EU EMISSIONS TRADING
Challenges and Implications of National Implementation

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Glossary

AAU .....Assigned Amount Unit: this is the unit of trade under IET.

Annex B.....Annex listing initial national commitments under the Kyoto Protocol.

Annex 1 .....The industrialised countries taking on specific commitments under the UNFCCC and the Kyoto Protocol (almost synonymous with Annex B of the Kyoto Protocol).

Allocation.....The process of distributing specified quantities of emission allowances to industry.

Auctioning.....As an alternative to grandfathering (see below) a small proportion of EU allowances may be auctioned or sold to industry participants as a method of allocation for 5 per cent (for 2005–2007) or 10 per cent (from 2008) of the total allowances issued by each Member State.

Base-year.....A year for which emissions or other data is taken as the basis for setting allocations of allowances. Some countries will use a base-period taking the average of several years' data as the basis.

BAT .....Best Available Technique.

Benchmark .....Standards of good performance against which the performance of individual installations can be judged. Benchmarks may be used in EU ETS allocation processes, for example to allocate more allowances to installations that meet or better a benchmark.

CCL .....Climate Change Levy. UK tax on electricity, coal and gas consumption by energy-intensive consumers.

CCLA .....Climate Change Levy Agreement: UK Negotiated agreements by energy-intensive energy consumers to limit energy use. Companies that comply with their CCLA gain an 80 per cent rebate on the CCL.

CDM.....Clean Development Mechanism: a mechanism under Article 12 of the Kyoto Protocol to provide incentives for clean investment in non-Annex I Parties in return for credits ('CERs' - Certified Emission Reductions) that can be used by Annex I Parties towards meeting their Kyoto targets.

CHP .....Combined Heat and Power or co-generation.

CO_2 (e).....Carbon dioxide (equivalent).

DEFRA.....UK Department of Environment, Food and Rural Affairs.

Directive.....Directive 2003/./EC of the European Parliament and of the Council of establishing a scheme for greenhouse gas emission allowance trading within the Community and amending the Council Directive 96/61/EC 22 July 2003.

DTI .....UK Department of Trade and Industry.

EU.....European Union.

EUA.....European allowance: this is the unit of trade in the EU ETS.

EU ETS.....EU Emissions Trading Scheme.

ETG .....UK Emissions Trading Group.

GDP ..... Gross Domestic Product.

Grandfathering ..... Allocation of allowances based on historic emissions.

Greenhouse gases ..... Radiatively active gases covered by the Kyoto Protocol. These include: CO_2, methane (CH_4), Nitrous Oxide (N_2O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulphur hexafluoride (SF_6).

IET ..... International Emissions Trading: a flexible mechanism under the Kyoto Protocol involving the transfer of AAUs.

IPPC ..... Integrated Pollution Prevention and Control. European Directive for controlling emissions.

Installation ..... A combustion plant or industry process plant that is affected by the EU ETS. The installations are defined in the Directive and overlap to a large degree with IPPC installations, although with a lower size threshold.

JI ..... Joint Implementation under Article 6 of the Kyoto Protocol, which allows investment in emission-reducing projects in a developed country by an entity (government or authorised company) in another developed country. The emission reductions can be used by the purchaser to meet their targets.

Kyoto Protocol ..... Protocol to the UNFCCC that established binding climate change commitments for industrialised Parties. Agreed at COP 3, in Kyoto (Japan), December 1997.

Kyoto Target ..... National assigned amount under the Kyoto Protocol.

kWh ..... Kilowatt hour.

Linking Directive ..... A proposed amendment to the EU ETS Directive to allow the import of emission reduction credits from JI and CDM projects into the EU ETS.

mtC ..... million tonnes of carbon.

$mtCO_2(e)$ ..... million tonnes of CO_2 (equivalence).

NAP ..... National Allocation Plan under the EU ETS.

PJ ..... Peta joules

Sectoral constraint ..... In this paper this term refers to the quantity of allowances that will be allocated to each sector within the EU ETS.

Total cap/constraint ..... The quantity of CO_2 that all EU ETS installations in an EU Member State will be allocated in the form of CO_2 allowances. This reflects what must be achieved by industries covered under the EU ETS as opposed to other economic sectors such as transport.

UK ETS ..... UK emissions trading scheme.

UNFCCC ..... United Nations Framework Convention on Climate Change.

VA ..... Voluntary agreements: these are agreements to reduce energy use, emissions, or carry out specific actions that are either undertaken by industry or negotiated by industry with the government.

Summary

Emissions trading is central to the European Union's (EU) strategy to meet its climate change commitments under the Kyoto Protocol. However, implementing the EU Directive on emissions trading ('the Directive') is proving extremely challenging for the governments involved. In particular, governments have to prepare National Allocation Plans (NAPs) for distributing emissions allowances to industry within a very tight timeframe. More than 12,000 industrial installations across the EU and accession countries will participate in the trading system.

There is strong impetus to begin the scheme on 1 January 2005. However, governments have to work within national decision-making processes in order to implement the Directive and these do not always fit well with the deadlines that the Directive imposes. The issues that need to be resolved in deciding allowance allocations have implications for national energy and climate change policy as well as industry competitiveness. This report draws on the experience of those involved in the allocation process and other experts to focus on the key issues to be resolved in implementing the Directive and their implications.

Allocation

The greatest challenges in implementing the EU Emissions Trading Scheme (ETS) are associated with the allocation of allowances. The Directive requires governments to develop "a national plan stating the total quantity of allowances that it intends to allocate for that period" (Article 9) and "a list of installations… with the quantities of allowances intended to be allocated to each" (Annex III).

The decision on the total quantity of CO_2 allowances to allocate to EU ETS installations is highly controversial and political in many countries. Decisions on the total cap by European governments will define the environmental effectiveness of the EU ETS, the price of allowances and the impact on companies. The starting point for most countries is their Kyoto target, although a few countries may choose to use a national target tougher than Kyoto as the basis. A further consideration for some countries (particularly those with tough Kyoto targets) is the extent to which they will use the Kyoto Mechanisms to achieve their Kyoto targets. The real challenge lies in deciding how much of this national target should be achieved by the sectors that are included in the EU ETS. Broader domestic considerations are playing a major role in EU ETS allocation decisions including policy objectives and likely emissions paths for non-traded sectors such as transport. Governments are also keeping in mind the implications of other countries' allocation decisions.

Caps are also being decided for sectors such as electricity, iron and steel and refineries within the EU ETS. These sector caps are an intermediate stage in the allocation process and provide an indication of what industry may need to emit based on assumptions for sectoral growth. They serve to inform decisions on the proportion of national emissions that should form the total cap and provide a reasonably fair and transparent basis within which allocations to individual installations can be made. The sectoral projections on which the constraints may be based provide a consistent, objective and publicly available source of data but do not always match up with the activities that are included in the EU ETS.

Allocations to operators of individual installations are likely to be calculated initially as a share of the total or sectoral constraint although they will then be defined as absolute quantities of CO_2. Data availability is the main driving force behind selection of allocation methods and most countries are likely to use recent historic emissions as a basis. In some countries, adjustments to allocations for early action, performance or projected output may be made. In some countries benchmarking allocations

against best available techniques or a regulatory level of emissions is being considered, but due to time constraints it is only feasible to use existing performance standards or other benchmarks.

The most complex interactions between the allocation process and other policies are occurring in countries with pre-existing voluntary agreements on emissions. Policy equivalence between voluntary agreements (VAs) and EU ETS allocations are a particular challenge for several countries, and will influence the allocation to industry. Other policy considerations that may influence allocations include: energy liberalisation and supply concerns, nuclear phase-out, combined heat and power (CHP) and other Community legislation.

Other key issues

Identification and definition of installation. All countries are struggling to identify all affected installations, particularly the smaller plants. This problem is further compounded by a lack of clarity over the definition of a combustion plant and boundary issues that arise due to the fact that several processes on one "site" may be classed as a single installation.

Pooling of installations. The only country that is interested in having formal legal provisions for pooling is France, in order to avoid potential taxation of allowance transactions and to simplify company administration.

Opt outs. Only one country is seriously considering using the temporary opt out provision under the Directive, but others are considering this for smaller installations which are covered by other policies and are unlikely to trade and where the cost of administering the scheme could be disproportionately high relative to their emissions.

New entrants and plant closure. Governments have to decide whether to take back allowances when an installation closes, and whether to make new entrants buy allowances or allocate to them from allowances set aside. Most countries have yet to decide how to deal with these issues. Some are considering treating planned new entry that is known before the NAP is final, differently from others that emerge after the NAP is submitted. Fundamental questions remain over what constitutes a new entrant or a closed plant. This is an area where countries may take different approaches – this could distort incentives for investment and divestiture and thus would benefit from co-ordination.

Banking. Different approaches on banking seem likely to be taken in different countries. A key decision for each country will be to decide whether to allow it and if so the extent to which it should be limited. Any banking limits are likely to be fully taken up which could have implications for Kyoto compliance. There may be an explicit trade-off made in some countries between the leniency of targets and stricter banking rules.

Auctioning. Few, if any, countries seem likely to use auctioning of allowances for the 2005–2007 period. Auctioning may be considered as a way to allocate to new entrants and may be used for future allocations. A key issue will be whether participation in auctions can be limited to the national entities in the country where the allowances are issued or open to any bidder across Europe.

Monitoring and verification. A common concern is the potential cost of monitoring and verifying emissions. Discussions in some countries include whether industry or governments should bear this cost. Standard monitoring and verification procedures and mutual recognition of verifiers across Europe are important.

Legal and tax status of allowances. These could vary markedly across the EU with a key issue being whether allowances should be classed as a commodity or financial instrument and whether they constitute a property right or licence.

Process. Most countries are struggling to come up with national allocation plans in the time available due to limited capacity, the time taken for legislative processes, consultative requirements, and the sheer complexity of the decisions required. Such problems are further exacerbated by limited awareness of the issues involved among industry, relevant government departments and at higher political levels. Thus, there remains a risk that not all countries and industries will be in a position to submit their national allocation plans on time. Some accession countries may request additional time for implementation. Industries in countries that have not implemented the Directive may not be able to begin trading from 1 January 2005.

EU cooperation and coordination. Some of the practical and competitiveness issues raised by the allocation process are probably best resolved by national governments, particularly given the time constraints involved. However, there are a number of key issues on which enhanced coordination between countries could reduce competitiveness concerns, improve market liquidity and enhance the environment effectiveness of emissions trading across Europe, including:

- definitions of installations to be covered by the scheme;
- conditions for opting in and out, particularly with respect to smaller installations;
- dealing with new entries and plant closures;
- criteria for banking of allowances; and
- the legal nature of allowances and their tax treatment.

Implications

Indications to date are that allocations for the initial phase in emissions trading from 2005–2007 will not require tough emission reductions from industry because the initial period is pre-Kyoto and in many ways is a trial or transition period. Business-as-usual allocations are possible in countries that are on track to over-achieve their Kyoto targets. This includes some of the largest countries and so has an important impact on the total pool of allowances in the EU ETS. Some countries will factor Kyoto Mechanisms imports into their allocation decisions. Most accession countries are likely to be able to base their allocations on industry requirements rather than requiring reductions (but their allocations will not fully reflect their projected surplus in emissions).

A business-as-usual allocation tendency in the current 15 EU Member States and accession countries would result in low allowance prices during the initial phase of trading from 2005–2007. If this occurs, any country with an allocation that requires industry to make reductions in the first period may see a benefit in the form of low cost compliance for its industry due to leniency elsewhere in the EU system. Lenient phase one allocations in countries that are not on track to meet their Kyoto targets may not be ideal for industry if they require much more difficult adjustments during the Kyoto commitment period.

The burden sharing arrangements within the EU together with other national circumstances creates pressures for differences in allocation to industry in different countries. This could lead to 'winners' and 'losers' compared to the status quo. The extent to which firms win or lose will depend not simply on the allocations, but also on the extent to which firms can pass on carbon costs or are exposed to international competition.

1 Introduction

The EU greenhouse gas emission allowance trading directive agreed in July 2003[1] ('the Directive') establishes the framework for trading in greenhouse gas emissions across the EU and the 10 accession countries. This is a key tool in the EU's strategy to meets its climate change commitments under the Kyoto Protocol and is intended to provide a cost-effective way of reducing greenhouse gas emissions by enabling reductions to be made wherever they are cheapest.

The success and timely implementation of the EU emissions trading scheme (EU ETS) hinges on the National Allocation Plans (NAPs) that governments are currently developing. In these plans, Member States need to set caps on the emissions from power plants and other energy-intensive industries. The caps will be set in the form of an allocation of allowances, which are tradeable. Each allowance permits the holder to emit one tonne of CO_2. Deciding allocations for the 12,000 or so installations likely to be affected by the scheme is proving complex. Many Member States will find it challenging to meet the 31 March 2004 deadline for preparation of their NAPs.

This report is part of a RIIA project designed to inform the ongoing allocation process and wider policy debates through research and meetings on emerging issues. An initial meeting at RIIA drew attention to key government, industry and NGO concerns arising from the Directive.[2] Interviews and desk research during July and August 2003 examined the progress of six Member States (France, Germany, Italy, the Netherlands, Sweden and the United Kingdom) in implementing the Directive and highlighted key policy and implementation dilemmas. This work informed an expert workshop on the issues arising, which was held at Chatham House on 4–5 September 2003. Workshop participants included government officials from a range of Member States and accession countries, together with industry and other experts. The meeting was held under the Chatham House rule[3] to facilitate the free exchange of ideas.

This report draws on this work and highlights the main implementation challenges that are faced by Member States, and their implications for competitiveness and market development. Case studies of implementation approaches in six EU Member States are presented in Appendix 1. A key conclusion is that while many of the dilemmas that officials face in coming up with allocation plans can be addressed though national processes, ideally there would be coordination on certain key issues, including banking, definitions, new entrants and plant closures, legal and tax issues and opt outs. These are all areas which could affect the environmental and economic effectiveness of trading and the balance sheets of companies that are participating in it. However there is a very small window of time to achieve coordination so differences in these elements of the scheme appear to be inevitable for the first phase.

It should be noted that the country positions described in this report do not necessarily reflect official government positions on the issues considered. This is an area where national plans are evolving rapidly and decisions are likely to change from early thinking due to domestic considerations and developments in other countries.

[1] European Commission (2003). *Directive 2003/87/EC of the European Parliament and of the Council (13 October 2003) establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC*. Official Journal of the European Union 25 October 2003.

[2] A summary of the issues raised at the meeting can be found in the sustainable development/climate change section of http://www.riia.org.

[3] The Chatham House Rule: 'Participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s) nor that of any other participant, may be revealed.'

2 Context

Kyoto commitments

The driving force behind the development of emissions trading in Europe is the Kyoto Protocol. Once the Kyoto Protocol comes into force, trading by EU ETS participants during 2008–12 will be backed by direct transfers of assigned amount units (AAUs)[4]. Countries that are net buyers of European Allowances (EUAs) will have their assigned amounts increased to cover their increase in emissions, while countries that are net sellers of EUAs will have their assigned amounts reduced accordingly.

Under the Kyoto Protocol, the EU is required to reduce its greenhouse gas emissions by 8 per cent[5] from 1990 levels during the first commitment period from 2008 to 2012. Member States' commitments of minus 8 per cent in Annex B of the treaty were amended in an EU burden sharing agreement to give national targets[6] (see Table 2.1).

Table 2.1: EU Member State and accession country Kyoto targets (percentage change in emissions for 2008–12 relative to base-year levels)

EU Member States	%*	Accession countries	%*
Austria	-13	Czech Republic	-8
Belgium	-7.5	Estonia	-8
Denmark	-21	Hungary	-6
Finland	0	Latvia	-8
France	0	Lithuania	-8
Germany	-21	Poland	-6
Greece	+25	Slovakia	-8
Ireland	+13	Slovenia	-8
Italy	-6.5	Cyprus	no target
Luxembourg	-28	Malta	no target
Netherlands	-6		
Portugal	+27		
Spain	+15		
Sweden	+4		
UK	-12.5		
European Community	-8		

Each Member State will be concerned to meet its national Kyoto target, as compliance with the treaty ultimately rests with Member States if the EU as a whole fails to meet the EU Kyoto target. Most of the EU accession countries also have targets under the Kyoto Protocol. Cyprus and Malta are treated as developing (non-Annex I) countries in the Protocol and so do not have emissions targets.

