take a leading international role in climate change. Second is that it would demonstrate the EC's commitment to reduction of CO_2 emissions. Third is that the tax would represent "a fundamental precedent for increasing the power of

Community institutions in the fiscal arena" (Liberatore 1995:66). Fourthly, as in the United Kingdom, a reason for the choice of a tax over emissions trading was "institutional familiarity and the lack of experience/familiarity" with the latter (Liberatore 1995:66); the commission assumed it was easier to modify existing institutions than create new ones.[32]

Ute Collier, from WWF, suggested two other possible reasons for the continued attempts to introduce the tax. The first was that it was introduced to internalise some of the external cost of energy. The second was that it was the commission's desire to harmonise taxes for proper functioning of the single market (Collier 1997:53).

Pressure for the tax came from Germany, Denmark and the Netherlands. They threatened to introduce the tax unilaterally which would have interfered with the commission's desire to harmonise taxes across the EU. However, there was stiff opposition and "considering the EU's difficulties in the fiscal policy area in the past, it was clear that this was not going to be a measure on which agreement would be reached easily" (Collier 1996:7).

Early objections came from the UK and France. The UK vehemently opposed any European intervention in tax matters, while France wanted a pure carbon tax to protect its nuclear industry.

The United Kingdom opposed the carbon/energy tax on the basis of subsidiarity, arguing that taxes were best dealt with at the national level (Dahl 2000:217), although

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[32] The EU later recognized that the best way for it to make its Kyoto commitments was to create a new institution and adopt an emissions trading scheme.

there is "little doubt that a main reason for objecting to the tax was not a true belief in subsidiarity, but a general reluctance to surrender decision making powers to the EU, especially on such important matters as taxes" (Collier 1997:55; Dahl 2000:217).

The original proposal was "finally laid to rest at the Essen summit in December 1994. The European Council's rather bland statement instructed the ECOFIN Council to consider common parameters to enable every Member State to apply a carbon/energy tax 'if it so desires'" (Collier 1996:8). Since that time several new proposals have been submitted, including a voluntary proposal in 1995 and the so-called Monti Directive in 1997 (European Commission 1997).

In June 2001 potential agreement on an energy tax failed when the UK and Spain insisted on liberalisation of all EU energy markets before implementation of an EU energy tax (Center for a Sustainable Economy 2001). Only a year later, in May 2002, it was the Spanish who attempted to revive plans for an EU energy tax. The Spanish proposal contained a long list of exemptions that the EU Tax Commissioner Frits Bolkenstein likened to Gruyère cheese, saying that the commission preferred "an Edam cheese, which has a lot of cheese and not any holes" (Jucca 2002).

A few months later, the Dutch Institute of International Affairs and the Institute of Local Government Studies urged the Dutch Government, the holders of the EU Presidency, to abandon the idea of an energy tax as it was a "hopeless battle" (Center for a Sustainable Economy 2002). The Dutch did not give up. They worked hard through the autumn of 2002 to get finance ministers to agree to a new EU energy tax system. Reuters reported in October 2002 that they hoped to have agreement by the end of the year (Reuters News Service 2002c). However, Margot Wallstrom, EU

Environment Commissioner, had little faith in the ability to reach an agreement saying she'll "believe it when [she] see[s] it" and some EU diplomats considered the bill a tall order (Reuters News Service 2002c).

The Dutch were no more successful than any other European Country. In December 2002, the French and the Italians blocked agreement. They wanted to maintain reduced tax rates for diesel used by road hauliers (Planet Ark 2002b). Germany opposed the concessions because it has the highest fuel duties in the EU and it felt this would disadvantage Germany road hauliers.

Greece took over the Presidency of the EU in January 2003 and with it the lead in the battle for an EU energy tax. In February 2003 Greek Finance Minister Nikos Christodoulakis said that with regard to a potential agreement on the carbon/energy tax "never in the past have we been as close as now in reaching final agreement" (Jucca 2003). But they did not reach an agreement; and with the imminent expansion of the EU the unanimous decisions required to alter taxation rules will make the adoption of a carbon tax almost impossible.

4. EMISSIONS TRADING

The EU initially opposed the inclusion of emissions trading in the Kyoto Protocol[33]. This opposition stemmed from the belief that it would provide the US with economic and practical advantages because of the US's experience with trading

[33] The rules for emissions trading require unanimous agreement by the EU Council of Ministers. Thus, proponents of emissions trading must understand how the EU is attempting to build a unified position on the issue, as well as the roles of key actors, institutions and member states in that process (Chasek, P (1998). Working Paper on European Union Views on International Greenhouse Gas Emissions Trading. Environmental Policy Studies. New York.)

systems. There was a fear that emissions trading would dilute the unique advantage the EU achieved through the "Bubble Group", which the EU believed made its aggregate reductions less of an economic challenge (*Economist* 1997:16). "The EU wanted to ensure that flexible measures [did] not give Annex I countries, the US in particular, the means to exploit cost-effective options that would give them an economic advantage over the EU (or at least erase the EU's perceived advantage under the bubble)" (Chasek 1998:5).

This opposition did not last long. Three months after signing the Kyoto Protocol the Council of Environmental Ministers indicated that the EU was not completely opposed to emissions trading as an option for Annex I nations to meet Kyoto obligations. The Council of Ministers did express its desire that the US and Japan should not be able to buy their way out of real emissions reductions, and recommended that a ceiling be placed on the use of flexible mechanisms (Council of Ministers 1998). The G-8 environment ministers meeting may have gone some ways towards mitigating the Council of Ministers concern when it agreed "not to use emissions trading to evade painful domestic reductions in greenhouse gas emissions" (Boulton 1998:3). G-8 environment ministers stated that flexible mechanisms should be "supplemental to domestic action" (Boulton 1998:3).

In 1999 the European Commission suggested that the best way for the Community and its Member States to get acquainted with the Kyoto mechanisms would be to develop their own emissions trading scheme (European Commission 1999a). In March 2000 the commission published a Green Paper on greenhouse gas emissions trading within the EU for wider consultation with stakeholders (European Commission 2000b). Ninety comments - overwhelmingly supporting emissions

trading - were received from governmental organisations, businesses and NGOs throughout Europe (European Commission 2000c). The first proposal for a framework directive was released just before COP7 (2001) as part of the EU climate package. Neither industry nor the NGOs were happy with the proposal and it was ultimately withdrawn. Lionel Fretz described it as a "good example of government not listening" and said that it had no relation to what had been discussed and proposed in the EU working groups on emissions trading (Fretz 2001 *Int*). Although Garth Edwards really liked it, and described it as "hard core", it was his feeling that it was withdrawn because German industry was not happy with the proposal (Edwards 2001 *Int*). Many people felt that this proposal was placed in the public domain before it was ready, to show that the EU was doing something ahead of COP6 at The Hague (Cameron 2001 *Int*).

The second proposed directive on greenhouse gas emissions trading was issued on 23 October 2001 (European Commission 2001e). The trading system is expected to start in 2005. National Allocation Plans are now being drawn up by the Member States that tell industry how much carbon dioxide they it be able to emit. It is the commission's hope that it will allow the private sector to find the most cost-effective ways to reduce its CO_2 emissions (European Commission 2002). The final proposed directive took into consideration all six greenhouse gases; however, the initial programme will only allow trading in CO_2.[34] It is hoped that methane and the rest of the basket of greenhouse gases will be added to the trading scheme by 2007 or 2008 (Cameron 2002 *Int*).

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[34] Carbon dioxide accounts for 80% of EU emissions and relative to the other five gases is easy to monitor, report or verify.

The commission has proposed a cap-and-trade approach covering heavy industry sectors across the EU.[35] This proposal revolves around two key concepts: a greenhouse gas "permit" and a greenhouse gas "allowance." All installations under the scheme will be required to have permits that will lay down monitoring, reporting and verification requirements in respect of direct emissions of greenhouse gases specified in relation to those activities. Member States will allocate allowances to all installations holding permits that can then be transferred to other companies (European Commission 2001e).

The current estimate is that this directive, accounting for approximately 46% of EU carbon dioxide emissions, covers 12,000 installations. However with 27 countries[36] participating in the scheme there may be more that 15,000 installations affected. The industries covered include power generation, refineries, iron and steel, coke ovens, cement, glass and ceramics, pulp and paper, and any combustion plant with over a 20 megawatt capacity[37]. Chemical and waste incinerators are exempted. Fines for exceeding emissions allowances start at €50 per tonne of carbon dioxide in the lead-in phase, rising to €100 thereafter.

The scheme will run between 2005 and 2007[38], before the Kyoto Protocol's first commitment period starts. The Member States rather than the EU will decide on

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[35] This directive also covers most power plants that only provide power on an individual industrial site, so called Inside The Fence power plants.

[36] The countries participating in the scheme are the 15 current member states, the 10 prospective member states, and Norway and Switzerland.

[37] This 20 megawatt capacity is for thermal energy input, not electrical power output. The electrical power output of these combustion plants may be as little as 7 or 8 megawatts.

[38] Phase 1 of the EU ETS is nearly completed and the Commission has made the allocations for Phase 2. As of 10 August 2007 Czech Republic, Estonia, Hungary, Latvia, Poland and Slovakia have filed lawsuits against the Commission and Lithuania is threatening to do so with regards to their allocations in Phase 2 of the EU ETS. Lithuania expects to make a decision the week of 13 August 2007 on

initial allowances. Ninety-five percent of the allowance will be allocated free, the other five percent may be auctioned at the discretion of the Member State government. The Member States may choose to exempt certain power plants assuming they were making equivalent cuts in their emissions. And if "market conditions" justify, Member States could award companies extra permits at no cost. Any potential abuses of the allocation process will be scrutinised by the EU competition authorities. The Monitoring Mechanism in conjunction with national transaction registries will perform the tracking of traded allowances. Only carbon dioxide emissions will be covered in the beginning of the scheme because they represent 80% of the Community's greenhouse gas emissions (Lacasta, Dessai *et al* 2002:391-393).

The German government called the carbon dioxide emissions trading system as proposed "bureaucratic" and claimed that it had "the features of a centrally-planned economy" (ENDS Environment Daily 2002). Germany made these comments as it prepared to negotiate concessions for German industry. Germany along with the UK sought certain changes to be made before the emissions trading directive is approved, including: allocation of emissions permits had to be free of charge; industry associations would be able to make the trades; and there should be an opt-out clause for the first compliance period. Germany's reason for wanting these concessions was that its industry had already made significant reductions in emissions as a part of Germany taking on the largest reduction in the "Bubble Group", industry has long running voluntary agreements to reduce greenhouse gases, and any further demands would place German industry at a competitive disadvantage.

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whether to proceed with litigation. The Commission and the Member States are currently working on the design of Phase 3 of the EU ETS.

On 9 December 2002 the Environment Ministers from the Member States approved the creation of the EU's emissions trading system. Germany and the UK received several of the concessions they were seeking in that they will be able to opt out of the first phase but they will have to participate beginning in 2008 and companies will be able to create pools to trade as one entity (Dombey and Houlder 2002). In late June 2003, the Parliamentarians agreed the final changes to the emissions trading legislation. It was approved without any problems on 1 July 2003 and was expected to be rubber stamped by the Council of Ministers. It is expected that the European emissions trading market will be approximately US$ 1 billion in 2005 rising to up to US$ 8 billion in 2007[39] (Planet Ark 2002a). However, it may also lead to increased power prices as the costs of trading are internalised in the cost of producing electricity (Platts 2003).

All of this means that the UK was not as successful as it would have hoped in its lobbying effort to make the EU scheme a framework into which existing Member States' schemes could be slotted. Despite the concessions discussed above, the UK emissions trading schemes will have to be scrapped or modified to conform to the EU system. The main differences between the two schemes is that the EU scheme is mandatory while the UK system is voluntary and in the United Kingdom the electricity sector is only partly covered, but it is included in the EU scheme.[40]

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[39] This is the estimated value of the amount traded, not the value of the allocation which is much more.

[40] Steve Sorrell provides further analysis of the implications for the main UK climate change policies with the adoption of the EU emissions trading directive (McKinsey Consulting (2002). Climate Change For Europe's Utilities. The McKinsey Quarterly.
, Sorrell, S (2003). Back to the Drawing Board? Implications of the EU Emissions Trading Directive for UK Climate Policy. Brighton, SPRU Environment and Energy Programme: 76.)

Implementation of the EU scheme is beginning. The national allocation plans (NAPs) which set out the emissions caps for the end of 2007 for each installation covered by the EU emissions trading scheme had to be published by 31 March 2004.[41] The UK was the first country to publish its NAP. It will require a 16.3% cut in emissions (Point Carbon 2004). This target exceeds the UK's commitment to the "Bubble Group" of a 12.5% reduction. Reaction to this target has been mixed (Planet Ark 2004).

5. RENEWABLE ENERGY PROGRAMMES

The European Union has had renewable energy programmes since the early 1990s. While these programmes were not specifically set up to combat the effects of climate change they are mentioned as a part of the EU climate change programme. It should be noted that they are complementary but separate policies.

Renewable Energy Directive

The Council approved the renewable energy directive on 7 September 2001 (European Commission 2001b). It is intended to promote an increase in the contribution of renewable energy sources to the production of electricity on the internal market, and lay the foundations for a future Community framework in this area.

To this end, the directive requires Member States to set national targets for their future consumption of electricity from renewable energy sources, ensure guaranteed

[41] Several countries will miss this deadline which the Commission has said it will strictly enforce.

access to renewable forms of electricity with accurate and reliable certification of its source, improve and expedite the authorisation procedures applying to power plants generating green electricity, and ensure that the method for calculating the connection costs for new producers is transparent and non-discriminatory. The directive also stipulates that the commission is to check that the national targets are consistent with the EU target of 12% of gross inland energy consumption by 2010 coming from renewable sources and that the commission may propose mandatory national targets if the national targets are likely to be inconsistent with the overall target.

The directive does not propose a harmonised Community-wide scheme for aid for electricity from renewable energy sources, but it does require the commission to report on the different national support schemes and, where appropriate, make a proposal for a Community framework for support schemes.

Special Action Programme for Vigorous Energy Efficiency (SAVE)

The SAVE programme was first adopted in 1991 and lasted until 1995. It was specifically aimed at improving energy efficiency throughout the Community. Initially the programme estimated huge efficiency savings, but many of these had to be abandoned under the subsidiarity principle (Dahl 2000:216). This resulted in SAVE being limited to general principles leaving the Member States to take specific action. This is another example of where the lack of control over energy policy has meant the Community has been unable to take its desired action.

Its successor programme, SAVE II, was adopted by the Council in December 1996 (96/737/EC) for a period of five years (1996-2000). In February 2000 SAVE was integrated into the Energy Framework Programme which outlines the Community's strategy for the five year period 1998-2002 (European Parliament 2000a).

ALTENER

ALTENER is the only community programme that focuses exclusively on the promotion of renewable energy sources. The overall aim of the ALTENER programme is to make an essential contribution to increasing use and market share of renewable energy sources, which are environmentally sustainable and constitute a major component of the Community strategy to abate greenhouse gas emissions.

ALTENER's specific objectives are:

- To implement and complement EU measures designed to develop the renewable energy resource potential;
- To encourage harmonisation of products and equipment in the renewable energy market;
- To support pilot actions on infrastructures that will increase investor confidence, stimulate the take-up of renewable energy technologies and improve their competitiveness;
- To improve information dissemination and co-ordination at the international, EU, national, regional and local level, thereby increasing investor confidence and market penetration;
- To support targeted actions designed to speed up investment in renewable energy technologies and to increase operational capacity for energy production from renewable energy sources; and
- To implement the EU renewable energy strategy (European Commission 2003f).

Both SAVE and ALTENER were incorporated into the commission proposal for a multiannual programme for actions in the field of energy called "*Intelligent Energy for Europe*", 2003-2006 (European Commission 2001d). The European Parliament and

Council adopted this programme on 23 June 2003 and it came into force on 4 August 2003 (European Commission 2003c)

Conclusion

The EU as a unique institution faces unique challenges when addressing climate change. It must cope with the constant struggle for power between the Member States and the commission, the problems associated with areas of mixed competence and the ability of an individual Member State to block a policy supported by all other Member States. It also faces similar challenges to other governmental entities. It has institutions that don't communicate, political compromise affects every proposal, and it wants to be a leader in the international arena.

Through the issue of climate change Community institutions are maturing. With disputes in many areas over the expansion or contraction of Community responsibilities, the commission see climate change as a possible area for it to extend its authority. One such area is the power to tax. Currently, tax remains the responsibility of the individual Member States, but for many years the commission has sought to institute a carbon/energy tax (even if it comes in zero-rated). This may well be the most efficient way to cut carbon emissions, but it would mean Member States ceding a lot of authority to the Community. This is something with which many Member States are not comfortable.

There is also the idea of a co-ordinated energy policy, something the founding fathers of the European Union sought; the commission occasionally proposes variations on this theme, but they are regularly rebuffed. This constant tension between what the commission and some Member States want and what other Member States oppose is

central to how the Community operates. With 15 Member States policy making can be slow and at times it appears that the only interest is the national interest with the best interest of the Union taking a back seat. With the imminent expansion to 25 Member States, this process is destined to get worse unless there is some change in the policy-making procedure.

Despite these challenges, or more probably because of them, the European Commission has been addressing climate change issues for more than 15 years. It has put forth various legislative proposals that have had varying levels of success, but it is currently not on track to make its Kyoto commitments. It has recognised that to meet its goals the EU needs the co-operation of the Member States. The European Commission acknowledged in its climate change programme that "it is clear that action by both member states (sic) and the European Community needs to be reinforced if the EU is to succeed in cutting its greenhouse gas emissions to 8% below 1990 levels by 2008-2012, as required by the Kyoto protocol" (European Commission 2002).

With the increase in number of Member States and the commission regularly proposing new policies and rules (there are some reports that estimate 70% of a Member State's new laws come from Brussels) lobbying of the commission is becoming more common. The international obligation to reduce greenhouse gas emissions by 8% and Member States' failure to address the issue at the domestic level will result in continued pressure from Brussels in the form of new legislation in climate-change-related areas. Business has recognised the importance of regulations emanating from Brussels and the ultimate effect they will have on Member States' domestic law. As a result "in the eyes of many lawyers Brussels has become the

Washington DC of the east, where it is necessary to have a presence in order to lobby the Commission" (Flood 1996:384). This does not mean the lobbying is straightforward; there are differences between the ways Americans and Europeans approach their lobbying. Coming out "guns blazing" is not effective in Brussels; the name of the client is rarely disclosed to the commission and everything must be handled very delicately. One commentator has described "lobbying the European Commission [as] like trying to push a jelly with a blancmange" (Flood 1996:384).

The introduction of emissions trading is predicted to help reduce the EU's emissions. As the likelihood of the EU meeting its Kyoto commitments became more remote the EU came to recognise the importance of the flexible mechanisms they once opposed. This is a lovely paradox: emissions trading was a US idea and it was fundamentally rejected by the European Union at the Kyoto negotiations. But when the EU had to figure out how to meet its commitments its internal analysis showed that emissions trading was the most effective way. That a huge institution was able to make a 180-degree change in position and take up an idea it had previously vehemently rejected says a lot about the character of the institution.

The emissions trading scheme will allow the EU to take the position that all governments seek: that of an international leader. It can act as a prototype for a future international scheme, giving the EU a strong negotiating position and companies in the Member States invaluable experience in trading greenhouse gas emissions.

Over the last 15 years EU climate change policy has had a very limited effect on Member States' climate change policies. The United Kingdom and Germany had the

largest percentage reductions in the EU and those reductions were unrelated to EU policy. The Scandinavian countries also have low emissions, but they rely heavily on natural gas for their energy needs. The introduction of emissions trading, a new monitoring mechanism, and the renewable energy requirement will change this. The United Kingdom's emissions trading scheme has already been affected and, with up to 70% of a Member State's new legislation coming from the European Community, there should be more European law on climate-change-related issues in the future. The lack of authority in crucial areas such as energy and tax may slow this progress but not stop it.

Development of the European Climate Change Programme in the past has been an inexact science, with some programmes having greater success in achieving their objectives than others. This is not necessarily down to the quality of the policy but more often than not to very difficult political situations that are unrelated to climate change. This may change in the future with the introduction of the emissions trading programme, although this too is experiencing political difficulties with the development of the National Allocation Plans. Many Member States and the Community as a whole are not on target to meet their Kyoto commitments (European Commission 2003b).

Chapter 5 – The United Kingdom's Approach to Climate Change

The United Kingdom considers itself a world leader in the climate change debate (Marshall 1998a:2, 12, 16; Blair 2000; Leggett 2000:4). The current government has set ambitious targets for the reduction of carbon dioxide emissions and its climate change programme looks set to deliver reductions in greenhouse gas emissions in excess of its international commitments.

Most people seem to think the UK has been lucky and its success in cutting emissions has been solely down to "the dash for gas". This was precipitated by Margaret Thatcher's stand off with the coal miners' union in the mid-1980s, when unprofitable mines were shut down and electricity producers were encouraged to switch from coal to natural gas to run their power stations. Mike Molitor of PWC suggested, "UK reduction in emissions is a hiccup, not a change in strategy" (Molitor 2001 *Int*). This is a strong statement when you consider some of the innovations, such as the Climate Change Levy, emissions trading and the Carbon Trust, introduced by New Labour since it came to power in 1997.

Gabrielle Edwards of the Department of Environment, Transport and the Regions (DETR) argued that "the dash for gas" represented only about one-third of the reason for the UK's success in reducing emissions. She pointed to changes in the UK economy from a manufacturing economy to a service economy, the increase in the use of nuclear power and a change in government as other reasons for the UK's success (Edwards 2001 *Int*). UK governments may have been able to introduce policies which led to these reductions because "there was no serious business

opposition to action on climate change because of high level discussions" between business and the government (Cameron 2001 *Int*).

Climate change is not a new issue for the United Kingdom government; Margaret Thatcher was one of the first world leaders to recognise the importance of the issue. She spoke publicly on climate change as it was rising to prominence on the international political stage. This does not mean climate change was high on Mrs Thatcher's domestic agenda. However, unlike other leaders around the world she was talking about it and that meant there was discussion in the newspapers.

In the United Kingdom, business and government have worked closely together to discuss the various policy options available to combat climate change and the feasibility of implementing those policies. The government then developed policies and again took those to consultation with the interested parties. The views on the responsiveness of government to the opinions offered during the consultation varied depending on whom I spoke to and the subject area on which the consultation was taking place.

