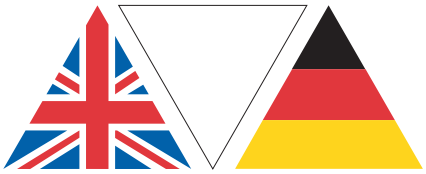

Anglo-German Foundation for the Study of Industrial Society/
Deutsch-Britische Stiftung für das Studium der Industriegesellschaft

The Politics of Emissions Trading in Britain and Germany

Rüdiger K. W. Wurzel

2008

The Politics of Emissions Trading in Britain and Germany

Rüdiger K. W. Wurzel

Department of Politics and International Studies, University of Hull

October 2008

Anglo-German Foundation for the Study of Industrial Society

The Anglo-German Foundation contributes to the policy process in Britain and Germany by funding comparative research on economic, environmental and social issues and by organising and supporting conferences, seminars, lectures and publications which encourage the exchange of knowledge, ideas and best practice, both between the two countries and between researchers and practitioners.

Die Deutsch-Britische Stiftung trägt zur politischen Entscheidungsfindung in Deutschland und Großbritannien bei, indem sie vergleichende Forschungsprojekte im Bereich Wirtschafts-, Umwelt- und Sozialpolitik fördert. Neben regelmäßigen Publikationen werden von der Stiftung Konferenzen, Seminare und Vorträge organisiert und unterstützend begleitet. Ziel ist es, den Ideen-, Wissens- und Erfahrungsaustausch zwischen deutschen und britischen Experten aus Theorie und Praxis anzuregen und den Transfer von Best Practice zu fördern.

Anglo-German Foundation for the Study of Industrial Society/
Deutsch-Britische Stiftung für das Studium der Industriegesellschaft
34 Belgrave Square, London SW1X 8DZ
Tel: +44 (0)20 7823 1123 Fax: + 44 (0)20 7823 2324
Website: www.agf.org.uk

In memory of my mother

Contents

List of tables

Acknowledgements

I am grateful to the Anglo-German Foundation (AGF) for funding the research (project number 1493) for this report. In particular I would like to thank Dr Ray Cunningham for his encouragement and patience throughout the project. My thanks also extend to Ann Pfeifer, Annette Birkholz and other AGF staff. The report has benefited from being able to participate in the Sixth British-German Environmental Forum on '"Trading up": Improving and Extending the European Carbon Market' in Berlin on 26–27 March 2007.

I would also like to thank the Hull Environment Research Institute (HERI) and the Faculty of Arts and Social Sciences at the University of Hull for providing small grants for additional research and for funding my attendance at the *ENDS* conference on emissions trading in London on 30 January 2007.

This report could not have been written without the generous help of British, German and EU interviewees who gave up their precious time. Their names are not listed for reasons of confidentiality. This report is based on more than 60 interviews (with more than 70 interviewees) in Berlin, Bonn, Bristol, Brussels, Frankfurt and London. All errors and normative interpretations in this report remain my responsibility.

Executive summary

The most important differences in the politics of emissions trading in Britain and Germany are as follows:[1]

- Britain has been an emissions trading pioneer, setting up the first national greenhouse gas emissions trading scheme. It has also supported the European Union (EU) emissions trading scheme (ETS). Britain adopted a national ETS in order to reduce its greenhouse gas emissions, gain practical experience ahead of EU/global emissions trading and offer a model for the EU. The importance of the City of London and support for emissions trading amongst British industry are a central factor in Britain's pioneer status.

- Germany has been an emissions trading laggard. It opposed the insertion of emissions trading in the Kyoto Protocol and the adoption of an EU ETS. It has failed to adopt a national emissions trading pilot scheme. In Germany, emissions trading was opposed by the coal and chemical industries and their unions. Chancellor Schröder (SPD) and Economics Minister Clement (SPD) initially also opposed the adoption of the EU ETS.

- The adoption of the UK ETS and EU ETS did not involve a straightforward policy transfer from America to Europe. However, the early American ETS experience was an important reference point for European emissions trading advocates. Moreover, the American insistence on emissions trading in the 1997 Kyoto Protocol provided new opportunity structures for European emissions trading advocates.

- The first trading phase of the EU ETS has produced a significant over-allocation of allowances in Germany and, although to a lesser degree, Britain, which generated windfall profits for power companies.

- The main achievement of the EU's emissions trading phase is the establishment within a remarkably short time period of the complex architecture of a (semi-) functioning market which puts a price on carbon dioxide allowances, although the price has been very low for much of the first phase. Most analysts and practitioners agree that the low price for carbon dioxide allowances during much of the first trading phase (2005–7) was the result of overly generous allocations that produced huge windfall profits for power companies in particular.

- The Commission has taken a tough stance regarding the national caps for the second trading phase (2008–12). It aimed to reassure market actors, governments and stakeholders that the EU ETS will become an important policy instrument in the fight against climate change.

---

[1] For practical reasons the terms 'Britain' and 'United Kingdom' ('UK') are used interchangeably, although the UK also includes Northern Ireland. 'Germany' refers to the Federal Republic of Germany, both pre- and post-unification.

- The success of the second phase of the EU ETS will depend on lessons being learnt from the first trading phase and on avoiding mistakes when linking the EU ETS to the Kyoto Protocol's other flexible mechanisms. The EU ought to be wary about linking its ETS with those in countries that are governed by unscrupulous political regimes which have little interest in averting the threat of global climate change.

1 Introduction

The threat of climate change is one of the most serious contemporary political problems. The European Union's (EU) emissions trading scheme (ETS) has emerged as one of the most important policy instruments with which European policy makers intend to tackle the threat of climate change. However, while some analysts have advocated emissions trading as the most cost-efficient policy instrument for this purpose (for example, Ellerman *et al*., 2007a), others have warned that it will lead to the neoliberalisation of European environmental policies while doing little to prevent climate change (Bailey, 2007; Lauber, 2007).

There are excellent studies by economists on the economic merits of the EU ETS (for example, Ellerman *et al*., 2007a; Hansjürgens, 2005) and on the United Kingdom (UK) ETS (for example, National Audit Office, 2004; Smith and Swierzbinski, 2007). There are also very good studies on the reasons for the introduction of emissions trading in the EU (for example, Damro and Méndez, 2003; Wettestad, 2005) and/or a particular member state (for example, Lawrence, 2007; Rudolph, 2005; Ziesing, forthcoming). However, so far there has been no major Anglo-German comparison that analyses the politics behind the introduction *and* implementation of emissions trading, despite the fact that these two EU member states constitute a particularly interesting case study: Britain became an emissions trading pioneer while Germany acted as an emissions trading laggard. This AGF report aims to fill this gap by explaining why Britain and Germany have taken such different paths.

Sascha Lafeld (2003) has argued that Germany's reluctance to innovate with emissions trading provides evidence of a deeper malaise in the German political system in dealing with the new challenges of global governance. The recent economic reform literature has also argued that Germany's social market economy model faces great adaptation pressures from globalisation and Europeanisation (for example, Dyson and Padgett, 2003). Emissions trading, which is often portrayed as a (neoliberal) market-based policy instrument, should offer a good case study for 'testing' such claims as it is widely assumed that it fits more easily Anglo-Saxon types of capitalist states (for example, Britain and the USA) than social-market oriented states exhibiting corporatist features (for example, Germany and Austria).

It will be argued in this report that emissions trading forms part of a wider range of 'new' environmental policy instruments (NEPIs), which include not only market-based instruments (such as emissions trading and eco-taxes) but also voluntary agreements and informational devices (for example, eco-labels) (Jordan *et al*., 2003a, 2005a). Over time, different countries have adopted different national environmental policy instrument repertoires which can have a constraining effect on the adoption of new innovative instruments such as emissions trading (Jordan *et al*., 2003a). In order to understand the politics of emissions trading in Britain and Germany it will therefore be necessary briefly to assess some of the other NEPIs that have been adopted in Britain, Germany and the EU. Emissions trading will be the main focus of this report, however.

This report proceeds as follows. Part 2 explains when, how and by whom emissions trading was pushed onto the political agenda in Europe. Part 3 analyses who advocated and who opposed the adoption of emissions trading as a possible policy tool for complying with the targets of the 1997 Kyoto Protocol. Part 4 assesses Britain's successful and Germany's unsuccessful attempts to set up domestic ETSs. Part 5 analyses the role that Britain and Germany have played in the adoption of the EU ETS and its implementation. Finally, Part 6 offers a comparative analysis of the politics of emissions trading in Britain and Germany.

2 The Arrival of Emissions Trading in Europe through Policy Instrument Transfer?

The Canadian economist John Dales (1968) laid the intellectual foundations for emissions trading in his book *Pollution, Property and Prices* (Hansjürgens, 2005:5; Lafeld, 2003:44; Schafhausen, 1999). However, for a long time emissions trading remained a theoretical concept that was discussed amongst environmental economists but shunned by policy makers. Most environmental economists have long argued that market-based instruments are more cost-effective compared to traditional 'command-and-control' regulation. However, at first only a minority of environmental economists advocated emissions trading, while the majority favoured eco-taxes. In Britain and Germany, influential economists (for example, David Pearce and Karl-Heinz Hansmeyer) initially tried to persuade policy makers to adopt eco-taxes rather than emissions trading, although there were some exceptions (interviews, 2005–7). Moreover, most environmental non-governmental organisations (NGOs) initially opposed the introduction of emissions trading on ethical grounds, while stating that 'no one should profit from pollution' or by comparing them to the 'sale of indulgences' (interviews, 2007). Prior to the 1990s, industry in both Britain and, more strongly, Germany was mainly sceptical about emissions trading (Jordan *et al*., 2003a). Unsurprisingly, therefore, European environmental policy makers hesitated to innovate with emissions trading.

The UK ETS and the EU ETS were adopted only at the beginning of the twenty-first century, although early emissions trading variants have been used in the USA since the 1970s (Hansjürgens, 2005; Rudolph, 2005). However, as Schreurs (2002:106) has pointed out: 'while emissions trading has been in existence [in the USA] for many years, outside of a few cases, it was not extensively used until the formation of the Clean Air Act of 1990'. In the USA, emissions trading became a popular NEPI amongst policy makers at the same time as eco-taxes became 'almost a four letter-word' (Nordhaus, 2007:43), particularly under Republican administrations.

The politics of emissions trading in Britain and Germany cannot be explained without reference to the USA, for two main reasons. First, the early American sulphur dioxide (SO_2) and nitrogen oxide (NO_x) ETSs became an important reference point for (European) emissions trading advocates (interviews, 2005–7). Second, without the USA's insistence, emissions trading would not have been included in the 1997 Kyoto climate change protocol (Grubb *et al*., 1999).

European emissions trading advocates often made reference to early American emissions trading experience when hailing the superior cost effectiveness of ETSs compared to traditional 'command-and-control' regulation in particular. However, one (pro-emissions trading) German Environment Ministry (*Bundesministerium für Umwelt* – BMU) official has pointed out that Germany's reliance on 'command-and-control' regulations achieved reduction rates in Germany within a much shorter timeframe that were about ten times bigger than the ETS-induced SO_2 reductions in America (Schafhausen, 1999:32–33; similarly BBC, 2007; Lauber, 2007). Standard economic cost–benefit analysis has also failed

to adopt a life-cycle analysis which could account for emissions caused by transporting low sulphur coal over long distances to American power stations that considered this option as more cost-efficient compared to the adoption of innovative new abatement technologies (Schafhausen, 1999:32–33; Lauber, 2007). The creation of 'lead markets' (Jänicke and Jacob, 2002) for new abatement technologies that can be exported to other countries has been an important feature of German environmental policy which is usually ignored by neoliberal economists. European (and in particular German) policy makers therefore had little incentive to emulate the early American ETSs.[2]

It has been argued that 'the introduction of an emissions trading system in EU environmental policy stems from a process of policy transfer, derived from the negotiations between the US and the EU at the Kyoto summit' (Damro and Méndez, 2003:74). The UK ETS has also been perceived as the result of policy transfer from the 1997 Kyoto Protocol (Lawrence, 2007). These arguments seem to fit the explanation that the widespread recent adoption of NEPIs (including emissions trading) are the result of policy transfer from 'first mover' countries through a global diffusion process (Jörgens, 2003; Kern *et al*., 2000). David Dolowitz and David Marsh (1996) have identified a continuum which ranges from 'voluntary' to 'coercive' policy transfer. It could therefore be argued that the USA encouraged both 'voluntary' policy transfer (that is, the emulation of its early emissions trading experience) and imposed 'coercive' policy transfer (that is, the insertion of emissions trading into the Kyoto Protocol against the opposition of the EU, and Germany in particular).

