Climate change politics in the United States
From Rio to Johannesburg

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One year ago international negotiations on climate change were expected to cease after the decision of President Bush to reject the Kyoto Protocol as "fatally flawed". Despite the Bush administration's position, the rest of the world agreed at the sixth UNFCCC[1] Conference of the Parties (COP6) in Bonn to push ahead without the United States, and a number of decisions were adopted at COP7 in Marrakech in November 2001. It allows for an imminent ratification of the Kyoto protocol before the Johannesburg summit in spite of Canada's understandable reluctance.. Nevertheless the goal set by the Convention of Climate Change will not be reached unless the United States participates fully in the international effort.

Without the United States, and because the rules have been relaxed in the Bonn and Marrakech bargaining, the Kyoto protocol will have only a modest impact on worldwide emissions. As Ray Kopp[2] has shown, the amount of carbon dioxide that some countries would have to cut is approximately equal to the amount by which other countries – mostly Russia - would be allowed to increase. Moreover, without the United States there is little chance to enlarge the participation in the Kyoto mechanism during the second commitment period. "Countries know that pursuing virtuous global warming policies make little sense if no one follows suit. Any individual reduction on their part will be swamped by emissions from others. Indeed going first could be economically lethal, driving up a country's production costs and pushing jobs abroad. So everyone has an incentive to wait for someone else to take the lead"[3].

The Bush rejection caused much acrimony in the transatlantic relationship. Europeans see climate change as a substantial and well-documented issue that demands early action and the US attitude as a selfish refusal to change the energy greedy American way of life. In the United States, there are many who think that "we don't know the likely impact of climate change and that the expense of reducing greenhouse gas emissions to meet the Kyoto targets

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will be substantial and that the efforts will make participating countries less competitive"[4]. But any effective action to reduce greenhouse gas emissions will require full cooperation between Europe and the United States.

To establish a new relationship over climate change Europeans need a comprehensive view of the broad economic, political and cultural factors that shape US policy on climate change. In doing that it would be useful to set aside exaggerated and unfair criticisms, which prevent a proper understanding of the problem that must be dealt with. Henry Lee[5] summarizes the challenge for the United States as follows: "*climate change involves multiple emissions sources from almost every sector of the U.S. economy. Thus the list of actors is large. It is global in scope and requires international coordination on an unparalleled scale. Moreover the cost of most response mechanisms must be borne by the present generation, but the benefits lie with future generations. Finally, it requires changing our present fossil fuel-based energy system to one more reliant on less carbon-intensive sources. Historically, transition from heavy reliance on one form of energy to another requires between 30 and 50 years and is marked by fierce political battles between entities that might lose their markets and power bases and those that might gain them. It would be unreasonable to expect simple solutions and processes to emerge easily or quickly.*"

The breadth of criticisms of the Bush administration made it appear that the President's decision was a drastic reversal of US policy.. A close look at the US climate change policy for the last ten years shows that such is not the case. Ever since the Clinton Administration agreed to the protocol in December 1997, Congress had expressed its disapproval[6], and little was done to hammer out guidelines for domestic implementation.

Rhetorically committed to reducing emissions the Clinton administration made it harder to meet the challenge to push the United States toward binding commitments which antagonize too many interest groups and confused American public opinion. After ten years of an adversarial approach, which resulted in deadlock, the gradual approach of the Bush administration might help to construct a constituency for action. But whatever the flaws of the Kyoto protocol it would be illusory to attempt a completely new solution. The European steadfastness and the multiple initiatives taken by local authorities, companies or institutions

could offer the opportunity to gather progressively US entities and developing countries around the Kyoto agreement.

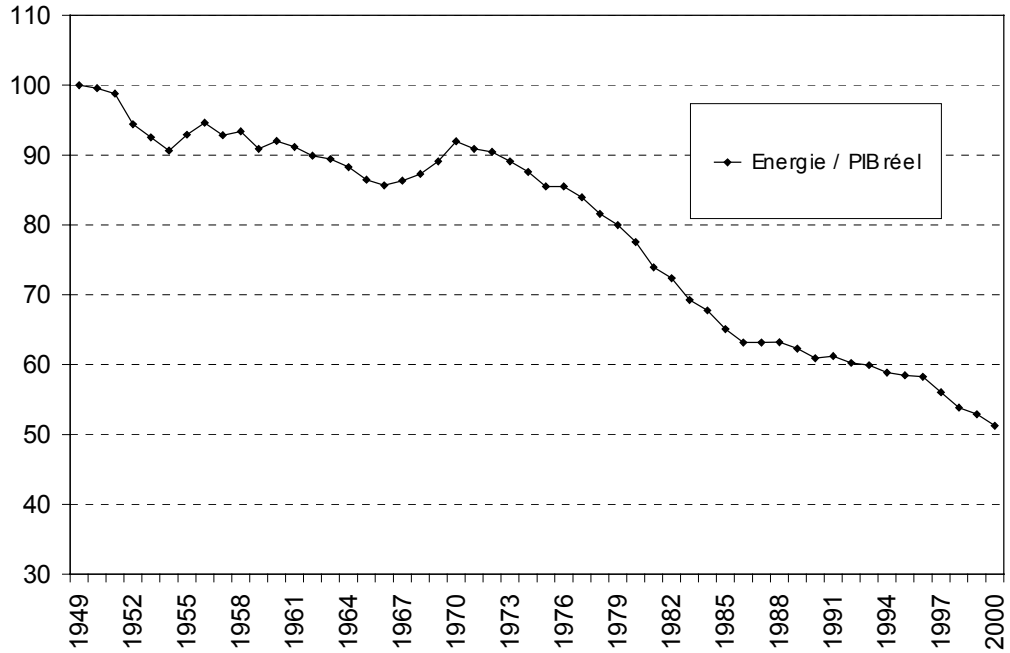
1. The Kyoto target accepted by the United States is far more ambitious than any other industrialized nation's.

