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Interaction between EU carbon trading and the international climate regime: Synergies and learning

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Abstract This article discusses the developing interaction and cross-scale effects between the company-focused EU emissions trading (ETS) and the country focused international climate regime, in particular the Kyoto Protocol. Key questions discussed are, first, what has been the character of selected interactions so far – synergistic or disruptive? Second, what kinds of interaction mechanisms have been driving the interactions – normative, cognitive or utilitarian? Third, with regard to cross-scale effects, has significant learning taken place between institutions at different levels? Four sub-cases of interaction are analysed: First, the interaction between the Kyoto Protocol as source and the ETS as target which started after the adoption of the Protocol in late 1997. Second, a next phase of interaction started in 2004 when the EU states started to develop national allocation plans (NAPs) where bringing in credits/allowances developed under the Clean Development Mechanism (CDM) became one compliance strategy. Third, the opposite relationship is examined. i.e. with the ETS as the source and the Kyoto Protocol institutions as targets. The first phase started after the adoption of the 2003 ET Directive and with the developing ETS possibly leading to a more rapid and extensive CDM development than would otherwise have been the case. Fourth and finally, a separate case of interaction deals with the possible role the ETS plays and could play for an emerging global carbon market. Key findings are that these cases are mainly of a synergistic nature. Furthermore, in order to understand the driving forces, it is necessary to draw upon several interaction mechanisms, particularly cognitive and utilitarian ones. Finally, as to cross-scale learning, the post-2012 global regime may avoid pitfalls related to the allocation process experienced by the ETS. But the learning and diffusion potential should not be exaggerated.

Keywords EU climate policy, emissions trading, ETS, National Allocation Plans, Kyoto Protocol, Clean Development Mechanism, interaction

Abbreviations

CDM	Clean Development Mechanism
CoP	Conference of the Parties
ET	emissions trading
EU ETS	EU emissions trading system
ICAO	International Civil Aviation Organization
ICAP	International Carbon Action Partnership
JI	Joint Implementation
NAPs	national allocation plans
NO _x	nitrogen oxides
RGGI	Regional Greenhouse Gas Initiative
SO ₂	sulphur dioxide
UNFCCC	UN Framework Convention on Climate Change

1 Introduction

Much as a follow-up of the 1997 Kyoto Protocol under the UN Framework Convention on Climate Change (UNFCCC), the EU started its pilot emissions trading system (EU ETS) in the period 2005-7, based on the 2003 emissions trading (ET) Directive (Skjærseth and Wettestad 2008). The ETS will continue first in the 2008-12 Kyoto commitment phase and then also post-Kyoto (i.e. 2013-2020), broadening its sectoral scope from the power sector and some industries to include e.g. aviation. Although there are clear differences between the EU ETS and global institutions such as the UNFCCC/Kyoto Protocol or the International Civil Aviation Organization (ICAO) with regard to institutional ‘architecture’, there is also significant present or future overlap with regard to targeted actors and activities. In the terms proposed by Oran Young, there are both ‘functional’ and ‘political’ linkages between the ETS and such global institutions (Young 1999).¹ Linkages also imply that *interaction* and cross-scale effects have been and will be taking place between the ETS and global institutions, i.e. that these institutions will causally influence each other, either complicating or facilitating decision-making and/or implementation (Oberthür and Gehring 2006). As interaction may be of the cognitive kind, cross-scale learning may take place.

As there is so far only scattered evidence of the interaction between the ETS and relevant global institutions, this article seeks to collect and turn relevant bits and pieces of evidence into an explorative analysis. The main questions addressed are: first, what has been the more specific character of selected, main interactions so far – synergistic/positive or disruptive/problematic? Second, what kinds of interaction mechanisms have been driving the interactions – important ones being ‘cognitive’, ‘normative’ (through commitment), and ‘utilitarian’ (through provision of incentives)? Third, with regard to cross-scale effects, has significant learning taken place between institutions at different levels?

The subject of analysis links up to the EPI debate in several ways. First, institutional interaction is in its essence a problem of policy integration at the international level (Oberthür, this issue). What sets it apart from national-level EPI is, among other things, the absence of a central political authority and a more pronounced fragmentation of institutions. Second, emissions trading is fundamentally about bringing environmental concerns – and in the case of the ETS, climate change concerns – into corporate boardrooms and the standard operating procedures of business and political executives, be they power producers, airline operators or others. So it can arguably be framed and analysed as a sub-case of environmental policy integration (cf. Nilsson and Persson 2003; Homeyer 2006). As noted by Homeyer, ‘competition’ which harnesses market forces to environmental purposes can be seen as ‘market-oriented governance’ that may be employed to improve EPI (*ibid.*, p. 10). As noted by Nilsson and Persson (2003, p. 338, 340), to economists, EPI may mean “the application of economic instruments that correct market failures and adjusted prices to reflect social costs”. In addition, learning between actors in the policy network at hand is a core element of EPI.

Furthermore, as pointed out by the editors of this volume (Nilsson et al., this issue), a key element of EPI is the integration of environmental perspectives into “central bodies of the governments, such as finance ministries”. In the case of emissions trading, the increasing turn within the ETS towards auctioning of allowances and hence increasing governmental revenues has been a development which has led finance ministries to give more attention to climate change issues (Carbon Trust 2008; Skjærseth and Wettestad 2009).