History of UK Climate Change Policy to the Election of the Labour Government

MARGARET THATCHER'S GOVERNMENT

Climate change was an issue Thatcher could take to heart. She thought of herself as a scientist and felt she was able to talk scientists' language (Macrory 2001 *Int*). So in 1989 when Sir Crispin Tickell, her United Nations Ambassador, suggested she make a speech on the increasingly prominent international issue of climate change,

Thatcher took to it immediately. While her first speech on the issue did not initially attract much media attention, one passage subsequently led to a lot of debate:

> For generations, we have assumed that the efforts of mankind would leave the fundamental equilibrium of the world's systems and atmosphere stable. But it is possible that with all these enormous changes (population, agriculture, use of fossil fuels) concentrated into such a short period of time, we have unwittingly begun a massive experiment with the system of this planet itself . . . In studying the system of the Earth and its atmosphere we have no laboratory in which to carry out controlled experiments. We have to rely on observation of natural systems. We need to identify particular areas of research which will help to establish cause and effect. We need to consider in more detail the likely effects to consider the wider implications for policy – for energy production, for fuel efficiency, for reforestation . . . We must ensure that what we do is founded on good science to establish cause and effect (Thatcher 1993: 640-641).

Climate change was an issue that Thatcher would take to heart in what remained of her time in office. Perhaps she recognised it as "an opportunity for the United Kingdom to stay at the top of the international leadership stage" (Macrory 2001 *Int*). Or perhaps she saw it as a way to respond to the Green Party which made a late surge in the 1989 European elections. It was fortuitous that Thatcher had a senior civil servant in Sir Crispin Tickell who understood the issue and had written a book on it in 1978 (Tickell 1978). For her, climate change was a leadership issue, not something to be dumped off on to the environment department.

Thatcher's next opportunity to tell the world about the potential problem of climate change came from Dr Houghton, the chairman of the IPCC and the director-general of the Meteorological Office. In May 1990, the IPCC had gathered under the chairmanship of Dr Houghton, in Berkshire, to put the finishing touches to its first report "one of the most important scientific reports ever compiled"(Leggett 2000:4).

Dr Houghton provided Thatcher with a pre-release briefing on the report. The day it was released Thatcher held a press conference at the Met Office, near to where the scientists had been meeting.

> 'Today', she told the scribbling British press, 'with the publication of the report of the Intergovernmental Panel on Climate Change, we have an authoritative early-warning system: an agreed assessment from some three hundred of the world's leading scientists of what is happening to the world's climate. They confirm that greenhouse gases are increasing substantially as a result of man's activities, that this will warm the Earth's surface with serious consequences for us all' (Leggett 2000:4).

This speech led to banner headlines in the UK popular press. *The Daily Express*, a pro-Conservative-government paper, led with '*Race to Save Our World – Britain takes the lead in the crusade against greenhouse effect*' (Leggett 2000:4). Climate change had landed on the breakfast table of the UK with the science accepted by both the government and the press. Thatcher had told people that she had studied the issue and that the best scientists in the world had studied it and they believed that there would be serious consequences for mankind if something were not done (Thatcher 1993:641). There was a short period of discussion within the press on the science, but this did not last long. The newspapers agreed with Thatcher that the risks were too high and the initial science convincing.

Margaret Thatcher's final contribution to the debate surrounding climate change came just days before she was to leave office. She was one of two heads of state to attend the Second World Climate Conference in November 1990; the other was from Tuvalu (Cameron 2001 *Int*). She spoke of the importance of the world addressing climate change on a global scale and at the all important backroom discussions she

"banged heads together" (Cameron 2001 *Int*) in order to get a Ministerial declaration of substance[42].

JOHN MAJOR'S GOVERNMENT

John Major succeeded Margaret Thatcher as Prime Minister in November 1990. He continued to assert the United Kingdom's leadership in the international climate change arena by being the first G-7 leader to commit to attend the Earth Summit in Rio (Major 1999:510). His government ratified the Climate Change Convention on 8 December 1993 and it entered into force as UK law on 4 December 1994.

At the same time as ratification of the UNFCCC the Government introduced the UK's first climate change strategy, *Climate Change: The UK Programme* (Department of the Environment (UK) 1994). For most of the previous year the government consulted with the various interest groups. The government issued a discussion paper in January 1993 that identified the target of saving 10 Million tons of Carbon (MtC) and created the Energy Savings Trust which had the formal objective of reducing carbon dioxide emissions by at least 2.5 MtC (Department of the Environment (UK) 1993b). The discussion paper was followed by an addendum in April 1993 that outlined some of the issues raised by the 240 responses the government received (Department of the Environment (UK) 1993c). It then held a conference in May 1993 to discuss the findings of the discussion document and other meetings held around the country. The purpose of this conference was to discuss further measures for the reduction of carbon dioxide (Department of the Environment (UK) 1993a). All this consultation is not unusual for the UK government. It consults, holds

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[42] A declaration that led to the terms of reference for the negotiation the Framework Convention on Climate Change (Leggett, J (2000). The Carbon War. London, Penguin Books.)

conferences and meets on issues. Alastair Cooke in his television series "America" noted in respect of the problems governing the Virginia colony "What does an Englishman do when he has a problem? He forms a committee" (Cooke 1970).

The major criticism of the government proposals was that they called primarily for voluntary action, with only secondary involvement from the government. Michael Howard, the Secretary of State for the Environment, denied this, noting that the government believed climate change demanded a partnership and that it expected action from others beyond the proposed legislative and fiscal framework (Tindale 2001 *Int*).

Interestingly, it was Major's government that laid the groundwork for New Labour's future Climate Change Levy.[43] The introduction in 1996 of the landfill tax "signalled the Treasury's willingness to accept the concept of tax shift[44]" (Tindale 2001 *Int*). The landfill tax was designed to "send a tough signal to waste managers to switch to less environmentally damaging alternatives"(HM Customs and Excise (UK) 2001).

LABOUR IN OPPOSITION

While the Conservative government was beginning to address the United Kingdom's greenhouse gas emissions and implement polices designed to reduce the emissions as agreed at the Earth Summit, the Labour party was recovering from a surprise loss in

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[43] The Labour party confirmed its acceptance of the concept of a tax shift soon after its election in 1997 with the "Statement on the intent to use environmental taxes" (HM Treasury (UK) (1997). Government Policy on Environmental Taxation. London, HM Treasury.)

[44] A tax shift is when the government shifts the tax burden from an environmental good to an environmental bad.

the 1992 election. In response to this loss the then leader Neil Kinnock resigned and was replaced by John Smith.

Smith believed that the environment would be critical to winning the next election, so he formed a policy committee composed of key shadow ministers, individuals and advisors, including Robin Cook (Shadow Trade and Industry Secretary), Chris Smith (Shadow Environment Secretary), Andrew Smith (Shadow Deputy Secretary for Treasury Affairs), and John Prescott (Shadow Transport Secretary to Oct 1993 and Shadow Employment Secretary from Oct 1993) (Tindale 2001 *Int*). The purpose of this committee was "to review and develop, as appropriate" Labour Party environmental policy and integrate environmental considerations into other Labour party policies (Labour Party (UK) 1994:53).

The result of the committee meetings was a report entitled *In Trust For Tomorrow.* It recommended a business energy tax but called for the exemption of domestic energy. The Conservatives' introduction of VAT on home heating fuel had resulted in a significant public backlash; Labour was therefore keen to avoid any tax on domestic heat supply. *In Trust for Tomorrow* also laid out the target of a 20% reduction of CO_2 emissions on 1990 emissions levels and having 10% of the country's energy needs met through renewable energy by 2010 and 20% by 2025. Many people I interviewed believed these targets were chosen because the Conservatives had a goal of a 10% reduction in CO_2 emissions and the Liberal Democrats were aiming for a reduction in CO_2 emissions of 30%. Stephen Tindale admits most people think the targets "came to him in the bath" but the idea for these targets actually came from the

Toronto Conference declaration[45] (Tindale 2001 *Int*). These targets were chosen because the Labour Party believed them to be possible and achievable. They conducted no economic modelling to see the possible effect of the targets, and the targets were intended to drive policy rather than vice versa (Tindale 2001 *Int*).

John Smith rejected the report because of the effect he thought it would have on business and of business's potential reaction to the report (Tindale 2001 *Int*). He sent the committee back to the drawing board. John Smith died suddenly on 12 May 1994 about a week after he rejected the report. Margaret Beckett, who was elected interim leader, was not remotely interested in the environment.(Tindale 2001 *Int*)[46] The report was resubmitted to her and she accepted it. It is Stephen Tindale's opinion that *In Trust for Tomorrow* would "never have become Labour Party policy if it to the had not been accepted during the interim leadership of Margaret Beckett" (Tindale 2001 *Int*). It was published the same week as Blair was elected leader of the Labour Party. *In Trust for Tomorrow* clearly lays out what the targets will be, but it provides no indication as to how these objectives would be achieved.

The Labour Party's environmental manifesto for the 1997 election came from *In Trust for Tomorrow.* It included the target of a 20% reduction in CO_2 emissions but not the 10% renewable energy target (Labour Party (UK) 1997). The Shadow Ministers responsible for the energy and environment manifesto commitments were Michael Meacher (Environment) and John Battle (Energy). Both supported the

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[45] See discussion of history of the science of climate change in chapter 2.

[46] This is especially interesting because as of 31 March 2004 she is currently Secretary of State for the Environment, Food and Rural Affairs and a big supporter of action to combat climate change (Cameron, J (2002). Interview. Of Counsel, Baker & McKenzie; Chairman Carbon Disclosure Project; Chairman Advisory Board Climate Change Capital.)

commitments[47] and worked hard for their inclusion in the manifesto. Michael Meacher's strong lobbying inside the Labour Party ensured the CO_2 commitment was included (Tindale 2001 *Int*). John Battle was not as successful with his internal party lobbying for the renewable energy target (Tindale 2001 *Int*). However, outside the Labour Party, Battle's strong personal commitment to the target ensured that people generally believed the 10% renewable energy target was part of the manifesto commitment (Tindale 2001 *Int*).

The inclusion of the CO_2 commitment in the Labour Party manifesto was very important because it again demonstrated the United Kingdom's willingness to lead the international community and the European Union from the front (Tindale 2001 *Int*). Only Germany had a higher commitment to the reduction of carbon dioxide emissions.

Six months before the Labour party was elected to office in May 1997, Robin Cook, then Shadow Foreign Secretary, formed an important advisory group, the Green Globe Task Force[48]. The purpose of this task force was to introduce environmental

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[47] He talked about the importance of the target at every opportunity and consulted on it widely with business and the NGO community Tindale, S (2001). Interview. Greenpeace.

[48] Hugh Raven originally convened this taskforce with: James Cameron, Barrister; Of Counsel to Baker & McKenzie, Chicago; Duncan Brack, Head, Sustainable Development Programme, Royal Institute of International Affairs; Michael Grubb, Professor of Climate Change and Energy Policy, Imperial College; Associate Fellow, Energy and Environment Programme, Royal Institute of International Affairs; Richard Sandbrook, Senior Fellow, International Institute for Environment and Development; Jonathan Poritt; and Graham Wynne, Chief Executive, Royal Society for the Protection of Birds. From time to time it has also included David Baldock, Director, Institute for European Environmental Policy; Margaret Brusasco-Mackenzie, Vice Chair, UNED Forum; Fanny Calder, Associate Fellow, Sustainable Development Programme, Royal Institute of International Affairs; Beatrice Chaytor, Senior Lawyer, Foundation for International Environmental Law and Development; Hilary Coulby, Consultant; Felix Dodds, Director, UNED Forum; Paul Jefferiss, Head of Environmental Policy, RSPB; Nick Mabey, Economics and Development Officer, WWF-UK, currently on secondment at the Environment Policy Department, Foreign & Commonwealth Office; Peter Madden, Head of Policy, Environment Agency; Robert Napier, Chief Executive, WWF-UK; Derek Osborn, Chair, UNED Forum; Nick Robins, Head of Research, Socially Responsible Investment Team, Henderson Global Investors; Francis Sullivan, Director of Conservation, WWF-

arguments into the operational activities of the Foreign and Commonwealth Office (FCO). The Task Force continued to operate after Labour came to power. Climate change was and is the top item on the agenda of the Task Force. This established the importance and relevance of climate change in international diplomacy as already existed in the United States through the State Department.

Labour in Government

The Labour Party won a landslide victory in May 1997. The new cabinet now had to deliver on its manifesto commitments. In July 1997 the government issued a statement of intent on the use of environmental taxation (the tax shift). It recognised in this statement that:

> "Just as work should be encouraged through the tax system, environmental pollution should be discouraged.
>
> To that end, the Government will explore the scope for using the tax system to deliver environmental objectives - as one instrument, in combination with others like regulation and voluntary action. Over time the Government will aim to reform the tax system to increase incentives to reduce environmental damage. That will shift the burden of tax from "goods" to "bads"; encourage innovation in meeting higher environmental standards; and deliver a more dynamic economy and a cleaner environment, to the benefit of everyone" (HM Treasury (UK) 1997).

The statement then went on to outline the tests that would be applied to all taxes including environmental taxes. The new ministers responsible for environment and tax recognised from the outset that they would have to look at all options available to them to meet their climate change goals.

UK; Koy Thompson, Head of Policy, ActionAid; Stephen Tindale, Director, Greenpeace UK; Peter White, Associate Director, Corporate Sustainable Development Department, Procter & Gamble; Rebecca Willis, Director, Green Alliance.

Meanwhile back at DETR one of the challenges facing the new ministers was the civil service (Tindale 2001 *Int*). Environment officials in the newly created DETR were used to working with John Gummer; he did a lot of posturing but he did not have much power within the Conservative Party and was rarely able to ensure the environment department's proposals made it past the DTI or the Treasury (Tindale 2001 *Int*). With the arrival of John Prescott and Michael Meacher[49] a change of mindset was required for the senior civil servants. For the first time they were part of a powerful department. Now when a new policy was suggested they knew that Prescott would back them up (Tindale 2001 *Int*). This change of mindset was essential because the officials in DETR would spearhead many changes in the UK's climate change programme. With signature of the Kyoto Protocol not far away the UK and the other industrial nations would have specific and enforceable targets of greenhouse gas emissions to meet.

KYOTO SIGNED

The Kyoto Protocol was signed seven months after New Labour was elected to government.[50] Some commentators would say that this was John Prescott's finest hour. His union-style table bashing for higher percentage targets worked. Prescott is

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[49] John Prescott was a former union official and known as a deal maker. The press often depicts him as a bulldog. In international negotiations he would bang on tables demanding stronger action be taken. Michael Meacher on the other hand is a quiet man who would come in after Prescott got through banging on the table and pickup the pieces. They worked well together and the "good cop/bad cop" routine was successful in many negotiations.

[50] For a more detailed discussion of the Kyoto Protocol and the events surrounding its adoption see Chapter 3 on the International Politics of Climate Change.

a union man and he understood this style of negotiation and it may well have led to higher targets being set[51].

The UK is a part of the European Union "Bubble Group"[52] which is committed to reduce its greenhouse gas emissions by 8% by the end of the first compliance period in 2008. The United Kingdom's portion of this commitment is a reduction in greenhouse gas emissions of 12.5% from 1990 levels over the period 2008 – 2012, the first compliance period. The United Kingdom ratified the Kyoto Protocol on 31 May 2002.

MARSHALL REPORT

Gordon Brown announced the Marshall Task Force in March 1998 during his first pre-budget speech after the government released its policy on environmental taxation. The objective of the consultation was "to examine whether economic instruments have a role to play and if so how they might best be made to work while maintaining the competitive advantage of UK industry and how industry can best contribute to tackling climate change" (Marshall 1998b).

The Marshall Task Force was not what the government had originally intended. Gordon Brown, the Chancellor of the Exchequer, and John Prescott had agreed the basic structure of the Climate Change Levy and it was due to be announced in the

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[51] Ironically, this may well have damaged the chances of US ratification. Rob Reinstein (Head of the US delegation in Rio in 1992) told George W Bush that the Kyoto targets were impossible for the US to meet Cameron, J (2004). Interview. Of Counsel, Baker & McKenzie; Chairman Carbon Disclosure Project; Chairman Advisory Board Climate Change Capital.

[52] The "Bubble Group" is a group of countries, in this case the European Union, that have agreed to fulfil their commitments as agreed in the Kyoto Protocol jointly (Kyoto Protocol to the United Nations Framework Convention on Climate Change (1997).)

March 1998 pre-budget speech. It was only at the last minute that it was replaced with the Marshall Task Force and the possibility of a tax. It was essential that Meacher and Prescott got Brown to follow through on his commitment to the tax shift. As a supply-side labour economist Brown was interested in cutting labour taxes and the Climate Change Levy allowed him to do this.

The analysis for this type of tax came from a Jacques Delors White Paper for a proposed EU carbon tax.[53] (Tindale 2001 *Int*) While the Labour Party did not accept the concept of the EU carbon tax Gordon Brown accepted the analysis laid out in the white paper (Tindale 2001 *Int*). Various British NGOs also prepared papers[54] including those by future Labour Party advisor Stephen Tindale that called for an energy tax. The Climate Change Levy was a win-win for Gordon Brown. He was able to lower labour taxes and increase taxes on those with high CO_2 emissions.

Gordon Brown decided to announce the Climate Change Levy/Marshall Report in his first pre-budget speech for two reasons. First, the Labour Party had a manifesto commitment to cut CO_2 emissions by 20%. Second, the Advisory Committee on Business and the Environment[55] (ACBE) had just published its report *Climate Change: A Strategic Issue For Business.* The report recognised the role of the energy tax, but wanted it to be set up alongside emissions trading.

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[53] For a discussion of the proposed tax see Chapter 4 on the EU climate change programme.
[54] *New environmental policy instruments in the UK* by Stephen Tindale and Chris Hewett; *Green Tax Reform: Pollution Payments and Labour Tax Cuts* by Stephen Tindale and Gerald Holtham; *Britain in Europe* edited by Elizabeth Barrett and Stephen Tindale.
[55] ACBE was established in 1991 to engage in a strategic dialogue with business on environmental issues. Members are jointly appointed by the Secretary of State for Trade and Industry and the Deputy Prime Minister and serve in a personal capacity. Membership consists of senior business leaders, drawn from a range of sectors.

Gordon Brown asked Sir Colin Marshall, Chairman of British Airways and President of the Confederation of British Industry, to chair the task force; he was "a good appointment because no one was proposing to tax British Airways so he was considered neutral" (Tindale 2001 *Int*). Marshall's review was to examine how economic instruments could be used to improve the industrial and commercial use of energy. The task force studied "whether or not new economic instruments, such as an industrial energy tax and/or other market mechanisms, should be introduced to help curb emissions, and, if so, how" (HM Treasury (UK) 1998:Section 6). Marshall was assisted by a task force of senior civil servants from HM Treasury, DETR, Department of Trade and Industry (DTI), and HM Customs and Excise (Marshall 1998b:2). Marshall was to report back to the Chancellor in November 1998.

In June 1998 Marshall issued a consultation paper in which he sought views on "[h]ow industry and commerce can best make their contribution to tackling climate change"(Marshall 1998b:2). This consultation paper outlined the various "ways by which the government might seek greenhouse gas emissions reductions from industry and commerce" (Marshall 1998b:4). It then went into a detailed description of emissions trading and taxation. The Task Force assumed that any instruments used should be fiscally neutral. Reponses to the consultation paper were due by 31 July 1998.

Marshall received 143 responses from organisations and individuals.[56] Responses were received from the energy industry, business organisations, energy intensive users, general industrial or commercial energy users, energy savings and other

[56] A list of the respondents can be found in Table A.3 to Marshall's Final Report issued in November 1998.

environmental technology industries, the financial sectors, environmental NGOs, academics, consultancies and regulators, local authorities and individuals (Marshall 1998a:A.5).

Despite soliciting input from the trade unions they failed to respond (Marshall 1998a:28). This was not unusual; in fact the trade unions have not participated in any of the policy making around the climate change programme. They did want to participate in the negotiations of the side agreements for the Climate Change Levy, but business excluded them (Field 2001 *Int*). No one was able to give me any reason for the lack of union participation.[57]

In November 1998, Marshall delivered his report to Gordon Brown. "No clear consensus emerged from [the] consultation as to the right solution" (Marshall 1998a:6). But having reviewed all the evidence presented, Lord Marshall concluded that economic instruments had a role to play in the United Kingdom's efforts to meet its climate change commitments. He called for a mixed regulatory approach to meeting the government's carbon emissions reduction targets (Marshall 1998a:8). He noted how "unlike regulation or negotiated agreements, economic instruments provide a continuing financial incentive to reduce emitting activities and expand beneficial activities, rewarding innovation through the bottom line" (Marshall 1998a:10). He briefly reviewed the different policy options available: regulation, voluntary agreements, negotiated agreements, subsidies and economic instruments.

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[57] I contacted the Trades Union Congress, but was told they did not have anyone available to speak to me.

With regard to emissions trading Marshall concluded "that it may not be sensible for Government to introduce a statutory scheme in the UK at this stage" (Marshall 1998a:16). He recommended, "that Government should step up its consultation with interested parties focusing especially on resolving the issues identified above. Strong business input into design of international trading would be essential. Such consultation should inform the UK's negotiating position as well as developing expertise domestically so that British firms are ready and our financial institutions well positioned to lead in these new markets" (Marshall 1998a:16).

Marshall found the idea of a tax most attractive. He relied heavily on ACBE's acceptance that "an economic instrument in the form of a tax may be necessary to meet the Government's target" (ACBE 1998:15; Marshall 1998a:17). He did however recognise that any tax would have a greater impact on energy intensive firms and therefore it may be necessary to offer some form of special treatment for these firms (Marshall 1998a:19). Despite this he concluded "that there probably is a role for a tax if business of all sizes and from all sectors are to contribute to improved energy efficiency and help meet the UK's emissions targets" (Marshall 1998a:19). From this conclusion he made three recommendations:

- The revenues are recycled in full to business;
- Consideration be given to special treatment of energy intensive industries; and
- Any measures are subject to detailed consultation about their design (Marshall 1998a:19).

The government's initial response to Lord Marshall's report was set out in the 1998 *Pre-Budget Report*:

> "The Government will be considering Lord Marshall's recommendations very carefully in developing its strategy on climate change, and will continue work and consultation on the further design issues identified in his report. The Government will take into account any potential impacts on competitiveness in

> seeking to find the most cost-effective means of meeting its targets for reductions in emissions of greenhouse gases" (HM Treasury (UK) 1998:Chap 5 Para 5.38).

All this being said, according to Stephen Tindale, "The Marshall Report was a stitch-up" (Tindale 2001 *Int*). The result was predetermined; the government was going to introduce the Climate Change Levy no matter what business thought. Gordon Brown and John Prescott had agreed the Climate Change Levy for the March 1998 budget, but it was allegedly blocked by the Prime Minister's office because it feared upsetting the business community. So instead the Marshall Task Force was announced along with the possibility of a tax (Tindale 2001 *Int*). The task force was given very specific instructions on what it was to look at and how long it had to report. Dinah Nichols, Director General, Environmental Protection at DETR, had a reputation for being very good at delivering her agenda. In this case, her agenda was that there should be an energy tax (Tindale 2001 *Int*). The Marshall Report gave the government the support and the protection from business it needed to proceed with the taxes it had planned while the consultation process gave the Prime Minister's office the confidence to proceed with the tax (Tindale 2001 *Int*).

