

**PUBLIC INTERESTS IN THE IMPLEMENTATION
OF THE EU ETS IN THE NETHERLANDS:
STAKEHOLDER PERSPECTIVES**

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CONTENTS

CONTENTS..... 3

ABSTRACT 5

1 INTRODUCTION..... 7

2 EMPIRICAL FINDINGS..... 11

 2.1 Legitimacy and reach 11

 2.2 The Government’s Role in the ETS..... 12

 2.3 Quality of Market Design and Regulation..... 13

 2.4 Market Design Controversies..... 13

 2.5 Distributional Effects 14

 2.6 Asymmetries and Public Policy 15

 2.7 The Future of the EU ETS 17

3 CONCLUSIONS AND DISCUSSION19

REFERENCES21

LIST OF INTERVIEWEES 25

NOTES 26

ABSTRACT

Markets and states are often seen as opposites, but in practice they are frequently intertwined. Sometimes states even create markets in order to serve public interests. A recent example of this is the European Union Emissions Trading Scheme (EU ETS), which was set up to combat the climate change that threatens the capacity of the environment to fulfil the needs of present and future generations. The objective of the EU ETS as a policy instrument is the reduction of CO₂ emissions in EU member states in a cost effective way. The central research question addressed in this paper is to what extent and how the implementation of the EU ETS in the Netherlands stimulates participants to serve public interests. The paper is based on an empirical study of the implementation of the EU ETS in the Netherlands. The paper summarizes the stakeholder perspectives on the efficiency and effectiveness of the EU ETS in serving public interests.

The implementation of the EU ETS has led to the creation of a wholly new market, and has brought CO₂ as a key issue into the board room of many corporations. Its effectiveness in terms of CO₂ emissions reduction is still largely an unfulfilled promise. The implementation of the EU ETS shows that the creation of an effective and efficient market requires a huge effort, by both public and private actors, and that its effects are highly unpredictable and necessitate continuous monitoring and interventions in order for public interests to be served.

1 INTRODUCTION

The Community and its Member States have agreed to fulfil their commitments to reduce anthropogenic greenhouse gas emissions under the Kyoto Protocol jointly, in accordance with Decision 2002/358/EC. This Directive aims to contribute to fulfilling the commitments of the European Community and its Member States more effectively, through an efficient European market in greenhouse gas emission allowances, with the least possible diminution of economic development and employment.

(Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003)

In 2005, the European Union implemented the European Union Emissions Trading Scheme (EU ETS) in order to meet (a part of) the emissions reduction targets agreed under the Kyoto Protocol. Following the Kyoto recommendations, the ETS took the form of a cap-and-trade CO₂ emissions market constructed by the EU and implemented by its member states. This cap-and-trade system sets an absolute quantity limit (cap) on the total CO₂ emissions of the participating installations (power stations and energy-intensive industrial plants) over a defined period. This quantity of emissions allowances is allocated among the participants, which then trade allowances between each other. The goal of this policy instrument is to reduce CO₂ emissions in the EU member states in a cost-effective way,¹ with the least possible reduction in employment.

Emissions markets, and carbon markets in particular, are a prime example of markets based on economic theory, and can be seen as an ongoing experiment in marketization (Callon 2009; MacKenzie 2009). Economic theory provides both rationale and guidance. Market failure with respect to environmental externalities (a key element of welfare theory) provides the rationale for government intervention (Pigou 1920). Market design theory provides the tools for constructing this market, internalizing environmental externalities into market transactions (Cramton & Kerr 2002; Cramton 2009; McMillan 2003). The underlying ‘fundamental science’ rationale is the mitigation of climate change and its devastating impact on humanity (Hepburn & Stern 2008), usually in other places and at other (future) times than the actors that cause this climate change.