Emissions trading is arguably an integration device that brings in environmental concerns to corporate boardrooms and finance ministries in a more positive manner than command-and-control policies, as such trading offers more flexibility and possibly even additional profits and revenues. Flexibility, for instance, in achieving compliance either by choosing to carry out internal abatement,

¹ According to Oran Young, a ‘functional’ linkage means that substantive problems that two or more institutions address are linked in biophysical or socioeconomic terms. A ‘political’ linkage means that actors decide to consider two or more arrangements as parts of a larger institutional complex (Young 1999, p. 50).

to buy ETS allowances, or to buy credits from the flexibility mechanisms under the Kyoto Protocol (i.e. the Clean Development Mechanism and the Joint Implementation). This flexibility also means considerable complexity however, making good coordination, synergistic interaction and learning between these institutional mechanisms at various levels and in various sectors crucially important. If these mechanisms do not interact smoothly, then corporate and political leaders may become disillusioned with the whole 'business' of climate change. The emerging ownership and learning process towards framing the climate change mitigation as central to industrial change may then become lost, potentially damaging EPI progress across levels (Nilsson 2006).

The main analytical foundation for this article is the concepts and analyses carried out in Oberthür and Gehring (2006) and Stokke (2007). As further elaborated in section two, important conceptual prerequisites for good interaction analyses include the clear identification of a 'source' and a 'target' institution, and being open to several different types of interaction.

In line with Oberthür (2006), some key interactions will be singled out for a more thorough analysis. In section three, the interaction between the Kyoto Protocol as source and the ETS as target will be scrutinised. The first and seminal phase, and hence sub-case, of this interaction started quite immediately after the adoption of the Protocol in late 1997. A second phase and sub-case of interaction started in 2004 when the EU states started to develop national allocation plans (NAPs) where bringing in credits/allowances developed under the Clean Development Mechanism (CDM) and (subsequently) Joint Implementation (JI) became one compliance option and strategy.

In section four, the opposite relationship will be examined, i.e. with the ETS as the source and the Kyoto Protocol institutions as targets. This can also be analysed in several phases, with the first phase and sub-case starting after the adoption of the 2003 ET Directive and with the developing ETS possibly leading to a more rapid and extensive CDM development than would otherwise have been the case. A second and separate sub-case of interaction deals with the possible (model) role the ETS plays and may play for an emerging global carbon market under the UNFCCC. Section five concludes the article with a summary of main findings and some concluding reflections.

2 Analytical perspective

There is an increasing literature on institutional interaction (see e.g. Young 1999; Breitmeier 2000; Rosendal 2001; Oberthür and Gehring 2006; Stokke 2007). This article will mainly draw upon the framework put forward in Oberthür and Gehring (2006), being arguably one of the most elaborated frameworks presented so far.²

As noted, institutional interaction pertains to a cause-effect relationship between two institutions. According to Breitmeier (2000), *interaction will occur if one institution affects the development or performance of another institution*. As pointed out by Oberthür and Gehring (2006), effects may be beneficial, adverse or neutral for the target institution.

Beneficial effects will create *synergy* between the two institutions because the policy direction of the target institution is supported by measures originating from the source institution...and adverse effects will result in *disruption* of target institution policies because measures originating from the source institution thwart or undermine the effectiveness of the target institution's own measures, or they force the target institution to adopt unwanted rules (ibid., p. 46).

Furthermore, establishing a clearcut case of interaction requires identification of:

- 1) the source institution and, more specifically, the relevant rules/decision(s) from which influence originates;
- 2) the target institution and, more specifically, the relevant parts of the institution itself or the

² The main point is here using this framework to interpret and analyze existing evidence, not a critical discussion of the framework.

issue area governed by it that are subject to the influence of the source institution; 3) a unidirectional causal pathway connecting the two institutions (ibid., p. 27).

However, a target institution may respond to the development of new rules within a source institution, even before this new rule is adopted. It is important to prove that the observed changes within the target institution (or the issue area governed by it) could not be expected to have occurred in the absence of the source institution or its relevant parts (ibid., p. 28).

Getting adequate proof requires identification of specific and more delimited ‘cases’ of interaction, as two institutions can be involved in numerous cases of interaction at the same time; an interaction situation may involve more than two institutions; and/or if two institutions coevolve over time, making it useful to analytically divide the interaction into several phases. Furthermore, a causal mechanism of institutional interaction generally consists of three separate stages. As the first step, the source affects the preferences or behavior of relevant actors “within its own domain” (ibid., p. 32). Next, this effect leads to a changes of preferences or behavior of actors “relevant to the target institution” (ibid.). Finally, “individual action must produce the effect observed within the target institution or its issue” (ibid.).

With regard to *how* the source may affect preferences or behavior within the target institution, Oberthür and Gehring (ibid.) and Stokke (2007) basically point out three main ways/mechanisms. First, there is a ‘*cognitive*’ pathway, where information, knowledge or ideas produced within the source institution produce changes in the thinking and preferences of actors within the target institution. Hence, learning may take place.

