

# **Company behavior and market creation for CO<sub>2</sub> emission rights in the US, the UK, the Netherlands and Germany: Early evidence and future research perspectives**

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## **1. Introduction**

The central theme of this research project is the adoption of a new tool – tradable emission rights for CO<sub>2</sub> - by different companies and in different national regulatory settings. Two levels of analysis are employed: the first seeks to explain company behavior in the broader context of the “greening” of industry; the second aims at explaining the creation of markets in different national institutional settings. Large corporations increasingly face the global pressure to reduce CO<sub>2</sub> emissions and to take part in establishing a worldwide (or at least international) market for CO<sub>2</sub> emission rights. This pressure stems from evolving international regulation and is further supported by promoters of emissions trading such as broker companies, and by economic theory. However, huge differences in company behavior can be observed. It is assumed here that factors explaining these variations can be found in the interplay of different forms of embeddedness of these companies in their respective social and institutional environments. Three forms of embeddedness are analyzed in the context of this project: the embeddedness in a globalizing environmental regime and a globalizing economy, the embeddedness in various organizational fields, and the embeddedness in national institutional arrangements in which the company (or the company’s headquarters) is situated. Homogenizing forces are thus filtered through national institutional contexts, and different outcomes and market forms are to be expected. The project aims to compare company behavior and the creation of a market for CO<sub>2</sub> emissions trading in the US, UK, Netherlands, and Germany. The first three of these countries have already developed some kind of initiative for CO<sub>2</sub> emissions trading, whereas this tool has been opposed in Germany until very recently. The analysis of the creation of markets has often been pursued in hindsight, using historical approaches to reconstruct the forces that were at work. However, as the

market for CO<sub>2</sub> emission rights is a market – or several different markets – in the making, this research is an attempt to observe ongoing processes of institutionalization as they occur.

### **Emissions trading as a market-based regulatory tool to reduce CO<sub>2</sub> emissions and mitigate global climate change**

International regulations target a global reduction of CO<sub>2</sub> emissions through the allocation of national reduction targets and the definition of mechanisms to achieve these targets. A milestone of this development was the Kyoto Protocol which was agreed on in 1997. The Kyoto Protocol defines national reduction targets for most OECD countries (see Appendix I). However, the protocol has not been signed or ratified by any of these parties, and the current state of the art is that of high regulatory uncertainty - although most countries and many large corporations anticipate some sort of future agreement. Even in the absence of international regulation, initiatives to promote emissions trading as one legitimate tool to attain reduction targets abound, and companies engage in emissions trading activities throughout the world.

The idea that gives leverage to emissions trading is that it is more cost-efficient than other/non-market based environmental policies. Emissions trading means defining an allowed amount of emissions, establishing property rights for these emission amounts, and allowing trading. Unused emission rights (allowances) can be traded freely among market participants. Trading of allowances makes sense if the costs of reducing emissions vary significantly between sites. It thus creates two positive outcomes: first, entities (organizations or states) that need to reduce emissions gain flexibility because they can buy additional allowances if on-site reductions turn out to be too costly; second, emission rights transform the status of emission reductions from obligatory costs to valuable assets. The first large-scale attempt to apply emissions trading to a pollution control problem at the national level was introduced by the US Acid Rain Program in the 1990s. This program aimed at reducing SO<sub>2</sub> emissions from electric utilities and is now widely seen as a success (Schmalensee et al. 1998; Stavins 1998).

Even though the conditions for an international regime to control CO<sub>2</sub> emissions differ substantially from a domestic SO<sub>2</sub> emissions control program, the US strongly advocated the adoption of emissions trading by other countries in the course of the climate negotiations, with the ultimate aim of establishing a global market where emission rights can be traded across national boundaries. At first, this proposal was met by strong resistance from developing countries and EU countries alike. However, this has changed in recent years, and many European countries are now considering the establishment of domestic trading schemes for CO<sub>2</sub>. The European Union has even proposed creating an EU-wide market as early as 2005.

## **2. Dealing with environmental problems – beyond the market vs. command-and-control debate**

Environmental regulation, in the US and in Europe alike, achieved tremendous successes in terms of reducing the amount of pollution and preventing the destruction of natural resources – and at the same time came under harsh criticism for doing so at costs that seemed to exceed justifiable limits. Much of the dispute over environmental regulation, its justification, and its effectiveness can be summarized as the “market versus command-and-control” debate. Environmental regulation was established in most cases with a command-and-control approach towards industry, meaning that the state defines technological standards and targets, imposes them on the polluting source - namely industry - and enforces their implementation. This approach was legitimated by the assumption that the market did not reflect negative externalities of the production process, and that industries had no incentives to remain within the limits of environmental, safety and health standards in the absence of regulation. In this view, markets systematically produce environmental damages and therefore need to be controlled by the state (Sagoff 1988).

Free market advocates criticize government intervention on the basis of its inefficiency and distortions. In their view, environmental pollution or overuse of natural resources occurs in cases when no property rights over the environment or the resources exist, or existing rights are poorly enforced. In these cases, prices do not reflect the scarcity of a resource or the damage to an environmental good and in consequence produce market failures. Thus, to avoid pollution and overuse, property rights must (and can) be established and enforced, and the transfer of these permits should be allowed, in order to create a market for them in which undistorted price signals emerge. The market is thereby seen as the solution to environmental problems (Anderson and Leal 1991, 1997).

Apart from the ideological underpinnings of this debate, both positions are based on a false analysis of actual conditions for environmental protection, public policy and the economy. Free market environmentalists fail to recognize that the market is not as clearly opposed to the state as is assumed. Government intervention is necessary to define and enforce the basic rules that underly markets, and states and markets are intimately linked in different phases of market development. The lessons learned from the US Acid Rain Program show that most clearly. In the US case, a broad consensus exists concerning the necessary conditions that helped this program succeed: strict and continuous monitoring of emissions, high penalties for non-compliance, and enforcement through a central agency the (EPA) (Stavins 1998; Ellerman 2000).

On the other hand, a strict “command-and-control” approach does not reflect real life political processes. Government agencies depend strongly on information from and cooperation with industries in all regulatory stages (O’Riordan and Wynne 1987). The definition of standards, the formulation of regulatory documents and the enforcement of regulation is not possible without a minimum level of mutual recognition and support. So both views overlook how, in

real life, market and state are not distinct, but closely connected and often mutually enforcing principles of organization.

One goal of this project is to develop a comprehensive view of markets and states and their role in environmental protection, and in so doing to overcome the shortcomings of the market versus command-and-control debate.

### **Corporate greening**

Both theory and practice of environmental regulation have traditionally depicted the relationship between companies and regulatory agencies as antagonistic. Companies often denied the existence of pollution or the danger it posed to human health, in order to fight environmental regulation which inflicted additional costs and hampered their competitiveness. However, in recent years a major shift toward “corporate greening” has been observed. This shift implies that companies increasingly adopt environmental standards on a voluntary basis or comply beyond the requirements of existing regulation (Galarotti 1995). The shift found expression in the creation of the Business Council for Sustainable Development (BCSD) at the dawn of the United Nations Conference on Environment and Development in Rio de Janeiro 1992 (Schmidheiny 1992a). Environmental management diffused rapidly within and across industries (Levy 1997a). Large corporations like Du Pont, Shell, Dow Chemical, Ciba Geigy and ALCOA are reported to have voluntarily adopted environmental standards or successfully improved their overall environmental performance (Elkington with Burke 1987; Schmidheiny 1992b).