Although the theory of emissions markets has been well described, the design and implementation of the EU ETS is both highly ambitious and uncertain due to its unprecedented size and scope. The initial design and development of the ETS have been extensively described and analysed (see e.g. Sijm 2009; Ellerman et al. 2010). Nonetheless, there is a dearth of insights into the actual implementation and effects of the ETS. The central

research question addressed in this paper is to what extent and how the implementation of the EU ETS in the Netherlands stimulates participants to serve public interests. The objective of this paper is to improve the insight into the way markets do or do not serve public interests. Public interests are defined as the interests of all those who are affected by transactions in which they do not participate, to such an extent that it is deemed necessary for those consequences to be systematically addressed (Dewey 1927). In the case of the EU ETS, the ultimate (normative) public interest is the maintenance of the capacity of the environment to fulfil the needs of present and future generations,² while the instrumental goals are (1) the reduction of CO₂ emissions in the EU member states (2) in a cost-effective way,³ under the condition of a minimal reduction in employment. These two instrumental goals are connected by design rather than default; the reduction of CO₂ emissions to the '20 per cent by 2020' target could also be realized via taxes on pollution, or subsidies for clean technologies. The fundamental (normative) market failure rationales also differ: for the first instrumental goal the rationale involves the internalization of externalities, while for the second instrumental goal it entails the installation of an information discovery mechanism (i.e. setting up a market) to achieve the most efficient allocation of resources (solving problems of information asymmetries). In between these instrumental goals and the fundamental public interest served are many other private and public interests (cf. Skodvin et al. 2010). In addition to the study of the instrumental and normative aspects of the EU ETS, we will also deal with the positive (i.e. descriptive) aspects, by showing how policy is shaped by different interest groups.

The paper is based on an empirical study of the implementation of the EU ETS in the Netherlands. The Netherlands is neither a big nor a small player in the EU ETS. It contains all relevant participants in terms of the industries and intermediaries involved, but the core stakeholders still comprise a relatively small group. In 2009 the Netherlands was ranked 7th within the EU in terms of ETS emissions. Even though the ETS is dominated by the European Commission, national stakeholders have some degree of policy freedom, and there have been country-specific conditions for industrial sectors and the government. The focus on one country as a case provides useful information about the different perspectives of a limited number of participants on the same issues. We interviewed relevant stakeholders, ranging from policymakers implementing the scheme to companies affected by the scheme and intermediaries such as researchers, consultants, traders, bankers and lawyers.⁴ In addition, we have taken into account the relevant academic literature on the implementation of the EU ETS, as far as this is relevant for the Dutch context.

This paper summarizes the stakeholder perspectives on the efficiency and effectiveness of the EU ETS in serving public interests. The paper is structured as follows. First, we focus on the legitimacy of the scheme among participants and the reach of the scheme. Next we turn to the question how these participants interpret the public interests to be accomplished. After the focus on the public interest, we describe the perceived general quality of market design and regulation, including perceived design controversies. In terms of outcomes, we focus on the distributional effects and the asymmetries and public policy problems observed by stakeholders. The last issue considered is the future of the ETS. We end with a conclusion.

2 EMPIRICAL FINDINGS

2.1 Legitimacy and reach

One of most appealing observations is that all respondents regard cap-and-trade as the superior mechanism for achieving emission reduction goals. Contrary to the academic discussion, where the comparison between taxes and cap-and-trade is still ongoing and the position of taxes appears to be strong (e.g. Nordhaus 2007), our respondents considered the ETS to be the superior system. As one of the interviewees put it: ‘allowances are business; tax is merely a transfer’. The ETS enjoys strong legitimacy among participants; they assume that the system will be in place until at least 2020.⁵ This does not mean that all respondents agree upon all parts and intentions of the ETS – some even question the possibility of regional climate action – but all of them consider cap-and-trade to be the least harmful.