[4] Under the Kyoto Protocol, assigned amounts define the total allowed emissions of greenhouse gases for individual Parties over the first commitment period from 2008–2012. Emissions trading, joint implementation and the clean development mechanism can be used to add or subtract to this amount.

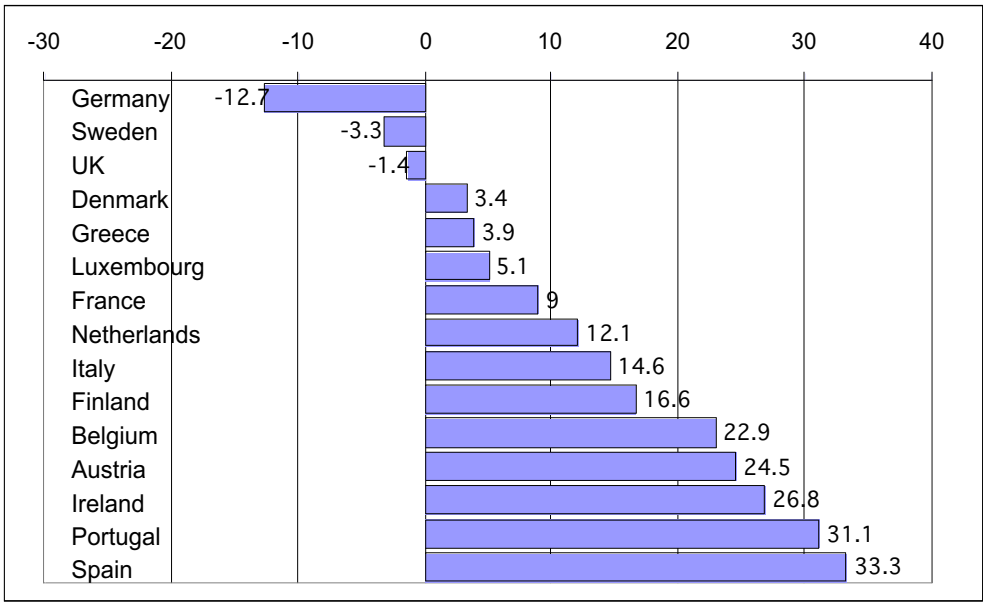
[5] The target is for all greenhouse gases (not just CO_2) and is expressed in terms of CO_2 equivalence.

[6] Council Decision 2002/358/EC.

The EU is currently about halfway towards its Kyoto target, with emissions greenhouse gas being 3.5 per cent lower in 2000 than in 1990[7]. One-off emission reductions in the UK and Germany due to wider economic factors contributed significantly to this change. Current EU projections of future emissions indicate that the EU could face a shortfall of 3.3 per cent on its Kyoto target by 2010, based on current domestic policies and measures. The EU ETS will go ahead under EU and national law, even if the Kyoto Protocol does not enter into force.

The large variance in targets, combined with wide differences in emissions trends due to different market structures and patterns of economic growth, mean that the amount of effort each country needs to make to meet its Kyoto target varies widely. Only three Member States - Germany, Sweden and the UK - are on course to meet their Kyoto burden-sharing targets without additional policies and measures or use of the flexible mechanisms (see Figure 2.1).

Figure 2.1: Gap between Kyoto commitments and projected greenhouse gas emissions in 2010, with existing policies and measures (percentage of 1990 emissions)[1]



[i] *Negative figures represent over-delivery, positive figures show shortfall from emissions target.*

Data source: EEA (2002)[8]

Accession countries are in a very different position. From the base-year to 2000, emissions from these countries fell by over 35 per cent largely due to transitions to market economy and economic restructuring during the first half of the decade. Emissions in some accession countries have risen since then but are expected to be well below their Kyoto targets in 2010. [9]

[7] European Environment Agency (2002). *Greenhouse gas emission trends and projections in Europe.* Environmental Issue Report No. 33/2002. Copenhagen: EEA

[8] Ibid, EEA (2002)

[9] Ibid, EEA (2002)

Substantial further action is needed if the EU is to meet its Kyoto target. While mechanisms introduced by the Kyoto Protocol – international emissions trading (IET)[10], joint implementation (JI)[11] and the clean development mechanism (CDM) [12] – provide some flexibility in fulfilling Kyoto commitments, domestic action is central to EU programmes and plans to reduce greenhouse gas emissions. Member States have their own programmes to address climate change, and the EU climate change programme agreed in 2000 lays out a number of additional measures to help meet the region's Kyoto target. Emissions trading is a key plank in this strategy.

The EU Emissions Trading Scheme

The EU emissions trading Directive[13] establishes a framework for trading in greenhouse gas emissions across the EU and the 10 accession countries. Emissions trading is due to start in 2005, with an initial phase from 2005–2007 and a subsequent phase during the Kyoto commitment period from 2008–2012. Further phases of five year trading periods should continue thereafter, although this may depend on international agreement on further emissions constraints.

The Directive defines the participants, gases and sources of emissions that are covered by the scheme. During the initial phase, the scheme includes carbon dioxide (CO_2) emissions from electricity and heat production, fuel combustion over 20MW, and major industrial sectors (oil refining, cement production, iron and steel manufacture, glass and ceramics, and paper and pulp production). Together, these industrial emitters account for 46 per cent of European CO_2 emissions. A subsequent phase will run throughout the Kyoto commitment period from 2008 to 2012, during which time the scheme could be extended to other industry sectors and greenhouse gases.

The Directive requires operators of specified installations to have a permit to emit CO_2 from 1 January 2005. Under the EU ETS, total emissions from the power and energy-intensive industry sectors across Europe will be capped and individual installations will be allocated EU allowances (EUAs) that operators can then either use for compliance or trade. Allowances will be allocated mainly free of charge. However, Member States have the option of auctioning up to 5 per cent of allowances during the 2005-2007 period and up to 10 per cent of allowances during the 2008-2012 period.

Operators will be required to match emissions from their installations with allowances and to surrender allowances equivalent to the CO_2 they have emitted each year. The total quantity restriction on the system is likely to require a certain amount of abatement across the EU. This constraint will give CO_2 allowances a value. Where emissions exceed allowances, operators will need to either invest in abatement or buy more allowances on the market. Operators that reduce emissions below their allowance allocation will be able to increase their emissions or sell – or possibly bank – their extra allowances. There is no limit to the amount of CO_2 that an individual installation can emit as long as they buy allowances from another participant that has reduced its emissions. Allowances issued by any Member State will be valid for use in any other Member State.

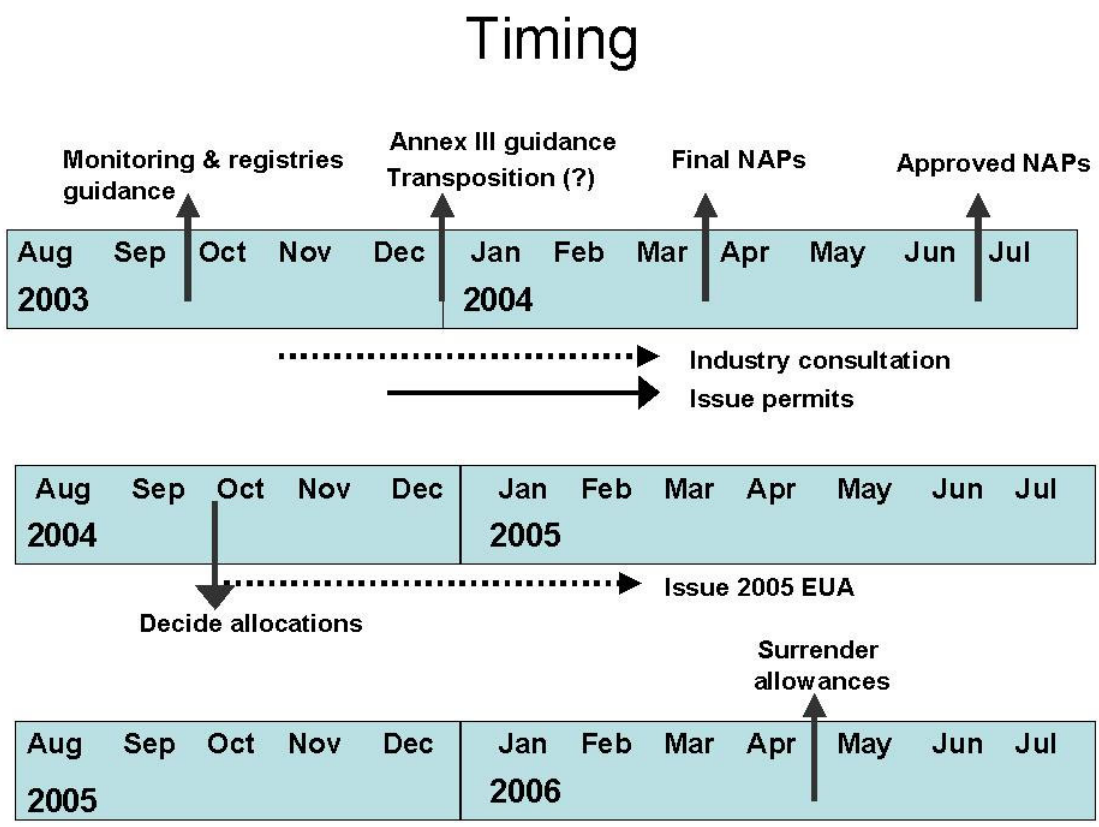
The Directive defines the compliance period as calendar years with a "grace period" of 4 months. Operators will be required to surrender allowances equivalent to the CO_2 they emitted in the preceding

[10] International emissions trading provides for the buying and selling of Assigned Amounts between Annex 1 Parties to the Kyoto Protocol.
[11] Joint implementation enables industrialised countries (Annex 1 Parties) to get credits (ERUs – emission reduction units) for joint projects to reduce emissions.
[12] The Clean Development Mechanism enables industrialised countries (Annex 1 Parties) to get credit (CERs – certified emission reductions) for projects resulting in emissions reductions in developing countries (non-Annex 1 Parties).
[13] Ibid, European Commission (2003).

calendar year by 30 April each year. Operators with insufficient allowances will face a penalty of €40 per tonne of CO_2 during the first phase of the scheme and €100 in the second phase. Other national penalties may be established in national law and any non-compliance will need to be made up for in a subsequent period. Standard monitoring protocols (with some Member State discretion) are in the process of being agreed as are standard requirements for the national registries that will hold the allowances in trading or compliance accounts.

The implementation timetable for the EU ETS is very tight (see Figure 2.2). The Directive was agreed in July 2003 and entered into force on 13 October 2003. Guidance on monitoring is available in draft form for consultation but will be adopted only in late November. This guidance has implications for national permitting processes, which must also require permitted installations to monitor their emissions and verify that they are capable of doing so. Installations must have permits in order to receive an allocation so the permitting should be completed by 31 March 2004. The NAPs must be submitted to the European Commission by 31 March 2004. A three-month consultation period on the NAP is required before it is submitted.

Figure 2.2: Timing of national processes for implementing the EU ETS



The EU ETS is the first trans-national emissions trading scheme. It can operate independently of the Kyoto Protocol (as it will prior to 2008 and also if the Protocol does not enter into force), but will be linked to International Emissions Trading (IET) and the other mechanisms if and when the treaty comes into force. From 2008, trading by EU ETS participants from 2008 will be backed by transfers of assigned amount. Countries that are net sellers of EUAs will have lower emissions than those that are net buyers, but Kyoto assigned amount will be exchanged so the net buyer will also have assigned

amount units (AAUs) to cover its increased emissions. Under a proposed "Linking Directive"[14] credits gained from JI and CDM activities will be recognised as equivalent to EUAs and could be used by operators from 2008 to fulfil their obligations under the EU ETS. The EU may cap credits derived from foreign activities and is proposing that a review would be triggered once the number of credits reaches 6 per cent of allowances for 2008–2012, followed by a possible cap of 8 per cent if this review trigger is reached.

[14] European Commission (2003). *Proposal for a Directive of the European Parliament and of the Council amending the Directive establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms.* Brussels, 23.7.2003. COM(2003) 403 final. Commission of the European Communities, Brussels.

3 Approaches to allocation

3.1 Process

The success of the EU ETS will hinge on the NAPs that governments are currently developing. NAPs must state the total number of allowances to be allocated to all installations and the quantity to be issued to each installation for the period.

Under the Directive, the allocation process must be based on objective and transparent criteria. The Commission has produced a non-paper on allocation as a guide[15] and will issue further guidance by the end of 2003. The "Annex 3" criteria for allocations are very broad (See Appendix 2) and take into account a wide range of issues including Kyoto targets, the amount of emission reduction that is achievable, and impacts on competitiveness. This leaves substantial scope for differing interpretations of requirements. In addition to the requirements of the Directive, domestic considerations mean that typically governments are concerned that decisions on allocation:

- are transparent and open but also address commercial confidentiality concerns;
- place fair burdens on trading and non-trading sectors and on installations within sectors;
- are feasible given the data that is available;
- meet the requirements of the EU ETS Directive, including consistency with Kyoto targets and national energy and climate policies, and taking into account technical potential to abate;
- will stand up to questioning by the Commission (including DG Competition), other Member States, and any legal challenges.
- consider the impact of allocation decisions for the 2005–2007 period on emissions and allocations beyond 2008.

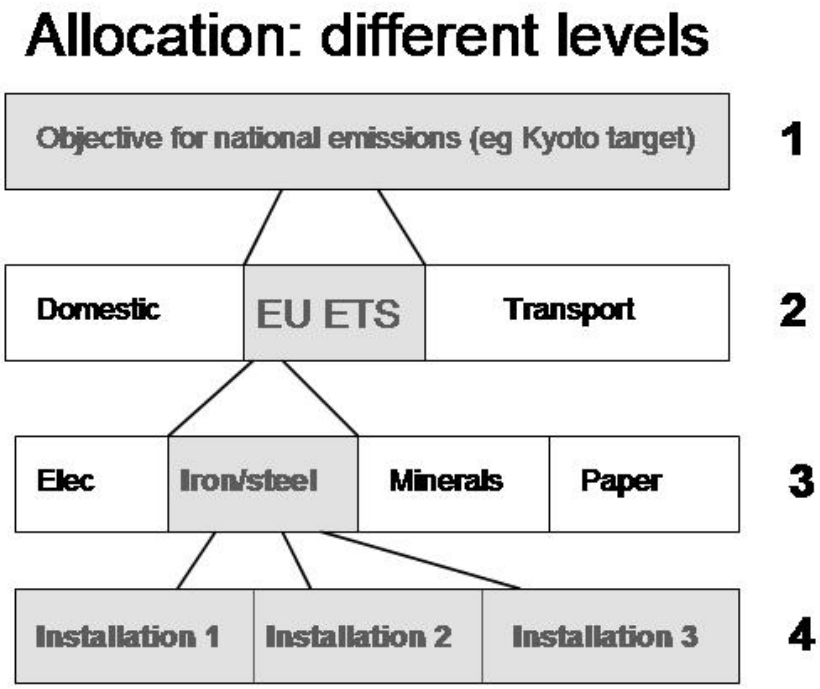
Consultation with industry is a critical part of the process. Implementation of emissions trading across Europe will have major implications for business both in terms of competitiveness and how they do business in future. Typical industry concerns are that the allocation process should be fair and transparent, provide a degree of certainty and allow for business growth.

Governments also are having to consider the implications of what other countries do. Other countries' allocation processes will together define the price of allowances, the net sellers and buyers, and how much emission reduction industry in any country will have to make.

There are different levels of decision-making in national allocation processes (see Figure 3.1). This section describes the broad approach to setting caps that is typically being used (although there are differences among countries). Specific issues in implementation are highlighted in section four.