Several explanations for corporate greening have been proposed. Skeptics insist that the shift is mainly a rhetorical response of companies to the growing environmental awareness of consumers and a growing support for environmental movements. Companies therefore “greenwash” their public images while still continuing their most damaging practices. Some of the critics doubt that economic growth and environmental protection can be made compatible at all, or at least via the current form in which capitalism is organized (Merchant 1992, Schnaiberg and Gold 1994, Karliner 1997). Others concede that the rhetoric is often accompanied by good practices but highlight that corporate greening is a move towards political sustainability rather than environmental sustainability, as environmentalism has gained such institutional leverage that ignoring it might lead to a critical loss of legitimacy by industry (Levy 1997a). A more supportive view suggests that the adoption of environmental standards makes economic sense (Galarotti 1995). On the supply side, efficiency improvements and optimal management often create win-win situations for companies that seek to reduce the amount of waste they produce and resources they need, realise energy efficiency options, and adopt recycling techniques. They improve their environmental

performance and save money at the same time. On the demand side, a structural shift in consumption patterns emerged in the wake of environmentalism, meaning that consumers were willing to pay more for environmentally sound products and were less willing to purchase environmentally unsound products (green consumerism). More indirect pressures arise from interdependencies of companies in production and distribution. Companies often exert pressure on their suppliers to adopt environmental standards (see also Maucher 1993). Several mechanisms allow companies to gain market power through penetrating environmental niches, or through stronger cooperation among companies - which is encouraged, in spite of antitrust laws, in the field of environmental protection. In addition, a growing number of financial incentives support the greening of industry by investors and stakeholders. Finally, a good environmental performance improves a company's risk management through lowering the company's exposure to liabilities from spills, accidents etc. To summarize, the changing behavior of consumers, investors and stakeholders provides incentives to become a greener company; and some environmental improvements are at the same time efficiency or productivity improvements that transform costs for environmental protection into investments in good company performance (Gallarotti 1995).

This literature highlights two questions that need special consideration in this project. The first is a question of measurement. For obvious reasons it is difficult to determine to what degree companies "really" submit voluntarily to environmental standards - i.e. to what degree a shift in rhetoric is accompanied by changed practices. This project will therefore start by developing measures of corporate greening in the field of climate change and CO<sub>2</sub> emissions trading. The second is a question of how to explain for behavioral changes. What influences company behavior in the absence of environmental regulation? Or, as in the case of the pending Kyoto Protocol, under conditions of high regulatory uncertainty? Many of the above explanations hint at factors in the institutional environment of the company, such as green consumerism, the involvement of banks and insurance companies, and so on. The concept that systematically gives credit to this type of explanation is that of embeddedness (Granovetter 1985, 1992). However, multiple forms of embeddedness are discussed in the literature (Dacin, Ventresca and Beal 1999). The project will focus on three different forms of embeddedness: embeddedness in globalizing environmental regulation and a globalizing economy, embeddedness in organizational fields, and embeddedness in national institutional settings.

### **Embeddedness in a globalizing world**

The assumption of a globalizing world provides explanations for the world-wide diffusion of practices and business models. Two globalizing tendencies are discussed as factors that influence the worldwide spread of corporate greening: the rise of a global environmental regime, and globalization of the economy itself.

The last decades have been marked by a growing recognition that many environmental problems transgress national boundaries and should therefore be subject to transnational regulation. Air pollution and the pollution of multinational waters such as rivers, lakes and oceans are covered by a growing body of international agreements. In addition, the late 1980s and early 1990s saw the rise of concern for global environmental changes and the related attempt to establish worldwide agreements on how to protect the global environment. Regulation aimed at phasing out CFCs to protect the stratospheric ozone layer (Benedick 1991) and negotiations to prevent or mitigate global climate change (Susskind 1992) fall into that category. These are examples of emerging regulatory regimes that define formal rules and provide the basis for legislation and implementation. However, scholars have also described the rise of an environmental regime in a much broader and less formal sense (Meyer et al. 1997). In this understanding, concern for the environment and the imperative to protect it is part of a global culture that consists of unwritten rules of appropriateness and standardized patterns of understanding and interpreting the world. A growing number of international NGOs play an important role in the development of these patterns (Boli/Thomas 1999). Likewise, global discourses support environmentalism. This view implies that companies would not only have to react to direct environmental regulation. In addition, they are increasingly confronted by expectations and unwritten rules to behave in environmentally responsible ways, and they are expected to do so even in fields where environmental regulation does not exist and in world regions where environmental regulation is underdeveloped or poorly enforced. This view also assumes that specific tools, policies or practices diffuse across national borders, following a global pattern and leading to structural similarities of companies operating in different parts of the world. The spread of environmental management as a standard business model can be described in these terms (Levy 1997a).

The assumption of an emerging global environmental regime leads to two important predictions for company behavior: first, large companies can be expected to exert influence in international negotiations to shape environmental regulation at that level; and second, companies will increasingly adopt business models that depict them as environmentally conscientious, causing less pollution and reducing the use of natural resources.

Apart from transnational regulation and the worldwide diffusion of environmental concern, the economy itself is a driving force for globalizing pressures on company behavior. The growth of Foreign Direct Investment (FDI) since the 1960s, and in particular in the 1980s, is interpreted by many as the most important indicator of economic globalization, together with an increase in international trade and the expansion of capital markets (Dicken 1998). The meaning of these indicators is highly disputed, and it is unclear to what degree the international economic exchange exceeds that of the pre-World War I-period (Whitley 1999). However, the number of transnational corporations has grown from 7,000 in 1970 to 40,000 in

1995 (Karlner 1997: 5). Companies' environmental behavior can be expected to globalize to the extent that economic globalization takes place, so that existing national differences will shrink over time and convergence will be observed (Levy and Newell 2000).<sup>1</sup>

This body of literature suggests several steps for this research project. First, this project will identify global forces that support companies' adoption of CO<sub>2</sub> emissions trading. It will pay special attention to the emergence of new business models, to the role of INGOs and other global actors actively promoting emissions trading, and to emerging international regulation. Second, it will ask to what extent companies try to exert influence in international regulation concerning CO<sub>2</sub> emissions trading. Third, the project will ask in what ways transnational corporations and the growing interconnectedness of companies across national borders accounts for the adoption of CO<sub>2</sub> emissions trading, and thus contributes to a convergence over time.

### **Embeddedness in organizational fields**

The concept of organizational fields focuses on the types of influences that exist between different organizations, takes into account the role of the state in defining rules, and identifies several mechanisms by which a growing orientation of the involved organizations towards each other is achieved (DiMaggio and Powell 1983). An organizational field is an analytical unit which is not defined by the researcher, but has a meaningful existence for the organizations involved, and can be observed as an increase in the extent to which certain organizations interact, an increase in the information load they share, and the development of mutual awareness that they are involved in a common debate (DiMaggio 1983). Several mechanisms can be identified by which organizations in the field orient their behavior toward each other or develop common rules and procedures (i.e. "isomorphism"). DiMaggio and Powell suggest three mechanisms: mimetic behavior (the copying of other organizations in the field that are perceived to be successful – the 'trendsetters') in the case of high uncertainty, coercion through state intervention or other powerful organizations with a central position in the field, and normative pressures through professionalization (DiMaggio and Powell 1983).<sup>2</sup>

Hoffman applied the concept of organizational fields to explain the dynamics of organizational changes in the U.S. chemical industry and their history of corporate environmentalism (Hoffman 1999). He shows how the organizational field evolved and changed over time as

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<sup>1</sup> However, another body of literature suggests that economic globalization supports the adaptation of environmental standards to the lowest common denominator.

new entrants struggled over defining the right corporate behavior toward the environment, with industry, government, environmental NGOs and insurance companies involved in the later stages of this process. He also shows how regulative, normative and cognitive aspects each dominate the field formation in turn (Hoffmann 1999: 359). The central argument in this type of research is that organizational fields sometimes emerge around new issues and are an important factor that influences companies' behavior toward a given new issue.

The concept of organizational fields can be used in this project to explain the emergence of common understandings, worldviews, standards, patterns and orientations between different firms across industries. But it can also be used to explain differences in these worldviews and standards by linking them to the emergence of several distinct organizational fields that differ widely in their institutional features. Organizational fields can be expected to act as filters for globalizing forces.

### **Embeddedness in national institutional settings**

Besides globalizing tendencies that might exist, national institutional settings still play a major role in influencing companies' behavior towards the environment. Several research traditions try to capture differences in these national institutional settings, and they refer to policy making, legal systems, cultural differences and the organization and institutional embeddedness of business and industry.