Closely connected to its legitimacy is the reach of the ETS. One of our interviewees stated that, ‘the ETS introduced CO₂ emissions into the boardroom’. All participants consider allowances to be an essential commodity and follow market developments accordingly. Initially some mainly expected asset-backed trading, but volumes expanded rapidly.⁶ Far beyond compliance levels, firms incorporate carbon prices into market and risk analyses. Energy companies include carbon prices in their ‘green and dark spread’⁷ and therefore in their fuel switch decision; energy-intensive companies incorporate futures in investment decisions; and traders select positions based on expected price movements. Stocks of Phase II allowances are an important strategic asset for the Phase III period, and during the recession allowances provided additional liquidity flows, as firms were over-allocated.

In line with discussions in the academic literature (Abrell et al. 2011; Anderson & Di Maria 2011; Ellerman & Buchner 2008; Sandoff & Schaad 2009), opinions about effective abatement vary⁸. For Phase I, interviewees reported a fuel switch from coal to gas as a consequence of the ETS, and for Phase II reduced emissions as a consequence of the financial crisis. For the remainder of Phase II, most expect a modest net short position.

The instrumental goal of the EU ETS has always been the reduction of CO₂ emissions in a cost-effective way. To what extent have CO₂ emissions been reduced to date in the Netherlands? There was no net decrease in the level of realized (verified) CO₂ emissions in the Netherlands over the period 2005-2009⁹, but that can be partly explained by an expansion in the number of installations joining the scheme. Several interviewees stated that the EU ETS has had no additional impact on the realized emissions, and that the macroeconomic crisis has probably had the biggest impact during the implementation of the EU ETS thus far. The numbers clearly

do not show a downward trend in the level of emissions during Phase I and Phase II of the EU ETS in the Netherlands (however, this is due partly to the extended scope of the scheme in 2008 and 2009). The EU policy goal is a 21 per cent reduction in CO₂ emissions in Europe over the period 2005-2020. The Dutch policy goal – according to the Dutch policy document ‘Schoon en Zuinig’ (‘Clean and Efficient’) – for national emissions (including non-ETS) is more ambitious, with a planned reduction of 30 per cent in the period 1990-2020.¹⁰ A recent report by the Energy Research Centre of the Netherlands and the Netherlands Environmental Assessment Agency (ECN and PBL 2010) concludes that this target will not be reached with the current instruments in the Netherlands: including proposed policy measures, the estimated greenhouse gas reduction will amount to 16-24 per cent in 2020 relative to 1990.

2.2 The Government’s Role in the ETS

Despite the broad consensus about the general goal of the ETS, participants seem to have different ideas about the operational design and the government’s role in the market. Following the cap-and-trade terminology, the government should set the cap while the participants perform the trade. Some support this view; they demand some improvements in operational aspects (verification, registration, accounting rules) but expect the government to restrict itself to the provision of a properly functioning trading system. They emphasize that the essential feature of the ETS is not the transfer payment but the restricted cap. The price is simply the outcome of the process. A low price indicates a low abatement cost, without jeopardizing emission reduction levels. Current low emission levels provide businesses with the opportunity to accumulate allowances for the future or afford them some liquidity for the present.

Some interviewees, however, expect government to go beyond the functioning of the market and to take a view on the outcome of the market. Since they consider the ETS to be the driver for abatement and innovation, carbon prices should be ‘meaningful’, which is certainly not the situation at current spot prices, and still too weak at future prices. The ETS authorities would be expected to provide minimum prices (for instance through allowance auctions) or withdraw allowances from the market in the event of (current) over-allocation. There are even calls for an allowance banking facility, i.e. a financial authority that would protect the stability of carbon prices and take appropriate action if market conditions threaten stability. These kinds of interventions are especially appealing in the light of the current (financial) crisis, with production levels far below trend lines and corresponding prices.

Logically, most positions taken on this issue can be explained by the potential benefits that the carbon markets could provide to different participants. Those on a long or trading

position tend to favour an expansion of the role of the government, while those on short positions tend to favour the current model of limited government intervention. Views among government officials and other participants are mixed, mainly depending on their employer's or their personal view on climate policy.

