

The Persistence of the Kyoto Protocol: Why Other Annex I Countries Move on Without the United States

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In March 2001 President George W. Bush announced that his administration considered the Kyoto Protocol to be fundamentally flawed and that the United States was therefore not going to ratify the treaty. The most important objections were that the science of climate change is uncertain, that the protocol does not impose obligations on developing countries, and that it would be costly to the American economy.¹ The declaration came in spite of the fact that Washington played an important part in the development of the climate regime. For example, the design of the so-called flexible mechanisms, which were introduced to limit the economic costs of implementing quantitative restrictions on emissions of greenhouse gases, was in large part due to US influence. Similarly, several elements in the compliance system, adopted at the seventh session of the Conference of the Parties in Marrakesh, "either derived from US submissions or were supported by the US delegation at some point in the negotiations."²

Despite the unwillingness of the United States to embrace the Kyoto Protocol, other Annex I³ countries continue down the road that was pointed out in Kyoto. To enter into force the treaty must be ratified by at least 55 countries, in-

* The research underlying this article was supported by the Research Council of Norway. We gratefully acknowledge comments on previous drafts from Matthew Paterson, Andreas Tjernshaugen, Asbjørn Torvanger, Jørgen Wettestad, and three anonymous reviewers.

1. It has been argued that, were the United States to implement Kyoto, this would generate higher energy and electricity prices, hamper growth, raise unemployment, harm the country's competitiveness vis-à-vis developing countries, and lower household income as well as state tax revenues (e.g. WEFA 1998).
2. Werksman 2003, 3.
3. In the UN Framework Convention on Climate Change (UNFCCC), the parties that have taken on the commitments defined in Article 4.2 are listed in Annex I of the Convention and are thus often referred to as Annex I countries. In the Kyoto Protocol, the quantified commitments of the parties are listed in Annex B of the agreement. Thus, parties that have taken on such commitments are sometimes referred to as Annex B countries. The conditions for the Protocol's entering into force, however, are linked to Annex I countries (Article 25). Except for Belarus and Turkey, who are included in Annex I but not Annex B, the sets of Annex I and Annex B countries are identical. Thus, for all practical purposes, we do not differentiate between Annex I and Annex B countries, but use the term Annex I to include both.

cluding Annex I countries responsible for at least 55 percent of the 1990 CO₂ emissions from those countries. So far (September 2003), 117 countries, representing 44.2% of 1990 emissions of Annex I countries, have ratified.⁴ Whether the Kyoto Protocol will enter into force now depends solely on the ratification by Russia, responsible for 17.4% of 1990 emissions from Annex I countries.

The fact that a number of countries have decided to stay on the Kyoto track is somewhat puzzling. After all, the United States is the world's biggest emitter of greenhouse gases. At the same time, the Kyoto Protocol places no limitations on emissions in China, India, Brazil, or other third world countries. Hence, the countries to which the quantitative restrictions of the Kyoto Protocol actually pertain control less than a third of global emissions. Given that greenhouse gases mix almost perfectly in the atmosphere, meaning that mitigation of global warming is a pure public good, one might therefore reasonably ask why Kyoto has not been abandoned. The purpose of this paper is to review and critically examine some possible answers to this question.

When the US officially rejected the Kyoto Protocol, there were few remaining *main* players left. While the US accounts for 36% of greenhouse gas emissions from Annex I countries, the EU accounts for 24%, Russia 17% and Japan 8%, while Canada and Australia account for (roughly) 3% and 2% respectively.⁵ However, most of these players worked rather closely with the US within the framework of the so-called "Umbrella group."⁶ In contrast, the EU has been in constant opposition to the cautious US climate policy, favoring a more ambitious international climate regime. Also, the EU has, together with the US, been the most dominant player on the scene. To the extent that the Kyoto Protocol could be "saved," therefore, the EU was the only actor that could be expected to have the will and the ability to do so. This is why we focus mostly on the EU in the following.⁷

Four main explanations for Kyoto's persistence are considered. The first is that, despite Washington's refusal to ratify, remaining Annex I countries expect the Kyoto Protocol to reduce global warming sufficiently to outweigh the cost of implementing the treaty. The second is that the parties, by implementing the treaty, hope to induce non-parties to follow suit at some later stage. If successful, this could significantly increase the overall effect of Kyoto. A third hypothesis emphasizes the impact of domestic institutions and internal political processes in current parties. In particular, EU climate institutions have generated an institutional momentum that may have served to restrict EU climate policy options. The final explanation links the continuation of the Kyoto strategy to a desire by the European Union to stand forth as an international leader in the field of climate politics. We conclude that the first two explanations have little explanatory power, but find the latter two more promising.

4. <http://unfccc.int/resource/kpstats.pdf>.

5. Cicerone, June 2001, 4.

6. Other members of this informal and rather odd "residual group" of countries were Norway, New Zealand and Ukraine.

7. For a discussion of the development and future prospects of the climate policies of all these countries, including China and India, see Agrawal and Andresen 2001.

Hypothesis 1: Net Climate-related Gains

An immediate and intuitive explanation why other Annex I countries have chosen to move on with the Kyoto Protocol without the United States is that these countries are simply genuinely concerned with the potentially significant negative effects of climate change. Even though climate change is a truly global problem, it is in principle conceivable that a subgroup of states may be able to sustain cooperation among themselves, provided that this would benefit all of the *participating* countries.⁸ For this possibility to have some explanatory power, however, it must be the case that the parties expect Kyoto's impact on the global climate to offset the costs of implementing the treaty.

Is it reasonable to believe that the Kyoto Protocol will have an impact on the climate that outweighs the economic costs of implementation? It is clear that the Kyoto Protocol imposes significant costs on Annex I countries. For example, the IPCC report predicts that, without emissions trading, compliance with the Kyoto Protocol would reduce global GDP in 2010 by 0.2 to 2.0 percent compared to a baseline estimate. Granted, these costs are likely to be somewhat reduced by the flexible mechanisms.⁹ The IPCC estimates that, with full emissions trading, the global GDP reduction in 2010 will be in the range of 0.1 to 1.1 percent. Moreover, the withdrawal of the US will further diminish the costs of implementing the treaty for the remaining OECD countries, the reason being that the demand for emission permits will be significantly reduced. This will cause the quota price to decrease, thus benefiting buyers of quotas at the expense of sellers.¹⁰ Since most OECD countries will be buyers, they benefit from a low price on permits. By contrast, most economies in transition will be sellers of quotas, and will therefore suffer a net loss from the withdrawal of the United States.

