

Designing National Allocation Plans for EU emissions trading - A First Analysis of the Outcome

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Abstract:

In this paper the main design issues of 16 National Allocation Plans (NAPs) are presented in a systematic way for the first period (2005-2007) of the EU Emissions Trading System (EU ETS). These NAPs have either been submitted to the European Commission (EC) by the EU Member States (MS), or were available as draft versions in early May 2004. Further quantitative and qualitative analyses of these NAPs lead to the conclusions that – unless the review process by the EC leads to significant modifications – (i) the EU ETS is unlikely to result in any major emission reductions in this first period; (ii) many MS allow for a generous allocation to the emissions trading sector at the cost of other sectors and the general taxpayer; (iii) competitive distortions are likely to arise from the different national interpretations of the installations to be covered by the EU ETS and from the partial-system character of the EU ETS; (iv) barriers to economic efficiency will arise from a probable EU-wide ban on banking and ex-post adjustments of allocated quantities for newcomer installations. Finally, for the vast majority of participants transaction costs are expected to be high compared to costs for compliance.

1 Introduction

In October 2003, the EU Directive on Emissions Trading (CEC 2003a) came into force. Accordingly, large installations of the energy industry and most other carbon-intensive industries will participate in an EU-wide CO₂ trading system (EU ETS) starting in 2005. As one of the cornerstones of the European Climate Change Programme, the EU ETS is expected to result in the world's largest emissions trading system and help fulfil the EU's obligations under the United Nations Framework Convention on Climate Change and the Kyoto Protocol in a cost-effective and economically efficient way (CEC 2000). In the Kyoto Protocol, the EU has committed to reducing greenhouse gas emissions by 8 % by the years 2008-2012 compared to 1990 levels. In the subsequent Burden-Sharing Agreement, the EU 15-target was broken down into targets for individual Member States (MS). The resulting targets range from -28 % for Luxembourg, and -21 % for Denmark and Germany to +27 % for Portugal compared to 1990 levels (see Figure 1). The emission target for the majority of the ten accession countries, which joined the EU on 1 May 2004, is -8 %; for Poland and Hungary, the target is -6 %.

The central element of the EU ETS is the so-called National Allocation Plan (NAP), which each separate Member State develops autonomously. According to Article 9 of the EU Directive, the NAP shall state the total quantity of allowances in each period, and how these allowances will be allocated to individual installations. The NAPs for the first commitment period for the EU ETS (2005-07) should have been submitted for notification to the EU Commission and to the other Member States by 31 March 2004.¹ The accession countries were given additional time until 1 May 2004, the date of joining the EU. The EU Commission may then accept or reject the NAPs within three months from the actual date of submission based on the criteria laid out in the Directive. Thus, the NAP has to be based on objective and transparent criteria and comments from the public have to be properly taken into account. In particular, the criteria given in Annex III of the Directive - which are either mandatory or optional - have to be considered:²

- (1) consistency of the total quantity of allowances to be allocated with the MS's EU Burden-Sharing Agreement and national climate change programmes;
- (2) consistency with assessments of historic and projected emissions development towards achieving the required emission targets;
- (3) consistency with the potential to reduce emissions, including the technological potential; allocation may be based on average emissions by products (e. g. t CO₂/kWh electricity);
- (4) consistency with other Community legislative and policy instruments;

¹ In fact only five MS met this deadline: Austria, Denmark, Finland, Germany and Ireland.

² MS may apply additional national criteria.

- (5) non-discrimination between companies or sectors;
- (6) information on treatment of new entrants;
- (7) information on whether and how early action is accounted for;
- (8) information on how clean technologies are taken into account;
- (9) inclusion of provisions for the involvement of the public;
- (10) list of installations with intended allocation;
- (11) information on how competition from outside the EU is taken into account.

In January 2004, the Commission published guidelines on the implementation of these criteria (CEC 2004). Since MS differ considerably in terms of their emission targets and their achievements so far, the EU Commission leaves it up to the individual MS how it decides to meet its emission target.

