



CICERO

Senter for
klimaforskning

Center for
International Climate
and Environmental
Research - Oslo

Report 1999:8

The European Community and climate protection

What's behind the 'empty rhetoric'?

Lasse Ringius



Universitetet i Oslo

University of Oslo

ISSN: 0804-4562

CICERO Report 1999:8

**The European Community
and climate protection**
What's behind the 'empty rhetoric'?

Lasse Ringius

20 October 1999

CICERO

Center for International Climate and
Environmental Research – Oslo

P.O. Box 1129 Blindern

N-0317 Oslo, Norway

Phone: (+47) 22 85 87 50

Fax: (+47) 22 85 87 51

E-mail: admin@cicero.uio.no

Web: www.cicero.uio.no

Abstract

The EC has been hoping to play an environmental leadership role in the global climate negotiations and has been proposing comparatively stringent climate targets for the OECD countries. But especially the United States and to some extent the international environmental community have criticized the EC for being unable to develop effective climate policies that will achieve its ambitious targets.

This publication shows that the EC in general expects that it is relatively inexpensive to implement climate policy within the EC and that its climate policy strategy from the beginning has been heavily influenced by the notion of environmental leadership. The defensive positions taken by the United States and Japan in the global climate negotiations have made EC environmental leadership seem simultaneously economically, environmentally and politically beneficial, and political and environmental interests have pushed EC climate policy to go further than what it otherwise would have been.

Contents

1	INTRODUCTION	6
2	THE EC AND GLOBAL CLIMATE POLICY NEGOTIATIONS.....	8
2.1	The Rio Conference, 1992.....	8
2.2	The Berlin Conference, 1995.....	10
2.3	The Kyoto Conference, 1997.....	12
3	EC CLIMATE POLICY AT THE 'DOMESTIC' LEVEL.....	14
3.1	EC Climate Policy: 1990-1997.....	14
3.2	Sources of greenhouse gas emissions within the EC.....	15
3.3	Not quite a unitary, rational actor.....	17
3.4	EC environmental leadership	18
3.5	The EC target setting process	19
4	CONCLUSIONS	23
	APPENDIX	25

1 Introduction

Scholars who have looked at European Community (EC) policy instruments in the field of climate protection have generally discovered that the EC has found it to be an uphill battle to develop common instruments and policies.¹ In addition, common policies have been less effective than originally anticipated, and implementation has been disappointing. This is regrettable from an environmental point of view and has given the impression that the EC is capable of producing little other than empty rhetoric. The reasons for this gap between promises made and promises kept are many: competing and clashing interests of member countries, a low degree of regional integration, fragmented supranational institutions, and tension and competition between EC institutions and member countries have all been cited.² Some studies have also discussed the importance of broader exogenous variables, such as changes in public support for environmental protection over time.

The fragmentation of the EC institutions has not only hindered development of common climate policies within the EC, it has apparently also negatively affected EC foreign policy and negotiating behavior in the international arena. More precisely, the EC has been unable to negotiate as a 'fully' unitary actor and has been less effective in climate negotiations than in, for example, international trade negotiations.³ A considerable number of Directorate Generals (DGs) are involved in EC climate change policy: DG I (external relations), DG II (economic analysis), DG III (the internal market), DG VI (agriculture), DG VII (transportation), DG VIII (development aid), DG XI (environment), DG XII (research), DG XVII (energy), and DG XXI (taxation). Consequently, as often happens among central government departments, this multitude of agencies tends to stimulate internal rivalry and thus hamper the establishment of a consistent EC climate policy. It should furthermore be noted that the EC has limited competences in energy policy and that harmonization in this policy field has therefore been slow. Significant policy integration in regard to electricity and natural gas has been achieved only in the late 1990s.

But focusing on the EC's institutional fragility and weak competences when it comes to climate and energy policy ignores one essential aspect: the EC's ambition to perform a global environmental leadership role and the interests and resources of those member countries that are strong supporters of EC leadership. Obviously, it is important to take into account supranational Community institutions – especially the Commission, the European Court of Justice, and the European Parliament. However, this might overlook significant differences among member countries and the interplay between the national and the Community level.

¹ It is the EC, not the EU, which has the legal competence in the area of climate policy. See R. Macrory and M. Hession, 'The European Community and Climate Change,' in T. O'Riordan and J. Jäger, eds., *Politics of Climate Change: A European Perspective* (London: Routledge, 1996), pp. 106-154.

² See N. Haigh, 'Climate Change Policies and Politics in the European Community,' in T. O'Riordan and J. Jäger, eds., *Politics of Climate Change: A European Perspective*, pp. 155-185; U. Collier, 'The European Union and the Climate Change Issue: Obstacles to an Effective Response Strategy.' *Fondazione Eni Enrico Mattei, Nota di Lavoro* 54, 1996; J. P. Wagner, 'The Climate Change Policy of the European Community', in G. Fermann, ed., *International Politics and Climate Change: Key Issues and Critical Actors* (Oslo: Scandinavian University Press, 1997), pp. 297-340; and J. Wettestad, 'Lessons from the Development of EU Climate Policy: Pitfalls and Promises'.

³ G. Sjöstedt, 'The EU Negotiates Climate Change: External Performance and Internal Structural Change,' *Cooperation and Conflict* 33(3) (1998).

Thus, this paper looks especially at the interplay between the member country level, the EC level, and the global level. It examines the approach taken by the EC toward climate change from the late 1980s when the climate change issue first came onto the international environmental agenda until the conference in Kyoto, Japan, in December 1997. It looks at an integrated, coordinated group of countries and examines in particular the dynamics that are characteristic of this regional group vis-à-vis climate policy.

2 The EC and global climate policy negotiations

2.1 The Rio Conference, 1992

The EC had hoped to play a leading role when the negotiations on the United Nations Framework Convention on Climate Change (FCCC) commenced in the late 1980s. In October 1990, the EC agreed to stabilize emissions of CO₂ at the 1990 level by year 2000. However, the stabilization target was not built upon a careful, systematic review of actually existing and future means for controlling CO₂ emissions within the EC. Rather, after a pledge-and-review round in which member countries described their expected energy use and trajectories of greenhouse gas emissions until 2000, it simply seemed feasible to stabilize total EC emissions by that time.

Stabilization within the EC appeared achievable first and foremost because Germany expected to reduce emissions significantly. The EC stabilization target implicitly acknowledged the need for internal differentiation among the member countries. Indeed, it had become evident that the 'cohesion countries' – i.e. Greece, Ireland, Portugal and Spain – would increase their emissions over this period. It is probably unavoidable that following this 'bottom-up' approach to target setting would raise the question whether a genuine common EC climate policy existed at all.

Although the EC member countries could not reach agreement on concrete policy, there was general agreement that the aim should be to commit to emission stabilization. In contrast, the United States persistently sought a 'no regrets' policy approach – officially defined as 'a balanced policy of adopting those environmental measures that reduce greenhouse gas emissions while providing concrete environmental benefits' – in the negotiations.⁴ Thus, the negotiations on the FCCC were dominated by disagreements between the EC and the United States, forcing other countries to 'take sides' and further underscoring the lack of leadership.

