



THE FRIDTJOF NANSEN INSTITUTE

Convergence or divergence?

**Status and prospects for
US climate strategy**

By Atle Christer Christensen

FNI Report 6/2003



FRIDTJOF NANSENS INSTITUTT
THE FRIDTJOF NANSEN INSTITUTE

Tittel/Title Convergence or divergence? Status and prospects for US climate strategy	Sider/Pages 24
Publikasjonstype/Publication Type FNI report	Nummer/Number 6/2003
Forfatter(e)/Author(s) Atle Christer Christiansen	ISBN 82-7613-439-4
Program/Programme	ISSN 0801-2431
Prosjekt/Project 307 – Samstemt	
Sammendrag/Abstract <p>The objective of this report is to assess recent developments and prospects for future changes in US climate strategy. In so doing, the paper explores some of the key factors that have shaped strategies and policies to date, distinguishing between factors related to institutional and governance structures, linkages between science and policy, energy technology and the role of interest groups. Against this background, the report attempts to explore future development paths for US climate policy.</p> <p>More specifically, the paper assesses opportunities for policy changes compared to the preferences of the current administration, and the prospects for future linkages between US and international climate change strategies. In brief, the paper argues that substantial changes are unlikely to take place in the near to medium term, leaving open, however, the possibility of wide-ranging changes in domestic politics or major incidents that could facilitate a shift in the perceived need for near-term action.</p>	
Stikkord/Key Words Climate policy, US	
Bestilling til/Orders to: Fridtjof Nansen Institute, Postboks 326, NO-1326 Lysaker, Norway. Tel: (47) 6711 1900 Fax: (47) 6711 1910 Email: post@fni.no	

ABBREVIATIONS

<u>1</u>	<u>INTRODUCTION</u>	1
<u>2</u>	<u>U.S. CLIMATE STRATEGY: STATUS AND OVERVIEW</u>	3
<u>2.1</u>	<u>US Climate policies 1980-2000: A brief summary</u>	3
<u>2.2</u>	<u>Recent initiatives and developments (2001-2002)</u>	4
<u>2.2.1</u>	<u>Initiatives from the Bush-administration</u>	4
<u>2.2.2</u>	<u>Congressional Activity</u>	6
<u>2.2.3</u>	<u>State level initiatives</u>	7
<u>2.2.4</u>	<u>Business and industry-level initiatives</u>	9
<u>3</u>	<u>CONVERGENCE OR DIVERGENCE? PROSPECTS FOR FUTURE US CLIMATE STRATEGY'</u>	11
<u>3.1</u>	<u>Governance structure and micro-politics</u>	11
<u>3.2</u>	<u>Cost uncertainty</u>	11
<u>3.3</u>	<u>Scientific uncertainty</u>	12
<u>3.4</u>	<u>The role of interest and lobby groups</u>	13
<u>3.5</u>	<u>Technology fix and energy policy</u>	14
<u>3.6</u>	<u>The international dimension</u>	16
<u>3.6.1</u>	<u>Flexibility mechanisms and emissions trading</u>	16
<u>3.6.2</u>	<u>Developing country participation</u>	17
<u>4</u>	<u>CONCLUSIONS</u>	19
	<u>REFERENCES</u>	20

Abbreviations

API	American Petroleum Institute
BTU	British Thermal Unit
CAA	Clean Air Act
CCAP	Climate Change Action Plan
CCX	Chicago Climate Exchange
CDM	Clean Development Mechanism
CEEC	Central and Eastern European Countries
COP	Conference of the Parties
CO ₂	Carbon dioxide
EB	Executive Board
EIA	Energy Information Administration
EIT	Economies in transition
EPA	Environmental Protection Agency
EU	European Union
GCC	Global Climate Coalition
G-CEP	Global Climate and Energy Project
GDP	Gross Domestic Product
GHG	Greenhouse Gases
IET	International Emissions Trading
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
NGO	Non-governmental organisation
NRE	New renewable energy
UN FCCC	United Nations Framework Convention on Climate Change
UK	United Kingdom
US	United States

1 Introduction

“The Kyoto Protocol was fatally flawed in fundamental ways. Many countries cannot meet their Kyoto targets. The targets themselves are arbitrary and not based upon science. For America, complying with those mandates would have a negative economic impact with layoffs of workers and price increases for consumers. And when you evaluate all these flaws, most reasonable people will understand that it’s not sound public policy”

President George W. Bush¹

The United States of America (US) is a key player in efforts to mitigate global climate change. This owes not only to the US’ structural power, representing the world’s largest economy and emitter of greenhouse gases (GHG), accounting for some 23 per cent of global emissions (Dunn, 2002). The US is also recognised as the by far most important actor in the evolving international climate change regime (e.g., Grubb and Yamin 2000, Agrawala and Andresen 2001: 118). Notwithstanding this pivotal role, U.S President Bush announced in March 2001 that he would not ratify the Kyoto Protocol “because it exempts 80 percent of the world, including major population centers such as China and India, from compliance, and would cause serious harm to the U.S. economy” (Bush Jr., 2001). Instead, the Bush administration unveiled on February 14 2002 its alternative approach, the so-called Global Climate Change Initiative, the main policy goal of which is to reduce the GHG intensity of the US economy by 18 per cent in the period 2002-2012 through voluntary rather than mandatory measures.

Internationally, the US repudiation of the Kyoto Protocol caused immediate outcries and criticism from across the world. Fears were that the US decision would severely hamper the environmental effectiveness of the Protocol and unravel support in other key countries. However, and perhaps to some surprise, the US withdrawal was not the announcement of the death of the Protocol. Instead, and on the basis of the so-called *Marrakech Accords*, the treaty is currently awaiting only the ratification by Russia in order to enter into force. Bush also received criticism domestically for his stance on climate change, and for renouncing his campaign promise to include caps on carbon dioxide emissions from power plants. This, along with mounting scientific evidence of human-induced climate change, has to some extent

¹ Speech by President George W. Bush at the White House, June 11 2001.

inadvertently increased the level of climate change-related activities in the US, including *inter alia* an increase in the number of climate change-related bills introduced in the Congress and a range of new initiatives at the state and business level. That said, and owing to the impacts of 11 September 2001, one should keep in mind that other issues dominate the current public policy agenda.