Clearly, emissions trading was pushed onto the agenda of EU, British and German environmental policy makers as a result of the 1997 Kyoto Protocol (Damro and Méndez, 2003; Wettestad, 2005). Michael Grubb and colleagues (1999:206) have pointed out that '[e]missions trading ... was, for the United States and some other Parties, the crux on which Kyoto stands, and on which it very nearly fell'. The EU was initially opposed to including emissions trading in the Kyoto Protocol. The German government in particular raised concerns that global emissions trading would allow affluent countries to buy 'hot air' (from countries such as Russia which had been given overly generous Kyoto targets) instead of having to adopt innovative domestic actions for reducing their GHGE (interviews, 2006).

American officials and some NGOs tried to soften up the initial European opposition to emissions trading by touring Europe while praising the positive early American emissions trading experience (interviews, 2005–7; Grubb *et al*., 1999; Rudolph, 2005). These actors could therefore be regarded as agents of policy instrument transfer. One EU official (interview, 2005) pointed out that around the time of the Kyoto Protocol negotiations, American interest groups,

> which strongly favoured emissions trading, kept on attending important international conferences in Europe in order to praise the benefits of emissions trading ... For example, Environment Defense sent people over to Europe... Later on the Americans stayed away.[3]

---

[2] However, some aspects of the American bubbles policy found their way into the German Federal Ambient Air Quality Ordinance *(Bundesimmissionsschutzgesetz)* (Schafhausen, 1999).

[3] Environmental Defense is an American environmental NGO which has long been campaigning for the adoption of market-based instruments (see http://www.edf.org/home.cfm).

America tried to offer a model for others to follow (by providing the first practical emissions trading experience) and acted as a political hegemon (by imposing its national preference for emissions trading on the signatories of the 1997 Kyoto Protocol). It is highly unlikely that the UK ETS and/or the EU ETS could have been set up as quickly as they were without America setting a domestic example and insisting on emissions trading in the 1997 Kyoto Protocol. However, the specific rules of the UK (GHGE) ETS and EU (CO_2) ETS turned out to be different from the American (SO_2 and NO_x) ETSs. If anything, it was the principal idea rather than specific emissions trading rules which were transferred from America to Europe via the 1997 Kyoto Protocol (Jordan *et al*., 2005b).

The fact that the 1997 Kyoto Protocol already stipulated 2008–12 as the possible start date for a global ETS required European policy makers to take emissions trading seriously and provided emissions trading advocates with an opportunity to push for the adoption of their favoured NEPI in Europe. The American ETS experience was an important reference point, particularly during the agenda setting phase of the UK ETS and EU ETS. However, its importance waned during the adoption and implementation phases of the UK ETS and EU ETS 'because of the institutional, legal and cultural differences between Europe and America' (interview, 2005).

Table 1 provides an overview of some of the most important events and key dates of the complex politics of climate change which led to the adoption of emissions trading within a multi-level governance arena. It was drawn up to guide the reader better through the following three interlinked decision-making levels: (1) international, (2) supranational/EU and (3) national.

Table 1
Key dates and events

	United Nations	European Union	Britain	Germany
1990			White paper emphasises the need for market-based instruments (including ETS).	Early 1990s: BMU failed to set up pilot ETS.
1992	UN Framework Convention on Climate Change (UNFCCC) adopted.	Commission proposal on carbon dioxide/ energy tax (vetoed by UK).		
1994	UNFCCC entered into force.			
1995	1st Conference of the Parties (COP) in Berlin. USA insists on emissions trading. 2nd IPCC report.			German government adopts national 25% CO_2 reduction target. Voluntary agreement (VA) to reduce GHGE put forward by industry.
1996	2nd COP in Geneva.			Second GHGE VA.
1997	Kyoto Protocol signed at the 3rd COP.			
1998	3rd COP in Buenos Aires makes little progress on ETS.	Commission communication on Climate Change – Towards an EU Post-Kyoto Strategy suggests setting up an EU ETS.	ACBE endorses ETS. BP implements internal ETS. Marshall report advocates economic instruments.	Ecological tax reform.
1999			Business-led UK Emissions trading Group (ETG) set up. Climate Change Levy (CCL) announced by government.	
2000	No agreement on rules for flexible mechanisms at the 5th COP at The Hague.	European Climate Change Programme launched. Green paper on EU ETS. Multi-stakeholder EU ETS working group.	Environment Ministry consultation on GHG emissions trading. UK climate change programme adopted.	Working Group Emissions Trading (AGE) set up.
2001	6th COP in Bonn (waters down supplementarity clause). USA abandons Kyoto Protocol. 7th COP in Marrakech signals continuation of Kyoto process.	Commission proposes EU ETS directive after meetings with stakeholders (4 September) and member governments (10 September).	CCL takes effect.	Third VA to reduce GHGE put forward by industry.

(continued)

Table 1
Key dates and events (continued)

	United Nations	European Union	Britain	Germany
2002		EP and Council of Ministers adopt common position in first reading on the EU ETS directive.	UK national ETS becomes operational.	
2003		EU ETS directive adopted by EP and Council. Commission proposes Linking directive.		BMU draws up draft NAP. GHGE Trading Act adopted by cabinet. *Bundesrat* data collection decision. High level ETS group made up of BMU and Economics Ministry officials set up.
2004	Russia ratifies the Kyoto Protocol in November.	Commission issues guidance on ETS on 7 January. Submission deadline for (EU-15) NAPs on 31 March/1 May. EU Linking directive adopted.	1st NAP submitted to the Commission in April. Revised first NAP submitted in November. Commission rejects revised 1st NAP. UK takes legal action.	Dispute about 1st NAP between Trittin (BMU) and Clement (Economics Ministry) settled at meeting in Chancellory. *Bundestag* and *Bundesrat* adopt Emissions trading Law, Allocation Act 2007 and Emissions Trading Cost Regulation. German 1st NAP approved. DEHST set up.
2005	Kyoto Protocol enters into force on 16 February.	Commission proposal to include aviation in EU ETS.		National Climate protection programme.
2006		Commission accepts UK's 2nd NAP but requests reductions to German 2nd NAP.	2nd NAP submitted to the Commission.	2nd NAP submitted to the Commission.
2007		Commission communication on EU ETS review. European Council adopts unilateral 20 per cent GHGE reduction target by 2020 and offers 30 per cent reduction if others make 'comparable efforts'.		Cabinet accepts the Commission's cuts to the 2nd NAP. *Bundestag* votes in favour of 8.8 per cent auctioning during the 2nd EU ETS phase.

3 The Kyoto Protocol and Emissions Trading

Britain and Germany, as well as the EU, tried to take on a leadership role in international climate politics at the 1992 UN Rio conference which adopted the UN Framework Convention on Climate Change (UNFCCC). The EU initially proposed a 15 per cent reduction in GHGE (by 2012 compared to 1990 levels) on condition that its main economic competitors (that is, the USA and Japan) would accept similar reduction rates. However, cuts of this magnitude were unacceptable to the USA which eventually accepted a 7 per cent reduction target while insisting on the inclusion of emissions trading in the Kyoto Protocol. The EU therefore settled merely for an 8 per cent reduction target in GHGE by 2012.

Grubb and colleagues (1999:87) have pointed out that

> [w]hile the EU's main focus was on the internal policies and measures that its member states might adopt, and the effort to hold other countries to flat-rate emission reductions, the eyes of the United States ... were focused in the opposite direction: on what they might exact from other countries, and thus lessen the domestic pressure.

In order to keep the USA on board in the international climate change negotiations, the 1997 Kyoto Protocol endorsed the following three flexible mechanisms: (1) emissions trading; (2) a Clean Development Mechanism (CDM) under which developed countries can be granted emission reduction units (ERUs) if they sponsor certified GHGE reduction projects in the developing world; and (3) joint implementation (JI) which allows certain countries to implement GHGE projects jointly. Importantly, the three flexible instruments are linked so that ERUs accrued from CDM projects can be traded in the first phase of the global ETS (2008–12).

The EU, and particularly Germany, lobbied hard for the Kyoto Protocol to state that at least 50 per cent of GHGE reductions should be achieved by domestic action (rather than through the flexible mechanisms). Eventually the EU had to settle for a clause which stated that 'trading shall be supplemental to domestic actions' (Kyoto Protocol, article 17). Because the 1997 Kyoto Protocol remained vague about the rules for a global ETS, it was left to the Conference of the Parties (COP) 'to define the relevant principles, modalities, rules and guidelines for verification, reporting and accountability for emissions trading' (Kyoto Protocol, article 17). The sixth COP, which met in Bonn in 2001, watered down the supplementary clause by reducing the requirement for domestic action to merely a 'significant element' (Lafeld, 2003:79).

Ellerman and Buchner (2007b:67) have argued that 'European antipathy to emissions trading was never so strong as an observer at the negotiations in Kyoto and later Conferences of the Parties might have been led to believe'. This observation is correct only in so far as Britain (as well as Denmark, the Netherlands and Sweden) perceived emissions trading as a possible policy instrument in the long term. However, Germany (as well as other member states, for example, Austria) fought hard to prevent the inclusion of emissions trading in the Kyoto Protocol and, having failed, insisted on the inclusion of

the supplementarity clause. Some member states suspected that the American insistence on emissions trading was a tactical manoeuvre to delay emission reductions because the setting up of a global ETS was widely considered as a time consuming venture (Grubb *et al*., 1999).

It is therefore ironic that the EU became the largest potential user of emissions trading when US President George W. Bush announced in March 2001 that the USA no longer intended to ratify the Kyoto Protocol that had been signed by his predecessor, Bill Clinton. The EU subsequently undertook strenuous efforts to keep alive the Kyoto ratification process by cajoling Japan and Russia to ratify the protocol. However, environmental NGOs have warned that Russia is likely to sell 'hot air' under a future global ETS because its GHGE emissions have declined significantly due to rapid deindustrialisation rather than environmental policy measures (interviews, 2005–7).

The EU adopted an internal 'burden-sharing' agreement which allocated variable CO_2 reduction targets to different member states. Under the burden-sharing agreement, Britain accepted 12.5 and Germany 21 per cent as national CO_2 reduction rates by 2012. At the time of the signing of the Kyoto Protocol, the British government announced a national 20 per cent reduction target, while the German government offered a domestic 25 per cent reduction target by 2010. In 2007, the British government ratcheted upwards its CO_2 reduction target for 2050 to 60 per cent, while the German government pledged a 40 per cent CO_2 reduction target already by 2020 on condition that the EU would accept a collective 30 per cent CO_2 target.

Britain and Germany were helped in their efforts to adopt a leadership role in EU and international climate-change politics because they both benefited from developments unrelated to environmental policy. In the 1980s, the British government instigated (for cost and political reasons) a dash from high carbon intensive coal to gas, which has a lower carbon intensity. Due to reunification, Germany benefited from 'wall fall profits' in terms of significant CO_2 emission reductions that were the result of the rapid deindustrialisation of the former East Germany.[4] By 2005, Britain had overachieved by 1.7 per cent its 12.5 per cent EU burden-sharing agreement target (although it was still 5.8 per cent away from its 'voluntary' 20 per cent national target), while Germany still needed a 2.2 per cent cut to achieve its 21 per cent EU burden-sharing target (and 6.2 per cent to fulfil its 'voluntary' 25 per cent national target).