CLIMATE CHANGE LEVY

Gordon Brown announced the Climate Change Levy in the March 1999 budget.

> "We will now implement Lord Marshall's recommendations and introduce a levy on business use of energy from April 2001. And it will be brought in, after further consultation with industry, on a revenue neutral basis, with no overall increase in the burden of taxation on business. Because we intend at the same time to cut the main rate of employers' national insurance contributions from 12.2 to 11.7 per cent.
>
> We also intend to set significantly lower rates of tax for energy intensive sectors that improve their energy efficiency. Today we are inviting them to submit their proposals. In pursuit of our policies for sustainable development we will also

> allocate an extra 50 million pounds to encourage business to invest in the new environmental technologies and in renewable fuels" (HM Treasury (UK) 1999b).

This announcement launched one of the most important and controversial aspects of the climate change programme. The Climate Change Levy was designed to "play a major role in helping meet the UK's targets for reducing greenhouse gas emissions . . . [to] promote energy efficiency, encourage employment opportunities, and stimulate investment in new technologies" (HM Treasury (UK) 1999). The Treasury claimed that there would be "no increase in the tax burden on business as the revenues will be recycled in full to business" (HM Treasury (UK) 1999a). The revenue was recycled principally through a 0.5% cut in employers' national insurance.[58] It was expected that the Climate Change Levy would lead to savings of 1.5 million tons of carbon per annum by 2010. "The first evaluation of the Climate Change Levy's effects showed that it added 0.9 per cent to industry's costs in April, the Office of National Statistics (ONS) said" (Duncan and Buckley 2001).

Unfortunately for the government the hoped-for protection of the Marshall Report did not materialise; it was attacked from all sides. *The Guardian*, a left-leaning daily national newspaper, called it "Labour's poll tax" harking back to Margaret Thatcher's extremely unpopular tax that led to rioting in London (Cowe and Gow 1999). "It unleashed a storm of protest"(Houlder 1999) in the business community with the chairman of BG, a gas transmission company, calling the tax "perverse" (Gribben 1999a) and the Confederation of British Industry (CBI) warning that "there would be extremely damaging long-term consequences for important parts of the UK's manufacturing base and jobs" (Houlder 1999). While no one was surprised when the

[58] It should be noted that the reduction in employers' national insurance given as a part of the Climate Change Levy was taken away in the April 2002 budget when the Chancellor increased employers' national insurance contribution by 1%.

Climate Change Levy was announced, what was surprising was the level of taxation (Mogford 2001 *Int*). The Royal Society[59] believes that the Climate Change Levy is "flawed because it taxes energy use and not pollution from carbon dioxide" (Reuters News Service 2002a).

Not everyone was upset by the proposed tax. Friends of the Earth "seized on the measures as evidence that the Government had accepted the logic of using the Budget to affect behaviour" (Cowe 1999). Cambridge Econometrics claimed that the levy would be more effective than the government had predicted and would have minimal impact on costs in most sectors (Cambridge Econometrics 1999). "Charles Secrett, executive director of Friends of the Earth, also thinks it could go further. 'The Climate Change Levy is a good thing because it discriminates against polluters.' 'The problem with the levy is that on the one hand it doesn't go far enough, - it would be much better to introduce a carbon tax across all energy users - and secondly it is complicated and it has not been very fairly applied'" (BBC News 2001b).

Members of Parliament even got in on the act. During a debate on the Climate Change Levy Conservative MP John Bercow (Buckingham) called it part of the "Government's policy of taxation by stealth"(Hansards 1999:col 411). In the Trade and Industry Select Committee report on the Climate Change Levy they referred to it as a "blunt instrument" and were "disturbed by the unprecedented scale of the reaction to the Government's proposal" (Trade and Industry Select Committee (UK) 1998-99). MPs were disappointed that the government failed to consult on several

[59] The Royal Society is the United Kingdom's national academy of science.

key decisions determining the design of the levy and added that they "remain[ed] to be convinced" that the Treasury ha[d] not seen the energy tax as an opportunity for the Chancellor to offer the majority of the business and commercial sectors a significant tax cut" (Gribben 1999b). And "that the Climate Change Levy, as presently designed, sits easily with that strategy. . . . The Government is right to make a bold commitment to meeting its Kyoto target, but that target must not be met at the expense of British manufacturing industry" (Trade and Industry Select Committee (UK) 1998-99).

The government responded to these challenges by emphasising the revenue neutrality of the proposed tax and that it was considered an essential part of the government's plan to meet the Kyoto targets (Hansards 1999:Col 411-412). But Terry Carrington, Climate Change Policy Advisor at the Department of Trade and Industry, recognised that "the Government may have claimed that the Climate Change Levy was revenue neutral but this hid anomalies" (Carrington 2001 *Int*). Companies with a large labour force benefited from the decrease in national insurance while energy-intensive users usually employ very few people so they paid more tax without the benefit of a large decrease in national insurance. Stephen Tindale thinks that the mistake the government made was that it believed the civil servants at Customs and Excise when they said it would be difficult, if not impossible, to exempt renewable energy from the Climate Change Levy (Tindale 2001 *Int*). Therefore when the tax was announced renewable energy was not exempt. Gordon Brown did however say that he would listen to any proposals on how to exempt it from the tax.

A consultation document was published by Customs and Excise on the day that Gordon Brown announced the Climate Change Levy. The aim of the consultation

was "to design the levy in a way that maximises its environmental effectiveness whilst safeguarding the competitiveness of UK business" (HM Customs and Excise (UK) 1999a:para 6.32). This consultation document also gave the government the opportunity to make changes in the proposed tax and respond to the criticism it faced.

While the Marshall Report leant towards a carbon-based energy tax, Customs and Excise recommended the tax be based on the more administratively simple energy content (HM Customs and Excise (UK) 1999c:5). This had the benefit of avoiding further disadvantage to coal, but meant that renewable energy and combined heat and power (CHP) were taxed at the same rate as coal and oil. This conflicts with the government's stated goals of a doubling of CHP output by 2010 and increasing the proportion of electricity supplied from renewables to 10%. In an attempt to reconcile this conflict the government has investigated whether it can overcome EU state aid rules and grant a full exemption to CHP from the Climate Change Levy.

The consultation document asked the respondents to answer mostly administrative questions about how the tax should operate, be enforced and be collected. There were a few exceptions on the treatment of combined heat and power or renewable energy.

It was Terry Carrington's feeling that the consultations on the Climate Change Levy worked because business was able to make some changes in what was proposed (Carrington 2001 *Int*). In contrast Pete Charnely of NatWest felt that Customs and Excise did not really understand the policy (Charnely 2001 *Int*). Customs and Excise noted in its summary of the consultation process that many of the responses it

received were outside the scope of the consultation document (HM Customs and Excise (UK) 1999b:5).

As a result of the consultation process, on 9 November 1999, the Chancellor announced further details of and revisions to the design of the Climate Change Levy:

> "As we pursue our ambitions for growth and jobs, we can and must keep our environmental commitments. Under my Right Hon. Friend the Deputy Prime Minister, Britain took the lead in successfully negotiating the Kyoto agreement, and I am today announcing the results of our consultation with business on the climate change levy. Our original proposal was to cut environmental pollution by 1.5 million tonnes a year by 2010. Our consultation has shown that we can cut environmental pollution even further by 2010--by more than 2 million tonnes a year--and at the same time cut the levy from £1.75 billion to £1 billion.
>
> I have decided that renewable energy sources and combined heat and power will be exempt from the levy. The main rate per kW hour will be cut from 0.21p to 0.15p, and there will be an 80 per cent discount to energy-intensive sectors signing energy efficiency agreements. Taken together, those changes approach a 90 per cent discount on the levy published at Budget time in return for agreed industry action to cut emissions.
>
> All the revenues raised will be recycled to business. I can confirm that every business will receive a tax cut of 0.3 percentage points in employer national insurance contributions. I have ensured not only that that package is revenue neutral for business and revenue neutral between manufacturing and services, but that even after the national insurance change there will be no gain to the public purse.
>
> In the run-up to the Budget, we will consult on a new 100 per cent first-year investment allowance for companies moving from environmentally unfriendly to environmentally friendly technologies and processes. I propose to make available not, as originally announced, £50 million, but in the first year a total of £150 million to support energy efficiency in British industry. With all those measures taken together, Britain is on track to meet our country's Kyoto target" (Hansard 1999:Col 889).

From industry's point of view the announcements made by the Chancellor were seen as significant concessions. The Chemical Industries Association commented: "Although there are still some detailed issues to be resolved, the big threat to the

competitiveness of our wealth-creating industry seems to have been removed" (House of Commons Library 1999:43).

At the same time as the Customs and Excise consultation process was happening the DETR was beginning to negotiate side agreements with the energy-intensive users. Discounts were allowed only for those companies covered by the Integrated Pollution Prevention and Control (IPPC) legislation.[60] The purpose of these agreements was to lower the rate of the Climate Change Levy paid by these groups in exchange for improvements in energy efficiency. Because of the business community's reaction to the Climate Change Levy the government was forced to agree significantly lower rates for energy-intensive users that agreed targets for improving their energy efficiency. Negotiations with trade associations of the energy intensive users and individual companies were conducted by the DETR with the participation of DTI and Treasury. In the end the government agreed 48 of these side agreements, each of which had to be approved by DG Competition to ensure that the government was not giving UK industry an unfair advantage over European competitors.

Garth Edwards, formerly of NatSource and now of Shell, felt that a company or trade association had to be "dumb in the negotiations not to have gotten a good deal." (Edwards 2001 *Int*). He expects most companies will meet or exceed their targets.

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[60] Integrated Pollution Prevention and Control legislation covers pollution output rather than greenhouse gases, so many large energy users that do no pollute are not eligible for the negotiated reductions.

There was some debate between the government departments as to the consultation that took place. Andrew Field, formerly of DETR and currently working on environmental tax issues at the Treasury, felt that Gabrielle Edwards and her team developing the UK Climate Change Programme were kept up-to-date on what was happening with the Climate Change Levy. It was developed in parallel to the programme and then could be slotted into the programme when it was ready. While the Treasury has the lead on all tax issues, DETR had a full opportunity to make representations (Field 2001 *Int*). DETR and DTI disagreed with the Treasury; they felt they were given a done deal on the Climate Change Levy. The Treasury may have told them roughly what it was doing, but there was no opportunity to see how it fitted within the overall climate change programme or what effects the Climate Change Levy might have had on the other policies that were being proposed.

Interviewees repeatedly told me that the Climate Change Levy was "a mess" (Cameron 2001 *Int*). Garth Edwards, then of Natsource and now of Shell Trading, called the Climate Change Levy a "goof" (Edwards 2001 *Int*). Lionel Fretz of EcoSecurities and now of Climate Change Capital, an environmental finance company, felt that the Climate Change Levy owes more to chaos theory than policy development (Fretz 2001 *Int*). Professor David Pearce from University College London on a BBC news programme, said: "This is a complete dog's breakfast of a tax. If the government really wanted to use the tax to protect the environment they would plough back most of the proceeds into improving energy efficiency - not cutting National Insurance" (Harriban 1999). Dr Dieter Helm, a fellow of New College Oxford and director of Oxford Economic Research Associates Ltd. (OXERA), asserted that the Climate Change Levy is "bizarre" and was not done to affect climate change emissions, but "to protect the coal industry" (Harriban 1999).

Its introduction was not co-ordinated with the rest of the UK's climate change programme. So despite Dawn Primarolo's[61] assertion to the House of Commons Environment, Transport and Regions Committee that "it is in no one's interest that we give green taxes a bad name by choosing a hasty or ill-considered measure" (Minutes of Evidence taken before the Environment, Transport and Regional Affairs Committee (UK) 1998:Para 2) it seems to be a consensus opinion of the people I interviewed that the tax was ill conceived and does not accomplish the government's stated aims.

It was most probably done because of the government's commitment to tax environmental bads, and because it met "a lot of objectives: to send a signal, government wanted to give exemption to energy intensive industry, where to put the tax (not covering generators because this would lead to the tax being applied to domestic users)" (Carrington 2001 *Int*). It also gave the government a lot of credibility in Europe (Edwards 2001 *Int*).

The limited consultation that Treasury made with the climate change teams in the DTI and DETR made formation of climate change policy in the United Kingdom very fractured. The complicated structure which Andrew Field claimed was "deliberate to give business choice in meeting targets" (Field 2001 *Int*) has most probably made the entire climate change programme more complicated than it need be and may well have led to the emissions trading programme having to be scrapped in favour of the European Community scheme. That being said, one important thing

[61] At the time this comment was made Dawn Primarolo was the Financial Secretary to the Treasury.

about the Climate Change Levy that is not often recognised is that it helped to establish a price for carbon.

CLIMATE CHANGE PROGRAMME

The UK began work on a new climate change programme not long after the Kyoto Protocol was signed. To gather public opinion on what should be done a consultation paper was published in October 1998. It was designed to "stimulate a national debate on how [the UK] might meets [its] targets" (DETR (UK) 1998). It was all about potential – how the United Kingdom should deal with the issue of climate change (Edwards 2001 *Int*).

Because of the introduction of the Climate Change Levy, the UK climate change programme was not produced in a logical and ordered way. DETR was not able to sit down and determine the size of the policy gap, then do a thorough analysis of the issues and policy options available and finally produce a package. The policies were dropped in at different times. The Treasury decided it was going to go ahead with the Climate Change Levy and that caused "a huge amount of problems as far as the emissions trading scheme is concerned" because of the Climate Change Levy agreements (Edwards 2001 *Int*). "The CBI thinks it was a logical process and I am not sure I want to disabuse them of this" (Edwards 2001 *Int*).

After describing the commitments made in Kyoto the consultation paper identified the central government framework within which the policy would be made, the options available for reducing emissions and a first attempt at a cost benefit analysis of the potential savings (DETR (UK) 1998:2). The government received 607 written

responses to this consultation document (DETR (UK) 1999b:5). In addition to these responses DETR and other consulting bodies in the devolved administrations of Wales, Scotland and Northern Ireland held seminars around the country. Officials across a "number of government departments" (DETR (UK) 1999b:5) reviewed these responses; Ecotec was employed to analyse a sample of the responses. The information received through this process was used in the preparation of the draft climate change programme that was published in March 2000.

The draft programme invited comments on any aspect of the document. It also asked four specific questions:

- How might the government strengthen the signal about the need for change, and start to prepare the UK for making significant emission reductions in the future?
- Were there are any obvious gaps in the draft programme?
- What other action that could reinforce the programmes are stakeholders taking?
- What should the priorities be for the government and the devolved administrations in developing strategies to adapt to climate change?

The DETR had originally planned to publish the draft climate change programme in the late fall of 1999, but it was delayed because of the introduction, consultation and subsequent modifications to the Climate Change Levy. At the time, it was in the process of evaluating the options available, but it had not yet reached the stage of stacking up the various options and deciding which would be best to use for business to contribute to reductions in greenhouse gas emissions. The debate was effectively pre-empted by the introduction of the Climate Change Levy. "Ever since then it has been sort of catch-up to put [the climate change programme] all together" (Edwards 2001 *Int*).

Instead the DETR issued a progress report in the form of *Tackling Climate Change in the UK*. The document recognised that the UK had achieved cuts in greenhouse gas emissions "primarily through 'fuel switching'" (DETR (UK) 1999b:3). It also noted that the government and business worked together to develop a domestic emissions trading scheme which should give the UK businesses and government a valuable head start when it comes to an international scheme, and it should also help to establish the City of London as a centre for international carbon emissions trading" (DETR (UK) 1999c:5).

Four months after the modifications to the Climate Change Levy were announced DETR published the draft climate change programme.

Over the next five months consultations were held by DETR, and the Parliamentary Environment, Transport and Regional Affairs Committee took evidence and deliberated on the draft climate change strategy. The government's response to the committee's report was published in August 2000. Three months later, in November 2000, the final climate change strategy was published.[62] The strategy sought to explain:

- Why the climate is changing and what its impacts might be;
- How the international community is working to ensure a global response, with agreement to the United Nations Framework Convention on Climate Change and the Kyoto Protocol;
- The leading role the UK plays internationally and in Europe;
- The UK's legally binding targets under the Kyoto Protocol to reduce its greenhouse gas emissions to 12.5% below 1990 levels by 2008-2012 and its domestic goal of a 20% reduction in carbon dioxide emissions below 1990 levels by 2010;
- The progress the UK has already made in cutting its greenhouse gas emissions;

[62] At the same time the initial emissions trading consultation paper was published.

- New measures the government and the devolved administrations are introducing to reduce emissions further and achieve the UK's climate change targets;
- The important role of key stakeholders, such as business, local authorities, representative groups, trade unions and each of us as individuals;
- The more significant reductions in greenhouse gas emissions that will be needed beyond 2010, and how the government is preparing the UK to make a major transformation toward a low carbon economy; and
- How climate change is expected to affect the UK, how we might need to adapt, and the action the government and the devolved administrations have started to take to prepare for this (DETR (UK) 2000:5).

It is the government's belief that the UK will benefit from strong action to tackle climate change. It believed the policies set out in the climate change programme would deliver reductions that are part of a wider drive for a better quality of life as well as economic modernisation.

The government "strategy to reduce greenhouse gas emissions form[ed] the core of the [climate change] programme. [They] estimate[d] that the proposal in this programme could reduce the UK's greenhouse gas emissions to about 23% below 1990 levels in 2010. This is well beyond Kyoto targets and means the UK will be ready to ratify the Kyoto Protocol when the government, in discussion with its partners in the European Union, decides the time is right" (DETR (UK) 2000:7). The government policies for the reduction greenhouse gas emissions are:

- The Climate Change Levy – a tax on energy use by business;
- Domestic emissions trading;
- The Carbon Trust;
- Exemption of good quality combined heat and power and renewables from the Climate Change Levy;
- Energy labels and standards;
- To increase the proportion of electricity provided by renewable sources to 10% by 2010, subject to the cost to consumers being acceptable; and
- A doubling of combined heat and power capacity by 2010.

Climate Change Levy

Although the Climate Change Levy is technically part of the government's climate change programme it was announced as a separate programme, the consultations were held independently, and DETR was given the final levy as a done deal. For this reason it has been discussed separately above.

Emissions Trading

In line with Lord Marshall's desire to see the City of London as a leader in emissions trading, the United Kingdom was one of the first countries to get a Kyoto compliant emissions trading scheme up and running. After the international rules for emissions trading were agreed in Bonn in July 2001 it was hoped that the United Kingdom's scheme would "lead to the City of London being the major player in the global system of trading carbon" (Brown 2001).

The impetus for the emissions trading scheme came from ACBE in its report *Climate Change – A Strategic Issue for Business*, which recommended that "flexible international mechanisms such as trading should be established as soon as possible on a business-to-business basis. The UK should take an active role in establishing these mechanisms and stay closely involved in the international negotiations on trading and joint implementation" (ACBE 1998:16).

In March 1999, during the initial consultations on the climate change programme, John Battle, Minister for Energy and Industry said "emissions trading could prove to be a key environmental tool of the 21st century, tackling pollution and sustaining

business simultaneously. Out of that will come many opportunities for new business and for exports, including renewable energy and other power projects" (DETR (UK) 1999a).

The process for establishing an emissions trading scheme in the UK began in June 1999 when the Advisory Committee on Business and the Environment (ACBE) and the Confederation of British Industry set up the UK Emissions Trading Group (UKETG). The UKETG is comprised of "over 100 leading companies - both emitters and service providers - trade bodies, and representatives of three UK Government Departments, ie DEFRA (formerly DETR), DTI and HM Treasury" (UKETG 2002). The purpose of this group was to work with government to "determine all the opportunities that can be attained through emissions trading, [and to] establish the mechanisms for delivering environmental gain at least cost, thereby maintaining competitiveness amongst UK companies" (Emissions Trading Group 1999). BG seconded Margaret Mogford to chair the UKETG, and UKETG submitted papers on mechanisms for and issues surrounding emissions trading to the government in October 1999 and March 2000. These formed the basis of the consultation document that was published in November 2000 with responses due in January 2001.

This was a short consultation period but "the UK government was good at getting information because the [UK]ETG heard business" (Edwards 2001 *Int*) and the UKETG had been successful in getting everyone in the business community and government to work together (Mogford 2001 *Int*). The Government received 89 responses to the consultation document, all of which endorsed the concept of an

emissions trading regime, but questions were raised about the specific rules proposed (DETR (UK) 2001:1).

Many people I spoke to suggested that the introduction of the Climate Change Levy slowed down the emergence of the emissions trading scheme. This was denied by government officials (Carrington 2001 *Int;* Edwards 2001 *Int*) but according to Margaret Mogford, the individuals who had been working on emissions trading issues were recalled by their companies to explain and then try to understand the potential effect of the Climate Change Levy on their businesses (Mogford 2001 *Int*).

Following further consultation with the business community and other government departments DETR announced a voluntary emissions trading programme in August 2001. It was designed to provide those companies with Climate Change Agreements (CCA) as a part of the Climate Change Levy the option to buy allowances were they to have difficulty meeting their targets or to sell allowances where the targets are exceeded. The scheme was also open to companies which did not have a CCA, but wished to take on caps and make trades or simply open an account to buy and sell allowances (DEFRA (UK) 2001). The government made available £215 million over a five-year period as an incentive for companies to join the scheme. When asked by BBC News Online why the government would be paying industry to join the scheme, Mr Meacher replied: "What company will take on caps on its emissions without incentives? We don't want to impose additional mandatory targets on industry at this stage" (BBC News 2001a).

There have been many criticisms of the United Kingdom's scheme. James Cameron thinks it is not simple enough, big enough or robust enough to last through the

voluntary portion (Cameron 2001 *Int*). Stephen Tindale argued that emissions trading was "a blocking scheme to buy three or four years for business. The scheme is voluntary and government money has been offered to encourage people to participate" (Tindale 2001 *Int*). Stephen Tindale believes for these reasons the UK Emissions Trading Scheme will not be as successful as the Government anticipates.[63] CIMA argues "Almost three out of four [finance directors] believe that the emissions trading proposals, part of a raft of measures signed up to by the UK government at the environmental summit in Kyoto, will be a bureaucratic nightmare" (Chartered Institute of Management Accountants 2001:4).