Historically, energy has been abundant and relatively inexpensive in the United States - Americans consume about 70% more energy per capita or per dollar than do people in most other developed countries. Taxes on energy are much lower in the US than in the majority of developed countries[7].

In 2000 about 38% of US energy consumption came from petroleum, 24 % from natural gas, 23% from coal, 8% from nuclear power, and 7 % from renewable, primarily conventional hydroelectric resources. Coal, which accounts for 32 % of U.S carbon dioxide emissions[8], is produced in the United States and over 90% is used to generate electricity. Coal production shifts slowly from the east to the west of the Mississippi due to the low-sulfur content of western coal, todeclining transportation costs and to falling real western coal prices. The share of generation from coal is projected to decline from 52% in 2000 to 46% in 2020 as a more competitive electricity industry invests in the less capital-intensive and more efficient natural gas generation technologies. Nuclear generating capacity is also projected to decline. Of the 98 gigawatts of nuclear capacity available in 2000, 10 gigawatts are projected to be retired by 2020[9]. Renewable energy is projected to grow slowly because of the relatively low costs of fossil-fired generation. Natural gas is supposed to increase dramatically, providing the North American production can supply a growing demand, but coal will continue to play a substantial role. In 1978 the United States decided[10], as a matter of energy security policy, to replace natural gas – which was then in short supply – with an abundant resource: coal. So fears are still prevalent in policy-makers' minds that supplies of gas might not remain as high as will be needed ten or twenty years from now.

Total energy consumption is projected to increase from 99.3 to 130.9 quadrillion British thermal units (Btu) between 2000 and 2020, an average annual increase of 1.4 %[11]. Energy intensity, measured as energy use per dollar of GDP, is projected to continue to decline at an average annual rate of 1.5 % through 2020 as continuing efficiency gains and structural shifts in the economy offset growth in demand for energy services.

Figure 1: Energie use per unit of GDP from 1949 to 2000.



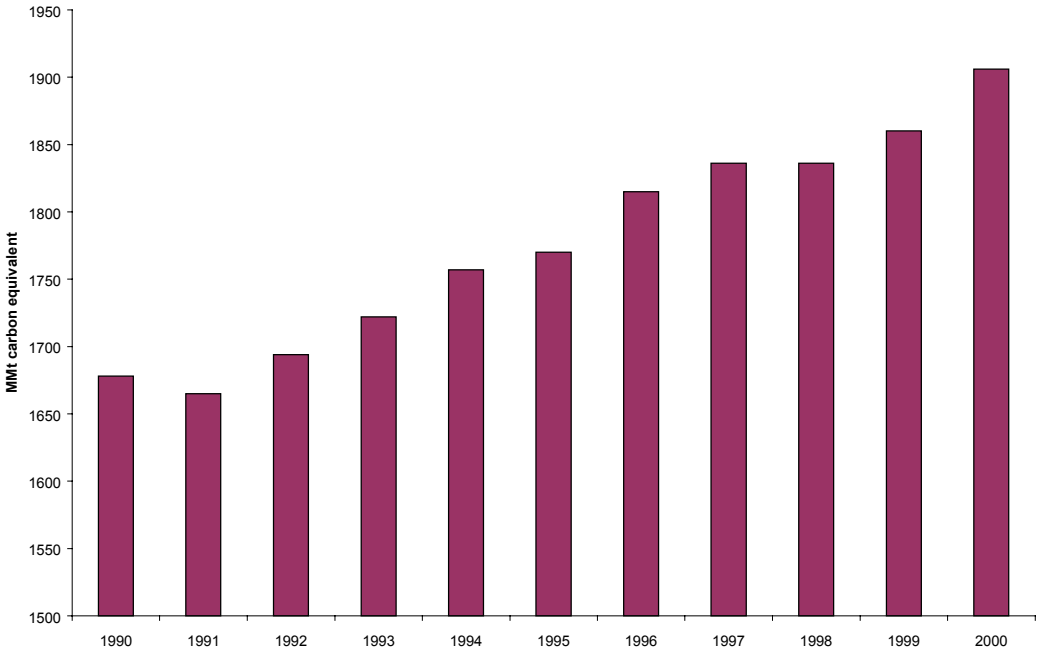
Source : Pierre Noël, « Les Etats-Unis face à leur dépendance pétrolière» (CFE working paper, March 2002) ; datas: US DOE/EIA, *Annual Energy Review*, Historical Data.

In spite of this growing efficiency in energy use, greenhouse gas emissions rose substantially over the course of the 1990s and are continuing to increase. US GHG emissions[12] in 2000 were about 14 % higher than 1990 emissions (1678 million metric tons carbon equivalent). Since 1990, US emissions have increased slightly faster than the average annual growth in population (1.2%) but more slowly than the growth in energy consumption (1.6 %), the growth in electric power generation (2.3 %) or in gross domestic product (3.2%). In the Energy Information Administration (EIA) reference[13] case carbon dioxide emissions from energy use are projected to increase on average by 1.5 % per year from 2000 to 2020 to 2088 millions metric tons carbon equivalent. And emissions per capita are projected to grow by 0.6 % per year[14].

Emissions projections change substantially with assumptions on economic growth, energy prices and technology (table 1). For example, in the high technology case energy

carbon dioxide emissions are projected to be 7% lower in 2020 than in the reference case at 1950 million

Figure 2: U.S. emissions of GHG based on global warming potential



Source: Energy Information Administration: Emissions of greenhouse gases in the United States 2000.

metric tons carbon equivalent. It would seem that in the medium term (2020) that will remain the case – no plausible technological developments emerging that would break the relations.