In his classic comparative study on environmental regulation in Great Britain and the US, David Vogel described the British regulatory style as relatively cooperative, making extensive use of industrial self-regulation, whereas the American style was more adversarial, with government agencies defining uniform standards and inducing technologies (Vogel 1987). He discussed the role of environmental movements and more importantly the history of industry-government relationships in each country. National regulatory styles are not only observed in the field of environmental regulation, but also in the regulation of business and the economy in general. National business systems vary according to the different roles of central institutions like the state, finance, and education, that influence the development and structure of firms, market organization and industrial relations (Whitley 1992, Whitley 1999). Thus, the capitalist economy is not one universal organizational form; variations in the organization of capitalism can be observed in cross-national comparisons (Hollingsworth and Boyer 1997). In a less formalized sense, the way in which wealth can be produced is also embedded in value systems which can be shown to differ cross-nationally (Hampden-Turner and Trompenaars 1993). Whereas Vogel was interested in explaining the emergence of differences in national

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<sup>2</sup> Scott later suggested a modified and further differentiated set of seven different mechanisms - imposition, authorization, inducement, acquisition, imprinting, incorporation, and bypassing

regulatory styles in the 1960s and 1970s, the focus of research now often shifts to processes of globalization or Europeanization and thus asks to what degree national institutional settings persist despite the growing pressure of convergence.

Studies like Dobbin's on railroad policies at the turn of the 19<sup>th</sup> century (Dobbin 1994) or like Djelic's on the different forms of adoption of American-style anti-trust regulations and business models in Germany, France and Italy after World War II (Djelic 1998) emphasize the role of the state in the emergence of different economic systems, the path-dependency of such developments, and the complex interplay of globalizing forces and national filters. Patterns of change, for example the adoption of new policy tools, depend on national institutional settings and national institutional capacities for administrative or policy reform (Lindberg, Campbell and Hollingsworth 1990, Knill 1998, 1999).

The literature on national regulatory styles, national institutional settings and the national organization of business and the economy call for several important analytical steps in the course of this project. First, it is important to identify different regulatory styles in the four national case studies with special emphasis on their approaches towards climate change and market-based policy tools. The specificity of government-industry relationships in each of these cases is assumed to be a factor in explaining company behavior. The extent to which a company perceives the adoption of a CO<sub>2</sub> reduction target and the participation in CO<sub>2</sub> emissions trading as economically rational varies with the national context, the role of the respective governments, industry associations, environmental NGOs, and the form of control that is adopted by these central institutions. Second, the interplay of globalizing forces and national contexts or 'filters' will be a focus of the project. Third, the analysis will be aware of the historicity and path-dependency of such developments, and thus take into account the different potentials for institutional change and persistence.

### **The creation of markets as a social process**

In the market vs. command-and-control debate outlined above, the market is seen as a price-making mechanism guided by the self-interested behavior of disentangled market participants. Economic sociology is based on an understanding of the market that differs from that of a simple price-making mechanism in many ways. In this perspective, the market is not seen as an abstract mechanism, but as an empirical set of social relations that is situated in a specific context, and that coordinates economic action and guides economic exchange. This has several important implications. It implies that research has to deal with a plurality of different markets rather than with the market as an abstract principle (Callon 1998). The development or the creation of markets can be shown to have a specific history, and markets

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(Scott 1991).

vary in form, resulting in unique institutional arrangements that reflect differences in the social cohesion of networks, distinctive jurisdictional conflicts among interest groups, and differences in the involvement of the government in the market (Albolafia 1996).

Specific institutional “work” needs to be done to set up a new market. Levin and Espeland describe, for example, the difficult and costly process of “commensuration” that was achieved by the EPA, in cooperation with many other organizations, in order to establish the market for SO<sub>2</sub> allowances in the US. Commensuration is the process by which a social problem (environmental pollution) is transformed into a marketable good (emission allowances) through the submission of units of pollution to a common metric: price (Levin and Espeland forthcoming; Espeland and Stevens 1998). The functioning of a market depends on the belief of market participants that the units they are trading are really comparable and exchangeable. This requires extensive standardization and homogenization of goods, which is a social process (Carruthers and Stinchcombe 1999). Fligstein highlights the importance of power struggles and the role of the state in his analysis of the production of market institutions. Important market institutions include property rights, governance structures (laws and informal institutional practices), conceptions of control, and rules of exchange (Fligstein 1996).<sup>3</sup>

This line of thought reinforces the works on government-industry relations mentioned above. They suggest to analyze the creation of markets for CO<sub>2</sub> allowances as a social process in a specific institutional setting. The role of the state in this process will receive special attention.

### **3. Research design**

The project aims at analyzing an ongoing process, the origins of which have to be traced back several years in time. The period under study therefore is 1995 – 2004. This period covers the earliest phases of the initial formulations of possible carbon markets in the context of the climate negotiations, and it captures the rise of several domestic trading schemes. However, European, international or even global markets are not expected before 2005 – 2008. The project thus seeks to contribute to an understanding of the institutional conditions for establishing international markets for CO<sub>2</sub> emission rights.

Several hypotheses guide this analysis:

- A tension exists between globalizing forces in the effort to create a worldwide or at least international market on the one hand and huge differences in the persistence of national differences in the way that trading initiatives evolve.
- The differences in time and form of adoption of CO<sub>2</sub> emissions trading as a new tool depend on the emergence of organizational fields that promote the idea, mobilize resources, facilitates alliances, formulate standards, and enable transactions.
- Actual differences in company behavior can be largely explained by the influence of different organizational fields and different national institutional settings.
- National institutional settings also influence differences in the creation of market systems.

Emissions trading as of now can mean three different things: it can be bilateral sales of emission reduction units between companies, a company-internal trading scheme, or a national (domestic) trading scheme. To ensure the greatest possible degree of liquidity, establishing an international or global market is the ultimate aim (see Table 1). It can be assumed that a company's experiences with bilateral trading trigger the establishment of a company-internal trading scheme, which in turn influences the likelihood of domestic trading schemes, which then encourages the creation of an international market. The form of the exchange and the type of infrastructure it requires become more complex with each next step.

The project starts with an inventory of companies that have expressed interest in reducing CO<sub>2</sub> emissions and applying emissions trading as a tool to achieve emission reductions, or that have already started using trading mechanisms. It then seeks to measure the degree to which this behavior is part of environmental greenwashing as opposed to part of the company's core practices. One indicator of this is the organizational subunit in which the "climate change program" of the company is located, for example as part of public relations or as an asset center. This reflects the observation that environmental management units are usually responsible to government regulators, whereas business management units are responsible to customers and shareholders (Hoffman and Ventresca 1999).

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<sup>3</sup> For the role of the state see also Lie (1997), and a general discussion of the sociology of

**Table 1: Different forms of CO<sub>2</sub> emissions trading**

<b>Bilateral trading:</b>	one company buys emission reductions from another company (to be prepared for the future need of emission allowances once regulation comes into force)
<b>Company-internal trading:</b>	a company adopts an emission reduction target and uses an internal trading scheme to enable the exchange of emission allowances between subunits of the company (to identify low-cost abatement options within the company)
<b>Domestic trading:</b>	a country adopts a domestic emission reduction target and uses a domestic trading scheme to enable the exchange of emission allowances between companies or sectors (to identify low-cost abatement options within the country)
<b>International or global trading:</b>	entities that have adopted emission reduction targets can sell emission allowances in the case of over-compliance, or buy them from other entities in the case of exceeding the target, at international exchanges; market participants can be both companies and countries, plus market participants without reduction targets (secondary market)

The project also identifies emerging organizational fields that are promoting the idea of CO<sub>2</sub> emissions trading, setting up pilot programs, and developing rules and procedures in the absence of binding international (and even national) regulation. Some are bound to national or even subnational areas, others are international in character. However, a tendency to grow together to more comprehensive and more unified organizational fields with stronger institutional leverage can be assumed. Important questions will be what types of relationships exist between organizations within certain fields, what the power distribution looks like, and what types of resources are mobilized in and through these organizational fields. The identification of institutional mechanisms is crucial to understanding the dynamics of company behavior and market creation in these fields. However, this project will also look at inter-field dynamics, as different fields can be expected to compete with each other in defining rules and standards for the development of international market schemes.

Finally, the project will look at national institutional settings and their role in the creation of domestic markets for CO<sub>2</sub> allowances. Regulatory styles and established state-industry relations, the power of industrial associations, the role of individual large companies, and the importance of environmental movements and NGOs will be assessed. The national case studies in question are the US, the UK, the Netherlands, and Germany (see Table 2).

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markets in Zelizer (1988), White (1981), and Ó Riain (2000).