Citing high scientific uncertainties and the massive economic costs of regulation, the Bush Administration persistently opposed any attempt during the negotiations to set targets and deadlines for control of CO₂.⁵ U.S. Administration officials doubted whether the EC could or would live up to its intentions of controlling greenhouse gas emissions.⁶ Thus, the issue of the EC's ability to carry through its climate policy has from the outset been an important recurrent theme in the global climate negotiations.

Despite early indications to the contrary, Japan did not play a leadership role in the negotiations on the global warming treaty, nor later at Rio.⁷ In fact, Japan even changed its position over the course of the negotiations. While Japan at first supported the United States position, it later sided with the

⁴ C. Boyden Gray and David B. Rivkin, Jr., 'A 'No Regrets' Environmental Policy,' *Foreign Policy* 83 (Summer 1991), p. 52.

⁵ A February 1991 study by the Congressional Office of Technology Assessment estimated that substantial reduction of CO₂ emissions could cost the US economy as much as \$150 billion a year. 'Technology is Found to Exist to Cut Global Warming Gases,' *New York Times* (8 February 1991). A U.S. Department of Energy study from December 1991 concluded that reductions in CO₂ emissions similar to those adopted by several European countries would cost the United States \$95 billion a year, double the price of gasoline, and increase the cost of natural gas by 400 percent. 'U.S. Cites Emission Curbs as Costly,' *International Herald Tribune* (7-8 December 1991).

⁶ L. H. Gelb, 'The Hot Air Over Gases That Warm,' *International Herald Tribune* (11 February 1992); E. Robinson and M. Weisskopf, 'Washington May Try to Scuttle Declaration on the Environment,' *International Herald Tribune* (11 June 1992); Eugene Linden, 'Rio's Legacy,' *Time* (22 June 1992).

⁷ T. R. Reid, 'Japan Hasn't Found Act It Needs to Star in Rio,' *International Herald Tribune* (3 June 1992).

EC. Like the EC, Japan committed itself in October 1990 to stabilizing its emissions at 1990 levels by the year 2000.⁸

The first United Nations-sponsored negotiations on the climate change treaty in Chantilly, Virginia, in February 1991 did not result in agreement among the delegates from 130 countries. Although admitting that global warming was a problem, the United States resisted specific targets and deadlines as suggested by the EC, Brazil, and a number of small low-lying island nations. The EC found a convention that did not require detailed commitments to be unacceptably weak.⁹ The United States also wished to include greenhouse gases other than CO₂ and believed that measures already taken would reduce its current levels of greenhouse gases.¹⁰ The United States stuck to its decision to refuse mandatory cuts in emissions of CO₂ at a meeting session in Nairobi, Kenya, in September 1991, while the EC and Japan supported stabilizing CO₂ emissions at 1990 levels by year 2000.¹¹

In May 1992, at the final negotiations in New York, the United States again refused to accept a binding treaty that set a strict timetable for curbing emissions of CO₂. The United States, which accounts for almost one-quarter of total global emissions, had powerful bargaining leverage as it necessarily has to be part of any global solution to global warming. Furthermore, it was clear that President Bush would not participate in the Rio Conference unless other industrialized countries accepted a treaty without specific targets and deadlines. In fact, President Bush announced that he would attend the conference only after agreement on the draft treaty had been reached.¹² European governments and others feared that the Rio Conference would have little political impact should President Bush refuse to attend.

It was expected that governments would sign the climate convention at the United Nations Conference on Environment and Development, convened in Rio de Janeiro, Brazil, in June 1992. But less than one month before the Rio Conference, environment ministers from Denmark, Germany, Italy, Luxembourg, and the Netherlands rejected a Commission plan for a CO₂ tax within the EC. Influenced by hectic lobbying by the European industry, they rejected the environment commissioner's decision to make the plan conditional on similar steps being taken by the United States and Japan. Poorer member countries, Spain being the most vocal protester, opposed the Commission plan because they feared it would burden their economies.

This decision left Denmark, Germany, and the Netherlands as the only member countries with plans for how to reduce CO₂ emissions, and the EC was without a common policy on the issue that could be presented in Rio. In protest, the environment commissioner refused to go Rio. 'There is a

⁸ Notice that Japan would stabilize CO₂ emissions on a per capita basis. For a discussion, see G. Fermann, 'Political Leadership and Climate Change: The Prospects of Germany, Japan and the United States,' in Gunnar Fermann, ed., *International Politics and Climate Change: Key Issues and Critical Actors*, pp. 382-385.

⁹ P. Lewis, 'U.S. Accused of Endangering Environment Talk,' *International Herald Tribune* (25 March 1992).

¹⁰ K. Schneider, 'U.S. Accepts Greenhouse Targets,' *New York Times* (5 February 1991); D. Dumanoski, '2 UN Panels To Work On Global Warming,' *Boston Globe* (15 February 1991). For U.S. steps already taken—including amendment of the Clean Air Act, reforestation, energy-saving measures, as well as phasing out chlorofluorocarbons (CFCs)—see W. K. Stevens, 'Hopeful E.P.A. Report Fans a Debate as Talks on Global Warming Nears,' *New York Times* (13 January 1991).

¹¹ 'U.S. Continues to Resist Mandatory Emissions Cuts,' *New York Times* (22 September 1991).

¹² M. Wines, 'Bush Likely to Go To 'Earth Summit',' *International Herald Tribune* (8 May 1992); 'Bush Plans to Attend 'Earth Summit',' *International Herald Tribune* (13 May 1992).

feeling that it is each country for itself out there,' said one EC official later in Rio, referring to the lack of a coordinated EC policy on controlling CO₂ emissions.¹³

Reactions to the draft treaty illustrated how widely attitudes differed between the United States and the EC. The administrator of the U.S. Environmental Protection Agency characterized it as a 'historical achievement. The measured approach taken in the treaty is a reasonable response to the current state of scientific knowledge.'¹⁴ In contrast, the German environment minister conceded: 'Naturally we would like to have achieved a better climate agreement than the United States and those who are hiding behind the United States.'¹⁵ The EC felt that Washington exaggerated the amount of uncertainty in existing knowledge about global warming in order to protect the U.S. economy.

2.2 The Berlin Conference, 1995

When the first conference of the parties to the FCCC (COP-1) was convened in Berlin in the spring of 1995, the OECD group was essentially polarized with the 'progressive' EC on the one side and the 'reactionary' US-led JUSCANZ group on the other.¹⁶ The differences between the EC and the United States that manifested in the Rio Conference still persisted.

About six months prior to COP-1, the Alliance of Small Island States (AOSIS – a group of developing countries that is expected to suffer severely from sea-level rise due to climate change) had suggested what became the most ambitious proposal for action: namely that the industrialized countries should reduce their emissions by 20 percent below 1990 levels by 2005 (the 'Toronto-target'). However, the dynamics of the Berlin Conference were most significantly influenced by the 'Group of 77' (which included the vast majority of the developing countries) and China, who agreed that the existing commitments in the FCCC needed to be strengthened. This decision, which left the Organization of Petroleum Exporting Countries (OPEC) as the only group of developing countries opposed to reducing greenhouse gases, significantly increased the pressure on industrialized countries, especially the United States.