[4] However, one German official (interview, 2005) pointed out that these environmental wall fall profits were achieved at a huge economic cost.

4 British and German Efforts to Set Up National Emissions Trading Schemes

4.1 Britain as a Pioneer

Britain acted as a pioneer when it established the world's first ETS for greenhouse gases in 2002 (DEFRA, 2003b).[5] This is perhaps surprising considering that Britain has used market-based instruments in environmental policy only since the 1990s (Jordan *et al*., 2003b). The 1990 White Paper *This Common Inheritance. Britain's Environmental Strategy*, published by a Conservative government, made only passing reference to emissions trading, although it flagged up the need for eco-taxes (HM Government, 1990:275–76). Throughout the 1990s, British (Conservative and Labour) governments adopted a range of eco-taxes but refrained from adopting a national ETS (Jordan *et al*., 2003b:185; Smith and Swierzbinski, 2007).

In 1993, a Conservative British government introduced value added tax (VAT) on domestic fuel and the so-called fuel escalator, which increased road fuel tax above the annual inflation level (Jordan *et al*., 2003a:187). However, in 1997 a newly elected Labour government scrapped VAT on domestic fuels (due to a rise in 'fuel poverty' amongst the poor) and stopped the automatism of the unpopular fuel escalator. The pro-market 'New' Labour government generally endorsed the use of market-based instruments, so much disliked by 'Old' Labour that had favoured state interventionism and 'command-and-control' regulation. Jordan and colleagues (2003b:188) have pointed out that '[t]he arrival of a new Labour government with (relatively) ambitious environmental policies ... added fresh impetus to the domestic debate about [market-based instruments]'.

In 1998, the Treasury commissioned a report from Lord Marshall which advocated eco-taxes while also positively reviewing emissions trading (Marshall Report, 1998). Importantly, the Marshall Report 'recommended a "mixed approach", combining existing forms of regulation with economic instruments' (Smith and Swiezbinski, 2007). In the 1999 budget, Chancellor of the Exchequer Gordon Brown announced the introduction of a Climate Change Levy (CCL) which took effect from April 2001 (Jordan *et al*., 2003b). It became part of Britain's Climate Change Programme which, in addition to the CCL, also included voluntary Climate Change Agreements (CCAs) and an UK ETS. Voluntary agreements (that is, the CCAs), eco-taxes (the CCL) and emissions trading (the UK ETS) became interlinked and formed a mixed approach as recommended by the Marshall Report. Companies that participated in CCAs received an 80 per cent reduction from the CCL and became so-called indirect participants in the UK ETS (Smith and Swierzbinski, 2007).

[5] Denmark adopted an ETS as early as 2001, though it covered only CO_2 emissions from the power sector.

One former British official (interview, 2007) argued

> Yes, the White Paper in 1990 and the Marshall Report in 1998 were important steps. However, the key step was the Kyoto Protocol which envisaged reducing emissions on the world stage. We did not want it [that is, emissions trading, RW] to become a European inward looking process. Instead we felt that it was important to create a link with CDM and JI in order to involve also the developing world.

Initially it seemed that the Labour government's proposals for the introduction of the CCL and CCAs might rule out the adoption of a national ETS prior to the EU ETS and global emissions trading (Lawrence, 2007). However, British industry lobbied hard for a national ETS, which it preferred to eco-taxes. The Confederation of British Industry (CBI) feared that the CCL would 'negatively affect the competitiveness of the UK's industry, at a time when the high value of the pound was already stifling exports from manufacturing industry' (interview, CBI representative, 2007). In 1999, the CBI and the Advisory Committee on Business and the Environment (ACBE) set up the Emissions Trading Group (ETG) with the aim of persuading the Labour government to introduce a national ETS. ETG members 'realised the EU emissions trading scheme was an inevitability. It therefore made sense for them to get involved in the process' (interview, 2007). In March 2000, the ETG published a proposal that became the blueprint for the UK ETS.

The fact that British Petroleum (BP) had already set up a functioning in-house ETS by the late 1990s allowed it to take a leading role within the ETG (interview, 2007). BP's conversion from climate-change villain to emissions trading pioneer took place with remarkable speed. BP only left the so-called Global Climate Coalition, which had denounced as unfounded scientific findings about the threat of human-made climate change, in 1996 (Lawrence, 2007:122). BP recognised that British (Conservative and Labour) governments were determined to tackle climate change even in the face of corporate opposition. By taking on a pioneering role, BP gained a first mover advantage *vis-à-vis* its competitors and an information advantage *vis-à-vis* the British government which was keen on drawing lessons from BP's in-house ETS experience for the UK ETS. Acting as a 'good corporate citizen' by adopting a company-internal ETS also helped to improve BP's public image, which had been damaged by its support for the Global Climate Coalition (interview, 2007).

Some British environmental NGOs, which initially opposed emissions trading on ethical grounds, began to reconsider their positions in the late 1990s. Particularly WWF and the Green Alliance started to support emissions trading, although only under strict rules that avoided the trade in 'hot air'. However, FoE and Greenpeace remained reluctant to endorse emissions trading (interviews, 2006–7).

One British interviewee argued that in the late 1990s 'emissions trading became the fashionable, almost ideological policy idea of choice for both business and government in the UK', while another even claimed that '[e]missions trading is "Third Way" all the way. It is neither regulation nor tax' (interview, 2007). The Labour government abandoned its initial hesitation in favour of speedily setting up a national ETS scheme, for four main reasons (interviews, 2006–7; DEFRA, 2003a): first, to gain practical experience ahead of EU/global emissions trading; second, to achieve a significant reduction of absolute GHGE at a reasonable cost; third, to offer a model for the EU; and, fourth, to help the City of London establish itself as a global centre for emissions trading.

British officials and industry representatives claimed that all four objectives were achieved (interviews, 2006–7). However, one environmental NGO representative warned that 'as time has passed, establishing the City of London as the global centre for emissions trading became the most important official justification because [the UK ETS] otherwise achieved so little'. One British official (interview, 2007) wished that the British government had given less prominence to the aim of establishing the City of London as the global emissions trading centre and more on 'learning-by-doing' practical experience, as well as the environmental benefits of the scheme.

Britain lobbied the Commission and seconded national officials to Brussels. The British government believed that it 'was listened to carefully by Commission officials because we [that is, British officials] had practical experience with emissions trading' (interview, 2007). Clearly, the British government was hoping to benefit from a first mover advantage by offering an ETS model and practical emissions trading experience to the EU. However, the EU ETS turned out to be quite different from the UK ETS (Smith and Swierzbinski, 2007:152). The UK ETS excluded the electricity sector and was a voluntary scheme that covered the six main greenhouse gases listed in the Kyoto Protocol. The EU ETS included the electricity sector and became a mandatory scheme that covered merely CO_2 emissions. Britain nevertheless benefited from its 'learning-by-doing' experience because, as one British official pointed out (interview, 2007), '[i]t was not so much the specifics but more an understanding of how an emissions trading scheme works. We were able to approach the EU scheme with considerable practical experience.'

The UK ETS became a voluntary scheme because industry opposed a mandatory scheme. One former government official (interview, 2007) argued: 'Once the decision had been taken that the scheme would be voluntary, we needed an incentive for companies to participate. At the start of the scheme there was great concern amongst firms because of the effects it might have on growth'. One British environmental NGO representative (interview, 2007) put it less diplomatically:

> If you have a voluntary scheme then it is self-selecting. The people who take on absolute caps are the people who think that they can meet them easily. The businesses who think that their emissions are rising will not take on absolute reductions targets voluntarily.

The British government therefore made available £215 million in financial incentives over five years in order to entice companies voluntarily to accept absolute reduction targets within the UK ETS (DEFRA, 2003a). Two chemical companies, Ineos Fluor and DuPont, were granted more than £13.8 million in fiscal incentives under the UK ETS. The *ENDS Report* (2002, 335 and 327:3-5) claimed that these two companies merely fitted abatement equipment which had already been required under existing legislation and accused the British government of encouraging the trade in 'hot air' in order to achieve wide participation, although this was strongly denied by British government officials (interviews, 2007). One former *ENDS Report* journalist (interview, 2007) explained that

> [w]hen the UK trading scheme was launched we [that is, *ENDS Report*] ... flagged up quite prominently several months before the launch of the scheme a couple of concerns, particularly with the inclusion of Ineos Fluor, Rhodia and DuPont, which is now Invista. ... Our lead story was that there is a serious danger that the UK ETS will be undermined by 'hot air'. Take Ineos Fluor, for example. Its factory released HFCs [that is, hydrochlorofluorocarbons, RW] which accounted for two per cent of the UK's total greenhouse gas emissions. It had already fitted an incinerator before the UK's

emissions trading scheme to abate these releases. There is some debate whether it was done by the company voluntarily or because the Environmental Agency had requested it.

The Environment Ministry's assessment of the UK ETS's first year concluded that direct participants exceeded by a factor of five their first year reduction targets, with only two of the direct participants falling short of their targets (DEFRA, 2003b). The National Audit Office (2004:3) pointed out that 'for some Direct Participants, their targets to reduce emissions had been achieved even *before* the Scheme came into operation' [italics added]. It nevertheless concluded that the Environment Ministry 'has successfully set up a novel and functioning emissions trading scheme, which has the potential to benefit the UK economy', although it also warned that the 'wider benefits to the UK and participants in the UK Scheme may be less than hoped for' (National Audit Office, 2004:2).

The British government came under pressure to reduce the huge windfall profits that some direct participants had made. In August 2004, therefore, the Environment Ministry sent out a consultation document that aimed at achieving an additional 15 million tonnes in reductions in CO_2-equivalent emissions (Smith and Swierzbinski, 2007:143). In November 2004, six direct participants (Ineos Fluor, Rhodia, DuPont, BP, British Airways and Lafarge Cement) agreed to make additional emissions reductions, though they totalled merely 8.9 million tonnes CO_2-equivalent (Smith and Swierzbinski, 2007:143).

Setting up the UK ETS allowed Britain to gain practical emissions trading experience before the start of the EU ETS/global trading, which helped to establish the City of London as the global emissions trading capital. However, the environmental benefits in terms of reductions of GHGE were very moderate, while the cost effectiveness of these reductions is highly questionable.

4.2 Germany's Failure to Adopt a National Emissions Trading Pilot Scheme

Until recently Germany was an emissions trading laggard that preferred a policy instrument mix made up of traditional regulation, voluntary agreements and, although to a lesser degree, eco-taxes (Wurzel *et al*., 2003). The theoretical debate amongst German economists about the merits of emissions trading goes back to the 1970s (Lafeld, 2003). However, many influential German economists (such as Karl-Heinrich Hansmeyer, who was the German Environmental Expert Council's (*Sacherständigenrat für Umweltfragen* – SRU) first chair) favoured eco-taxes over emissions trading as the more practicable and effective market-based instruments.

For a long time, much of German industry opposed both eco-taxes and emissions trading, while paying lip service to the adoption of market-based instruments (interviews, 2005–7). Parts of German industry denounced cap-and-trade emissions trading as an instrument typical of a 'planned economy' because it puts a cap on emissions (interviews, 2005–7). Voluntary agreements, which were often put forward in order to pre-empt government regulation (that is, 'in the shadow of the law'), quickly became the favoured policy instrument for German industry that put forward several self-binding commitments (*Selbstverpflichtungen*) to reduce GHGE (Wurzel *et al*., 2003). However, after the 1998

elections, the Social Democratic Party (*Sozialdemokratische Partei Deutschlands* – SPD) and the Green party (*Bündnis 90/Die Grünen*) formed a 'Red-Green' coalition government that introduced – against fierce opposition from German industry – an ecological tax reform in 1999.