[15] European Commission (2003). *The EU Emissions Trading Scheme: How to Develop a NAP*. Non-paper, 2nd meeting of Working Party 3 Monitoring Mechanism Committee, April 1st. Commission of the European Communities, Brussels.

Figure 3.1: Levels of decision making for allocation



3.2 Total cap

In their National Allocation Plans (NAPs), governments must state the total quantity of allowances that they will allocate to all of their EU ETS installations. The total allocation must take account of the emission reductions required to meet the Kyoto targets, whether the country decides to allow for purchase of Kyoto credits in setting its allocation, how existing policies are expected to perform, and how much leeway is required for non EU ETS economic sectors such as transport. Variations in each of these factors are evident among Member States.

The decision on what total constraint to set on emissions for EU ETS sectors is being made at high levels within governments. Many Member States are finding that the decision on the total cap is controversial domestically. Emissions trends in the sectors that are covered by the EU ETS will affect Member States' ability to comply with their international commitments. In the Kyoto period, CO_2 emissions that are allocated to EU ETS industry will reduce the national assigned amount that is available for other sectors. There is intense industry lobbying over this level of allocation, but far less opportunity for formal consultation than there is over the methods for installation level allocations. Decisions on the total (and sectoral) cap will also be subject to heavy scrutiny by the Commission.

Domestic considerations of total allocations include: the emission reductions required to meet the Kyoto targets; use of the other Kyoto mechanisms to offset national emissions; how existing policies are expected to perform both with respect to CO_2 emissions and other greenhouse gases; and how much leeway is required for non-EU ETS economic sectors such as transport. Variations in each of these factors are evident among Member States, which suggests that total allocations could vary markedly across the EU.

Total allocations under EU ETS will need to be consistent with Member States' plans to meet their obligations under the Kyoto Protocol and the associated EU burden sharing agreements. Most countries will use their Kyoto targets as the starting point for their allocations. However, countries with national objectives that are tougher than their Kyoto targets (such as the UK, Sweden, Germany) face the additional decision of deciding whether or not this should form the basis of their total cap.

For most accession countries, a key decision will be whether to allocate the surplus allowances inherent in their Kyoto targets to industry under the EU ETS. To do so would let a lot of 'hot air' into the EU ETS by allocating more allowances to industry than they are likely to need. An alternative approach would be to limit allocations under the EU ETS and to retain surplus emissions. EU Allowances are backed by assigned amount, which is a national resource that the governments of accession countries might make use of in other ways. It is unlikely that the Commission would accept very lenient allocations from accession countries[16]. However, a wide range of justifications for allocations are possible.

There are major differences in the projected trends of CO_2 emissions among EU Member States (see Figure 1) and these will affect national decisions on the total allocation to EU ETS installations. Perhaps as crucial could be the extent to which each country seeks to augment its assigned amount by acquiring Kyoto units through the use of IET, JI and CDM. Some countries (such as the Netherlands) have firm policy positions that they will use the Kyoto mechanisms to achieve their targets, but others (such as Sweden) have made policy statements that they will not. Because of these differences, the EU ETS allocation process may well result in competitive distortions for industries across the EU, not least because the amount of effort that each country needs to make to meet its Kyoto target varies widely.

Once they have an agreed national emissions objective for the 2008-2012 period, countries need to work out how much of their agreed objective should be achieved in the 2005–2007 period. Many different emissions paths will be justifiable. Energy and CO_2 emission projections are being used to assess the total quantity of emissions that the EU ETS trading sectors and the non-trading sectors should be allowed to emit. The projections typically take into account climate and energy policies, energy prices, and GDP forecasts and so provide a "business-as-usual" scenario of emissions without the EU ETS. Uncertainties over transport emission scenarios and policies, in particular, complicate the decision on the total emissions that should be allowed for EU ETS installations. Some countries are also preparing bottom-up estimates of future emissions from the EU ETS sectors in order to verify their top-down information.

All countries are also having to consider how much of their Kyoto objectives will be achieved through efforts to reduce other greenhouse gases. While the initial phase of trading covers only CO_2, the Commission or Member States can bring in other greenhouse gases or sectors (including, the chemical and aluminium industry and transport) from 2008, subject to approval by the Commission.

Decisions over the total cap for the initial phase of the EU ETS will also impact on other allocation decisions, such as the extent to which allowances can be banked for use in the Kyoto commitment period. The stringency of the overall constraints that are chosen in each country may affect national decisions on the extent to which EU ETS allowances can be banked for use in the Kyoto commitment

[16] Similarly, the Commission is likely to be wary of lenient targets from countries currently projected to over-deliver on their Kyoto targets.

period, due to the implications for compliance with Kyoto targets. More lenient first phase allocations might be coupled with tougher banking provisions.

3.3 Sectoral constraints

For some countries, sectoral analysis is an important intermediate stage in the allocation process between setting the total cap and allocations to individual installations. Thus sectoral constraints can be a key focus for consideration of issues relating to equity and equivalence of effort for EU ETS installations. A common theme is assessment of "what industry may need" during the first and second phase of the EU ETS, based on assumptions of sectoral growth. For countries that decide to use sectoral constraints to inform allocations to installations, corrections will be made so that they equal the total cap.

Sectoral analysis has some advantages over installation level analysis. Projected energy and emission trends and information on abatement options tend to be more objective and consistent at sector level than at individual installation level – and are more likely to be publicly available. Analysis at a more aggregated level is also simpler than trying to analyse data from hundreds or thousands of individual installations. Moreover, the use of homogenous data and methods reduces the risk that NAPs will be viewed as unfair and not transparent.

One difficulty is that sector definitions do not necessarily match the installations that are covered by the EU ETS. Thus, bottom-up data from installations needs to be reconciled with the sector-level data in some way. It can also be difficult to know where the boundaries of a particular sector lie. Some large industries have a foothold in a number of sectors and could potentially claim membership of the sector with the most favourable constraint. Where sectoral constraints are defined, the allocation formula used to apportion shares of these to individual operators also could prove contentious. Research shows that different allocation methods can generate large differences in allocations for some sectors. Even within sectors, one rule will not suit all installations equally well.

In some countries, the electricity sector is being treated differently to the primary producers or process industries. Power generators constitute approximately 75 per cent of EU ETS emissions, and tend to have better historical emissions and output data, homogeneous units of output (kWh), and are generally assumed to be able to pass through the costs of the EU ETS to customers. Primary producers and process industries, on the other hand, typically have diverse products and processes, varying levels of data, and they compete on an international market, which inhibits them from passing costs through to consumers. Given these concerns, some suggest that, ultimately, it may make more sense for sectoral allocations to be undertaken across Europe rather than at Member State level.

3.4 Allocation to installations

In the EU ETS, allocations are made to operators of installations that emit CO_2 from the activities specified in the Directive. In many countries, allocations to installations may be defined initially as shares of the total cap or any sectoral constraints rather than the number of allowances to be awarded. Once the total and sectoral caps have been decided, then the allocations for individual installations will be converted into absolute quantities of allowances.

Progress on installation level allocation plans varies. Some countries are placing lower priority on this level of analysis and so have not yet (as at September 2003) begun determining options while others are consulting on a wide range of possible allocation approaches for installations before they have decided their total and sectoral caps. Accession countries with significantly lower emissions than their Kyoto targets due to economic restructuring in the 1990s may simply allocate to installations without setting a total cap or sectoral constraint on emissions.

General approach

The main driver behind selection of allocation methods is data availability and this is leading most countries to opt for approaches based on historic emissions – or 'grandfathering'. In some cases, allocations may be adjusted to, for example, reward best practice or clean technology or by a correction factor that makes the allocations in aggregate equal the total constraint (see box 3.1).

Box 3.1

$Allocation_1 = (E_{base} +/- A)*CF$

1 = first period 2005–2007
E = Emissions
Base = base-year or period (e.g. 1998–2002)
A = adjustment, for example for CHP, early action, process industry expansion, benchmark (e.g. based on performance compared to BAT, or compared to a regulatory measure)
CF = correction factor applied to all installations so that in aggregate they equal the sector or total constraint.

Most governments are considering a full range of options for base-years, including multi-year base-periods of average annual emissions and/or allowing flexibility for companies to select one base-year out of a defined period or a sub-set of the base-period. Such approaches are attractive to companies as they would smooth out fluctuations in demand or allow selection of a year when emissions were highest. In general, countries are intending to use base-years or base-periods between 1998 and 2002. Use of earlier base-years allows early action to be taken into account, but few companies have data prior to 1998. Data for 2002 is not widely available. Data availability is particularly a problem for installations in the 20 to 50MW bracket, as such installations are not covered by Integrated Pollution Prevention and Control (IPPC) regulations.

Access even to existing data may be constrained by confidentiality considerations where the information was submitted for purposes other than the EU ETS. Governments are considering whether to use regulation to require the provision of base-period data or whether to rely on requesting installations to provide the information voluntarily. Regulatory requirements to provide accurate data could replace the need for separate verification of baseline data (which in any case may not be feasible in the time available). In general, industry expects greater data accuracy to develop as emissions become a matter of financial concern, rather than simply an environmental concern. A five per cent uncertainty in environmental reporting can be within acceptable error margins for compliance with an environmental regulation, but a similar error margin could alter a company's balance sheet significantly.

Benchmarking

Benchmarking against some form of performance standard or in order to approximate voluntary agreements (VAs) is being considered in some countries. Simple forms of benchmarking using existing benchmarks are most feasible, such as adjusting historic emissions data for performance of installations against committed voluntary action or the best available technique (BAT). Another more complex form of benchmarking could be to use projected output data as a supplementary step in the

allocation process to make adjustments to the historic emissions allocation. An allocation approach that incorporates benchmarking is shown in box 3.2.

Box 3.2

$Allocation_1 = (E_{base} * B * O_1) * CF$

1 = first period 2005–2007
E = Emissions
Base = base-year or period (for example, 1998–2002)
B = benchmark (for example, best practice standard)
O = expected output
CF = correction factor applied to all installations so that in aggregate they equal the sector or total constraint.

Countries which have already done the analysis that is required to set the benchmarks, such as the Netherlands, are most likely to be able to use benchmarking in 2005–2007. Most other countries may not be able to use this approach for the first NAP due to problems in obtaining accurate production data, but would consider it for the 2008–2012 NAPs. Free allocations to new entrants could be based on benchmarks.

Ex-post allocation

Ex-post allocation has been suggested by industry in some countries as a means of reconciling caps with growth or of improving conditions for CHP. This would involve an adjustment at the end of 2007 to give additional allowances to industry that has expanded production and a reduction for industry that has reduced production. It is unlikely that this would be possible under NAP provisions of the Directive. Ex-post allocation would be difficult to implement in practice, as the second NAPs must be ready 18 months before the beginning of the 2008–2012 period.

3.5 Interactions with other policies

The most complex interactions between the allocation process and other policies are occurring in countries with Voluntary Agreements (VAs), such as Germany, the Netherlands, the UK, and France. These policy interactions are challenging because of the precedents set by VAs, the risk of double regulation and difficulties in judging equivalence of effort.

Precedents enshrined in VAs will affect allocations to sectors and installations. Installations that are covered by VAs may have their allocations based on these rather than on historical emissions, particularly where the agreements are regulatory. However, VAs with "per unit output" CO_2 or energy targets are difficult to translate into the absolute quantities of CO_2 required for the EU ETS allocations.

Countries such as the Netherlands face particular problems over allocations as existing VAs require companies to meet agreed energy efficiency standards in exchange for a government promise not to apply additional measures to reduce CO_2. If a Dutch company performs among the top 10 per cent in the world then it has, in effect, a licence to grow. This goes against the EU ETS requirement for

allocations of allowances to be made in absolute terms which does not allow for unforeseen growth (or decline). Another challenge for countries with VAs is that existing agreements either do not use the same sectoral boundaries as the EU ETS or include sectors outside of the ETS.

Downstream energy efficiency policies and policies to encourage renewable energy, and CHP will also affect the allocations to generators and large energy consumers. The EU ETS should support the development of cleaner technologies through increased carbon prices but there may be unintended effects. Such interactions are complex and are being considered in the allocation process in some countries, although it is unclear the extent to which they can be allowed for.

Energy liberalization and security of supply considerations will interact with allocation decisions under the EU ETS in significant, but complex ways. The trend away from coal to gas-fired power stations will be enhanced under the EU ETS as the competitiveness of coal fired plants will decrease relative to gas. Faced with an increased reliance on Russia for gas and rising gas prices, security of supply may become an important consideration in allocation decisions.

Allocations under the EU ETS could also be influenced by policies on nuclear power. In countries which are phasing out nuclear power, or where plants are not being replaced, NAPs may need to allow for increased production from existing facilities as well as new plants and a mix of fuels to ensure energy security. For example, most German nuclear power plants will be switched off between 2005 and 2020, at a time when electricity consumption is expected to rise by 4 per cent every year. In Germany, nuclear energy phase-out is likely to result in increased production in existing hard coal and lignite plants and thus potentially increase emissions in 2010. This will make both energy-security and environmental objectives difficult to meet.

Combined heat and power (CHP) objectives are also being considered in the allocation process and new entry rules. CHP is an efficient way of producing both heat and power, but it increases direct emissions. While existing CHP should receive the allowances it needs under the EU ETS, any new CHP capacity that is installed after the base-year will increase emissions at that installation. This is potentially damaging to further uptake of CHP.

NAPs are required to take account of increases in emissions resulting from Community legislation and policy. This might apply to implementation of the Large Combustion Plant Directive which is aimed at reducing emissions of sulphur and nitrogen oxides but could increase energy use and emissions of CO_2 at some installations.

The EU ETS will also interact with wider economic policy. For example, electricity prices vary markedly across the EU, partly due to variations in tax treatment and in some countries the anticipated increases in the price of electricity under emissions trading could result in higher electricity prices and loss of competitiveness for domestic generation. This could result in a reassessment of taxation policy. International trade policies may also be a consideration. For example, the steel sector is particularly vulnerable at present due to international competition and US protection of its steel industry.

4 Key issues in implementation

4.1 Identification and definition of installations

Many more installations will be affected by the EU ETS than was initially envisaged. Initial estimates were that the EU ETS would affect some 5,000 installations across the region, but it is now evident that the number will be at least 12,000 and possibly many more. Countries are finding it difficult to identify all of the smaller installations that will be affected. The aggregation of combustion activities that are included in the scheme to 20MW brings very small and previously unregulated installations into an emissions monitoring and regime for the first time as existing Integrated Pollution Prevention and Control (IPPC) regulations apply to only to installations of over 50MW.

A still more fundamental issue is defining precisely what installations the Directive covers. There are different interpretations over what constitutes a combustion plant. Under a narrow interpretation, it could simply include plants that supply electricity, steam or hot water, while under a wider interpretation, any appliance that burns fuel including kilns and furnaces could be included. There are also complex boundary issues arising from the problem of distinguishing specific installations. An installation can include several processes on one site and legal opinions are being sought as to the precise definition of the boundaries.

Different ways of identifying the relevant activities could lead to some types of installation being included in the EU ETS in one country, but not in another. For example, defining "installations" according to national IPPC treatments could lead to the production of acetylene – or 'steam' – crackers being covered by the EU ETS in some countries but not in others. Thus, plant definitions need to be clarified if the EU ETS is not to create competitive distortions. There may be ambiguity for some industries as to which "sector" certain installations should be included in.

4.2 Pooling

Under the Directive, industries are allowed to form collective pools to trade allowances. Currently, the only industry interest in having formal legal provisions in national law for pooling is in France where pooling is considered important in France to avoid any potential taxation of allowance transactions between operations owned by a single company. Pooling would also enable companies to administer emissions monitoring and trading from head-office where the capacity for this is greatest. In other countries, industry will use trading arrangements to achieve the benefits of pooling informally and more simply than through a pool administrator. This will not require formal provision for forming pools in national law.

4.3 Opt out / opt in

During the period 2005–2007, Member States may apply to the Commission to "opt out" specific installations from the EU ETS, but from 2008 all specified installations must be covered. During the initial phase, smaller installations from specified sectors may also "opt in". From 2008, the Commission or Member States may include sectors including those emitting non-CO_2 greenhouse gases, although the Commission will retain the right to veto any such extensions.