The EC again used the occasion of a highly publicized international conference to demonstrate its intention to function as a global environmental leader. The EC environment ministers had, prior to the Berlin meeting, reiterated their commitment to stabilizing the emissions of the Community and encouraged all industrialized countries to follow suit. They also argued that the existing treaty commitments were inadequate and were pushing for further action. The EC was no longer advocating a CO₂/energy tax, which will be discussed below, but suggested instead several domestic plus a few common policies and measures reflecting the various preferences of member countries. Germany's approach to reducing future greenhouse gas emissions put

¹³ R. Sadler, 'Chaos as 'last chance' summit opens in Rio,' *The European* (4-7 June 1992).

¹⁴ 'Global-Warming Pact Without Targets Gets U.S. Approval,' *International Herald Tribune* (11 May 1992).

¹⁵ S. Kinzer, 'Kohl Urges Tighter U.S. Policy on Pollution,' *International Herald Tribune* (21 May 1992).

¹⁶ The original group, consisting of Canada, Australia, and New Zealand (CANZ), was later expanded to include USA, Japan, Switzerland, Norway, Mexico, and Iceland (JUSCANZ). For a discussion, see S. Andresen, 'The Development of the Climate Regime: Positions, Evaluation and Lessons' (Oslo, Norway: FNI Report 3/98, 1998), p. 22. For an analysis of COP-1, see I. Rowlands, 'The Climate Change Negotiations: Berlin and Beyond.' Discussion Paper 17: July 1995. London School of Economics, Centre for the Study of Global Governance.

considerable emphasis on environmental technology and seemed more clearly defined in comparison to the approaches taken by other member countries.¹⁷

Germany, who hosted the COP-1, consistently pressed for agreement on a negotiating mandate and a timetable for a new protocol. When opening the conference, the German environment minister stressed the need for more stringent commitments for the post-2000 period. German chancellor Helmut Kohl advocated agreement on a negotiating mandate that would lead to a protocol containing binding, ambitious reduction targets and timetables by 1997. Svend Auken, Denmark's environment minister, stated 'that we see a twenty percent reduction [in OECD countries] by 2005 as a necessary and also realistic target.'¹⁸ John Gummer, the UK environment minister, who prior to the Berlin Conference had proposed cutting emissions to a level 5–10 percent below 1990 levels by 2010, declared: 'We are sure that a commitment to reduce total greenhouse gas emissions on a comprehensive basis below their 1990 levels is essential.'¹⁹ The EC commissioner for the environment, Ritt Bjerregaard, also pressed for a strengthening of the FCCC target for industrialized countries. But despite these repeated calls for emission targets and clear timetables, the United States and the JUSCANZ Group successfully opposed the EC.

As it did in Rio and later in Kyoto, the EC was struggling with a credibility problem in Berlin. It was widely believed that the political goals outlined by political leaders of member countries were unrealistic and unachievable. As it seemed uncertain whether most member countries would even be able to achieve the stabilization target, these declarations did not convince governments and observers that the EC member countries were able to achieve future reductions. One observer noted, 'The EU countries seemed to think that if they clamoured loudly enough for additional action, they would bounce the US and other into stronger commitments, without anyone stopping to ask the EU itself whether it was really able to deliver on what it had already agreed to do, let alone what it was vigorously calling on others to agree for the longer term.'²⁰ Moreover, environmental NGOs attacked what they described as 'the two faces of the EU': the considerable distance between EC political declarations and its actual negotiating position in Berlin.²¹ Evidently, a considerable credibility gap continued to exist.

Compared to the United States, the EC was much less inclined to demand commitments from the developing countries and more willing to let the industrialized countries lead in reducing emissions. Neither did it support the JUSCANZ group's demand for basically unrestricted use of the joint implementation instrument. It was probably for these reasons that a tentative alliance between many EC countries and major developing countries emerged at the Berlin Conference. JUSCANZ was increasingly isolated at the end of the conference.²² It was agreed to initiate a negotiating process aimed at a climate protocol specifying legally binding commitments for industrialized countries to reduce greenhouse gases in the post-2000 period. A

¹⁷ H. Simonian, 'Caught in the Green Spotlight,' *Financial Times* (28 March 1995), p. 6

¹⁸ See *ECO* no. 9 vol. LXXXIX, p. 1.

¹⁹ John Gummer quoted in *ECO* no. 9 vol. LXXXIX, p. 1.

²⁰ M. Grubb, 'Viewpoint: The Berlin Climate Conference—Shifting Alliances Break Political Deadlock,' *EC Energy Monthly* 76 (21 April 1995), p. 11. In addition, see, for example, 'Focus Report,' *Global Environmental Change Report* 7(7) (14 April 1995), p. 3.

²¹ 'The Two Faces of the EU,' *ECO* no. 9 vol. LXXXIX, p. 1.

²² See M. Grubb, 'From Rio to Kyoto via Berlin: Climate Change and the Prospects for International Action', in M. Grubb and D. Anderson, eds., *The Emerging International Regime for Climate Change: Structures and Options After Berlin* (London: The Royal Institute of International Affairs, 1995), p. 82.

proposal for a protocol was planned to be ready for consideration by COP-3 in Kyoto, Japan, in December 1997.

2.3 The Kyoto Conference, 1997

The most significant outcome of COP-1 was the agreement on a mandate for further negotiations. The Berlin Mandate initiated a process aimed at elaborating policies and measures and setting quantified emissions limitation and reduction objectives for industrialized countries over specified timeframes, such as 2005, 2010 and 2020.

A series of eight negotiation sessions, each including a large number of meetings in technical workings groups and consultations among delegations, took place before the parties to the FCCC met at the Kyoto Conference. The first significant EC proposal for a climate target for the post-2000 period, which was presented in March 1996, suggested that atmospheric concentrations of CO₂ should not exceed 550 ppmv, i.e., stabilization at a level around twice the pre-industrial level of about 280 ppmv.²³ Referring to Inter-Governmental Panel on Climate Change (IPCC) assessments, the EC expected this concentration level to result in an increase of the global average temperature of around 2 degrees Celsius above the pre-industrial level. However, because the EC had not distributed targets internally, the EC did not propose targets and commitments for the OECD countries to accompany the proposal.