Most German BMU officials, few of whom are economists, were initially also sceptical about emissions trading. In the 1990s, the BMU nevertheless made three half-hearted attempts to set up domestic emissions trading pilot schemes which, however, came to no avail (Schafhausen, 1999:35). Ministerial opposition to emissions trading was most pronounced within the Economics Ministry, particularly when Wolfgang Clement, a former Prime Minister of North Rhine Westphalia, where large parts of Germany's chemical and coal industries are located, was Secretary of State (2002–5). Importantly, Gerhard Schröder (SPD) also remained highly sceptical of emissions trading during his time as Chancellor (1998–2005).

Until the late 1990s, most German environmental NGOs, which strongly supported the ecological tax reform, opposed emissions trading, comparing it to the 'sale of indulgences' (interviews, 2007).

Emissions trading was therefore put on the German government's agenda by the 1997 Kyoto Protocol and the Commission's proposal for an EU-wide ETS (CEC, 2000, 2001).The German government used the threat of an imposed EU ETS – the Commission managed to introduce its legislative proposal for an EU ETS under qualified majority voting (QMV) rules – to set up an emissions trading working group (*Arbeitsgemeinschaft Emissionshandel* – AGE) in late 2000 (interviews, 2005–7). The AGE, modelled on the British ETG (Lafeld, 2003), was set up by the BMU and the Economics Ministry. BP, which had already gained considerable in-house emissions trading experience, seconded a company representative to work for the AGE's secretariat.

The AGE acted as an information and discussion forum for stakeholders, including government officials, industry representatives, environmental NGOs, members of parliament (MPs) and representatives of the German states. It also provided a negotiating forum from which the BMU and Economics Ministry tried to distil a national position for the negotiations on the EU ETS. However, there were deep splits within the AGE. The chemical and coal industries, as well as energy intensive industries, were fiercely opposed to emissions trading. The rapidly growing renewable energy industry, which had received a boost from the Red-Green coalition government, also actively campaigned against emissions trading (Eurosolar, 2001; Lafeld, 2003:184). Industries in favour of emissions trading (such as oil companies and the banking sector) were initially in a minority.

Disagreements within the AGE came to a head when the chemical industry stayed away from meetings in late 2001 (interviews, 2005). However, the chemical industry was still indirectly represented in the AGE through the Association for German Industry (*Bundesverband der deutschen Industrie* – BDI), of which the Association for the Chemical Industry (*Verband der chemischen Industry* – VCI) is a very influential member. Because the BDI takes decisions based on unanimity, the chemical industry was able to block any attempts within it to get involved in a constructive discussion with the German government (and the EU) about emissions trading (interview, 2007). The chemical industry was also able to rely on its traditionally close contacts with the German Chancellor in a determined (but ultimately unsuccessful) effort to prevent the adoption of the EU ETS (interviews, 2005–7).

Importantly, the views of the chemical industry were supported by the Union for Coal Mining, Chemicals and Energy (*Industriegewerkschaft Bergbau, Chemie und Energie* – IGBCE). The IGBCE has close links to the SPD. It has its headquarters in Hanover, seat of the Lower Saxony *Land* government where Gerhard Schröder had been Prime Minister (1990–98) before becoming Chancellor (1998–2005). The chemical industry and IGBCE found it easy to lobby Chancellor Schröder and Economics Minister Clement because the chemical and coal industries provide many jobs, particularly in North Rhine Westphalia, traditionally the SPD's heartland. One environmental NGO representative interviewed (2007) was convinced that 'the coal faction (*Kohlefraktion*) in the SPD tried to torpedo the introduction of emissions trading because it feared that it would bring about the demise of the German coal industry'. One BMU official (interview, 2005) offered a more subtle explanation, arguing that '[e]missions trading is such a complex and technical instrument that most top politicians, who are under great time pressure, will look at it primarily through the glasses of their most trusted lobby organisations'.

At first sight, the chemical industry and IGBCE's reliance on Chancellor Schröder and Economics Minister Clement seems a flawed lobbying strategy because, theoretically, Germany could have been outvoted on the EU level as the Commission's proposal for an EU ETS had to be adopted under QMV rules. However, in practice there is a 'prevalence [of] unanimity as *de facto* mode of decision even where QMV is available under treaty rules' (Padgett (2003:242). It is therefore unlikely that Germany, which is both the EU's largest economy and CO_2 emitter, would have been outvoted had Chancellor Schröder tried to veto the EU ETS on the grounds that it violated vital national interests. However, pressure on Germany to agree to an EU compromise was mounting during the EU negotiations when it became clear that an overwhelming majority of member states favoured an EU ETS.

During the 2002 election campaign for the German lower house (*Bundestag*), Chancellor Schröder spoke out against the EU ETS. He attacked the Commission, in a manner unprecedented for a German Chancellor, for neglecting German industrial interests, citing the EU ETS as an example (Wurzel, 2004).

At the same time, Environment Minister Jürgen Trittin (Greens) supported the introduction of the EU ETS. The Greens had also been initially opposed to emissions trading. However, by the time the Commission put forward its proposal for an EU ETS (CEC 2001), the Greens had begun to change their position.

The German environmental NGOs WWF, Germanwatch and the Association for Environment and Nature Protection Germany (*Bund für Umwelt und Naturschutz Deutschland* – BUND), which all attended AGE meetings, undertook a similar conversion from ETS opponents to proponents (interviews, 2005–7). This constituted a u-turn by these groups because all German environmental NGOs opposed emissions trading on ethical grounds until the late 1990s (Lafeld, 2003; Rudolf, 2006).

The Greens gained eight seats in the 2002 *Bundestag* elections, while the SPD lost 47 seats. The Greens remained the smaller coalition partner – the SPD won 251 and the Greens 55 seats – after the 2002 elections, but the Greens' increased electoral support raised their bargaining power *vis-à-vis* a politically weakened SPD during the negotiations of the new coalition treaty which endorsed the EU ETS (SPD-Grüne, 2002:29–30).

German emissions trading opponents therefore quickly organised a damage limitation lobbying exercise that led the German government to demand last minute concessions to the rules of the EU ETS.

5 The European Union Emissions Trading Scheme

5.1 Origins

Up to the adoption of the EU ETS, EU environmental policy was characterised by 'illiberal instruments' (that is, regulation), despite the 'liberal foundation' of the single European market (Weale *et al*., 2000:458). However, since the 1990s political pressure had grown to make use of market-based instruments on the EU level (Jordan *et al*., 2005b).

In early 1992, the Commission put forward a proposal for an EU-wide $C0_2$/energy tax (CEC, 1992). In particular, DG Environment was hopeful that a supranational $C0_2$/energy tax would provide a model for others to follow while allowing the EU to take on a leadership role at the 1992 UN Rio summit. However, the $C0_2$/energy tax, which – like all EU taxes – has to be adopted unanimously, never came about because it was vetoed by Britain on sovereignty grounds (Jordan *et al*., 2005b).[6] Frustrated by the lack of progress of its CO_2/energy tax proposal and spurred on by the desire to adopt more cost-efficient market-based instruments, the Commission (and DG Environment in particular) seized the opportunity offered by the 1997 Kyoto Protocol to push for an EU ETS. For the Commission, the EU ETS was important not only because it 'constitutes a path breaking new chapter in EU environmental law and policy', but also because '[n]ever before has an EU environmental policy created an economic asset whose annual value runs into tens of billions of euros' (Zapfel, 2007:13).

5.2 Adoption of the EU ETS

In the late 1990s, DG Environment commissioned studies that informed the Commission's *Green Paper* on EU emissions trading (CEC, 2000). Following meetings with stakeholders and member governments in September 2001, the Commission published its proposal for a directive establishing an EU ETS (CEC, 2001). To the surprise of most observers, the Commission's controversial proposal was accepted by the European Parliament (EP) and the Environmental Council with relatively few amendments within a period of less than two years (CEC, 2003; Hansjürgens, 2005; Wettestad, 2005).

The EU ETS became a compulsory cap-and-trade scheme that does not stipulate an EU-wide cap but obliges member states to set national caps in their national allocation plans (NAPs) that allocate CO_2 allowances to individual installations. The EU ETS therefore

[6] In the past, Spain has also resisted the adoption of an EU CO_2/energy tax on the grounds that it will endanger domestic economic growth.

became a highly decentralised scheme, although the Commission issued guidance notes (CEC, 2005). However, member states' NAPs must be consistent with a path towards achieving the national targets agreed under the EU burden-sharing agreement. In 2003, a Linking Directive (CEC, 2003) was adopted which linked the EU ETS to the Kyoto Protocol's flexible mechanisms (that is, emissions trading, JI and CDM).

The Commission's original proposal (CEC 2001) proposed the auctioning of all CO_2 allowances. However, this was unacceptable to most member states (including Britain and Germany) which instead demanded grandfathering (that is, free allocation). Because the EP insisted on some auctioning, a compromise had to be found with the Environmental Council. Directive 2003/87/EC therefore demands grandfathering, but grants member states the option of auctioning up to 5 per cent of allowances in the first trading phase (2005–7) and up to 10 per cent in the second trading phase (2008–12).

The EU ETS differentiates between two phases. The first phase, which ran from 2005 to 2007, is widely considered as a pilot phase that was intended to make the EU fit for global emissions trading under the Kyoto Protocol (Ellerman *et al*., 2007). The second phase, from 2008 to 2012, coincides with the Kyoto Protocol's first global emissions trading phase.

Companies that want to emit more CO_2 emissions than they have been allocated under a particular NAP must purchase additional allowances on the market. Otherwise they face a fine, which was fixed at €50 in the first phase and €100 in the second phase. Companies that reduce their CO_2 emissions below the level of their allocated allowances can sell any surplus on the market. There is therefore a financial incentive for companies to innovate in order to reduce their need for allowances.

5.3 Implementation

In the first trading phase, the EU ETS covered approximately 46 per cent of carbon dioxide emissions that were released from almost 11,500 installations in 25 member states.[7] Germany has by far the largest number of installations covered by the EU ETS and therefore allocated the largest number of CO_2 allowances. Almost 60 per cent of CO_2 emissions released in Germany were covered by the EU ETS during its first trading phase. Almost half of Germany's allowances were allocated to its four biggest energy producers (E.on, RWE, Vattenfall and EnBW), which are the largest CO_2 emitters.

Britain has the second largest number of installations covered by the EU ETS, including approximately 46 per cent of the UK's overall CO_2 emissions in 2003 (Harrison and Radow, 2007:46). A mere 5 per cent of the facilities covered by the EU ETS account for 75 per cent of overall CO_2 emissions in Britain. By far the largest number of allocations went to power companies that are the biggest CO_2 emitters.

As can be seen from Table 2, Germany allocated 22.8 per cent and Britain 11.2 per cent of the total of CO_2 allowances in the EU-25.

[7] In 2007, Bulgaria and Romania, which joined the EU on 1 January 2007, submitted NAPs for the second trading phase.

Table 2
Installations and allowances in the first trading phase (2005–7)

Member state	Number of installations	Allowances in millions	Allowances in percentage points
Germany	1,849	1,497	22.8%
United Kingdom	1,078	736	11.2%
Total EU-25	11,428	6,572	100%

Source: Adapted from Zapfel (2007:26).

According to one Commission official (Zapfel, 2007:30) '[i]n late 2003, before the first draft allocation plans were released for public consultation, there was a reluctance across member state capitals to be the first to announce a cap figure'. Britain took the lead when it submitted its phase-one NAP (NAP-I) in January 2004, after it had been urged by the Commission to submit an ambitious plan early on in order 'to set a good example for other member states' (interview, former British official, 2007). However, almost all member states (including Germany) ignored the relatively good British example by submitting NAP-Is which allocated generous CO_2 allowances.

5.3.1 British implementation

According to British officials (interviews , 2005–7), the British government informed the Commission that the NAP-I which it submitted in January 2004 was merely a *draft* NAP that was still subject to additional data gathering and industry consultation. In November 2004, the British government tried to submit to the Commission a revised NAP-I that increased the total number of allowances by 20 million (Zapfel, 2007:26). One former British official explained (interview, 2007): 'The reason why we [that is, Britain] needed 20 million more was because new data led to upward projections on business-as-usual'. However, the Commission refused to accept the revised plan and instead treated as final the NAP-I that the British government had submitted in January 2004. The British government subsequently took the Commission to the European Court of Justice (ECJ). British officials (interviews, 2005–7) were adamant that Britain would have won the court case; however, Commission officials were equally confident (interviews, 2005–7). In the end, Britain 'abandoned its court action and settled for a compromise in order not to create uncertainty for British businesses and possibly damage the fledgling EU emissions trading scheme which the British government strongly supported in principle' (interview, British official, 2007).