Table 1: US emissions of carbon dioxide in 2020 in each case in MMt carbon equivalent						
	Technology[15]		World oil price[16]		Economic growth[17]	
2000	cases	2020	cases	2020	cases	2020
	Reference	2088	Reference	2088	Reference	2088
1562	2002	2221	Low	2103	High	2215
	high tech.	1950	High	2083	Low	1980

The US commitment under the Kyoto protocol involved a mandatory emissions target of seven percent below 1990 levels by 2008-2012 which means a 20 to 30% reduction of the GHG emissions[18], a goal seen by most of policy makers as threatening one of America's most entrenched cultural values – access to cheap gasoline and to the automobile – and with it a perception of freedom and unlimited mobility. (pm: transportation accounted for 33% of carbon dioxide emissions in 2000). The expectations of American households are that energy

prices will stay indefinitely low. Americans are extremely sensitive to the price of energy and few politicians are willing to spend any political capital to change this state of mind. Energy conservation measures taken since the second oil shock have been very difficult to implement. The energy conservation measures taken by President Carter in June 1980 did not survive the 1980s fall of energy prices and the end of supply shortages. Likewise, programs which aimed at promoting energy efficiency and renewable energy supplies in the electric power industry were hampered by federal budgetary constraints, after Republicans took over the majority in Congress in 1994, and by state initiatives to deregulate the electricity market. Congress prohibited federal agencies from even studying the tightening of existing vehicle fuel efficiency standards and rejected administration proposals for tax subsidies for renewable energy and alternative fuel vehicles. The states, under the leadership of California, whose promotion of renewable and alternative energy had caused electricity prices to rise, began to open their electricity market to competition in order to keep their industries competitive[7]. Paradoxically it was the energy policy of the first Clinton administration, heavily influenced by climate change concerns, that gave birth to the electricity restructuring, which undermined the Climate Action Plan of this administration..

In this context, the US goal was much more ambitious than the European one. If Europe has succeeded in stabilizing its CO2 emissions in 2000 at the 1990 level, this has been due largely to cyclical factors such as the economic slowdown in the early 1990s combined with industrial restructuring in the United Kingdom and in the new German Länder. Total emissions of greenhouse gases by the 15 Union members are expected to increase by 5.2% between 1990 and 2010 if no action is taken[19]. A recent research project conducted by the economic and energy consultancy DRI-WEFA finds that compliance with the Kyoto protocol will cost Germany and Britain about 5% of their GDP and increase unemployment by 1.8 million and one million respectively. Likewise the Netherlands would lose 3.8% of its GDP and 240,000 jobs, and Spain 5% and one million jobs[20].

In the United States as in Europe reducing greenhouse gases emissions will require a substantial effort and a change in the way of life. It will be a long term effort which cannot be achieved without a radical political and social transformation. It therefore did not make much sense for the Clinton administration to engage the United States in such a drastic effort without the support of Congress and the business community.

2. After fierce debate a consensus might suggest that climate change represents a significant potential threat to the world's well being and that human activity is responsible.

Although former President George Herbert Bush called for federal action[21] as early as 1988, and President Clinton gave national visibility and political attention during the 1990s to the threat of climate change, the American public is still divided on the seriousness of global warming.

Many experts and editorialists underline regularly that climate change is a difficult issue, replete with uncertainties as to timing and impact. Article 2 of the United Nations Framework Convention on Climate Change (UNFCCC) requires signatories to take actions to "prevent dangerous anthropogenic interference with the climate system" from greenhouse gas emissions (and others actions, such as deforestation). However, as Michael Toman[22] said, the term "dangerous" does not have an unambiguous, purely scientific definition; it is inherently a question of human values.

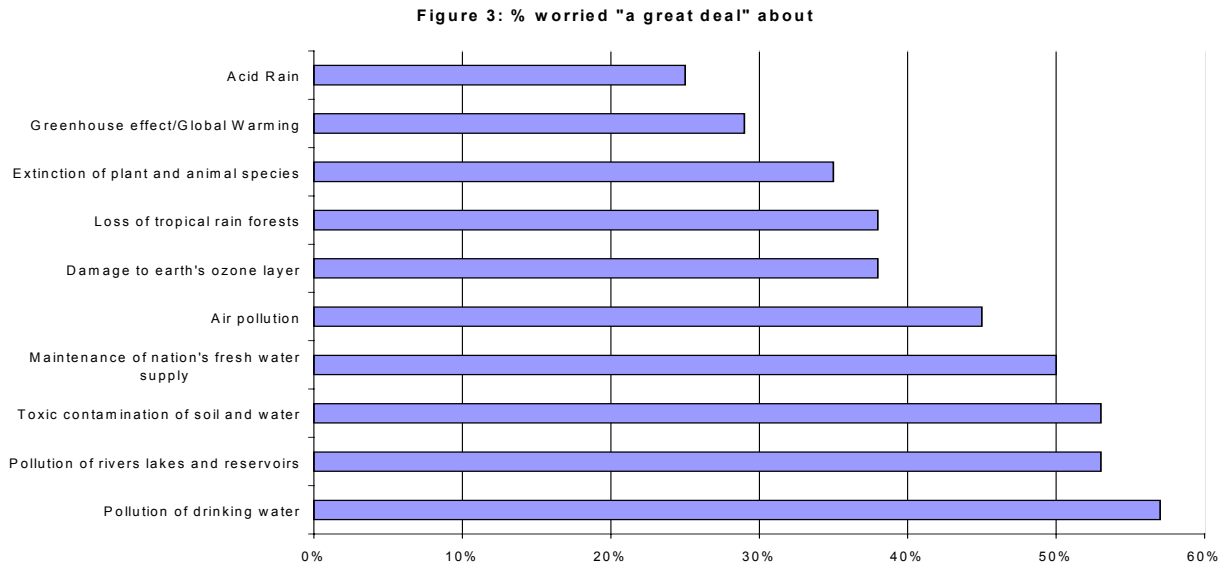
US political culture places an exceptionally high value on individual rights and liberties, the sanctity of the private property, and a relatively unfettered free-market economy. Against this general backdrop the protection of collective goods such as the environment have been broadly endorsed for many years by the public[23]. Historically public demands for action were stimulated by specific events: Rachel Carlson's 1962 book "Silent Spring" drew public attention to the impact of the pesticide DDT on the bald eagle; the Santa Barbara oil spill in 1969 galvanized public attention with vivid pictures of despoiled beaches and dying animals covered in oil and led to the Environmental policy Act; in 1978; Love Canal triggered a wave of fear about hazardous waste and the threat of cancer[24].