Second, there is a ‘*normative*’ pathway, where *commitments* entered into by some members of the source institution affect the preferences of actors within the target institution. It requires a certain overlap of both the memberships and the issue areas of the interacting institutions. As noted by Oberthür and Gehring (2006, p. 37), “interaction through commitment is based on the desire of member states to avoid mutually incompatible obligations, or on their desire to broaden the geographic scope of such obligations”.

Third, as pointed out by Stokke (2007), there is a ‘*utilitarian*’ pathway, where the rules and programs under one institution make problem-solving activity under another institution less costly or more attractive. Could it for instance be that companies included in the ETS have implemented abatement measures that they would not have implemented in the absence of the ETS, and that these abatement measures make it less costly for the EU to comply with its Kyoto Protocol commitment?

On the basis of this conceptual ‘roadmap’, let us then turn to the first set of identified cases of interaction, with the Kyoto Protocol seen as the source and the EU ETS as the target.

3 How the Kyoto Protocol initiated the ETS and later increased ETS ambitiousness: synergistic interaction with the ETS?

In Oberthür’s (2006) overview list of 24 interactions between the Kyoto Protocol and other international institutions, the Protocol was briefly indicated as a triggering factor for the establishment of the EU ETS; the latter “expected to result in reductions of GHG emissions” (ibid., p. 58). As indicated in the introduction, this interaction seems best analysed by distinguishing two subsequent phases, the first one starting with the adoption of the Kyoto Protocol in 1997, and the second one starting in 2003 with the production of the first ETS National Allocation Plans (NAPs).

3.1 Did the Kyoto Protocol initiate the EU ETS?

As further analysed in Skjærseth and Wettstad (2008), the adoption of the Kyoto Protocol is one of three possible good explanations for why the previously flexible-mechanism sceptic the EU made a turn-about in 1998 and started to develop an internal EU emissions trading system. Rival explanations were, first, that the turn-about could be explained by a more independent Member

State change of preferences, or, second, that the turn-about could be explained by a change of position of EU institutions and non-state actors. A main conclusion in our book was that the Kyoto Protocol perspective gained strong empirical support.

Recapitulating some main elements of that analysis, the starting point of the interaction was obviously the adoption of the Kyoto Protocol and not least the fact that a key element of the Protocol was the establishment of three flexible mechanisms: emissions trading, a Clean Development Mechanism (CDM), and a Joint Implementation (JI) mechanism. Was the turn-about of the Commission and subsequently the whole EU from mid-1998 a simple case of interaction by commitment? Not directly. The clause about emissions trading in the Protocol (i.e. Article 17) only stated that “the Parties included in annex B *may* participate in emissions trading for the purposes of fulfilling their commitments under Article 3 of this protocol” (my italics). It was furthermore stated that the CoP (Conference of the Parties) was to define the relevant “principles, modalities, rules and guidelines, in particular for verification, reporting and accountability for emissions trading”. So key elements of the institutional architecture were to be developed at a later stage. In addition, it was stated that trading should be ‘supplemental’ to domestic actions for the purpose of meeting the Parties’ commitments under the Protocol. All in all, the EU’s main commitments under the Protocol were undoubtedly, first and foremost, the obligation to reduce greenhouse gas emissions by eight percent by 2008-12, and second, along with other parties, to show demonstrable progress by 2005 (cf. Article 3, annex D).

It can be argued that the development of EU emissions trading was a very natural response to the commitments taken on in Kyoto, not least in light of the failure to establish another possibly effective EU-wide climate policy instrument, namely a carbon tax, and also taking into account the EU’s leadership ambitions in global climate policy (e.g. Skjærseth 1994; Wettestad 2000, 2001). So it makes sense to argue that the Kyoto Protocol exerted considerable pressure in the direction of establishing an effective EU-wide climate policy instrument, and in 1998 there was not a wide range of politically feasible instruments to choose from (Zapfel and Vainio 2002; Zapfel 2005; Skjærseth and Wettestad 2008).

However, as further analysed in Skjærseth and Wettestad (ibid.), in order to further understand the specific choice of the trading instrument, it is necessary to bring in evidence from the EU institutions perspective, not least the ‘inflow’ of economists sympathetic towards the trading instrument into the Commission’s climate change personnel in 1997/early 1998.

Might it also be relevant to regard this interaction as a cognitive one, i.e. that information about the emissions trading idea was produced within the context of the Kyoto Protocol and subsequently influenced the initiation of the EU ETS? It is clear that EU negotiators learned more about emissions trading through the negotiations on the Kyoto Protocol. Particularly the US was a driving force for bringing in emissions trading and flexibility mechanisms into the discussions about the possible design of the Kyoto Protocol (Voss 2007). The US had practical experience with emissions trading brought about by the 1990 establishment of US systems on sulphur dioxide (SO₂) and nitrogen oxides (NO_x) emissions trading (e.g. Stavins 2003), and was also influential as a leader in the JUSCANNZ group³ (Yamin 2005). So this pathway is also of some relevance.