In Britain, it was the Environment Ministry (Department for Environment, Food and Rural Affairs – DEFRA, formerly Department of Environment, Transport and the Regions – DETR) which was the lead department on the EU ETS, with the Department of Trade and Industry (DTI) also taking on an important role. The Environment Agency (EA) for England and Wales became the competent authority with responsibility for reporting, verification and issuing allowances. However, because of devolved government in the UK, separate agencies are in charge of these issues in Scotland and Northern Ireland, with the EA holding overall coordinating responsibility.

Drawing up the NAP-I took more than two years. It was negotiated with industry by a 'high level group of senior officials that typically met once a month' (Harrison and Radow,

2007:45). Up to 15 DEFRA and between 10 and 15 EA officials were involved in drawing up and implementing the NAP-I (interview, 2007). These figures do not include officials who were responsible for the implementation of the EU ETS in Scotland and Northern Ireland. Far from being a market-based instrument involving little bureaucracy the EU ETS therefore involved a significant number of British officials, at least during its setting up phase. One British official (interview, 2007) pointed out that '[i]t is an astonishingly common misperception that market-based instruments will lead to significantly less bureaucracy and legislation. They can work only because of regulatory back up. The market needs government protection.'

According to British officials (interviews, 2007), the 'inevitably sharp disagreements about the level of ambition' between the Environment Ministry and the DTI when drawing up the NAP-I 'were settled quite quickly', with both departments strongly supporting the EU ETS in principle. However, one environmental NGO representative argued that '[t]here were huge interdepartmental rows about the level of the cap. ... One of the main reasons why the UK will miss its [national] 20 per cent target is because the Treasury and the DTI overruled the Environment Department on emissions trading.'

The British government tried to limit the number of special rules, which meant that highly energy efficient combined heat-and-power (CHP) installations failed to get additional allocation allowances. Companies already participating in the UK ETS were eligible to apply for an opt-out from the EU ETS. The fledgling British renewable energy industry, which had been treated less favourably under the Renewable Obligations compared to the financial support that their German counterparts had received under the Renewable Energy Feed In Tariff (Toke and Lauber, 2006), was concerned that the EU ETS might stifle the production of renewable energy in Britain (interview, 2007).

The power sector, which had not been covered by the UK ETS, was allocated fewer allowances than necessary under business-as-usual predictions on the assumption that power companies will pass on to customers the cost of participating in the EU ETS. Some economists estimated that the EU ETS led to a 7 per cent rise in average electricity bills for British customers (BBC, 2007). Claims of such price hikes for private consumers, combined with huge windfall profits for power companies, were, however, rejected as unsubstantiated by the British Labour government (BBC, 2007).

5.3.2 German implementation

Germany submitted its NAP-I to the Commission just before the March 2004 deadline. The NAP-I adoption process reopened the old controversy between the BMU and the Economics Ministry. In early 2004, the conflict between the Environment Minister, Jürgen Trittin, and the Economics Minister, Wolfgang Clement, threatened the survival of the Red-Green coalition government (*Süddeutsche Zeitung*, 31 March 2004; *Die Zeit*, 1 April 2004). Clement, who demanded an 'adequate allocation' (*sachgerechte Allokation*) (interviews, 2007) based on business-as-usual scenarios, emerged as the clear winner from this 'political war' (*Politik-Krieg*) (*Das Parlament*, 8 March 2004:3). One Economics Ministry official (interview, 2005) commented: 'We [Economics Ministry officials] said afterwards: "Well done Clement! That was well negotiated."'

Trittin's initial demand to cap CO_2 emissions at 488 million tonnes in the German NAP-I was resisted by Clement who demanded 'adequate allocations' and special rules that, amongst other things, were meant to ensure the continued use of coal for generating

electricity. An editorial in the *Süddeutsche Zeitung* (24 March 2004) summed up Clement's motives succinctly: 'He is a man for industry in general and for North Rhine Westphalian industry in particular. ... [Clement's actions] correspond to Social Democratic ideas of industrial policy steering (*lenkender Industriepolitik*)'.

In 2004, Clement was in a strong position, mainly for the following two reasons. First, state elections in North Rhine Westphalia were scheduled for spring 2005 (that is, shortly after the EU ETS would become operational). The SPD, which had lost several state elections since its relatively poor electoral performance in the 2002 *Bundestag* elections, was keen to stop the downward trend in North Rhine Westphalia, which has traditionally been its political heartland.[8] The chemical and coal industries, large parts of which are located in North Rhine Westphalia, along with the unions had, although in vain, opposed the introduction of the EU ETS and now demanded 'adequate allocations'. Second, Clement had been lured from the post of North Rhine Westphalian Prime Minister to become 'Super-Minister' (*Superminister*) for the newly established Ministry for Economics and Labour (*Bundesministerium für Wirtschaft and Arbeit* – BMWA) by Chancellor Schröder after the 2002 elections. However, the political ambitions of Clement, who at the time was tipped as a possible successor to Chancellor Schröder, were dealt a blow when the latter handed over the SPD's party leadership to Franz Müntefering in early 2004. Clement, who was very popular with the German public, was therefore able to exert maximum pressure on the Chancellor because Schröder could ill afford to lose his *Superminister* shortly before crucial elections in a *Land* that had previously been governed by the latter. In any case, Chancellor Schröder himself remained unconvinced about the merits of the EU ETS.

Following the common position on the EU ETS in late 2002, the BMU commissioned a consortium made up of the left-leaning *Deutsches Institut für Wirtschaftsforschung* (DIW), the *Öko-Institut*, which has close links to the environmental movement, and the *Fraunhofer-Institut* to produce a report on the EU ETS. Its interim report in July 2003 analysed different allocation options (DIW *et al*., 2003). A few months later, a WWF Germany–commissioned study defended the EU ETS as economically efficient, while arguing that it would lead to cost savings of between €230 and €545 million (Öko Institut *et al*., 2003; Rudolph, 2005:357).

In 2002, the *Rheinisch Westfälisches Institut für Wirtschaftsforschung* (RWI) published an IGBCE commissioned study which denounced the EU ETS as ineffective and predicted that it would lead to the migration of companies from Germany (RWI, 2002; Rudolph, 2005:355–6). The BDI also used the argument of job losses against the EU ETS (interviews, 2005–7). In 2003, the RWI published a BDI commissioned study which again highlighted the negative effects of the EU ETS on the German economy.

The conflicting reports by different research institutes failed to bridge the gap between the SPD-led Economics Ministry, which defended the demands put forward by the chemical and coal industries as well as the unions, and the Green-led BMU, which was supported by many, although not all, environmental groups, as well as the banking sector

[8] When the SPD suffered a defeat in the 2005 North Rhine Westphalian regional elections Chancellor Schröder engineered early elections, claiming that he had lost the support of his own party for his economic reform programme.

and other intermediaries who expected to benefit from the EU ETS. Because the AGE made little progress in arriving at compromises between advocates and opponents of emissions trading, senior Ministry officials became more strongly involved in drawing up the NAP-I than is usual for the implementation of EU environmental legislation.

In October 2003, a High Level Group of senior BMU and Economics Ministry officials was set up which met regularly with top level industry representatives to find a NAP-I compromise solution; other stakeholders, who were represented in the AGE, were not invited (Matthes and Schafhausen, 2007; Rudolph, 2005). However, in January 2004 the Economics Ministry (and industry) abandoned the High Level Group after the BMU presented it with a fully fledged NAP-I proposal which had not been distributed prior to the meeting (interview, 2007). The acrimonious negotiations between the BMU and the Economics Ministry were subsequently moved up the ministerial hierarchy and continued at the level of Junior Ministers (*Staatssekretäre*), with the Chancellery having to mediate. However, even at this level it was impossible to reach a compromise that was acceptable to both Clement and Trittin, who were therefore called to a crisis meeting by Chancellor Schröder.

On 30 March 2004, a five-hour meeting – which lasted until after 2.00 am – took place between Schröder, Clement and Trittin, who were joined by Vice-Chancellor Joschka Fischer (Greens) and Chancellery Minister Frank-Walter Steinmeier (SPD) (*Süddeutsche Zeitung*, 31 March 2004). The meeting between the three SPD and two Green politicians finally produced an agreement that capped CO_2 emissions at 503 million tonnes in the German NAP-I. It also agreed numerous special rules which, amongst other things, ensured favourable allocation rules for the coal industry that was given fuel-specific benchmarks.

The German NAP-I was adopted in cabinet on 21 April 2004. The allocation law (*Zuteilungsgesetz 2007*), which was passed by the *Bundestag* and *Bundesrat* on 9 July 2004, came into force on 31 April 2004. On 7 July, the EU Commission approved Germany's NAP-I (Matthes and Schafhausen, 2007:75). However, several companies started legal action against the German government with the intention of receiving more generous allocations or even torpedoing the entire EU ETS. Given the strong German rule of law (*Rechtsstaat*) tradition and Basic Law (*Grundgesetz*) provisions that strongly emphasise equal treatment and the protection of basic rights – such as the freedom to choose one's job (*Berufsfreiheit*) – there was a danger that the implementation of the German NAP-I might be delayed or even derailed by legal challenges. However, so far the courts have backed the German government.

The German NAP-I was unique in that it stipulated no fewer than 58 different allocation possibilities, for the following reasons. First, Germany has by far the largest number of installations and the most complex industrial sectors covered by the EU ETS (interview, 2005). Second, industry lobbying for special rules was successful (Ziesing, forthcoming). Third, 'embedding of emissions trading in the policy mix of energy and environmental policy played an important role' (Matthes and Schafhausen, 2007:98). The German NAP-I tried to take account of a range of existing laws, decisions and policy instruments, which included: the ecological tax reform (1999), the renewable energy law (2000), the decision to phase out nuclear power (2000) and voluntary climate change agreements put forward by industry. Finally, the German government was also seeking 'technically very ambitious standards' (interview, 2005).

Germany's coal industry and some of its electricity producers argued that underground carbon capture and storage (CCS) of CO_2 emissions will soon become a technically feasibly option. German proponents of CCS emphasised that it would benefit the environment and the economy because Germany could export this novel end-of-pipe technology to countries (such as China) that rely heavily on coal-fired power stations (interview, 2007). RWE, which has coal-fired power stations in North Rhine Westphalia, and Vattenfall, which has invested in new lignite-fired power stations in the new German states, became particularly outspoken CCS proponents (interview, 2007).

In 2004, the German Emissions Trading Authority (*Deutsche Emissionshandelsstelle* – DEHSt) was set up within the Federal Environment Agency (*Umweltbundesamt* – UBA). The DEHSt, which acts as the competent authority, employed around 95 staff in 2007 (interview, 2007). The TEHG stipulates that the DEHSt is responsible for the allocation of allowances, monitoring and control tasks. The UBA fought hard to be allocated political responsibility for the DEHSt, which has established itself as an agency widely respected by BMU and Economics Ministry officials, as well as industry representatives (interviews, 2005–7).

5.4 Second Trading Phase and Review

While the first emissions trading phase (2005–7) of the EU ETS is widely regarded as a pilot phase for 'learning by doing', the second trading phase (2008–12) is seen as the start of emissions trading in earnest. It is still too early to assess the success or failure of the second trading phase. However, it is possible to flag up some of the major changes that Britain and Germany have adopted for the second phase.