The first trade was recorded in September 2001 when Dupont sold 10,000 year 2002 greenhouse gas emissions allowances to MIECO, a unit of Japanese trading company Marubeni Corp. The deal was struck on a forward basis as the emissions trading regime did not come into effect until April 2002 (Reuters News Service 2001b). At the start of trading not many big companies had participated, but this was probably because they are still verifying their emissions (Chatterjee 2002).

Despite all of the work the government and business put into the emissions trading scheme Margot Wallstrom, the European environment commissioner, warned that Britain would eventually have to drop its carbon emissions trading scheme or make it conform to the proposed Europe-wide system[64] (Buchan 2001). Tom Delay, Chief Executive of the Carbon Trust, acknowledged that the current version of the emissions trading scheme might not be the last word on the issue. "No new venture

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[63] Mr Tindale is Executive Director of Greenpeace UK and the NGOs had sought a mandatory scheme that was not ultimately accepted by the Government.
[64] For a detailed discussion of the EU emissions trading programme and how it was developed see chapter 4.

as bold as emissions trading can be expected to be perfect first time. Learning by doing will help put the UK in the lead in this exciting area of climate change policy, and we can and must make sure the UK system develops constructively along with wider European proposals. This initiative should be welcomed by everyone who wants to see a mix of market, fiscal and regulatory instruments play their respective parts in tackling climate change" (Carbon Trust 2002).

The UK's emissions trading scheme did not comply with the EU programme and therefore will be allowed to expire at the end of the first trading period. Participants in the scheme have the right to opt out of the EU programme during the first compliance period.

The Carbon Trust

The Carbon Trust was launched in March 2001 and is charged with persuading business to reduce carbon dioxide emissions. The government estimates that the Carbon Trust and energy efficiency measures under the Climate Change Levy will result in a savings of 0.5 million tonnes of carbon (DETR (UK) 2000:72). Exactly how much money has been allocated to do this has been very difficult to determine.

Every time the government made an announcement regarding the establishment of the Carbon Trust it announced a different budgetary figure. The initial announcement July 2000 gave it funding of £27 million (Houlder 2000). The Prime Minister in October 2000 at a speech to the Green Alliance said that it would have "up to £50 million a year developing low-carbon technology, partly funded from the Climate Change Levy" (Blair 2000). One month later a DETR press release in

advance of COP6 said it would have "£130 million of Climate Change Levy receipts to accelerate the take-up of low carbon technology" (DETR 2000). In March 2001 it was given £200 million to distribute over two years with £33 million of its £50 million annual budget coming from the Climate Change Levy (*The Times of London* 2001b). So it is very difficult to tell exactly how much it has to spend and on what. So it is unclear how much it has to spend and on what. Interviews with several specialist commentators and the Carbon Trust itself, indicate its annual budget is approximately £50 million.[65]

The confusion over the Carbon Trust's annual budget is indicative of the confusion over the Carbon Trust itself. The Carbon Trust was an Advisory Committee on Business and the Environment (ACBE) recommendation (Edwards 2001 *Int*). In October 1999 ACBE proposed a body known as the "Carbon Trust" which would "run an integrated programme to accelerate the take up of existing low-carbon technologies and other measures" (ACBE 1999). ACBE made this proposal at the request of a government that was looking for suggestions on how best to help businesses take advantage of certain climate-related opportunities. The consultations on the establishment of the Carbon Trust were carried out by ACBE (DETR (UK) 2000:29). On the surface ACBE appears to be a business-led organisation but according to Stephen Tindale it is very difficult to get people to serve on it and it is essentially a civil-service-led organisation (Tindale 2001 *Int*). If this is true then the Carbon Trust was essentially a government-proposed idea painted to look like a business idea.

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[65] In its 2002/03 Annual Report the Carbon Trust said DEFRA and Devolved Administrations made available £56.4m for their activities of which £36.3 was actually drawn-down.

The appointment of a CEO was a protracted process, taking approximately 18 months, but ultimately Tom Delay, whose background includes work at McKinsey & Co, Shell and the Global Energy Practice of AT Kearney, was appointed in June 2001.

In November 2001 the Carbon Trust published its draft strategy document. It had the following key objectives:

- "To ensure that UK business and the public sector contribute fully to meeting ongoing targets for greenhouse gas emissions;
- To improve the competitiveness of UK business through resource efficiency; and
- To support the development of a UK industry sector that capitalises on the innovation and commercial value of low-carbon technologies nationally and internationally" (Carbon Trust 2001a).

Delivery of these objectives will be integrated over time to ensure appropriate support over the Carbon Trust's short (up to 5 years), medium (10 -15 years) and long term (20 - 50 years) time horizons" (Carbon Trust 2001b). The Carbon Trust will develop and implement:

- A programme to accelerate the take up of existing energy efficiency and other low carbon technologies building on the successful Energy Efficiency Best Practice Programme (EEBPP) the enhanced capital allowances scheme, and other incentive schemes as necessary;
- A Low Carbon Innovation Programme (LCIP) deploying a range of financial instruments and support for new and emerging technologies to the point where they are self-sustaining. LCIP will draw in other funding partners to create a "funding continuum" across the innovation chain[66]; and

[66] The innovation chain refers to the process of development and deployment of technologies. It ranges from early "blue skies" research through development, demonstration and early market take-up to commercial exploitation. It is often described as a linear, sequential process although this can be far from true in reality.

- Other programmes and studies to inform the Carbon Trust and hence enable it to carry out its roles and deliver its remit and objectives (Carbon Trust 2001a:7).

Despite these very specific proposals, many of the people I spoke to did not know exactly what the Carbon Trust was supposed to do. Stephen Tindale, former special advisor to Michael Meacher, described it as a "farce" and said that it was created because people were unhappy with the Energy Savings Trust[67] and the way that it was spending money (Tindale 2001 *Int*). Initial impressions of the Carbon Trust were that it was just another government initiative that would get in the way of business. Several people suggested that it could be really useful, but until it is clear exactly what it will do there will be scepticism (Edwards 2001 *Int;* Fretz 2001 *Int*)

While many of the people I interviewed were not very positive about the Carbon Trust at the time of the interviews, it was a new institution. It was something that had never been tried in the United Kingdom and as such it took a long time to get going. It has made a real effort to hire good quality people and develop a well-respected board. One year after its formation James Cameron called it a "good example of an institution making the connection between policy and investment" (Cameron 2002 *Int*).

Conclusion

Climate change is a long-term issue that makes political planning very difficult. Politicians often have trouble looking beyond the next election. Climate change is an

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[67] "The Energy Savings Trust was set up after the 1992 Earth Summit in Rio de Janeiro, to help reduce CO_2 emissions in the UK. It is a non-profit organisation funded by governments and the private sector" (Energy Savings Trust. (2002). "Energy Savings Trust Website." Retrieved 22 July 2002, from http://www.est.org.uk/.)

issue that does not allow for this; a policy may not have any significant measurable results for years or even decades.

The UK government has chosen a fairly aggressive policy stance towards climate change with the introduction of the Climate Change Levy, emissions trading, the goal of a large increase in renewable energy, and the establishment of the Carbon Trust. Whether these are good policies or the right policies is the subject of much debate and there are arguments on both sides, but that is not what I am trying to determine. Through this case study, I've tried to understand the process through which the United Kingdom has selected policy instruments.

The current government came to power with a manifesto commitment to reduce carbon dioxide emissions by 20% from 1990 levels and strong rhetoric in favour of increasing the use of renewable energy. But it had no firm plans for how to meet these commitments. The United Kingdom's political system and the Labour Party in particular strongly favour consultation processes so, not knowing exactly how to go about meeting these goals, it issued a consultation paper and asked for input. On at least one occasion the outcome of the consultation process appears to have been predetermined. This fact does not seem to have had any significant bearing on the other consultation processes or affected the level of trust that exists between business and the government.

There is a relatively high degree of trust between the government and business. This may be due, as Margaret Mogford believes, to the fact that the government has no experience in business and thus relies on business for help on how to make things in the business world work, or it may be a long standing and deeper thread running

through British political culture, where government has generally been trusted to "do the right thing" for the country.

Some of the difficulties with the UK method of determining policy are also what helps to ensure a longer outlook for policy. While each new government may create new policies in theory the civil service is there to give a long-term outlook. However, civil servants often change jobs every two to three years. This results in a loss of institutional memory and requires that new trusting relationships be established between the key representatives of the civil service and the business and NGO community.

One thing that has been very important for the development of climate change policy in the United Kingdom is that it has always had a champion within the government starting with Margaret Thatcher and continuing through successive environment secretaries to John Prescott, Michael Meacher and Tony Blair. With each of these individuals climate change policy has been able to progress and develop. This has happened for many of the same reasons that other policies are created. The difficulty with climate change is that a government may not see whether the policies it has selected have had the desired effect and, if governments change, the policies could well change irrespective of the long-term outlook of the civil service.

In the United Kingdom power hierarchies may well have slowed down the development of climate change policies. Certainly many people outside the government feel that the introduction of the Climate Change Levy had materially affected the development and introduction of emissions trading. These inter-departmental rivalries are probably due to the cultural differences within the

departments. These cultural differences define the hierarchy within government. Stephen Tindale noted the difficulties John Prescott and Michael Meacher faced when working with the senior civil servants in the newly created DETR. It showed up again in the different interpretations of how much communication there was between the Treasury and other departments around the Climate Change Levy.

These hierarchies have resulted in the dominant role in development of climate change policy being played by the Treasury. This is due solely to the introduction of the Climate Change Levy. While the Treasury believed it consulted with the DETR and DTI, and in its view telling the DTI and DETR what they were doing probably was consultation, the DETR and DTI did not believe there was much of a consultation process. The DETR was handed the Climate Change Levy as a done deal and had to fit it into the climate change programme. This forced a re-examination of all of the other policies that were being developed.

This has placed an unexpected player in the dominant role of developing climate change policy. Intuition would tell you that domestic climate change policy would be developed by the environment or energy departments or co-ordinated through the cabinet office but not by the department charged with developing fiscal policy, but in the United Kingdom that is exactly what happened. While the Treasury has had a direct interest in only one policy none of the other ones would have been developed in the way that they were without the Climate Change Levy. It was the Treasury's influence that dominated the discourse at the initial stages of planning. And while the other policies would certainly have still existed, they would have been different. The Treasury has been and remains the most powerful department in the United

Kingdom's government. If it decides that it is going to do something there is little anyone else can do about it.

In trying to understand how any policy is formed it is essential to know who the dominant player is. In the United Kingdom if the Treasury is involved it is likely to be the Treasury. In the design and deployment of climate change policy it set the structure and everyone else followed. This may sound unduly harsh and is certainly not meant to belittle the hard work put in by people outside the Treasury; but I think they would have had a much easier time and probably better policies without the Treasury influence but that did not happen and won't ever happen if the Treasury is involved.

Chapter 6 – United States Climate Change Policy

The US federal government has developed an extensive research network and voluntary emissions reductions programmes with industry for a no-regrets emissions reductions policy.[68] These policies have been the subject of much criticism for many years. People may not like what the US federal government is currently doing on the international scene and not doing on the domestic side, but the federal government does have and has had climate change policies since the mid 1980s. These policies have centred on continued research and voluntary emissions reductions. Unlike in the United Kingdom, there has been no political leader who has been willing to go out on a limb and demand that something be done to address the growing problems associated with climate change. This lack of political leadership in the past has allowed a significant and vociferous opposition to build up, and it has fought very hard to stop any mandatory caps on emissions.

The lack of political leadership is in the process of changing. Senators McCain and Lieberman succeeded in getting their Climate Stewardship Act to the floor of the Senate for a vote. And while it did not pass it did show that many in the Senate want action to be taken to curb climate change, including many Senators who did not vote in favour of the bill. While this activity at the federal level is important it is essential when examining US climate change policy to remember that the federal government is one of limited authority. Thus policy decisions taken at the state level must be included in any discussion of US climate change policy.

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[68] For a discussion of the role and structure of the policy making process in the United States of America see Appendix 3.

While there is little likelihood of federal action for the foreseeable future work on research and the voluntary programmes continues. The Fiscal Year 2003 budget request for research was US$ 1,714.2m[69] (U.S. Global Change Research Program and Climate Change Research Initiative 2002:Appendix A). This budget request exemplifies US climate change policy since the late 1970s when the federal government began co-ordinating scientific research. The history of US climate change policy is one of research, research and more research with a few voluntary programmes for industry. Irrespective of the discussions occurring on the international stage, domestically the federal government has tried to avoid placing any restrictions on business. As we review the history of domestic US climate change policy it will become clear that the political affiliation of the president has had little effect on the direction of policy.

US activities on climate change before George Bush Sr. became President

The early days of US climate change policy centred around research and what ought to be studied (Hart and Victor 1993:664). Very little legislative or administrative action was taken to limit the release of ozone-damaging substances. In 1977 Congress amended the Clean Air Act (CAA) to allow the administrator of the EPA to regulate "any substance . . . which in his judgement may reasonably be anticipated to affect the stratosphere, especially ozone in the stratosphere and such effect may reasonably be anticipated to endanger public health or welfare"[70]. This was enacted to

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[69] As of November 2003 the relevant appropriations bills had not passed Congress. This figure does not include research undertaken by the Department of Defence.

[70] CAA § 157(a), 42 U.S.C. § 7457(a) (1988), repealed by Clean Air Act Amendments of 1990, Pub. L. No. 101-549, sec. 602, § 601, 104 Stat. 2399, 2648 (codified at 42 U.S.C.A. § 7671 (West Supp.1991)). A new § 615, that is, in relevant part, identical to old § 157(a), was added to the CAA by § 602 of the

respond to the threat of CFCs to the ozone layer (Shimberg 1991:2183). It has never been used to force the EPA to take action; the list of substances covered has been amended several times including during the first Bush administration when the Clean Air Act was amended.

The National Climate Program Act (National Climate Program Act 1978) marks the beginning of the US domestic climate change policy. Under this act climate research, application and services were co-ordinated under the National Climate Program Office within National Oceanic and Atmospheric Administration (Morrissey 2000:3; Weart 2003:97). This brief flurry of legislative activity on climate change ended and climate researchers had to defend their federally funded resources against the need to balance the federal budget.

When Ronald Reagan assumed the presidency environmental issues were considered to be liberal rants aimed at stopping the growth of US business (Weart 2003:143). Senator Al Gore, future vice-president under Bill Clinton, held hearings to question the Reagan administration decision to slash federal funding of climate change research. Following this the *New York Times* ran its first-ever front page story on a report prepared by Dr James Hansen, soon to be famed for declaring that global warming had begun, which said that the planet was noticeably warmer[71].

1990 Amendments. Clean Air Act Amendments of 1990, Pub. L. No. 101-549, sec. 602, § 615, 104 Stat. at 2699 (codified at 42 U.S.C.A. § 7671n). Shimberg, S J (1991). "Stratospheric Ozone and Climate Protection: Domestic Legislation and the International Process." ENTL **21**: 2175-2216.

[71] Dr Hansen's funding was cut as a result of this report and he was forced to lay off five members of his research staff Weart, S R (2003). The Discovery of Global Warming. Cambridge Massachusetts, Harvard University Press.

At the request of Congress, the National Academy of Science spent three years studying the impacts of rising CO_2. In 1983, it issued a report saying it was "deeply concerned" about global warming, but there ought to be more research to understand the problem better before anything was done (Weart 2003:145). EPA issued its own report three days later, declaring the potential catastrophic consequences of climate change. Consistent with how US administrations would react 20 years later, the EPA report was criticised as alarmist and the more reassuring report of the National Academy of Science was preferred (Weart 2003:146). The debate continued in much the same way for another five years. US scientists did not get much support for their research in the US so they turned to their international colleagues. They attended the Villach and the Toronto Conferences[72] and they worked to try and get politicians to sit up and take notice of what they believed was about to happen.

US climate change policy under George Bush Sr.

George Bush Sr entered office in January 1988 just months before climate change would hit the front pages of most US newspapers. In June 1988 during a severe national drought James Hansen testified to the US Senate Committee on Energy and Natural Resources that it was 99% probable that global warming had begun. The next year, in June 1989, Gallup released a survey which suggested 63% of the American public was worried "a great deal" or "a fair amount" about the greenhouse effect. At the same time the major national newspapers, the *Washington Post* (8 February), the *Wall Street Journal* (10 April) and the *New York Times* (13 December) were expressing deep scepticism about global warming and its potential impacts. This

[72] For more detailed discussion of these conferences and their ramifications on the international political process see chapter 3 on the History of the International Politics of Climate Change.

contrasts with the UK where the press was not sceptical about the science (Jamieson 1992:140).

Internationally the IPCC process was just getting started and progress would be slow until June 1990 when it met to finalise its First Assessment Report (FAR). At the Second World Climate Conference in November 1990 where the FAR of the IPCC would receive its final approval the Bush Administration stood virtually alone in the world in opposition to specific targets and timetables for stabilizing CO_2 emissions (Jamieson 1992:141; Leggett 2000:22-23). The International Negotiating Committee for a Framework Convention on Climate Change was formed and "charged with drafting 'an effective framework convention on climate change containing appropriate commitments' " at the conference (Bodansky 1993:493).

Early in 1990 the DOE prepared a series of four reports on climate change at Congress's request. These reports were to analyse the economic effect of various methods to cap energy-related CO_2 emissions at 20% below 1990 levels by 2000 and at 50% below 1990 levels by 2010. The last of these four reports, *Limiting Net Greenhouse Gas Emissions in the United States*, found that the Bush Administration's National Energy Strategy (NES) would hold CO_2 emissions at a 25% increase over then current levels, with stabilisation achieved by 2015 (Berg 1992:26). The NES had as one of its objectives to increase the production and use of renewable energy.

As a part of the programme to understand global climate change better George Bush initiated the US Global Change Research Program[73] (USGCRP). This programme

[73] This is the programme that George W Bush added to with his Climate Change Research Initiative.

was meant to coordinate research between federal departments and to liaise with the office of the President[74] (Global Change Research Act of 1990 1990). This programme was established just as the international debate was beginning in earnest. And it was created to aid the US participation in the IPCC process[75] (Morrissey 2000:3). This programme had little new funding for climate change research. It was to provide a cross-departmental understanding of the research the federal government was funding on climate change and to give the United States a coordinated front at the up-coming international negotiations.

In June 1992 George Bush went to Rio with 150 other leaders from around the world for the UN Conference on Environment and Development. There he signed the United Nations Framework Convention on Climate Change committing the US to the aim of returning "to 1990 levels the anthropogenic emissions of carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol" (UNFCCC 1992:Art 4(2)b). The US signed this treaty despite a battle in the White House over whether to do something on climate change was foolish and economically harmful to the US. George Bush probably signed the treaty because it was substantially weaker than many people in the international community had hoped for and his advisors believed the goals of the Convention were achievable.[76] However, achieving the objectives would not be his problem. George Bush lost the next presidential election to William Jefferson Clinton.

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[74] These departments are the Departments of Agriculture, Commerce (National Oceanic and Atmospheric Administration), Defense, Energy, Health and Human Services, Interior (U.S. Geological Survey), State, and Transportation; the U.S. Environmental Protection Agency; the National Aeronautics and Space Administration; the National Science Foundation; and the Smithsonian Institution, the Office of Science and Technology Policy, and the Office of Management and Budget.

[75] For further discussion of the IPCC process see chapter 2 on the History of the Science of Climate Change and chapter 3 on the History of the International Politics of Climate Change.

[76] Interestingly the Senate ratified the Convention very quickly. The Bush Administration and its advisors did not have to fight any significant Senate opposition.

The Clinton Presidency

On Earth Day, 21April 1993, just months after Clinton came to office, he committed the United States to reducing its emissions of greenhouse gases to 1990 levels by the year 2000, and ordered federal agencies to establish a plan to achieve this goal.

This plan, the *Climate Change Action Plan*, was released five months later. It recommended 52 new and expanded voluntary measures to meet the previously announced emissions reduction goal. In launching his plan, in October 1993, President Clinton opened a one-day conference in Washington DC by saying "bluntly but realistically [that] raising energy prices 'either won't pass the Senate or it won't pass muster with the American people' " (Global warming meets the prodigal eagle 1997). "The nature of the initiatives in the plan [were] not unlike those that might have been expected from a second-term Bush administration, with their emphasis on voluntary programs, government industry cooperation, cost-effectiveness, use of market incentives, and minimal mandatory government intervention" (Hahn, Cavanagh *et al* 2001:37).[77] While the policies may not have been much different, the Clinton administration's attitude towards climate change was different. It had set targets, which had not happened before, and it engaged at the international level with increased vigour. However, this complex set of voluntary

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[77] "In 1993, the Administration established the U.S. Initiative on Joint Implementation under the Climate Change Action Plan. Joint implementation arrangements allow firms or other entities in one country to meet part of their greenhouse gas reduction commitments by financing mitigation in another country. The U.S. Initiative through 2000 had approved 26 arrangements whereby U.S. firms agreed to finance projects in 11 other countries" (Hahn, R W, S M Cavanagh, *et al* (2001). National Environmental Policy During the Clinton Years. AEI-Brookings Joint Center Working Paper No. 01-09; KSG Faculty Research Working Paper Series RWP01-027. Washington DC.)

initiatives had relatively little effect. By 1995, the US acknowledged that it would fall short of its goals by at least 50% (Hahn, Cavanagh *et al* 2001:37).

The second Conference of the Parties[78] saw a substantial change in US international climate change policy when Tim Wirth, Undersecretary of State for Global Affairs, the chief of the US delegation, issued a statement supporting legally binding targets and timetables for greenhouse gas emissions reductions for 34 industrialised countries (and no targets for the 154 other nations).[79]

However Clinton had problems at home. He made several speeches on climate change including to the UN General Assembly where he said, "The science is clear and compelling. We humans are changing the global climate" (Anderson 2000:8); and at a White House conference on climate change where the president said "We see the train coming, but most Americans in their daily lives can't hear the whistle blowing" (Anderson 2000:8). So while he and his administration were talking about doing something about climate change the rest of the federal government was not interested.

The US Senate responded to the administration's actions in June 1997. Anticipating the December 1997 meeting in Kyoto, Senator Byrd introduced, with Senator Hagel and 44 other cosponsors, a resolution stating that the United States should not be a signatory to any international climate change agreement which would:

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[78] The Second Conference of the Parties (COP2) was held in Geneva in July 1995.

[79] "The position statement released at COP-2 also noted U.S. acceptance of the scientific findings on climate change summarized by the Intergovernmental Panel on Climate Change (IPCC) in its Second Assessment Report, released in 1995, and rejected uniform harmonized policies in favor of flexible policy instruments, including market-based instruments" Morrissey, W A (2000). RL30522: Global Climate Change: A Survey of Scientific Research and Policy Reports. Washington DC, Congressional Research Service, Resources, Science, and Industry Division: 27.