The UK is only country out of those reviewed that is seriously considering the use of the temporary opt out provision. UK companies that are within equivalent UK policies will be able to choose to opt out. Some other countries are considering using the opt out for the many small installations which are covered by other policies, are unlikely to use the trading mechanism, and would face high costs for monitoring and verification. The large number of very small installations is anticipated to place a strain on administrative systems in the early stages of the scheme. Since opt outs only apply to the initial phase, then allowing smaller installations to opt out would effectively buy some time to get the systems in place before widening the scheme to very small installations. However, for any country that does not have "equivalent" policies for small operators, it would be more difficult to set these up and then require operators to come into the scheme in 2008 than to include them in the EU ETS from the outset.

4.4 New entrants and plant closure

Most countries have yet (as at September 2003) to decide on how to deal with new entry (for example, whether to set aside a pool of allowances for new entrants or make them buy allowances on the market) and closure (for example, whether to allow installations to retain their allowances on closure or to hold back unused allowances).

Many countries are considering setting aside a reserve of allowances for new entrants. Germany has announced that it will use a set aside for free allocation to new entrants. Countries will need to define their reserves in advance, in the NAP. However, it remains unclear whether or not new entrants could be made to buy their allocation if incumbents received their allocations free. On one level, there is a requirement to treat new entrants in the same manner as existing plants – that is, if allocations to existing plants are free, then new entrants should also get free allowances. However, this would not necessarily be fair due to the stranded costs of the incumbents and the forewarning that new-entrants have of future carbon constraints. There are differing views on whether a requirement to buy allowances would have any effect on entry into the electricity generation sector.

At a more fundamental level, it remains unclear what constitutes a new entrant or a closed installation. An entirely new plant with a new permit is clearly a new entrant but an existing installation might also qualify as a new entrant if there is a significant change in the permit. Defining closure is even less clear. If allowances are not retained on closure, this may lead to gaming by companies where a plant is kept nominally open but emitting very little CO_2.

Some countries are identifying potential new entrants sector by sector and are considering using a different approach for new entrants that are planned and known now than for new entrants that are not yet planned. The majority of the emissions included in the EU ETS are from electricity generation with new plants planned years in advance. Provision could be made for these developments in a set aside reserve and using a benchmarking approach and likely production levels to determine allocations.

Decisions on allocations to new entrants should ideally be consistent with treatment of plants that close. If new entrants are made to buy their allocation, it makes more sense for closed plants to keep their allocation for the entire period. If closed plants do not receive the remainder of their allocation if they close, then it will be more difficult for new entrants to buy allowances and there is a stronger argument for giving them a free allocation. Consistency of treatment between existing installations (for which companies will need to buy allowances) and new entrants (that will either have to buy or might be allocated allowances) is also an issue that countries are grappling with.

Closure and new entry rules are delicate political issues as they will affect the attractiveness of particular locations for investment. New entrants could face different barriers to entry into the market if, for example, one country makes the new entrants buy allowances while another sets aside allowances and gives them a free allocation. Similarly, inconsistent approaches to closure could create distortions in competitiveness and industry structure and lead to gaming by companies. For example, a company could close a plant in a country which allows it to keep its allowances, but then open up a new one in a country which gives new entrants a free allocation. Under these circumstances, then the company benefits twice while maintaining the same level of emissions.

For such reasons, once certain key countries decide on closure and new entry rules, others are likely to feel compelled to take the same approach. Thus, these are issues that many believe could benefit from a more harmonised approach – even if it is only possible to coordinate informally.

4.5 Banking

The extent to which countries may allow banking of first period allowances for use in the Kyoto commitment period remains unclear (as at September 2003). Decisions on banking will affect industry trading strategies and the environmental effectiveness of the market. Decisions on banking are therefore needed as soon as possible (given that trades are already occurring) and certainly well before 1 January 2005. The simplest approach is not to allow any banking, and some countries have said that they are considering this. However, other countries will almost certainly allow banking (for example, Germany, UK) although they have yet to decide what restrictions to place on it. More lenient allocations may be accompanied by less lenient banking provisions.

The extent to which countries allow banking of allowances for use in 2008–2012 is likely to be affected by the stringency of the total constraint for the initial phase, due to implications for compliance with Kyoto targets. If lenient allocations are the norm across the EU and carbon prices are low, then industry may decide there is greater value in banking excess allowances for 2008 rather than selling them. This suggests no country is likely to allow full banking into the Kyoto period as governments will have to allocate second period allowances to its installations to replace any banked units - they will not want a situation where they are forced to allocate huge numbers of national allowances to compensate for banking. Indeed, this could swamp a small country's total allocation and jeopardise national compliance with their Kyoto targets.

Some countries are considering placing a ceiling on banking to a certain proportion of the first NAP. Another idea is to limit banking to a set proportion of the second NAP – if more than this is banked in April 2008, then the second period allowances (issued in mid-2006) would be proportionally adjusted downwards, and if less, upwards. Other countries are considering not allowing any banking into the Kyoto period. No banking would improve market liquidity in the first period and provide a "drain" for any over-supply in the first period. If there is no banking then allocations for the second period may need to be consider ways to encourage early action such as the use of a pre-2005 base-year.

Currently, individual countries seem likely to take different approaches to banking. However, this is an area that would benefit from EU-wide coordination and information sharing. The extent to which banking is permitted in different countries will affect industry trading strategies, the environmental effectiveness of the market and influence the value of allowances in different time periods. If full banking is allowed by some countries and not by others, industry could sell their unused first period allowances to companies in the countries that allow full banking. The market can find ways around

any attempt to restrict banking to national entities only, particularly if closed installations retain their allowances on closure. Decisions on banking are needed as soon as possible, certainly well before 1 January 2005, given that trades are already occurring.

4.6 Auctioning

Few, if any, countries will use auctioning for the 2005–2007 period. Germany has indicated that it will not use auctioning in either the first or second EU ETS periods. Some other countries are considering setting aside a portion of allowances to auction to new entrants within the 5 per cent rule for the 2005–2007 period.

A key unresolved issue is who would be eligible to participate in auctions. It may not be possible to limit participation to entities of the country that is issuing the allowances due to single market competition rules. But, if national auctions were open to anyone, the national entities might be outbid by operators in other countries with higher costs. On a practical level, companies are wary of being faced with 15 different auctions in 15 different Member States. They are also concerned that inexperience could lead to mistakes being made in auction strategy and that the upfront cost of buying allowances in an auction has an impact on a company's net worth.

Auctioning would, however, solve most of the practical problems associated with allocations. All operators would simply purchase the allowances they need and those that have taken early action would need fewer allowances. There would be no need for baselines and allocation processes. If and when 100% auctioning is used, all allocation arguments would disappear. However, until the point is reached at which 100% auctioning is used, the non-auctioning component of allocations is where the debate will be.

4.7 Monitoring and verification

A key concern is the potential cost of monitoring and verifying emissions. Standardised methods for monitoring and verification will help to minimise costs. Even then, it will be important that methods do not change once they have been defined. A change in method could wipe millions off a major company's value overnight. This is an issue which at least one major oil company is already taking advice on.

To-date, most companies have assumed that they will have to bear these costs of verification although under the Directive it is unclear where responsibility will lie and some countries may consider government funding of verification. Some countries are using regulatory requirements to provide accurate baseline data instead of requiring independent verification (which in any case may not be feasible in the time available).

Some countries may use a single government or quasi-governmental organisation for verification during the first few years to allow for both learning and consistency, while others will leave this job to the verification and environmental consulting companies. For less wealthy countries, a key issue is that they do not want to be burdened with the relatively high costs of verification by outsiders when they have their own experts. Thus, there is a call for mutual recognition of verifying agencies across the EU.

4.8 Legal and tax status

Each Member State has to define the legal nature of allowances according to its financial services provisions and tax law. Some countries are including the legal definition of an allowance in their EU ETS laws, while others will rely on existing law.

A key issue is whether allowances should be classed as a commodity or good, or as an equity or financial instrument. This is ambiguous under the Directive and thus the legal status of allowances could vary across the EU region, with allowances being classed as a commodity in one country and a financial instrument in another. Similar questions also arise over whether allowances should be regarded as property rights or licenses. These are issues where consistency would be useful but, in practice, it is probably not possible to harmonise the legal definition and tax treatment at this time.

Trade in derivatives of allowances such as futures and options are clearly financial instruments and will be treated as such for tax and accounting purposes.

4.9 Process issues

Capacity

Governments are feeling the strain of endeavouring to implement the Directive within an extremely tight timeframe. To implement the Directive, Member States must decide how to deal with permitting procedures, identification of and communication to installations, transposition of the Directive into national legislation, preparation of their NAPs, and setting up national registries. This requires a major bureaucratic effort, with the allocation process, permitting, legislation and consultation all requiring large amounts of both expertise and time.

The pressures extend to industry as well. Consultations with industry are viewed as important as allocation decisions will not only determine the environmental effectiveness of the scheme and how well the market works but also impact on participating industries. However, industries have very little time in which to prepare, to respond to consultations on the allocation and to present their position to government.

When it comes to capacity for trading, certain sectors or industries such as the electricity sector and larger multinationals already have relevant experience of trading in, for example, green energy certificates. But for others without trading experience, the capacity may not exist to decide a trading strategy and carry out transactions on top of normal operations. Little has been done to address these questions, and a gradual development of capacity will be critical to successful use of the trading mechanism.

Awareness

In some countries, Ministries other than the main ones involved in climate change are still trying to understand the issues involved and so are behind on implementation. Typically, small government teams are still struggling to understand all of the issues involved while also having to advise Ministers and communicate with industry. Countries that have engaged political parties and industry more fully from an early stage have a higher level of awareness but more complex national processes.

Industry awareness is also low in many countries, particularly among the smaller businesses that may be affected. Even companies that will not need to trade still need to understand their monitoring, reporting and compliance obligations. Most countries reviewed are informing key industry sectors through briefings but are facing difficulties due to the problem of identifying all affected installations. Other approaches that are being used are the establishment of "communications teams" within government, placing articles in trade magazines, conferences, and websites for transmission of information. A communication strategy is important to avoid swamping the Government with basic questions from companies.

Timing

The timescale for legislation and NAPs is proving to be a major challenge for most – if not all – countries. Not only have countries yet to see the formal EU Directive, but the political processes required for transposition requires time. Indeed, a number of countries could miss the deadline to transpose the EU Directive into national law by the end of the year, including Germany, Sweden and France. Missing this deadline need not affect the start of emissions trading in 2005 but there remains a risk that there will only be partial participation in the EU ETS at the outset.

In some countries, allocations and registries may not be ready until sometime during 2005. Some accession countries, in particular, may request additional time to implement the Directive and enter the scheme late, although the European Commission would have to introduce an amendment to the Directive to enable them to do so.

5 Implications

5.1 What countries may do

Indications to date are that allocations for the initial phase in emissions trading from 2005–2007 will not require tough emission reductions from industry. Not only is this before the Kyoto commitment period, but the tight timeframe limits governments' ability to ensure they have accurate data and the amount of consultation with affected industries. Trade-offs may be made between the leniency of targets across the EU and stricter banking rules. Counter-balancing this tendency towards lenient allocations is the need for the NAPs to pass the European Commission's assessment of whether they reflect what is needed for the countries to meet their Kyoto commitments, and of whether they constitute state aid or give undue competitive advantage.

Business-as-usual allocations are possible for countries that are on track to over-achieve their targets or that plan to use the Kyoto mechanisms to acquire emissions credits during the 2008–2012 period. This includes some of the largest countries and so has an important impact on the total pool of allowances in the EU ETS. Some countries will factor Kyoto Mechanisms imports into their allocation decisions. Most accession countries are likely to be able to base their allocations on industry requirements rather than requiring reductions (but their allocations will not fully reflect their projected surplus in emissions).

A business-as-usual allocation tendency in the current EU 15 Member States and accession countries would result in low allowance prices during the initial phase of trading from 2005–2007. If this occurs, any country with an allocation that requires industry to make reductions in the first period may see a benefit in the form of low cost compliance for its industry due to leniency elsewhere in the EU system. Lenient phase one allocations in countries that are not on track to meet their Kyoto targets may not be ideal for industry if they require much more difficult adjustments during the Kyoto commitment period.

5.2 Competitiveness

An uneven playing field

It is likely that national allocation plans will vary markedly between countries. The burden sharing arrangements within the EU together with other national circumstances mean that different countries will be more – or less – able to depend on domestic efforts to meet their Kyoto targets. This inevitably creates pressures for different allocations to industry in different countries, leading to an uneven playing field in which there will be both 'winners' and 'losers'. This situation could be further exacerbated by different allocation methodologies.

The extent to which firms ultimately win or lose under the EU ETS will depend not simply on the carbon prices that result from allocations, but also on the characteristics of the industries themselves. In particular, the extent to which firms are able to pass on carbon costs will depend on international competitiveness relative to companies both within and outside the EU, pricing mechanisms within the market and accounting procedures within the firm. The impacts of EU ETS on individual installations will also depend in part on capital cycles. The position will be very different for new entrants with new efficient technology, and incumbents with existing less efficient assets.

Electricity

In many countries, the electricity sector will be able to pass on most of the costs to the consumer as technical constraints limit competition from other EU countries. In this respect the electricity sector is relatively immune from the impacts of emissions trading, other than through impacts on demand. Looking forward, the issue is not so clear-cut due to the existence of regional networks and the potential opening of connections with systems in eastern Europe and Russia. Under these circumstances, a key issue for the power sector could be how to develop joint implementation opportunities in Russia.

The EU ETS will also have implications for parts of the energy sector which are not covered by the scheme. For example, renewable energy and nuclear power is not in the EU ETS but should gain some competitive advantage relative to fossil-fuel generators that have to limit their emissions or buy allowances. To the extent that these costs increase electricity prices, the profits of non-carbon generators should also rise.

Process sectors

Competitive distortions may arise from different country allocation schemes. A company in one country may receive 85–90 per cent of their requirements in the allocation process, while a company in another may receive 100 per cent of their needs. Given the tight financial margins in some industries, such as cement production, a company with a tougher allocation would be placed at a competitive disadvantage relative to a company in a country with more lenient allocations. From an EU-wide perspective this could result in more products being imported from outside the EU.

Cross-border differences in allocations are also a key concern for countries bordering accession countries, where there are fears that industry will move to countries with scope for emissions increases or with relatively modest constraints. Accession countries fear that stringent allocations elsewhere could result in those governments taking other measures to protect vulnerable sectors from competition.

Energy intensive industries such as chemicals, pulp, iron and steel, non-ferrous metals and mineral sectors compete internationally. Thus, a key concern is that policies aimed at constraining carbon emissions will influence future investment decisions and drive energy-intensive industry out of Europe. Countries are likely to seek to limit the impacts on competitiveness through the allocation process. This could be done, for example, by adjusting the distribution of allocations away from sectors that do not face international competition and towards those that do.

Industry will respond strategically to the development of the market to find ways of minimising their costs. Markets are already anticipating change and in some sectors there is evidence that costs of implementation are already being reflected in prices. Longer term, variations in allocations could substantially impact the business conduct and where they locate their businesses. Examples of potential strategic behaviour include:

- if plant extensions do not count as new entrants in some countries, then a company may choose to reduce production in these countries and increase it elsewhere in order to claim free allowances.

- if auctions are restricted to entities within a national jurisdiction, then it could make strategic sense for, say, a Dutch company to set up a subsidiary in Germany if allowances were cheaper there and then transfer them back to the Netherlands.

5.3 Market development

Carbon prices

Despite the fact that the emissions trading Directive has yet to be adopted, the scheme does not begin until 2005 and the Kyoto Protocol has yet to come into force, there is already a market for EUAs.