The global cost of fully implementing the Kyoto Protocol is estimated to be more than \$700 billion in present value.¹¹ While any figure of this sort is bound to be highly uncertain, the costs of implementing Kyoto will almost certainly be substantial. Yet, most observers expect that, without the United States as a party, the treaty is going to make little difference for the global climate. According to Scott Barrett,

[t]he countries that can trigger Kyoto's entry into force account for about 56% of global emissions. But the treaty enters into force if countries accounting for just 55% of this amount ratify the agreement. This means that the treaty can enter into force when the countries that must actually limit their emissions account for just 31% of global emissions. Of these countries, however, many will not have to reduce their emissions at all. Russia, for ex-

8. Game theory's celebrated "folk theorem" tells us that any individually rational outcome can be sustained as a subgame perfect equilibrium in an infinitely repeated game, provided that future payoffs are not discounted too heavily.

9. Note, however, that these mechanisms were introduced precisely because of the anticipation that implementation of the protocol would imply considerable costs.

10. For example, see Manne and Richels 2001.

11. Nordhaus and Boyer 2001, 93.

ample, emits far less today than it is allowed to emit under the Kyoto Protocol. The countries for which the Kyoto constraints are binding account for just 19% of global emissions. And these countries are required to reduce their emissions by only a little over 5%. Such a small reduction in emissions by such a small piece of the climate problem over such a short period of time will barely have any effect on the climate.¹²

Similarly, Hagem and Holtmark estimate that compared to a business-as-usual scenario, and without the US, the Kyoto Protocol will reduce global emissions by only 0.9 percent.¹³ By comparison, with the US as a party, global emissions would have been reduced by 5.5 percent. The explanation for this difference is three-fold. First, in 1990 the US alone was responsible for as much as 36 percent of total emissions by industrial countries. Second, the Kyoto Protocol obligated the United States to reduce emissions by 7 percent, which is well above the average of 5 percent for the industrial countries as a group. Finally, in the business-as-usual scenario, emissions in the United States are expected to increase at a faster rate than in most other industrial countries.

It follows that the impact of the Kyoto Protocol on the global climate is likely to be negligible. According to one estimate, the global temperature in 2100 will be less than 0.1°C lower if the treaty is implemented than it would have been otherwise.¹⁴ In other words, the impact of Kyoto is virtually zero. Hence, it may not matter very much that cost estimates are highly uncertain. The tiny climate-related gains the treaty might provide are simply unlikely to outweigh the costs for the Annex I countries.¹⁵ This is especially obvious if we assume that these countries are motivated by self-interest (in the sense that they attempt to maximize national welfare). After all, relatively few industrialized countries are particularly vulnerable to climate change. But the conclusion seems to hold even if we make the rather optimistic assumption that the policies of the Annex I countries are primarily guided by a concern for the welfare of developing countries. If the Annex I countries really wanted to spend hundreds of billions of dollars to promote the welfare of developing countries, then using it to only marginally reduce global warming hardly seems the best way to do it. In conclusion it is therefore difficult to see that climate-related benefits can explain the decision to move on with the Kyoto Protocol.¹⁶

12. Barrett 2002, 38.

13. Hagem and Holtmark in *Cicerone* June 2001, 16–18.

14. Weaver Undated, 8. Note that this estimate assumes that the Kyoto Protocol is prolonged, with no further reductions, up to that point. Other estimates indicate a similar effect of Kyoto without US participation (personal communication with Bård Romstad and Jan S.Fuglestedt, CICERO).

15. A possible objection to this conclusion is that Kyoto must be seen as only the first step in a series of rounds of negotiations. Whether Kyoto can reasonably be seen as a first step in the sense that it will induce more countries to join at a later stage is the key question addressed in hypothesis 2 below. Whether countries already committed to Kyoto will agree to progressively more ambitious targets even if no significant new actors join the regime is at best an open question. Frankly, it is difficult to see why more ambitious (and presumably more costly) targets should lead us to change the conclusion reached above.

16. Granted, this conclusion might change if decision makers in the Kyoto countries *believed* that implementation costs are close to zero. Occasionally, EU officials have indeed claimed that im-

Hypothesis 2: Influencing the Climate Policy of other States

Hypothesis 1 sees the parties to the Kyoto Protocol as basically preoccupied with the gains inherent in the protocol itself. By contrast, a second possible explanation of the decision to stick by Kyoto draws attention to the behavior and likely responses of non-parties. Even if the impact of implementing the Kyoto Protocol by itself is likely to be small, the effect might increase considerably if other countries can thereby be induced to follow suit—either by joining the treaty at a later stage, or by concluding a separate agreement, or by cutting emissions of greenhouse gases on their own. In principle, effects of this kind could arise through at least two possible mechanisms—example-setting and the use of carrot-and-stick strategies.

Environmental groups as well as scholars have sometimes argued that a country should *unilaterally* cut emissions of greenhouse gases. The idea is that, even if such action by itself reduces global emissions only marginally, it might set a good *example* for other countries. Thus, Ott and Oberthür argue that “credible leadership is most effectively advanced by demonstrating solutions to others.”¹⁷ Allegedly, effects of this kind might induce these other countries either to join Kyoto later, or to cut emissions on their own. In either case, the overall effect of the unilateral action could be significantly enhanced. In a similar way, one might see the Kyoto Protocol as an attempt by the parties to act as a model for other countries to follow. Grubb et al. argue that, by going ahead, the EU and other industrialized countries “would effectively lay to rest the myth that the EU’s climate commitments are mere lip-service.” Also, “countries going ahead will be able to demonstrate the extent to which emission reductions are economically feasible and beneficial and do not lead to economic breakdown.” Finally, “technological developments achieved in Kyoto countries will to a certain extent spill over and spread to non-Kyoto countries including the US.”¹⁸ Although this is a case of concerted action by a number of countries, rather than a unilateral effort by a single country, the example-setting effect would seem likely to be similar.

However, the existing literature offers little support for the conjecture that unilateral efforts are likely to entail reduced emissions in other countries. In a two-country model,¹⁹ Hoel shows that a unilateral reduction of emissions by one country induces the other country (which is assumed to be motivated by self-interest) to *increase* its emissions. The reason for this result is that country 1’s unilateral reduction reduces the marginal benefit of emissions reduction for country 2. In addition, Hoel suggests that unilateral action may have an impact on international negotiations to reduce emissions. He shows that a unilateral

plication costs are likely to be moderate (see section 3.1). However, these claims could also be seen simply as an attempt to rationalize the decision to move on with Kyoto, while the true motives for this decision lie elsewhere (see hypotheses 3 and 4 below).