Climate change has not yet produced such an event. Severe storms, high temperatures or devastating floods are within reasonable range for people who feel powerless faced with natural events that are seen as acts of God. Moreover leading scientists continue to point out how little is known about the workings of the atmosphere, weather patterns and natural or human effects on the climate[25]. These studies are extensively used by people and organization hostile to the Kyoto process. In July 1999, an American Enterprise Institute study called for delayed action on global warming because "*it is not clear whether the net economic effects*

from climate change over the next century will be harmful or helpful". Until recently, the Global Climate Coalition, the voice of business and industry on global warming issues, disseminated articles and studies that challenged the United Nations Intergovernmental Panel on Climate Change (IPCC)[26]. The Heritage Foundation, a conservative think-tank, airs regularly the idea that the Kyoto protocol is based on faulty science[27]. Even the more liberal Brookings Institution, using the wide spread between the various IPCC forecasts, emphasizes uncertainties[28]. For James Lindsay "*uncertainty about the causes and consequences of global warming greatly shapes the debate over climate change. It is hard to motivate countries to act when no one knows whether the problem is big or small, imminent or distant*". Many editorialists summon up on a regular basis a deep-rooted sense in American public opinion that natural events are inevitable to conclude, like Jeff Jacoby in the Boston Globe, that climate change is natural.

Keeping cool on global warming	
We should tune out the alarmists. We should keep the human effect in perspective. We should remember that climate change is natural. Mostly we shouldn't panic*"*	Carbon dioxide emissions are supposed to be increasing temperatures on earth. But the research – as the administration understands – has never found a conclusive link between human activity and global warming.
Jeff Jacoby The Boston Globe, December 17, 2001	James K.Glassman, fellow at the American Enterprise Institute, Wall Street Journal February 15, 2002.

Thus it is not a surprise that the public is not well positioned to make much sense of this all. In a recent Gallup poll[29], only 17% of Americans say they understand the issue of global warming "very well". Another 52% say they understand it "fairly well", while about one-third say "not very well or "not at all". If a majority of Americans (53%) believe that the effects of climatic change have already begun to occur, only 29 % say they worry a great deal about it (the weakest percentage since 1999 after Gallup started measuring this in 1989[30]), placing the issue at the bottom of the list of ten environmental issues.



Source: Gallup poll – March 4-7, 2002 cf note 24.

Another indication that Americans are sharply divided on the issue comes from a question that asks about the reliability of media coverage of the issue. One third of Americans believe that news reports of the problem are generally correct while another third believe they are exaggerated and an equal number believe they are underestimated. Attitude on this question has not changed since 1997.

Nevertheless the public is sympathetic to the argument that humans are responsible for global warming. A question asked in 2001 found 61% of the public believing the increase in the Earth's temperature is due more to human activities; as against the 33% who attributed it to natural causes.

Dissension in public opinion is a consequence of the acrimonious debate between President Clinton and Republican Congress in the 90s. Committing the United States to a binding target, President Clinton and Vice-President Gore only succeeded in antagonizing the public further. A positive outcome could not crop up from such a bitter debate. The Bush approach might be more effective in building a consensus. George W. Bush is more in tune with public opinion. In June 2001, European reactions focused only on the rejection of the Kyoto protocol. However the most important statements of the Bush administration have barely been noticed:

- First, that climate change is a serious problem that deserve a serious policy response,
- Second, that the National Academy of Sciences indicate that the increase is due in large part to human activity,
- Third, that the United States is the world's largest emitter of greenhouse gases from human activity[31].

And on February 14, 2002 President Bush presented a number of "clear skies & global climate change initiatives" and he declared that "*we must clean our air, we must address the issue of global climate change. While these uncertainties remain, we can begin now to address the human factors that contribute to climate change. Wise action now is an insurance policy against future risks".*

Coming from a Republican administration these acknowledgements constitute a fundamental change in perspective. It brought an end to the controversy over the science of climate change. The National Academy of Sciences has presented the "consensus scientific views and judgments of committee members" and has said: "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". With this statement there is no debate anymore about the seriousness of global warming. The attention has shifted now to how to address the issue.

3. The Kyoto process would have been troubled even if George W. Bush had followed Bill Clinton's approach.

Critics of US climate change policy blame the lack of action on an absence of leadership, inferring that if the United States only had stronger presidents, it would have pursued more stringent policies. Others ascribe the inertia to the Republicans' capture of Congress in 1994 and the widening of the ideological gap between the two branches. In truth, as Henry Lee has written[32], assigning blame is too simple an answer. The political realities are much more complex and climate change is one of the most difficult issues the governments have to deal with. As President Clinton has stated: "*the United States must confront a challenge that in some ways is the most difficult of all democracy's challenges to face. That is, we have*

evidence, we see the train is coming, but most ordinary Americans in their day-to-day lives can't hear the whistle blowing"[33].