But how ‘deep’ was this interaction? As indicated in section two, did the Kyoto Protocol also provide applicable models for more specific ETS design features such as the non-compliance procedures? The answer is no. As noted above, the Kyoto Protocol stated that the more specific rules and procedures for international emissions trading were to be developed at a later stage. The main meetings in this regard did not take place until the summer and fall of 2001 (Bonn in July and, particularly, Marrakech in October). At this stage, the main elements of the EU ETS had been shaped. The ETS Green Paper was put forward in March 2000 and a draft ETS proposal was circulated within the Commission in May 2001. Furthermore, the ETS was directed towards

³ JUSCANNZ was a coalition of nations in the negotiations on the Kyoto Protocol and included Japan, USA, Canada, Australia, New Zealand, Norway and Iceland.

companies, not governments (as the Kyoto system), something which generally reduced the direct model value of clarification of international trading rules. So the Kyoto Protocol did not influence the specific design of the EU ETS to a great degree.

Summing up this interaction, the ETS may be seen as ‘nested’ in the Kyoto Protocol, and there are functional linkages. The Kyoto Protocol’s targets and commitments were important causal factors for moving the EU in the direction of establishing an ETS. At a general level, it can thus be concluded that this central European mechanism for EPI (or ‘climate policy integration’ to be more exact – see Nilsson and Nilsson, 2005) was driven by an international agreement. But the Protocol’s initial trading design ideas were too vague to offer much help in the specific EU ETS design process.

3.2 Have the Kyoto Protocol mechanisms bolstered the environmental ambitiousness of the ETS?

The core of this possible interaction is the claim that the existence of and possibility of using lower-priced CDM credits to achieve compliance with companies’ ETS targets has led countries and companies to agree to more stringent emission caps than they otherwise would have done (Skjærseth and Wettestad 2008). In EPI terms, this could possibly be seen as a move towards a stronger interpretation of EPI, although still not an embracement of the “principled priority” connotations advanced by Lafferty and Hovden (2003) (see also Oberthür, this issue).

What is then the starting point of this possible interaction? As indicated above, the CDM was formally established as a part of the Kyoto Protocol in 1997. The CDM’s purpose was defined in Article 12. It was to help Annex I countries to comply with their emission reduction commitments, to assist developing countries to achieve sustainable development, and ultimately contribute to reduced greenhouse gas concentrations in the atmosphere. In order to placate sceptics to the flexibility mechanisms and fears that these mechanisms would allow developed countries to simply ‘buy themselves out’ of international commitments and continue domestic pollution habits ‘undisturbed’, Article 6.1d in the Protocol was given a provision that the use of CDM was to be ‘supplemental’ to domestic actions to reduce emissions.

Due to expectations about the nature and use of the flexibility mechanisms to be clarified at the fourth Conference of the Parties (CoP) in Buenos Aires in November 1998, a lively debate erupted within the EU about the possible use of the flexible mechanisms and the very balance between measures ‘at home’ in the EU and ‘abroad’ in the South and East. How to interpret the ‘supplemental’ concept? As further described in Skjærseth and Wettestad (2008), this debate dominated the EU climate policy agenda during much of 1998 and 1999. In the first main EU document on possible ETS design, i.e. the March 2000 Green Paper, the relationship to the flexibility mechanisms was not specifically touched upon.

When the Commission put forward an ET Directive proposal in October 2001, the main suggestion with regard to the link to the flexibility mechanisms was to decide upon the nature of this link in a separate subsequent proposal, not least due to the fact that the more specific design of the mechanisms remained to be further clarified.⁴ This was also the outcome in the 2003 ET Directive. The negotiation on a linking directive started almost immediately after the ET Directive was adopted in July 2003. As further discussed by Hægstad Flåm (2007), when agreement was reached on the linking directive in April 2004, a main outcome was that CDM credits could be used from the start of the ETS in January 2005, while JI credits were usable from 2008 on. At this point in time, the process of producing the National Allocation Plans (NAPs) for the ETS pilot phase was well underway, as the main formal deadline for the submission of plans in NAP I was the end of March 2004. So as indicated, the main starting point for this interaction can be argued to be summer 2003 and the agreement on the ET Directive, setting in motion the NAP processes.

⁴ CoP-4 in 1998 failed to further define the rules of the game for emissions trading.

How, then, did the pilot phase NAPs of key ETS countries and emitters such as Germany, Poland and the UK treat the CDM issue? It was not mentioned at all in the German and Polish plans. In the UK plan, it was briefly noted that the UK was on course to meet its Kyoto target and no use of the flexible mechanisms was intended (DEFRA 2004, p. 15). This indicates that countries and companies were quite uncertain with regard to the possible role CDM could play in this phase, which is very understandable as the linking directive had not been finalised, nor had the Kyoto Protocol entered into force when the main work on the plans was carried out.