Current prices of Phase 1 EU allowances for 2005–07 are in the region of €10 per tonne CO_2 although this is on the basis of very few trades and cannot be taken as an indication of prices once a more active market emerges. This compares with prices of reduction units through JI or CDM of about €3–€4 for Government buyers who will pay regardless of entry-into-force of the Kyoto Protocol and of €4.70–€6 for corporate buyers who typically will not pay if the Protocol does not come into force. There is no pricing on Phase 2 allowances yet (as at September 2003).

Carbon prices will change markedly as the market develops, and are likely to depend on a number of factors including: economic growth, allocations under the EU ETS and the amount of allowances banked, the extent to which the countries use the Kyoto flexible mechanisms to meet their targets and entry into force (or not) of the Kyoto Protocol. A business-as-usual (BAU) allocation tendency in the current EU 15 Member States, together with close to or slightly above BAU tendency in accession countries, seems likely to produce low allowance prices during the initial phase of trading. If this happens, any country with an allocation that requires reductions in the first period may see a benefit in the form of low-cost compliance for its industry due to leniency elsewhere in the EU system.

Liquidity

Liquidity of the carbon market requires sufficient numbers of buyers and sellers with different abatement costs. Given the distance that a number of Member States have to go to meet their Kyoto targets, there are likely to be buyers, although much will depend on how tough or lenient the allocations are. Supply of allowances is expected to come from the accession countries, and so will depend on progress in implementation in these countries and allocation decisions in both these and existing Member States. In practice, it is possible to envisage scenarios in which there could either be an over – or under – supply of allowances.

Possible barriers to early liquidity of the carbon market include:

- *lack of harmonisation of approaches* to new entries and plant closures, on the legal nature of allowances (commodities or financial instruments or both, a licence or property right) and on tax treatment of allowance transfers;

- *weak infrastructure* – if the registries are not up and running, or if there are not enough verifiers;

- *limited awareness and capacity* – companies need to know they are included, their allocations and forecasts and how to trade;

- *eligibility to trade* – some countries are encouraging banks to trade and the UK is similarly encouraging banks to become involved, but in other countries, the traders may have to meet specific criteria;

- *inertia* – why hurry when you can borrow forward the first two years? However, most players are large, experienced and keen to engage with the market, as they will also benefit through early mover advantages, and improved security and balance sheets.

A number of these issues may well be resolved in the lead up to the formal beginning of the EU ETS in 2005, but others may not and the market could get off to a slow start.

6 Conclusions

For all their intense activity, countries are finding it challenging to implement the EU Directive. Some may not be able to meet the deadline for transposition of EU legislation into national law at the end of this year or finalise their NAPs by the end of March 2004. This may not ultimately affect the start of emissions trading in 2005, but it is a measure of the complexity of the issues countries face as they draw up their allocation plans.

Considerable progress has been made, particularly in narrowing down the allocation options and in understanding the interactions with other policies. Indeed, there is apparent convergence on a number of issues. For example, there is a sense that "grandfathering" is the most feasible way forward on allocations for installations initially and that benchmarking is only likely to be viable in countries with an established history of performance standards.

However, practical problems remain over data availability, capacity and timing and fundamental questions remain unanswered (as at September 2003) concerning the definition of installations, treatment of new entrants and plant closures, whether eligibility to participate in auctions can be restricted to national entities, under what conditions installations may opt out, and the legal and tax status of allowances.

In any case, NAPs could vary markedly from country to country. This is partly down to differences in Kyoto commitments, national emissions trends and the extent to which governments plan to rely on Kyoto mechanisms emissions trading to meet their Kyoto commitments. In addition, differences in allocation methods among Member States could affect the environmental and economic effectiveness of the EU ETS and the competitiveness of businesses within the EU, relative to each other and to international competition.

Some of these practical and competitiveness concerns are probably best resolved by national governments, particularly given the time constraints involved. However, there are a number of key issues on which enhanced coordination among governments would be particularly beneficial, including:

- *banking* –- coordination over banking rules would help the market to work effectively during the initial phase of trading and reduce the risk of difficulties during the Kyoto commitment period;
- *new entry and plant closure* – a common approach to these issues would reduce competitive distortions across the EU created by different conditions;
- *definition of "installation"* – an exchange of views on which installations are covered by the EU ETS would help ensure a consistency of approach;
- *the legal nature of an allowance and tax treatment* – coordination on this across Europe would be helpful, but it is not clear whether this would be critical;
- *opt outs for small installations* – given the large number of installations in the EU ETS, if a common approach to this could be achieved it would help countries which lack capacity to implement the Directive in a timely way.

Appendix 1: Country case studies

The country case studies were conducted in July to August 2003 and informed the workshop on which this report is based. These were updated in light of information gleaned during September 2003, but readers should be aware that national positions on the issues raised and timelines indicated may have altered in this rapidly evolving area.

1.1 France

Context

The energy sector contributes a lower percentage of total emissions in France than in many other countries due to the high proportion of nuclear energy. Even so, this sector still accounts for most of the CO_2 in France.

Table 1.1.1 French CO_2 emission trends

	1990 $mtCO_2$	1999 $mtCO_2$	2010 [i] $mtCO_2$
Total CO_2	385	405	398
Energy consumption	360	384	377
Industrial processes	21	17	17

[i] *with additional measures (national climate change plan)*

Source: Third National Communication to the UNFCCC

Even with its planned energy tax, France could find it difficult to meet its Kyoto target of stabilising emissions at 1990 levels over the period 2008–2012 through domestic measures alone. Purchase of Kyoto units is not part of the present national climate change plan and will not be a factor in the EU ETS allocation process.

The Ministry of Ecology and Sustainable Development is leading the work on the implementation of the Directive in close cooperation with the other key government bodies on climate change including the Ministry of Economy and Finance and the Inter-ministerial Taskforce on Climate Change. Several working groups were set up in spring 2003 and are mainly composed of government officials and experts, with representatives from industry and environmental non-governmental organisations (NGOs). Key issues under examination are:

- *legalities*;
- *the registry* – with subgroups on legal issues and national and European technical specifications;
- *the NAP* – data concerns, new entrants and closures, early action and so on.

A series of sectoral meetings with industry to discuss the issues is also being held. Unusually, a fourth working group on organisation of the market has been proposed to examine the need for market mechanisms for trading such as a stock exchange, but this group yet to be set up.

Main challenges

Legislation. The legal implementation of the Directive is a major challenge for France. The main issue is that there is currently no legal basis for a system that would allow trade in allowances. The existing law on air will have to be modified and other new legislation will be required. The time available for the necessary legislative changes is short. Permitting, on the other hand, should be simple to achieve in France. The Government plans to issue a single text at the national level that will give existing permits under the IPPC Directive the status of a permit for the EU ETS Directive.

Data. Problems include:

- definition of installations (particularly combustion installations);
- historic emission and activity data at the installation level – for example, there was no obligation for installations to provide CO_2 emission data before 2001 because it was not considered a pollutant;
- companies with VAs have provided a lot of data to the industry body that is administering them, but the Government can use only what has been made publicly available.

Policy interactions. A major political and technical challenge for the Government is its own commitment to "take into consideration" VAs. To date, 24 companies have entered VAs (increasing to 33 this autumn). These companies account for more than half of French emissions from the industry and energy sectors. The emission reduction objectives in the VAs were set individually by each company and were not negotiated with government. Not only are the VAs unlikely to reflect equivalent burdens across industry, but they may not be compatible with France's target for industry and energy emissions in 2010 and they would not reflect fair treatment across all of the companies and sectors that are covered by the Directive. Industry argues, on the other hand, that the VAs could be translated into an equivalent allowance allocation.

Pooling. Industry has requested that provision to be made for pooling at the company level. French industry sees pooling as a way to make the management of the allowances easier and to avoid taxes or charges that could be levied on allowance exchanges between installations that are owned by the same company. The French government must decide whether to allow this (under article 28 of the Directive) and what legal provisions will be required. A related issue concerns the implications of pooling for multi-national companies with operations in different Member States.

Timing

A draft list of installations and installation data was scheduled for July with the final list of installations expected in autumn 2003[17]. Formal decisions on allocations are scheduled to be taken at the end of the year, probably in an ad hoc Commission which will involve the same organisations as the working groups but at a higher level and with some more experts. The government will take the decisions that are necessary with a view to full transposition of the Directive and a first draft of an allocation plan by 31 December 2003. The final allocation plan is due in March 2004 and the Government expects it to be ready by the 31 March deadline but not before.

[17] This list is the subject of a study by CITEPA.

Allocation process

Total cap

Projections of emissions for the main emitting sectors such as agriculture, transport, industry, and energy production in 2010 are available in the national climate change plan and the Third National Communication to the UN Framework Convention on Climate Change (UNFCCC). These will inform the government's decision on the total quantity of allowances under the EU ETS. The government will decide on the total cap in autumn 2003. This is a difficult political decision to take in France (as in other countries) and it is inter-related with the planned revision of the national climate plan which should be finished in autumn 2003. This revision exercise may include examining the shares of reduction expected in 2010 from the industry and energy sectors relative to expectations from the other emitting sectors of the French economy, especially the transport sector.

As at end July 2003, France assumed that it will meet its Kyoto target domestically without reliance on the Kyoto mechanisms in its initial allocations. However, purchase of Kyoto units remains an option.

Sectoral constraints

Setting sectoral caps is the main focus of technical work on allocation in France at present. The government is carrying out a great deal of work to compile data on industry and energy sector emissions that is as consistent and objective as possible, and to compare it with data from industry. The data compilation activities include: identifying emissions from processes and combustion; past and projected activity of each sector; historical fuel mix; emissions reduction options and potential in each sector; energy efficiency (past and projected); and macroeconomic indicators.

This sectoral data will be used to compare different allocation methods, as more data is currently available at this level than at installation level. In particular, officials are testing different allocation methods to see how one approach performs relative to another for each sector, taking into account historic emissions data, projected activity, and performance in terms of specific emissions or in terms of energy efficiency. Four options are being considered for the base-year under a grandfathering approach, including a single base-year, a 3-year average, or the best year out of three. Economic data will be used to judge the possible financial impacts of the initial allocation on each sector under each method.

Whatever the formula chosen for allocation, a balancing factor will be applied at the end of the process to take into account the total cap that the Government intends to set for the industry and energy sectors, if necessary[18]. The sectoral level is considered useful for setting intermediate caps as this lowers the chance of having to apply a huge balancing factor at the end of the allocation process.

Allocation to installations

There is a strong constraint on the availability of data at the installation level. Options open for consideration as at end July 2003 are:

- allocation directly at the installation level;

[18] Alternatively, the allowances for each sector can be expressed as a share (per cent) of the total cap and this share can finally be applied to the cap once it is known.

- allocation at the sectoral level with distribution to installations within each sector according to, for example, the most recent emissions of each installation.

France has not been in favour of auctioning in the past, and the question of auctioning has not been discussed since the final version of the Directive introduced the possibility of selling allowances from 2005. Thus, auctioning is unlikely to form part of their NAP. However, some government officials consider that in principle they could use auctioning in some way, for example, to allocate to new entrants or to aid liquidity.

Policy issues

There are no major policy concerns associated with implementation of the Directive, other than the proportion of reductions required from EU ETS sectors relative to emissions from other sectors, and the extent to which the VAs will be taken into account.

1.2 Germany

Context

Germany is the largest EU emitter and has achieved the largest emissions cut among the big Member States. Germany has a Kyoto target of 21 per cent reduction on 1990 greenhouse gas emissions by 2010 and a more stringent national aim to reduce CO_2 by 25 per cent from 1990 levels by 2005[19]. Germany will use its Kyoto target as a basis for allocation for the EU ETS.

By 2000, German CO_2 emissions were 15.4 per cent lower than 1990 levels[20]. According to projections[21], Germany expects to achieve a reduction of at least 32 per cent (320 $mtCO_2$) from 1990 by 2010 with existing measures (including 93.25mt CO_2e reduction from industry)[22]. Thus, if an historical grandfathering approach is used and allocations reflect national progress towards the Kyoto target, Germany could be a net seller into the EU ETS market.

Table 1.2.1 German CO_2 emission trends

	1990 $mtCO_2$	1999 $mtCO_2$	2005 $mtCO_2$	2010 $mtCO_2$
Total CO_2	1,015	858	759	694
per cent reduction		15		31
Energy combustion – energy & industry	610	469	393	358
Industrial processes	28	27	25	25

Source: Third National Communication to the UNFCCC

Germany is conducting several research activities related to implementing the EU ETS. There are at least two government research studies on allocation, one by DWI and Öko Institute for the Environment Ministry and another by RWI for the Economics Ministry. There are no publicly available results from these studies as at end July 2003. Another research effort is dealing with legal issues arising from the allocation process. This is preparing the ordinances that will contain the regulatory provisions that Germany needs to have in place in order to implement the Directive. An industry group has been established for regular dialogue with government.

Main challenges

Number of installations. Between 4,000 and 5,000 German installations are expected to be affected by the EU ETS. The sheer number of installations complicates the implementation effort. Simply administering the registration, permitting, allocation and monitoring and verification is expected to be

[19] *National Climate Protection Programme* (CPP) of Germany. October 2000.
[20] http://europa.eu.int/comm/environment/climat/gge_press.htm
[21] German Monitoring Report 2001 ("Bericht 2001 der Bundesrepublik Deutschland über ein System zur Beobachtung der Emissionen von CO2 und anderen Treibhausgasen –entsprechend der Ratsentscheidung 1999/296/EG"). Reported in the *EC Monitoring Report 2002*: europa.eu.int/comm/environment/docum/0702_germany.pdf
[22] The EC Monitoring Report cited above states that Germany is now forecasting to do even better with a 34 per cent reduction in all gases with existing measures and slightly more than this (35 per cent reduction) with additional measures.

a challenge. No decision has been taken (as of July 2003) on whether these administrative tasks should be carried out by a central agency or by the regional governments.

Data. Lack of data is a major problem. Researchers have carried out a large survey of installations and found that data quality is low in many cases. German installations are required to make a declaration of their emissions every three years under the Clean Air Law. The last declaration was required in 2000. The regional governments (Länder) that administer these declarations have not consistently ensured that the data are provided or checked their accuracy. The Federal government is now compiling this data from the Länder and has sent a questionnaire which gives industry an opportunity to improve and verify their data and provide data for 2001 and 2002 as well as 2000. At the time of writing, The government hoped to have a more reliable database by the end of August.

Total and sectoral constraints. Distribution of the reductions needed to achieve the Kyoto target between trading and non-trading sectors under the EU ETS will be difficult. Germany has not yet analysed the impacts of different NAP approaches for each sector. The planned phase-out of nuclear will increase emissions from the electricity sector, even in the 2005–2007 EU ETS period, and new capacity will enter the sector to replace nuclear[23]. The nuclear phase-out has to be integrated into the EU ETS allocation. In particular, consideration needs to be given as to the extent to which this burden should be carried by the electricity sector versus the nation as a whole.

Policy interactions. The main policy challenge is how to translate the voluntary commitments by industry into EU ETS allocations. The VAs provide a basis for action by industry but they do not include all companies in every sector and many are not defined in absolute terms and/or they are not disaggregated to the installation or company level.

Timing

A "key issues" paper was presented to the German industry emissions trading group in July 2003. Answers to a questionnaire on data and affected installations were expected to be returned by the Länder authorities by the end of August 2003. These will give the Government the basic information it needs for the NAP.

The government is deciding priority issues, such as the size of the total emissions constraint and sectoral allocations. A first draft of the legislation needed for the EU ETS (including institutional responsibilities) may be decided by the Cabinet in December. Germany expects to meet the 31 December transposition deadline, but this depends on the timing of the necessary legislative processes.

Germany aims to complete its draft NAP by first quarter of 2004, but questions remain over whether the public consultation must be before the NAP is presented to the Commission or not.

Allocation process

Total cap

There is a wide range of views on what the total allocation to all EU ETS installations should be. A key issue is the extent to which the reductions required should come from industry as opposed to other sectors, such as transport. The final decision on the top-down allocation will be a controversial

[23] The main impact of nuclear phase-out will be felt after 2012.

political decision. Two separate consultancy teams are preparing information for top-down and sectoral constraints.