"**(A)** mandate new commitments to limit or reduce [GHG] emissions for the Annex I Parties [i.e. industrialised countries], unless the protocol or other agreement also mandates new specific scheduled commitments to limit or reduce [GHG] emissions for developing country parties within the same compliance period, or
(B) result in serious harm to the economy of the United States." (S. Res. 98, 105th Cong. "Bryd-Hagel Resolution" 1997).

The Senate passed this resolution by a vote of 95-0[80] in July 1997[81] (S. Res. 98, 105th Cong. "Bryd-Hagel Resolution" 1997). It has been cited since it was passed as the reason for the US's failure to take action on climate change.

Five months after passage of the Byrd-Hagel Resolution the Kyoto Protocol was agreed. This was made possible at least in part because US Vice-President Al Gore arrived in Kyoto with new instructions from Washington "to show increased negotiating flexibility if a comprehensive plan can be put into place" (Oberthür and Ott 1999:86). The industrialised nations agreed to legally binding emission reductions, with the United States agreeing to reduce its emissions 7% below 1990 levels by the compliance period, 2008-2012.[82] "However, because the Protocol clearly did not meet the Senate's stipulations as outlined in the Byrd-Hagel Resolution, the Administration made clear that it did not intend to submit the Protocol to the Senate for ratification" (Hahn, Cavanagh *et al* 2001:38).[83] Senator Byrd has subsequently derided both sides of the climate change debate for distorting his resolution, saying "While those on both sides of the issue have attributed many interpretations and

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[80] The following Senators did not vote on this resolution: Bryan (D-NV), Feinstein (D-CA), Grams (R-MN), Harkin (D-IA), Reid (D-NV).
[81] Senate resolutions are non-binding. They provide guidance on the Senate's thinking on the issue addressed in the resolution.
[82] Because of economic growth, it was anticipated that this 7% reduction would translate into approximately a 30% reduction below baseline emissions, i.e. what they would be in the absence of policy action.
[83] The US Constitution gives the President the power to make treaties but for them to become law two thirds of the Senate must agree (US Const. **Art. II,**.).

misinterpretations to S. Res. 98, no one has misrepresented and misconstrued S. Res. 98 more so than [the George W Bush administration]" (US Congressional Record 2003b:S13585). In a debate on the McCain/Lieberman Climate Stewardship Act in 2003 Senator Byrd said "Senate Resolution 98 was intended to guide [the US at the Kyoto negotiations] rather than kill that effort" (US Congressional Record 2003b:S13585). It was "an effort to strengthen the hand of the administration as it undertook international negotiations" (US Congressional Record 2003b:S13585).

Appropriations bills in fiscal years 1999, 2000 and 2001 restricted certain departments (the EPA, Energy, Agriculture, State, and the Agency for International Development) from proposing or issuing rules, regulations, decrees, or orders implementing the Kyoto Protocol; this was known as the Knollenberg restrictions. (Pew Center on Global Climate Change 2002b:5-6). Congress justified this by citing the Byrd-Hagel Resolution.[84]

Negotiations on the rules for the flexible mechanisms in the Kyoto Protocol began in 1998 at COP4. Despite agreeing to the inclusion of the flexible mechanisms the EU strongly objected to the proposed US rules. The disagreements persisted through COP6 where the talks collapsed, in part, over disagreement about the role of carbon sequestration and emissions trading. While the international negotiations continued to grind on not much was happening at the domestic level. In his final State of the Union address President Clinton acknowledged global warming as "the greatest environmental challenge of the new century" (Clinton 2000).

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[84] The George W Bush administration requested continuation of the Knollenberg restriction, but the language was challenged and ultimately struck from all FY 2002 appropriations bills" (Pew Center on Global Climate Change (2002b). Climate Change Activities in the United States. Washington DC, Pew Center on Global Climate Change: 38.)

Eileen Claussen, Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs for the Clinton administration, felt that the administration took the issue seriously, as a mention in the State of the Union Address would confirm, but no one had the guts to do anything about it (Claussen 2002 *Int*). And while the analysis that was done for the international negotiations was very thorough, there was no equivalent at the domestic level (Claussen 2002 *Int*). In fact it would be possible to argue that by continuing the international negotiations despite acknowledging there was no possibility of Senate ratification of the Kyoto Protocol, Clinton managed to keep climate change off the domestic agenda thus obviating the need for concrete domestic action.

When Clinton left office in January 2001 there was no agreement on the rules governing implementation of the Kyoto Protocol, no action towards ratification in the United States, and no significant domestic initiatives, other than the voluntary programmes of the administration's 1993 Climate Action Plan.

George W Bush elected

January 2001 saw George W Bush sworn in as the 43rd president of the United States of America. During the presidential campaign he made several statements on climate change and carbon dioxide emissions. He acknowledged the seriousness of climate change, but argued that the Kyoto Protocol was not the solution. Echoing the Byrd-Hagel Resolution George W Bush claimed the lack of developing country participation made the treaty fatally flawed. However, he also promised:

> "With the help of Congress, environmental groups, and industry, we will require all powerplants to meet clean air standards in order to reduce emissions of sulphur dioxide, nitrogen oxide, mercury and carbon dioxide within a reasonable period of time. And we will provide market-based incentives, such as emissions trading, to help industry achieve the required reductions"("U.S. Rejection of Kyoto Protocol Process" 2001:648).

Six weeks after he was sworn into office George W Bush responded to a letter from four senators saying he opposed the Kyoto Protocol because "it exempts 80 percent of the world, including major population centers (sic) such as China and India, from compliance, and would cause serious harm to the U.S. (sic) economy" (Bush 2001b). He also reversed his campaign pledge to limit carbon dioxide emissions from power plants. Two weeks later that the administration announced its intention to withdraw from the Kyoto Protocol.

Ari Fleischer, George W Bush's press secretary, at his daily press briefing on 28 March 2001 was asked a question about whether the US intended to withdraw from the Kyoto Protocol. He responded that there was nothing to withdraw from since it had not entered into force and the president had no intention of submitting the Protocol for Senate approval as would be necessary for it to come into force in the US[85] (Fleischer 2001).

The administration did not consult anyone before it made the announcement. It was told "it would be a below the fold story" (ie no one would pay any attention) (Claussen 2002 *Int*). But that did not happen; reaction from around the world was swift and angry (Drozdiak and Pianin 2001). The European Parliament condemned the withdrawal calling it "appalling and provocative" (Agence France Presse 2001);

[85] At the time this statement was made only one Annex 1 country had ratified the Kyoto Protocol, Romania.

Michael Meacher, British Environment Secretary, called it "exceptionally serious" (Europe criticises US threat over Kyoto 2001). However, the US withdrawal from the Kyoto Protocol may have been the thing that got the rest of the world to reach agreement and finalise the details of the Kyoto Protocol (Diringer 2001). Congress also responded to this surprise announcement. It had begun to take climate change more seriously and expected the administration to do the same. It quickly introduced resolutions that supported engagement in the international climate change negotiations and more than 50 climate change related bills were introduced in the 107th Congress (2001-2002), up 100% from the previous year and more than 600% from 1997-98 (Pew Center on Global Climate Change 2002b).

After this unexpected backlash the administration immediately began to soften its language on climate change and the need for the US to address the issue. A cabinet level working group was established and met weekly in what amounted to "climate 101" (Revkin 2001). The working group called experts from all sides of the issue, including scientists Dr James Hansen and Dr Richard Lindzen as well as leading economists.

This has led Eileen Claussen, an outspoken critic of the Administrations policies, to say this is "the best informed cabinet" on the issue of climate change (Claussen 2002 *Int*). It was this group that requested the National Academy of Science report to get a "balanced view of what we know and don't know about the science of climate change" (The White House 2001:1).

The Administration requested the National Academy of Science to review the IPCC's Third Assessment Report on whether there are "any substantive differences between

the IPCC Reports and the IPCC Summaries" and "to identify the areas in the science of climate change where there are the greatest certainties and uncertainties" (Bridgeland and Edson 2001). The report concluded, "Greenhouse gases are accumulating in Earth's atmosphere as a result of human activities causing surface air temperatures and subsurface ocean temperatures to rise. Temperatures are, in fact, rising. The changes observed over the last several decades are likely mostly due to human activities, but we cannot rule out that some significant part of these changes are also a reflection of natural variability" (National Academy of Sciences 2001:1).

Eileen Clausen felt that "people knew what they were going to get from this report, but now that the science has the US stamp on it, it will be accepted" (Claussen 2002 *Int*). While it may have upset many people around the world that the US did not accept the IPCC report that would not be the US way of doing things. In the US, the IPCC is a group of unknown international scientists, so why should they be trusted? Both sides of debate had things that they could take away from the report. The administration focused on the things not known about the science of climate change (Bush 2001a), while proponents of action to address climate change quoted the acknowledgement that changes observed in the climate over the last several decades are "likely mostly due to human activities" (National Academy of Sciences 2001:1).

In June 2001 the cabinet level working group issued an interim report that outlined what action the federal government had taken and where it intended to go (The White House 2001). Despite promises to produce an alternative to the Kyoto Protocol for COP6bis in July 2001 nothing appeared.[86]

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[86] As of November 2003 the US still had not produced an alternative to the Kyoto Protocol (US Congressional Record (2003b). **149:** S13572-01.)

In February 2002 the administration released its Clear Skies Plan. Its key objective was the reduction of US greenhouse gas intensity by 18% over 10 years. This was to be achieved through a series of voluntary programs. It is generally agreed that this represents nothing more than a business-as-usual approach (Menz 2002; Pew Center on Global Climate Change 2002a).

> "In addition, the plan directs the Secretary of Energy in consultation with other key agencies, to "substantially improve the emission reduction registry", to upgrade the voluntary emission reduction program under section 1605(b) of the 1992 Energy Policy Act, to bring about enhanced measurement accuracy, reliability, and verifiability. Other measures include providing for protected, transferable emission reduction credits, increased funding of US$ 700m in total climate-related spending, and a new management structure to coordinate climate change and technology research. Domestic policies such as tax incentives for renewable energy and new technology, development of fuel-efficient vehicles and cleaner fuels, and carbon sequestration were also proposed, along with several international bilateral initiatives and relatively modest increases in foreign assistance" (Justus and Fletcher 2002:10).

It took a long time for the Clear Skies proposal to appear because there was cross-departmental co-operation (Thomas 2002 *Int*). Initially, the administration brought in experts from across government and outside government to provide advice on climate change science and possible policy responses. After it got the information it wanted it sent everybody back and developed the policy in secret; it did not want any leaks.

The US Senate made history in October 2003 when a bill to cap CO_2 emissions was debated on the Senate Floor (US Congressional Record 2003b). The McCain/Lieberman bill, the Climate Stewardship Act (S 139, The Climate Stewardship Act of 2003 2003), required mandatory emissions reductions from the

electricity, transportation, industry, and commercial sectors (S 139, The Climate Stewardship Act of 2003 2003:Sec 3 Para 3). These sectors were required to reduce their emissions to 2000 levels by 2010. The legislation relied on a cap and trade system similar to one used to combat acid rain in the 1990s. And while this bill did not pass[87] Senators were forced to put on record where they stood on the need to address climate change. Even Senator Byrd spoke out in favour of regulation. He chastised the Bush Administration over its failure to act over climate change and for misrepresenting and misconstruing S Res 98 (US Congressional Record 2003b:S13585).

Conclusion

The US has a history of acting on its own. When it declared independence from Great Britain in 1776 it did so with no international support, an economy that was almost wholly dependent on Great Britain for many essentials and no army or navy to speak of, especially when compared to what was then the greatest military force in the world. The new United States of America used its resources and sheer determination in its belief that it was right and there was no other option but to follow its own path. In many ways that is what the federal government is doing now. The George W Bush administration has decided that the Kyoto Protocol is "an unrealistic and ever-tightening regulatory straightjacket, curtailing energy consumption" (Dobriansky 2003). And whether the rest of the world agrees or wants to support it is irrelevant. This is not to say the US does not care what other nations

[87] The final vote was 43 in favour and 55 against. The two senators who did not participate in the vote later indicated in the Congressional Record they would have voted in favour of the bill had they been available to vote (US Congressional Record (2003c). Washington DC, US Senate. **149:** S13651-05. , US Congressional Record (2003a). Washington DC, US Senate. **149:** S14264-01.)

think: it does. It would like the rest of the world to come over to its point of view, but if it won't then the US will continue down the path it has chosen.

The policies the US has formulated to address climate change have evolved from the mid 1970s. The research into the causes and effects of climate change have expanded from a side interest of a few government-funded scientists to numerous government departments, university institutions and private research centres dedicated to understanding the extent to which humans are affecting the changes in the Earth's climate and developing technologies to respond to any changes. US policies are almost exclusively focused on research and voluntary measures. And while the current policies have been criticised as a failure to take climate change seriously they are not significantly different from those policies developed over the previous ten years, the major difference now being that George W Bush's administration has openly withdrawn from the Kyoto Protocol as opposed to continuing to negotiate at the international level while doing very little domestically. This is not to say that the criticisms as to the quality of the programmes and the level of emissions reductions are unfair. But the federal government does have policies and it is addressing issues in a way that no other government is able to do by spending US$ 1.7 billion per year on research.

The domestic debate over the future of US climate change policy may be changing. The McCain/Lieberman bill has brought the issue back onto the federal agenda. The vote was much closer than many people expected and many senators who voted against the bill spoke out in favour of a stronger federal response to climate change. The fact that many states have also started to reduce emissions and formulate climate change policies will eventually force the federal government to focus on climate

change. It is important to recognise this state activity. It reaffirms the federal government as a government of limited power. If the federal government fails to act the states can and will act and then companies will face a myriad of different regulations. This will lead companies to demand that the federal government take action, and so the federal government will track what the states are doing to try and understand what is the best and most acceptable policy response.

The current US focus on research and technology development is consistent with the general feeling in the US that technology, if given enough time and support, will be able to solve most problems. This belief exists at both the state and federal level. Californian officials believe that if they set a policy the technology will develop to meet those requirements (Greenwood 2002 *Int*), while the federal government meanwhile believes that they must support the development of new technologies to change the ways energy is produced and consumed (Dobriansky 2003).

Chapter 7 – California's Climate Change Policy

"Go West, Young Man!". The west coast of the United States has always been about new and exciting things. About pushing the boundaries. About shedding the old and having new and exciting challenges. This encouragement rings true today as much as it did 150 years ago when Horace Greeley uttered it[88]. Californians are weird, Californians are loony. Look, they elected an actor with no political experience as governor, again. The rest of the nation does not understand California or what drives it; that's OK with Californians, it's not their problem. And I suspect the rest of the US kind of likes it that way too. It gives them something to laugh at. Americans like the weird and wacky; they just don't want to do it themselves, so what's better than to have a whole state that will do it for you. This wackiness or willingness to push the boundaries has placed California at the forefront of policy development in many areas.

Like the United Kingdom, California sees itself as a leader in environmental policy[89] (Lipper 2002 *Int;* Pulling 2002 *Int;* Stevens 2002). "California has led the nation in developing common-sense approaches to climate issues. The state was the first in the nation to develop government-sponsored initiatives to study potential climate impacts and develop response strategies, including hosting public workshops aimed at educating the public about climate change" (Greenbiz.com 2003). In 2002 California responded to the federal government's failure to address the issue of climate change with the passage of AB 1493(Pavley) that classified CO_2 as a pollutant

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[88] Horace Greeley was the editor of the Chicago Tribune. Greeley popularized the phrase "Go west young man and Grow with the nation" in reference to the westward expansion of the nation in the 19th century. It has subsequently been used when you want someone to expand their horizons.

[89] For a discussion of the role and structure of the policy making process in California see Appendix 4.

thus allowing the state to regulate it.[90] Many states[91] have subsequently looked at whether they will be able to do something similar (Lynch 2002 *Int*). This is just one example of where California has led the nation in adopting far-reaching policies to improve energy efficiency, reduce energy costs, improve transportation, and mitigate the adverse impacts on the environment of energy production and use. Many of the policies that help to reduce California's emissions were originally intended to solve California's persistent air pollution or transportation problems (California Energy Commission 1998).

A survey in July 2003 by the Public Policy Institute of California (PPIC) found that despite the recession Californians remain committed to environmental issues (Baldassare 2003:vi). The PPIC survey found:

> "Two in three Californians (68%) believe that increased carbon dioxide and other gases released into the atmosphere will, if unchecked, lead to global warming. Forty-five percent of state residents — and 54 percent of those ages 18-34 — believe that global warming will pose a serious threat to them in their lifetime. Nearly three in four (73%) believe that immediate steps should be taken to counter the effects of global climate change. What are they willing to do about it? Majorities say they are willing to make major lifestyle changes to address the problem (69%), believe that the federal government should set new legally-binding industrial standards to limit emissions thought to cause global warming (66%), and think the federal government should work with other nations to set standards for the reduction of greenhouse gases (52%). Again, there are strong partisan differences: Democrats (77%) are more likely than Republicans (49%) to believe that global warming exists" (Baldassare 2003:vi).

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[90] For a full discussion on AB 1493 (Pavley) see later in this chapter.

[91] As of February 2004 five states have adopted similar legislation, New York, New Jersey, Maine, Massachusetts and Vermont.

This survey shows one reason why California legislators are taking the issue of climate change seriously. The potential ramification for California's snow pack, agricultural production and coastline are enough to make even the most sceptical legislator take notice of the problems posed by climate change.

Carbon dioxide emissions account for nearly 84%[92] of California's greenhouse gases, in line with national proportions (California Energy Commission 2002b:21). However, California's emissions sources differ somewhat from the rest of the nation. Nationally, in 1999, electricity generation sources accounted for 39% of carbon-related emissions, industry 17%, and transportation 32%. In comparison, California's electricity generation sector (utility and non-utility) produced only 16% of emissions in the state, and industry 12%, but transportation produced nearly 59%, with commercial and residential emissions account for 9% and 4% respectively (California Energy Commission 2002b:27). "Nationally, and particularly in the West, emissions from the transportation sector are growing the fastest" (California Energy Commission 1998:3-4). California accounts for approximately 2% of worldwide greenhouse gases (Planet Ark 2001). So over 1% of worldwide greenhouse gas emissions come from California's transportation sector. This is the reason that PG&E supported the Pavley bill (AB1493). PG&E wanted to make clear that in California energy generation was not the largest contributor of greenhouse gas emissions (Pulling 2002 *Int*).

"In 1994, California's per capita CO_2 emissions were nearly 40 percent lower than the U.S. average. While a major portion of this difference is due to California's climate,

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[92] This figure excludes marine bunker fuels as required by US EPA and recommended by the IPCC.

it has fewer high-energy consuming industries, higher reliance on natural gas, and negligible coal consumption" (California Energy Commission 1998:4). It is the Energy Commission's assertion that policies to reduce statewide energy use can be credited for about 10 – 15% of the difference[93]. Since the 1970s California has been promoting energy efficiency, encouraging natural gas generation, and supporting the development of renewable energy resources for electricity generation. The hills to the east of San Francisco are covered with windmills built originally partially because of tax schemes used to encourage the production of wind energy. "While California's energy policies were adopted primarily to meet the most stringent standards for criteria air pollutants in the nation, and to promote economic and environmental benefits, many of these policies have had concurrent benefits for reducing CO_2 and other greenhouse gases. On the other hand, the state's extensive transportation infrastructure produces emissions from this sector that are over 20 percent higher than the national average" (California Energy Commission 1998:4).

History of Climate Change Policy in California

California has experienced air pollution problems for more than 60 years, that is just under half of its existence as a US State.[94] The first recognised problem of air pollution was in the Los Angeles Basin in 1943 (California Air Resources Board 2003a). It was only a short time before the public demanded the politicians do something about the problem. Just as the "killer fog" struck London, California began to regulate air pollution in 1947 with the Air Pollution Control Act. This

[93] The Energy Commission does not provide any support for this claim.
[94] California became a state on 9 September 1850. It was the thirty-first state admitted to the Union.

authorised the creation of an Air Pollution Control Districts in every county in the State (Ashby and Anderson 1981; California Air Resources Board 2003a).

California, in 1960, was the first state in the nation to mandate automotive emissions control requirements (California Air Resources Board 2003c). The California Air Resources Board (CARB) was created in 1967 to "promote and protect public health, welfare and ecological resources through effective and efficient reduction of air pollution while recognizing and considering the effect on the economy of the State" (California Environmental Protection Agency 2003). The CARB oversees the activities of 35 local and regional air pollution control districts. These districts are responsible for stationary sources of emissions, although measures introduced by them may affect mobile sources of emissions (California Air Pollution Control Officers Association 2003). To meet their responsibilities they have authority over emissions control, monitoring, compliance, permitting, complaints, planning and research, and public outreach (California Air Pollution Control Officers Association 2003).

It established the first air resources board in the United States in 1967 under Republican Governor Ronald Reagan. In hindsight this act was extremely fortuitous. The federal Clean Air Act passed in the same year provided a framework for defining "air quality control regions" based on meteorological and topographical factors of air pollution. It included a waiver for California to set and enforce its own emissions standards for new vehicles based on California's unique need for more stringent controls. California is the only state with this exemption. However, the other states are allowed to follow California's lead and adopt similar legislation to California

(Motor Vehicle Mfrs Assoc of the US v NY State Dep't of Envtl. Conservation 1994; Clean Air Act 2003).

In 1989, the Energy Commission, in advance of its making recommendations to the governor and the legislature on appropriate policy responses by the State, held a *Symposium on Global Climate Change.* This symposium was attended by all of the members of the Energy Commission and leading scientists from around the US. Sessions were held on both the science of climate change and possible policy responses. Speakers included leading sceptics Professor Richard Lindzen and Dr Fred Singer and leading supporters of the science behind climate change Dr Irving Mintzer and Dr Daniel Lashof.

As would be expected Dr Singer advocated no action because unilateral action would be a waste of time (California Energy Commission 1990:94). The other three scientists who spoke on possible policy responses all advocated taking some action, including Dr Mintzer who said "we're not on the edge of an imminent climate catastrophe, but [that] we are facing substantial, significant and cascading uncertainties from the science and [that] we ought to make some decisions that reflect both our ignorance and those uncertainties" (California Energy Commission 1990:104).

This symposium led to the report entitled *Global Climate Change Potential Impacts and Policy Recommendations.*[95] The report provided the governor and the legislature with

[95] A further discussion of this report is found in the next section under AB 4420.

specific policy recommendations for the reduction of carbon dioxide emissions, methane emissions and the production and use of CFCs.

The PPIC survey found that 58% of California's population felt that air pollution posed a serious threat to their families' heath (Baldassare 2003:5). Nearly half (47%) believe that vehicle emissions are the major contributor to air pollution (Baldassare 2003:6). However they do not recognise that their driving contributes to the problem (Baldassare 2003:8).