Since 1988, US presidents have unsuccessfully called for action to meet the challenge of climate change. The first George Bush believed[21] in the "White House effect", but he became more cautious as he met conflicting opinions and economic realities. Bill Clinton claimed that he would do what President Bush would not – commit the United States to reducing its emissions of Greenhouse gases - but the Climate Change Action Plan approved in October 1992 consisted of 52 voluntary programs. George W. Bush pledged during the presidential campaign to curb carbon dioxide emissions from power plants but he abandoned his pledge in March 2001, putting forward the economic slow down and the energy crisis as justification: "*the idea of placing caps on carbon dioxide does not make economic sense"*.

Initiatives that are developed unilaterally and independently by the executive branch deliver rarely on their promises. The government's action is constrained by pluralistic governance processes and institutions. To be arrived at, a decision needs close cooperation between Congress and the Executive branch. Within the executive at least seven agencies are involved – the department of State, the Treasury, the Environmental Protection Agency (EPA), the departments of Energy, Agriculture, Commerce and Justice. Within Congress two branches, the House and the Senate, multiple committees and subcommittees are involved. The states and a number of agencies or regulators implement the decisions ,which are subject to careful scrutiny by the judicial branch.

Following the "civil-rights" movement in the 60s, the American political system under the pressure of growing concern over environmental values (cf supra 2) became more transparent and more open to multiple themes and interests groups, but also « broader » with more organizations and agencies firmly independent with their own strategy and clientele. "*In contemporary American politics, the phenomenon of clientelism stands as a pervasive theme…Nothing is more natural than for interested individuals or groups to cluster about those government agencies whose decisions affect them directly…"* said Davidson in 1977[34] who described clientelism as a product of the systemic phenomenon of pluralistic policy making. Clientelism*" is found in the horizontal linkages among congressional committees (or subcommittees), executive agencies, and relevant outside groups. These ingrown*

arrangements in various policy fields have been described as "subgovernments",” policy whirlpools" and “cozy little triangles”.

Such systems are more permeable but they are also more prone to protracted conflict, because policymakers, including Presidents, have less freedom to maneuver and no one person has the authority to impose a decision. As a case in point, the devolution of power to multiple committees and subcommittees in Congress has increased regulatory oversight and made it harder for policy monopolies to operate, but it also has made it harder to forge the multiple majorities needed to enact legislation that could facilitate a policy breakthrough. With so many institutional venues, decisions are rarely final, and actors have few reasons to accept defeat[35].

One important aspect of US institutional pluralism concerns the relationship between the president and Congress, particularly when control of Congress and the White House is divided between Democrats and Republicans.

In the wake of the successful negotiations (Montreal protocol) to phase out chlorofluorocarbons (CFCs) that deplete the stratospheric ozone layer, the 41st Bush administration advocated “action which will have broad-ranging benefits” such as eliminating CFCs and other ozone depleting substances that are also GHGs (under the Montreal protocol); implementing various pollution-control measures that would promote energy efficiency; increasing the use of renewable and non-fossil sources of energy (Energy Policy Act of 1992). In this context the US administration negotiated and signed the United Nations Framework Convention on Climate Change (UNFCCC) and the Senate ratified the Convention in October 1992, but there were only voluntary non binding targets which did not commit the United States to specific reductions. The Clinton administration came into office with stronger rhetoric about the need for GHG control policies. On Earth Day, April 21, 1993, President Bill Clinton committed the United States to reducing its emissions of greenhouse gases to 1990 levels by the year 2000. As it became clear that the voluntary programs would not enable the United States to meet its emissions goals the Clinton administration, without any serious look at the economic costs and benefits of GHG control[36], supported, in July 1996 at the second Conference of the Parties, legally binding targets and timetables for GHG reductions. This new approach led to the passage, in July 1997, of Senate resolution 98, known as the Byrd-Hagel resolution, by a vote of 95 to 0 [6]. Nevertheless, five months after,

the Kyoto protocol included a last minute compromise by Vice-President Gore which directed the United States to reduce its emissions to 7 % below 1990 levels by the compliance period 2008-2012., Not long after because the Protocol did not meet the Senate's stipulations as outlined in the Byrd-Hagel Resolution, the administration made clear it did not intend to submit the Protocol to the Senate for ratification[37].

In 1998, following the Byrd-Hagel resolution requirements, the U.S Energy Information Administration (EIA) released its analysis of the potential costs of US compliance with the Kyoto protocol emissions target. This study brought a significant support to the Congress resolution. The reports estimated a 4% reduction in annual GDP through 2010 compared to business-as-usual, a 53 % increase in gasoline prices, and an 87 % increase in average electricity prices. Although the Council of Economic Advisers estimated costs of the order of 0.5 % of annual GDP if flexible policy instruments (market-based) were employed[38], Congress sought to prevent the administration from engaging in any activity that could be characterized as a back-door implementation of the Protocol; so the United States did not do much to reduce its emissions.

Even though the debate surrounding the Clinton Btu (British thermal unit) tax proposal in 1993 had shown a strong reluctance from most of the business and the labor unions to any measure that could affect the US competitive advantage or reduce the number of jobs in sectors directly affected by controls (power industry; coal industry, transport…), the Clinton administration underestimated the breadth of opposition and the multiple interests at stake which used all the opportunities offered by the US political system to win acceptance for their opinion.

To add to the difficulty, several Senators, like Charles Hagel republican from Nebraska, expressed their concern about national sovereignty. The breadth of the sovereignty current in recent American political life created one more pitfall in the definition of a climate change policy in the United States.

> *"And for me, one of the most poignant questions and concerns is about national sovereignty. Because if we are to reach out and go forward with a multinational kind of an institution organization that will be empowered to not just be the referee here, but to be essentially the judge, the jury and the*

International institutions will have to be established to monitor compliance with the commitments and especially to make work an international system of market trading emissions permits advocated by the United States. But historically the United States has been reluctant to give up any of its sovereignty.