Importantly, Britain and Germany have allowed the auctioning of 7 and 8.8 per cent, respectively, of their national allowances in the second trading phase. Economists and pro-emissions trading environmental NGOs have long advocated auctioning instead of grandfathering. Germany's decision to allow auctioning in the second trading phase constitutes a major policy u-turn. The allocation of 8.8 per cent of allowances in the German NAP-II was brought about by the German *Bundestag* in June 2007. Following elections in 2005, the Christian Democratic Union (*Christlich Demokratische Union* – CDU), Christian Social Union (*Christlich Soziale Union* – CSU) and the SPD formed a 'grand coalition' government. In 2007, the majority of SPD MPs demanded that full use be made of the 10 per cent auctioning quota that is possible in the second trading phase. However, because CDU MPs favoured a lower share of auctioning, a compromise was reached at 8.8 per cent. Green MPs, who had also supported auctioning 10 per cent of allowances, voted against the coalition government's 8.8 per cent compromise. The only party currently represented in the *Bundestag* that opposes emissions trading is the Left Party (*Die Linke*).

Under the grand coalition, Michael Glos (CSU) became Economics Minister and Sigmar Gabriel (SPD) was made Environmental Minister. Unlike her predecessor, Chancellor Angela Merkel (CDU) endorsed emissions trading as an important policy instrument for tackling climate change. Merkel ignored demands from the BDI (2006) to abandon Germany's leadership role in international climate change politics. The conflict between the BMU and the Economics Ministry about emissions trading has eased under the grand coalition. Economics Minister Glos and the CSU, which stands for election only in Bavaria, have no close political affiliations with the coal/chemical industries and its unions. According to one German official (interview, 2007), Glos 'did not exhibit strong personal views on emissions trading' and seemed to be 'almost agnostic about auctioning', while

another official considered Glos as a 'weak minister, particularly when compared to Clement' (interview, 2006). Environment Minister Gabriel (SPD) consistently emphasised the need to adopt ambitious climate policy measures. In 2007, he even demanded the 100 per cent auctioning of allowances in the near future. However, as a leading SPD politician he also took seriously the potential threat from the EU ETS to jobs in the German coal and chemical industries.

The NAP-II that Germany submitted in 2006 set the cap at 482 million tonnes for CO_2 emissions. However, in late 2006 the Commission rejected the cap as being inconsistent with Germany's Kyoto target and reduced it to 465 million tonnes. The German Economics Ministry demanded that Chancellor Merkel take the Commission to the ECJ over its decision to reduce the cap in the German NAP-II to 465 tonnes. However, Merkel refrained from taking legal action for two main reasons (interviews, 2007). First, in 2007 Germany simultaneously held the EU and G8 Presidencies, for which it made climate change a major political priority. Taking the Commission to court for cutting the German cap by a 'mere' 17 million tonnes in CO_2 could therefore have damaged Germany's reputation as (a pro-integrationist member state and) leader in EU and international climate change politics. Second, Merkel, a former Environment Minister (1994–98), regarded emissions trading as an important policy instrument for tackling climate change. A legal challenge by the EU's largest CO_2 emitter would have created uncertainty.

The Commission took a tough stance also with other member states when it 'called for an average cut in emissions of seven per cent' (*ENDS Europe Daily*, 29.11.2006) for the first ten NAP-IIs that had been submitted. Clearly, the Commission had learnt its lessons from the first trading phase. In early 2006, data were released concerning actual CO_2 emissions for 2005. It showed that member states had allocated significantly more allowances than needed by companies. This led to a crash in the price for CO_2 allowances from around €30 to around €11 per tonne CO_2 (*ENDS Europe Daily*, 5.5.2007). In early May 2007, the price for phase one allowances had tumbled to a mere €0.15 per tonne. Clearly, such a low price creates no incentives for companies to cut CO_2 emissions.

Britain submitted its NAP-II on time, and it was accepted largely unchanged by the Commission in October 2006. The British NAP-II, which set a cap that was about 3 per cent lower compared to its NAP-I cap, granted 238 million allowances per year (that is, seven million fewer than during the first trading phase) (*ENDS Europe Daily*, 29.7.2006). It set an 8 per cent ceiling for the use of the project-based flexible Kyoto mechanisms (JI and CDM). British CO_2 emissions 'should therefore be around 29m tonnes lower by the end of the second phase than they would have been without the cap' (*ENDS Europe Daily*, 29.7.2006). Compared to Germany, Britain adopted a more ambitious cap for its NAP-II. However, one German official pointed out that Britain's 12.5 per cent Kyoto target is considerably less ambitious than Germany's 20 per cent Kyoto target (interview, 2005).

British and German officials agreed on the urgent need for harmonisation of the EU's highly decentralised ETS during the review period that is meant to pave the way for a third trading phase beyond 2012. However, although officials in Britain and Germany would like to see increased transparency and clearer allocation rules they are also concerned that greater harmonisation of the EU ETS might give more powers to the Commission to the detriment of member states (interviews, 2005–7).

The adoption and implementation of the EU ETS is not just about the selection of the most cost-effective policy instrument for tackling climate change, but also constitutes a

power game between member states and EU institutions about who determines climate change and energy policies. The Commission has invested a lot of political capital in the EU ETS, which has become the EU's flagship policy instrument in the fight against climate change. The failure of the EU ETS would therefore not only have grave environmental consequences but possibly also cause a backlash against European integration. Some Eurosceptic groups in Britain (for example, Open Europe) have already tried to use the alleged failure of the EU ETS for their political purposes (*ENDS Europe Daily*, 13.8.2007).

Ellerman and colleagues (2007a:4) have claimed that the EU ETS has 'not only [created] the world's largest environmental market. ... but it is the embryo from which a future global regime may emerge'. A British environmental NGO representative (interview, 2007) argued along similar lines when stating: 'Emissions trading is an integral part of the Kyoto architecture ... which is actually the best hope in the time available to achieve a global solution' (interview, 2007). Leading British and German politicians have advocated the linking of the EU ETS with other ETSs (such as the Californian ETS). However, setting up a global emissions trading scheme in which authoritarian regimes (such as Russia) can also participate has raised serious political concerns. For example, William Nordhaus (2007:26) has argued in favour of a global eco-tax regime instead of global emissions trading because the latter has the 'potential for corruption and accounting finagling'. There is the serious danger that a global emissions trading scheme, with huge potential wealth generation from GHGE allowances, will attract unscrupulous political actors and regimes.

5.5 Clean Development Mechanism (CDM) and Joint implementation (JI)

The EU's Linking Directive linked the EU's ETS with the Kyoto Protocol's flexible mechanisms (CDM, JI and global emissions trading). CDM projects allow developed countries to implement projects that reduce GHGE in developing countries for which the former are granted certified emissions reductions (CERs). JI projects allow developed countries jointly to carry out GHGE reduction projects for which they are granted emissions reduction units (ERUs). Importantly, CERs and ERUs can be used to comply with the Kyoto Protocol/EU burden-sharing targets.

CDMs can help developed countries to comply with their Kyoto targets in a more cost-efficient manner, while simultaneously helping to achieve sustainable development in developing countries that may benefit from technology transfer and/or financial assistance for GHGE reduction projects. However, demand from EU member states (and other states, such as Japan) for CERs has outstripped their availability from suitable CDM projects (interviews, 2007). This has led to an increase in the cost of well designed CDM projects. At the same time, 'climate cowboys' (*Financial Times*, 26.4.2007) have started to offer poorly designed or even bogus CDM projects that achieve little or no GHGE reductions.

The reasons why environmental NGOs have become concerned about the use of CDM projects were explained as follows by a British environmental NGO representative (interview, 2007):

> We have got the CDMs to bring the developing countries into the carbon market. However, the problem with the CDMs is that if it is a project-based approach then every single tonne of carbon coming into the EU ETS inflates the cap within the EU. ... About 1,600 CDM projects are in the pipeline. Now, how the hell is the CDM executive board going to ensure that all of these are environmentally robust? And how anyone expects environmental groups to act as watchdog in that process is beyond me.

The House of Commons' Environmental Committee has also criticised the possible misuse of CDM and JI projects which, it claimed, can lead to 'carbon leakage' (HC, 2007). Environmental groups (for example, WWF) have therefore demanded a 'gold standard' for CDM and JI projects which is supported by those intermediaries and parts of industry that are becoming concerned about the poor quality and/or reputation of project-based flexible mechanisms (WWF-UK, 2007).

The use of CERs and ERUs for achieving the Kyoto/EU burden-sharing targets has been restricted in Britain to 8 per cent and in Germany to 12 per cent. However, so far the uptake of CDM and JI projects has been lower in Germany than in Britain. In early 2007, Britain held about 35 per cent and Germany just under 3 per cent of globally registered CDM projects (Schafhausen, 2007). The German government has also adopted tighter restrictions on what projects are eligible for CDM status, while favouring renewable energy and energy efficiency projects. In Germany, the DEHSt has been given the responsibility of checking the completeness, consistency and plausibility of CDM project applications. British officials have emphasised the mutual benefits of CDM projects for developed and developing countries, while pointing out that emissions trading can bring about the greatest environmental and economic benefits only if it is carried out globally (interviews, 2007).

6 Conclusion: Explaining Anglo-German Differences

Few economists have claimed that the first phase of the EU ETS induced significant carbon dioxide reductions (Ellermann and Buchner, 2007b). Most analysts and practitioners agree instead that the low price for CO_2 allowances during much of the first trading phase was the result of overly generous allocations that produced huge windfall profits for power companies in particular (interviews, 2005–7). However, the first phase of the EU ETS has been a success if one accepts that its main objective was the establishment within a remarkably short time period of the highly complex organisational structures of a (semi-) functioning market which puts a price on carbon dioxide allowances (HC, 2007:4). The Commission's tough stance regarding the caps in the NAP-IIs was meant to reassure market actors, governments and stakeholders that the EU ETS will become an important instrument for achieving significant CO_2 reductions in the second trading phase.

However, it is too early to tell whether the second phase of the EU ETS will be successful. Much will depend on lessons being learnt from the over-allocation and incoherent implementation (across different member states, sectors and installations) during the first trading phase and on avoiding mistakes when linking the EU ETS to the Kyoto Protocol's other flexible mechanisms. A 'gold standard' for CDM and JI projects will be necessary to prevent 'climate cowboys' from benefiting from bogus schemes and the EU ought to be wary about linking its ETS with those in countries governed by unscrupulous political regimes. A functioning global ETS would be economically more efficient than an ETS which is confined to EU member states. However, it would be politically naïve to ignore the fact that the huge potential wealth generation from GHGE allowances in a global ETS is likely to attract unprincipled political actors and regimes that have little interest in averting the threat of global climate change.

The Commission (and DG Environment in particular) was able to adopt the role of policy instrument entrepreneur when it proposed the setting up of a supranational EU ETS. Despite initial opposition from the German government (and the German Chancellor and Economics Minister in particular) and a few other member states, the EU ETS was adopted by the Environmental Council and the EP within a remarkably short time, largely because the majority of member governments (and MEPs) were keen that the EU gain practical experience before the start of global emissions trading. The adoption of the EU ETS was made easier by the fact that it is a highly decentralised scheme that grants a lot of leeway to member states, which, for example, draw up the NAPs. However, the decentralised nature of the EU ETS makes more difficult its coherent implementation across all member states, most of which have used its openness to interpretation as a way of protecting their domestic industries from potentially costly CO_2 emission reductions.

British and German officials (interviews, 2005–7) favour a higher degree of harmonisation of the EU ETS rules. However, they are also wary about granting increased powers to the Commission. Clearly, the adoption and implementation of the EU ETS is embedded in a wider European integration process that often triggers conflicts between EU institutions

and member states about political power rather than merely a matter of adopting the most cost-effective policy instrument for tackling climate change.

The EU ETS constitutes a novel policy instrument which has never before been tested on a supranational level. However, the EU developed into an emissions trading policy entrepreneur only reluctantly (Wurzel, 2008). It is highly unlikely that the EU ETS could have become operational in January 2005 without emissions trading having been inserted into the 1997 Kyoto Protocol. It was the USA which acted as a political hegemon by insisting on emissions trading in the 1997 Kyoto Protocol against the opposition of the EU, and of Germany in particular. Moreover, the USA actively encouraged others to emulate its early domestic emissions trading experience.