RENEWABLE ENERGY

"California's policy not to depend on fossil fuel has been with us for a long time" (Sher 2002 *Int*). The Renewable Energy Program was created in 1996 to support the development of renewable electricity generation technologies and to expand the renewable energy market in California (Renewable Energy Program 1996). Originally authorised for the period 1998-2001, it has been extended through 2006. The money for the Renewable Energy Program comes from the ratepayers. There are five elements to the Renewable Energy Program:

- Existing Renewable Facilities Program;
- New Renewables Program;
- Emerging Renewables Program;
- Consumer Credit Initiative; and
- Consumer Education Program.

California currently gets 12% of its electrical power from renewable energy, more than any other state (*Los Angeles Times* 2001).[96] In September 2002, the Renewable Portfolio Standard was set. This requires that California electricity suppliers increase

[96] This figure includes the use of hydroelectric power.

their procurement of renewable energy by 1% per year so that it is 20% of retail sales by 2017.[97] California utilities lead the nation in the purchase of renewable energy and purchase a combined total of 23,000 GwH per year; Florida ranks second purchasing 5,000 GwH per year. A total of 78,000 GwH per year of renewable energy is purchased by utilities in the US (SolarAccess.com 2003).

The PPIC survey found that 81% of the population supports the requirement that the state double its use of renewable energy in the next decade (Baldassare 2003:24). It did not ask if the support would continue if it leads to higher energy costs.

DEREGULATION OF THE ELECTRICITY INDUSTRY AB1890(1996)

In 1996, California deregulated its electricity industry in an attempt to lower electricity prices. The deregulation separated generation from the grid (transportation), so the companies that deliver to consumers are grid only, with no generation (production). The grid companies (Southern California Electric, PG&E etc) buy power from the generators in California and neighbouring states. As we all know now, it did not work. In the summer of 2001 California suffered from rolling blackouts.

The basic issue is that the grids were restricted from paying extra to buy power long term. So, when California power demand shot up in 2001 with the economic boom they had to scramble to buy all of their power on the spot market, so there was a shortage. Power generators upped the price and the grid companies had to pay. The

[97] For further details of this legislation see earlier in this chapter.

rates the grid companies could charge consumers were capped - so they had to buy at spiking prices, and sell at lower prices. They were instantly bankrupt.

To try to combat these blackouts the energy companies asked people to conserve and gave them money back on their bills if they managed to reduce consumption by a given percentage over the previous year. Consumers did it. They reduced consumption by 20% (Reuters News Service 2001a). It is anticipated that one-third of this reduction will continue through 2003 (California Energy Commission 2003:1). An unexpected side effect of California's deregulation was that President Bush used these blackouts as the basis for abandoning his election commitment to cap CO_2 emissions (*Time Magazine* 2001).

No power plant applications were filed with the Energy Commission between 1994 and 1998 because there was so much uncertainty during the restructuring of the electricity industry. This may well have contributed to the problems California has been experiencing. Nimbyism is rife in California and building power plants despite the blackouts is still very difficult (Michels 2001).

The bill regulating the electricity industry established the public goods charge to help renewable energy companies; SB 1038 (Sher) extended the charge for another 10 years in 2002. This charge is a line item on the ratepayers' bill. It funds "cost-effective energy efficiency and conservation activities, public interest research and development, and development of renewable resources technology" (SB 1038 Chapter 515 2002).

TRANSPORTATION

Californians love their cars and as the PPIC survey demonstrated they do not seem to make the connection between their individual vehicle emissions and air pollution (Baldassare 2003:8). California is a big state[98] that grew in the mid part of the last century along with the rapid expansion of car use. In the 1930s and 1940s transit companies such as National City Lines, Pacific City Lines and American City Lines acquired electric public transit companies. They then scrapped the electric vehicles and replaced them with buses made by General Motors. General Motors, Firestone Tire & Rubber, Standard Oil of California, Philips Petroleum and Mack Truck funded these transit companies (St Clair 1981:580; Doyle 2000:48). The companies recognised that it was in their long-term interest to ensure that the public transportation system failed and people became reliant on their cars. Initially, people used the buses, but because they were smelly, uncomfortable and unreliable people switched to private cars and the bus systems were rarely used (Sustainable Energy Institute 2003). Since then Californians have become dependent on their cars. They are part of the family and generations of songwriters have written about Californians and their cars.

California has tried many things to combat the air pollution caused by transportation. One of the more controversial is enactment of the zero emissions vehicle programme (ZEV). The ZEV programme, enacted 1990, required 2%, 5% and 10% of all vehicles sold by a large manufacturer to emit zero tailpipe emissions by the

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[98] California is 404,815 sq km. In the European Union only France (543,965 sq km) and Sweden (449,790 sq km) are bigger. The UK is 244,755 sq km, and Germany is 356,840 sq km (The Times Atlas of the World Comprehensive Additions (1994). London, Times Books.)

years 1998, 2001, and 2003 respectively.[99] The auto industry lobbied hard against this law and continues to claim that it is draconian, will force Californians into less safe vehicles, and make cars more expensive to cover the cost of the ZEVs (Doyle 2000:376-377), while the California legislators saw it as a way to force technological development (Peak 2002:140). The arguments of both sides are similar to those made regarding AB 1493 (Pavley), the tailpipe emissions bill passed in 2003.

To move Californians out of their cars has proved extremely difficult. Greg Greenwood noted that while 68% of California's emissions are transport related that number may be inelastic and therefore difficult to change (Greenwood 2002 *Int*). Perhaps it would be better to focus on other areas that do not appear to be as big a problem, but you might be able to make larger reductions. This is especially important given the relative intensity of the six main greenhouse gases. To date California has not done this extensively, but it is beginning work in this direction.

Policies California Has Used To Address Climate Change

Given that California's legislators and civil servants have taken air pollution seriously for so many years, it cannot be surprising that they have addressed climate change with the same tenacity. A population that supports action on environmental issues, and businesses that want to be seen as proactive contribute to the belief that California is and should remain a leader both nationally and internationally on climate change. Many of the policies California has developed over the years to combat the

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[99] The 1998 and 2001 requirements were repealed in 1996. The initial legislation has been modified several times (Peak, M (2002). "Improper Incentives: Modifying The California Zero Emission Vehicle Mandate With Regards To Regulatory, Technological, And Market Forces: 1990 - 2001." Georgetown Public Policy Review(7): 137.)

scourge of poor air quality have the secondary benefit of controlling greenhouse gas emissions. As these policies were not originally conceived to reduce greenhouse gas emissions I have not studied why they were developed. I have focused instead on the four policies that were specifically devised to combat climate change.

AB4420[100] - Study of Potential Ramifications of Climate Change on California's Economy

California's first specific climate change bill was introduced in 1988 at the same time as other nations were starting to get to grips with the problems of climate change themselves. Senator Byron Sher[101] introduced the bill as a result of a seminar held by Scripps University in the late 1980s (Sher 2002 *Int*). Most people in the state were not interested in climate change, but Sher recognised the significant effect it could have on the Californian economy (Sher 2002 *Int*).

California was the first state in the nation to study the potential impacts of climate change on the state and develop strategies to respond in all sectors (California Climate Action Registry 2003:7). AB4420 directed the California Energy Commission[102] to study the potential impacts of global warming trends on the state's energy supply and demand, economy, environment, agriculture, and water supplies and to develop policies for reducing these impacts. With the assistance of other

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[100] In California legislation is regularly referred to by its bill number because bills often makes changes in different codes and therefore it is impossible to use a single code reference to identify a piece of legislation.

[101] Senator Sher has long been an advocate of addressing climate change. Senator Sher has introduced all of California's climate change legislation with the exception of the most recent bill. The Senator is due to retire at the end of this term, as a result of term limits, and there must be a question as to who will lead California in addressing climate change in the future.

[102] The Energy Commission was chosen as the lead agency because it was the only one that volunteered and the governor's office was not interested. They were also ideally suited to data collection, which was primarily what this bill required Lipper, K (2002). Interview. California Senate.

concerned state agencies[103], the Energy Commission submitted its final report, *1991 Global Climate Change: Potential Impacts and Policy Recommendations,* to the governor and legislature in November 1991. Other Californian agencies, federal agencies, other states, businesses, trade organisations, environmental interests groups, and the research community reviewed and commented on this report before it was submitted (California Energy Commission 1998:4). This report was an early example of Californian government agencies working together to address climate change. This has continued up to the present and is one of the strengths of California's climate change programme.

Between 1988 and 2000 there was no direct climate-change-related legislation. However, state agencies continued to work on the issue and clean air and energy efficiency laws were passed. These had the secondary benefit of addressing emissions of greenhouse gases. These include the Zero Emission Vehicle legislation that became law in 1990 and originally mandated that manufactures sell specified quotas of zero emissions vehicles beginning with 2% in 1998. This has subsequently been amended.[104]

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[103] The agencies that worked with the Energy Commission were the California Air Resources Board (CARB), Department of Forestry, Coastal Commission, Department of Food and Agriculture, and Department of Water Resources, Lawrence Berkeley Laboratory, Livermore Laboratory, and Envirosphere and Accurex corporations.

[104] For further information and updates, see Peak, M (2002). "Improper Incentives: Modifying The California Zero Emission Vehicle Mandate With Regards To Regulatory, Technological, And Market Forces: 1990 - 2001." Georgetown Public Policy Review(7): 137.
, California Air Resources Board. (2003b, 6 October 2003). "California's Zero Emission Vehicle Program." Retrieved 7 October 2003, 2003, from http://www.arb.ca.gov/msprog/zevprog/zevprog.htm.

SB 1771 – California Climate Action Registry H&S Code §42800 et seq and requirement for greenhouse gas inventory

In November 2000 Senator Sher sponsored SB 1771 (Sher) to establish the California Climate Action Registry (CCAR or the Registry). This was an important step in California's response to climate change. The bill was introduced and passed as a direct result of business coming to Senator Sher with a problem and a possible solution. California companies came to the Senator looking to the future and potential federal regulation of greenhouse gas emissions. They wanted some place that had the official California stamp to register their emissions, but they wanted it to be voluntary. Most importantly, they wanted California to be the first to act so they could influence national policy (Sher 2002 *Int;* Wittenberg 2002 *Int*).

The Registry is a voluntary non-profit organisation whose objective is to help companies with operations in California to establish baseline emissions against which any future greenhouse gas emissions reductions can be applied. The Registry will require the reporting of only CO_2 emissions for the first three years of participation, although participants are encouraged to report the remaining five GHGs covered in the Kyoto protocol (CH_4, N_2O, HFCs, PFCs, and SF_6). The reporting of all six gases is required after three years of Registry participation (California Climate Action Registry 2000a). Initially participants only have to report emissions from within California. But they are encouraged to report emissions nationwide as "those participants with emissions in other states that report California emissions only may not be able to receive equal consideration for their emissions records in future national or international regulatory regimes relating to greenhouse gas emissions"

(California Climate Action Registry 2000b). All of the information registered with the Registry is publicly available (California Climate Action Registry 2000d).

The purpose of the CCAR is to explore non-regulatory ways business could be encouraged to voluntarily monitor and reduce greenhouse gas emissions. It is based on the notion that under any future regulatory scheme the participants will have high quality emissions which have been quantified in a transparent, certifiable and verifiable manner (Wittenberg 2002 *Int*). The Registry is meant to be an honest broker of information.

The formation of the CCAR was consultative. After the governor signed the legislation regular meetings were held with representatives of government, NGOs and industry to discuss the status of the Registry, what it was going to do and how it was going to do it.

The CCAR also works with the State to respond to global climate change concerns. To do this it will:

- Track greenhouse gas emissions within the state;
- Provide the public with information about climate change; and
- Assist the state in developing policies which will aid in reducing global greenhouse gases emissions (California Climate Action Registry 2000c)

In October 2002 the CCAR opened its doors with 23 members (California Climate Action Registry 2002). It has developed protocols and software tools to help members easily track their greenhouse gas emissions. On 1 July 2003 it filed its report with the governor and the legislature, *California Climate Action Registry Biennial Report to the Governor and Legislature*, as required under section 42860 of the Health and Safety Code. Members were only just filing their emissions data at this time, so it is not yet

possible to estimate what proportion of state emissions the members represent (California Climate Action Registry 2003:4).

As a part of its formation process the CCAR learned that one possible objection by companies to joining is that they operate in many jurisdictions and they were concerned that they might be required to join other registries in other states with different standards. In attempt to solve this problem the CCAR is working with the eight north-eastern states that participate in New England States for Coordinated Air Use Management[105] to develop a pilot multi-state registry (California Climate Action Registry 2003:10-11; Miura 2003).

This all bodes well for the future success of the CCAR, but more time will be needed to tell if it will succeed. There is some suspicion among industry that the CCAR will translate into mandatory regulation (Sher 2002 *Int*). But Bob Stevens believes that companies are participating because they see that mandatory reporting of stationary source emissions is not far off and they want to establish a baseline early on (Stevens 2002).

SB 1078 (2002) RENEWABLE ENERGY OBLIGATION

This is another Sher-sponsored bill. In September 2002 Governor Gray Davis signed SB 1078 which requires California retail sellers of electricity supplies to procure at least 20% of their electricity from renewable energy by 2017. At the time this bill

[105] These states are Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont.

became law California got approximately 10%[106] of its energy from renewable sources. According to Kip Lipper the goal of 20% was chosen because it was "a nice round number" (Lipper 2002 *Int*). He thinks this is a relatively modest target, but admits it was somewhat arbitrary (Lipper 2002 *Int*). It was the highest number discussed during the planning and negotiations of the bill (Stevens 2002). The governor and his office worked very hard for this bill; they were very worried about the possibility of a new energy crisis (Sher 2002 *Int*).

This bill was hard to get through the legislature because the original legislation applied to all power generators. The local municipal utility districts were worried about having the Public Utility Commission (PUC) involved in their affairs. The PUC will monitor compliance with this requirement, and the local municipal utility districts who are not currently regulated by the PUC saw this bill as a slippery slope that may eventually lead to their regulation by the PUC (Sher 2002 *Int*). The exemption of the local municipal utility districts was an important political compromise.

This bill also authorises carbon sequestration in forestry. This is an economic benefit to the big logging companies that own huge swaths of Northern California. It is also considered "critical to making serious inroads into climate change" (Stevens 2002); and while most people think that renewable power is more expensive than natural gas, that was "clearly not the case during 2001" (Lipper 2002 *Int*). Unlike in the UK where one of the objections to renewable energy is the cost of connecting it to the grid, that was never given as a reason to oppose this bill. It is estimated that this bill

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[106] This includes electricity generated from hydropower.

will lead to up to US$ 11 billion in economic development in the form of jobs and in state spending.

Bob Stevens believes there were three reasons for the success of this bill. First, AB1493 (Pavley) became law just before the bill was passed. Second, the PPIC 2002 environment survey came out just after the AB1493 (Pavley) was signed and found that 81% of Californians support legislative action on climate change. Third, it was an election year and Governor Davis and the legislature wanted to appear active on the issue of climate change (Stevens 2002). This bill also fit a typical California pattern: "There is an assumption that we put out an aggressive goal with a reasonable timeframe to achieve it and the technology will develop to meet those goals" (Stevens 2002). This may be the case. Southern California Edison has already exceeded the 20% requirement, 14 years early (SolarAccess.com 2003; Southern California Edison 2003)

AB1493 – Pavley Bill – CO_2 Declared a Pollutant

In the fall of 2000 nothing was happening in Washington DC on climate change. The US was in the middle of a presidential election and climate change was not high on the domestic agenda. The Bluewater Network, a small NGO in San Francisco, recognised this and decided to focus their legislative efforts on California. Research revealed that CO_2 from transportation was California's largest source of greenhouse gas emissions. This is where they chose to focus.

California, with its special exemption under the Clean Air Act, its high CO_2 emissions and environmentally aware public presented an ideal situation to get CO_2 declared a

pollutant. The Bluewater Network proposed the idea to every leading legislator in California and was turned down because the idea was allegedly ahead of its time (Lynch 2002 *Int*). Eventually they asked Assemblywoman Fran Pavley, a freshman legislator, and she agreed to sponsor the legislation. The specific justification for this legislation was that climate change was one of the most pressing environmental problems the world faces today and, as transportation was one the major contributors to California's greenhouse gas emissions, something had to be done about it.

If it had not been for the Bluewater Network's decision to focus on California and then do all the lobbying and leg work, this bill would not have come through the legislature and been signed into law (Lynch 2002 *Int*). At the outset, no other NGO would touch the bill. They thought it was too far ahead and it was not the right time to bring it forward (Lynch 2002 *Int*). Success in the Assembly Transport Committee brought other NGOs on board (Lynch 2002 *Int*). There was very little opposition to this bill in the assembly because most of the opposition did not believe it would succeed (Lynch 2002 *Int*) and it was very unusual for a bill to get this far with so little opposition (Greenwood 2002 *Int*). In working on this bill Eliza Lynch found that there was a lot media interest, but not a lot of understanding of the issues raised (Lynch 2002 *Int*).

Late in the day the auto industry began lobbying against the bill by calling it a "driving tax" to try and rally public opposition to the bill (Reuters News Service 2002b). It backfired. The auto industry has a long history of political activism in California and its opposition to this bill helped the bill to develop its own momentum in Sacramento. The auto industry has opposed many pieces of legislation

in California over the last 25 years and every time it has developed a very strong political response (Stevens 2002).

AB 1493(Pavley)[107] instructed the California Air Resources Board to adopt regulations that would achieve the maximum feasible, cost-effective, and technologically achievable reductions of greenhouse gas pollution emitted by new passenger vehicles. These words provide both a lot of wiggle room and the appearance of authority (Greenwood 2002 *Int*). It would be possible for CARB to do very little. No one is saying this is going to happen. Throughout my interviews, there was high praise for the people working at CARB (Greenwood 2002 *Int;* Lynch 2002 *Int*) so it may be that this vague language was left in place to get the bill through the legislature knowing that the institutions will do a good job sorting it out (Greenwood 2002 *Int*).

When Governor Davis signed this bill he proclaimed, "The technology is available. It's affordable. And it's widely utilized in other countries. We're merely asking business to do what business does best: innovate, compete, find solutions to problems and do it in a way that strengthens the economy" (Davis 2002). Bob Stevens of Cal EPA sees this bill as a "baby step", but it formally established climate change as an important issue for the state (Stevens 2002). It is not comprehensive: it only makes a stab at the problem and it is unclear whether the state will actually see any greenhouse gas emissions reductions from this bill (Greenwood 2002 *Int*). However, it may have made climate change more real for people and may lead to a

[107] This bill was originally entitled AB1058.

bill which will address greenhouse gas emissions from stationary sources, which account for 45% of California's emissions (Stevens 2002).

Conclusion

"Whatever starts in California unfortunately has a tendency to spread" (Carter 1977). California was the first state in the nation to develop government-sponsored initiatives to study potential climate impacts and policy responses (Greenbiz.com 2003). California's economy is larger than many nations. Its gross state product would rank it fifth in the world and accounts for 13.4% of US national GDP; its transport sector represents 1% of global CO_2 emissions. These facts make it important to pay attention to the climate change policy decisions California makes.

California long ago passed the discussion phase of whether to do something about climate change. The debate has now moved on to what is to be done and what the costs will be. California has a conscious strategy to act and influence national climate change policy (Lipper 2002 *Int*). Even Washington knows "Dealing with global warming is too important to leave solely to Washington" (Jeffords 2002). And as former California Governor Gray Davis said in September 2003 "if Washington DC will not lead, then the West Coast (sic) of the United States will lead on global warming" (Marquez 2003). California and its citizens have been and always want to be leaders. It has been the centre of high tech booms, the defence industry and aerospace manufacturing. It has also been ahead of the curve on clean air legislation. General Motors even admits "California is the center (sic) of the environmental regulatory universe" (Hakim 2002). The Pavley bill was just such an example and General Motors knew it. Californian legislators said if the federal government is not

going to address the problem of CO_2 emissions and the resulting greenhouse gas emissions then they would.

California's first action on climate change in 1988 through to its 2002 decision to declare CO_2 a pollutant have always been cutting edge, maybe even proactive. The people of the state expect that and more. As well they should, since California has the second highest level of CO_2 emissions in the United States, 97.6 million metric tons (Martin 2002). Californians have a history of willingness to look at new ideas and to experiment with different ways to try to solve old problems.

They are not sure what the next policy initiative will be. There is litigation with the federal government over the regulation of CO_2 as a pollutant which California filed as a pre-emptive strike to stop the Federal Environmental Protection Agency from blocking California's attempt to regulate CO_2 emissions (Planet Ark 2003). Legislators in California would like to look at stationary source emissions – reduction of particulate matter air pollution would have greenhouse gas benefits (Lipper 2002 *Int*). It was originally thought that it might happen in 2003 but the gubernatorial recall election put a hold on much legislative activity (Lipper 2002 *Int*).

People are open to the idea of emissions trading in California, but they are worried about how it will work (Lipper 2002 *Int*). Eliza Lynch of the Bluewater Nework believes emissions trading is on the table in California (Lynch 2002 *Int*). But Greg Greenwood does not think emissions trading will happen in California because people are worried about "an Enron in carbon" (Greenwood 2002 *Int*). Nevertheless, he is interested to know more about the EU scheme, the rules for participating, and whether California might be able to participate. The California Climate Action

Registry seems ideally suited to participate in or form the basis of an emissions trading regime, but its executive directive Diane Wittenberg claims this in not on the cards, believing the California emissions market is too small to provide a liquid market (Wittenberg 2002 *Int*).

There will probably never be a state climate change programme - at least not as one would be known in Europe, but there may be a sustainability programme. In the late 1970s and early 1980s under Governor Jerry Brown[108] legislation required the state to prepare Environmental Management Programmes. For some reason, these programmes stopped being produced, but the statute that requires them is still on the books and there is no reason why they can't be produced again. Bob Stevens of Cal EPA is trying to build momentum for a state sustainability programme that would be a mix of legislative regulation and administrative action. It would be modelled on the programmes of Canada, Sweden, New Zealand and Holland (Stevens 2002).

The legislators and the civil servants of the executive branch generally work well together. They are used to working cross-departmentally. They have done this since California first began studying climate change in 1988. Most state agencies have at least one person who has climate change as an area of responsibility, while many have more than one. The Joint Agency Task Force on Climate Change has been successful in getting different agencies to work together on mutually beneficial climate change policies, though Greg Greenwood, the chairman of the task force, believes this is down to the individuals on the task force and not the secretary of

[108] Jerry Brown is currently mayor of Oakland, California's 8th largest city (California Department of Finance (2003). City/Country Population. Sacramento, California Department of Finance: 7.)

state responsible as there has been very little "buy-in" at that level (Greenwood 2002 *Int*).