Against this backdrop, the objective of the present paper is first to take stock of recent developments in U.S. climate policy. Second, the paper aims to discuss prospects for the future evolution of U.S. climate strategy and the possibilities that U.S. strategies may over time converge with the evolving international regime. Owing to the U.S. repudiation of the Kyoto Protocol, and the unlikely prospects for the US re-entering the international climate regime in the near-term, the latter task is inherently of an implicit and long-term nature. For this reason, the paper employs a stage-wise approach, operationalised in terms of addressing the following three research questions:

1. What is the current status on US climate change policy? (section 2)
2. What are the key factors that have shaped US climate change policies? (section 3)
3. What are the prospects for future changes in US climate strategy? (section 3)

2 U.S. climate strategy: status and overview

2.1 US Climate policies 1980-2000: A brief summary

Even though signals of a growing interest in the ‘carbon-dioxide problem’ emerged already under the Presidency of Jimmy Carter (1977-1980), global warming first made it to the headlines in the summer of 1988, following heat waves and draught that hit North America (Agrawala and Andresen 2001: 119). Shortly after, presidential candidate George Bush Sr. said in a campaign speech that he intended “to do something about it [the greenhouse effect]” (ibid.). In practical politics, however, the tensions between environmental protection and the need to ensure support from business and conservative interests over time resulted in a “distinct reversal in the administration’s overall environmental commitment” (ibid.: 120).

The Clinton-Gore administration came into office in 1992 with rather ambitious plans for domestic emission reductions, the cornerstone of which was the proposal for a BTU (British Thermal Unit) tax on energy fuels. Even though 13 exemptions were granted in the final proposal, the tax bill was turned down in the Senate Finance Committee, largely as a result of concerted lobbying from diverse interest groups (Lisowski 2002: 167). The Climate Change Action Plan (CCAP) launched by the Administration in 1993 was in comparison largely based on voluntary programs, “designed to provide technical assistance and favourable publicity to companies that improved their energy efficiency” (Lyon 2003: 4).

Internationally, the Clinton-Gore administration insisted on a comprehensive approach to emissions abatement, involving *inter alia* sources and sinks and a basket of greenhouse gases. The administration also argued strongly to include flexible mechanisms and avoid imposing emission reductions on developing countries. Owing much to US pressure, the Kyoto Protocol essentially came to include all the flexibility mechanisms originally proposed by the U.S., the significance of which was praised by the White House as reflecting “an historic emphasis on market based mechanisms to address an environmental problem”.² Still, the non-binding Byrd-Hagel Senate resolution passed in June 1997 effectively prevented the Administration from putting the Kyoto Protocol to a vote³.

² U.S. White House press Release, 11 December 1997, cited in Andresen (1998: 28).

³ See e.g. Lutzneher 2001 for an overview of other policy proposals from the Clinton Administration.

2.2 Recent initiatives and developments (2001-2002)

The Bush Administration came into office signalling that it was ‘very sensitive to the issue of global warming’. Some were thus taken by surprise when President Bush formally withdrew from the ‘fatally flawed’ Kyoto Protocol. Since then, the U.S. has effectively positioned itself on the sideline of the Kyoto process. That said, below we outline some initiatives that have been introduced by the Administration.

2.2.1 Initiatives from the Bush-administration

To cap or not to cap?

As a presidential candidate, George W. Bush Jr. said that he favoured a new multi-pollutant regime that would include mandatory caps on CO₂ emissions from energy producing facilities in addition to emissions of NO_x, SO₂ and mercury. This was by many viewed as a key element in US efforts to curb GHG emissions, since power plants are responsible for about 40 percent of US total CO₂ emissions and 34 per cent of GHG emissions (EPA, 2002). However, once in office, President Bush changed his mind, favouring instead an approach based essentially on voluntary initiatives. The reason for not capping CO₂ emissions was that it “would lead to an even more dramatic shift from coal to natural gas for electric power generation and significantly higher electricity prices” (Bush Jr., 2001).

In the Economic Report of the President, transmitted to the Congress in February 2002, climate change was recognised as “one of the most controversial and complex policy challenges facing the United States – and the world” (Council of Economic Advisers, 2002: 244). However, according to the Report “the current uncertainty surrounding climate change implies that a realistic policy should involve a gradual, measured response, not a risky, precipitous one” (ibid.: 246). Compared to “an arbitrary short-term emission limit [i.e., absolute cap]” (ibid.: 248), such an approach would offer “insurance consistent with existing climate science without putting the economy at risk”, while allowing the US to learn from science, capitalise on new technologies when they emerge, and facilitate the development of “stronger institutions for a long-term, global solution” (ibid.: 247).

The Global Climate Change Initiative

Drawing partly on the recommendations in the Economic Report, the Bush administration launched its long-awaited Global Climate Change Initiative on February 14 2002. The key

policy goal of this initiative is to reduce GHG intensity of the US economy, measured as GHG emissions per unit of total gross domestic product (GDP), by 18 per cent over the period 2002-2012. According to the White House, meeting this goal “is comparable to the average progress that nations participating in the Kyoto protocol are required to achieve” (White House, 2002). Moreover, Christine Todd Whitman, the head of the US Environmental Protection Agency (EPA), argued that the US would reach this goal “without the devastating economic consequences of the Kyoto approach” (Whitman, 2002).

Even though it is difficult to assess the level of ambition of the Administration’s intensity-based approach, there are reasons to question whether the policy goals are sufficient to justify claims to “an aggressive new strategy”. For instance, a recent study by van Vuuren *et al.* (2002) shows that the goal of an 18 per cent decline in GHG emissions intensity is largely consistent with historical trends. In fact, data from the EPA shows that the GHG-intensity was reduced by some 18 per cent from 1990-2001 (EPA 2003). Hence, and as shown in figure 1, the ‘aggressive new strategy’ would be similar to a scenario based on extrapolating historical trends. Moreover, several sources expect emissions to increase further in coming years, approaching 8,000 MtCO₂e in year 2010, exceeding the 1990 level and Kyoto target (-7 per cent) with about 30 and 40 per cent, respectively (see figure 1).

In terms of policies and measures, the initiative will rely solely on voluntary initiatives and technology subsidies. However, the initiative provides little or no guidance in regards of how companies and sectors are to meet the targets. As a key element the plan proposes to improve the voluntary emission reduction registration program, established in 1995 to serve as a public record of emissions, reductions or sequestration projects, and give transferable credits to companies that can show real emission reductions. Even though establishing institutions and procedures to ensure the effective operation of emissions trading schemes and project-based mechanisms is a key component in facilitating future linkages between the US and international climate strategies, the Administration suggests that reporting and disclosing GHG emissions should be voluntary rather than mandatory.