As detailed below, in March 1997 the EC succeeded in differentiating the climate targets of the member countries and tabled a proposal for a 15 percent cut by 2010 in CO₂, methane (CH₄) and nitrous oxide (N₂O) emissions from all OECD countries, compared to the 1990 emission levels.²⁴ This political move surprised many close observers and raised the hopes of the international community. This proposal made it possible for the EC to seriously challenge the JUSCANZ group, and the president of the Commission, Jacques Santer, and European leaders soon after criticized the positions of the United States and Japan. At the G-8 meeting in June, French president Jacques Chirac declared: 'The Americans are the biggest polluters.'²⁵ 'We in Europe have put our cards on the table,' British Prime Minister Tony Blair said at a UN Earth Summit in New York. 'It is time for the special pleading to stop and for others to follow suit.'²⁶ In June, the EC environment council noted, with barely concealed satisfaction, that the EC negotiating position of March 1997 'had a significant impact both at the session of the negotiating body in Bonn and at the recent CSD meeting in New York.'²⁷

Despite its internal differentiation, the EC opposed comprehensive differentiation across the OECD. The group doubted that it was possible to develop a conceptual framework and useful indicators of national circumstance within a short period of time that could facilitate

²³ Statement by the Representative of Italy on Behalf of the European Union, 6 March 1996. Parts per million by volume is a measure of concentration of gases in the atmosphere.

²⁴ It was informally indicated that the EU found a Kyoto target around 10 percent to be more realistic than a 15 percent target. A high-level Dutch official, for example, expected that a 'minus 10 per cent' agreement from Kyoto was more realistic than a 'minus 15 per cent figure'. C. Southey, 'EU Call on Global Warming Gases,' *Financial Times* (4 March 1997), p. 2.

²⁵ B. Clark, R. Chote, and R. Peston, 'Pollution Row Hits Summit,' *Financial Times* (23 June 1997).

²⁶ 'European Challenges U.S. at UN Environmental Summit,' *International Herald Tribune* (24 June 1997), p. 6.

²⁷ Council of the European Union. 19/20 June 1997. Press Release 9132/97, 2017th Council Meeting, Environment. Luxembourg.

differentiation at the OECD level.²⁸ It was at least partly for this reason that the EC opted for a symmetrical, across-the-board protocol. The United States also supported symmetrical targets for the industrialized countries, including the EC member countries, whereas Japan and some others proposed target differentiation.²⁹ But the EC never formally explained its unwillingness to target differentiation within the OECD, and many criticized its position. In the end, in order to come to agreement, both the EC and the United States reversed their positions on the issue and a differentiated protocol was established.³⁰

The Kyoto protocol, which marks an important qualitative shift from emission stabilization to emission reduction, implied a compromise for all major industrialized countries. Unlike at Rio, in Kyoto the EC successfully pressured the United States to go beyond stabilization. Although the EC failed to achieve agreement on a 15 percent cut in the OECD countries, the Kyoto target came closer to the EC position than that of the United States.

But the EC had much less influence on policies and measures. Although opposed to the 'flexibility mechanisms' of joint implementation and international tradable pollution permits that were strongly advocated by the United States and the JUSCANZ group, these were the most prominent measures to come out of Kyoto. The EC insisted that these measures should only be a supplement to domestic action but failed to restrict their use. Furthermore, the Kyoto Protocol reflects the United States' position on the issue of 'comprehensiveness' and thus regulates three long-lived industrial gases in addition to those greenhouse gases favored by the EC. Moreover, although the EC insisted that too much scientific and technical uncertainty surrounded the issue of carbon sequestration and forest carbon sinks, the United States also succeeded in including forest carbon sequestration in the Protocol.

²⁸ Germany feared that differentiation would complicate and protract the negotiations on the Kyoto Protocol. See German Delegation, 6 March 1996. Statement by Cornelia Quennet-Thielen. Ad Hoc Group on the Berlin Mandate, Third Session, Geneva, 5-8 March 1996.

²⁹ For an analysis of the differentiation proposal put forward by Norway, see L. Ringius, A. Torvanger and B. Holtmark, 'Can Multi-Criteria Rules Fairly Distribute Climate Burdens? OECD Results from Three Burden Sharing Rules,' *Energy Policy* 26(10) (August 1998), pp. 777-793.

³⁰ The Kyoto Protocol targets are as follows (+ indicates an increase in emissions; - indicates a decrease in emissions): Iceland (+10%); Australia (+8%); Norway (+1%); New Zealand, Russian Federation and Ukraine (0%); Croatia (-5%); Japan, Canada, Hungary and Poland (-6%); USA (-7%); and the EU, Bulgaria, Czech Republic, Romania, Estonia, Lithuania, Latvia, Liechtenstein, Monaco, Slovakia, Slovenia and Switzerland (-8%).

3 EC climate policy at the 'domestic' level

To explain EC foreign policy and negotiating behavior in the climate policy area, the second part of this paper focuses on the goals as well as the basis of EC climate policy.

3.1 EC Climate Policy: 1990-1997

The content of EC climate policy has been shaped as much by political feasibility and acceptability among the member countries as by concerns for the effectiveness of the policy instruments as such. The acceptability of EC policies and measures vis-à-vis other OECD countries, primarily the United States and Japan, has never been a serious concern. Initially the EC focused on a CO₂/energy tax and an energy efficiency program but later added a renewable energy program and a monitoring mechanism. As the number of policy measures has expanded, the EC climate policy has become more diverse, to the point of becoming less focused and interconnected. Moreover, it has been difficult to establish policies and policy targets in parallel.³¹ As a consequence, a disconnection between policies and targets has developed.

The EC primarily followed a taxation approach to the climate change problem in the first half of the 1990s. The tax was expected to reduce the bulk of the emissions. Denmark, Germany and the Netherlands advocated together with the Commission introduction of a combined CO₂/energy tax. Other countries opposed the tax, however, and it proved exceedingly difficult to develop an acceptable proposal. France was opposed to the combined energy/CO₂ tax and instead preferred a straight CO₂ tax that would protect its nuclear industry. The United Kingdom also opposed the tax on the principle that they believed such a tax should be the responsibility of individual member countries, not the EC. The cohesion countries opposed the tax because they feared it would burden their economies. Moreover, industry opposition in addition to some opposition within the Commission resulted in proposals to exempt energy-intensive industries from the tax. Because this instrument was a fiscal measure, the Maastrich Treaty required that the member countries were in unanimous agreement. Since such a consensus proved impossible to achieve, the likelihood of an agreement was limited even further. Yet it was not until late 1994 that the idea of a common EC tax was officially abandoned, at least for the time being.

Already in September 1986, the EC Council set as an objective to reach a minimum 20 percent improvement in the Community's energy intensity by 1995. This initiative contributed to make energy efficiency a key issue when the EC climate policy was developed in the early 1990s. A five-year energy efficiency program (SAVE), which was estimated to achieve a reduction of three percent, obliged member countries to introduce national programs of various sorts. The program would, in addition to increasing energy efficiency, also reduce energy imports. However, it did not set quantified targets and many initiatives were left to the member countries. In 1995, it was estimated that SAVE would likely achieve a reduction of one percent, instead of three percent as initially projected.

³¹ The Environment Council has attempted to match policies and targets. For instance, after COP-1 the Council decided that the 'equitable sharing of the objective...should be discussed and agreed in parallel with the decision on proposals by the Community for quantified reduction objectives and policies and measures for inclusion in the protocol'. Council of the European Union. Community Strategy on Climate Change: Council Conclusions. Document 6450/97. 7 March 1997.