The retirement of Byron Sher from the California Senate is going to leave a large legislative gap in the climate change policy area. But given the strong history that California has in leading the nation on clean air and climate change policies it seems likely that someone will step in to the breach. People in California believe that despite everything they have done in the area of climate change policy in the last few years it is still an area where they can do better (Lipper 2002 *Int;* Sher 2002 *Int;* Stevens 2002).

It is too early to tell whether California's regulatory efforts to combat climate change will have the desired results, but that is true of all legislative activity around the world. California legislators like many others have taken action because they believe in the precautionary principle. Climate change is not a short-term problem and short-term answers will not solve it. Whether it is a registry for companies' greenhouse gas emissions or mandatory maximum tailpipe CO_2 emissions there will be benefits for the state in protecting the environment and human health. If they can lead the US or the world in either of these areas, Californians will see themselves as successful.

Chapter 8 - Conclusion

In concluding this thesis it is necessary to restate some basic propositions that underpin it. Although the question of law and legal policy are crucial to the formulation of climate change policy, a straightforward dogmatic approach would not have captured the intense richness of the climate change field. In order to overcome the limitations of the dogmatic approach, a socio-legal study was adopted. This type of analysis was appropriate because the development of policy and the resultant laws cannot be fully understood unless they are placed in context of the society in which they were created. The research therefore has been an analysis of the cultural, political and legal issues in the formation of climate change policy, and its use in the development of financial instruments, in the United States of America and the European Union with specific case studies of California and the United Kingdom.

The field of climate change policy is constantly evolving as our understanding of the science improves and members of society change their views on how best to respond to the challenges presented by the new scientific findings. Because of this, research on climate change policy is not suited to legal analysis alone. Legal analysis would provide only a partial picture of the policies developed. It is an examination of the context in which the policies were created that will allow for a more complete understanding of how the field of climate change policy is evolving.

Climate change policy emerges from a struggle among many groups attempting to impose their perceptions and interpretations of the issues on the decision makers. From this perspective the concept of the field as developed by Bourdieu offers a

context that allows for the interaction between interest groups to be explained. For Bourdieu the field is the site where relations of power are contested.

In this conclusion I will employ Bourdieu's concept of a field to make clear the importance of the interaction between the various members of the field of climate change politics, outline the members of the field, recap on how the science and the international politics constrain and define the interactions of the members of the field and finally review the results of this research from the subject jurisdictions. California and the United Kingdom were chosen as the basis for this research because both jurisdictions have a long history of tackling climate change and carbon dioxide emissions; the members of the field within these jurisdictions view the jurisdictions as leaders in addressing climate change but they have chosen different policy instruments to meet their climate change objectives. It is these similarities and differences that make these jurisdictions an interesting basis for a study on the differential impacts of culture on the selection of policy instruments.

Both California and the United Kingdom took action to understand the potential ramifications of climate change on their economies and their geographies long before their parent jurisdictions did. In the case of the United States significant scientific research has been carried out into the potential affects of climate change on all of the different parts of the country, but at the Federal level no action has yet been taken to mandate the reduction of greenhouse gas emissions; no single member of the field has come to dominate thus resulting in a stalemate in policy formation. In the European Union, the structure of the entity limits what it can do and the power struggle between members of the field means there has been no action in crucial areas such as energy and tax.

I have used the theories of Pierre Bourdieu to provide a context that allows for the interaction between interest groups to be explained. Bourdieu places these interest groups in a field which consists of a set of objective, historical relations between positions anchored in certain forms of power (capital) (Bourdieu and Wacquant 1992). In the area of climate change policy the field consists of governments, scientists, accountants, lawyers, businesses, NGOs, the press, anyone who has any interest in how this policy develops or is affected by its development. All of these groups are struggling over power and who is going to have it. Having this power gives them influence over the direction policy development takes. As Bourdieu notes:

> Thinking in terms of "field" also allows one to recapture the global logic of the new world legal order without resorting to generalities as vague and vast as their object. Instead one can observe and analyse the more concrete strategies by which particular agents, themselves defined by their dispositions (tied to a social position and a trajectory in a national field), their properties, and their interests, construct an international legal field while at the same time transforming their national legal fields (Bourdieu in Dezalay, Garth *et al* 1996:vii).

Governments and the civil servants and politicians who work in them must be a dominant member of the field because they have to write the laws and the policies. The power relationship between other members of the field changes over time. In the jurisdictions studied in this research, business groups and their advisors are emerging as the other dominant member of the field. Having made the decision to address the challenges of climate change, governments have recognised it is easier to make significant reductions with the business community than with individual voters. Business groups, their advisors, and their lobbying organisations have shaped policies in both California and the United Kingdom. In California, the Climate Action Registry was created at the request of business and the tailpipe emissions bill was

supported by many different businesses outside the auto industry. In the United Kingdom the businesses covered by the EU Emissions Trading Scheme are lobbying hard for high allocations of carbon, and the Carbon Trust was created to work with the business community to reduce its emissions and develop new technologies.

The press also has significant power although it doesn't seem to recognise this. Often the only thing members of the business group know about climate change is what they read in the paper or hear from the TV and radio press. In the belief that they must provide both sides of a story the press regularly give the climate sceptics equal airtime with the mainstream scientific community. This provides the impression that the scientific community is divided about climate change, which it is not. If other members of the field believe the scientific community is divided that may affect what they think about climate change and what policies they will work to have developed.

It is difficult to say if there are any members of the field for whom power is waning. Climate change policy development is so new that there have not been significant changes in policies. Even as governments change, there has been an agreement that we need to address the problems the scientists are identifying. If there is one group that may be losing power it is the NGO community. Early in the development of policy it often called for the implementation of "command and control" legislation. This type of policy has fallen out of favour with governments as they tried to give business the opportunity to determine for themselves the best way to reduce emissions. It would be incorrect to say that governments do not listen to the NGO community but their influence is significantly less than those members of the field in the business community.

A review of the current state of scientific research and international negotiations was necessary to set the context for the emergence of climate change policy in the jurisdictions studied. This provides the background from which the various members of the field have based their views on how policies should be developed. Climate change as a scientific discipline is not new; it has been studied for more than 150 years. Initially it did not generate much interest in the scientific community or beyond. However, slowly, over the last 50 or 60 years scientist began more in-depth studies of the earth's climate and what they found worried them. Roger Revelle and Hans Suess concluded in 1957 that we are conducting "an uncontrolled experiment from which there is no going back" (Bernarde 1992:2). And 20 years later in 1977 four scientists from the Oak Ridge National Laboratory in the United States concluded "[i]f the severe economic and political repercussions that are likely on a world scale are to be avoided, a technological commitment must be made in the next few years and a world strategy arrived at with enlightment and wisdom. Though humanity may not be able to foresee the consequences of the 'great experiment' clearly enough to control them, we cannot afford not to try!" (Bernarde 1992:3-4). These individuals' exhortations were given little heed outside the scientific community for many years. Perhaps more significantly there was little or no scientific disagreement with them either.

It was only as the international political community began to listen to scientists in the 1980s that the sceptics began to challenge the scientific findings on climate change. The sceptics argued, among other things, that in the 1970s the US National Academy of Sciences and the National Research Council were predicting that the climate was cooling and this would have potentially disastrous consequences for the economy therefore warming must be good for the economy (Singer 1992:400). Another

argument they made was that there was no point in doing anything about climate change because it would not be possible to reduced carbon emissions by the amount necessary to curb global warming (Lindzen 1992:6). These sceptics have now been largely discredited. The IPCC in its three reports has had expert reviewers from both sides of the divide and has examined hundreds of scientific research reports from around the world. The Third Assessment Report from the IPCC concluded that "concentrations of atmospheric greenhouse gases and their radiative forcing have continued to increase as a result of human activities" (IPCC 2001a:7).

The IPCC's findings and that of the national academies of sciences from around the world (National Academy of Sciences 2001; Royal Society 2001) is that there is the potential for large scale and irreversible damage to natural human systems. This has led governments to take the difficult step of negotiating a series of international treaties to address the challenges of climate change, challenges that are arguably more difficult than the international community has faced before.

The international community set itself the objective to reach agreement on a subject which went beyond the need to eliminate a few man-made gases from production. The gases covered under the UNFCCC are produced naturally or are byproducts from many industries which are central to economies around the world. There is no easy substitute for many of them as there were for the gases addressed by the Montreal Protocol. These challenges brought new members to the field of international climate change politics. Among these new members was the press and the press brought a new level of complication: the need to answer to domestic political constituencies. Increased domestic political pressure has made policy development more difficult.

In the US in particular the press was very sceptical of the claim that man was contributing to the changing climate and that urgent action was needed. There was the belief that if climate change was regulated at the international level there would be significant damage to the US economy. The US Senate passed the Byrd-Hagel resolution which many people believe impeded the US's ability to negotiate in Kyoto. Senator Byrd has said on the record that he did not intend the Byrd-Hagel resolution to impede the negotiations in Kyoto, only to guide them (US Congressional Record 2003b:S13585).

The press in Europe was much less sceptical. Many organisations believed from very early on that governments had an obligation to do something about climate change. The press support has given the European governments support to do something, but the question was what should they do and at what level of government should they do it? The European Union's structure, especially as it applies to climate change, has made progress in addressing the challenges presented by climate change very difficult at both the international level and the domestic level (Oberthür and Ott 1999:86-87).

When policies are being developed and implemented there are always winners and losers, those that will benefit from the policy and those that will not. With the EU emissions trading system the six industrial sectors covered by the directive initially appeared not to benefit, thus those members of the field lobbied the Member States and the Commission for less stringent targets or increased allocations of free carbon. Once the system is up and running it may well prove in the first phase of the EU ETS that individual companies benefit because they overestimated their emissions or

it was easier to make reductions than they had claimed. Another example of where industry groups lobbied against the implementation of a specific policy but individual companies may well benefit from the policy's implementation is California's tailpipe emissions bill. The US automakers claimed that the consumers did not want lower emission vehicles but the better-than-expected sales of Toyota and Honda's hybrid vehicles is an indicator that this is not true.

Policymakers face the difficult task of trying to sort through the information provided to them by the various members of the field that will be affected by the policy proposal. They then must also take into account how members of the field who they may not have heard from may be affected. They need to do this because policies do not exist in a vacuum. Policymakers do not always know how a policy will play out in the real world.

The United Kingdom and California provide clear examples of this power struggle. How power is shared will either hamper or accelerate policy development. In the UK, Treasury appears to have little interest in the development of climate change policy, but held up the entire climate change programme with the Climate Change Levy. In contrast in California the legislature, in its attempt to understand how climate change may affect the state, made a clear attempt to include all of the potentially relevant members of the field early in the policy development process so no member could hold up the entire process with a specific policy proposal.

In the European Union this power struggle can be seen in the development of a number of climate change policies. The structure of makes the European Union makes it a government of limited power. The Commission lacks authority over

energy and tax policy, two subjects that would normally be central to addressing the challenges presented by climate change. This means that the Commission as a member of the field is in constant struggle with other members of the field to develop policy. There are negotiations between the different DGs whose constituencies' will be affected by different policy proposals and between the Commission and Member States that may or may not want to see specific European policies developed.

The Commission worked for years to introduce a carbon tax. Each new President of the European Union said they would make it a priority (European Commission 1997; Center for a Sustainable Economy 2002; Jucca 2002; Jucca 2003). It was never going to be easy (Collier 1997:55), there was always opposition from someone: the UK argued against it on the basis of subsidiarity (Dahl 2000:217); Spain wanted to see liberalisation of all EU energy markets first (Center for a Sustainable Economy 2001); and then the French and the Italians objected because they wanted special rules for their road hauliers (Planet Ark 2002b). Now with the Community having expanded to 25 members the unanimous agreement that would be required to implement a carbon tax would be almost impossible to achieve.

Since the Commission has had no success in what is commonly agreed would be easiest areas to reduce carbon emissions, regulating energy production or imposing a carbon tax, it has introduced policies that have as their objective to change behaviour in other ways: emissions trading and renewable energy programmes. The emissions trading scheme will begin operation in January 2005. Negotiating the emissions trading scheme was quick by European standards. Member States and the Commission agreed in 1999 that the best way to meet their Kyoto commitments was

an emissions trading scheme and by 2001 the directive was issued. Member States are currently working out their National Allocation Plans. The risk, and it is a risk with many European policies, is that if a Member State allocates too many credits or does not enforce the emissions limits, the process of punishing it may take years to work its way through the European court system. This will undermine the credibility of the system and reduce the confidence the participants have in the staying power of the scheme.

The EU ETS is a good example of how the different members of the field struggle for power and influence over the development of a policy instrument. This policy was designed to reduce industrial emissions by giving the covered sectors a cap on the level of carbon dioxide they could emit. If they exceeded this cap then they had to buy more carbon, if they managed to reduce their emissions then they could sell the excess. Members of the field lobbied at the European and Member State level to effect who would be covered, what their allocation would be, how the policy would be enforced, what the penalties would be: anything they could think of that might someday be important when the emissions trading scheme was up and running. When policymakers finalised the proposal they had to think about everybody that might use this financial instrument and therefore affect the outcome they wanted from the instrument: a reduction in carbon emissions at a reasonable price.

Policymakers knew financial institutions would trade these certificates, but they may not have anticipated the effect these members of the field would have on the market. Financial institutions are not end users of the carbon; they are only buying and selling it to make money and they are not just dealing in EU carbon, but carbon from around the world and other energy related commodities. So a hedge fund which

trades commodities such as oil and gas or oil and gas public equities may well trade carbon because of the effect they think carbon will have on the value of those commodities or those companies. These are members of the climate change policy field that the Commission and the Member States probably had little or no contact with. Their behavior will be different than the industrial players whom the policy was designed to regulate, demonstrating to regulators and policymakers that markets are often beyond their control and may behave in ways they could not predict.

The power struggles experienced at the Community level don't stay there. In order to take a position to the European negotiations the United Kingdom needs to develop is state level policy. Power struggles can be seen here as well. An early mover on climate change, the UK has more experience than many in creating policies designed to address climate change. In its most recent climate change programme, developing policy should have been very straightforward. DEFRA is the lead agency; it is its job to coordinate other departments. But in the UK when Treasury enters the fray all the other rules go out the door. Treasury's decision to institute the Climate Change Levy created huge problems for the rest of the programme (Edwards 2001 *Int*) and resulted in its delay in implementation for more than four months (Edwards 2001 *Int*). People working in Treasury think they were open and worked with DEFRA in the formation of the Climate Change Levy and how it would fit within the new climate change programme (Field 2001 *Int*), but DEFRA did not see it that way and neither do the outside observers (Harriban 1999; Cameron 2001 *Int;* Edwards 2001 *Int*). This struggle between the various departments has impeded the development of climate change policy in the UK. Even if one party says there is no struggle, it doesn't matter because if one member of the field believes their progress is impeded by the other, that tension is what forms the legal culture of the jurisdiction.

The relationship between the US federal government and the states has tension similar to that between the Commission and the Member States, only it is more explicit as it is set out in the US Constitution. The Federal Government is a government of limited power; it can only formulate policy in areas in which the Constitution has specifically granted it power to do so. The history of policy making in the United States has shown that to try and impose policy from the top will often meet with resistance from the states. Climate change policy had this problem. There was no impetus at the grassroots level to address climate change; it was easy to point out the reasons not to do anything instead of finding reasons to do something.

It is for this reason that George W Bush's refusal to submit the Kyoto Protocol to the Senate for ratification may have done more for US climate change policy than any other action since the federal government started funding research in the 1950s. By removing the US from the international negotiations as they were then taking place he forced the members of the field that wanted to see something done to actually do something.

In the months following the announcement, there was increased activity at the state level and in Congress. While this means there won't be a US federal climate change policy immediately it means there probably will be one in the coming years and in the meantime the states will develop, implement and enforce their own climate change policies. These policies will form the basis for a future federal policy, giving the US a testing ground of many different variants on policies.

California is the leader in developing these potential policy options. As a government, the California legislature has been examining how to solve the challenges of clean air and emissions for 50 years. This experience has given the state legislators and the civil servants a strong base from which to build various policies. When the legislature makes a decision to address an issue and it assigns that responsibility to an agency; that agency knows its role in the development of policy and other agencies know how to work with it. This understanding of the relationship between the legislature and the government departments means there have been limited power struggles between the those members of the field; they can then work with the members of the field outside government to develop a policy that meets the needs of all of the participants while fulfilling the goal of the legislature.

This is how the California Climate Action Registry was formed. Business had an idea, the legislature acted and then the various members of the field worked together to develop an organisation that met the needs of all of the participants. During the formation process there was significant interplay between the various members of the field to ensure any registration and verification of emissions was rigorous and meaningful. All members of the field would need to accept the CCAR and see it as an independent broker of information.

From this research we know there are always power struggles in the development of policy instruments. The difficulty with climate change policy is understanding who the groups with the most power are. There are more members of the field than in most policy areas. The current vogue for economic instruments makes it difficult to predict whom all of the potential members of the field will be and how their actions

will affect the policies once they are outside the political vacuum in which they were created.

This research also demonstrates the importance of future research into how other jurisdictions develop policy. If we understand the socio-legal demands of the members of the fields at every level of government it will aid us in the understanding of the opportunities and difficulties they will face in attempting to introduce further climate-change-related policies.

Appendices

The Structure of Policy Making in the European Union

As a political, economic and legal community Europe is young; it is only 50 years old. For an entirely new institution this is not much time to work out the kinks in internal operating issues, much less international issues. No one would have expected the United States to be a world power when it was 50 years old, and that was in a much less complicated world. The Member States all had different reasons for joining and they have many different priorities for the various institutions which make up the EU. With a Presidency that rotates among Member States every six months consistent leadership and direction is left to the commission.

The commission is led by a president and 20 commissioners. They start most legislation within the EU and provide leadership in the international arena. Climate change being an area of mixed competence within the EU means that both the commission and the Member States have authority over issues related to climate change. Thus at international negotiations representatives of the Member States and the commission are in attendance. It also means that it is very difficult for the EU to change its negotiating position, as it would have been agreed between all 16 (and soon to be 26) participants in advance of the negotiations.

The individuals who work for the commission are an informed elite in their subject areas. Like the US civil service they can stay in the same subject area for their entire career; but unlike the US the European bureaucracy can initiate legislation and take the lead in policy formation. This has been extremely helpful to the development of the EU's climate change policy.

At the Kyoto negotiations the European Union got an agreement that allowed the EU to take on reductions and then spread those reductions across the Community. This way some Member States took on large reductions while other less developed Member States were allowed to increase emissions.

The EU's Burden Sharing Agreement is authorised under Article 4 of the Kyoto Protocol. This article allows parties included in Annex I to reach an agreement to fulfil their commitments jointly (Kyoto Protocol 1998:Art 4 Para 1). If the EU as a whole fails to meet its target, then each member state is responsible for meeting its own individual target as agreed within the Burden Sharing Agreement (Kyoto Protocol 1998: Art 4 Para 5).

The EU agreed that the contributions of each member state would amount to the overall 8% reduction commitment at the meeting of Environment Ministers of 15-16 June 1998. The Council Conclusions of 16 June 1998 set out each country's commitment and is referred to as the "Burden Sharing Agreement".

History of EU Emissions and Trends for the Future

In December 2002 the European Environment Agency (EEA) issued a report on greenhouse gas emissions trends and projections on Europe (European Environment Agency 2002). This report was prepared for the commission as required under the Monitoring Mechanism Directive and provides an[d] annual evaluation of progress towards meeting the Communities Kyoto commitments (European Environment Agency 2002:5). As is required by the Monitoring Mechanism the report is based on Member State submissions.

The EEA's findings were mixed. Emissions between 1990 and 2000 were down by 3.5% (European Environment Agency 2002:7). In 2000 six Member States were on track to meet their burden sharing targets: Finland, France, Germany, Luxembourg, Sweden and the United Kingdom (European Environment Agency 2002:8).

Unfortunately, Member State projections for emissions in 2010 with existing policies and measures are not expected to deliver sufficient emissions reductions to meet the Kyoto commitments. If planned additional policies and measures are implemented the Kyoto targets would be reached with over delivery by several Member States (European Environment Agency 2002:9-10). The EEA has recognised that this cannot be counted on. Several people I interviewed noted the potential legal dispute over ownership of any over delivery between the EU, the Member States, and the companies that have cut their emissions (Cameron 2001 *Int;* Carrington 2001 *Int;* Edwards 2001 *Int*).

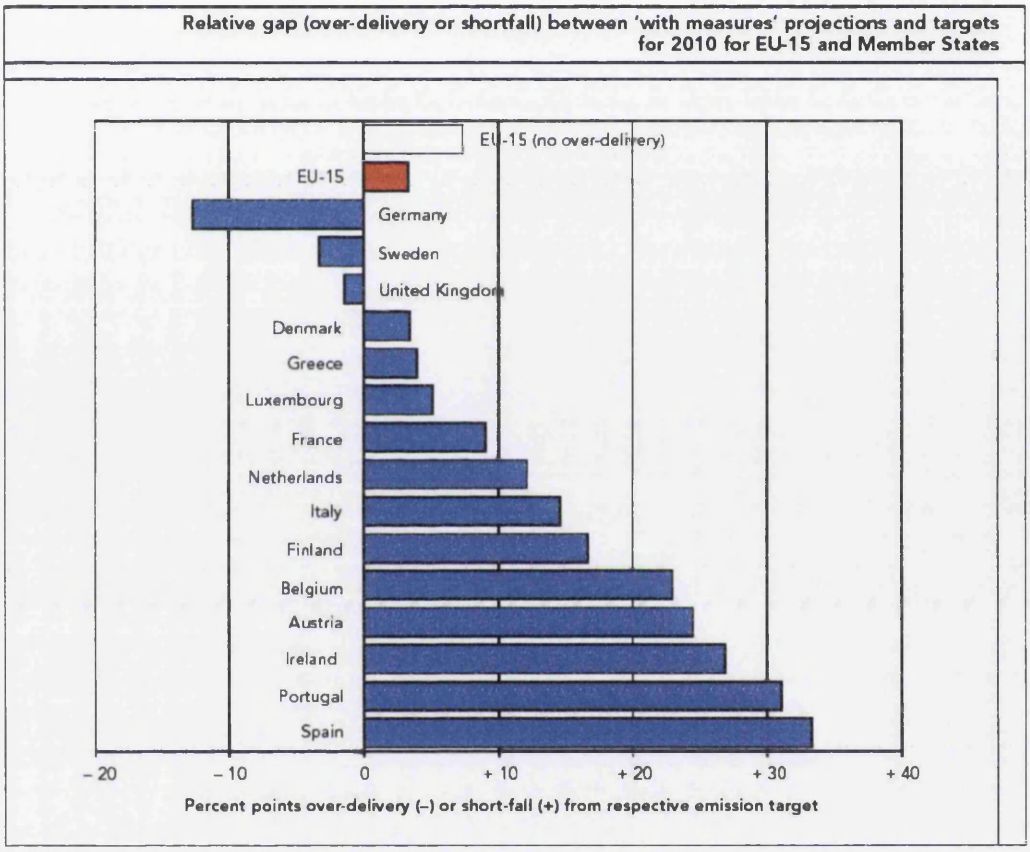
Existing policies and measures show projected reductions of 4.7% by 2010 on 1990 levels. Germany, Sweden and the United Kingdom projected that existing policies and measures will be sufficient to meet their targets. Austria, Belgium, Finland, Ireland, Italy, the Netherlands, Portugal and Spain are all expected to exceed their targets with existing policies and measures (European Environment Agency 2002:11).