However, from the very start of the NAP II process in late 2005 (i.e. the production of NAPs for the second phase of the ETS, the Kyoto commitment phase 2008-12), it was clear that CDM and JI credits would play a much more prominent role. Now there were formal Kyoto Protocol/EU Burden-sharing Targets to comply with; banking to later commitment periods was allowed; and signals were starting to come from the Commission about tighter allocations ahead. An early element in this latter development was the December 2005 Commission Communication providing NAP II guidance (European Commission 2005). It was here indicated that if the emissions trading sector was to contribute a proportionate share of the reduction needed in member-states with a gap to close in order to reach the Kyoto target, then the overall cap for the second phase should be 6 per cent lower than in the pilot phase (*ibid.*, p. 6). Allocations to any member states that were off-track from their Kyoto target in comparison with actual 2003 emissions should be further tightened.⁵

With regard to the latter, and as an additional criterion that did not apply in the first phase, member states were required to specify a maximum amount of intended government purchase of Kyoto units. Described by the Commission as criterion 12 in Annex III of the ETS Directive (although the Directive initially contained only 11 criteria), the established percentage should be consistent with the state's supplementarity obligations under the Kyoto Protocol and decisions adopted pursuant to the UNFCCC or the Kyoto Protocol (*ibid.*, p. 7). As a minimum threshold, installations should be allowed to use JI/CDM credits up to a level of 10 per cent. The practical implications of all these elements were then summed up in specific formulas (*ibid.*, p. 7, 10). This was further specified in the Communication accompanying the first round of Commission NAP II decisions in late November 2006 (European Commission 2006).⁶

How, then, were these signals about the use of CDM and JI implemented by the Member States? Overall, most States signalled that their companies intended to use such credits. Due to lower costs and higher risks, credits from such projects were expected to be priced lower than regular ETS allowances. For instance, ETS actors from different regions within the EU such as Poland (East), Germany (North) and Greece (South) initially communicated to the Commission a CDM/JI limit of respectively 25, 12 and 9 per cent.

Did the CDM/JI factor influence Member States and companies to agree to more ambitious allocations than would have been the case if such credits had not been available? The answer is possibly yes. First, for several Member States such as Spain, Italy, and not least the Netherlands (see Lecocq and Ambrosi 2007, p. 138), the use of CDM/JI constitutes a clearly important element of their compliance strategy, with an indicated annual purchase of at least 19 million tonnes (see e.g. ENDS Report 2007, p. 50; Reuters/Planetark 2007a). Second, the 'CDM dynamic' was very well and explicitly demonstrated in the case of Germany. As indicated, the suggested German NAP II cap was cut by six per cent in November 2006. This led to a very negative response from Germany, indicating the possibility of taking the Commission to the European Court of Justice.

⁵ These states should aim for a balanced mix between lowered allocation for second phase; implementing additional measures in the non-trading sector; and 'potentially supplemented' by government purchase of Kyoto unit credits (European Commission 2005, p. 6).

⁶ A key statement here was: where a Member-state with a remaining gap to close between its actual emissions and allowed emissions according to the Kyoto target does not substantiate or insufficiently substantiates the intended government purchase of Kyoto units this contravenes criterion 1 (setting a cap consistent with each Member-state's Kyoto Protocol commitment), and as a consequence the intended total quantity of allowances is reduced proportionally (European Commission 2006, p. 7).

However, this line of action was not chosen. Instead, in January 2007 Germany announced an intention to compensate for the reduced allocation by an increase in the cap on the use of the flexible mechanisms from 12 per cent to 20 per cent. This was reported as accepted by the European Commission in February (Reuters/Planetark 2007b).

Hence, there is probably a utilitarian dynamic at work. But it can possibly also be cast as a form of cognitive interaction. As argued above, it is very well possible that the preferences of countries and companies within the ETS were influenced by information about the development and future availability of CDM project credits (i.e. CDM outputs). 'CDM information' may have softened the opposition of EU countries and companies to more stringent allocations and hence made the whole process of negotiating ETS caps less marked by controversy than it would otherwise have been.

4 How the ETS has influenced global climate institutions: Synergistic interaction with the Kyoto Protocol institutions?

4.1 Introduction

As noted by Oberthür and Gehring (2006), two institutions can be involved in numerous cases of interaction at the same time (*ibid.*, p. 29). This seems certainly to be relevant in the case of how the ETS interacts with global climate institutions. Two plausible interactions will be examined. First, that the ETS has speeded up the development of the CDM. Second, that the ETS has functioned as a model for the development of global carbon trading. These interactions mainly overlap in time, although it may be argued that the latter has more of a prospective character than the former.

4.2 Has the ETS speeded up the development of CDM and JI projects?

The core of this interaction is the claim that the development and implementation of the ETS has led to greater interest in and enhanced development of the CDM and JI mechanisms than would otherwise have been the case. In order to scrutinise this claim more thoroughly, we need to briefly recapitulate the development of the CDM (e.g. Lecocq and Ambrosi 2007). A main body is the Executive Board, consisting of 10 members and 10 alternates, drawn from all constituencies of parties. The Board held its first meeting in 2002, and it is assisted in its work by various technical panels.

The withdrawal of the US from the Kyoto Protocol in March 2001 meant continued – and arguably increased – uncertainty about the entry into force of the Protocol. This is probably an important factor that explains why CDM project development activity was slow and hesitant in the period up to entry into force of the Protocol in February 2005. The registration of the first CDM project came on November 18 2004 (Point Carbon 2006, p. 12). By the end of 2004, there were around 600 CDM and JI projects in the Point Carbon database (mainly CDM), and this increased to around 1965 projects in mid-December 2005 (*ibid.*, p. 13). However, complaints about inadequate administrative capacity in the CDM EB and its technical panels were heard (Lecocq and Ambrosi 2007, p. 139). According to the official UNFCCC/CDM web site, by February 2008 there were around 2900 CDM projects in the pipeline, and there were 937 registered projects.⁷ According to Point Carbon, by April 2009, the number of registered projects had increased to 1570 and around 500 final credits have been issued, representing around 240 MtCO₂ (Point Carbon 2009, p. 1-2).