A five-year renewable energy program (ALTENER), with an estimated impact of one percent reduction in CO₂ by the year 2000, took effect in 1993. Compared to the original proposal, the program, which consisted mainly of non-binding targets, was underfunded and has apparently been less effective than originally envisaged.

Despite its modest and technical name, the EC 'monitoring mechanism' must be considered the cornerstone of the EC climate policy in the second half of the 1990s. Adopted in June 1993, it obliges member countries to develop national programs for reducing greenhouse gases while the Commission evaluates the data provided by the member countries. The mechanism is important in ensuring that the EC will stabilize its total CO₂ emissions by 2000 at the 1990 levels, which is the EC commitment under the FCCC. An important feature of the monitoring mechanism is that it introduces additional and more specified commitments than the FCCC. However, inadequate reporting by the member countries has so far reduced its effectiveness.

3.2 Sources of greenhouse gas emissions within the EC

The EC emitted nearly 3,300 million tons of CO₂ in 1990 and was surpassed only by the United States who emitted almost 5,000 million tons of CO₂, or approximately 25 percent of global emissions, that year. Germany, who combines a large population with comparatively high CO₂ emissions per capita, was by far the largest contributor of CO₂ emissions in 1990, followed by Britain, Italy and France. Among those emitting the least amounts of CO₂ on a per capita basis were Portugal, Spain, Sweden and France (Table 1).

Table 1: Total CO₂ emissions from EC countries and per capita CO₂ in 1990.

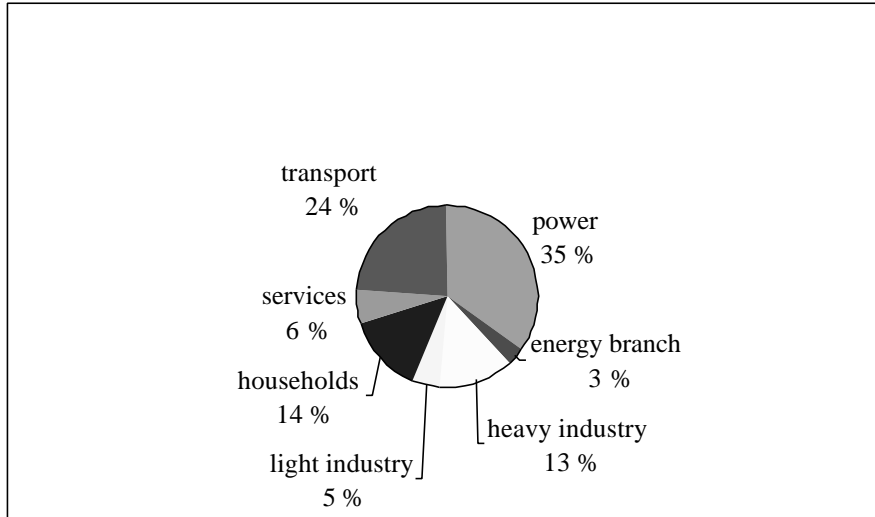
Member countries	CO ₂ emissions (million tons)	Per capita CO ₂ (1990)
Germany	1013	12.8
UK	577	10.1
Italy	436.3	7.5
The Netherlands	151.8	11.2
Austria	59.2	7.7
Denmark	52.1	10.1
Belgium	114.5	11.3
Luxembourg	13.3	30.4
Finland	53.9	10.8
France	366.5	6.5
Sweden	61.3	7.2
Ireland	30.72	8.8
Portugal	42.5	4.0
Greece	86.1	8.2
Spain	227.3	5.8
Total/Average	3285.52	10.2

Source: European Commission, Communication from the Commission under the UN FCCC: Article 4.2. (b) (c) and Article 12 (Brussels, Belgium: Communication 11 June 1996. COM(96) 217 final., 1996).

The largest amounts of CO₂ emissions in the EC in 1990 came from power production and transportation. These two sectors contributed 35 and 24 percent, respectively, of the total

emissions (Figure 1). Households and heavy industry each contributed about 15 percent, and energy consumption in the energy branch, light industry and the service industry each contributed about five percent of the EC total.

Figure 1: Sectoral shares of CO₂ emissions in EC in 1990.



Source: World Wildlife Fund, *Policies and Measures to Reduce CO₂ Emissions by Efficiency and Renewables* (Utrecht, NL: Department of Science, Technology and Society, 1996), p. 34.

But these aggregated numbers conceal as much as they reveal with respect to contributions of individual member countries. Dissimilarities with regard to wealth, economic structure, energy basis, climate and population make greenhouse gas emissions vary considerably from one member country to another. Contributions of greenhouse gas emissions from economic sectors differ greatly, as do the fuel shares in the electricity sector. For example, Sweden and France depend greatly on carbon-free nuclear and hydroelectric power, whereas Danish and German electricity production is heavily coal-based. Consequently, national abatement costs also vary considerably across the EC.

Nevertheless, unlike the JUSCANZ group, the EC has in general been optimistic about the opportunities for reducing greenhouse gas emissions. In the fall of 1997, the Commission estimated that new policies and measures could reduce total CO₂ emissions by about 800 million tons in the year 2010.³² This would be equal to an overall reduction of 15 percent, compared to the 1990 level. This reduction could, if made cost-effectively, be achieved at a cost of 0.2–0.4 percent of GDP in 2010. The largest potential for emission reduction was identified in the transportation sector, especially in the reduced use of passenger cars, and in power generation, especially in the increased use of cogeneration and renewables. In the absence of new policies and measures, however, total emissions were predicted to increase by eight percent over the 1990 level by year 2010. The main sources were transportation, which would be responsible for an increase of almost 40 percent, and the energy industry, with an increase of about 12 percent.

³² European Commission, *Climate Change – The EU Approach for Kyoto*. Commission Communication to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions (Brussels, Belgium: 1 October 1997), pp. 4-8.

To summarize, despite the unavoidable internal disagreements, the EC tends to believe that reducing emissions will probably be inexpensive. It is generally expected that the development of new climate-friendly technologies will result in new jobs and increase the EC's international competitiveness. For instance, Germany controls about 20 percent of the global export market for environment-technologies, which is worth about US\$ 3 billion a year.³³ Significantly, instead of being in mutual conflict, successful economic policy and successful environmental policy are generally viewed as going hand in hand.³⁴

3.3 Not quite a unitary, rational actor

Since 1957, the year when Germany, France, Italy and the Benelux countries signed the Treaty of Rome, the number of EC member countries has been expanding gradually. By 1995, when Austria, Finland and Sweden joined, 15 countries had become members of the EC. The number of common policies has also been expanding. While prevention of a future European war was the fundamental motivation behind this post-World War II project to create a regional market in Europe, environmental protection later became an important area of cooperation, as evidenced by the 1992 Maastricht Treaty. Today, a moderate to high willingness to protect the environment prevails at the EC level. While this may be unsurprising given that the EC, apart from the cohesion countries, consists primarily of wealthy countries, this relatively unified viewpoint cannot be simply expected as a matter of course. Indeed, the 'demand' for environmental protection and the resources available for 'supply' of environmental protection vary significantly across the EC.