If there is no over delivery[109] the EU will only achieve "a 0.6% greenhouse gas emission reduction with existing policies and measures and a 6.2% reduction with additional policies and measures projections. This leads to a shortfall of 7.4% and

[109] This is certainly a possibility and will be dependent on solving the ownership issues related to over delivery.

1.8%, respectively, in 2010, taking into account domestic policies and measures only" (European Environment Agency 2002:33).

The following graphics demonstrates the potential problems the EU faces in meeting its Kyoto commitments. Only three countries are at or below their Kyoto target leaving the EU short of its overall target.



(European Environment Agency 2002:33)

The Structure of Policy Making in the United Kingdom

Government structures always seem so simple on first inspection. The government of the United Kingdom is no different. On the surface the United Kingdom's governmental structure is pretty straightforward. The government is the party or parties asked by the Sovereign to form a government, and this is usually the party with the largest number of Members of Parliament (MPs). It sets the legislative programme for the term of up to five years. Parliament is there to scrutinise the work of the government and to vote on the government's legislative proposals. The civil service is loyal to the Crown and works for the government of the day providing impartial advice and implementing the policies of the government. But a closer inspection, of course, reveals a more complicated picture.

The government has extraordinary powers under Britain's unwritten constitution, which can be exploited. MPs of the largest party rarely vote against the government, and if they do criticise government policy the government often doesn't take any action as a result.

The government is a very powerful group of about 100 parliamentarians who have become ministers, junior ministers, under secretaries, whips etc who decide the direction of policy. Their selection is not based on qualification, but because they worked hard for the party, are owed a favour, have power within the party, or will follow the party line. The government is primarily responsible for arranging the business of both the House of Commons and the House of Lords. As the initiator of policy, it indicates which action it wishes Parliament to take, and explains and defends its position in public debate.

The House of Commons is traditionally regarded as the lower house, but it is the main parliamentary arena for the political battle. As with the House of Lords, the House of Commons debates new primary legislation as part of the process of making an Act of Parliament. The House also scrutinises the work of the government - it does that by various means, including questioning ministers in the Chamber and through the select committee system. (UK Parliament 2002)

The elected parliamentarians are increasingly marginalised. Will Hutton described Parliament as a place "where politicians score meaningless points off each other in the style of Oxford or Cambridge Union debates while the business of government is conducted by a flawed bureaucracy" (Hutton 1996:5). This may not be an entirely fair description of Parliament today, but there are no written rules on how the government relates to Parliament and vice-versa. When a prime minister has a large majority he can assume that he has a virtual mandate to carry his policies through irrespective of any parliamentary objections.

Meanwhile the civil service can be explained by a reference to the 1980s British sitcom *Yes, Minister*[110] that focuses on the political games and clashes between politicians and the civil service. In one episode Jim Hacker the Minister is talking to his wife:

> Jim Hacker: "The opposition aren't the opposition."
> Annie Hacker: "No of course not, silly of me. They are just called the opposition."
> Jim Hacker: "They are only the opposition in exile. The Civil Service is the opposition in residence." (Jay and Lynn 1980).

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[110] Former British Prime Minister Margaret Thatcher was very impressed with the series and once stated: "Its closely observed portrayal of what goes on in the corridors of power has given me hours of pure joy".

The civil service is very important in the United Kingdom. It dominates the information flow to ministers[111]. Ministers are not specialists in the areas they are responsible for; instead they are (often) MPs who have curried favour with the Prime Minister. The civil servants are not specialists either. They stay two to three years in each post before moving on. When they move they may or may not stay within the same policy areas. Its origins are central to the character of bureaucracies, and to contemporary British education and society. The "Victorian idea was that administrators should be chosen, not with special experience of government, but as intelligent, well-educated amateurs – a crystallisation of the amateur ideal which runs through English life" (Sampson 1962:221).

Some people believe this is the strength of the civil service because it brings a wide background to the table with varied experiences. It can however be a disadvantage in the international arena because it is often dealing with seasoned international negotiators who have spent many years negotiating international treaties or working on the specific issues related to the negotiations (Lowen 2001 *Int*), while the UK representative may never have been involved in an international negotiation.

Despite the fact that the civil servants change jobs so frequently "[m]ost of the time British government departments do not have much to do with one another. Why should they? The Home Office imprisons prisoners. The Department of Transport builds roads. The Department of Social Security pays pensions. The Department of Health runs the National Health Service. The Ministry of Agriculture subsidises

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[111] The civil service is slowly losing this domination to NGOs and "independent advisers".

farmers. And so on. Most departments' business requires little contact with other departments" (King 1993:54). This however is not true of climate change. The impact of this issue reaches across government departments, so unlike California, where there has been cross-departmental communication and cooperation since the early days of climate change policy development, the UK governments have often worked in isolation or even in competition with each other. This may be changing with the move of many top climate change policy civil servants to the cabinet office and the increased importance of the policy innovation unit.

Increasingly the function of the United Kingdom's government is also influenced by the goings-on in Brussels. EU institutions are an increasingly complex labyrinth of power, which the British government often criticises or blames for unpopular policies. Anthony Sampson argues that this suits the government because it gives it "a scapegoat for their own secret agreements: and in controversial areas of regulation, including the environment and monopolies, they can shift the burden to Brussels" (Sampson 1992:45).

The European Union and the United Kingdom have had a love-hate relationship since the formation of the EU. Winston Churchill was one of the leaders to call for the formation of a United States of Europe, with some reservations, following World War II (Monnet 1978:283; Jenkins 2001:813). But the UK did not join the European Union until 1973 and this is after DeGaulle blocked its entrance twice (Coxall and Robins 1994:109).

"The founders of Europe, including Jean Monnet, had hoped that the British would bring some robust democratic questioning and argument into the fray. But the British

robustness was directed more at confronting other nations and scoring party-political points rather than questioning the secret agreements between ministers at the top" (Sampson 1992:17). This is not surprising when you consider that most other members of the EU are used to "written constitutions, multi-party politics, coalition governments and a consensual style of political decision making" (Kavanagh 2000:81). This is completely different from the British structure, which is a single party government and adversarial party system (Kavanagh 2000:81). Hearl described the difference as the "British adversarialism versus continental consensualism" (Kavanagh 2000:81).

The Structure of Policy Making in the United States of America

The US is the world's largest economy, the largest emitter of greenhouse gases per capita, the largest emitter of greenhouse gases overall, has withdrawn from the Kyoto Protocol, and the federal government has no coherent long-term strategy for significant reduction in its greenhouse gas emissions. On the basis of these facts it might be reasonable to believe that there is little hope for improvement of the climate change problem the world faces. Fortunately, all hope is not lost. The US federal government is a government of limited power. The Tenth Amendment to the Constitution provides that:

> The Powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively or to the people" (US Const.)

So to the outsider, while the federal government may appear to have a lot of authority it should not be regarded as the sole hope for US climate change policy. The various levels of government in the United States are all working on climate change policies, including the federal government. The federal government is one of the largest funders of climate-change-related research in the world. It runs a number of voluntary programmes with participation from a wide variety of organisations and energy efficiency programs for both residential and commercial markets.

The US federal government is composed of a bicameral legislative branch, an executive branch and a judicial branch. It was created in this manner so that each branch would provide a check and balance with the other two. In theory no one branch is more powerful than the others.

To date the judicial branch has issued several rulings in which climate change has formed at least a part of the basis of the ruling (*City of Los Angeles v. National Highway Traffic Safety Admin.* 1990; *Foundation on Economic Trends v. Watkins* 1990; *Foundation on Economic Trends v. Watkins* 1992; *Center For Biological Diversity v. Abraham* 2002; *Border Power Plant Working Group v. Department of Energy* 2003). Most recently, California and twelve other states have filed suits against the EPA over the EPA's refusal to regulate CO_2 as a pollutant.

The legislative branch on the other hand has been increasing its activities over the past four years. In the last complete legislative session, 2000-2001, 50 climate-change-related bills were introduced. Included in this was the McCain/Lieberman bill, the Climate Stewardship Act (S 139, The Climate Stewardship Act of 2003 2003). This bill was the first climate change bill to reach the floor of either house of Congress and while it did not pass[112] it did force individual Senators to take a position on the issue (Lee 2003). Senator McCain promised that like the issue of campaign reform he would be back again and again on climate change (Baltimore 2003).

Additionally, the Senate has to ratify any international treaty by a two-thirds majority vote (US Const.). Every bill has to be passed by both houses of Congress and the President has to sign it before it can become law. If any money is required under the bill a separate appropriations bill must go through the same process after the initial bill has been passed and signed into law by the president.

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[112] The vote was 43 to 55 against. Senator Edwards (D-NC) who did not vote, later indicated he would have voted in favour of the bill (US Congressional Record (2003c). Washington DC, US Senate. **149:** S13651-05.) Senator Nelsom (D-NE) who did not vote would have voted nay (US Congressional Record (2003b). **149:** S13572-01.)

The Executive branch in the US has large scope to effect climate change policy without the necessity of legislative action. George W Bush's withdrawal from the Kyoto Protocol demonstrates what can be accomplished without legislative involvement. That being said, should any policies require additional funding Congressional approval must be obtained. This can be difficult as no single committee is responsible for climate change policy.

On the executive side of the federal government there are ten departments[113] and numerous committees, boards, and commissions that develop, comment on or implement climate-change-related policies. An inter-agency committee chaired by the Office of the President attempts to ensure it is all coordinated.

At international negotiations the US delegation is headed by the State Department with the Environmental Protection Agency playing only a limited role alongside the other departments that send representatives to the negotiations.[114] The environment departments often head European delegations. This difference is important to recognise as it may go some way towards explaining the different approaches taken at international negotiations.

Continuing down the pile of government levels in the United States there are states, Native American tribal organisations, local government and regional associations that

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[113] Departments of Agriculture, Commerce, Defense, Energy, Justice, State, Transportation, and Treasury, the Environmental Protection Agency and the US Agency for International Development.
[114] Other departments that send representatives are Commerce, Transportation, Treasury, Energy, Interior and the Agency for International Development. The make-up of the negotiating team is at the discretion of the President and therefore this list may not be accurate for all international climate change negotiations.

have responsibility for areas affected by climate change policy. So while the federal government is important at the international level and may some day take action that is binding on the states, at the moment it is essential to understand the relationship between the federal government and the states and to be aware of what the individual states are doing.

The Structure of Policy Making in California

California was an independent republic when it was admitted to the Union. It is still legally a state just like any other state, but this does describe the mindset of many Californians. They'll do what they want and what they think is best irrespective of what Washington DC wants. Washington DC is almost as far from San Francisco as it is from London, approximately 3000 miles. When trying to understand the selection of policy instruments in California these two factors are important to remember. California likes to see itself as a leader among states (Lipper 2002 *Int*). And people expect California to take the lead among states. Any group which disagrees with the policy choices California makes fights hard to stop them because they realise that what California does will affect national policy (Stevens 2002).

California's legislature is bicameral, an assembly and a senate, with a governor who heads the executive branch and a large court system.[115] This is the same as the federal government, but there are a couple of important differences. Preparing legislation is not the sole prerogative of elected representatives; individuals can get initiatives on to a statewide ballot (CA Const) without the support of the legislature. All it takes is the signatures of their fellow citizens.[116] The auto manufactures considered this option

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[115] In October 2000 to celebrate the 150th anniversary of California's admission to the Union of the United States of America the California Legislature had published a 300 page overview of California's government. This document covered everything from California's history, constitution, form of government, elections, symbols, seals and just about anything else you would want to know about how Californian government works. (Wilson, E D and B S Ebbert. (2000). "Overview of California Government." Retrieved 10 October 2002, 2002, from http://www.leginfo.ca.gov/califleg.html.)

[116] There are two different signature requirements for initiatives, depending on what a citizen is trying to do. They are: "Initiative Statute: Petitions proposing initiative statutes must be signed by registered voters. The number of signatures must be equal to at least 5% of the total votes cast for Governor at the last gubernatorial election (Cal. Const., art. II, § 8(b); § 9035). The total number of signatures required for initiative statutes, which qualify for circulation before the November 2002 gubernatorial election, is 419,260. Initiative Constitutional Amendment: Petitions proposing initiative constitutional amendments must be signed by registered voters. The number of signatures must be equal to at least

when trying to decide how to challenge AB 1493(Pavley), but it was rejected because of the fear of losing in the court of public opinion (Stevens 2002). Secondly anyone can draft a bill, and if they can find a member of the legislature to sponsor it have it go through the same process as any other bill. While this may happen at the federal level as well, in California the draftee's name is clearly identified on all of the material associated with the bill and in all of the discussions. For instance, AB 1493 (Pavley) was drafted and shepherded through the legislature by a small relatively unknown NGO called the Bluewater Network.

This does not mean that the legislature is unimportant or that the executive branch is uninterested in climate change. While the governor only recently jumped on the climate change bandwagon - and this was probably the result of trying to shore up core constituencies during an election year (Lipper 2002 *Int;* Stevens 2002) - agencies within the executive branch have been working on climate change issues since 1988. There are now sixteen agencies[117] in California that are looking at how climate change will affect their areas of competence. For example, the Department of Water Resources is worried because the decrease in snow pack in the Sierras has led to a decrease in the amount of water available for use throughout the rest of the year. The Department of Forestry and Fire Protection is looking at how California forests can

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8% of the total votes cast for Governor at the last gubernatorial election. (Cal. Const., art. II, § 8(b); § 9035) The total number of signatures required for such petitions, which qualify for circulation before the November 2002 gubernatorial election, is 670,816" (Jones, B. (2002). "Initiative Guide." Retrieved 10 October 2002, 2002, from http://www.ss.ca.gov/elections/init_guide.htm.)

[117] These agencies are California Energy Commission, California Department of Food and Agriculture, California Department of Forestry and Fire Protection, California Environmental Protection, California Integrated Waste Management Board, California Department of Transportation, California Technology, Trade and Commerce Agency, Department of Fish and Game, Department of General Services, Department of Toxic Substances Control, Department of Water Resources, Governor's Office of Planning and Research, State and Consumer Services Agency, State Water Resources Control Board, and the University of California.

be used for sequestration activities and how to prevent an increase in the number of large forest fires caused by increasing summer temperatures.[118]

There is a Joint Agency Climate Team, headed by a representative of the Secretary of State for Resources, which works to co-ordinate the efforts of all of these government departments. And while there are occasional turf battles the people I spoke with felt that the agencies worked well together and there was little duplication of effort (Greenwood 2002 *Int;* Lipper 2002 *Int;* Lynch 2002 *Int;* Stevens 2002). These agencies can also propose legislation (California Legislature 2002), so if they feel they need for extra authority or a clarification of their authority they can propose legislation. Greg Greenwood, science advisor to the Secretary of State for Resources and chair of the Joint Agency Task Force, believes that the most important thing is to get the statutes on the books because the agencies are so good that they will sort out a solution (Greenwood 2002 *Int*).

The California court system to date has not been active in the area of climate change policy but it has issued numerous decisions on air pollution issues. The California court system is large, comprising trial courts divided by county, appellate courts divided by region, and the Supreme Court. All judges are elected by the voters in the county or region in which they sit. The Supreme Court judges are elected in a statewide ballot. The political reality is that once a judge is in office he or she is rarely unseated in an election.

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[118] For a discussion of how California agencies are addressing the climate change issue see California Energy Commission. (2002a). "California State Climate Change Activities." Retrieved 14 October 2002, 2002, from http://www.energy.ca.gov/global_climate_change/state_roles.html.

California Greenhouse Gas Emissions

California's emissions breakdown is not significantly different from the rest of the US between gases. The big difference comes in the sources of the emissions. For example, in California 59% of CO_2 emissions come from transportation while nationally only 32% of CO_2 emissions are from transportation. Electricity generation accounts for 39% of carbon-related emissions nationally, but only 16% of emissions in California. These differences are one reason California's policy choices may be different from those made at the national level.

List of Interviewees

List of Interviewees[119]	
Aram, Robin	Vice President External Relations & Policy Development, Shell International Ltd
Acher, Gerry CBE	Managing Partner London, KPMG
Ahmed, Syad	Combined Heat and Power Association
Armstrong, Kit	Senior Counsel Environmental Health & Safety Negotiations & Legal, Chevron Overseas Pertoleum Inc
Cameron, James	Of Counsel, Baker & McKenzie; Chairman Carbon Disclosure Project; Chairman Advisory Board Climate Change Capital
Carrington, Terry	Climate Change Policy Advisor, The Office of Science and Technology, Business and the Environment Unit, Department of Trade & Industry
Charnely, Pete	Royal Bank of Scotland
Claussen, Eileen	President of the Pew Center on Climate Change. She is the former Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs.
Edwards, Gabrielle	Senior Private Secretary, UK Department of Environment and Rural Affairs
Edwards, Garth	Trading Manager, Environmental Products, Shell International Trading & Shipping Company Limited, Formerly of Natsource Inc at the time of the interview
Fang, William	Deputy General Counsel, Edison Electric Institute
Field, Andrew	Environment & Transport, Taxes & Tax Projects HM Treasury,
Fretz, Lionel	Executive Director of Climate Change Capital, formerly Finance Director of Ecosecurities at the time of the interview
Grant, Jonathan	Chevron Research & Technology Co
Greenwood, Greg	California Resources Agency, Chairman of the Joint Agency Task Force on Climate Change
Hess, Peter	Deputy Air Pollution Control Officer, Bay Area Air Quality Management District
Hoffman, Kurt	Deputy Director, Shell Foundation
Hone, David	Vice President, Climate Change, Shell International Ltd
Houlder, Vanessa	Financial Times, Environment Correspondent
Huq, Dr Saleem	IIED
Kelly, Mike	UK Environmental Manager, KPMG
Kirschbaum, Don	State of Connecticut, Investment Advisor
Kyte, Dr Bill	Head of Corporate Environment Unit, Powergen Plc
Lipper, Kip	Chief of Staff for California State Senator Byron Sher
Lynch, Eliza	Bluewater Network

[119] Only jobs that are relevant to this research are listed in this table.

List of Interviewees[119]	
Macrory, Richard	Professor of Law, University College London; Member of the Royal Commission of the Energy
Miller, Meredith	State of Connecticut, Assistant Treasurer for Policy
Mogford, Margaret	Head of Environment, BG Group
Molitor, Mike	Global Director of the Price Waterhouse Coopers Climate Change Services.
Nappier, Denise	State of Connecticut, Treasurer
Pulling, Wendy	Director of Environmental Policy, PG&E
Sher, Byron	California State Senator
Shinn, Dr John	Project Technical Manager Global Change, Chevron Research & Technology Co
Prof Jim Skea	PSI
Stephens, Bob	Asst. Secretary for Environmental Management and Sustainability, California Environmental Protection Agency
Sterling, Dr Andy	Science Policy Research Unit, University of Sussex
Thomas, Bill	Attorney at law Washington DC office of Pillsbury Winthrop
Tindale, Stephen	Greenpeace UK Executive Director; former special advisor to Michael Meacher and co-author of Labour Party document, *In Trust for Tomorrow*
Tidball, Alyce	Counselor for Environment, Science & Technology, US Embassy London

There were a further 2 interviewees who wished to remain anonymous.

List of Abbreviations

List of Abbreviations	
ACBE	Advisory Committee on Business & Environment, UK
ALTENER	Programme for the development of renewable energy - particularly energy from wind, water, solar power and biomass, EU
AOSIS	Alliance of Small Island States
CAA	Clean Air Act, US
CARB	California Air Resources Board
CBI	Confederation of British Industry, UK
CCA	Climate Change Agreements, UK
CCAR	California Climate Action Registry
CHP	Combined Heat and Power
CHPA	Combined Heat and Power Association, UK
Climate Change Convention	The United Nations Framework Convention on Climate Change
CO_2	Carbon Dioxide
COP	Conference of the Parties. The number which follows is the number of the conference
COP6bis	The continuation of COP6 held in Bonn in July 2001
CORPER	Committee of Member States' Permanent Representatives
DEFRA	Department of Environment, Food and Rural Affairs (replaced DETR in June 2001), UK
DETR	Department of Environment, Transport and the Regions, UK
DTI	Department of Trade and Industry, UK
EC	European Community
ECCP	European Climate Change Programme
ECOFIN	Council of Economic and Finance Ministers, EU
EEA	European Environment Agency
EU	European Union
FAR	First Assessment Report by the IPCC
GHG	Greenhouse Gases
ICSU	International Council of Scientific Unions
IISD	International Institute for Sustainable Development

List of Abbreviations	
INC	Intergovernmental Negotiating Committee for a Framework Convention on Climate Change, established 21 December 1990 UN Resolution 45/212
IPCC	Intergovernmental Panel on Climate Change
Kyoto Protocol	The Kyoto Protocol to The United Nations Framework Convention on Climate Change
CLRTAP 1979	The Geneva Convention on Long-range Transboundary Air Pollution, 1979
CLRTAP 1999 Gothenburg Protocol, 1999	The Protocol to Abate Acidification, Eutrophication and Ground-level Ozone to the Convention on Long-range Transboundary Air Pollution, 1999
Montreal Protocol	Montreal Protocol on Substances that Deplete the Ozone Layer, 1987
MtC	Million Tons of Carbon
PG&E	Pacific Gas & Electric
PPIC	Public Policy Institute of California
SAR	Second Assessment Report by the IPCC
SAVE	Special Action Programme for Vigorous Energy Efficiency, EU program
SEA	Single European Act, 1986
SPM	Summary for Policy Makers
TAR	Third Assessment Report by the IPCC
QMV	Qualified Majority Voting, EU
Registry, the	California Climate Action Registry
UK	United Kingdom
UKETG	United Kingdom Emissions Trading Group
UNCED	United Nations Conference on Environment and Development, June 1992
UNEP	United Nations Environment Programme
UNFCC	The United Nations Framework Convention on Climate Change
US	United States of America
USGCRP	US Global Change Research Program
WGI	Working Group I of the Intergovernmental Panel on Climate Change
WGII	Working Group II of the Intergovernmental Panel on Climate Change

List of Abbreviations	
WGIII	Working Group III of the Intergovernmental Panel on Climate Change
WMO	World Meteorological Organisation

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