17. Ott and Oberthür 1999, 19.

18. Grubb et al. 2001, 49.

19. Hoel explicitly states that “in practice, each ‘country’ may be a group of countries who have coordinated their policies.”

reduction may well cause the outcome of such negotiations to imply higher *total* emissions than if each country acts selfishly. In his model, this will *always* be the case if the countries for some reason restrict their negotiations to equal or proportional emissions reductions.²⁰ Similarly, Buchholz et al. demonstrate that unilateral efforts by a single country, or by a relatively small coalition of countries, are likely to be partially or entirely offset by free riding activity by other countries.²¹

True, these studies ignore the possibility of “no-regret” options for reducing emissions of greenhouse gases. It has been suggested that such options ought to make the leadership role more attractive. For example, Ott and Oberthür claim that “by exploiting the available low-cost potentials for reducing GHG emissions and by investing in strong ecological protection measures that will eventually lead to economic benefits, there is much room [for the EU to act] without the US.”²² However, this observation should not lead us to modify the above conclusions. Granted, by exploiting no-regret options a country (or a coalition of countries) might be able to demonstrate to others the value of such measures. But it is hard to believe that knowledge about no-regret options is systematically biased in favor of members of the EU or other countries that remain on the Kyoto road. Furthermore, the Kyoto Protocol is not designed to discover or invent no-regret options. Indeed, many—if not most—no-regret options can probably be implemented without any form of international cooperation. In any case, the conclusion that *costly* emissions reductions by a limited subgroup of countries tend to induce free-riding still stands.

Another version of this hypothesis sees the decision to move on with the Kyoto Protocol as an attempt to provide incentives of the carrot-and-stick type to non-parties. To assess the possible validity of this explanation it is useful to briefly consult the literature on strategies designed to elicit cooperation from an adversary.²³ This literature is largely based on the theory of repeated games, typically focusing on the infinitely repeated Prisoners’ Dilemma. A number of proposals have been put forward as to what type of strategy may be expected to induce others to cooperate. The most renowned suggestion is probably “Tit-for-Tat,” which proved successful in two famous computer tournaments conducted by Robert Axelrod.²⁴ Other celebrated proposals include the “Grim Trig-

20. Hoel 1991, 56.

21. Buchholz et al. 1998.

22. Ott and Oberthür 1999, 19.

23. For an early review of this literature, see Patchen 1987.

24. Axelrod 1984. Tit-for-tat prescribes cooperation on the first encounter and thereafter simply replicates the opponent’s move in the previous round. Axelrod’s fourfold explanation for Tit-for-Tat’s accomplishments was that it is “nice” (never defects first), “retaliatory” (responds in kind to uncooperative behaviour), “forgiving” (resumes cooperation if the opponent shows remorse), and “clear” (easily comprehensible). However, subsequent research has also pointed out that Tit-for-Tat has a number of weaknesses. Perhaps the most serious flaw is that, even if a situation where both or all players are using Tit-for-Tat is a Nash equilibrium, this equilibrium is not subgame perfect. Another problem is that Tit-for-Tat does not distinguish between justified and unjustified defections. Instead, it retaliates in kind to any defection. A random de-

ger" and "Getting Even" strategies.²⁵ These various proposals differ in important respects, including the proposed response to uncooperative behavior. They also have different strengths and weaknesses.²⁶ However, they have one important factor in common. They all prescribe that cooperation must be based on *reciprocity*. This is not accidental. In fact, to be able to sustain cooperation as an equilibrium in the infinitely repeated Prisoners' Dilemma, a strategy *has to be* based on reciprocity. Thus, in a given period of the game, it must instruct a party to cooperate only if (i) the other party (or parties) is (are) also expected to cooperate, or (ii) cooperation can be expected to induce other parties to cooperate at some later stage.

It is not uncommon for international collaboration to be explicitly based on reciprocity. For example, in November and December 2001 OPEC successfully brokered a deal with five non-OPEC producers that was explicitly based on reciprocity. The final OPEC decision to cut production by 1.5 million barrels strongly emphasized the need for "adherence of all producers to their pledged reductions."²⁷ Similarly, announcing Norway's acceptance of the deal on 23 November 2001, Norwegian oil minister Einar Steensnæs said that "the government has decided that *if OPEC and non-OPEC countries carry out cuts*, then I have the mandate to carry out cuts of 100,000 to 200,000 barrels a day" (emphasis added).²⁸

Elements of reciprocity are also found in the Kyoto Protocol. In particular, before the treaty can enter into force it must have been ratified by a minimum of 55 countries accounting for at least 55 percent of the 1990 total carbon dioxide emissions of the industrialized states. This requirement makes each party's obligations *de facto* conditional upon the (formal) participation of other countries. However, the requirement of reciprocity does not extend to non-parties. For example, there is no provision in the Kyoto, Bonn or Marrakech agreements suggesting that measures taken by the parties to combat climate change may or will be suspended unless (say) the US or major developing countries join in within a

fection therefore causes the players to enter a never-ending series of retribution and counter-retribution.

25. Grim Trigger instructs the decision-maker to cooperate until a defection occurs, and to defect indefinitely from then on. Getting Even prescribes cooperation unless a party has contributed more frequently in previous rounds than any of the other parties. If it has contributed more frequently in previous rounds, it is permitted to "get even." This is obtained by defecting while the other parties contribute. For example, if all parties have cooperated up to period t , and party j defects in period $t+1$, then Getting Even instructs j to cooperate and the others to defect in period $t+2$. From period $t+3$, it instructs *all* players to cooperate. Hence, the essence of Getting Even is that a defector must "pay compensation" before cooperation can be resumed.
26. For example, if both (all) players use Grim Trigger, then the result is a subgame perfect equilibrium. A problem with this equilibrium is that it does not satisfy the criterion of "renegotiation proofness." By contrast, if all players use Getting Even, then the result is a renegotiation proof equilibrium. However, in this equilibrium the maximum number of cooperating parties is extremely limited (Barrett 1999).
27. "OPEC's oil cuts statement," <http://news.bbc.co.uk/2/hi/business/1732254.stm>.
28. Quoted in "Norway output cut boosts oil price," <http://news.bbc.co.uk/2/hi/business/1670892.stm>.

given deadline. Nor has Washington offered any indication that it might ratify the Kyoto Protocol at a later stage, depending on the behavior of the parties.²⁹

To sum up, there is little indication that the decision to move on with the Kyoto Protocol will induce the United States or other significant emitters of greenhouse gases to join the climate regime or, for that matter, take on other binding commitments to combat climate change. Note that we do *not* deny that the US might take action to combat climate change. What we are saying is that such action is unlikely to be caused by the remaining parties' decision to move on with Kyoto.³⁰ Hence we dismiss hypothesis 2 also.