Bilateral agreements on climate change

The Bush Administration has entered into bilateral agreements on climate change with several industrialised and developing countries, including China, India, Japan, Australia, Canada, Italy and the European Union (EU). For instance, on 27 February 2002 Australia and the US announced that they would set up the so-called ‘U.S.-Australia Climate Action Partnership’ to

work on practical ways of addressing and dealing with climate change. In July 2002, the two countries announced a work program of bilateral cooperation in areas including climate change science, strategies to reduce GHG emissions and engagement with business on development of abatement technologies. A similar initiative has also been established with the EU on climate change research and technology research. Owing partly to the proliferation of such agreements, fears have been mounting among environmentalists that the Bush Administration is actively seeking to establish an alternative to the Protocol⁴. The NGO community are also concerned that the US is attempting to convince Russia to follow suit and withdraw from the Kyoto Protocol⁵.

2.2.2 Congressional Activity

There is evidence that Bush's stance on climate change issues, along with mounting scientific evidence of human-induced climate change, has triggered some activity in the US Congress. More specifically, there are indications suggesting that President Bush's attacks against the 'fatally flawed' Kyoto Protocol has provoked US congressmen, including Democrats as well as Republicans, to an extent that the Congress has become more of a leader on such issues relative to the Administration.⁶ Proxy signals of such a change include an increase in the number of introduced climate change-related bills: from seven in the 105th Congress (1997-1998), 25 in the 106th (1999-2000) to more than 50 in the 107th (2001-2002) (Pew Center, 2002).

Among the most significant bills is the proposed Clean Power Act of 2001 (S. 556), sponsored by Senators Jeffords and Lieberman. The proposal is to lump CO₂ in with air pollutants regulated by the EPA and require power plants to stabilise CO₂ emissions at 1990 levels within 2007 via a 'cap-and-trade' mechanism. Critics of the proposal view the inclusion of CO₂ as an attempt to placate environmental lobbyists and international allies and to embarrass the President by implementing the Kyoto Protocol through the backdoor without Senate ratification. On May 17 2001, Jeffords and Lieberman sent a letter to the EPA requesting an economic assessment of multi-emissions control policies in the US electricity sector. The EPA also received a similar inquiry from Senators Smith, Voinovich and Brownback on June 8 2001. Even though the EPA provided comprehensive feedbacks on both

⁴ Interviews at COP-8 in Delhi, November 2002

⁵ *Wired*, 8 February 2003, <http://www.wired.com/news/politics/0,1283,57499,00.html>, [10.02.03]

requests and the Jeffords-Lieberman ‘four-pollutant’ bill was put forward in the fall of 2001, nothing much has emerged in terms of policy actions.

Then, and in a clear challenge to the Bush administration’s approach to climate change, Senators McCain and Lieberman announced plans on 9 January 2003 to introduce landmark legislation aimed at significantly curbing US GHG emissions. The draft ‘*Climate Stewardship Act of 2003*’ (S.139) was hailed as “the most significant piece of climate change legislation ever put before Congress” (Claussen, 2003) and “one of the most cost-effective domestic proposals to date” (Pizer and Kopp 2003). A key part of the bipartisan McCain-Lieberman bill is the establishment of an economy-wide ‘cap-and-trade’ system for trading of GHG allowances from 2010. During the first six years of the program (2010-2016) electricity, industrial, commercial and transportation fuel sectors, which together are responsible for more than 70 percent of US emissions, would be required to limit their GHG emissions to 2000 levels by 2010 (Pizer and Kopp 2003). For the period starting in 2016, emissions would be capped at the 1990 levels.

The McCain-Lieberman bill differs strongly from the voluntary and sector-based approaches discussed above, with the notable exception of the Kyoto Protocol negotiated by the Clinton-Gore administration. For instance, required reductions would increase from an estimated 860 MtCO₂e in the period 2010-2016 to 2,900 MtCO₂e by 2020, compared to reductions of about 350 MtCO₂e in 2012 under the Bush administration’s proposal and 2,000 MtCO₂e in 2010 under the Kyoto Protocol (Pizer *et al.* 2003). The fate of the bill is however highly uncertain, as it will probably be contested by the Bush administration, Congress and sector interests. A spokesperson for the new chairman of the Environment and Public Works Committee, Republican James Inhofe (R-Oklahoma), commented that “we do not see eye-to-eye with the thrust of the bill McCain and Lieberman are pushing, and this is not a priority for the administration”.⁷

2.2.3 State level initiatives

Even though the Bush administration has been accused of dragging its feet on climate change, several states have developed strategies and/or action plans to cap greenhouse gas emissions, many of which have been in the pipeline for a number of years. A recent overview provided

⁶ Interviews in Washington, DC, March 2002.

⁷ *Washington Post*, January 7, 2003.

by the Pew Center include examples of state activities within the following categories (Rabe, 2002: 8-16):

- Plans, targets and standards
- Inventories and reporting
- Agriculture and carbon sequestration
- Energy efficiency
- Renewable energy
- Transportation
- Waste recycling and management

According to the report, some twenty-seven states have already developed, or are in the process of developing emission abatement strategies or action plans to mitigate GHG emissions, and several states have also set quantitative targets and timetables. Moreover, 16 states have enacted legislation including renewable portfolio standards, requiring utilities to provide a certain amount of renewable power in the total offering of electricity. Below, we briefly highlight some of these initiatives.

Oregon was one of the first states to take concrete action on climate change issues. In 1997, the state enacted legislation requiring new energy facilities to avoid, sequester, or displace a portion of their previously unregulated CO₂ emissions. In May 2001, Massachusetts capped emissions from the state's six highest-emitting power plants, with a goal of reducing their emissions by 10 per cent over the next several years. Plants that fail to meet these targets may still comply by purchasing of emission reduction credits. In August 2001, six New England states and five eastern Canadian provinces agreed to cut GHG emissions to 1990 levels by 2010 and by at least 10 per cent below 1990 levels within 2020. New Jersey is reportedly on schedule in its work to reduce emissions by 3,5 per cent from 1990 levels by 2005. Similar initiatives have been taken in Illinois, Wisconsin, Minnesota, Michigan and Ohio.

California has established a registry for greenhouse gas emissions in anticipation of new regulations. Moreover, on 22 July 2002 Governor Davis signed into law legislation that requires the California Air Resources Board to develop regulations by 1 January 2005 that will achieve "the maximum feasible and cost-effective reduction" of greenhouse gases from cars, sport utility vehicles, and light-duty trucks. However, the legislation remains very limited in details, and does not establish any specific emissions reduction targets or goals. Nor

does it give guidance on how reductions might be achieved. The implementation also remains highly uncertain, due largely to strong opposition from interest groups.