Germany's Climate Change Programme has sub-targets for reductions in CO_2 from each main economic sector, for instance transport (15–20 Mt CO_2), private households and buildings (18–25 Mt CO_2) and industry/energy supply (20–25 Mt CO_2). This industry/energy supply sector reduction is approximately in the middle of the wide range of reductions that have been argued for EU ETS installations – but these sectors do not exactly match the coverage of the EU ETS.

Various approaches to deciding top-down allocation have been considered. Some in industry consider that no further burden should be placed on them given the reductions already achieved. But, others argue that the total constraint should be based on the additional reductions required to reach Germany's 21 per cent reduction target – this would require an additional 25 mtCO2 reduction from industry per year.

Alternatively, as the Government announced in September 2003, the total allocation for the first phase could be based on existing VAs. These aim for a 45 million tonne reduction from 1998 by 2010. Because some EU ETS installations are not in the VAs, 10 million tonnes less than this should be expected from the EU ETS (a 35 million tonne reduction on 1998 emissions by 2010). Recent analysis indicates that the VAs are consistent with business-as-usual emission trends for 2008–2012 but that it would be economically efficient to reduce industry emissions by far more than this[24].

Sectoral constraints

The VAs provide a basis for setting constraints for each EU ETS sector. These cannot be directly translated into absolute sectoral caps for 2005–2007 as sectoral level activity growth rates to 2010 are implied in the VAs. Caps could be calculated back to take into account expected fuel mix and energy efficiency to give an emissions figure for 2005–2007. Once sectoral constraints are decided then a level of reduction may be set.

Allocation to installations

Discussions on allocation approaches have covered many different options, including: grandfathering, a historical approach, benchmarking and various hybrids[25]. It is likely that allocation will be based on a combination of grandfathering and benchmarking. Because benchmarking is difficult to apply to sectors which produce many different products, such as glass, some may have their allocation based on grandfathering alone. Grandfathering minus 2 per cent is one option that has been proposed[26]. Auctioning will not be used in either the first or second EU ETS periods.

Grandfathering is likely to be based on the years 2000 to 2003 depending on data availability. Possibilities include, taking the average of the three years or possibly allowing companies to nominate the year out of these three in which their emissions were highest. Germany is considering giving companies an opportunity to apply for consideration of early action, although the definition of "early action" is the subject of debate.

[24] Von Klemmer, P., Hillebrand, B. and Bleuel, M. (2002). *Klimaschutz und Emissionshandel – Probleme und Perspektiven.* RWI-Papiere, Nr. 82 Rheinisch-Westfälisches Institut für Wirtschaftsforschung, September 2002.
[25] *Point Carbon,* May 9 2003.
[26] German industry comment, CEPs meeting 5 June 2003, Brussels.

Benchmarking ideas that have been floated include: taking the average CO_2 of the entire industry sector or sub-sector per unit of product or activity, such as CO_2 per kilowatt hour (kWh) for electricity across the base period 2000 to 2002; or allowing companies in a sector to nominate one of these years for their benchmark. Companies that are better than the benchmark could receive an additional allocation and those that are worse could receive a lower allocation. Under such a system, companies that have not made efficiency improvements would receive fewer allowances than they need and early actors would receive a bonus. A BAT benchmark is another possibility, in particular, for allocations to new entrants. Allocations are likely to differ for process industries versus those for fuel combustion.

Germany intends to carry out economic analysis of the impact of the allocations on industry once the allocation rules have been defined.

Policy issues

The VAs by industry are the backbone of Germany's climate change strategy. Germany has also implemented an eco-tax on electricity and has a wide range of measures designed to encourage energy efficiency, renewable energy and Combined Heat and Power (CHP). The government's decision to phase out nuclear power will have an important effect on future German fuel mix, energy policy, and is therefore is likely to affect the EU ETS allocations.

The VAs by German industries on CO_2 and energy include:

- commitments by the Federal Industry Association (BDI) to reduce CO_2 per unit of output by 20 per cent by 2005 and commitments by many of its member associations (with varying goals). These have been in place since 1996 and are expected to save the equivalent of 32.5 million tonnes of CO_2 ($mtCO_2e$) by 2005;

- continuation and improvement of these VAs promise CO_2 reduction of 28 per cent per unit output by 2005 and a 35 per cent reduction of all six gases per output unit by 2010 amounting to a reduction 20 $mtCO_2e$, of which 10mt is reductions in CO_2;

- VAs by the electricity supply industry associations include a pledge from the German Electricity Association of a 12 per cent reduction of CO_2 by 2010 and a pledge from the Association of Local Authority Public Utilities of a 25 per cent reduction by 2005.

The VAs were in place long before the EU ETS Directive and are defined according to very different criteria. The commitments differ among industry sectors and it is not straightforward to translate them into absolute CO_2 allocations. The participation by companies in each sector varies from 50 to 60 per cent in some cases to close to 100 per cent in others. Some commitments are absolute CO_2 or energy targets and others are relative. Some sectors have no target. The Declaration at the end of 2000 was for a reduction of 45 mtCO2 across all industry sectors but individual sectors did not define how much they would do towards this target. Neither the Government nor industry is interested in cancelling the VAs, so it is likely that at least in some sectors they will continue in parallel with the EU ETS.

Industry maintains that its VAs mean it will retain a partial exemption from the eco-tax. The ecological tax reform involved one-off increase of 2 Pfennig per kWh in 1999, followed by 4 annual increases of 0.5 Pfennig per kWh between 2000 and 2003. This tax is expected to save between 2 and 4 mtCO2 in 2005. An additional measure that is planned is the abolishment of the preferential treatment of coal, thus levelling the playing field for the different fuels in the electricity sector.

Industry received an 80 per cent rebate on the electricity tax during its first stages, and this has now been revised to a rebate of 40 per cent.

Additional government construction of gas-fired combined cycle power plants is expected to save 15 to 20 mtCO2 by 2010, but phasing out of nuclear power is expected to increase in emissions.

1.3 Italy

Context

Italy's CO_2 emissions are mainly from fossil fuel energy. CO_2 emissions from energy increased by 9 per cent between 1990 and 2000. Italy has a ban on further nuclear energy, and typically imports a large proportion of annual electricity[27]. Thus, it will be difficult for Italy to meet its Kyoto commitment of a 6.5 per cent reduction from 1990 levels in the Kyoto period 2008–2012 from domestic reductions alone[28].

Table 1.3.1 Italian CO_2 emission trends

	1990 $mtCO_2$	2000 $mtCO_2$	2005 $mtCO_2$	2010 $mtCO_2$
Total CO_2	440	464	464	492
per cent reduction (increase)		(5)		(12)
Energy	147	161	151	170
Industrial processes	36	34	30	30

Source: Third National Communication to the UNFCCC

The Ministry for the Environment is leading Italy's EU ETS implementation. An inter-ministerial group is in the process of being established. The mandate of this group yet to be decided (as at end July 2003) but may include a range of implementation issues including the NAP, a decree for implementation of the Directive, and defining roles for the competent authorities.

About 2000 installations in Italy will be included in the EU ETS.

Main challenges

Total cap. The toughest political decision for Italy is the amount of reduction that should be required from each sector. This is related to political decisions on other climate change policies and also the amount of Kyoto units that Italy expects to purchase. It may be very difficult to achieve emission reductions in the transport sector and decisions will be made later this year on what additional policies to implement in this sector. These decisions will give an indication of how much it is considered reasonable to allow the transport sector to emit and therefore how much can be allocated to EU ETS installations.

Data. Data at the installation level is an ongoing concern. Some data could be available through other laws, but until the Government has legislation in place to require emissions data from the installations it may be difficult to obtain accurate and "legally binding" data.

New entrants. Italy is finding the issue of how to deal with new entrants and plant expansion one of the most difficult issues in the Directive.

[27] Italy imported 16 per cent of the electricity it consumed in 2000. US CIA (2003) *The World Fact Book 2003*, US CIA. http://www.moulin.nl

[28] In 1995 to 2000 the increases in emissions from energy were higher than in 1990 to 1995.

Policy interactions. Interaction with other policies is another challenge for Italy (see policy section below). The government was due to review its NAP in late September in light of key policy decisions.

Timing

The government was due to review its NAP in late September in light of key policy decisions. Similarly, consultation with industry was expected to begin in September 2003. An inter-ministerial committee will review national climate change policy including additional measures (for example, for transport) that will affect the total emissions that can be allocated to EU ETS installations.

A similar inter-ministerial committee may also review the NAP this autumn in light of the final Directive, review the planned level of purchase of Kyoto Mechanisms units, and decide how to incorporate planned Kyoto purchases into Italy's allocation process.

Allocation process

Total cap

Italy intends to use the Kyoto Mechanisms to help it meet its Kyoto target. Italy's NAP on climate change includes a commitment to buy 12 $mtCO_2$ per year from abroad. This is approximately 12 per cent of the total reductions needed to meet Italy's Kyoto target. Italy recognises the option of buying Kyoto units at the national level in order to reduce the burden on industry. Thus, it is likely to allow for national purchase of Kyoto units in the national reference emission scenarios that are used as the basis for the total allocation to all EU ETS installations. Expected Kyoto mechanisms purchases will affect the post-2008 allocation and there may a step change in the reductions required of 12 $mtCO_2$. Purchases through the Kyoto mechanisms may be taken into account in the 2005–2007 allocation, thus allowing a smooth emission reduction path.

In addition, companies will be allowed to trade JI and CDM credits if they choose, so the proportion of Italy's emission reductions gained from both the Government and industry buying Kyoto units could be as much as 30–50 per cent.

A key issue for the total constraint is how much to require from non-trading sectors. This will be affected by policy decisions. Italy's projections include technical measures that have been implemented[29], Further policy decisions are expected this autumn and these will affect the total quantity of allowances that can be allocated to the EU ETS installations.

Sectoral constraint

Italy consider the total and sectoral allocation to be a more urgent and significant issue at this stage than the share to individual installations.

[29] http://europa.eu.int/comm/environment/docum/0702_italy.pdf

Policy issues

There are a number of issues that relate to other environmental policies. One key issue is how non-environmental policy decisions for other sectors will affect the quantity of allowances that are available for EU ETS installations. Decisions on future transport policy will be important and difficult for Italy. An increase in transport emissions is seen as inevitable, yet emission reductions from the transport sector would yield significant local environmental benefits.

Security of energy supply is a particular concern for Italy. A number of energy policies are linked to this issue, including the ban on nuclear energy. Italy will incorporate energy security considerations into its allocation process. For example, coal-fired electricity may need to be treated differently from other electricity so as not to further jeopardise security of supply.

Italy already has energy prices that are among the highest in Europe and Italy is concerned that Italian industry may lose competitiveness as the cost of emission constraints is passed through, resulting in increased energy prices.

Italy's NAP places some importance on national sinks (approximately 10 per cent of emissions). This could reduce the emission reductions that are required from industry.

1.4 The Netherlands

Context

The Dutch Kyoto target is to reduce emissions by 6 per cent from their 1990 level. Dutch total greenhouse gas emissions are forecast to be 13 per cent above this target in 2010. Emissions from Dutch industry were almost 27 per cent above the 1990 level in 2001, with an increase in all greenhouse gases of about 4.5 per cent[30].

Table 1.4.1 Dutch CO_2 emission trends

	1990 $mtCO_2$	2000 [i] $mtCO_2$	2005 [i] $mtCO_2$	2010 [i] $mtCO_2$
Total CO_2	161	183	187	190
per cent reduction (increase)			(16)	(18)

[i] *with additional policies*

Source: Third National Communication to the UNFCCC

The Netherlands has a policy of importing 50 per cent of the reductions that it will need to meet its Kyoto commitment. A gap of 40 Mt CO_2e is expected in 2010 after taking into account the effects of existing measures. Half of the gap (17–20 Mt CO_2e) will be met using additional policies and measures, including the EU ETS, and the other half using the Kyoto Mechanisms[31].

The Dutch have set up three projects for implementing the EU ETS:

1. a group looking at judicial matters including changes to the Environmental Act to operationalise the EU ETS;

2. an allocation plan working group, comprising the Ministry of Economic Affairs, the Ministry of Environment and four representatives from industry, which meets weekly;

3. a group looking at institutional requirements for monitoring emissions, permitting, and the allowance registry.

Around 350 Dutch installations are expected to be affected by the EU ETS.

Main challenges

Policy interactions. The main difficulty is to fit allowance allocation for the EU ETS with the existing VAs on energy efficiency, especially "Covenant Benchmarking" which divides companies into classes and rewards good environmental practices. If the use of benchmarks is not possible, then as a last resort the Dutch would consider grandfathering allowances[32].

[30] *Point Carbon*, June 13 2003

[31] EC monitoring report 2002: http://europa.eu.int/comm/environment/docum/0702_netherlands.pdf

[32] Paul Van Slobbe interview. *Point Carbon,* June 13 2003

A difficulty for the Dutch in using a benchmarking approach is that the Netherlands imports power from Germany and Belgium. If grandfathering is used in these countries (on the assumption that grandfathering would be more generous than benchmarking), a benchmarking approach in the Netherlands could harm the competitiveness of Dutch companies. Unlike most other countries, natural gas is often the marginal fuel for electricity in the Netherlands. Electricity imports from Germany (largely coal-fired) can provide a significant proportion of the total power supply. If the gas price falls relative to coal, more electricity will be produced in the Netherlands. Because of uncertainties over the relative gas and coal prices, a 20 per cent change in electricity production is possible in the Netherlands from one year to the next. Differences in allocation stringency in the Netherlands and Germany could exacerbate this.

Data. Lack of data constrains choice of allocation options. Detailed monitoring of emissions on installation level was abandoned gradually in the Netherlands from 1995 in favour of monitoring sectoral totals and trends. Current emissions monitoring is not adequate to provide good quality base-year data[33]. Problems with data availability[34] mean that a historical basis for allocation of 1990 is not possible. Emissions data are available for 1999, 2000 and 2001. Data on performance against benchmarks is not publicly available and the Government would need to be sure that it is of good quality.

Identification of installations. NOVEM, the Dutch implementing agency for the long-term agreements on energy efficiency, is trying to identify the installations and to compile data from them. They had a 5 per cent response rate from a questionnaire sent out to identify potential EU ETS participants. The Dutch government think as "a rough guess" that there are approximately 350 installations which will be involved in the EU ETS.

Co-generation. The complexity of cogeneration (CHP) and the impacts of EU ETS allocation on this is a big political issue in the Netherlands.

Administration. The Dutch are considering creating a central authority for CO_2 permitting under the EU ETS rather than continuing to use the existing provincial authorities. They have chosen centralisation of the competent authority because the requirements of the EU ETS are new and CO_2 permitting needs to be done quickly.

Timing

The Netherlands was the first country to carry out analysis on their allocation process with a study in October 2002[35]. They then initiated a preliminary process to prepare an allocation plan by early 2003. A second phase of deliberations on the allocation plan process began in February 2003. There is a very large programme underway to try to compile the data that is needed for the NAP.

The government was aiming to complete the allocation process by September 2003[36] but now it appears more likely that consultation will take place in November. The communication process will

[33] KPMG (2002). *Allocation of CO_2 Emission allowances: distribution of emission allowances in a European emissions trading scheme.* By KPMG for the Dutch Ministry of Economic Affairs, October 2002. KPMG p. 24
[34] Paul Van Slobbe interview. *Point Carbon,* June 13 2003
[35] Ibid, KPMG (2002).
[36] Ibid, Paul Van Slobbe (2003)

was expected to begin earlier than this with a web site by September or October. They plan to complete the allocation plan in December.

The obligation to apply for permits will be in the amended environmental law. The changes required are not major, but it is not yet clear how quickly this can be processed. Officials were hoping to bring forward a proposition to the Council of Ministers in September or October and then for this to go through the necessary processes in the Parliament and State Advisory Council.

Allocation process

Total cap

The Netherlands is using an official projection of emissions to estimate targets for the main economic sectors (industry, agriculture, households and transport). This gives a total cap for industry. The allocation group is working out which participants are in the EU ETS and which portion of the industry cap will form the total allocation to all EU ETS installations in the Netherlands. Industry is against a cap on installation emissions. In their view, every installation should get enough allowances to cover requirements according to the Covenant Benchmarking.