2.3 Quality of Market Design and Regulation

Recognizing the amount of work done within a few years by a very limited number of actors, most of the interviewees expressed their respect for the general quality of the European and national design and regulation. Some of the problems that have been extensively reported are considered to be *faits accomplis* that inevitably accompany the market design. This holds for the over-allocation in Phase I, the accounting problems,¹¹ CER double-counting,¹² VAT fraud, some verification problems and the occurrence of windfall profits. The phishing and recent theft issues can probably be ranked among the same reactions. Participants accept the inevitable learning curve and the need for additional regulation. However, they expect prompt government action in future situations. In the case of VAT fraud, respondents perceived satisfactory government action (at least for the Netherlands); as regards the accounting issues, some problems persist.

Some of the interviewees saw the problem as being an underestimation of the importance of carbon trading and of the powerful market participants involved. The ETS has successfully created a new commodity, even a financial instrument. Trading volumes are far beyond compliance levels; exchange markets provide the facilities for spot-trading; and criminals have also discovered the liquidity of the market. Furthermore, market information has not been disseminated as it should have been in the case of financial market information. These issues might call for a market authority that has the legitimacy to monitor and supervise the primary and secondary carbon markets, possibly by strengthening the NEa (Dutch Emission Authority), relocating the responsibilities to the AFM (Netherlands Authority for the Financial Markets), or establishing a centralized European market authority.

2.4 Market Design Controversies

Despite the recognition of the general quality of the ETS framework, some issues are subject to continuing debate and controversy. One issue on which interviewees hold rather different but strong opinions is the New Entrants Reserve (NER), the allowance reservation for new installations and the expansion of existing installations. While some interviewees favour a restriction on the NER, the AEII (2011) calls for 'equal treatment of new entrants and incumbents' and demands full access of new manufacturing plants to the NER.

Of the two fundamental causes of price volatility (Fankhauser & Hepburn 2010), the market-induced price volatility has certainly been experienced by the interviewees. As carbon prices are highly correlated with the coal and gas markets, which in turn are connected to economic and natural developments, these fluctuations are substantial but transparent, as participants confirm. The second volatility is that which results from flawed market design. In contrast to the extensive academic literature on the problem of price volatility (Alberola et al. 2008; Ellerman & Joskow 2008; Fankhauser & Hepburn 2010), the interviewees did not mention price volatility as being particularly disruptive (any more). One interviewee stated that carbon is considered in risk analyses to be a commodity like gas and oil, with comparable price volatility.

The interviewees agreed that there have been some elements of flawed market design, but disagreed about the extent of the volatility. The over-allocation during Phase I is one such element; some see it as the manifestation of industry rent-seeking, others as the inevitable consequence of a new market design. The accounting issue and the consequences of criminal activities could also be added to the list. The firms involved recognize elements of 'flawed market design', while government officials recognize the unavoidable constraints needed to safeguard the robustness of the system. Some interviewees also mentioned the risk of interfering climate or energy standards. A view espoused by some and opposed by others is that a specific standard for new energy plants disrupts the ETS. The same could hold for subsidies to firms or projects that are part of the scheme.

2.5 Distributional Effects

Distributional effects refer to the actual and potential profits and losses that firms and consumers experience through the ETS. The most notable issue in this respect are windfall profits. None of the interviewees seem to have been surprised by the occurrence of this phenomenon; they have perhaps been more surprised by the negative political and media attention. Most recognize the principle that as carbon is a commodity, its value should be considered as a cost of production. The question, however, is to what extent producers pass on these costs to consumers. For the power sector, most assume that this has happened, but for the energy-intensive industry this is highly disputed. In 2005, an ECN report concluded that energy producers pass on carbon prices to customers. In 2010, CE Delft reached the same conclusion for the energy-intensive industry (De Bruijn et al. 2010). However, immediately after the publication of this conclusion, a NERA (2010) report disputed the econometric analysis of the CE Delft report. The CE Delft study was commissioned by The European Climate Foundation, the NERA report by Cefic, Eurofer and Europaia (European associations for energy-intensive industries).