**Table 2: Overview of case studies**

	<b>USA</b>	<b>UK</b>	<b>Netherlands</b>	<b>Germany</b>
<b>reduction target:</b>	(7 %)	12,5%	6%	21%
<b>experience with emissions trading:</b>	yes success	yes failure	No	no
<b>national policy:</b>	reluctance to accept target; no national policy	establishment of domestic trading scheme by April 2001	initial thoughts about domestic trading scheme in 2000	no plan for domestic trading scheme; national policy: eco-tax, voluntary agreement by industry, technology standards
<b>non-government initiatives:</b>	many	one important (BP Amoco)	one important (Royal Dutch/Shell)	few

These four national case studies combine extreme cases on both ends of a spectrum from pro-trading to anti-trading policies, and they allow for both an EU-US comparison and an intra-European comparison.

The US was chosen because it can be seen as the inventor of the new policy tool. Thus, if emissions trading is to diffuse widely, the US should be seen as the source of this diffusion process. However, the US's political situation is quite particular, as the government has not accepted the reduction target and national policies to reduce CO<sub>2</sub> emissions rarely exist. On the other hand, at the subnational level many private market initiatives to promote emissions trading can be observed, and a strong cultural support for market-based tools can be expected.

The UK is in the peculiar situation that the Kyoto target will probably be met without much additional effort. So by adopting a more stringent target internally, the country can hope to have huge quantities of emission reduction units for sale in a future international trading scheme. It is also host to BP Amoco's headquarters, a company that has introduced an internal trading scheme to achieve the company's voluntary reduction target. The UK government has thus decided to establish a domestic trading scheme in 2002, to gain experience with the new tool and to influence further European developments.

The Netherlands is a contrasting case because it will have difficulties meeting its national reduction target: the government has announced that 50% of the required emission reductions will have to be achieved abroad. Until very recently, these plans referred solely to another flexible instrument under the Kyoto Protocol, the so-called Joint Implementation,

which is another form of trading that implies that the Dutch government will buy emission reductions predominantly in newly transformed economies in Eastern Europe. However, in the summer of 2000, the establishment of a domestic trading scheme was discussed for the first time. Dutch industry has until now preferred to achieve national reduction targets through voluntary agreements, not through domestic trading.

In Germany, the strongest cultural resistance against the use of emissions trading at all levels of society can be observed. The country has adopted one of the highest CO<sub>2</sub> emission reduction targets, and it will have difficulties meeting the target. Although public support for environmental policy is relatively strong, emissions trading was never perceived as a legitimate tool (it is widely perceived as "selling pollution"). Industry preferred voluntary agreements, and so did the environmental ministry, led by a member of the Green Party. However, in the summer of 2000, the debate slowly began to shift, and by now preliminary thoughts about the establishment of a domestic trading scheme are developing.

In a future international trading scheme, the US and the Netherlands are expected to be important buyers of CO<sub>2</sub> emission reductions, while the UK is expected to be an important seller. As of now, Germany is not expected to use trading much. The UK and the Netherlands both have large transnational corporations that embraced emissions trading very early and can be expected to influence any domestic trading scheme. The US and Germany are diametrically opposed in regulatory traditions and in the willingness to reduce emissions domestically. While the US does not accept binding targets but does want to use emissions trading, Germany voluntarily accepted a stringent target early in the negotiations, but has been opposed to trading. Furthermore, the UK, the Netherlands and Germany are all influenced by EU developments, i.e. the plan to establish an EU-wide trading scheme as early as 2005 (European Commission 2000).

#### **4. Preliminary results**

The final chapter of this paper will present some preliminary results that are based on interviews with representatives of key institutions in the US and Germany, conducted in 1999 and 2000;<sup>4</sup> internet searches; and a review of current literature on emissions trading. Short

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<sup>4</sup> Interviews were conducted (in person or by phone conversation) at the Environmental Protection Agency, Pew Center for Global Climate Change, Environmental Defense, Center for Clean Air Policy, Worldbank, Emissions Trading Marketing Association, Cantor Fitzgerald, Environmental Financial Services, Southern Company, BP Amoco, International Energy Agency, Hacker Umweltmanagement mbH, Hamburgische Electricitaetswerke, Gerling, German Watch, Hamburg Institute of International Economics, German Ministry for the Environment, Nature Protection and Nuclear Safety.

summaries of company behavior and emerging organizational fields will be given, as well as some early results from the national case studies.

### **Company behavior**

Companies are usually split between those which accept the need for CO<sub>2</sub> emissions reductions and therefore embrace the Kyoto Protocol as the international agreement defining national reduction targets, and those which do not. Those generally accepting the idea of emissions reductions often favor emissions trading, in combination with the other flexible mechanisms included in the Kyoto Protocol, over other regulatory approaches like taxes or technology standards. In some way, the sectoral identity of a company provides a rationale for the decision whether or not to accept emission cuts. For example, the chemical industry and the oil industry can be expected to oppose any form of agreement, because they will be viewed as major pollutants and have to face the costs of reducing emissions. At the same time, other sectors like producers of renewable energy technologies anticipate new markets for their products through such an agreement, so they can be expected to favor it. In particular, those sectors for which CO<sub>2</sub> emissions trading simply means a future business opportunity, such as broker companies, insurance companies, financial services, exchanges, and certifiers, can be expected to invest some time, money and effort in establishing markets for the new product of emission reduction units.

However, in reality, company behavior towards climate change and emissions trading is not as easily predictable by their sectoral identity as might be expected. The most important split that goes through a sector is that of the oil industry. Before Kyoto, the oil industry was actively and uniformly opposed to any form of agreement, spread doubt about the credibility and accuracy of the science of climate change, and tried to block international negotiations. A change in this approach came about with the decision of BP's group CEO John Browne to leave the Global Climate Coalition, embrace an active stance towards reducing CO<sub>2</sub> emissions, adopt a company-wide reduction target of 10%, and introduce an internal trading scheme. Some companies followed this example, Shell most prominently among them, but many others remained opposed and skeptical (Pulver 2000).

The same applies to other sectors. Exchanges like the International Petroleum Exchange (London), the Deutsche Boerse (Frankfurt), and the Chicago Board of Trades have been very different in the rate and speed with which they have presented business proposals and offered to host and to establish markets for CO<sub>2</sub> emissions. Some insurance companies embrace CO<sub>2</sub> allowances as a viable future business, while others are very reluctant to do so. In some industries, huge variations in regulatory preferences can be observed. Even if companies accept legally binding targets for individual countries, many prefer voluntary

agreements, while only some fully promote the use of emissions trading (BIAC/OECD/IEA 1999).

Several *bilateral trades* have already been accomplished in the last two years. In 1998, the energy utility Niagara Mowhawk (USA) sold emission reductions to Suncor Energy in Canada.<sup>5</sup> In October 1999, the Environmental Brokerage Service (EBS) of Cantor Fitzgerald announced the sale of CO<sub>2</sub> reductions<sup>6</sup> to a consortium of Canadian energy companies. The buyer of the reductions was the Greenhouse Gas Emissions Management Consortium (GEMCo) based in Vancouver, British Columbia; the seller was the IGF Insurance Company, the fourth largest crop insurance company in the US. In 2000, the Hamburgische Electricitaets-Werke (HEW) in Germany sold CO<sub>2</sub> emission reductions to the Canadian energy utility TransAlta; the trade was brokered through NatSource.<sup>7</sup> Interviewees mentioned that many other bilateral trades are occurring behind the scenes. Companies that anticipate future shortages start buying emission reductions, although it is uncertain if the reductions will be worth anything in the future. However, this general sense of uncertainty is one of the reasons companies often decide to be secretive about these trades until a binding international agreement has been reached.

Two known examples can be cited as *company-internal trading schemes*: the oil companies BP Amoco with headquarters in Great Britain, and the Royal Dutch/Shell group, with headquarters in the Netherlands. BP Amoco adopted a voluntary emission reduction target of 10% below 1990 levels by 2010 and established an internal trading scheme in 2000 in order to allow its 125 business units operating worldwide to gain flexibility in the ways in which they plan to achieve the target. The fulfillment of the target is part of the performance contract of each business unit's CEO which adds substantial institutional leverage to it. The Royal Dutch/Shell group followed the example of BP Amoco. It also adopted the voluntary emission reduction target of 10% below 1990 levels, but pledged to make this cut as early as 2002. The company launched a tradable emission permit system in January 2000. Participation of business units in the trading scheme is voluntary, and, different from the BP Amoco scheme, restricted to business units operating in those countries which have a national emission reduction target under the Kyoto Protocol (so business units in developing countries are excluded from trading). Both companies only intend to reduce their direct emissions caused by their own production process - not emissions caused by the consumption of their products. BP Amoco aggressively promoted their new stance toward the environment and the innovation of their internal trading scheme and formed an official "alliance" with the environmental group Environmental Defense. Shell also publishes its new strategy and information about the permit system, but generally stays out of the public eye.