This variation is reflected in the EC environmental policy process where three distinct groups of member countries each play a significant role. The first group, which might be labeled the 'rich and green' member countries, consists of Austria, Denmark, Finland, Germany, the Netherlands and Sweden.³⁵ Generally, the 'rich and green' respond quickly to environmental problems by setting ambitious targets ahead of others. They subsequently attempt to pressure, shame or persuade other member countries to imitate their level of environmental protection.

Belgium, Britain, France, Italy, and Luxembourg might then be labeled the 'rich but less green' member countries.³⁶ Compared to the 'rich and green', they are less concerned about environmental protection and are unlikely to go first in protecting the environment. There is a clear tendency for this group to follow rather than lead others in the environment area. The main reason that they resist strong environmental measures are concerns about the economic cost of environmental protection, lack of strong domestic support and demand for environmental protection, or both.

³³ K. Sullivan and M. Jordan, 'Globally, the Heat is On,' *International Herald Tribune* (17 November 1997).

³⁴ For a discussion, see M. Jachtenfuchs and M. Huber, 'Institutional Learning in the European Community: The Response to the Greenhouse Effect,' in J. D. Liefferink, P. D. Lowe and A. P. J. Mol, eds., *European Integration and Environmental Policy* (London: Belhaven Press, 1993), p. 44.

³⁵ For a recent study of the leaders in EU environmental policy, see M. S. Andersen and D. Liefferink, eds., *European Environmental Policy: The Pioneers* (Manchester: Manchester University Press, 1997).

³⁶ Golub, for example, has concluded that the Netherlands, Germany and Denmark generally have pursued higher levels of environmental protection than France, UK, Belgium and Italy. J. Golub, 'The Path to EU Environmental Policy: Domestic Politics, Supranational Institutions, Global Competition.' Paper presented at the Fifth Biennial International Conference of the European Community Studies Association, May 29-June 1, 1997, Seattle, Washington.

The cohesion countries constitute the third group that significantly influences EC climate policy. These member countries, which might be labeled the 'poorer and least green,' act mostly as laggards in EC climate and environmental policy. The cohesion countries oppose aggressive environmental policy because of their comparatively low level of economic development, low administrative capacity, and low public environmental awareness.

EC climate policy conforms well to this general pattern. Although they would likely incur considerable abatement costs as a consequence, all the 'rich and green' countries set ambitious domestic climate targets in the early 1990s.³⁷ Furthermore, they wanted the EC to vigorously attack the global warming problem and play an environmental leadership role in the global climate negotiations. In contrast, 'rich but less green' Britain has been concerned about the size of climate abatement costs, and the cohesion countries have insisted on fair burden sharing and target sharing within the EC.³⁸

3.4 EC environmental leadership

As already described, the United States and Japan have from the beginning in the late 1980s taken a defensive position in the climate negotiations. Consequently, a political vacuum as well as a need for leadership has existed at the global level. American scientists have played a dominant role within acknowledged scientific and expert groups – first and foremost the IPCC – but it has primarily been the EC, rather than the United States or other major powers, who has pressed for the establishment of stringent and binding international climate targets.³⁹

The EC has on its side been quite willing to function as a leader or, more accurately, a pusher at the global level.⁴⁰ The key ingredients of its environmental leadership strategy have been a comparatively ambitious climate target and mobilization of international public opinion. Much emphasis has been placed on its role as environmental leader. As early as 1988, the European Council, in the first mention of climate change by the EC, underlined the importance of the EC performing a leading role in the protection of the global environment and specifically singled out the problems of global climate change and depletion of the stratospheric ozone layer.⁴¹ Since then, ministers of member countries, commissioners and the Parliament have repeatedly stressed the importance and urgency of EC leadership. According to two scholars, EC environmental leadership implies that 'the Community should not only become an independent

³⁷ See M. Grubb and P. Brackley, 'Greenhouse Responses in the United Kingdom and European Community: Will Britannia Waive the Rules?', in M. Grubb, P. Brackley, M. Ledic, A. Mathur, S. Rayner, J. Russell, and A. Tanabe, *Energy Policies and the Greenhouse Effect. Vol. 2: Country Studies and Technical Options* (Vermont, USA: Dartmouth Publishing Company, 1991), p. 229.

³⁸ For Britain, see Y. Kawashima, 'A Comparative Analysis of the Decision-making Process of Developed Countries toward CO₂ Emissions Reduction Targets,' *International Environmental Affairs* 9(2) (Spring 1997), pp. 104-108. For proposals for burden-sharing, see L. Ringius, 'Differentiation, Leaders, and Fairness: Negotiating Climate Commitments in the European Community,' *International Negotiation* 4(2) (June-July 1999).

³⁹ At the early stage, the EU relied on US government reports produced by the U.S. Environmental Protection Agency, the Department of Energy, and the National Research Council to analyze global warming. See M. Jachtenfuchs and M. Huber, 'Institutional Learning in the European Community: The Response to the Greenhouse Effect,' p. 42.

⁴⁰ EC environmental leadership should be distinguished from intellectual, entrepreneurial and structural leadership. For a discussion of these leadership types, see O. Young, 'Political Leadership and Regime Formation: On the Development of Institutions in International Society,' *International Organization* 45(3) (Summer 1991), pp. 281-309.

⁴¹ J. P. Wagner, 1997. 'The Climate Change Policy of the European Community,' p. 304.

actor in world politics on the same footing as the two other major economic powers (the USA and Japan) but even challenge the dominant American position on some aspects of world affairs.⁴²

As a recent letter from the Dutch environment minister to her EC colleagues illustrates, the 'rich and green' countries press for EC leadership and stress the responsibility and contributions of all member countries to the achievement of group leadership.⁴³ The Netherlands held the rotating EC Presidency during the first half of 1997 and proposed a common negotiating position on internal burden sharing and a OECD reduction target: 'A negotiating position... must be a clear indication of the level of action the Community considers to be necessary and must demonstrate the importance the Community attaches to a strong commitment by all industrialized countries... I firmly believe the world is looking to the European Union to play an ambitious leading role in the international negotiating process. That role can never be more than the sum total of the commitments individual Member States are willing to make.'⁴⁴ The Netherlands furthermore stressed that the EC position in the international negotiation process would continue to wane as long as a common position did not exist and that a proposal for a stringent reduction target was essential: 'This [lack of agreement on internal distribution of targets which was preventing a common EC position] led to considerable international concern that the Union is no longer fulfilling a lead role, while other industrialised nations tabled proposals which are far less ambitious than the ambition level which the EC has indicated is necessary.'⁴⁵ Thus the role of the EC in world politics more generally, not just prevention of global climate change, is at stake in the EC target setting process.