Most interviewees, however, do not consider windfall profits to be a major problem. In the end, the polluter (polluting consumer) pays, though most would argue that in the case of windfall profits, free allocation based on grandfathering should be replaced by an auction system. Some interviewees do refer to the wealth redistribution that occurs. As the power sector is short and in a position to pass on the costs to the customers, while the energy-intensive industry is mostly long, there is an actual wealth redistribution from consumers to the energy-intensive industry. Consumers do not really seem to have noticed this – yet – but it could potentially harm the public legitimacy of the scheme in the longer term.

More than windfall profits, the concern about carbon leakage¹³ is generally accepted; all interviewees acknowledged the importance of avoiding the relocation of production. We did not learn of any actual leakage, though representatives of industries did certainly acknowledge that at higher carbon prices some intermediate goods might be imported or some parts of production might be relocated to a foreign subsidiary.

2.6 Asymmetries and Public Policy

From a theoretical point of view, the transformation of the national cap to allocation schedules is a purely technical operation (e.g. Fankhauser & Hepburn 2010). Stakeholders did not however perceive this as such. More important, we understood that information asymmetry, rent-seeking, lobbying, established positions and opinions certainly do influence the actual outcome. During the policymaking process of determining the installations to be covered under the ETS, their initial emission levels, and the distribution of emission allowances among them, firms will mobilize resources to seize opportunities and seek to accumulate rents. We noticed a huge variety of activities by firms to influence policymaking: study group participation, corporate letters to the EC or national authorities, letters from corporate alliances, position papers, reports by research institutes, personal contacts with politicians, personal contacts with civil servants, etcetera. As firms have strong interests in the ETS (a minor system change could have an effect to the tune of millions of euro's for an individual firm), it is worthwhile from the firm's perspective to dedicate resources to lobby activities.¹⁴ This 'public choice problem' might undermine public interests (cf. Kasper 2007; Hanley & MacKenzie 2010). The reverse problem might also hold; if government officials and their advisors have some preconceived ideas and positions about certain sectors, those sectors could experience deteriorated distributional effects.

Not surprisingly, our interviewees reported both asymmetries. On the one hand, government officials do indeed experience strong lobby activities from firms. On the other hand, we were

told that government officials were fixed in their ideas and not willing to accept reasonable criticism on flawed market design.

From both government and corporate perspectives, we noted that participants are strongly influenced by and connected to discussions at European level. As was illustrated for windfall profits in the section on distributional effects, there is an ongoing political struggle between environmental lobby groups on the one hand and representatives of the European energy-intensive industries on the other. Environmental groups, together with some energy producers and institutional investors, lobby for a 30 per cent target, adjustment of caps to take account of historical emissions and restriction of offsets. Industry federations, for their part, lobby for the 20 per cent target, committed caps, ex-post allocation, extended new entrant permits and attention for the carbon leakage risk. Participants in the Netherlands are very aware of the European discussion, take part in it and often reflect on it.

These public choice problems induce a certain tension between stakeholders, both between incumbents and between incumbents and government officials. Closely related to these potential conflicting interests, many interviewees mentioned a discrepancy between the knowledge capacity of the government on the one hand and of firms on the other, in terms of both numbers and qualifications. The number of employees within firms working on ETS(-related) issues far outnumbers the government officials concerned with the subject. In addition to the numbers, some suggest that in-depth knowledge in government circles is limited and that consequently the public sector is highly dependent on specialist research institutes for policy. Some make no mention of the knowledge discrepancies but observe a certain tendency towards conservatism. While firms require dynamic adjustments, the public sector tends to be rather risk-averse and prefers to limit the number and scope of adaptations.¹⁵

Adding to the participants' public choice problems, stakeholders reflected on the problems relating to the public legitimacy of the scheme. Many observed that the complexity of the ETS presents substantial difficulties in communicating all details of the scheme to the general public. Combined with the often negative news about the scheme, this poses a threat to the public legitimacy of the scheme, and ultimately to its political viability. It is interesting to note that this concern was not shared by all interviewees. The windfall profits issue is one of the most striking cases; while most interviewees suggested that these profits are economically justifiable, only a few reflected on the public and political consequences. Obviously, some see the scheme as a rather closed setting, while some recognize the political environment in which it operates.