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<sup>5</sup> The reductions were achieved, and planned to be achieved in the future, through a switch from coal to natural gas, the use of renewable energy, and improved energy efficiency.

<sup>6</sup> In the form of future options achieved by changing agricultural practices in the US.

## **Organizational fields**

In the early and mid-1990s, a large group of companies in sectors ranging from oil and chemicals to metals, electricity and car manufacturers was represented in the international climate negotiations by the Global Climate Coalition (GCC). The GCC used intensive lobbying to undermine the credibility of scientists who claimed that human emissions of CO<sub>2</sub> and other greenhouse gases would cause a damaging global climate change in the near future and suggested drastic emission cuts. It tried to argue against an international treaty, highlighting the costs of any binding targets in addition to the scientific uncertainties underlying the theory of climate change.

However, almost in parallel, other groups of companies emerged, first in the context of the so-called earth summit in Rio de Janeiro in 1992, and then increasingly in the mid- and late 1990s. Some of them formed around a new business model, which is, in very broad terms, one of a socially and environmentally responsible company trying to find ways to harmonize the principles of economy and ecology. The World Business Council on Sustainable Development (WBCSD) was created in 1992 and produced an important industry document for the Rio summit (Schmidheiny 1992b). A more focused and homogenous group emerged in 1994, the Business Council for a Sustainable Energy Future (BCSEF), a lobbying group which represents companies that stand to gain from a movement away from fossil fuels. In the first few years, none of these groups – the treaty-blocking group represented by the GCC and the more pro-active group represented by WBCSD and BCSEF – was strictly exclusive, and overlapping memberships were quite common. However, around 1997 a new recognition emerged that these two groups actually represented worldviews that were mutually exclusive. The late 1990s saw a number of public announcements by companies who decided to leave the Global Climate Coalition and declared a switch in their strategies towards the climate problem. BP made that move in 1997; Shell followed in 1998; 1999 saw the Ford Company leaving the GCC; and in 2000, DaimlerChrysler, Texaco and General Motors followed suit.

This forms the background for a set of organizations that started working together on a tighter basis to develop common strategies and tools to react to the anticipated international regulations. Particularly in the US, some foundations and research institutes tried to establish close ties with companies, environmental NGOs and sometimes also with regulators, although the role of the EPA at that time was very limited (see below). The Pew Center for Global Climate Change was founded in 1998, and from its inception tried to bring together influential companies under the heading of a Business Environmental Leadership Council (see Table 3). The Center for Clean Air Policy had adopted a similar approach even earlier.

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<sup>7</sup> The reductions were expected to be achieved through the use of renewable energy.

However, the two initiatives were totally unconnected and did not interact with each other, although they often dealt with the same companies. Initiatives like these dealt with the broader aspects of climate change and related business strategies. However, an even more focused type of initiative could be observed that centered exclusively around the idea of emissions trading or CO<sub>2</sub> emissions trading. These initiatives were often started or at least largely influenced by broker companies and the financial sector. These companies anticipated future business opportunities in the event of the establishment of domestic or international markets for CO<sub>2</sub> emission reductions. One example is the Emissions Trading Marketing Association (EMA) which was founded in 1997 and has the broad application of emissions trading to all kinds of emission control problems at all levels of society on its agenda (Table 3).

However, initiatives by companies and regulators also exist. For example, BP Amoco has joined with six other large companies to achieve their emission reduction targets jointly, and to test trading mechanisms within this group to gain experience (Table 3). In order to secure a high degree of credibility and transparency, the environmental NGO Environmental Defense was called on to monitor the activities of this group and to develop formalized 'rules of conduct'. In Great Britain, the government created a working group with industry and government representatives to establish the legal framework for a domestic trading scheme. This UK Emission Trading Group meets regularly in formalized subgroups. Memos of the meetings are published on the internet and a draft proposal for a trading scheme was circulated widely to ensure the greatest possible consensus on and participation in the program (Table 3).

To summarize these observations, they can be described as clusters of organizations that emerge around the issue of climate change strategies in general or around CO<sub>2</sub> emissions trading in particular, in different places around the world, sometimes spanning many countries, sometimes bound primarily to national contexts. Some companies like BP Amoco belong, more or less intensely, to almost all of these clusters; others to only one or two. Some of these clusters can be clearly identified as organizational fields. They differ in the way the organizations interact with each other, in the kinds of exchanges performed, in the degree of exclusiveness and homogeneity, and in the types of institutional mechanisms that come to operate in them. Issues for further research are to what extent these different organizational fields compete with one another for definitional influence, and why and how they can be expected to 'merge' over time to develop fewer but more harmonized approaches.

**Table 3: Elements of organizational fields**

Empirical example	Boundaries	Nature of relations	Heterogeneity
Emissions Trading Marketing Association (EMA)	association with formal membership; US based; open to others	exchange and information (through semi-annual meetings and newsletter); joint efforts to promote the idea of emissions trading	high (more than 150 companies across different sectors, brokers, certifiers, regulators, business associations, NGOs, consulting firms, research institute, exchanges)
Partnership for Climate Action	group of seven large companies (BP Amoco, Shell Intern., DuPont, Suncor Energy, Ontario Power Generation, Alcan Aluminum Ltd., Pechiney SA); with looser links to Environmental Defense (NGO) and consulting firms as outside auditors; open to other companies; international	joint CO <sub>2</sub> reduction target; trial emissions trading system (learning/trading with competitors)	medium (large corporations, cross-sectoral: petrol, chemical, energy, aluminum)
Business Environmental Leadership Council, Pew Center	growing group (28 at the end of 2000) of large companies brought together by the US-based Pew Center on Climate Change	exchange and information; development of common views and understandings of the problem and of possible solutions	medium (large corporations, cross-sectoral)
UK Emissions Trading Group	large working group with exclusive membership; established to set up the UK national trading scheme; group of 3 government departments, the Confederation of British Industry (CBI), and the Advisory Committee on Business and the Environment (ACBE); UK based	mandate to present proposals to the government; formalized work relations; BP Amoco 'intellectual leader'	medium (basically government and industry)

**Emissions trading in the US: decentralized initiatives**

When environmental protection was established in the form of the Environmental Protection Agency (EPA) in 1970, a confrontational relationship between regulator and regulated was institutionalized with it (Wallace 1995). Vogel found the American approach to environmental regulation “the most rigid and rule-oriented to be found in any industrial society” (Vogel 1986:

21). However, this rigid period was followed by a more laissez-faire and anti-environment approach in the 1980s, while in the 1990s attempts were made to develop a more pragmatic style and to overcome the deep divide between industry and the EPA by evolving cooperative forms of policy development (Wallace 1995).

Emissions trading as a market-based instrument for the reduction of emissions of pollutants was developed in the US. Early attempts to use trading mechanisms to control localized air pollutants in the 1970s were evaluated with much ambivalence; and the high costs and inefficiency of poorly designed systems were highlighted. However, in 1990, Congress approved title IV of the Clean Air Act Amendments that established an SO<sub>2</sub> allowance trading program, aiming at reducing SO<sub>2</sub> emissions by 50 % below 1980 levels by the year 2000 (Stavins 1998). This was the first large-scale attempt to apply a cap-and-trade system for solving problems of environmental pollution. Cap-and-trade means that the EPA defined a maximum quantitative level of SO<sub>2</sub> emissions per year, allocated allowances to emit SO<sub>2</sub> to polluting sources, and guaranteed the free tradability of these allowances among participants of the program. Because a large variety of compliance costs for emissions reductions existed, companies could use the trading mechanism to realize lower compliance costs elsewhere. The program is widely recognized as a success. Not only has it achieved targeted emissions reductions, but it has even exceeded targets and done so with total abatement costs significantly less than they were projected to be in the absence of trading (Stavins 1998, Schmalensee et al. 1998, Ellerman 2000).