3.5 The EC target setting process

The asymmetries and dissimilarities among the member countries significantly influence the target setting process. However, instead of merely creating conflict, the interplay between the 'rich and green', 'the rich but less green', and 'the poorer and least green' actually create opportunities for setting a far-reaching common climate target. The EC has managed to take advantage of these opportunities and has set ambitious climate targets above the lowest-common-denominator level.

To understand how this has been possible, it should be kept in mind, first, that strong interdependency characterizes the climate change problem. The primary reason for this is that greenhouse gases mix in the atmosphere. Where they are being emitted, and where they are being reduced and sequestered, is basically unimportant from a global climate system point of view. Direct collective and global implications follow irrespective of whether a country chooses to reduce, stabilize, or increase its emissions.

⁴² M. Jachtenfuchs and M. Huber, 'Institutional Learning in the European Community: The Response to the Greenhouse Effect,' p. 40. For an analysis of this leadership notion, see Michael Huber, 'Leadership in the European Climate Policy: Innovative Policy Making in Policy Networks', in D. Liefferink and M. S. Andersen, eds., *The Innovation of EU Environmental Policy* (Oslo: Scandinavian University Press, 1997), pp. 133-155.

⁴³ For Dutch and German aspirations for leadership in the climate negotiations, see also Y. Kawashima, 'A Comparative Analysis of the Decision-making Process of Developed Countries toward CO₂ Emissions Reduction Targets,' pp. 112-114

⁴⁴ Letter from Minister for Housing, Planning and the Environment. The Hague, the Netherlands, 27 January 1997.

⁴⁵ Ibid.

Second, it is important to remember that the larger an amount of greenhouse gas emissions a country is able to reduce, the more it is able to contribute toward a common goal. Population size, structure and size of economy, carbon-intensity of energy system, resource endowments and ambitiousness of climate policy are the key variables determining the achievable amount of greenhouse gas reductions in a country.⁴⁶ Cuts in a few countries might be sufficient to reach a modest reduction target but an ambitious target is possible only when many countries cut their greenhouse gas emissions considerably. Thus, there is an incentive to reach an agreement as a group.

Third, although smaller countries reduce small amounts, stabilize or even increase their emissions – in other words contribute insignificantly or negatively – a group can reach an ambitious common target when large countries contribute considerable amounts of reductions. Everything else being equal, a large member country that makes a major cut in its emissions dramatically reduces the cuts that others need to undertake in order to reach a common target. Thus, the EC is essentially able to set a far-reaching reduction target as long as the large member countries effectively offset emission increases in the smaller ones.

Furthermore, the EC been able to combine the opportunities for setting a far-reaching target with its status as a regional group in the global climate negotiations, thus forming a regional climate 'bubble'.⁴⁷ As mentioned already, in March 1997 the group proposed that the OECD countries cut emissions of three major greenhouse gases by 15 percent by 2010. At this point, the EC had agreed to establish a complex, internal differentiation of targets among its members: some would reduce greenhouse gas emissions, others would stabilize them, but five members would be permitted to increase emissions by a given percent (table 2).⁴⁸ Based on this differentiation of targets, it would be possible to reduce total emission by about ten percent by 2010, compared to 1990.

⁴⁶ This ignores CO₂ sequestration in forests and other 'sinks'.

⁴⁷ The EU is recognized as a legal entity in the international climate negotiations under the auspices of the United Nations and internal EU-differentiation was formally accepted in articles 3 and 4 of the Kyoto Protocol. Similarly, in ozone policy, the EU wished to make a 'bubble' agreement allowing it to calculate CFC production at the Community level. See M. Jachtenfuchs, 'The European Community and the Protection of the Ozone Layer,' *Journal of Common Market Studies* (March 1990) 38(3), pp. 266-267.

⁴⁸ For an analysis of these negotiations, see L. Ringius, 'Differentiation, Leaders, and Fairness: Negotiating Climate Commitments in the European Community.'

Table 2: Changes in emission levels by 2010 relative to 1990 levels (in %) allocated to EC member countries in March 1997.

Country	National emission target
Belgium	-10
Denmark	-25
Germany	-25
Greece	+30
Spain	+17
France	0
Ireland	+15
Italy	-7
Luxembourg	-30
Netherlands	-10
Austria	-25
Portugal	+40
Finland	0
Sweden	+5
UK	-10

Source: Council of the European Union, 'Community Strategy on Climate Change: Council Conclusions.' Document 6450/97. 7 March 1997.

Given the generally observed pattern in EC environmental policy, it would perhaps be expected that Finland, Netherlands, and Sweden (all 'rich and green' members) and France (a 'rich but less green' member) would opt for more stringent targets. However, because of the asymmetries across member countries, percentage distributions of climate commitments will not adequately indicate the corresponding national abatement costs.⁴⁹ For example, because of Sweden's heavy reliance on carbon-free nuclear and hydroelectric power, the costs of a more ambitious target would not only be exorbitant, but would result in only marginal improvement. In fact, these targets conform reasonably well with the EC environmental policy pattern.⁵⁰

As could be expected, the percentage contributions from the member countries towards the EC-wide target varied significantly (Figure 2; see Annex 1 for calculations). Most conspicuously, Germany alone delivered more than 80 percent of the total reductions. Britain contributed around 20 percent whereas Spain made the largest negative contribution of around 12 percent. The contributions reflect significant asymmetries across the EC regarding the key variables determining the amount of emission reduction that can be achieved in individual countries.

⁴⁹ For a discussion, see Ringius, Torvanger and Holtmark, 'Can Multi-Criteria Rules Fairly Distribute Climate Burdens? OECD Results from Three Burden Sharing Rules'. For a discussion of the results of leading economic models, see T. Kram, J. R. Ybema and D. Voss, 'Lastenverdeling En Kosteneffectiviteit van CO₂-Doelstellingen voor EU-Lidstaten: Een Analyse op Basis van Scenariostudies' (Netherlands Energy Research Foundation, ECN, report ECN-C--97-033, 1997. (Not available in English translation).

⁵⁰ For an analysis, see L. Ringius, 'Differentiation, Leaders, and Fairness: Negotiating Climate Commitments in the European Community.'

Figure 2: March 1997 EC negotiating position (% distribution of CO₂ emission reductions).