2.2.4 Business and industry-level initiatives

Several multinational companies have publicly announced their support for the Kyoto Protocol, some of which have made commitments to reduce GHG emissions and established company-wide emission trading schemes. Looking at US-based companies, however, a lot of attention has been paid to the likes of ExxonMobil that are often portrayed as opposing Kyoto and near-term abatement action (more on this in section 3.4). That said, several initiatives have been announced involving companies operating or based in the US. For instance, in 2000, Environmental Defense, the U.S. environmental advocacy group, announced the Partnership for Climate Action, with the goal of reducing their aggregate emissions by 15 percent from 1990 levels by 2010 using market-based mechanisms. In total, the companies have agreed to reduce their joint emissions by some 80 million tons of CO₂ equivalent (CO₂e) emissions by year 2010 with trading starting late 2002⁸.

In June 2001, some 33 U.S. companies with assets in 7 Midwest states announced the establishment of the first voluntary pilot program for trading of greenhouse gas emission reductions in the US at the Chicago Climate Exchange (CCX)⁹. The trading pilot, slated to start up in the spring of 2003, is based on voluntary reduction targets for emitters, targeting project-based offsets in North America and Brazil. Intentions are to gradually extend the coverage to include participants throughout the US, Canada and Mexico as well as international sources. Entities included in the scheme have made a commitment to reduce their GHG emissions by four percent below the average of their 1998-2001 baseline by 2006. While still very much in its infancy, this initiative takes place in a large region that is fairly representative of the USA at large, in terms of industrial structure, and has received considerable attention from local decision makers as well as from Congress.

Energy companies are also undertaking voluntary measures to curb greenhouse gas emissions, partly to cut energy costs and improve their environmental image, but mainly to head off

⁸ In October, a forward trade was announced involving the transfer of a maximum of 6 million tonnes of CO₂ (MtCO₂) during the period 2001-2005, and an option for an additional 3 MtCO₂ from 2002 to 2004, from Blue Source LLC to Ontario Power Generation (OPG) in the form of CleanAir Canada registered Emission Reduction Credits (ERCs). In November 2002, DuPont and Entergy announced an emissions trade involving the transfer of 125,000 metric tons of 2001 vintage CO₂-equivalent Verified Emission Reductions (VERs).

⁹ For further information, see <http://www.chicagoclimatex.com/>

strong regulation later on. For instance, the Clean Energy Group, consisting of eight US utilities, has argued for a multi-pollutant strategy including a cap on CO₂ at 2000 level by 2008 and at 1990 level by 2012. The group emphasises, however, that this approach promotes technological innovation and is ‘without a link to Kyoto and without economic risk to the U.S.’

In conclusion, domestic efforts to reduce US GHG emissions have hitherto been limited almost exclusively to voluntary measures. Considering emission trends over the last decade, and even though technology improvements have improved the emission intensity of the US economy, such measures have in general failed to curb the overall growth in GHG emissions (Gardiner and Jacobson, 2002). Internationally, and following President Bush’s repudiation of the Kyoto Protocol on March 2001, the U.S. is effectively posited on the sideline in terms of securing the entry into force of the international climate regime. Moreover, and owing to the impacts of 11 September 2001, issues other than climate change dominate the public policy agenda. That said, the Bush administration’s tough stance has to some extent inadvertently increased the level of climate change-related activities in the US, including recent initiatives at the federal, state, and business level. However, owing to the lack of US commitments or a ‘regulatory fist’, these initiatives will probably not be sufficient to turn the tide of increasing US GHG emissions in the near term.

3 Convergence or divergence? Prospects for future US climate strategy'¹⁰

The aim of this section is to identify some of the key factors that have shaped US climate strategy to date and discuss prospects for change along these dimensions. More specifically, sections 3.1-3.4 briefly explore factors that have previously been covered in the literature, while sections 3.5 and 3.6 examine some emerging issues, the importance of which have been highlighted by more recent (policy related) developments.

3.1 Governance structure and micro-politics

Owing to the separation of powers as enshrined in the US constitution, effective policymaking and implementation requires cooperation across several branches of government (executive, legislative and judicial), levels of government (federal, state and local) and across government agencies within each level. This pluralistic governance structure has shaped US responses to climate change in many respects. For instance, key milestones may be explained by examining the party that has been in control over the Presidency, the Senate and House of Representatives, respectively (Agrawala and Andresen 1999: 468). That said, considering only partisan preferences cannot explain incidents like the demise of the BTU tax in 1993 when the Democrats controlled Congress, for which one also needs to consider US micro-politics and the interplay between party interests and those of local electorates (ibid.: 126-127).

Development in domestic politics will clearly affect the future evolution of US climate policy, including most notably the outcome of the next presidential election in 2004. However, taking into account the inertia of the US governance structure, and that issues other than climate change dominate the public policy agenda, it seems unlikely that there will be any major changes in federal responses in the near term.

3.2 Cost uncertainty

Cost uncertainty pertaining to the impact of emission reductions on the US economy has been one of the key arguments underlying US opposition to the Kyoto Protocol. Much of the

¹⁰¹⁰ The factors have been selected partly on the basis of literature reviews as well as a series of interviews

uncertainty pertains to the cost of emission reductions at the domestic level and the price of ‘emission offsets’ at the international market. Historically, expectations of carbon prices have been reported on the basis of economic models, where modellers translate their expectations into assumptions about the future. In a comprehensive comparison of the costs of implementing the Kyoto Protocol from 1999, the marginal cost of achieving US commitments through domestic action, i.e., without international flexibility, was found to be in the range of about \$80 per tonne of carbon (\$/tC) to \$400/tC (Weyant 1999). If international emissions trading among Annex I countries were allowed, marginal abatement costs would decrease to \$20/tC - \$220/tC. In terms of impacts on the US economy, the study estimated potential losses in the order of \$440-180 billion without international flexibility and about \$20-90 billion with international emissions trading.

In comparison, prices reported in the emerging carbon markets are typically in the order of \$10-20/tC. Moreover, much of trading activity has thus far taken place in North America, where prices typically have been in the range \$2-4/tC. Even though the US repudiation of the Kyoto has contributed to a downward pressure on prices at this early stage of market formation, low carbon prices could over time mitigate some of the US opposition to the Kyoto protocol and improve the chances for linking US with international climate strategies.