> *prosecutor – how will that work ? Who is wise enough among all the nations to do that ? I really wonder if the United States of America is prepared to turn over its industry and responsibility for its manufacturing to multilateral international organizations with the power to close down our industries…"*
> Senator Charles Hagel, Nebraska,

Even if the United States has agreed to arbitration provisions in the North American Free Trade Agreement and to the dispute settlement mechanism in the World Trade Organization, which are as closely related to domestic issues as climate change, examples abound where the United States refuses to accept international binding rules, not to speak of the conflicting relations between the United States and the United Nations. Apart from the Kyoto protocol, the US administration negotiated and signed several international agreements without a clear ratification strategy. The Comprehensive Test Ban Treaty was rejected by the US Senate in 1999, but the administration had been at least clumsy, in its action to convince the senators. The International Criminal Court treaty was signed by President Clinton just before he left office leaving it to President Bush to decide to engage the process of ratification. The Montego bay Law of the sea Convention and the Convention on the rights of the child are still not ratified by the US Congress.

With George W. Bush at the helm, both Congress and the executive branch acknowledge the seriousness of the threat but have been unable or unwilling so far to construct a political constituency for action. Rhetorically committed to reduce emissions, the Clinton administration made it harder to meet the challenge engaging the international community toward binding commitments, which antagonize too many interest groups and confuse American public opinion

4. Whatever its flaws the Kyoto protocol is a building block for any comprehensive agreement on climate change.

It would be wrong to say that Americans are little concerned by environmental protection. For the last thirty years the environment is a permanent concern of policy-makers[39] and the United States has achieved serious improvements in environmental quality. For example, atmospheric concentrations of all six major pollutants (lead; carbon monoxide, sulfur dioxide, ozone, particulate matter, nitrogen oxide) have declined over the past twenty years[40] and numerous local authorities as for example Houston (Texas), devote each year substantial resources to improve air quality[41].

But most of the US experts consider that global climate change presents a different set of challenges and requires a different strategy. According to the Council of Economic Advisers "*You cannot treat greenhouse gases, especially carbon dioxide (CO_2), in a manner analogous to SO_2, Nox or CFCs for, which strict quantitative limits have been imposed. SO_2 and Nox can be controlled by adding equipment to existing facilities. CO_2, however can only be reduced by either reducing energy use or replacing fossil fuel facilities, equipment and transportation fleets with ones that use fuels with lower or zero emissions (that is, unless and until capture and sequestration of CO_2 become feasible)*[40]" .

Among criticisms outlined by the United States three are worthy of consideration:

The first set of criticisms is related to the lack of comprehensive coverage of the protocol. According to Richard Cooper[42], climate change is a global issue since whatever their earthly origin the gases are widely dispersed in the upper atmosphere and CO_2 is long-lived. Effective restraint must therefore involve all (actual and prospective) major emitters of greenhouse gases. The rich industrialized countries account for most of the emissions today, but rapidly growing countries (China, India) will become major contributors within a time frame that is relevant for managing the issue. So it is essential to build a climate agreement that can encompass countries not currently participating in Kyoto. Such an accord must include a way for these countries to gradually accept the burdens of emissions control (Jacoby, Prinn and Schmalensee).

Indeed, behind this argument there remain fears that such lack of comprehensive coverage will drive up production costs and push jobs abroad[3]. Industries in developing countries will gain a competitive advantage over industries in countries that abide by Kyoto. As carbon intensive industries are relocated, representing a growing part of the GDP, non-Kyoto

countries will be more and more reluctant to take emission-control measures that threaten these activities. But it should be recognized that, with developing nations unrestrained, worldwide emissions will rise, even if the Kyoto protocol is fully implemented. "If Kyoto is acknowledged to be only the first step (because it is natural that the world's richest and most heavily emitting countries must start the process) we must anticipate what the next step might be"[42], otherwise it would be impossible to make developing countries part of emissions reduction efforts since they will be contributing more than 50 % of the world's emissions by 2020. The protocol provides little incentive for them to do so.

The second set of criticisms is related to the principle of binding quantitative targets. Climate change is a risk but the size of the risk is unknown and climate change will likely take several decades to substantially materialize (Toman[36]). There is a large consensus in the United States that climate change is a long term problem which needs long-term strategies. Moreover, many experts underline that the rewards from restraints on GHG emissions will come in the distant future, while the costs will occur in the present. It is therefore extremely difficult to persuade citizens to undertake short term costly efforts for an uncertain benefit of their descendants or of other (richer or poorer) countries' descendants.

A dramatic short term reduction might entail damaging economic consequences and, in turn, jeopardize the ability to invest in the long-run scientific and technological solutions. A gradual approach would allow an adjustment as more is learnt from science and benefits from developing technologies are drawn (George W. Bush). Unless the risks of climate change are suddenly found to be very large or the public becomes very altruistic, the high cost of excessively rapid action in the near term is a major deterrent to mitigation (Toman). The United States has huge long-lived assets built on low energy prices. A short term emissions reduction would compensate those who would lose out the most and to find a compromise on how to share the compensation between important political constituencies such as coal miners, the power industry or transportation industries. To build such a political compromise is a long-term and costly effort for any politician who might wish to try it. It is therefore untenable, particularly in the United States, to argue that climate change is such an overwhelming problem that it must be stopped no matter what the cost is.

Over the past 30 years the benefits of environment measures in the United States often far outweighed the costs. But climate change is such a complex issue that careful analysis of both

benefits and costs are required to formulate responsible policies that will improve well being and are cost effective. According to the Council of Economic Advisers there is the matter of tradeoffs between the welfare interests of current and future generations, between a desirable environmental goal and the cost to reach it. Certainly, it makes sense to maintain a moral stigma on pollution when polluters are making a discrete choice whether to pollute, say the CEA. But in most cases the creation of some pollution is inevitable, thus the question is not whether we will pollute, but rather how much. In this context it makes sense to evaluate pollution in terms of a tradeoff between the harm it causes and the cost of abating it.