2.7 The Future of the EU ETS

Reflecting on Phase III of the EU ETS, most interviewees recognized improvements in terms of the expansion of the scheme, the harmonization of regulation and allocation (creating a level playing field within Europe), the introduction of benchmarking allocation, and the extension of auctioning. We observed mixed opinions about the carbon leakage list.¹⁶ Many considered the list to be too long and the criteria too obscure, and saw this as the result of national and sectoral rent-seeking efforts. Others stated that even for listed installations, permits will only be distributed in relation to the stringent sector benchmarks. Furthermore, these installations will be exposed to energy costs, in which carbon costs have been included. In that sense the scheme could still provide the proper incentives for abatement while reducing the carbon leakage risk.

Interviewees shared their doubts about the ETS in the post-2020 period. In the absence of international climate agreements and the EU 2050 ambitions, the ETS will experience more countervailing powers. On the one hand, market participants say that the ETS functions properly as a market, but other interest groups claim that the ETS does not lead to an additional reduction in CO₂ emissions and that it redistributes wealth from consumers to energy producers and energy-intensive industries. On the other hand, once the price of CO₂ emission rights becomes 'significant', the energy-intensive industries, and to a lesser extent energy producers, will complain that there is no internationally level playing field and that they are being hit unfairly, with the potential consequence that they will relocate parts of their production to non-EU ETS territory. Some interviewees still anticipate global climate agreements; some expect a gradual process of bilateral cooperation; some perceive a need for border tax (or emissions) adjustments.

3 CONCLUSIONS AND DISCUSSION

The purpose of this paper was to improve the insight into the way in which markets serve public interests. We took the EU ETS as a case in which governments create a market in order to combat a public bad, i.e. global warming. To what extent and how does the implementation of the EU ETS stimulate its participants to serve public interests? We initially distinguished between the ultimate (normative) public interest of the EU ETS (maintenance of the capacity of the environment to fulfil the needs of present and future generations) and the two main instrumental goals (reduction of CO₂ emissions in EU member states in a cost-effective way). The field study for this paper aimed to uncover the role and perspectives of key stakeholders in the implementation of the EU ETS in the Netherlands. These stakeholders do indeed have rather strong opinions about the EU ETS and the public interests involved. Those opinions are a mixture of their personal knowledge and values and the interests of the organizations they represent. During the interviews we saw that these opinions have certainly influenced the actual implementation of the market. Ultimately, only a relatively small number of persons have been involved in actual decision-making, and these few persons have taken decisions that influenced a multi-billion euro market. In general we can conclude that these participants – both government officials and other participants – have succeeded in creating a totally new market ‘out of the blue’, and in that sense a new market has been established. Furthermore, all participants seem to have committed to the new scheme, and the carbon market has turned out to be bigger and more dynamic than initially foreseen.

This success also incorporates one of the main implementation problems of the scheme: the underestimation of the capacities of market participants and the weakness of governments in seeking to reduce unproductive or even destructive behaviour by market participants. Looking back at the market developments, market participants seem to have been more proactive than government officials expected, not only in terms of criminal activities, but also in (future) market trading, passing on costs, accounting matters and lobbying activities. Since legislation takes time to establish, government capacity has been limited and public interests are not as clear-cut as corporate interests, governments seem to have lagged behind market developments.

While one could conclude that a new market has been established, it is questionable whether the instrumental goal of reducing carbon emissions has been achieved yet. Those who focus on this goal conclude that carbon markets have not yet done anything to promote emission abatement and require adaptations in the market to improve actual outcomes. This dispute between those who focus on market performance and those who focus on market outcome

mirrors the public discussion about the scheme in general: participants in the debate hold different opinions about the public interest(s) to be served with the EU ETS. In addition, it is not clear whether the ETS has accelerated the development and diffusion of new clean technologies, and the potential negative effects of the ETS on employment in energy-intensive industries have been mentioned several times. The debate on the effectiveness and efficiency of the ETS seems to take place mainly – at least for the Netherlands – among a small group of well-informed stakeholders. Due to the increased complexity of the ETS it has become more and more difficult to communicate the effectiveness and efficiency of the ETS to the broader public.