3.3 Scientific uncertainty

“We do not know how much effect natural fluctuations in climate may have had on warming. We do not know how fast change will occur, or even how some of our actions could impact it. The policy challenge is to act in a serious and sensible way, given the limits of our knowledge. While scientific uncertainties remain, we can begin now to address the factors that contribute to climate change¹¹.” – President George Bush

Even though scientific uncertainty has been used as a key argument for US opposition to the Kyoto Protocol, there has been a tendency to which climate policy is influenced more by events and images rather than arguments and scientific knowledge (Lee, 2001). Hence, and owing to the somewhat intangible link between for instance road traffic and increasing temperatures, extreme weather events like floods and heat waves could have a greater impact than increased scientific evidence in terms of increasing public demand for policy action. However, growing scientific evidence and consensus within the scientific community has at least contributed to the Bush Administration and key interest groups recognising climate

conducted by the authors in the period March-November 2002.

¹¹ Speech by President George Bush, June 11, 2001. Available at <http://www.whitehouse.gov/>, [10.02.03]

change as a “legitimate concern”. More violent weather could in this respect affect social demand for policy action, and thus possibly to a change in climate politics.

3.4 The role of interest and lobby groups

It is well documented that business and interest groups have played key roles in shaping not only US climate policy, but also public opinion about climate change issues in general and the positions of governments in international negotiations in particular¹². For instance, much has been attributed to the role of major oil corporations, most notably ExxonMobil. Even though ExxonMobil today recognises global warming as a “legitimate concern”, it has been reluctant in its acknowledgement of human-induced climate change, emphasising that scientific uncertainty renders costly abatement action and proactive policies unwarranted at this stage (Skjærseth and Skodvin 2001: 49, Rowlands 2000: 343).

ExxonMobil is also a prominent member of the American Petroleum Institute (API), and served as a board member of the former Global Climate Coalition (GCC), a highly influential US lobbying group (van den Hove *et al.* 2002). The API is considered instrumental in defeating the BTU tax proposal in 1993 and a key architect behind the Byrd-Hagel Senate resolution in July 1997. The API has remained a vociferous opponent of the Kyoto Protocol along with the GCC and ExxonMobil, including also public criticism of the work of the Intergovernmental Panel on Climate Change (IPCC) and efforts to replace the IPCC chairman since 1996, Robert Watson (Skjærseth, 2003).

Even though the ‘anti-Kyoto’ lobby has been instrumental in shaping US climate policy to date, there is evidence of a more moderate stance on climate change issues in recent years. Moreover, several companies have taken more progressive positions on climate change, including multinational companies like BP, Shell¹³ and Dupont as well as major US-based utilities. A shift in the position among influential companies and business groups is likely to be pivotal for any prospective change in US climate strategy. Not only could this increase the demand for public policy action. Proactive companies could also lower the costs of emissions abatement by investing in the development of clean and low-carbon technologies.

¹² See e.g., Rowlands (2000), Skjærseth and Skodvin (2001), Lutzenhiser (2002), van den Hove *et al.* (2002), and Skjærseth 2003.

¹³ BP and Shell were among the first companies to leave the Global Climate Coalition, thereby undermining its political thrust.

3.5 Technology fix and energy policy

“Today, we have a chance to move beyond the environmental debates of the past, debates that centered around regulation and lawsuit -- what I like to call the command and control era of environmental policy, where all wisdom that seemed to emanate out of Washington, D.C. [...] We can move beyond that through technology.”¹⁴

It is today widely agreed that technological change and innovation is a key determinant for success or failure in climate policy, at least in the long run (e.g., Christiansen 2002). The belief that technology can facilitate solutions to almost any problem, including climate change, is also shared across the US. This far, however, the cost of switching from fossil fuels to clean and renewable energy sources are generally perceived as too high.

With the risk of aggregating the perceptions and preferences of a rather diverse group of actors and interest groups, there appears to be a line of demarcation between three ‘camps’ regarding the role of (energy) technology in mitigating climate change. On the one hand, there are people arguing that the threats of climate change are highly uncertain and/or that the costs of short-term action are too high. A proper response would thus be to avoid making premature investments in emission reductions and emphasise ‘no-regret’ actions. On the other hand, there are those promoting supply-side options, including investments in new technologies for carbon capture and sequestration and nuclear energy. Thirdly, there are people arguing that a portfolio of affordable abatement technologies already exist, awaiting only the implementation of appropriate policies and programs to facilitate their adoption and widespread dissemination.

In terms of choices for current and future policy, the Bush Administration’s proposal for a new energy policy suggests to invest some US\$ 2 billion over ten years to fund research in ‘clean coal’ technologies that “may increase the attractiveness of coal as a source for new generation plants” (National Energy Policy Development Group 2001: xiii). This proposal is closely related to the key role coal plays in achieving the key objectives that tend to drive US energy policy, for several reasons.

First, while the U.S. is highly dependent on oil and gas imports, coal is an abundant fuel source with resources that could last for another 250 years (National Energy Policy Development Group 2001). Second, coal is the by far most important fuel in electricity

¹⁴ *Hydrogen Fuel Initiative Can Make “Fundamental Difference”*, Remarks by President George W. Bush on Energy Independence, The National Building Museum, Washington, D.C., February 6 2003. Available at <http://www.whitehouse.gov/>, [12.02.03]

production, representing some 52 per cent of overall fuel supply (Smith *et al.* 2002). Third, the infrastructure and equipment for power production and distribution has been purchased under the assumption that they will provide energy services over a long time period, for which an accelerated rate of capital stock turnover would be seen as costly. In comparison, new renewable energy (NRE) technologies (biomass, wood, municipal solid waste, ethanol, wind and solar) are still largely perceived as too costly in achieving these goals. Hence, and despite the fact that costs of NRE technologies have decreased considerably over the last decade, renewable sources today supply only some 3.6 per cent of total US primary energy and 2.1 per cent of total U.S. electricity generation (Smith *et al.* 2002).

In the medium to long-term, it is possible that the interest in expanding programs for the development and deployment of clean energy technologies could grow among industrialists and government agencies alike. In particular, the vision of a hydrogen-based economy using fuel cells in mobile (transport) as well as stationary (energy production) sources seems enticing. This would not only reduce the US's dependency on energy imports and thus improve energy security. It also fits well with the all-American belief in problems solved through technology.