The SO<sub>2</sub> emissions trading scheme relied strongly on the constant monitoring of emissions by the sources, on high fines for non-compliance that were about ten times the price for the equivalent SO<sub>2</sub> emission allowances, and on strict enforcement of compliance by the EPA. Even though conditions for establishing an international market for CO<sub>2</sub> emission allowances are much more complex and a central monitoring and enforcing agency is hard to imagine at the world level, the US delegation negotiated successfully for the inclusion of flexible mechanisms such as emissions trading into the Kyoto Protocol in 1997. At that time, these mechanisms were clearly opposed by the EU and by many developing countries.

When European delegations came to accept in principle the establishment of international emissions trading, they tried to define a cap on the amount of reductions that could be achieved through international trading by each individual nation. They suggested that each nation would have to achieve at least 50% of their targeted reductions through domestic policies and measures.

However, opposition in the US was growing against any kind of agreement that did not include substantial action by developing countries. Instead, unlimited trading should be allowed, and carbon sequestration through plants, trees and soils should be included as a

legitimate measure to offset CO<sub>2</sub> emissions. Several bills and resolutions were issued that blocked any form of national policy towards the implementation of the Kyoto target of 7%. In addition, the science of climate change stating that global warming will result from man-made emissions is still highly disputed in the US public debate. The EPA is eager to apply their successful instrument of emissions trading to an even more challenging task of climate change prevention, but their hands are bound. As of now, US policy does not accept any legally binding target for CO<sub>2</sub> reductions, and international negotiations are perceived to be in a serious stalemate - particularly after the election of George W. Bush for president.

However, below this federal policy level, several initiatives support CO<sub>2</sub> emission reductions and in particular the use of emissions trading as a way to achieve reductions. While the EPA is officially bound to federal policy, many other groups and organizations work on projects to develop instruments and rules for CO<sub>2</sub> emissions trading. The Pew Center on Climate Change and the Center for Clean Air Policy both work with different groups of companies, economists, and environmental NGOs to discuss this instrument and to identify basic conditions of its application to CO<sub>2</sub> reductions. Also, the Emissions Trading Marketing Association (EMA) promotes the instrument and tries to transfer experiences from the SO<sub>2</sub> case to other fields, including CO<sub>2</sub> emissions. Some pro-trading NGOs, in particular Environmental Defense (ED), a growing community of economists, and a business-oriented group of large broker companies have created a positive environment for the development of emissions trading. In addition, some states have begun changing their state policies towards climate change and emissions trading. For example, the state of New Jersey has worked with the Center for Clean Air Policy and the EPA to set up a greenhouse gas bank. Another initiative is the creation of the Chicago Climate Exchange, led by the financial services and broker company Environmental Financial Services. This is a private market attempt to establish a pilot market for CO<sub>2</sub> emission allowances in the Great Lakes region, and is supported by the Joyce Foundation.

Although the central policy shift toward embracing binding targets for CO<sub>2</sub> reduction is unlikely to be made in the near future, many initiatives throughout the country experiment with CO<sub>2</sub> emissions trading, and try to accomplish trades, establish rules, and set up a market that will eventually influence the form of any future domestic or international market. However, all these initiatives remain strikingly unconnected and decentralized. Although the EPA is involved in some of these activities, most of them stem from the private sector, especially from broker companies that view emissions trading as a future business opportunity.

## **Emissions trading in the UK: centralized regulatory effort**

In his study of national regulatory styles, Vogel attested that Great Britain had developed the most flexible and informal approach to environmental regulation (Vogel 1986). It went so far as to become discredited due to too-confidential working relationships between regulators and regulated. In response, a number of reforms were introduced in the late 1980s. Most importantly, a unitary pollution regulating body was created in 1987 (Her Majesty's Inspectorate of Pollution, HMIP), and the new Environmental Protection Act in 1990 foresaw a new system of Integrated Pollution Control (IPC). However, the intention to create a new approach which would be tougher, more transparent, and more accountable, proved difficult to implement, and the pattern of confidential relationships remained largely intact (Sorell 1999).

The UK climate change policy is based on the national emissions reduction target of 12.5 % (as referred to 1990 levels) that was negotiated as part of the EU burden sharing under the Kyoto Protocol. Mostly due to a sweeping fuel switch from coal to gas in the beginning of the 1990s, the UK is likely to achieve its national reduction target in the commitment period of 2008-2012, and has proclaimed a more challenging domestic goal of a 20% reduction below 1990 levels by 2010 (Gummer and Moreland 2000). The government intends to use a combination of a climate change levy for energy intensive industries and the introduction of a CO<sub>2</sub> emissions trading scheme open to all UK-based companies. The initial trading on a strictly voluntary basis is scheduled for January 2002.

After attempts to set up a trading scheme for SO<sub>2</sub> in the early 1990s had failed,<sup>8</sup> the idea of using emissions trading as a mechanism to reduce CO<sub>2</sub> emissions came back with force after 1997, when the Kyoto Protocol was negotiated and parties agreed on the inclusion of flexible mechanisms for achieving the global reduction target of 5.2 %. In the UK, this mechanism had more leverage than in other European countries because BP Amoco, with its headquarters in London, made a spectacular move from denying the threat of climate change to acknowledging the need for action, and because a company-wide internal trading scheme was part of the company's climate change program. From the inception of its program, the company was very active in promoting the idea of emissions trading domestically, EU-wide, and internationally. A report on "Economic Instruments and Business Use of Energy" was published by Lord Marshall, the chairman of British Airways, in November 1998, suggesting a business-led initiative to design a domestic trading scheme for greenhouse gas emissions in the UK. In June 1999, the Confederation of British Industry (CBI) and the Advisory Committee on Business and the Environment (ACBE) set up the UK Emissions Trading Group. The

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<sup>8</sup> The government had proposed the use of emissions trading to reduce sulphur emissions ('sulphur quota switching') in 1992, but the proposal was dropped in 1996. An explanation of institutional reasons for this failure is provided by Sorell (1999).

UKETG had a mandate to develop the design of the domestic trading scheme. It started with 25 UK companies and government bodies participating, but since then has grown to over 100 major companies and trade associations. Academic and environmental NGOs and consultants also played a role in their meetings.

The UKETG submitted an outline proposal to the British government in October 1999. The proposal was supplemented in March 2000, and in November 2000, the Department of the Environment, Transport and the Regions (DETR) issued a draft proposal for a greenhouse gas emissions trading scheme that was distributed widely with a long catalogue of questions for consultation (DETR 2000; see also appendix II). The intention of the government is to finalize the rules of the trading scheme in late 2001 in order to allow the first compliance period under the established trading scheme to begin 1 January 2002.

The proposed domestic trading scheme is built on the strictly voluntary participation of UK-based companies. Participation is not restricted to certain sectors or certain industries but is intended to include any company willing to set up an annual absolute reduction target. The trading scheme will also be open to those energy intensive companies subject to climate change agreements with the regulator. The government has decided on a general climate change levy, with those companies included in climate change agreements eligible for a substantial discount (80 %) from the levy if they meet their emissions/ energy targets. A maximum number of participants in the trading scheme is targeted for in order to guarantee high liquidity of the market. As participation is voluntary, the discount from the levy and the allocation of 'incentive money' are the two important positive sanctions that are hoped to ensure the compliance to the companies' commitments. In addition, the initial allocation of allowances will be based on the principle of grandfathering. Companies can go through a bidding process to establish their company-specific reduction targets, on which the free allocation of allowances will be based. The proposal by the DETR seeks to strike a balance between the credibility and integrity of the trading scheme (through 'real reductions' and a high degree of transparency) and the maximum openness to all forms of reduction by all types of entities. Therefore, it allows project-based emission reductions as well as reductions that have been achieved outside the UK. Every achieved reduction, UK-based or outside of the UK, needs verification by a third party which in turn needs to be accredited as a certifier by the UK Emissions Trading Authority.

The proposed domestic trading scheme is linked in several ways to the legal environment of the European Union. First, it is intended to be compatible with a EU-wide trading scheme which might start as early as 2005. Second, the free allocation of allowances and the allocation of 'incentive money' requires the approval of the European Commission in the context of the revised environmental guidelines for State Aids which came into effect January 2001. Third, it must be in compliance with the legal frame of the common market. And fourth,

it aims to be compatible with reporting and monitoring standards established in the legal framework of the EU.

Many other technical questions are addressed in the DETR's proposal. However, open questions remain and changes are to be expected before the final definition of the rules in late 2001.<sup>9</sup> Among other unresolved issues, the very classification of tradable allowances is not yet clear – i.e. whether it will be classified as an investment or as a physical commodity.