Hypothesis 3: Institutional Momentum

A third possible explanation of why other Annex I countries have chosen to move on with the Kyoto Protocol without the US may be found in the dynamics that have developed within domestic institutions. In the course of the international political process on climate change that has taken place in the decade since climate negotiations started in 1991 until the US withdrawal in 2001, national responses to this problem have been developed and institutions for their implementation have been established. The hypothesis we are exploring in this section is that these processes have generated their own momentum and self-reinforcing dynamics, making it difficult for the EU to change course when the US announced its withdrawal from the Kyoto agreement in 2001.

Two theoretical perspectives have inspired this hypothesis. First, this type of logic may be found in neo-functional approaches to international politics, which suggest that "integration would take place as a result of domestic political pressures to enhance regional institutions (political spillover)" and where inherent links between issue areas imply that "integration in one necessitate[s] integration in another (functional spillover)."³¹ Second, this type of logic may also be found in the institutional perspective that has been described as "historical institutionalism," in which the basic idea is that "the policy choices made when an institution is being formed, or when a policy is initiated, will have continuing and largely determinate influence over the policy far into the future."³² This argument has been described as "path dependency": "when a government program or organization embarks upon a path there is an inertial tendency for

29. However, Washington has called for an approach that is "based on global participation, including that of developing countries whose net greenhouse gas emissions now exceed those in the developed countries" (White House press release of 11 June 2002). This emphasis on global participation could be interpreted as an intention to pursue a strategy based on (a particular form of) reciprocity in the field of climate change.

30. Note also that the alternative to moving forward with Kyoto is not to do nothing. An alternative way for the EU to put pressure on Washington might be to accept that Kyoto is dead, and side with the US in a joint attempt to design a new and more effective climate treaty. See also section 4.3 below.

31. Krasner 1996, 111.

32. Peters 1999, 63. Also see Krasner 1984.

those initial policy choices to persist. That path may be altered, but it requires a good deal of political pressure to produce that change."³³

A natural place to start an investigation of this hypothesis is the EU. In an internal negotiation process that has taken place over the last decade, the EU has developed its policy response to the problem of human-induced climate change and has, in parallel, set up an institutional apparatus for implementing this policy. The EU, moreover, was a key actor in the mobilization of political support for the Kyoto agreement after the US withdrawal. In this section, therefore, we explore mechanisms that may generate the dynamics suggested above with a particular focus on the EU.

3.1. EU Climate Policy after 1990

EU climate policy has been developed incrementally since the late 1980s. In October 1990 a joint Council of Energy and Environmental ministers agreed to stabilize CO₂ emissions at 1990 levels by the year 2000. In 1991, the European Commission designed a package of measures to implement this target, constituted by three main elements: A carbon/energy tax, measures to improve energy efficiency and strengthen the development of renewable energy sources, and a monitoring mechanism. A "watered down" version of this package was adopted in 1993.³⁴

While the programs to improve energy efficiency and renewables built on existing programs,³⁵ the Commission's proposal for a community-wide carbon/energy tax was new. The proposal met strong opposition from European industries and, according to many observers, the proposal was subject to the most ferocious lobbying ever seen in Brussels.³⁶ It also met opposition from member states. The UK, in particular, was opposed to the use of fiscal mechanisms at EU level as a matter of principle.³⁷

The battle over the carbon/energy tax marked the climate policy debate within the EU during the first half of the 1990s and effectively blocked progress towards a more ambitious and proactive EU climate policy. The energy efficiency and renewables programs were more successful, but failed to meet their stated goals.³⁸

The development of a more ambitious climate policy for the EU picked up momentum towards the latter part of the 1990s, particularly with the burden-sharing agreement that was reached in 1997, before the adoption of the Kyoto

33. Peters 1999, 63.

34. Wettstad 2000.

35. EU initiatives to increase energy efficiency date back to the 1970s when increased energy efficiency was pursued as a strategy to reduce energy imports (Wettstad 2000). Similarly, the programme on renewables was first initiated in 1986 (Skjærseth and Skodvin 2003).

36. Skjærseth and Skodvin 2003. Also see Ikwue and Skea 1994.

37. Skjærseth and Skodvin 2003. For an overview over the fate of the carbon/energy tax, see Wettstad 2001.

38. Wettstad 2000.

Protocol, and renegotiated and finally agreed upon in June 1998.³⁹ The shift in focus from taxes to burden sharing took care of the most controversial element in EU climate policy. It served to integrate a set of diverse interests and thus represented a solution design model for the EU on the climate issue.⁴⁰

On the basis of the agreement reached on burden-sharing, the Commission launched the European Climate Change Programme (ECCP) in 2000 to “drive forward EU efforts to meet the targets set by the Kyoto Protocol.”⁴¹ In June 2001, a year after the ECCP was established and only months after the US announced its withdrawal from the Kyoto agreement, the first phase of the program was summarized in a published report. Forty-two possible measures were identified that could lead to twice the emissions reductions required in the first commitment period of the Kyoto Protocol at a cost lower than €20 per tonne CO₂ equivalents.⁴²

In October 2001, following the status report from the ECCP, the Commission brought forward a package of three broad measures to deal with climate change.⁴³ In addition to an Action Plan for the ECCP and emissions trading, a core target in the Commission’s package was EU ratification of the Kyoto Protocol.

This brief summary shows that there is a lot going on in the EU in climate policy terms. Whether this activity actually will produce the GHG emission reductions required by the Kyoto commitment, however, still remains to be seen. In 2002, a progress report issued by the Commission suggested that the EU would not reach its 8% reduction target with existing measures.⁴⁴

The development of an EU climate policy has taken place over a relatively long time period, it is the result of a complex internal negotiation process, and the process has, at least in periods, been characterized by a relatively high level of conflict. Thus, the climate position the EU has today has been hard fought and rests on a delicate balancing of diverging interests. Are there mechanisms at work in this process that may have generated an institutional dynamic that in

39. The burden-sharing agreement—often referred to as the “EU bubble”—allocated differentiated emissions reduction targets to all EU member countries. The agreement allows some member countries to increase their GHG emissions (as compared to 1990 levels), while it requires other member countries to implement higher emissions reductions than the overall EU Kyoto target. With the EU’s ratification of the Kyoto Protocol, both the EU and member states have legally binding targets and share the responsibility for meeting them. The allocation of emission targets for individual EU countries can be found in European Commission 2001a. See also Ringius 1997.