Nevertheless, looking through the current administration's 'technological lenses', it seems apparent that large-scale reductions in costs of low-impact technologies and/or substantial changes in energy policy objectives are needed to facilitate a major shift in US climate policy. That said, it seems unlikely that any near-term action will be taken that would increase the price of fossil fuels. Moreover, owing to a combination of concerns relating to the Enron bankruptcy, energy security and falling credit rankings of many energy companies, the scope for substantial changes in US energy policy seem limited.

Serving as evidence of the current Administration's priorities, many of the federal government's renewable energy and energy efficiency research programs would see little new money or would be cut under the proposed 2004 budget. In fact, research funding for wind energy would fall 5,5 per cent from this year's budget, while research funds to develop clean coal increased by some 0,7 per cent. In explaining the rationale behind this, Energy Secretary Spencer Abraham said: "We've concluded that since much of that research was quite

advanced it made sense for the private sector at this point to take on a greater share of the cost”¹⁵.

3.6 The international dimension

3.6.1 Flexibility mechanisms and emissions trading

The US has for long been an active proponent of market-based and flexible approaches to environmental policy. By way of making provisions for flexibility mechanisms like International Emissions Trading (IET), Joint Implementation and the Clean Development Mechanism (CDM), the Kyoto Protocol is seen by many as a US construct. In comparison, the EU has traditionally played the role of a sceptic to the use of flexibility mechanisms (Christiansen and Wettestad 2003, Christiansen 2003).

US companies have long-running experience with emission trading schemes, most notably through the nationwide SO₂ Allowance Trading Program instituted under Title IV of the 1990 Clean Air Act Amendments and the South Californian Regional Clean Air Incentives Market (RECLAIM) program. The SO₂ program has been deemed a “noteworthy success” on the basis of *inter alia* a 100 per cent compliance record and considerable drop in abatement costs (Burtraw, 2000). Even though mitigating GHG emissions pose fundamentally broader challenges, lessons learned and experiences from the SO₂ program may provide important insights for the development of domestic, regional and international emission trading systems. Important in this respect is the fact that the system was gradually expanded from local and facility-level via regional to nationwide trading, bearing some resemblance to the evolution of greenhouse gas emission trading systems in Europe that is currently developing from domestic (i.e., Denmark and the UK) towards regional (i.e., EU-wide) trading (Christiansen and Wettestad 2003).

If one looks at the emerging carbon markets, most of the trading activity has hitherto taken place in North America (Point Carbon 2003). Trades in emission reduction credits and other kinds of ‘offsets’ have been executed *inter alia* to comply with voluntary targets and in anticipation of future regulatory initiatives, including the entry into force of the Kyoto Protocol. However, following the US repudiation of the Protocol and the establishment of

¹⁵ Reuter’s environmental news 04.02.03, <http://www.planetark.org/dailynewsstory.cfm/newsid/19694/story.htm>

emission trading systems and programs in European countries, there has been a gradual shift in attention from North America to Europe (see figure xx).

Owing to the US withdrawal, it is widely agreed that the environmental effectiveness of the Kyoto Protocol could prove to be marginal (e.g., Löschel and Zhang 2002 and Buchner *et al.* 2002). In fact, and as shown in Figure 3, the Protocol may even fail to provide actual reductions from baseline due to the potential for considerable volumes of excess allowances in Russia, Ukraine and other countries with economies in transition (EITs). Hence, total Annex I GHG emissions in year 2010 could be well below the Kyoto targets even without further measures. That said, countries like Russia and Ukraine are not likely to sell their entire volume of excess allowances in the first commitment period. Instead, and since ‘dumping’ of excess allowances would significantly reduce carbon prices, a substantial amount of allowances will probably be banked into the post-2012 period as shown in Figure 2.

In terms of market efficiency, the US withdrawal will greatly reduce the demand for emission allowances or credits at the international market place, and thus market turnover, liquidity and prices. This owes to the simple fact that the US was expected to become the single largest buyer of emission allowances in the global carbon market envisaged under the Kyoto framework. With the likelihood of over-supply of tradable emission allowances, market prices will probably be determined by factors like the price of CDM projects and the extent to which big net sellers like Russia and other EITs are able to exercise market power, for instance by forming a profit maximising sellers’ cartel (Manne and Richels, 2001).

In the near term, it seems unlikely that US-based companies will focus much attention on the use of international emissions trading or project based mechanisms, with the notable exception of US multinationals with substantial assets in European and developing countries. That said, and owing to the US’ prevalence for market-based mechanisms and experience with emission trading schemes, there is little doubt that the use of flexible mechanisms will be a prominent part were the US to sign any international agreement aiming to mitigate global climate change.

3.6.2 Developing country participation

Developing country participation in emissions abatement has been a key issue throughout the history of the international climate regime. For instance, President Clinton maintained that ‘meaningful participation’ by developing countries would be a pre-condition for the US to

sign an international treaty based on targets and timetables. Still, US negotiators did not succeed in including provisions for such participation in the Kyoto Protocol.

Even though the U.S. has agreed to not interfere with the process of implementing the Kyoto Protocol in other countries, prior to and during COP-8 in Delhi U.S. negotiators urged Parties not to discuss the issue of future commitments. The U.S. also appealed to developing countries in arguing that taking on commitments for emission reductions would be unfair and hamper economic growth. This is indeed somewhat ironic given that lack of commitments for developing countries was one of the key reasons given by President Bush when announcing that the U.S. would not ratify the Kyoto Protocol (Bush, 2001). Moreover, the approach bears strong resemblance to the tactics used by the former Global Climate Coalition prior to Kyoto.

At this stage, it is difficult to predict how and the extent to which the US could affect positions and preferences among Parties to the Kyoto Protocol. That said, the intensity-based approach suggested by the Bush Administration could be appealing to developing countries, in particular for countries with low levels of GDP per capita that expect high economic growth and rapid capital-turnover rates in years to come.¹⁶ Regardless of the technical challenges involved in negotiating a protocol or treaty based on intensity targets, the approach has been heralded by key developing countries like China, which is expected to overtake the US as the single largest GHG emitter by 2010. This could have an impact on negotiations concerning the post-2012 period and the future shape of the international climate regime.

¹⁶ See e.g. Lisowski 2002, van Vuuren *et al.* 2002, Baumert *et al.* 1999 for comprehensive discussions of intensity-based approaches to emissions abatement.