Industry has requested that a bottom-up approach be used to verify the top-down numbers either by using forecasts for individual installations or by sector depending on data availability. Ministers will decide on the total constraint based on information that comes in from the top-down and bottom-up estimates.

An initial KPMG study has estimated the total amount of emissions that would be covered by the EU ETS to be around 90 $mtCO_2$[37]. According to this estimate, EU ETS installations would represent 47 per cent of Dutch CO_2 emissions in 2010. This top-down calculation was made on the basis of the reference estimation of ECN/RIVM and current climate change policy. This excludes the Coal Covenant, and the second LTA on energy efficiency, which could yield 0.7–0.9 $mtCO_2$.[38,39]

Use of a "with measures" emissions scenario as the basis for setting the overall cap would have the effect of converting energy efficiency targets in Dutch climate change policy into an absolute cap at least at the most aggregated level of allocation. A total cap of about this amount is likely to form the basis from which targets for subgroups of participants will be set[40]. The Netherlands is able to allocate allowances equal to the expected emissions of Dutch industry despite having a relatively difficult task in meeting its Kyoto target because of its policy of purchasing 50 per cent of its needed reductions from the Kyoto mechanisms.

Allocation to installations

Out of an initial list of thirteen allocation methods, four are still being considered and were discussed by a committee in late June. After this meeting, work is continuing on specific approaches for sectors and companies before completing the draft NAP. The tight timeframe is likely to lead to a simple allocation methodology being chosen.

[37] Ibid, KPMG (2002)
[38] Ibid, KPMG (2002)
[39] There is no allowance for an allocation for new entrants in this total.
[40] Ibid, KPMG (2002), p.24

There are two main options for allocation: historic (emissions grandfathered based on an historic level of emissions); and historic plus a benchmark coefficient. The Dutch government is currently working towards uniting benchmarks with the allocation process. The idea of "Performance Standard Rates" derived from existing energy covenants has been supported by industry. Dutch industry has argued strongly for ex-post allocations that take into account the realised growth or decline in production, but this is not possible under the terms of the EU ETS.

There are many difficulties in translating benchmarks to CO_2 caps. Efficiency and CO_2 emissions are not well correlated, which could lead to irregularities if the energy efficiency covenant benchmarks are used as the basis for allocation. Rather than try to translate the benchmark covenants into CO_2 allocations, the Government is considering using the benchmark covenants of the larger firms to make an adjustment to historic emissions (1999–2003) if the emissions data are available, to include expected changes in production. Firms that are very energy efficient compared to the benchmark will get more allowances and firms that are worse than the benchmark will get less than their historical level of emissions. This is one way of taking early action into account. The government is trying to confirm whether or not this is possible.

If good benchmarking data are not available, another possibility is to use forecasts of emissions for industrial companies or sectors as a correction factor. Thus, the Government may end up allocating on an historic basis but giving more to companies that have improved their position relative to the benchmark and less to those that have not improved or remain further from the benchmark level. If other methods do not work, the fallback option is to base allocations on historic emissions. Different sectors could choose which base-year, or be given some flexibility on the base-year, possibly with a correction based on a production forecast as well. The allocations will be corrected to add up to the total allocation constraint.

Policy issues

The Dutch climate strategy described focuses on energy efficiency and enshrines a decision to approach 50 per cent of the predicted reduction requirements by the use of flexible mechanisms under the Kyoto Protocol[41].

The benchmarking covenant is the most significant policy and also the area of most overlap with the EU ETS. Approximately 250 installations that will be covered by the EU ETS in the Netherlands are included in the energy efficiency covenants (see box 3), with ceramics and oil and gas installations being in long-term agreements.

[41] *National Climate Policy Implementation Plan* (NCPIP)

Box 1.4.1

Energy Efficiency Covenants

On 6 July 1999, the Dutch government concluded the Energy Efficiency Benchmarking Covenant with industry. In it, energy-intensive industry pledges to be among the world leaders in terms of energy efficiency for processing installations by no later than 2012. In exchange for this undertaking, the Government has agreed not to impose any extra specific national measures governing energy conservation[42] or CO_2 reduction on the participating companies. In total, 97 energy-intensive industrial companies and six power generating companies, representing a total of 232 plants with an aggregate energy consumption of around 1,060 PJ (peta joules), have signed up to the Covenant. Their installations cover 94 per cent of industrial energy consumption and almost 100 per cent of energy consumption by the 6 power generating companies.

The companies have declared themselves willing to make a cost-effective contribution to reducing emissions from their energy-intensive facilities, by taking measures to comply with the best international energy efficiency standards via a benchmarking process[43].

In return, the Government "…will aim to prevent the imposition of any additional specific national measures aimed at further energy conservation or reductions in CO_2 emissions on the participating facilities of the Companies as from the time that they become party to this Covenant. For the purposes of this Covenant, this in any event means no specific energy tax for the Companies, no compulsory ceiling on CO_2 emissions, no additional compulsory energy efficiency or CO_2 targets, no additional conservation commitments and no additional CO_2 or energy requirements. Furthermore, the costs arising from the commitments that the Dutch Government undertakes in relation to Joint Implementation, the Clean Development Mechanism and Emission Trading shall not be borne directly by the Companies."[44].

Energy intensive companies are planning to implement energy savings equivalent to 5.1 million tonnes of CO_2 by 2012, which is significantly more than was targeted. The energy savings expected from electricity sector participants is approximately 1.7 million tonnes (not including new plants)[45].

Other relevant climate change measures are: tax reduction and subsidies to industry and electricity sector for CHP. The latter is expected to yield 0.5 $mtCO_2$ reduction. An energy tax is expected to reduce CO_2 from coal-fired power plants yielding 0.8 $mtCO_2$ reduction. Second term long-term agreements including renewables could yield up to 0.2 $mtCO_2$ reduction. The Coal Covenant is expected to yield a 0.7–1.7 $mtCO_2$ reduction in 2012 compared to 1990 levels. Energy savings in industry and refineries, including the energy efficiency benchmark and long-term agreements are expected to yield savings of 1.4 $mtCO_2$.[46].

A KPMG report noted that emissions trading would provide extra flexibility to participants that are already faced with targets under the Covenants that have been put into place (Energy Efficiency Benchmarking Covenant, Long-term Energy Efficiency Agreements, Coal Covenant).

[42] http://www.benchmarking-energie.nl/pdf_files/covteng.pdf
[43] *Energy Efficiency Benchmarking Covenant*, 6 July 1999 http://www.benchmarking-energie.nl/pdf_files/covteng.pdf p.5
[44] Ibid. Energy Efficiency Benchmarking Covenant p. 16
[45] *Press release*, 28 February 2002. Reported on Minez website http://www.benchmarking-energie.nl/index.php3
[46] Ibid, KPMG (2002), 0.21

The Dutch government has said that it will uphold benchmark agreements and it is likely to be in industry's interests to continue within the covenants and agreements as well as the EU ETS. The exemption from CO_2 taxes and other policies is an added incentive for industry to remain in the covenants. However, the covenants involve quite a high degree of monitoring and reporting and if the administrative costs become too burdensome the Government may allow companies that are in the EU ETS to drop out of the covenants[47].

The main impact of the EU ETS on Dutch energy efficiency policy will be leniency in applying the IPPC energy efficiency requirement. Many smaller companies in the Netherlands are not in covenants but have multi-year energy efficiency agreements and so those involved in EU ETS could have both CO_2 and energy efficiency obligations. The government is considering how to deal with indirect consumption of electricity and heat and plan to discuss this with industry and the provincial governments. The government would like the operators of CHP to benefit, and are considering how to achieve this.

[47] Ibid, MBH personal communication 27 June 2003

1.5 Sweden

Context

Sweden's Kyoto target under the EU burden-sharing agreement is to limit its emissions to 4 per cent above 1990 levels in 2008–2012. Sweden has a tougher national goal to reduce emissions by 4 per cent from 1990 levels in the Kyoto first commitment period. The national goal for transport is for emissions to be no higher than 1990 levels in 2010, but this goal is about to be revised.

Table 1.5.1 Swedish CO_2 emission trends

	1990 $mtCO_2$	1999 $mtCO_2$	2005 $mtCO_2$	2010 $mtCO_2$
Total CO_2	56	56	51	58
per cent reduction (increase)		(1)		(1)
Electricity production & district heating	8		8	7
Industry including refineries	15		14	16

Source: Third National Communication to the UNFCCC

The Swedish parliament has stated a political aim that Sweden's Kyoto target should be achieved domestically with no allowance for sinks or flexible mechanisms. As at 2002, Sweden had achieved reductions of 3.6 per cent in all greenhouse gases. Sweden has low per capita emissions and its national emissions are reasonably in line with its Kyoto target. However, emissions in the EU ETS trading sector are expected to increase – as are transport emissions.

Sweden has set up a parliamentary commission made up of members of all parties, an independent chairman, industry representatives, and government Ministries (Finance, Environment, and Industry, Employment and Communications). The Commission held hearings with industries covered by the EU ETS and submitted a 400-page report to the Government suggesting principles for the NAP in May 2003. The wide participation in the Commission means that the first NAP report has the support of political parties and industry and there is a fairly good level of understanding of the NAP process and its implications among the different groups represented. However, involvement of so many political parties and other groups from an early stage has added to the complexity of the Swedish NAP process.

One third of Swedish greenhouse gas emissions will be included in the EU ETS with approximately 300 installations participating in the scheme. The majority of affected plants are in the energy sector (207). Beyond this, 14 are in the iron and steel sector, 11 in the mineral industry, and 61 in the paper and pulp sector. Total emissions from the affected plants are 19.1 million tonnes. Of this, energy accounts for 41 per cent, iron and steel 20 per cent, minerals 15 per cent, refineries 12 per cent and pulp and paper 11 per cent.

Main challenges

Data. Sweden has data for the EU ETS installations but is experiencing unforeseen difficulties in obtaining data that are consistent and compatible for all installations. Data from industry is confidential and the Government will have to get industry agreement for using it in the NAP or make legal provision to use or to get the necessary data. If a benchmarking approach is used for some sectors the data problem will extend to production or other benchmark data.

Total cap. Swedish politicians face difficulties in deciding how to take both Sweden's Kyoto target and the national target into account in a consistent way when setting the top-down constraint on EU ETS installations. A further complication is that another decision on the national target is scheduled to take place only after the NAP has been submitted.

It is also not clear how transport emissions should be taken into account in setting the top-down constraint as the current objective of stabilising emissions from this sector is due to be revised. The answer for Sweden may be to ignore scenarios of future transport emissions in preparing the first NAP and to address this issue in the second period from 2008, by which time transport may be included in the EU ETS. In Sweden, the need to move away from old transport policy approaches and move to new approaches such as emissions trading, is a live issue.

Linking JI/CDM. A similar problem exists with the scheduled timing of a decision on whether to continue to put government funding into JI and CDM projects after 2004 when the present policy ends. This will impact the effort required from industry. No decision on further use of the Kyoto mechanisms is planned until after the first NAP is prepared.

Policy interactions. Discussions on the future of the Swedish CO_2 tax are taking place in parallel with the allocation process. The issue of whether EU ETS installations should be partially exempted from CO_2 taxes is proving to be complex but is expected to be solved in early autumn.

Timing

The Flexmex2 Commission delivered its report proposing principles for the 2005–2007 NAP to the Government in May and published its report on 3 June 2003. Public consultation on these principles took place from June to August 2003.

Officials were planning to put a bill to Parliament in early October 2003 with a view to a decision on the principles of allocation before the end of the year. They are also preparing proposals for the necessary legislation. Even so, Sweden does not expect to meet the 31 December 2003 transposition deadline. Swedish national processes require a consultation period on a temporary law so that affected parties can make formal complaints. Sweden expects to have the final legislation in place by the end of 2004 in time for the commencement of the EU ETS.

Allocation process

Criteria for the NAP were that it must be:

- consistent with the national goal;
- acceptable for the actors involved (such as, simple, transparent, non-bureaucratic, predictable);
- consistent with state aid rules;

- realistic as the basis for a complete allocation plan by 2004;
- consistent with Annex III of the Directive.

Total cap

The Flexmex2 Commission proposes an overall cap on allowances of 24.3 million tonnes of CO_2 which is 5 million tonnes more than Swedish EU ETS installations are estimated to emit now. This ceiling is proposed to allow for the projected increase emissions of the EU ETS trading sector and new entries.

Sectoral constraint

Out of the 24.3 million tonnes CO_2 covered by the EU ETS, the Commission estimates that 10.8 would be for fuel combustion, 6.2 for non-substitutable emissions and a further 2.3 for forecasted expansion in non-substitutable process sectors, 2 for statistical uncertainty, 2 for other capacity expansion, and 0.6 for new entry that is foreseen by plants nearing completion. It is not clear whether this constitutes a well-defined cap on each sub-sector or is simply an indication of how the total constraint was arrived at.

Allocation to installations

The Commission proposed a historical emissions approach to allocation for each installation. Under this approach, each installation would be able to apply for an allocation that meets its emission needs based on 1998 to 2001 emissions. The average emissions over the four-year base period would be the norm but, if there were special circumstances such as breakdowns or renovation in a single year, a three-year period could be chosen. Based on this approach, the aggregate emissions are expected to be below the total emissions constraint of 24.3 million tonnes so there should be additional allowances available for distribution.

The commission has also proposed a priority order for the allocation. As the first priority, all existing installations will have the right to their 1998 to 2001 level of emissions. Once these needs have been met, priority will be given to producers with non-substitutable emissions from processes to receive additional allowances to allow for forecast production for the 2005–2007 period. These process plants include lime, cement, catalytic cracking, iron and steels, and production of hydrogen in refineries. Thus, foreseen expansion in process plants will get an allocation, whereas energy plants will have to buy allowances on the market if they expand. If any allocation is left after this process it will be set aside for new entry which could be allocated based on an assessment of the new entrants' forecast emissions.

If this proposed approach is accepted, Sweden would effectively set aside a pool of allowances for new entry. Sweden has not yet settled on this proposal or what should happen to allowances held by installations that close. Officials do not consider this a major point of concern.

The Commission considered using benchmarking where the allocated amount is equal to the production volume multiplied by an emission factor taken from benchmarking or BAT. However, a production-based approach was not found to be feasible due to lack of comparable data. District heating is the only sector in Sweden with a sufficiently homogeneous process and product to enable a fair allocation between plants on the basis of production. Even so, some benchmarking (national or

international) may still be used in the Swedish NAP, say, for certain sectors such as the 14 steel plants. This would still be a challenge as the steel plants have very different products and processes.

Policy issues

Continuous greening of the tax system is on the Swedish political agenda but the CO_2 tax system will need to become less differentiated if it is to be consistent with state aid rules. A key question is whether EU ETS installations should be taxed if allocations are grandfathered or partially exempted as they already face a similar mechanism. Resolution of this question is proving to be difficult and is taking place in parallel with the allocation process. A decision expected in the autumn.

1.6 United Kingdom

Context

The UK's total greenhouse gas emissions were about 14.5 per cent below 1990 levels in 1999. CO_2 emissions were 9 per cent below 1990 levels in 1999, mainly due to restructuring in the energy sector. Without further action, the UK's emissions are projected to stabilise and then increase again around 2010 as a result of economic growth, traffic growth and the closure of nuclear power stations.

Table 1.6.1 UK CO_2 emission trends

	1990 mtC	2000 mtC	2005 mtC	2010 mtC
Total CO_2	164	151	149	151
per cent reduction		8		8
Energy supply	59	45	42	42
Industrial processes	3	4	4	4

Source: Third National Communication to the UNFCCC

The UK is on track to meet its Kyoto target of reducing greenhouse gases emissions by 12.5 per cent from 1990 levels and EU modelling shows the UK as a potential net seller under the EU ETS.[48] Further measures would, however, be needed for the UK to meet its national target of a 20 per cent CO_2 reduction on 1990 levels by 2010 – projected CO_2 emissions are only 8 per cent lower than in 1990.