The implementation of the EU ETS shows that the creation of an effective and efficient market requires a huge effort by both public and private actors, and that its effects are highly unpredictable and necessitate continuous monitoring and interventions in order for public interests to be served. Considering the complexity of implementing a new market on this scale, the EU has been very prudent in designing an ETS not from scratch, but with two ‘experimental’ phases before the ultimate Phase III. In that sense, the need for learning has been anticipated, and it may be observed that until now the focus has been on how to implement the ETS properly and that the hour of truth will come in Phase III, when the ETS will cover more industries, will lower the cap substantially and will auction off a considerable portion of the emission rights.

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LIST OF INTERVIEWEES

Policy

Marc Alessie – Dutch Emission authority (NEa)

Maurits Blanson Henkemans – Ministry of Economic Affairs

Menno van der Pol – Ministry of Finance

Harm van de Wetering – Dutch Emission authority (NEa)

Julia Williams – Ministry of Housing, Spatial Planning and the Environment

Intermediaries

Gerard van Baar – Holland Financial Centre, Centre for Climate & Sustainability (formerly
Deloitte & Touche)

Jan Willem Bode – Orbeo (formerly One Carbon)

Jos Cozijnsen – Emissierechten.nl

Peter Koster – Holland Financial Centre, Centre for Climate & Sustainability (formerly
European Climate Exchange)

Maarten Neelis – Ecofys

Hans Schoolderman - PriceWaterhouseCoopers

Sander Simonetti – De Brauw Blackstone

Jos Sijm – ECN

Seb Walhain – ABN Amro (formerly Fortis)

Users

Robert de Boer – Eneco

Erik te Brake – VNO-NCW

Guido Dubbeld – Eneco; EnergieNed

Mark Meyrick – Eneco

Cock Pietersen - Corus Staal / Tata Steel

Vianney Schyns – USGBV (representative of a.o. DSM)