4 Conclusions

The overall objective of this paper has been to assess recent developments and prospects for future changes in US climate strategy. In so doing, the paper first offered a brief overview of US climate policy developments, suggesting that domestic efforts to reduce US GHG emissions have hitherto been limited almost exclusively to voluntary measures. Owing to inherent weaknesses and limited incentives for abatement action at the company level, these programs have failed to curb the overall growth in GHG emissions. That said, the Bush administration's tough stance on climate change has to some extent inadvertently increased the level of climate change-related activities in the US, including recent initiatives at the Congress, state, and business level. However, owing to the lack of US commitments or a 'regulatory fist', such initiatives will probably not be sufficient to turn the tide of increasing US GHG emissions in the near term.

In order to explore the scope for future changes in US climate strategies, the paper has explored some of the key factors that have shaped strategies and policies to date, distinguishing between factors related to institutional and governance structures, linkages between science and policy, energy technology and the role of interest groups. Against this background, the paper attempts to explore future development paths for US climate policy. More specifically, the paper assesses opportunities for policy changes compared to the preferences of the current administration, and the prospects for future linkages between US and international climate change strategies. At present there is no support at the federal level for the introduction of mandatory measures in climate change protection. Moreover, and owing to the impacts of September 11, issues other than climate change dominate the public policy agenda, most notably the fight against terrorism and concerns over the U.S. economy.

In consequence, substantial changes are unlikely to take place in the near to medium term, leaving open, however, the possibility of wide-ranging changes in domestic politics or major incidents that could facilitate a shift in the perceived need for near-term action. In the longer term, a new climate protocol based on more 'realistic targets' for the US, expectations of 'low' carbon prices and emission cuts for developing countries could make it more palatable to domestic interests.

References

- Agrawala, S., Andresen, S. 1999. Indispensability and indefensibility? The United States in the climate treaty negotiations. *Global Governance* **5**(4): 457-482.
- Agrawala, S., Andresen, S. 2001. US climate policy: evolution and future prospects. *Energy & Environment* **12**(2&3): 117-137.
- Buchner, B., Carraro, C. and Cersosimo, I. 2002. Economic consequences of the US withdrawal from the Kyoto/Bonn Protocol. *Climate Policy* **2**(4): 273-292.
- Bush, G..W. 2001. Letter to Senator Chuck Hagel, 21 March 2001.
- Claussen, E. 2003. Testimony of Eileen Claussen President Pew Center on Global Climate Change before the Committee on commerce, science and transportation United States Senate, 8 January 2003.
- Council of Economic Advisers, 2002. *Economic Report of the President*. Available at <http://w3.access.gpo.gov/eop/>, [27.08.2002].
- Christiansen, A.C. 2002. Promoting environmental innovation in the energy sector: An analytical framework for dynamic efficiency assessments. *Energy & Environment* **6**(1): 813:832.
- Christiansen, A.C. and Wettestad, J. 2003. The EU as a frontrunner on greenhouse gas emissions trading: How did it happen and will the EU succeed? *Climate Policy* **3**(1):
- Christiansen, A.C. 2003. The role of flexibility mechanisms in EU climate strategy: Lessons learned and future challenges? Submitted to *International Environmental Agreements: Politics, Law and Economics*.
- Energy Information Administration (EIA), 2002. *Emissions of Greenhouse Gases in the United States 2001*. Available at <http://www.eia.doe.gov>, [06.02.03].
- Energy Information Administration (EIA), 2003. *Annual Energy Outlook 2003 with Projections to 2025*. Available at <http://www.eia.doe.gov>, [03.02.03].
- Environmental Protection Agency (EPA), 2002. *Inventory of U.S. greenhouse gas emissions and sinks: 1990-2000*. Available at

<http://www.epa.gov/globalwarming/publications/emissions/us2002/index.html>,

[03.02.03]

Environmental Protection Agency (EPA), 2003. *Inventory of U.S. greenhouse gas emissions and sinks: 1990-2001*. Draft. Available at

<http://www.epa.gov/globalwarming/publications/emissions/us2002/index.html>,

[18.02.03]

Gardiner, D. and Jacobson, L. 2002. Will voluntary programs be sufficient to reduce U.S. greenhouse gas emissions? An analysis of the Bush Administration's Global Climate Change Initiative. *Environment* **44**(8): 27-33.

Grubb, M. and Yamin, F. 2001. Climatic collapse at The Hague: what happened, why, and where do we go from here? *International Affairs* **77**(2): 261-276.

Lee, H. 2001. U.S. climate policy: factors and constraints. In Claussen, E., Cochran, V.A., Davis, D.P. (Eds.) *Climate change: science, strategies, & solutions*. Leiden, Boston, Köln: Brill; 116-131.

Löschel, A. and Z. Zhang (2002), The economic and environmental implications of the US repudiation of the Kyoto protocol and the subsequent deals in Bonn and Marrakech. *The Fondazione Eni Enrico Mattei Note di Lavoro Series* 23.2002. Available at http://www.feem.it/web/attiv/_attiv.html (10 October 2002).

Lisowski, M. 2002. The emperor's new clothes: redressing the Kyoto Protocol. *Climate Policy* **2**(3): 161-177.

Lutzenhiser, L. 2001. The contours of U.S. climate non-policy. *Society and Natural Resources* **14**: 511-523.

Lyon, T.P. 2003. Voluntary versus mandatory approaches to climate change mitigation. Issue Brief 03-01. Resources for the Future: Washington, DC.

Manne, A.S., Richels, R.G. 2001. US rejection of the Kyoto Protocol: the impact on compliance costs and CO₂ emissions. Working Paper no. 01-12. AEI-Brookings Joint Center for Regulatory Studies.