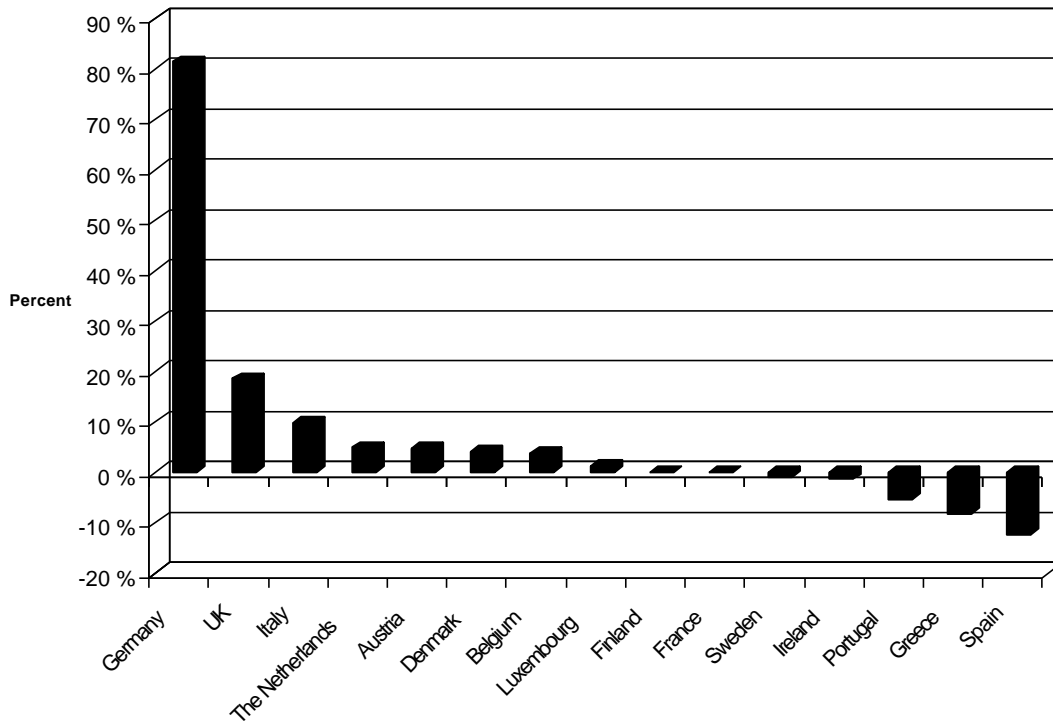


Figure 2 underscores in a dramatic way the pivotal role of Germany in EC climate policy. Germany made it possible to set a quite ambitious reduction target even though seven member countries either would stabilize or even increase their CO₂ emissions until year 2010. In summary, Germany has had a major impact on the EC target and target aggregation has allowed a comparatively ambitious EC climate policy that has paved the way for the EC's pusher role at the global level.

4 Conclusions

The 'rich and green' member countries function as leaders and pushers in the development of EC climate policy, and the EC has made European climate policy more ambitious and progressive than it otherwise would have been. The defensive position of the United States has indirectly motivated others to go first in the climate policy area, and the EC has aimed for an internationally ambitious target. Environmental interests in 'rich and green' member countries and inside the Commission have pushed the EC to act as a global environmental leader in Rio, Berlin and Kyoto. The EC, which generally has been supported by pro-environment media and interest groups, has with considerable success cast itself as the protector of global environmental interests.

A stringent climate target has been both the most important and the most consistent element of the EC climate strategy. But this strategy is heavily dependent upon the member countries because they contribute the emission reductions that are necessary to demonstrate the EC's willingness and ability to go first. For this simple reason – and because leadership is a relational variable – the degree and extent of fragmentation of supranational EC institutions insufficiently explains the opportunities for EC environmental leadership and the effectiveness of EC climate diplomacy. Analysis at the EC level should be supplemented by analysis at the national and international level.

But the EC has at the same time been unable to develop and implement common climate and energy policies. As a consequence, a genuine common, effective climate policy has not been established, and a significant gap between domestic and common policies has developed. This disconnectedness between targets and policies has led to doubts about the EC's ability to actually implement its climate policy. In this respect it is important to realize that circumstances and policies unrelated to climate protection policies have resulted in significant greenhouse gas reductions within the EC. German reductions have to a significant degree been the result of economic restructuring in the former East Germany, while British reductions have been an unintended outcome of privatization in its energy sector. For such reasons, it is unclear whether the member countries together will be able to achieve the emission reductions that are necessary in order to function as a credible leader. From the environmental point of view, this should give rise to concern because it is important that the EC, given its role and importance, achieves its target. The global climate process will be negatively affected if the EC fails to stabilize emissions. Conversely, by stabilizing emissions, the EC will set an example for others to follow and will increase its moral and symbolic power considerably.

It is worth emphasizing, finally, that the EC under other circumstances has been a laggard in global environmental policy. For example, it has been the influential economic interests in Britain, France and to a lesser extent Germany, rather than opposition from the less economically and environmentally developed member countries, that for a number of years resulted in the EC opposing the United States' more ambitious policy for protection of the stratospheric ozone layer.⁵¹ But the prospects for EC environmental leadership spearheaded by the 'rich and green' increase significantly in situations with small or uncertain costs, or if environmental policy is economically beneficial. The expectation of economic gains from climate policy is therefore essential: it makes EC leadership seem simultaneously economically, environmentally and politically beneficial. It thus can easily become a situation where the

⁵¹ See M. Jachtenfuchs, 'The European Community and the Protection of the Ozone Layer.'

rhetoric and good intentions surpass the EC's ability to follow through. As well, it is most likely that political and environmental interests in this situation will push EC climate policy to go further than what is optimal economically when weighing abatement costs against costs of damages inflicted by climate change on the EC.

Acknowledgements

This article draws upon a number of personal interviews conducted during 1997-1998 with government officials in Denmark, Germany, Ireland, the Netherlands, Portugal, Spain and Sweden, and officials of the European Commission. The article has benefited greatly from many helpful comments and useful suggestions from Steinar Andresen, Arild Underdal, and Jørgen Wettestad.

This is CICERO

CICERO was established by the Norwegian government in April 1990 as a non-profit organization associated with the University of Oslo.

The research concentrates on:

- International negotiations on climate agreements. The themes of the negotiations are distribution of costs and benefits, information and institutions.
- Global climate and regional environment effects in developing and industrialized countries. Integrated assessments include sustainable energy use and production, and optimal environmental and resource management.
- Indirect effects of emissions and feedback mechanisms in the climate system as a result of chemical processes in the atmosphere.

Contact details:

CICERO
P.O. Box. 1129 Blindern
N-0317 OSLO
NORWAY

Telephone: +47 22 85 87 50
Fax: +47 22 85 87 51
Web: www.cicero.uio.no
E-mail: admin@cicero.uio.no



Appendix

Member states	CO ₂ emissions million tons (1990)	Reduction target, in % (reference year 1990)	CO ₂ emissions million tons (2010)	CO ₂ emissions (% of EC wide target)
Germany	1013	-25	-253.25	-81.49
UK	577	-10	-57.7	-18.57
Italy	436.3	-7	-30.541	-9.83
The Netherlands	151.8	-10	-15.18	-4.88
Austria	59.2	-25	-14.8	-4.76
Denmark	52.1	-25	-13.025	-4.19
Belgium	114.5	-10	-11.45	-3.68
Luxembourg	13.3	-30	-3.99	-1.28
Finland	53.9	0	0	0.00
France	366.5	0	0	0.00
Sweden	61.3	5	+3.065	+0.99
Ireland	30.72	15	+4.608	+1.48
Portugal	42.5	40	+17	+5.47
Greece	86.1	30	+25.83	+8.31
Spain	227.3	17	+38.641	+12.43
Total	3285.52	-	-310.792	100.00

Source: European Commission, Communication, 1996.