The Department for Environment, Food and Rural Affairs (DEFRA) is the lead department responsible for the NAP in the UK. DEFRA works with the Department of Trade and Industry (DTI) and other relevant departments. The UK government has regular dialogue with industry through the Emissions Trading Group (ETG), which has been meeting for several years. The UK has contracted consultants to work on the NAP. The first phase of this work looked at data for the main sectors in the EU ETS and developed various options for general principles that could be applied in the NAP. The second phase of work is now underway which will further develop the data and prepare the draft NAP. The first phase of consultancy finished in June 2003 and the second phase took place from July to September 2003. The UK plans to release its NAP for consultation in mid December.

Over 1000 UK installations are expected to be affected by the EU ETS.

[48] Capros, P. and Mantzos, L. (2002) *Economic efficiency of cross sectoral emission trading in CO_2 in the European Union*, National Technical University of Athens; Matti Vainio and Peter Zapfel European Commission, Environment DG 2002 Analysis based on PRIMES data.

Main challenges

Total allocation. The decision on the total quantity of allowances to allocate to EU ETS sectors is a major challenge for the UK. The ETG has called for the 12.5 per cent Kyoto target to be used. The government had not decided what overall level to adopt (as of July 2003), but aimed to resolve the issue at Ministerial level before the draft NAP goes out for consultation. All other issues are of secondary importance, but include meeting the transposition deadline, the speed with which some policy decisions are needed, and data constraints.

Legislation. Transposition of the Directive into UK law by the deadline of 31 December 2003 is "physically impossible" for the UK. Regulations to deal with the most urgent provisions such as appointing the competent authority and permitting (probably under the European Community Act) need to be changed. This will entail certain national legislative requirements that cannot be completed by the end of the year. This difficulty is exacerbated by the fact that the Commission's guidance on monitoring and the registry guidelines could affect the required changes in regulations.

Policy interactions. A key decision for the UK is whether to amend existing energy and climate policies in light of the EU ETS or to accommodate these policies in the allocations process. Some policy decisions are needed by November 2003 so installations with Climate Change Levy Agreements (CCLAs) can decide if they wish to opt out of the EU ETS. In particular, CCLA participants need to know if they will retain their 80 per cent rebate on the UK's Climate Change Levy (CCL) if they enter the EU ETS, whether the levy rate for electricity will be changed and, whether electricity emissions will be removed from their CCLA targets to remove double crediting of electricity reductions or the relevant CCLA's and the CCL rebate will simply continue in parallel with their EU ETS obligations. These decisions could affect the participation in the EU ETS, incentive payments, targets, and timing of entry into the scheme.

Data. Identification of (particularly) smaller combustion facilities is an issue for the UK. Data are available for some installations for 1998–2001 and some even have data dating back to 1990. However, of the first set of installations examined – combustion plants, refineries, coke ovens - most only have data for 2001. Ten different data sets have been reviewed and emissions data have been compiled for 1008 facilities. These preliminary data are not from consistent sources and are of variable quality. Data from local authorities for smaller facilities are incomplete and data for some regions are less complete than for others. Comprehensive data provided by the energy-intensive industries with CCLAs can only be used for the purpose of checking compliance with these agreements.

Data availability limits the feasibility of the various methods of allocation. The government plans to put in place the regulatory powers to require installations to provide accurate data in the very near future. UK industry has requested to see the data that has been compiled for the first phase of consultancy (subject to confidentiality concerns such as CCLA and CHP installations) and has indicated that it will provide additional data. Data uncertainties and the possibility of supplementary data from stakeholders raises the issue of verification of baseline data and this could delay the allocation process[49]. The government is considering whether baseline verification is necessary and it is possible that they will rely on regulations to require the provision of accurate information.

[49] NERA presentation, 16 June 2003

Timing

The first phase of consultation on allocation methodologies for distributing national and sector caps to installations ran from began in August to October 2003. A decision on the total cap is expected in December 2003 before consultation over individual industry allocations begins.

A second eight-week phase of consultation on the draft NAP will take place towards the end of the year (November and December). This will include indicative allocations to all installations covered by the scheme based on an allocation methodology proposed by Government. The government is considering whether to focus this to consultation about each installations' own provisional cap or whether to allow all interested parties to comment on every installation's cap. This consultation will also include proposals for dealing with new entrants, plant closure, clean technologies (including CHP) as well as explaining plans to manage the use of the opt out provision. The allocation plan will then be finalised during February and March 2004.

Industry will be able to apply to the Environment Agency (or other regional competent authority) for permits from the end of 2003 on the basis of draft regulations if the final versions are not ready. The application window will close on 31 January 2004 and permits will be awarded by 31 March 2004. The Environment Agency issued draft guidance and permit application templates in October.

The UK registry used for the UK's own emissions trading scheme (UK ETS) is already in place and work is underway to ensure that it can be adapted for EU ETS once the EU guidelines are available. No problems are foreseen with this.

Allocation process

Total cap

The UK's Kyoto target is a 12.5 per cent reduction in greenhouse gases from 1990 levels during the Kyoto commitment period but the UK may decide to use its domestic objective for a 20 per cent reduction in CO_2 as a basis for the total constraint. This more stringent objective is well established in UK policy and is the basis for the CCLAs. Installations with CCLAs will be able to opt out of the first period of the EU ETS on the basis of equivalence of effort.

The UK also has a stated objective of reducing CO_2 emissions by 60 per cent from 1990 levels by 2050, but this will not be used as a basis for setting the total constraint. Industry has requested the 12.5 per cent Kyoto target be used as the basis for the total allocation[50]. The government is updating its energy projections to incorporate policies in the UK Climate Change Programme[51]. A projection of where emissions across the UK should be in 2005–2007 will be used to inform Ministers' decisions on the total allocation to EU ETS installations.

Sectoral constraints

The UK has yet to decide whether to simply allocate shares of the total constraint or whether to include a sectoral level in its allocation process. Possible bases for sectoral constraints examined in the initial work on allocation options include: historic emissions (1990); projected business-as-usual

[50] Charles Nicholson, chairman of the ETG, letter to Margaret Becket 23 April 2003

[51] Details of key assumptions in the EP68 emissions projections to feed into the UK NAP for the EU ETS are set out at http://www.dti.gov.uk/energy/sepn/euets/projections.pdf

emissions; projected emissions "with measures"; and a sectoral allocation to the electricity consumers with allowances to cover both direct and indirect emissions. Sectoral constraints are seen as a way of reflecting the need for emission allowances rather than addressing this concern at the installation level.

Two macro-level sources of information on UK sectoral emissions are available: the UK DTI's energy model (EP68) for 2005; and the European Commission's sectoral objectives study[52]. The DTI is revising its national energy projection for use in defining the total allocation and sectoral constraints.

The DTI issued a note on the key assumptions that will be used in updating its energy projection and a timetable for consultation (July to September 2003)[53]. This states that the impacts of firm measures, such as the UK ETS, Renewables Obligation (RO) and the CCLAs (including some additional CHP) should be included in the projection, but notes there are "risks that energy efficiency savings, or other measures in the Climate Change Programme, might not be fully achieved." The DTI expects to compare their top-down econometric projections with the bottom-up sectoral assessments that are being prepared in the second stage of research to develop the NAP, and to refine allocations accordingly. The final projection that will inform the NAP is expected to be ready by 31 March 2004 – just in time for submission of the NAP to the Commission.

Allocation to installations

A bottom-up process is planned for allocating shares of the sectoral constraint to individual installations. Consultants have prepared a spreadsheet model which enables the Government to alter sectoral constraints and see how this affects individual installation allocations. A wide range of metrics have been considered including allocations based on:

- recent emissions (1998–2001 or 2002), using various combinations of years and averaging periods and based on installation level data where available;
- historical emissions based on sectoral emissions data for 1990;
- projected future emissions using both a "with measures" scenario for sector emissions and a scenario assuming that EU emissions trading occurs;
- regulatory targets, including CCAs for relevant sectors – for example, scaling the base-year emissions according to the level of emissions implied by the CCA targets for 2006;
- incorporation of indirect emissions by allocating some of the electricity sector emissions to downstream consumers that are participating in the EU ETS[54].

The consultants also proposed a hybrid mix of options that could be used. Early industry response through the ETG recommended grandfathering based on historic emissions, with benchmarking only for those sectors which have very good performance data (for example, some CCLA sectors), no reliance on projected data, and no adjustment for additional allocation to energy-intensive electricity consumers.

[52] Capros, P., Kouvaritakis and Mantzos, L. (2001). *Top-down Analysis of Greenhouse Gas Emission Reduction Possibilities in the EU" Economic Evaluation of Sectoral Emission Reduction Objectives for Climate Change*. Prepared for DG Environment, European Commission. (Sectoral objectives study)

[53] UK DTI (2003) *Baseline Projections for EU ETS NAP: Key assumptions and Timetable* July 2003. www.dti.gov.uk/energy/sepn/index.shtml

[54] The consultancy work is carried out by NERA/AEA/SPRU. This work examined various options and does not represent a government decision on which options are of most interest.

The emphasis of the data collection is for 1998 to 2001. The best and most consistent data are for 2001. The government has not decided which years should be used as the base-year or base-period and whether companies will have any flexibility over the selection of base-year.

Consultation on the approaches to – and methodology for – allocation to installations took place up to 2 October before the overall constraint is known. The second phase of consultancy extended the database for all covered sectors and process emissions and continued development and evaluation of allocation formulae and methodologies. A draft NAP will be available for public consultation from November 2003 to January 2004.

No auctioning is proposed in the UK for the first EU ETS period (although a question about auctioning is included in the initial consultation phase).

The government is allowing industries to choose whether to opt out or not. The UK's NAP will include allocations to each affected installation and show which companies have opted out. The UK plans to inform the EC of the companies that opt out at the same time as it submits its NAP. A key concern is that DG Competition may require more stringent allocations than the level implied by existing state aid approved policies, such as the CCLAs. In this case, the UK could find it difficult to demonstrate equivalence of effort.

The UK has yet to decide on how to address new entry and plant closure. Options for new entrants under consideration include: giving them an allocation from a pool of allowances that is held back; or making new entrants buy allowances. Few new entrants are expected during the initial phase of the EU ETS from 2005–2007. The UK may treat installations that are definitely planned and known about when the NAP is prepared differently from other new entrants that may emerge. Options for closure being discussed include whether or not to allow installations to retain their allowances to the end of the period. The UK believes that harmonisation is needed on new entry and closure to avoid competitive distortions.

Policy issues

The UK government is concerned about the impact of the EU ETS on other policy objectives. The policy links in the UK are complex and any major changes in policy would take more time than is available before the first NAP. Therefore, the UK is likely to make minimal adjustments to policy for the first EU ETS period and only make any more significant adjustments in 2006 for allocations for the 2008–2012 period.

The UK's Climate Change Programme is due for review in 2004. Near-term adjustments could include adjustments to the CCLA (reducing it to take into account any increase in electricity price) and adjustments to the CCLA/UK ETS targets (to strip out the EU ETS emissions). The ETG has suggested parallel participation in the EU ETS with the CCLAs for installations that are eligible and decide not to opt out.

Voluntary agreements. The CCL and the CCLAs are the most serious areas of policy overlap[55]. If the EU ETS allocations take the place of the CCLAs, it will not be possible to make a simple translation of one to the other as most of the individual targets are defined as energy use per unit of output. The CCL is charged on electricity, coal, and gas use by business and industry consumers. Given the

[55] Sorrell, S (2003). *Back to the Drawing Board? Implications of the EU Emissions Trading Directive for UK Climate Policy*. Sorrell's report summarises the policy overlaps and this material is not repeated in any detail in this paper.

expected increase in electricity prices due to the EU ETS, it may make sense for the Government to reduce the CCL rate on electricity – this would reduce the value of the rebate for CCLA companies.

At present, the CCLA energy targets include electricity use and thus provide an incentive for reducing electricity consumption. Reductions in electricity use could also be translated into UK allowances for sale under the UK ETS. Once the EU ETS begins, reductions in electricity use by the CCLA companies could lead to both UK allowances and EU ETS allowances being issued for the same energy reductions. The ETG proposes that while this is a significant overlap, it is manageable and that the two schemes could continue to run in parallel. Even so, it is possible that the UK government will decide to amend the CCLA's to remove electricity from the targets and to remove all EU ETS energy sources from the CCLAs of companies that do not use the opt out provision. The first opportunity to do this would be in 2004.

UK emissions trading scheme. The EU ETS will overlap with the UK ETS to 2006. UK ETS participants will be able to opt out of the EU ETS but companies need to know if EU ETS participation means leaving the UK ETS and loss of their incentive payments (all 5 years or partial) or if they would still have to meet their UK ETS targets to avoid penalties.

Companies with CCLAs are able to participate in the UK ETS. Unlike the other participants in the UK ETS, CCLA participants do not have a true cap on their emissions and their agreements do not represent an allocation of UK allowances. Allowances are only issued for over-achievement of CCLAs after a translation of energy savings per unit of output into CO_2 equivalence. Thus, current participation of CCLA installations in the UK ETS is on the basis of UK allowances given for reductions in energy per unit of output at the end of each year.

Energy efficiency, renewables and CHP. The EU ETS will not overlap directly with other policy objectives such as the Energy Efficiency Commitment, the Renewable Obligation and the CHP strategy. All of these will benefit if electricity prices increase due to the EU ETS. IPPC obligations will not apply to installations in the EU ETS, unless they opt out.

The government has yet to decide how to address CHP in the NAP and is considering whether special arrangements for CHP are required. A further issue is whether additional incentives are needed to encourage energy efficiency since the direct incentives from the EU ETS will only be felt further upstream. While the EU ETS will cap emissions from generators, earlier climate policies have specifically targeted energy-intensive consumers. Concerns over fuel poverty mean that UK climate policy has deliberately not targeted domestic householders for energy efficiency measures. Given the expected increase in electricity prices under the EU ETS, additional measures to address fuel poverty concerns may be required.

Higher electricity prices should not, however, affect the support given to infant industries, as renewable energy will remain more expensive than coal or gas in the medium-term. In any case, the Government is concerned that the target for renewable energy will be difficult to achieve.

Appendix 2: Criteria for NAPs[56]

1) The total quantity of allowances to be allocated for the relevant period shall be consistent with the Member State's obligation to limit its emissions pursuant to Decision 2002/358/EC and the Kyoto Protocol, taking into account, on the one hand, the proportion of overall emissions that these allowances represent in comparison with emissions from sources not covered by this Directive and, on the other hand, national energy policies, and should be consistent with the national climate change programme.

2) The total quantity of allowances to be allocated shall be consistent with assessments of actual and projected progress towards fulfilling the Member States' contributions to the Community's commitments made pursuant to Decision 93/389/EEC.

3) Quantities of allowances to be allocated shall be consistent with the potential, including the technological potential, of activities covered by this scheme to reduce emissions. Member States may base their distribution of allowances on average emissions of greenhouse gases by product in each activity and achievable progress in each activity.

4) The plan shall be consistent with other Community legislative and policy instruments. Account should be taken of unavoidable increases in emissions resulting from new legislative requirements.

5) The plan shall not discriminate between companies or sectors in such a way as to unduly favour certain undertakings or activities in accordance with the requirements of the Treaty, in particular Articles 87 and 88 thereof.

6) The plan shall contain information on the manner in which new entrants will be able to begin participating in the Community scheme in the Member State concerned.

7) The plan may accommodate early action and shall contain information on the manner in which early action is taken into account.

8) The plan shall contain information on the manner in which clean technology, including energy efficient technologies, are taken into account.

9) The plan shall include provisions for comments to be expressed by the public, and contain information on the arrangements by which due account will be taken of these comments before a decision on the allocation of allowances is taken.

10) The plan shall contain a list of the installations covered by this Directive with the quantities of allowances intended to be allocated to each.

11) The plan may contain information on the manner in which the existence of competition from countries or entities outside the Union will be taken into account.

[56] Annex III criteria for NAPs referred to in Articles 9, 22 and 30 of the Directive.