Main drivers in this development are the commitments taken on in the Kyoto Protocol and the desire of industrialised countries to develop the cheapest abatement strategies to comply with their commitments. The claim about an ETS 'amplifying effect' is then mainly a claim about synergistic

⁷ UNFCCC/CDM web site, February 2008

utilitarian interaction, i.e. that ETS implementation has led to more interest in and greater efforts devoted to the development of CDM projects than would otherwise have occurred. Generally, this sounds reasonable. As described in section 3.1., the requirement for EU countries to develop NAPs for the sectors involved in the ETS has likely led to a more focused and earlier awareness about compliance strategies both within governments and not least companies than would otherwise have been the case. *Without the ETS, the issue of climate policy performance and Kyoto compliance would very likely have remained an issue predominantly worrying some bureaucrats in the environment and foreign ministries.*

Is it possible to find more specific evidence about such an effect? According to Point Carbon, of the euro 377 million global market transactions taking place in 2004, CDM in fact contributed the largest segment, contributing 188 of these millions. In 2005, CDM continued to contribute the largest element in terms of volume, but representing a less significant element in economic terms (i.e. euro 1.9 billion out of a total 9.4 billion) (Point Carbon 2006, p. iii). In 2006, CDM transactions grew to around 3.4 billion euro, out of a total of 22.5 billion euro (where the ETS accounted for over 80% of the value) (Point Carbon 2007b, p. I, 31).

Analysts at Point Carbon furthermore noted in early 2006, after half a year of much higher ETS allowance prices than expected (i.e. between 25-30 euro): “with increasing prices for EUA delivery it is evident that this has contributed to the demand for project credits” (ibid., pp. 23-24). Furthermore, they noted that “prices for both CDM and JI project contracts increased during 2005. *This can mainly be explained by increased demand from EU ETS companies and the numerous carbon funds that became fully operational for purchasing credits*” (ibid., p. 24; my emphasis added). Commenting upon the developing market in 2006, not least including the ETS ‘market crash’ in early May in the wake of publication of 2005 verified emissions data, Point Carbon noted an increasing volume of transaction up to the ‘crash’ in May and falling transactions afterwards (Point Carbon 2007b, p. 17). Hence, a direct link between ETS and CDM developments could be recorded.

It is possible to find similar statements about a clear link between ETS and CDM developments from other analysts and observers. For instance, in the International Emissions Trading Association’s (IETA) 2006 position paper on ETS market functioning, it is stated that “it is clear that the EU ETS has been *the* driving force behind the current extraordinary growth in the CDM market...” (IETA 2006, p. 2; my emphasis added). Also in the analysis of CDM development carried out by Lecocq and Ambrosi (2007), the 2004 entering of European companies into the CDM market is credited to the ETS which was about to become operational at that time, and the clarification that CDM credits would become eligible under the ETS (ibid., p. 138). They also state that “*the rapid growth of the carbon market is a direct consequence of the entry into force of the EU-ETS (January 1 2005) and the Kyoto Protocol (February 16 2005)*” (ibid., p. 140; my emphasis added). According to Ellerman and Buchner (2007), “*the access to external credits provided by the Linking Directive has had an invigorating effect on the CDM and more generally on CO₂-reduction projects in developing countries, especially in China and India.*” (ibid., p. 84; my emphasis added).

4.3 *The ETS as a model for global carbon trading?*

The core of this interaction is the claim that the ETS has functioned as a model and inspiration for an emerging global carbon market under the UNFCCC, and led to trading initiatives in other regions and countries which would otherwise not have occurred. As global carbon trading between states from 2008 on was inscribed in the Kyoto Protocol and is hence already a reality, the interaction here must be of a cognitive kind, with the ETS providing experience and inspiration to develop the current rather formalistic state trading system into a more dynamic and active global market place. Such multi-level learning processes have so far not been much addressed in the predominantly national and EU-based EPI literature, but could constitute an important dimension of the EPI ‘game’ at the international level.

In the initial discussions about the EU ETS and its design, the dominant perspective was very much 'reactive', 'inwards' and modest, i.e. the ETS was seen as an important tool for protecting the EU internal market, for achieving Kyoto compliance, and for gaining experience for the coming global emissions trading. The possible role for the ETS as a model for global trading was not mentioned.

For global climate diplomacy, the withdrawal of the US from the Kyoto Protocol in March 2001 was both a surprising development and a potentially hard blow for the development of international climate change policies. However, as further elaborated in Skjærseth and Wettestad (2008), it served to unite the EU "in an extraordinary way", and made the quick and further development of an EU ETS not only a cornerstone of EU climate policy and follow-up of the Kyoto Protocol, but also a key instrument to save this Protocol. In the following years, climate policy and particularly the Kyoto Protocol issue has continued to be not very popular within the Bush administration. It can be argued that a slight change in the US climate position could be noted in 2007. Some interest about the functioning of the EU ETS could be noted. For instance, key ETS man Jos Delbeke and other ETS experts briefed US Senators in Washington in March 2007 (at the same time as a California delegation visited Brussels, see below). Republican Senator Pete Domenici stated: "I do not think the majority of US legislators think the EU is doing quite well – but at least you are trying something" (Europolitics Environment 2007).