Clearly, the Kyoto Protocol created an opportunity for European emissions trading advocates to press for the adoption of an ETS on the domestic and/or EU level ahead of global emissions trading. It also triggered a change of mind amongst those European emissions trading sceptics (for example, WWF) who wanted to influence the rules of global emissions trading which they now perceived as inevitable. The early American ETS experience constituted an important reference point during the agenda setting phase of the UK ETS and EU ETS. However, its importance waned during the adoption and implementation phases of the UK ETS and EU ETS due to institutional, legal and cultural differences between America and Europe. The rules of the UK (GHGE) ETS and EU (CO_2) ETS are different from the American (SO_2 and NO_x) ETSs. The adoption of the UK ETS and EU ETS therefore did not involve a straightforward policy (instrument) transfer from America to Europe. If anything, it was the principal idea rather than specific emissions trading rules that were transferred from America to Europe via the 1997 Kyoto Protocol (Jordan *et al*., 2005b).

A 'learning-by-doing' process was important for both the UK ETS and – particularly – the EU ETS, which is a highly decentralised scheme. In pioneering the UK ETS, Britain gained practical emissions trading experience before the start of the EU ETS/global trading, which helped to establish the City of London as the global emissions trading capital. However, the environmental benefits from the UK ETS were very moderate, while its cost effectiveness is highly questionable. Britain nevertheless gained some valuable practical experience from its domestic ETS which allowed it to play an influential role during the adoption phase of the EU ETS.

Germany failed to set up a national ETS pilot scheme prior to the adoption of the EU ETS due to the veto power which domestic emissions trading opponents enjoyed. Germany found it very difficult to arrive at clear national positions on technical details of the proposed EU ETS because there were deep splits about the general merits of emissions trading within the German government (between the BMU and Economics Ministry in particular) and within German industry.

This report is not the place to provide a detailed theoretical assessment of the politics of emissions trading in Britain and Germany. However, the important Anglo-German divergences that have been highlighted here will be briefly explained with reference to differences in (i) national (emissions trading) advocacy coalitions, (ii) preferred national environmental policy instrument mixes and (iii) the dominant national macro-level action guiding norms. Table 3 offers a summary of these explanatory variables under the headings 'Actors', 'Instruments' and 'Ideas'.

Table 3
Actors, instruments and ideas

	Actors: **Advocacy coalitions in c. 2001**	**Instruments:** **NEPI use in c. 2001**	**Ideas:** **Dominant action guiding norms in c. 2001**
Britain	*Strong ETS advocacy coalition:* • New Labour government (including PM Tony Blair) • City of London • CBI and ACBE • BP (and Shell) • Some environmental NGOs: WWF and Green Alliance *Weak opposition to ETS:* • Coal industry • High energy users (e.g. aluminium industry) • Some environmental NGOs: Greenpeace and FoE	*Use of NEPIs:* • Moderate use of traditional environmental regulation, much of which resulted from EU legislation • Use of eco-taxes only from 1990s onwards • Long-standing opposition to EU CO_2/energy tax • Simultaneous introduction of interlinked package of voluntary agreements (CCAs), climate change levy (CCL) and UK ETS • Low financial support for renewable energy under Renewables Obligation (RO)	*Anglo-Saxon capitalism:* • Emphasis on market solutions (under Conservative and 'New' Labour governments) *Common law tradition/unwritten constitution:* • No serious legal obstacles to UK and EU ETS *Dominant environmental regulatory style:* • Flexible environmental quality objectives and integrated pollution prevention control
Germany	*Weak ETS advocacy coalition:* • Some BMU officials • Environment Minister Trittin (Greens) and Green MPs • Banking sector • Some environmental NGOs (BUND, Germanwatch and WWF) *Strong opposition to ETS:* • Chancellor Schröder (SPD), Economic Minister Clement (SPD) and most SPD MPs • Most Economics Ministry officials • Coal and chemical industries • Trade union IBGCE • Renewable energy producers	*Use of NEPIs:* • Strong reliance on traditional ('command-and-control') environmental regulation • Wide use of voluntary agreements for climate change policy • Introduction of an ecological tax reform in 1999 • Strong support for EU CO_2/energy tax • Strong financial support for renewable energy under Renewable Energy Feed In Tariff (REFIT)	*Rhineland capitalism:* • Social market economy: state sets the framework conditions (*Ordnungspolitik*) but also ordoliberalism. Neo-corporatist features encourage self-regulation and grant industry/unions influence. *Rule of law tradition/written constitution:* • *Rechtsstaat* tradition and Basic Law constrain experiments with ETS/implementation of EU ETS *Dominant environmental policy style:* • Media-specific emission limits derived from the best available technology (BAT)

For Paul Sabatier (1993), policy change is best understood as the result of competition between relatively stable advocacy coalitions made up of a wide range of policy actors (such as officials, interest groups and researchers) who favour the adoption of particular policies. However, Sabatier (1993:35) warns that 'while minority coalitions can seek to improve their relative position through augmenting their resources and "outlearning" their adversaries, their basic hope of gaining power within the sub-system resides in waiting for some external event to significantly increase their political resources'.

The adoption of the 1997 Kyoto Protocol constitutes an external event that changed the opportunity structures for British and German emissions trading advocates. In Britain, industry (CBI and ACBE) set up the ETG in order to convince a 'New' Labour government, which was generally supportive of market-based instruments and keen to adopt a leadership role in international and EU climate change politics, of the merits of emissions trading. In anticipation of global emissions trading, BP set up an internal emissions trading scheme in the late 1990s that helped it to gain an influential role within the ETG. The City of London had a strong interest in emissions trading because it hoped that London would become the global emissions trading capital if Britain managed to become an emissions trading pioneer. Due to the adoption of the Kyoto Protocol some British environmental groups (such as WWF and the Green Alliance) perceived the adoption of an EU ETS and/or global ETS as an inevitability and therefore changed their position from opposing emissions trading to trying to influence its rules. Importantly, the British emissions trading advocacy coalition was faced with relatively weak opposition because the domestic coal industry, which vehemently opposed emissions trading, no longer constituted an important economic player following Britain's dash for gas at the end of the 1980s. Moreover, the fledgling British renewable energy industry did not perceive emissions trading as a threat to its moderate public financial support.

The British emissions trading advocacy coalition was helped by the fact that it operated within an Anglo-Saxon capitalist model in which market solutions are usually highly regarded by policy makers (although Britain had failed to adopt market-based instruments in environmental policy prior to the 1990s). It was also conducive for the British emissions trading advocacy coalition that the traditional domestic environmental regulatory style relied heavily on flexible environmental quality objectives, while the common law tradition presented no serious legal obstacles to the introduction of emissions trading. Finally, British governments have consistently vetoed (on sovereignty grounds) the adoption of a supranational CO_2/energy tax which could have become an alternative EU policy instrument for tackling the threat of climate change. The British government's hopes that the UK ETS would provide a model for the EU were only partly fulfilled because the rules of the EU ETS and UK ETS turned out to be different.

The German emissions trading advocacy was weak at the start of the EU ETS negotiations. It was made up of actors such as Environment Minister Trittin and most of his fellow Green MPs, the banking sector, individual BMU officials, some environmental NGOs (WWF, Germanwatch and BUND) and some research institutes (for example, DIW and Öko Institut). As listed in Table 3, the German emissions trading advocacy coalition was faced with formidable opposition. It included Chancellor Schröder (SPD), Economics Minister Clement (SPD), most SPD MPs, most Economics Ministry officials, some BMU officials, the coal and chemical industries, as well as their unions and the booming renewable energy industry which was concerned that financial support under the REFIT might be endangered by the introduction of emissions trading.

The German emissions trading advocacy coalition was constrained by having to operate within a Rhineland capitalist model which allows the state to set the framework conditions for market actors. However, the Rhineland capitalist model also exhibits neocorporatist policy-making features which are characterised by the adoption of policy (instrument) solutions for which as wide a consensus as possible has been established between the government, employers and unions. However, the chemical and coal industries, which employ a significant number of people, particularly in North Rhine Westphalia (that is, the SPD's political heartland), and their unions, strongly opposed the adoption of emissions trading.

Germany's rule of law (*Rechtsstaat*) tradition and constitution (*Grundgesetz*), which requires the state to ensure equal treatment of citizens, was initially seen as a possible obstacle to the introduction of emissions trading. However, so far, none of the important legal challenges to the EU ETS has been successful in higher German courts. The traditional German environmental regulatory style is characterised by a high degree of media-specific (that is, air, water and soil) uniform emission standards that are derived from the best available technology (BAT) which has put less emphasis on short-term cost-effectiveness compared to long-term advantages (including the creation of lead markets for abatement technologies). Unsurprisingly, Germany adopted technically ambitious standards during the implementation of the EU ETS (Matthes and Schafhausen, 2007). However, even before the adoption of the EU ETS, cost-effectiveness considerations increasingly gained ground amongst German environmental policy makers as environmental policy matured (that is, as the most visible immediate environmental problems were tackled) and international economic competition increased.

Finally, at the time of the EU ETS negotiations, German emissions trading opponents claimed that the existing domestic policy instrument mix, which was made up of traditional regulation, voluntary agreements and an ecological tax reform, would be sufficient to ensure compliance with Germany's Kyoto and EU burden-sharing targets. German industry had already lost its battle against the ecological tax reform under the Red-Green coalition government and now put up a determined fight to prevent the introduction of emissions trading which, it claimed, would endanger the success of its voluntary (climate change) agreements. The German government had long been one of the strongest advocates of a supranational CO_2/energy tax which could have constituted an alternative policy instrument to the EU ETS had it not been vetoed by Britain.

At first glance it seems obvious that emissions trading better fits the Anglo-Saxon capitalist model than the more state interventionist German social market economy. Emissions trading is, after all, a market-based policy instrument which was pioneered in America at a time when traditional 'command-and-control' regulation was increasingly derided by neoliberals as red tape and blamed for a loss in economic competitiveness. However, there has always been an ordoliberal tradition within the German social market economy which has again gained in influence due to Europeanisation and globalisation pressures (Dyson and Padgett, 2005; Toke and Lauber, 2006).

Moreover, a cap-and-trade ETS (such as the EU ETS) can be a 'sharp weapon for the state' (interview, 2005). One British environmental NGO representative argued that 'environmental groups like the "cap" while industry likes the "trade" part of cap-and-trade emissions trading'. The distinction between market-based instruments (such as emissions trading) and traditional regulation is not as stark as some neoliberal economists would like us to believe. A considerable number of (British, German and EU) officials have

been involved in the adoption and implementation of the EU ETS which has relied heavily on regulation for establishing a functioning carbon market. In the German case a new agency (DEHSt) with more than 90 officials was set up.

It could be argued that the adoption of the EU ETS came about through a process of 'regulatory competition' (Héritier *et al*., 1996) in which Britain succeeded in uploading to the EU level its preferred policy instrument (that is, emissions trading) for tackling climate change. Germany subsequently had to download a policy instrument which was opposed by influential domestic policy actors who preferred different policy instruments (that is, a mix of traditional regulations, voluntary agreements and eco-taxes (see Table 3)). Britain adopted a 'first mover' position by offering a model to the EU. In the wake of the 1997 Kyoto Protocol and the continued (British) opposition to a supranational (CO_2/energy) tax, the Commission acted as a decisive policy instrument entrepreneur when it proposed setting up an EU ETS.