These objections cannot be brushed aside without due consideration. Even if Europeans are strongly committed to reducing their emissions there is little chance that public support will keep steady if the price to pay in term of economic growth becomes too heavy[20]. On the other hand, the relatively stringent emissions targets negotiated in Kyoto have already been so diluted in the Bonn and Marrakech negotiations that it is highly improbable that abatement activities will stimulate new technologies for reducing GHG emissions. In that case the whole international process will be discredited and the only result of Kyoto would be to delay any serious R&D effort, which is absolutely indispensable to meet the long term challenge of climate change.

The third set of criticisms is related to Kyoto institutions. The Bonn agreement incorporated many of the changes the Clinton administration had sought. Nevertheless most US experts and policy makers think that the Kyoto protocol lacks flexibility, which prevents exploiting the cheapest abatement opportunities (balkanization of the trading regime unnecessary constraints on the clean development mechanism). Moreover the Kyoto protocol would be fraught with several structural flaws regarding the trading regime and the credibility of the compliance mechanism.

Regarding the trading regime markets work best if there are many participants, none of them dominant. In Kyoto emission rights are allocated to countries and some like Russia could be tempted by monopoly behavior to influence price levels. Moreover constraints on trading set in the Marrakech agreement restrain volume of transaction, liquidity and transparency in an international market. Moreover how will emission rights to participating firms on the basis of historical emissions, on political favoritism, on competitive auction be allocated? Does it make sense to allocate an emission right for hundred years on the basis of

the last year? How has the risk of corruption been appreciated? Most US experts consider that competitive auctions would set a price per ton of carbon emissions, which provides useful information for all emitters and enough revenue for governments to compensate the losers. Finally there are questions about the amount of transfers entailed by an international regime trading since it is known that cross-border purchases would be required. Such transfers would involve large transfers of funds in particular from the United States and Europe to Russia and Ukraine which are likely to be politically unacceptable in the United States and even in Europe (See Cooper for further discussion).

Regarding the compliance mechanism, the 2002 Economic Report of the President considers that the Kyoto protocol fails to recognize the enormous institutional and logistical obstacles to implementing any sweeping international program. Kyoto's compliance mechanism, although unusually strong by international standards, is unlikely to deter states from dropping out if things get tough (Bodansky). Thus it would be dangerous to devise any serious US policy or commitment dependent on newly designed and untried international institutions. Climate change is a specific risk: each nation's incentive to reduce emissions is limited because it cannot be prevented from enjoying the fruits of other nation's efforts. As Stiglitz and al.[43] mentioned, addressing cooperative outcomes in non-cooperative games is a classic public good and public finance issue, with one major difference in the case of climate change: the absence of a global government with the power to enforce international agreements. Little in the history of the United Nations provides great confidence that the regime will be able to face these challenging tasks. Since no global police organization exists to enforce an international climate agreement, this agreement must be voluntary and self-enforcing - all parties must have an incentive not to deviate unilaterally from the terms – (Toman).

To sum up climate change is a serious challenge but the Kyoto protocol would be a flawed instrument to deal with it: with lack of comprehensive coverage Kyoto fails to comply with the UNFCCC ambition; binding targets are the most inefficient instrument to get an effective reduction of emissions; Kyoto's institutions are unable to deal with such a challenging task. These objections are serious and Europeans cannot bury theirs head in the sand and say that all these arguments are irrelevant. A dialogue between Europe and the United States on each issue is of the utmost importance to face the climate change challenge.

Nevertheless it is illusive to build a completely new solution. Kyoto exists; it represents a serious effort to address a challenging issue, and it establishes a specific framework and timetable for most of the developed countries. The international community has invested substantial resources in consensus building around the Kyoto approach, thus it makes sense to build around this first building-block.

If Kyoto fails there is little chance of a new agreement. A failure of Kyoto could rationalize inaction by countries that are less motivated. The entire international effort for the last ten years to deal with climate change would be discredited, thus increasing the difficulty of collective action in the future, no matter how serious the problem turns out to be.

Moreover Kyoto's design largely reflects US thinking. It is worth remembering that the Berlin mandate was adopted in 1995 particularly because of the failure of the Climate Action Plan of the Clinton administration and that it was a US proposal to adopt binding targets and timetables.

We cannot hope to build such a complex international agreement including as many countries as possible in a few years. As several other international regimes, like the European Convention on human rights or the World Trade Organization, it could take decades before the international community can enforce such a lasting binding agreement. Kyoto is the first step forward. It is not the time to step back trying to build a different agreement.

It is therefore crucial that Kyoto countries succeed in implementing the requirements of the Treaty but anxious to open the way for a further integration of the United States. A successful Kyoto will make it harder and harder for the United States to remain out of the international process.

Conclusion:

The Kyoto protocol has a Promethean ambition considering uncertainties surrounding its impact on the environment and the well-being of the population. Moreover the Kyoto process underestimates the ability of the international system to bear such a demand of regulation and the capacity of domestic politicians to set a trade off between various group of interest and between short term and long term well-being of their citizens. This is particularly

true in the United States, which is a pluralist democracy. As we have previously seen (3), decisions in the United States are more and more difficult to take as numerous interests are involved. A gradual approach could facilitate structural evolutions in the way Americans use energy for industrial production or domestic consumption. Thus it is likely that, for the foreseeable future, efforts by industrialized countries will proceed on two tracks[44]. The decision of the Bush administration to proceed on its own must not be considered as hampering the global effort to reduce emissions. There is already within the United States a great amount of interest in and multiple initiatives for dealing with climate change. But a domestic political consensus has still to be built.