However, at the regional level in the US, the EU ETS seems to have made more of an impact. The Regional Greenhouse Gas Initiative (RGGI) was launched in August 2006 and decided upon in November, aiming to be put into operation from January 2009. The RGGI comprises seven Northeastern US states, i.e. Connecticut, Delaware, Maine, New Hampshire, New Jersey, New York, and Vermont. California adopted climate change legislation in August 2006, including the establishment of an emissions trading system from 2012. It is clear that the EU ETS has served as a clear inspiration and possible linking partner for these initiatives. For instance, a California delegation visited Brussels in April 2007 to learn about the EU ETS. A delegation member stated: "we wanted to know what went right with it and what went wrong" (International Environment Reporter 2007). The delegation expressed hope that California could be the first non-European region to link up to the ETS, from 2013 on (Reuters/Planetark 2007c). EU officials have, however, stated that no link between the ETS and RGGI and California is probable until 2013 at the earliest (Point Carbon 2007a). It can also be noted that in July 2007 Germany and the UK signed a declaration with Florida on climate policy cooperation, including possible future linked carbon markets (Point Carbon 2007c).

Also several other global carbon players have initiated the development of domestic trading systems. Australia's most populous state, New South Wales, launched an ETS already in 2003 and in September 2006 other Australian states launched emissions trading plans (EU Energy 2006).

In October 2007 the International Carbon Action Partnership (ICAP) was launched, with the EU Commission and the EU ETS as somewhat of a cornerstone, but including a range of other partners present: US and Canadian members of the Western Climate Initiative; RGGI representatives; California representatives; EU member states Germany, France, Portugal, the Netherlands and the UK; New Zealand; and Norway (ICAP 2007). The aim of ICAP is to serve as an international forum in which governments and public authorities adopting mandatory GHG emissions cap and trade systems may share and discuss design experiences and best practices. In March 2008, also Japan announced plans to set up a trading system (Point Carbon 2008).

When the European Commission put forward its January 2008 proposal for the ETS 2013-2020 (European Commission 2008), Environment Commissioner Stavros Dimas stated that "the ETS is going to be the prototype for the world to imitate" (ENDS Daily January 23 2008). The awareness about the global interaction implications of EU ETS design can be discerned in several elements. First and foremost, the costs of frontrunning are addressed by measures to counter 'carbon leakage', i.e. avoiding that EU industries shut down their operations in the EU and move their activities to regions and countries in the world with less significant or no carbon constraints.

These measures include a continuation of the handing out of free allowances to certain energy-intensive industries unable to pass on carbon costs.

Furthermore, the idea of binding global sectoral agreements was floated. The promise of a move from the present 20% by 2020 reduction commitment up to a 30% commitment in the case of a 'satisfactory' global agreement can be seen as a 'sweetener' to encourage developed countries that so far have not accepted reduction commitments under the Kyoto Protocol, to do so quickly. The part of this promise which indicates a much more significant and open inflow of CDM and JI credits under such a 30% scenario can be seen as a sweetener to developing countries.

Winding up, Kruger et al (2007, p. 130) note that

this experiment with linked systems with 25 EU countries provides a useful laboratory for considering the political, economic and administrative challenges that would be faced by a global trading system, *which will be even more decentralized than the EU ETS but with less oversight* (ibid., p. 130, my emphasis added).

Hence, even if it seems clear that the ETS has functioned as a significant inspiration and model for trading globally, there are limits to the lessons which can be directly transferred to the global level. As pointed out by Kruger et al, globally, the very diversity of actors involved will be substantially higher than in the EU.

5 Winding up: Synergies, cross-scale learning and EPI

Again emphasizing the explorative character of this article, let us first sum up some main findings with regard to the interactions analysed. First, we examined whether and how the Kyoto Protocol affected the ETS, and hence the cross-scale interactions of EPI top-down. In the first sub-case here, we scrutinized the extent to which the Protocol initiated the turn-about within the EU and the subsequent development of an ETS. The main conclusion was that the Protocol must be seen as a very important causal factor. The Protocol established a legally binding emissions reduction target for the EU, and the EU realized that it had no common policies in place which could deliver such reductions. In addition to the normative pressure, learning about emissions trading, particularly from US experts and negotiators in the course of Protocol negotiations, also mattered. Hence, cross-scale learning was an important element of the picture already in these early days. However, as the Protocol far from *required* an ETS and had little to say about its more specific design, it is simply essential to consider internal EU factors – such as the 'inflow' of economists into the Commission's climate change unit – to more fully understand the initiation of the ETS.