However, the EU ETS decision-making process was more complicated than could be explained by a simple 'uploading' and 'downloading' process. First, the UK ETS and the EU ETS turned out to be different. The UK ETS excluded the electricity sector and was a voluntary scheme which covered the six main greenhouse gases listed in the Kyoto Protocol. The EU ETS included the electricity sector and became a mandatory scheme which covered merely CO_2 emissions. Second, there was also an important minority of German domestic actors who favoured emissions trading as a policy instrument for tackling climate change at the start of the EU ETS negotiations. However, the fact that global emissions trading was on the horizon while several member states (such as Britain and Denmark) experimented with ETSs on the domestic level increased political pressure on German domestic emissions trading opponents. The recent enthusiasm in the German *Bundestag* for the auctioning of EU ETS allowances in the second trading phase signals that the majority of German parliamentarians seem to have finally endorsed emissions trading as an important policy instrument for tackling climate change. It would not be the first time that Germany initially opposed the adoption of a new EU environmental policy instrument and then changed its position during the implementation phase as domestic opposition started to wane (as can be seen, for example, from the EU's Eco-Management and Audit Scheme).

Bibliography

Bailey, Ian (2007) 'Neoliberalism, climate governance and the scalar politics of EU emissions trading'. *Area*, 39(4): 431–42.

BBC (2007) 'Carbon trade scheme "is failing"'. *File on Four* (5.6.2007), London: British Broadcasting Corporation. http://news.bbc.co.uk/1/hi/programmes/file_on_4/default.stm, accessed 10.6.2007.

BDI (2006) *BDI-Präsident Thumann zum Emissionshandel: Offener Brief an Bundeskanzlerin Merkel. Pressemitteilung 140/06, 17.12.2006*. Berlin: Bundesverband der deutschen Industrie.

CEC (1992) *Proposal for a Council Directive introducing a tax on carbon dioxide emissions and energy*, COM(92)226 final. Brussels: Commission of the European Communities.

CEC (2000) *Green paper on greenhouse gas emissions trading within the European Union. COM(2000)87 final*. Brussels: Commission of the European Communities.

CEC (2001) *Proposal for a directive establishing a scheme for greenhouse gas emission allowance trading*, COM(2001)581. Brussels: Commission of the European Communities.

CEC (2003) *Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading*. Brussels: Commission of the European Communities.

CEC (2005) *Communication. Further guidance on allocation plans*, COM(2005)703 final. Brussels: Commission of the European Communities.

Dales, John (1968) *Pollution, Property and Prices*. Toronto: University of Toronto.

Damro, Chad, and Méndez, Pilar Luaces (2003) 'Emissions trading at Kyoto: from EU resistance to Union innovation'. *Environmental Politics*, 12(2): 71–94.

DEFRA (2003a) *UK Emissions Trading Scheme*. London: Department for Environment, Food and Rural Affairs, http://www.defra.gov.uk/environment/climatechange/trading/reia.htm

DEFRA (2003b) *UK Emissions Trading Scheme. Auction analysis and Progress Report*. London: Department for Environment, Food and Rural Affairs, http://www.defra.gov.uk/environment/climatechange/trading/pdf/trading-progress.pdf

DIW, Öko-Institut and Fraunhofer-ISI (2003) *Nationaler Allokationsplan (NAP): Eckpunktepapier*. Berlin: Deutsches Institut für Wirtschaftsforschung.

Dolowitz, David, and Marsh, David (1996) 'Who learns from whom?' *Political Studies*, XLIV: 343–57.

Dyson, Kenneth, and Padgett, Stephen (2005) 'Introduction: Global, Rhineland and hybrid capitalism?' *German Politics*, 14(2): 115–24.

Ellerman, Denny, Buchner, Barbara and Carroro, Carlo (2007a) *Allocation in the European Emissions Trading Scheme*. Cambridge: Cambridge University Press.

Ellerman, Denny, and Buchner, Barbara (2007b) 'The European Union emissions trading scheme: origins, allocation, and early results'. *Review of Environmental Economics and Policy*, 1(1): 66–87.

ENDS Europe Daily (various years) Environmental Data Services Limited. London: Haymarket.

Eurosolar (2001) *Unsere Luft ist keine Ware. Erneuerbare Energien statt fossilen Emissionshandel*. Advertisement in *Die Zeit* (12 July 2001).

Grubb, Michael, with Vrolijk, Christiaan and Brack, Duncan (1999) *The Kyoto Protocol*. London: Earthscan.

Hansjürgens, Bernd (ed.) (2005) *Emissions Trading for Climate Policy*. Cambridge: Cambridge University Press.

Héritier, Adrienne, Knill, Christoph and Mingers, Susanne (1996) *Ringing the Changes in Europe*. Berlin: Walter de Gruyter.

HC (2007) *The EU Emissions Trading Scheme, Second Report, Session 2006–07*. House of Commons, Environmental Audit Committee, London: Stationary Office.

HM Government (1990) *This Common Inheritance*. London: HMSO.

Kern, Kristine, Jörgens, Helge and Jänicke, Martin (2000) 'Die Diffusion umweltpolitischer Innovationen. Ein Beitrag zur Globalisierung von Umweltpolitik'. *Zeitschrift für Umweltpolitik und Umweltrecht*, 3: 507–46.

Jänicke, Martin, and Jacob, Klaus (2002) *Ecological Modernization and the Creation of Lead Markets*. Berlin: Forschungsstelle für Umweltpolitik.

Jörgens, Helge (2003) *Governance by Diffusion – Implementing Global Norms through Cross-National Imitation and Learning*, FFU report 07-2003. Berlin: Forschungsstelle für Umweltpolitik.

Jordan, Andrew, Wurzel, Rüdiger and Zito, Anthony (eds) (2003a) *New Instruments of Environmental Governance*. London: Frank Cass.

Jordan, Andrew, Wurzel, Rüdiger, Zito, Anthony and Brückner, Lars (2003b) 'Policy innovation or "muddling through"? "New" environmental policy instruments in the United Kingdom'. *Environmental Politics*, 12(1): 179–98.

Jordan, Andrew, Wurzel, Rüdiger, and Zito, Anthony (2005a) 'The rise of "new" policy instruments in comparative perspective: has governance eclipsed government?'. *Political Studies*, 53(3): 477–96.

Jordan, Andrew, Wurzel, Rüdiger and Zito, Anthony (2005b) 'Policy instrument innovation in the European Union', in G. Winter (ed.), *The Multi-Level Governance of Global Environmental Change*. Cambridge: Cambridge University Press, 470–92.

Lafeld, Sascha (2003) *Emissionshandel in Deutschland im Zeitalter der Global Governance*. Inaugural dissertation. Münster: Westfälische Wilhelms-Universität Münster.

Lauber, Volkmar (2007) 'Neo-liberal cap-and-trade schemes: hypotheses on origin and impact'. Paper presented at the Energy and Climate Change Policy conference, Salzburg, 24–28 September 2007.

Lawrence, Anna (2007) 'The Kyoto Protocol and emissions trading in the United Kingdom, 1997–1999: a study of policy transfer'. Unpublished PhD thesis, Keele University.

Marshall Report (1998) *Economic Instruments and the Business Use of Energy.* London: HM Treasury, http://www.hm-treasury.gov.uk/media//C4314/marshall.pdf

Matthes, Felix Christian, and Schafhausen, Franzjosef (2007) 'Germany', in D. Ellerman, B. Buchner and C. Carraro (eds), *Allocation in the European Emissions Trading Scheme*, Cambridge: Cambridge University Press, 72–105.

National Audit Office (2004) *The UK Emissions Trading Scheme*. London: National Audit Office.

Nordhaus, William D. (2007) 'To tax or not to tax: alternative approaches to slowing global warming'. *Review of Environmental Economics and Policy*, 1(1): 26–44.

Padgett, Stephen (2003) 'Between synthesis and emulation: EU policy transfer in the power sector'. *Journal of European Public Policy*, 10(2): 227–45.

Öko-Institut, DIW and Ecofys (2003) *Auswirkungen des europäischen Emissionshandelssystems auf die deutsche Industrie*. Berlin/Köln: Öko-Institut, DIW and Ecofys.

Rudolph, Sven (2005) *Handelbare Emissionslizenzen*. Marburg: Metropolis.

RWI (2002) *Kernaussagen der Studie 'Zertifikatenhandel* für CO_2*-Emissionen auf dem Prüfstand – Ausgestaltungsprobleme des Vorschlags der EU für eine Richtlinie zum Emissionshandel*'. Essen: Rheinisch-Westfälisches Insitut für Wirtschaftsforschung.

RWI (2003) *Die Klimagasemissionen in Deutschland in den Jahren 2005/2007 und 2008/2012*. Essen: Rheinisch-Westfälisches Insitut für Wirtschaftsforschung.

Sabatier, Paul (1993) 'Policy change over a decade or more', in P. Sabatier and H. Jenkins-Smith (eds), *Policy Change and Learning. An Advocacy Coalition Approach*. Boulder: Westview Press, 13–41.

Schafhausen, Franzjosef (1999) 'Zertifikatslösungen – Konzeptionelle Schwierigkeiten, instrumentelles Leistungsvermögen, erforderliche Rahmenbedingungen', Arbeitsgemeinschaft für Umweltfragen, Tagung am 25.11.1999. Bonn: AGU.

Schafhausen, Franzjosef (2007) 'Energy and climate policy. Supply security in international comparison'. *Energy and Climate Policy conference, Salzburg*, 24–28 September 2007,

http://web.fu-berlin.de/ffu/veranstaltungen/salzburg2007/Franzjosef%20Schafhausen%20ETS.pdf

Schreuers, Miranda (2002) *Environmental Politics in Japan, Germany, and the United States*. Cambridge: Cambridge University Press.

Smith, Stephen, and Swierzbinski, Joseph (2007) 'Assessing the performance of the UK emissions trading scheme'. Springer Online, 37:131–58, http://www.springerlink.com/content/0331110775841480/?p=e2ec0371e279476d8262cb3de1c4dbbe&pi=8

SPD-Grüne (2002) *Erneuerung – Gerechtigkeit – Nachhaltigkeit*. Berlin: Sozial Demokratische Partei Deutschlands – Die Grünen.

Toke, David, and Lauber, Volkmar (2006) 'Anglo-Saxon and German approaches to neoliberalism and environmental policy: the case of financing renewable energy'. *Geoforum*, 38(4): 677–87, doi:10.1016/j.geoforum.2006.11.016.

Weale, Albert, Pridham, Geoffrey, Cini, Michelle, Konstadakopulos, Dimitrios, Porter, Martin and Flynn, Brendan (2000) *Environmental Governance in Europe*. Oxford, Oxford University Press.

Wettestad, Jorgen (2005) 'The making of the 2003 EU emissions trading directive: an ultra quick process due to entrepreneurial proficiency?' *Global Environmental Politics*, 5(1): 1–23.

Wurzel, Rüdiger (2002) *Environmental Policy-Making in Britain, Germany and the European Union*. Manchester: Manchester University Press.

Wurzel, Rüdiger (2004) 'The Europeanisation of German environmental policy: from environmental leadership to partial mismatch?', in A. Jordan and D. Liefferink (eds), *The Europeanisation of Environmental Policy*. London: Routledge, 99–117.

Wurzel, Rüdiger (2008) 'Environmental policy: EU actors, leader and laggard states', in J. Hayward (ed.), *Leaderless Europe*. Oxford: Oxford University Press (in print).

Wurzel, Rüdiger, Jordan, Andrew, Zito, Anthony and Brückner, Lars (2003) 'From high regulatory state to social and ecological market economy? "New" environmental policy instruments in Germany'. *Environmental Politics*, 12(1): 115–36.

WWF-UK (2007) *Emission impossible: access to JI/CDM credits in phase two*. World Wide Fund for Nature, http://www.wwf.org.uk/filelibrary/pdf/emission_impossible.pdf

Zapfel, Peter (2007) 'A brief but lively chapter in EU climate policy: the Commission's perspective', in D. Ellerman, B. Buchner and C. Carraro (eds), 13–38.

Zapfel, Peter, and Vainio, M. (2002) 'Pathways to European greenhouse gas emissions trading: history and misconceptions'. Milan: Fondazione Eni Enrico Mattei.

Ziesing, Hans-Joachim (forthcoming) 'EU emissions trading and national allocation plans: the case of Germany', in B. Eberlein and B. Doern (eds), *Governing the Energy Challenge: Canada and Germany in a Multilevel Regional and Global Context.*