National Energy Policy Development Group, 2001. *Reliable, affordable and environmentally sound energy for America's future*. Washington, DC: U.S Government Printing Office

- Pizer, W.A. and Kopp, R.J. 2003. *Summary and Analysis of McCain-Lieberman - "Climate Stewardship Act of 2003" S.139, introduced 01/09/03*. Available at <http://www.rff.org>, [03.02.2003].
- Rabe, B. 2002. *Greenhouse & Statehouse: The Evolving State Government Role in Climate Change*. Pew Center on Global Climate Change. Available at http://www.pewclimate.org/projects/states_greenhouse.cfm, [31.01.2003].
- Skjærseth, J.B. and Skodvin, T. 2001. Climate change and the oil industry: Common problems, different strategies. *Global Environmental Politics* **1**(4): 43-63.
- Smith, D.W., Nordhaus, R.R., Roberts, T.C., Fidler, S., Anderson, J., Danish, K., Agnew, R. and Chupka, M. *Designing a climate-friendly energy policy: Options for the near term*. Pew Center on Global Climate Change. Available at <http://www.pewclimate.org/projects/energy.cfm>, [31.01.2003]
- van den Hove, S., Menestrel, M.L. and de Bettignies, H.-C. 2002. The oil industry and climate change: strategies and ethical dilemmas. *Climate Policy* **2**(1): 3-18.
- van Vuuren, D., den Elzen, M., Berk, M. 2002. An evaluation of the level of ambition and implications of the Bush Climate Change Initiative. *Climate Policy* **2**(4): 293-301.
- Weyant, J. (ed) 1999. The Costs of the Kyoto Protocol: a multi-model evaluation. *Energy Journal Special Issue*, International Association for Energy Economics.
- White House, 2002, *Fact Sheet: President Bush Announces Clear Skies & Global Climate Change Initiatives*. Available at <http://www.whitehouse.gov/news/releases/2002/02/20020214.html>, [03.02.03].
- Whitman, C.T., 2002. A strong climate plan. *Time Magazine*, Special Report. Available at <http://www.time.com/time/2002/greencentury/enwhitman.html>, [27.08.2002].

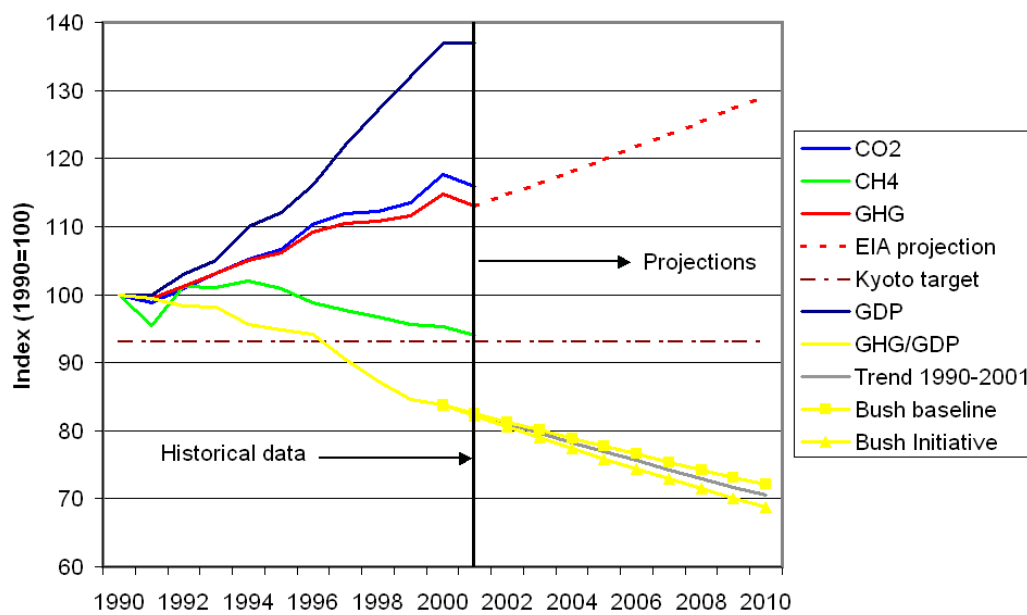


Figure 1: Emission and economic development trends for the period 1990-2001 (Source: EPA 2002, 2003) and projections for 2002-2010 (Sources, Energy Information Agency (EIA) 2002, White House 2002).

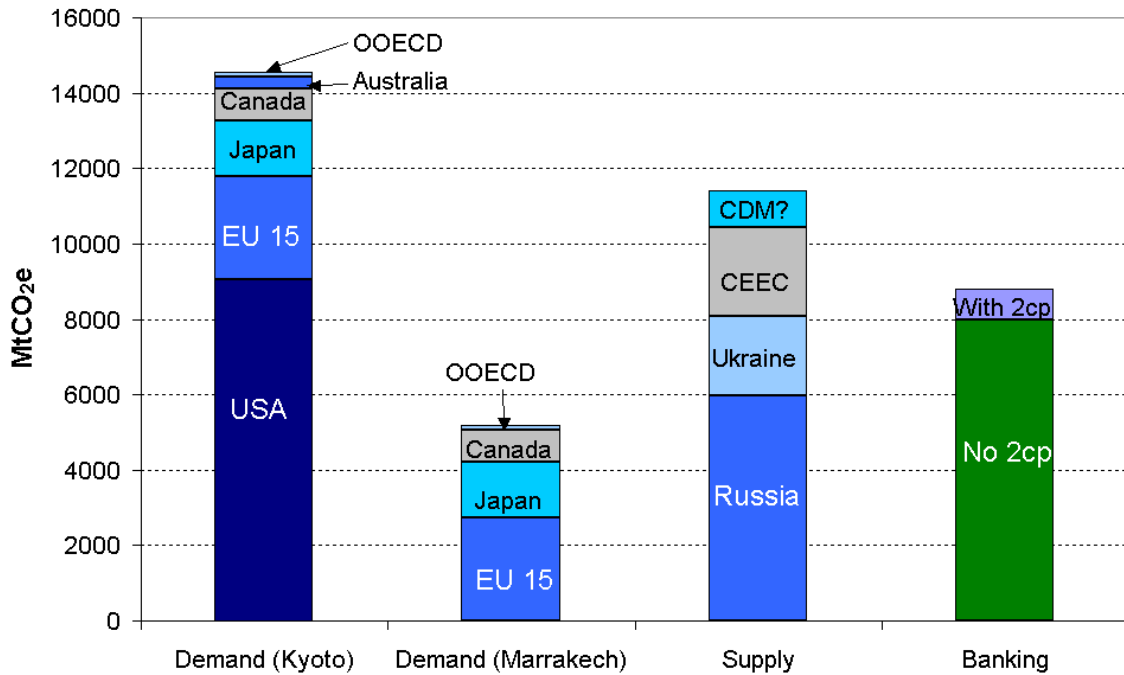


Figure 2: Projected demand and supply of emission allowances and credits (CDM) in the first commitment period (2008-2012) and banking into post-2012 period (2cp) according to the Kyoto Protocol and after the US and Australian withdrawal (Marrakech). CEEC=Central and Eastern European Countries, OOECD=Iceland, Liechtenstein, Monaco, New Zealand, Norway and Switzerland. Sources: UN FCCC database (www.unfccc.int) and Point Carbon estimates (www.pointcarbon.com)