40. See, for instance, Underdal 1983; and Ringius 1997.

41. ECCP 2001, 3.

42. ECCP 2001, 7. This may also indicate that European decision-makers operated with a moderate cost estimate for climate measures. Whether this reflects their true perceptions of costs or whether it can be seen as a way of rationalizing a climate policy whose true motive lies elsewhere is difficult to determine (see also hypothesis 2).

43. Source: <http://europa.eu.int/comm/environment/climat/eccp.htm>. Accessed: 01.04.2003.

44. See EU Press release by Commissioner Margot Wallström, 10 December 2002. Source: http://www.europa.eu.int/comm/environment/climat/home_en.htm. Accessed: 16.09.03. See also Wettestad 2001.

turn has served to limit the EU's climate policy options when the US withdrew from the Kyoto agreement?

Empirically, it is very difficult to identify and "measure" the impact of institutions on policy choice and several mechanisms may be assumed to generate the type of dynamics suggested here. In this analysis we explore two possible mechanisms: the generation of vested interests among the individuals operating in EU climate policy institutions, and the generation of irreversible investment costs and new market opportunities for private business actors concerned by this policy choice.⁴⁵

3.2. Bureaucratic Vested Interests

When policies are embedded in institutions, the individuals staffing these institutions have vested interests in them. That is, the institutionalization of a particular policy choice generates vested interests among the individuals operating within these institutions, which generate a feedback effect that may serve to limit policy options at a later stage.

Within the EU decision making system, the Commission is the Union's executive authority: The Commission initiates and ensures the implementation of new legislation. Legislative authority within the EU, however, rests with the Council of Ministers and the European Parliament. In the development of EU climate policies, the Commission has often represented an important driving force. For instance, the Commission launched the ECCP, currently the main instrument for driving EU climate policy forward. The ECCP was organized in six technical Working Groups, with at least seven sub-groups. A seventh technical Working Group started its work in March 2001. Through the ECCP Steering Committee, the Commission is responsible for the general co-ordination of the program. The Commission is also active as a facilitator in the different Working Groups.⁴⁶ Thus, it seems safe to assume that within the Commission itself, there are a number of individuals that have worked long and hard for the current EU position on climate change and thus have a vested interest in the maintenance of this policy.

EU environmental regulation, moreover, has been characterized as an "extremely complicated and constantly evolving *multilevel* governance structure."⁴⁷

45. A third mechanism might be linked to the authoritative force of the institutions within which a policy choice is embedded. That is, it seems reasonable to assume that when a policy choice is institutionalized in the form of (new) legislation the feedback effect is likely to be stronger than when the policy choice is not transformed into legislation. While (new) EU legislation covering a broad set of issue areas linked to climate change is in the pipeline, the legislative process—with the adoption of legislation by the Council and the European Parliament—was not completed by March 2001 when the US withdrew from the Kyoto agreement. EU climate policy, therefore, was only to a very little extent institutionalized in the form of legislation when the US withdrew and this mechanism is not, therefore, explored any further here.

46. ECCP 2001.

47. Jordan 1998, 19 (emphasis added).

It is determined by three main elements: “competition between the governments of the member states; the pro-environment agenda of supranational entities and pressure groups; and the ability of national and subnational actors to make modifications at the implementation stage.”⁴⁸ Therefore, EU climate policy, including the decision to ratify the Kyoto Protocol without US participation, involves all decision-making levels of the organization. A number of observers see the development of a “pro-climate alliance” across all decision-making levels of the EU system as an important factor that makes the current EU climate policy difficult to reverse.⁴⁹ This may also indicate that there are individuals with vested interests in the current EU climate policy at all decision-making levels of the EU regulatory system, from company/industry level and all the way up to the European Parliament. The ECCP, for instance, is reported to be “a challenging exercise bringing together Commission services, industry, NGOs, and national experts, and driving forward implementation of the climate change research agenda.”⁵⁰

While we cannot draw strong conclusions on the basis of this brief discussion, it nevertheless seems to indicate that there may have been mechanisms at work that have served to generate vested interests in the maintenance of EU climate policy among a significant number of individuals across decision-making levels. In turn, this may have generated a self-reinforcing dynamic that has increased the cost and reduced the political feasibility of reversing these policies when the US announced its withdrawal from the Kyoto agreement in 2001. The generation of EU climate policies and measures has been a long, cumbersome and highly conflictual process that has concerned key national interests. This may have served as a reinforcing mechanism in the sense that precisely because the compromises of which EU climate policies consist have been so hard fought, actors at the various decision-making levels may be more reluctant to reopen discussion on these issues, thus generating new bureaucratic pressures. On this basis, we conclude that there are indications that vested interests may have contributed to limit the EU’s climate policy options when the US withdrew from the agreement.⁵¹

3.3 Irreversible Investments and New Market Opportunities

The institutionalization of a particular policy choice also tends to initiate a process of adaptation in concerned industries and businesses. In particular, investments are being made, and these investments may be lost if the policy is altered. At the same time, new market opportunities are created for concerned industries. These market opportunities may be de-linked from the cost-effectiveness

48. Jordan 1998, 19.

49. Personal communication with Jørgen Wettestad, Fridtjof Nansen Institute, April 2003.

50. ECCP 2001, 4.

51. There may be similar mechanisms at work within each individual EU member country.

of the policy itself. That is, even if a policy entails increased costs for central governments, it may nevertheless be associated with new market opportunities and (a potential for) increased profit for businesses and industries. In both cases, the institutionalization of a particular policy choice may generate increasing returns for the business actors concerned. Such dynamics may thus serve to limit policy options at a later stage.⁵²

Many of the proposals issued by the Commission and the ECCP involve industries and imply more or less costly adaptation processes. In 1998 and 1999, for instance, the Commission adopted voluntary agreements with the associations of European, Japanese and Korean automobile manufacturers (ACEA, JAMA and KAMA) to reduce CO₂ emissions from new passenger cars.⁵³ Other measures are not only associated with the investment costs of adaptation, but also offer more or less significant (new) market opportunities. The two most important measures of this kind included in the ECCP program are measures to increase the role of renewable energy sources, and a community-wide scheme for CO₂ emissions trading.⁵⁴