The UK government is eager to promote London as the future center for international emissions trading. In addition, the International Petroleum Exchange (IPE) in London has signalled that it could establish a secondary market for CO<sub>2</sub> permits and perform many of the accounting and reconciliation functions needed for international trading (Ellerman 2000). To summarize, very favorable conditions facilitated the adoption of CO<sub>2</sub> emissions trading by the British government. Very much in the tradition of friendly government-industry relationships, a tight coordination mechanism was built, with many companies and the relevant regulators involved in regular, direct negotiations and discussions. Strong promoters supported the idea of emissions trading: BP Amoco because it was eager to create a business environment compatible with its company's internal structures and strategies, and the International Petroleum Exchange because it anticipated an important first mover advantage in an emerging international market.

### **Emissions trading in the Netherlands: recent policy shifts**

Government-industry relations in the Netherlands display a cooperative style directed toward compromise and consensus, and the policy system has strong neo-corporatist elements (van Iterson and Olie 1992, Liefferink 1997). Five transnational corporations have traditionally had a strong influence on overall economic developments: Shell, Unilever, Philips, DSM and AKZO (van Iterson and Olie 1992). Even though environmental policy differed from this general feature when it began in the early 1970s in an adversarial mode towards Dutch industry, it was brought back in line in the 1980s. Formal and informal ways of communicating and working with industry sectors as specific target groups for environmental policy are now a

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<sup>9</sup> In this scheme, much is left to the discretion of participating companies. They are free to choose how to trade their allowances, whether individually or through intermediaries such as brokers or exchanges. The government will establish an Emissions Trading Authority with the main function to serve as a central register. Every participant will have an allowances account and an emissions account at the registry. Other entities than participating companies can also buy and hold allowances (e.g. NGOs). They will also be granted an account at the registry. Every allowance counts for 1 t CO<sub>2</sub> emissions reduction and has a unique number. Any transfer of allowances completed has to be registered and verified at the registry. Data from the registry will be available to the public after each completed year of trading to ensure a high degree of transparency.

common policy approach. Although the environmental movement is relatively strong and also relatively coherent, the growing importance of the target group approach lead to a relative loss of influence of environmental groups in the policy formation process (Lieverink 1997). A reorientation of environmental policy occurred in 1988 and 1989, when the National Environmental Policy Plan (NEPP) was released. This plan defined basic steps toward a sustainable economy. Several specific traits of Dutch environmental policy need mention here. The first is its long time horizon and its trust in national planning. Basic targets for the shift to a sustainable economy were set in 1989 for the year 2010, which of course means thinking two decades ahead (Wallace 1995). The second is its strong international orientation. The Dutch government tries to stimulate international cooperation and to build and reinforce institutional structures at the international level, pursuing an 'active environmental diplomacy' in addition to domestic measures (Lieverink 1997). Third, and most important in this context, Dutch environmental policy has adopted a dominant model for reducing environmental pollution while preserving necessary flexibility for the industry: voluntary agreements between the government and specific industry sectors (Lieverink 1997, Wallace 1995).

With regards to global climate change, the Netherlands agreed to reduce their national emissions by 6% below 1990 levels as part of the EU burden-sharing agreement. However, the government has had difficulties achieving this goal, as the Dutch economy continues to rely on a highly energy-intensive industrial infrastructure, and as its growth rates are above the EU average (Gummer and Moreland 2000). In 1998, the Dutch government declared its intention to cover 50% of the national emissions reductions through measures taken domestically, and 50% through measures taken abroad. From its inception, this policy relied heavily on Joint Implementation. It started a first government tender to purchase emission reduction units through JI projects in Central and Eastern Europe in May 2000. The tender had a budget of 22.7 million euros and closed with 23 firms making offers (Ellerman 2000), with an additional US\$ 150 million set aside for deals during the next two years (Feemster 2000). The Netherlands have also contributed to the Prototype Carbon Fund (PCF), a World Bank program aiming at identifying and developing JI and CDM projects to offset emission reductions that can be used by investors of the PCF.

Recently, however, in August 2000, the Dutch government set up a commission to develop a domestic trading scheme for the Netherlands. This commission is expected to report to the Minister of Environment in 2001 (Ellerman 2000). It would be the first fully operational emissions trading scheme in the Netherlands. Shifting to more flexible and market based policy instruments to reduce emissions of pollutants has been debated since the early 1980s. One idea was to learn from policy innovations and experience gained in the US (in 1983). A series of workshops and meetings of government representatives, regional authorities and representatives from industry and environmental groups was held in 1995, and a study was issued on the applicability of tradable permits for SO<sub>2</sub> and NO<sub>x</sub>. However, huge differences

between believers and non-believers in emissions trading remained, and no program was implemented (Dekkers 1999).

No details of the commission's proposal for a domestic trading scheme are known as of now, but it can be expected to be strongly influenced by Shell, the Dutch transnational oil company that has engaged in an internal company-wide trading scheme. Another point of reference will be the development of an EU-wide trading scheme by 2005. The strong international orientation of Dutch environmental policy might facilitate the adoption of policy tools that are perceived to play a future role at the international level. Furthermore, a trading mechanism can be expected to find strong cultural support. However, two possible conflicts with the established policy system might emerge through the adoption of a domestic trading scheme or preparations for international trading. It might collide with the dominant model of voluntary agreements with industry sectors, and it might also interfere with the long-held interest in Joint Implementation.

### **The absence of emissions trading in Germany: centralized opposition**

"... German environmental policy-makers have a history of relatively poor relationships with industry, characterized by polarized, opposing views and mutual distrust. In this respect Germany is similar to the United States. (If Germany's environmental laws have been less absurd than those of the United States, it is because the expertise and technical understanding of the regulators in the German Environment Ministry and Agency far outstrips the knowledge of the legislators in the US Congress.)" (Wallace 1995: 78). This analysis relates to the late 1980s and early 1990s. German industry estimated the combined private and public sector expenditure for environmental protection of 1.74% of GDP in 1991, as opposed to 1.36% in the US and 1.02% in Japan (source: BDI, cf. Wallace 1995: 71), and used the argument of high costs during the recession in 1991 onwards to block further environmental legislation. In a similar way, an adversarial relationship characterized contacts between the environmental Ministry and environmental groups and NGOs. Furthermore, the environmental movement in Germany was highly fragmented (Pehle 1997). Some of these characteristics have gradually changed over the last few years. In particular, the German government has tried to develop a more cooperative approach towards industry.

This shift has also influenced the German climate change policy in recent years. Even before the start of the negotiations for an international agreement on climate change in 1992, Germany had adopted a voluntary target of a 25% CO<sub>2</sub> emissions reduction by 2005, based on 1990 emissions. Early reductions were achieved mainly through closing down inefficient and energy intensive production sites and highly polluting lignite-fueled power plants in the former East Germany, whereas a slight increase of GHG emissions could be observed in

West Germany (Gummer and Moreland 2000). As part of the EU burden sharing under the Kyoto Protocol, Germany's national reduction target is 21%. Furthermore, the internal domestic target of 25% has not been dropped.

The German policy relies heavily on domestic measures to reduce CO<sub>2</sub> emissions. In general, opposition by the government, industry and environmental organizations against flexible mechanisms (emissions trading as well as Joint Implementation) was strong prior to Kyoto (Chasek et al. 1998). In 1996, the Expert Panel on Environmental Questions (Sachverständigenrat für Umweltfragen, SRU) proposed the establishment of a domestic market for CO<sub>2</sub> emission licences, an instrument comparable to tradable emission allowances (SRU 1996). Again in 1997, a group of German economists published a statement on the German climate change policy after Kyoto and strongly recommended the establishment of a market for emission rights that would seek to include a maximum number of EU member states as well as other Annex I countries (Ewers et al. 1997). However, the government (by then still a coalition of the conservative Christian Democratic Party and the liberal Free Democratic Party) accepted a voluntary agreement with industry to cut their emissions by 20% by 2005, to avoid any form of eco- or energy tax. The voluntary agreement, which was strongly influenced by the Council of German Industry (Bund Deutscher Industrie, BDI), has been renewed several times and is monitored by an inter-departmental ministerial committee and by the Rhineland-Westfalian Institute for Economic Research.