A second sub-case discussed the extent to which Kyoto Protocol mechanisms such as the CDM have bolstered the degree of EPI, as expressed through the environmental ambitiousness of the ETS. This possibility started to become relevant in the wake of the 2003 adoption of the ET Directive and the subsequent development of National Allocation Plans (NAPs). Adoption of the Linking Directive in the Spring of 2004 further clarified that credits from CDM projects were to be useable already in the ETS pilot phase (and JI credits from 2008 on). Hence, as made clearer by applying utilitarian interaction lenses, and hence showing the analytical value of utilising insights about relevant mechanisms from the interaction literature, achieving ETS compliance partly by the use of cheaper CDM credits could lower such compliance costs and hence make EU states and installations willing to take on more ambitious targets than they otherwise would have accepted.

In the ETS pilot phase however, such a perspective had little practical relevance. Even though several EU countries had started to develop CDM programs and projects, progress was slow in moving these projects through the CDM bureaucratic machinery and achieving useable credits. Hence, the CDM factor had little or no influence on the NAP I process. However, as a real scarcity of allowances has become much more realistic in the Kyoto commitment phase, the CDM factor has played a more important role in the NAP II process. For example, an important reason for

Germany's acceptance of a more stringent NAP II cap was that it could use significantly more CDM credits.

The second main interaction analysed was the bottom-up interaction between institutions across levels, in how the ETS has influenced global climate institutions. The first sub-case discussed whether the ETS has speeded up the development of CDM and JI projects. Although project development has been somewhat slow, by April 2009 there were around 1570 registered CDM projects and around 500 final credits have been issued. There seems to be a widely held view among analysts that the establishment of the ETS has led to significantly more interest in the development of CDM projects than would otherwise have been the case. Hence, utilitarian interaction seems to have taken and is taking place.

A second sub-case discussed the extent to which the ETS has functioned as a model for global carbon trading under the UNFCCC. In one sense, global carbon trading is already a reality, as the possibility of such trading between states from 2008 was inscribed in the Kyoto Protocol. So this interaction must be understood as more cognitive, with the ETS providing experience and inspiration to develop the current rather formalistic trading system into a more dynamic and active global market place. US participation is of course essential in such a market place, with the US being the largest developed-country GHG emitter. As we know, the Bush administration was not very fond of EU climate policy and was little impressed by the ETS. However, regional initiatives in the North-east (RGGI) and West (California) have been far more interested in the ETS, and it seems reasonable to consider the ETS as a significant inspiration for the trading design discussion taking place within these initiatives. Furthermore, it also seems reasonable to assume that the ETS has served as the main model for the discussions on and development of trading systems in countries such as Norway, New Zealand and Japan.

What is the overall picture emerging with regard to the main character of the interactions between the ETS and the global institutions? The analyses carried out in this article seem to lend further support to one of the main messages in Oberthür and Gehring (2006, p. 318): "synergy dominates, but disruption occurs". However, as very much emphasized by Oberthür and Gehring, there are many cases of interaction out there and getting a deep and comprehensive picture is certainly challenging. For instance, the potential interaction between the ETS and global institutions also involve institutions such as the World Trade Organization, for example related to measures discussed by the EU to counter global 'carbon leakage' (Skjærseth and Wettestad 2009). This and other potential interactions may turn out to have more of a disruptive character.

As indicated above, in order to understand the driving forces, it is necessary to draw upon all three interaction mechanisms used as a point of departure for the analysis in this article, particularly the cognitive and utilitarian ones. The cognitive pathway indicates a potential for learning and cross-scale effects. Some degree of learning among actors basically at the same level (i.e. different global sub-regions) is taking place, and there is a clear potential for more to come; not least with actors such as the US learning from EU ETS' main failures and successes in the design of national cap and trade systems.

There is also a certain potential for cross-scale learning, particularly learning from the ETS in the re-design of global emissions trading in a probable coming post-2012 agreement. Especially the troublesome handing out of free allowances in the ETS, leading to windfall profits for power producers and competitive distortions and leading up to the recent turn towards much more auctioning, should hold useful experiences for the further development of trading systems at other levels (Wettestad 2008; Skjærseth and Wettestad 2009).

But the learning and diffusion potential should not be exaggerated. As noted by experienced analysts, the very diversity of actors involved globally will be substantially higher than in the EU. This means that global rules need to be fairly general and flexible in order to accommodate widely varying national administrative and political cultures and 'styles'. Furthermore, in regional approaches such as the ETS, much emphasis is placed on companies and the company level. Global negotiations and politics tend to be more focused upon the country or at least sectoral level. More specific and tailored regional or national approaches cannot therefore be directly transferred to the

global level. The multi-level interactions for EPI are thus subject to much more impeding institutional and organizational constraints than the horizontal interactions at European or national levels that have dominated EPI analysis to date (Jordan and Lenschow 2008). This has not been properly analyzed in previous EPI research; the articles in this special issue have started to probe into such multi-level dynamics.

Finally, introducing and developing emissions trading systems around the globe continues to be a promising element in the process of making industrial actors more aware of the true societal effects and costs of their activities. This will arguably strengthen EPI, as these environmental implications become a natural part of their decision making routines. Emissions trading has shown to be able to attract the industry sector's interest and increase its ownership of the climate change issue, which is the underlying purpose of advancing EPI processes and instruments. However, fluctuating and for longer periods low carbon prices, and the related uncertain actual effects on abatement efforts and the development and use of cleaner technologies, make it too early to judge whether emissions trading will be able to fulfil its clear EPI potential in terms of environmental outcomes.

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