The provision of incentives for the development of a European market for renewable energy has been a central aim of EU energy policy for some time. In 1986, the Council listed the promotion of renewable energy among its energy objectives. With the adoption of the Alterner program in 1992, the Council adopted a specific financial instrument for renewables promotion.⁵⁵ On the basis of a Green Paper issued in November 1996, the Commission adopted a strategy and action plan directed towards the goal of having renewable energy sources cover 12 percent of the EU's gross inland energy consumption by 2010.⁵⁶ In February 2000, the European Parliament decided to extend the Alterner program in the establishment of Alterner II. The financial framework for the implementation of the program for the period 1998–2002 was set at €77 million.⁵⁷

This may have been the political signal the European-based oil industry needed to initiate its own investments in renewable energy.⁵⁸ For instance, the White Paper in which the 12 percent target was adopted remarkably parallels the Shell Group's establishment of a fifth core business area—Shell International Renewables in 1997—in which the company planned to invest some USD 0.5 billion over a five-year period.

52. Powell 1991. Similar dynamics may also be at work for other domestic actors (both business actors and government agencies).

53. Torvanger and Skodvin 1999; and Torvanger and Skodvin 2002.

54. Skjærseth and Skodvin 2003.

55. European Commission 1997.

56. European Commission 1997.

57. "Community legislation in force, Document 300D0646: Decision NO 646/2000/EC of the European Parliament and the Council of 28 February 2000 adopting a multiannual programme for the promotion of renewable energy sources in the Community (Alterner) (1998 to 2002)." Source: http://www.europa.eu.int/eur-lex/en/lif/dat/2000/en_300D0646.html Accessed: 25.02.2002.

58. Skjærseth and Skodvin 2003.

In June 1998, the Commission stated that the Community would set up its own internal trading regime by 2005.⁵⁹ In 2001, the Commission issued a proposal for an EU Directive on a regulatory framework for greenhouse gas emission allowances within the Community.⁶⁰

The emissions trading scheme was prepared in accordance with the ECCP's multi-stakeholder approach. Thus in September 2001, a stakeholders' consultation meeting was convened that included all major business and industry organizations. The record of the meeting reveals an overwhelming majority in favor of going ahead with emissions trading.⁶¹ The prospects of an internal EU scheme for emissions trading from 2005 sent a strong signal to industry that a new market for CO₂ was emerging. Thus, the Shell Group launched its own internal emissions trading system (STEPS) in 2000, the same year that the Commission issued its Green Paper on the design of a European emissions trading scheme.⁶² This policy measure thus seems to generate new market opportunities for the oil industry. It is illustrative, for instance, that over the first three years in operation, BP's internal emissions trading system yielded £650 million in extra value for the company.⁶³

Thus, the promotion of renewable energy sources by the EU and the EU emissions trading scheme represent new market opportunities for industry, in which the industry already has made initial investments. The whole point, particularly of the emissions trading scheme, is the implementation of a climate policy to reduce CO₂ emissions within the Community. Thus, even though the costs (in relation to the environmental improvement achieved) increase for the EU as such with the US exit, important industries may have something to gain from the maintenance of these policies. Granted, this analysis does not give a complete picture of the interests of all European industries. Counterforces do exist. In the current situation, however, there are clearly European industries reaping benefits from the maintenance of current EU climate policies. In sum, the discussion in this section suggests that there are self-reinforcing mechanisms at work in the process whereby EU climate policies are developed and institutionalized.

All in all we find some support for the hypothesis that EU climate institutions have generated an institutional momentum that, in turn, may have served to restrict EU climate policy options when the US announced its withdrawal from the Kyoto agreement. When the EU first had embarked upon the development of an ambitious climate policy, the process took on a dynamic that was difficult to alter. This does not, however, explain why the EU favored an ambitious climate policy in the first place. That is the question we now turn to.

59. Skjærseth and Skodvin 2003.

60. European Commission 2001b.

61. Delbeke 2001.

62. Skjærseth and Skodvin 2003.

63. Planet Ark, Reuter World Environment News: "Emissions trading systems developing as patchwork," 22.02.2002. <http://www.planetark.org>

Hypothesis 4: The EU Leadership Ambition

We have already established that economic and environmental incentives for remaining Annex I countries to go alone were weak (cf. hypothesis 1 and 2). Thus, such incentives are unable to explain why these countries nevertheless chose this course of action.

On the other hand, the EU has, since the beginning of the climate process, attempted to play a lead role in the drive for international regulatory policies to reduce GHG emissions. In this section, we explore the hypothesis that the US exit in 2001 represented a “window of opportunity” for the EU to succeed in this ambition.

4.1. EU leadership in a Strategic Policy Perspective

When the climate issue surfaced internationally towards the late 1980s, it represented a very suitable candidate for EU leadership. Other key actors, most notably the US and Japan, were either outright negative (US) or not very enthusiastic (Japan). The EU’s ambition was to use this opportunity and fill the existing leadership vacuum. The climate issue was seen by the EU not only as a serious environmental problem, but was also perceived in a strategic policy perspective, as a means to project itself as a united leader on the international political scene. Thus, EU climate policy not only represented a strategy to confront the climate problem. It can also be understood as a strategy directed towards the development and reinforcement of an EU “foreign policy.”

The efforts to develop a coherent EU (then EC) strategy towards climate change took place during a period when the EU underwent major political and institutional changes with the development towards European integration and the 1992 Single European Market. The 1992 Maastricht Treaty implied a shift in sovereignty away from separate member states in several issue areas including environmental policy. For instance, the Treaty implies a fundamental change towards majority voting on EU environmental policy decisions.