In recent reports it has become obvious that Germany has fallen short of its national reduction target, and that it will be difficult to achieve in the near future without more substantial policy changes (Gummer and Moreland 2000; Berdowski et al. 1999). However, the government unveiled a national climate protection program in October 2000 (BMU 2000). Important elements of the program are investments in renewable energy sources and photovoltaic energy, the promotion of combined heat and power and district heating, improved energy efficiency in new houses, and improved insulation in old houses.

There is a growing feeling that Germany has been left behind in the international developments of the flexible mechanisms under the Kyoto Protocol. Some environmental NGOs began lobbying for the adoption of flexible mechanisms in Germany (German Watch, WWF); economists do not refrain from promoting the idea; individual politicians have begun to recognize growing public pressure; individual companies have started breaking away from the doctrine of the BDI (HEW, Gerling); and even the BDI itself has made some symbolic announcements that the possibility of future market-based mechanisms might be discussed (BDI 2000). At the Laender level, some initiatives have been started under Christian Democratic governments to gain experience with the instrument of tradable permits. In August 2000, representatives of 18 companies, industry agencies, and the World Wildlife Fund (WWF) met in Berlin to discuss possibilities of a domestic trading scheme with the

German government. The meeting was organized by PriceWaterhouseCoopers and the German stock exchange authority. In October 2000, a more formal working group with representatives of the Federal Environmental Ministry and companies and associations was established. However, Germany is still far from developing a domestic trading scheme, and it is unclear in what way it will relate to a future EU-wide CO<sub>2</sub> emissions market.

The role of industry associations is particularly important for understanding the German response to CO<sub>2</sub> emissions trading. They traditionally have a strong influence in negotiating on behalf of their member companies. They were crucial in the German 'alliance' to refuse emissions trading as a legitimate tool for environmental policy. Furthermore, potential supporters of emissions trading remained relatively weak and unorganized. The financial sector did not develop any particular interest. The broker companies that are involved in the debate in Germany are usually large international organizations based in the United States. Any attempt to establish a domestic trading scheme in Germany will probably be very late and strongly influenced by already existing models and international pressures.

### **Preliminary conclusions and outlook**

This overview of preliminary results has found extensive variation in company behavior, in emerging organizational fields, and in national institutional contexts. In the absence of binding international regulation, many initiatives to establish market infrastructures, define basic rules and develop standards exist in parallel and occasionally compete with one another. It is striking to see that at present, the most important initiatives are embedded in the national institutional context of the countries involved, and types of organizational fields vary cross-nationally.

In the case of the UK, the first initiatives were developed by BP Amoco trying to create a business environment compatible with its company's internal structures. Later, the strong coordinating role of the state created an organizational field around the issue of a domestic emissions trading scheme. The threat of being hit by a relatively high climate change levy brought together crucial elements of several industries to set up the market and define the rules for trading.

In the US, an organizational field evolved around the issue of CO<sub>2</sub> emissions trading with a virtual absence of state initiatives. In fact, clusters of organizations experimenting with it appear to be so loosely coupled that one could speak of several organizational fields (sometimes competing) at the same time. However, the mechanisms of orientation in those fields is more like the sharing of information and mutual learning, guided by promoters from

the private sector. It will be interesting to see to what degree the SO<sub>2</sub> trading experience will be perceived as the successful model setting standards for future trading schemes.

It is the conspicuous absence of any organizational field around the issue of CO<sub>2</sub> emissions trading that best describes the German situation. Rather, the established relations between industrial associations and the government effectively blocked the evolution of this new tool in favor of voluntary agreements by industry, and the setting of technological standards by the government. Until very recently, the few individual companies, NGOs, and political bodies who were in favor of trading remained largely unconnected and were not able to overcome the strong cultural resistance against “selling pollution”.

It can be assumed that in the Netherlands, an organizational field of industry associations and government agencies exists around the issues of climate change and the need to reduce emissions. However, the preferred solution to the perceived problem of not achieving the reduction target through domestic measures has been to employ the mechanism of Joint Implementation. With new plans for a domestic trading scheme on the horizon, it will be interesting to see whether such a scheme can be integrated into existing institutional arrangements.

However strong the imprinting influences of national institutional contexts may be, it is clear that important developments take place at the international or transnational level. Organizations like the World Bank, the International Energy Agency and several UN bodies are involved in experiments with CO<sub>2</sub> emissions trading, and their definitional power will probably be considerable, especially with regard to the establishment of an international or even worldwide market for CO<sub>2</sub> emission reductions. Likewise, the mimetic copying of trendsetters such as BP Amoco already plays a role in the behavior of several large transnational corporations. Therefore, theoretical issues of interest in this project are, first, inter-field dynamics between competing organizational fields; and second, multi-level analysis of the interactions between globalizing pressures and national imprinting patterns. Different institutional contexts will lead to different outcomes in the realization of market schemes for CO<sub>2</sub> emissions trading. These differences can affect each trading scheme's credibility to provide real emission reductions and thus its legitimacy with regard to environmental standards; the willingness of potential market participants to sell and buy, and thus the liquidity of the market; and companies' ways of interpreting the transformation of CO<sub>2</sub> emission reductions from obligatory costs to valuable assets.

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## Appendix I

### Individual country emissions targets under the Kyoto Protocol as a percent of 1990 emissions

Australia	108
Austria**	87
Belgium**	92.5
Bulgaria*	92
Canada	94
Croatia*	95
Czech Republic*	92
Denmark**	79
Estonia*	92
European Community	92
Finland**	100
France**	100
Germany**	79
Greece**	125
Hungary*	94
Iceland	110
Ireland**	113
Italy**	93.5
Japan	94
Latvia*	92
Liechtenstein	92
Lithuania*	92
Luxembourg**	72
Monaco	92
Netherlands**	94
New Zealand	100
Norway	101
Poland*	94
Portugal**	127
Romania*	92
Russian Federation*	100
Slovakia*	92
Slovenia*	92
Spain**	115
Sweden**	104
Switzerland	92
Ukraine*	100
United Kingdom of Great Britain and Northern Ireland**	87.5
United States of America	93

**Note:**

\* Countries that are undergoing the process of transition to a market economy

\*\* The EU as a whole agreed to a target of 92% of its 1990 emissions. EU countries have negotiated the sharing of the EU's aggregate burden. The EU burden sharing targets are listed in the table above.

Source: <http://63.92.1.71/documentation/kyototargets.asp>

## Appendix II

### Technical features of the UK national CO<sub>2</sub> emissions trading scheme (proposed by the government as of November 2000)<sup>10</sup>

<b>participation</b>	voluntary participation; all UK based companies (entities) with a defined minimum annual absolute reduction target; open to new and late entries; energy intensive companies subject to the climate change agreements
<b>allocation of targets and allowances</b>	targets self-defined by participants through a bidding process linked to the financial incentive mechanism; allowances based on the principle of grandfathering; free allocation of allowances
<b>baseline</b>	average annual emissions in the 3 years up to and including 2000
<b>trading mechanism</b>	individually or through brokers; can be traded through an exchange; transfers need to be registered at the national Emissions Trading Register; transfers will be made online in realtime
<b>monitoring and verification</b>	subject to a national reporting and baseline protocol for CO <sub>2</sub> emissions; third party verification through accredited certifiers
<b>role of government</b>	<b>Central government:</b> formulation and provision of the legal framework for the rules of the trading scheme. <b>Through the DETR:</b> allocation of incentive payments. <b>Through the Emissions Trading Authority:</b> approval of protocols for monitoring and reporting emissions data; approval of accreditation process for verifiers of emissions data; policing compliance with the rules of the scheme; levying any penalties on those in non-compliance; operation of the registry of allowance holdings and emissions; approval of emission-reduction projects (all functions can be contracted out to other organisations).
<b>banking and borrowing</b>	banking allowed, with some restrictions after 2007; borrowing not allowed
<b>liability</b>	yet undecided
<b>inclusion of CDM/JI</b>	inclusion of credits through CDM/JI projects in the UK emissions trading scheme allowed
<b>UK based emission reduction projects</b>	inclusion of credits through UK based projects in the UK emissions trading scheme allowed
<b>compliance mechanisms</b>	during voluntary phase: publication of non-compliance; non-allocation of incentive money; withdrawal from reduction to climate change levy

<sup>10</sup> Source: DETR 2000.