NOTES

- ¹ 'Cost-effective' refers to the extent to which this policy instrument (i.e. the EU ETS) has achieved or is expected to achieve its results at a lower cost compared with alternatives. Shortcomings in cost-effectiveness occur when the policy instrument is not the least-cost alternative or approach to achieving the same or similar reductions in CO₂ emissions.
- ² If the indirect consequence of the transactions of power plants and energy-intensive producers is a decreased capacity of the environment to fulfil the needs of actors not involved in these transactions (e.g. due to climate change), a public interest can be recognized and served.
- ³ Sometimes not only allocative efficiency is assumed, but also dynamic efficiency, i.e. the development and diffusion of new (clean) technologies to improve energy efficiency and/or reduce CO₂ emissions.
- ⁴ See Appendix 1 for the list of interviewees. The interviews took place in 2010.
- ⁵ This can be characterized as 'cognitive closure': the inability to formulate an alternative perspective on realizing the targets set out in the EU ETS (cf. Aalbers et al. 2010 in the financial sector).
- ⁶ In 2005 the European Climate Exchange was established in Amsterdam, providing EUA and CER futures, options and spot-trading akin to other commodities. Trading volumes expanded rapidly: from 100 million tonnes of CO₂ in 2005 to 5 billion tonnes in 2009. The development of the ECX illustrates the growth of emissions trading. Meanwhile these kinds of exchanges provided the necessary liquidity to reach these levels of transfers, as transactions were limited to Over The Counter trading previously.
- ⁷ The dark spread is the theoretical gross margin of a coal-fired power plant from selling a unit of electricity, having bought the fuel required to produce that unit of electricity. All other costs (operation and maintenance, capital and other financial costs) must be covered from the dark spread (cash streams). A green spread also includes the price of CO₂ emission allowances.
- ⁸ Even more so at the global level; WRR (2006:15; 24) argued that the EU ETS suffers from an effectiveness-contradiction: what is achievable is not effective, and an effective policy is not achievable. The small (in a global perspective) number of participants cannot develop a globally effective policy without the countries that do not participate in the Kyoto agreements (like the US, China and India).
- ⁹ Studies on the overall effect of Phase I of the EU ETS estimate a net abatement of several percentage points compared to a business-as-usual scenario (Ellerman & Buchner 2008; Anderson & Di Maria 2011).
- ¹⁰ However, the Dutch cabinet has retreated to the lower EU ETS goals: "Based on the ETS, the fourth government under Prime Minister Balkenende announced a 21% reduction target (relative to 2005) for the emissions covered by the ETS, irrespective of the location of the actual reduction" (ECN/PBL 2010: 125).
- ¹¹ I.e. the different accounting standards and reporting methods used by different participants in the EU ETS (see e.g. Lindquist & Goldberg 2010).
- ¹² Certified Emission Reductions (CERS), credits generated under the Clean Development Mechanism, can be used both by governments for compliance under the Kyoto Protocol and by installations covered by the EU ETS as a substitute for an EUA. A CER therefore is a multifaceted asset in that it can be surrendered for compliance under different trading regimes that are to a large extent interconnected. So-called double counting of CERS occurs when one CER, i.e. one tonne of CO₂ reduction generated by a project in a developing country, is used to offset more than one tonne of CO₂ emissions by Kyoto signatories or EU ETS participants. This can happen when, intentionally or unintentionally, the administration of the CER transfer or surrender for compliance is not correctly executed. For instance, on 11 March 2010 the Hungarian government unintentionally caused a stir when it resold CERS that it had already used for compliance under the Kyoto Protocol to a Hungarian utility. The value of the transaction was around EUR 20 million. After further trade, the assets returned to the ETS. When it became clear that credits were in circulation that could not be used for compliance, the bidding on spot CERS collapsed. Following this, the EU ETS Registries Regulation was improved to prevent further incidents involving recycled CERS. The transaction log and large exchanges now automatically flag CERS that have already been surrendered for compliance by other parties (Kossov & Ambrosi 2010).
- ¹³ Carbon leakage is closely related to windfall profits. Assuming an elastic supply and a marginal cost increase for allowances, the demand elasticity determines the result. In the event of inelastic demand, prices will rise and enable windfalls. In the event of elastic demand, firms experience international competition and consequently a drop in production within the EU ETS area, and an increase in production (and carbon emissions) outside the EU ETS territory (carbon leakage). Carbon leakage refers to the relocation of emission-intensive parts of the economy to regions where emissions are not regulated, and a change in the trade balance of the EU.
- ¹⁴ In terms of the national discussion, we did not notice a strong influence from environmental organizations. On the national level we observed political attention for windfall profits and the proposed building of two new coal-fired power plants. The latter issue is not really part of the ETS, but is closely related to it, as any specific energy mix obligation would influence the ETS. In the European political context, lobby organizations such as the European Climate Foundation and Sandbag (see Sandbag 2010) certainly influence the political process and provide some countervailing power to corporate rent-seeking.
- ¹⁵ This analysis mainly holds for the large firms involved. Conditions might be different for small firms. One interviewee mentioned the issue of the cost-benefit outcome for small firms: transaction costs might exceed potential benefits. This

seems to have been the case for a group of horticultural firms which intended to enter the ETS but ultimately decided not to do so.

- ¹⁶ Carbon leakage is undesirable both from an economic and an environmental point of view and is successfully used as an argument by the European private sector and member states to lobby the European Commission to make far-reaching efforts to minimize the potentially distortional effect of the EU ETS on the economy. The EC (2010) issued an extensive and controversial list including sectors that are prone to carbon leakage and therefore receive a large part of their allowances free in Phase III.