This process generated some internal turbulence and controversy especially after the Danish referendum voted against the ratification of the Maastricht Treaty. National resistance against increased monetary and political integration was to some extent directed towards the development of environmental policy in the sense that some countries, for instance the UK, targeted this issue area as a particular candidate for repatriation.⁶⁴ However, despite the controversies generated by the integration process, there has been a significant momentum within the EU towards concerted foreign policy-making. As pointed out by Wynne “the EC member states share a common interest in creating a sufficiently united identity to be recognized as a global power in foreign policy, security and trade agreements in the new, post cold war world order.”⁶⁵ The in-

64. Wynne 1993.

65. Wynne 1993, 102.

ternal dimension of this ambition should be noted, however: "in order to fulfill ambitions as a credible global actor, the EC needs to secure greater internal institutional and political cohesion."⁶⁶ In the beginning of the 1990s, therefore, the EU needed an international issue both to make its mark as a united and strong global actor as well as to reinforce its (internal) institutional and political cohesion. The climate change negotiations offered an opportunity for the emerging European Union to establish such a position: "the international concern over climate change provided an opportunity for the EC to develop its own institutional presence in international environmental matters, [and] hence foreign policy more generally."⁶⁷

4.2 EU Leadership Prior to the US Exit: High Ambition—Low Performance

The EU adopted its stabilization target in October 1990 and the "rich and green" EU countries even went considerably further in their initial GHG emission reduction ambitions.⁶⁸ Thus, the EU was perceived by the media, the general public and environmental NGOs as the main pusher and hence also a leader in the climate process.⁶⁹ While the pusher image was easily sustained, the EU provided little leadership as climate negotiations got underway. Thus, during the initial phase of climate negotiations, the EU had high leadership ambitions but a considerably lower capability to actually perform this role. One main reason was the high level of internal controversy over EU climate policy during this phase.

As discussed above (hypothesis 3), internal strife over the means by which the EU was to implement its reduction target became one main characteristic feature of EU climate policy before 1997. In particular, the EU Commission's proposal for a carbon/energy tax generated such a level of internal controversy that progress towards a more ambitious EU climate policy was effectively blocked. The handling of this internal controversy, moreover, took most of the energy of the EU and implied the external effect of a passive and not very innovative negotiation performance in the climate process.

66. Wynne 1993, 102.

67. Wynne 1993, 108.

68. Among the "rich and green" EU countries (Denmark, the Netherlands, and Germany), Germany was most ambitious with its aim of a 25% reduction of GHGs by 2000 (Ringius 1997).

69. In connection with international environmental regimes, leadership is often mixed up with being a "pusher." The concept of a pusher is straightforward: an actor "pushing" for strong joint commitments. The concept of leadership, on the other hand, is more complex. Basically it concerns the relationship between actors within a group; between leaders and followers. The *Blackwell Encyclopedia of Political Science* defines leadership as "the power of a few individuals to induce a group to adopt a particular line of policy" (1991, 321, cited in Malnes 1995, 92). A number of different modes of leadership have been identified (see Young 1991; Underdal 1991; Underdal 1994; and Malnes 1995). The important point here is that the adoption of ambitious goals may qualify a country as a pusher, but it takes more to be characterized as a leader (Andresen and Agrawala 2002).

For instance, the tax controversy was one cause for the EU's inability to play a leadership role in the making of the Climate Convention.⁷⁰ The result of the controversy was that the Environment Commissioner declined to go to the Rio meeting in 1992 and resigned from his position soon afterwards. With the notable exception of the making of the "Berlin Mandate" at the first Conference of the Parties (COP 1), the EU did not live up to its leadership ambition in the period between the adoption of the Climate Convention in 1992 and the negotiations leading up to the Kyoto Protocol at COP 3 in Kyoto in 1997.⁷¹

When the tax proposal was abandoned and the burden-sharing agreement was adopted in 1997, one main obstacle for EU leadership in the climate negotiations was also removed. The internal burden-sharing agreement gave EU climate policy more credibility internationally and its ambitious position of a 15% reduction of three GHGs⁷² (by 2010) before negotiations in Kyoto started certainly served to underpin its pusher role. Whether this position can be seen as a leadership role, however, is more uncertain since the economic costs of this goal were modest.⁷³ Moreover, during the Kyoto negotiations, instrumental leadership was demonstrated by the US rather than the EU: "to discover the source of most of the ideas in the Protocol, one only needs to read the US proposal of January 1997."⁷⁴ Moreover, EU climate policy was still a controversial issue and the EU spent most of the time negotiating with itself: "The coherence of the US administration contrasted with . . . the unwieldy (and introspective) morass of EU decision making during the negotiating process."⁷⁵ Also, the optimism created in Kyoto was short-lived and the EU demonstrated no impressive leadership at the next Conferences of the Parties. In fact, it has been noted that the EU was not able to present one single proposal at COP 4 in Buenos Aires in 1998 due to internal strife.⁷⁶

Still, the EU did make significant attempts to protect the environmental integrity of the Kyoto Protocol. For instance, the EU fought (but failed) to ensure domestic action by proposing a cap on emissions trading. Similarly, the EU wanted to minimize the admission to use sinks as a climate measure. These positions generated a strong conflict between the EU and the US-led Umbrella Group and ultimately caused the breakdown of the 6th Session of the Conference of the Parties in The Hague in 2000.

Before the US withdrawal from the Kyoto agreement, the EU was not very successful in providing an effective leadership role although its ambitions in

70. Wynne 1993; and Bodansky 1993.

71. The active EU role played in Berlin in 1995 was to a large extent caused by Germany's generally high profile on the climate issue at the time.

72. The EU proposal was to reduce CO₂, CH₄ and NO_x by 15% by 2010.

73. Most of this reduction would be taken by Germany and the UK, for reasons unrelated to the climate problem.

74. Grubb et al. 1999, 112.

75. Grubb et al. 1999, 112.

76. Tangen 1999.

this regard were evident throughout the process. The US exit provided a new opportunity for EU leadership.

4.3 Exit the US—Triggering EU Leadership?

In line with hypothesis 1, the US exit seemed to mean the end of the Protocol. What was the point in continuing the process when the largest emitter—and the most influential player—was out of the picture? This may have been exactly what the US had in mind. However, in the EU the Kyoto Protocol was not seen only through economic and environmental lenses. The political lenses were of equal, if not higher significance.

When the US announced that the Kyoto Protocol was fatally flawed in March 2001, the other main parties essentially had two choices: (i) to move on with Kyoto and possibly try to get the US back on board, or (ii) to start all over and negotiate a new international climate treaty. Most countries wanted to try to convince the US to rejoin. This was also the official view presented by the EU, but this “co-operative window of opportunity” proved to be closed.

The option of starting negotiations on an alternative regime with the US gained some ground in academic circles, especially in the US,⁷⁷ but in Europe this never emerged as a real policy alternative.⁷⁸ Here the Kyoto Protocol was the “only game in town”—irrespective of US participation. It was the result of 12 years of intense international diplomacy. Although it was hardly more than a “baby-step” towards solving the problem, it was nevertheless a start. Potential alternatives were regarded as even more uncertain, as well as more time consuming.