In the United States, as in most of the democratic countries in the world, domestic policy leads international policy. Thus local initiatives and a growing interest in Congress should modify the US attitude in the international arena. Today greenhouse gases emissions reduction seems impossible – like it seemed twenty years ago over the reduction of air pollution in Los Angeles or a few years ago in Houston. But in less than a generation the United States has got a remarkable improvement in air quality[45] due to local initiatives.

Similarly a number of states and cities have launched constructive efforts to lower emissions of greenhouse gases. In the past two years the states have passed more than two dozen laws establishing specific strategies. These strategies involve formal commitments in every sector that can influence such heat-trapping gases, including electricity generation, air pollution regulation, transportation, forestry and natural resource preservation, and agriculture[46]. As early as 1997, Oregon established a formal standard for carbon dioxide released from new electric power plants; in 1998, then governor of New Jersey, Christine Whitman (now chief of the Environmental Protection Agency) issued an order setting a goal for reducing the state's greenhouse gases by 3.5 % below 1990 levels in 2005; in April 2001 Republican governor of Massachusetts, Jane Swift, issued regulation that establishes carbon dioxide caps for six power plants that collectively produce 40% of the state's electricity. Several other states, including Illinois, New Hampshire, and New York have been considering adopting a similar approach[47]. In January 2002 the governors of New England states (Connecticut, Maine, Vermont, Massachusetts, New Hampshire, and Rhodes Island) and the prime ministers of four east Canada provinces (New Brunswick, Nova Scotia, Prince-Edward Island, Newfoundland) have adopted a plan to reduce their emissions ten percent below 1990 levels[48]. These states' initiatives have a real impact. Many states are quite large in terms of

population and industrial production (For example the annual carbon dioxide emissions of Texas exceed those of France). States have already considerable jurisdiction over many areas of environmental and energy policy. Cities are also active in dealing with climate change. For example Austin, capital of Texas and one of the fast growing cities in the United States, was one of the first cities in the United States to make a political commitment to addressing global warming at the local level. As early as 1995 the Austin City Council directed the city administration to draft a Local Action Plan to reduce GHG emissions by 20 percent below 1990 levels by the year 2010.

Public authorities are not the only actor. In 2000, according to the Energy Information Administration, a total of 222 US companies and other organizations reported emission reduction of 260 million metric tons of carbon dioxide equivalent plus 9 million metric tons from carbon sequestration, representing 3.9 percent of total US GHG emissions. In the same time several projects have been developed by business lobbies: for example, the GHG protocol undertaken by the World Business Council on Sustainable Development and the World Resources Institute establishes an international standard that will make it easier for business everywhere to report their emissions of GHG; the Chicago Climate Exchange is creating this year a market for GHG emissions trading for seven states of the midwest region.

The 107th Congress too has been quite active on climate change issues. As of January 2002 there were 67 legislative proposals regarding global climate change. Several required mandatory reductions mainly from power plants. Among the most active are Senator James Jeffords, president of the Senate Environment and Public Work Committee, who set the multi-pollutant legislation for power plant as a priority in the 107th Congress, Senator Robert C. Byrd, a Democrat from a coal-producing state (Virginia) and principal sponsor of the 1997 Senate resolution[6], who urged in May 2001 President Bush to return to negotiations over the Kyoto protocol, and Senator Chuck Hagel, a Republican from Nebraska, co-sponsor of the 1997 Senate resolution and close adviser to President Bush, who declared in June 2001 that it would “not be very responsible” just to back away from the world negotiations on climate change. These stances were approved by the House of Representatives through the Foreign Relations Authorization Act, Fiscal year 2002 and 2003 by a vote of 352-73 and by the Senate Foreign Relations Committee on the same bill.

In this context the Bush proposal is undeniably too modest to be credible. Yet it is one way to address the cost issue by expressing the emissions target relative to economic output. Legitimately preoccupied to building a consensus and not antagonizing a few crucial constituencies President Bush issued a proposal which could be a framework for more binding commitments. Moreover to create "world-class standards for measuring and registering emission reductions" could be a landmark since it is known that looking at the GHG metering is often the first step toward influencing economical behavior. To invest in R&D less carbon intensive technology is also crucial. Nobody can hope to meet the goals set by the UNFCCC without new technologies which modify substantially the energy is used. But President Bush would have been more credible if he had chosen a mandatory approach (like the cap and trade approach with a safety valve proposed by several economists[49]) or at least if he had chosen a target that required a real reduction in emissions and not a business as usual one. Nonetheless the Bush proposal is a first step to building a political consensus around climate change. It provides a framework in which local initiatives could be taken in account and validated by the international community as part of the US contribution to the global effort.

Such an approach, which could help to build a political constituency for climate change in the United States, needs some flexibility from the Kyoto countries. But it should not be impossible to find ways to integrate individual project aiming at reducing emissions or emissions trading scheme in the international framework. Thus the Kyoto protocol should be the core of the ongoing international institutions needed to get an effective reduction of greenhouse gases emissions.

According to Resources for the Future, the modest impact of the Kyoto protocol without the United States may, paradoxically, turn out to be an advantage. Much economic analysis in recent years has favored a gentle start, rather than a "shock therapy" [18] like Kyoto, establishing the intricate new institutions and trading systems when the price of carbon is low and the consequences of errors are minor. As this body of analysis suggests, the emissions quotas could then be squeezed down and the price of carbon raised in later decades when the world has gained experience with the Kyoto system.

The Kyoto treaty is, by a very wide margin, the most complex environmental treaty ever proposed, and would affect the ways in which energy is produced and used throughout

the industrial world. The U.S must be part of this effort and the responsibility for that bears both on Europe and on the United States.

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[15] The high technology case assumes that increased spending on research and development will result in earlier introduction, lower costs and higher efficiencies for end-use technologies than assumed in the reference case. The 2002 technology case assumes that future equipment choices will be made from the equipment and vehicle available in 2002.

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