When the attempt to bring the US back failed, the EU invested a lot of political energy to mobilize sufficient support for the Protocol among other Annex I parties to enable the Protocol to enter into force even without the US. The crucial challenge in this regard was to persuade the reluctant “Gang of Four”—Australia, Canada, Japan and Russia, all previous allies of the US in the climate negotiations—to ratify the agreement.

The EU embarked upon a two-pronged strategy. Internally, it set a “good” example by heading for swift ratification. Externally, it sought to persuade the reluctant “Gang of Four” to ratify the Protocol. While the EU’s internal strategy was highly successful, the external strategy was only moderately so. True, Canada has ratified the agreement despite significant domestic opposition, e.g., from the powerful fossil fuel lobby.⁷⁹ After much hesitation, Japan has also

77. Bodansky 2001.

78. A typical case in point was when the Director of the Norwegian-based climate research institute, CICERO, stated that this might be the best way to move forward, there was uproar within the Norwegian NGO community. *Aftenposten*, 29.03.2001: “Kast Kyoto-avtalen på skraphaugen” [“Scrap the Kyoto agreement”].

79. Considering the strong internal opposition it is questionable whether Canada will be able to live up to its commitments.

ratified the Protocol. But Russia's ratification is still uncertain. At best, the agreement will be presented for ratification by the *Duma* late in 2003. And Australia will not ratify.

Clearly, the EU has had more of a leadership role after the US exit than before, particularly in the mobilization of continued support for the Kyoto agreement. On the other hand, the EU's mobilization of support essentially amounted to giving in to the requirements of the "Gang of Four." Both at the resumed COP 6 in Bonn, and at the COP 7 in Marrakesh, considerable concessions by the EU were required to reach agreement. Thus, while the result of the resumed COP 6 was a "Kyoto-light" agreement, this result turned into a "Kyoto ultra-light" after the Marrakesh meeting.⁸⁰ Curiously, the EU now gave concessions on issues where it had previously refused to concede to US demands. Thus, the revised Kyoto Protocol came very close to what the previous US administration had actively worked to achieve.

Would the "Gang of Four" have reacted differently in the absence of EU influence? Needless to say, this counterfactual question cannot be easily answered. However, it seems fair to conclude that had it not been for the EU, the Kyoto Protocol might have been dead. Japan and Canada would most likely not have ratified without pressure from the EU. Still, Russia remains the key to success—or failure—of the EU's efforts to save Kyoto. The EU has assisted Russia to make it eligible for emissions trading under the Protocol. There are, however, remaining problems. Russia's most important incentive to ratify is the opportunity to sell "hot air." But the potential for making good money here is presently bleak. First, the largest potential buyer, the US, is out of the market. Second, the EU has been strongly opposed to buying "hot air." This implies that there is no strong economic incentive for Russia to enter the agreement. Nevertheless, the desire to gain political goodwill might tip the balance in favor of Russian ratification.⁸¹

In sum, the US exit seems to have represented an opportunity for the EU to realize its leadership ambition. It was important that the EU took the lead. Otherwise, the fate of the Protocol would have been far more uncertain. At the same time, it is important to note that the EU's indulgence in accommodating the requirements of the "Gang of Four" suggests that it was political benefits associated with leadership, rather than a sense of responsibility for the global environment, that was the major driving force for this course of action.

However, major stumbling blocks remain. One potential stumbling block is Russian ratification. But even if Russia does ratify, and the Protocol enters into force, events at the COP 8 in New Delhi in 2002 may be interpreted as strategic moves to sidetrack Kyoto. In particular, the potential alliance between the US and developing countries may be seen in this light.⁸² If an alternative approach

80. Andresen 2001.

81. Arild Moe in *Cicerone*, June 2003, 16–17.

82. See, for instance, Jacob 2002.

centered around the US, China, India, Australia and others is attempted, it will represent a serious challenge to the EU, now the major proponent of Kyoto's targets and time-tables approach.

Concluding Comments

Four main explanations for the Kyoto Protocol's persistence have been considered. The first hypothesis was that despite the US exit, remaining Annex I countries expect the Protocol to reduce emissions sufficiently to outweigh the costs of implementing the treaty. We concluded that this explanation has little explanatory power. The environmental gains are likely to be negligible, while the costs of implementation will be considerable.

The second hypothesis was that the parties, by implementing the treaty, hoped to induce the other countries to follow suit at a later stage. We found that this hypothesis has little explanatory power as well. There is little or no indication that the implementation of Kyoto will motivate the US or other significant countries to cut emissions more than they would otherwise have done.

The two final hypotheses were related particularly to the EU, the only major actor with sufficient political determination and ability to save the Kyoto Protocol. Looking at the impact of domestic institutions, we did find some support for the assumption that EU climate institutions have generated an institutional momentum that may have served to restrict EU climate policy options after the US withdrawal. Once the EU had embarked on a rather ambitious policy, it was difficult to change course.

Finally, we found some support for the assumption that the persistence of Kyoto can be explained by the ambition of the EU to stand forth as an international leader in climate politics. This ambition was rooted not only in a concern for the environment. It was also as a means to unify and strengthen EU foreign policy more generally. While the EU was not very successful prior to the US exit, this window of opportunity was quite effectively utilized, although at the expense of the environmental integrity of the Protocol.

Needless to say, there are a host of factors not explored here that may also help explain the persistence of the Kyoto Protocol. Notably, the perspective adopted in this article has been rooted in the "logic of consequences" rather than the "logic of appropriateness."⁸³ In other words, we have focused on explanations based on the assumption that Annex I parties' choice of climate policy is determined by a concern for the *consequences* of these policies. We have *not* considered, say, the possibility that decision-makers are primarily motivated by a desire to "do the right thing." Obviously, including this and yet other explanations in addition to the ones discussed above might have enabled us to present a more complete picture. However, doing so would have required more space than available here.

83. March and Olsen 1989.

Are there any more general lessons to be learned from this case? A first observation is that economic costs and benefits do not always determine action in international negotiations. Internal political strategy and institutional dynamics matter as well. Second, economic and environmental concerns are not necessarily the only or the most important driving forces, even in climate negotiations. Finally, it is important to recognize that the present climate agreement at best covers some 1/3 of global emissions. The Kyoto Protocol may be a considerable political achievement, but its environmental impact is slim. A more effective regime is likely to require the creativity of the US as well as the ambitiousness of the EU.

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