In the following sections of the paper, the main features of the 16 NAPs which were available at the time of writing (early May 2004) are presented and evaluated.³ The status and validity of the NAPs vary from Member State to Member State. For eleven Member States (Austria, Denmark, Finland, Germany, Ireland, Lithuania, Luxembourg, the Netherlands, Slovenia, Sweden, UK), officially notified versions were available – which will be considered by the Commission within the next three months. For five other member states (Belgium/Flanders/Wallonia, Estonia, Italy, Latvia, Portugal), only draft versions had been published. Preliminary information was available about the Czech, the French and the Polish NAPs on a national level. Thus, changes are to be expected in the coming months – especially with regard to the draft NAPs.⁴ For Belgium, three regional NAPs (for Flanders, Walloon and the Brussels region) and one national NAP are being developed, but since they are fairly complex and since some of these NAPs were not available in time, Belgium could not be included as a table in this survey.⁵

2 Defining the emissions trading sector

The emissions trading sector (ET-sector) will cover typically 30 - 50 % of the national greenhouse gas emissions in the Member States (except for Poland with around 70 % on the upper end, and France with around 20 % at the lower end), depending on the economic structure and the power generation mix. The number of

³ These NAPs were downloaded from the official webpage of the EU under http://europa.eu.int/comm/environment/climat/emission_plans.htm.

⁴ If a Member State submits additions or modifications to the notified plan, the three month period of the Commission for considering the NAP will be renewed.

⁵ Each region has agreed in a burden-sharing approach, on an individual target (Belgium: -7.5 %, Flanders: -5.2 %, Walloon: -7.5 %, Brussels region: +3.5 %). The competence for the NAPs lies within the regions.

installations included in the ETS range between 19 in Luxembourg and more than 2,300 in Germany.⁶ One of the major problems of the implementation of the Directive is the different interpretation of Annex I of the EU ETS Directive by MS. This Annex lists the activities to be covered by the EU ETS. Most MS base the interpretation on their national implementation of the EU-Directive on Integrated Pollution Prevention and Control (IPPC)⁷ and include installations as requested by the Commission (European Commission DG Environment 2003). However, since MS differ in their implementation of the IPPC Directive and thus Annex I of the EU ETS Directive (CEC 2003a), unequal treatment of otherwise equal installations may lead to competition distortions.⁸ For example, in Germany, Poland and Luxembourg, steam crackers and melting furnaces are not (or would not be) covered, since the definition of combustion installation covers only activities which transform energy carriers into secondary or primary energy carriers such as electricity, heat or steam. In France, an even narrower interpretation is under consideration, which would only cover combustion installations from the energy sector and no combustion installations from industry, if not mentioned separately in Annex I. In Belgium (the few) installations from the tertiary and the military sector have also been included. .

Furthermore differences in the accumulation rule exist, which sets the criteria governing which of the installation capacities below the 20 MW_{th} threshold or other production thresholds have to be accumulated and to be included in the EU ETS. In Germany, for example, the accumulation rule will be less stringent than expressed by the Directive. According to the Directive, capacities have to be accumulated if they are run by the same operator, or if they fall under the same subheading in the same installation or on the same site (CEC 2003a, Annex I). In Germany all criteria have to be fulfilled *at the same time*. The EU Commission has threatened to report these MS to the European Court of Justice. Apparently, this threat has had little success in convincing these MS to change their approach. Most likely, the necessary harmonisation of the installations covered by the ETS will be left to the second period 2008-2012.

⁶ The number of installations depends on the definition of installation. In Germany and the Netherlands for example the wording "installation" refers to the installations which are covered by a single permit, not necessarily to an individual installation in a technical sense.

⁷ The purpose of the IPPC Directive is to minimise pollution from various point sources throughout the EU. All installations covered by Annex I of the Directive must obtain a permit from the national authorities, or else they are not allowed to operate. These permits have to be based on the concept of Best Available Techniques (or BAT).

⁸ The following is stated by the Danish government in the draft bill: "If the European Commission changes its interpretation of the directive in this regard, the government is prepared to introduce an amendment proposal to the law that ensures that the group of installations and activities covered corresponds to what applies in other EU countries." (Danish Parliament, p. 20)

The coverage also depends on the use of opt-in⁹ and opt-out¹⁰. While almost all MS – except the Netherlands and the UK – do not allow for opt-out, opt-in was used more frequently.¹¹ For example Finland, Sweden and Slovenia have used the opt-in provision for heat and power installations smaller than 20 MW_{th}. Accordingly, these are included if they are part of a district heating system and if one installation has a capacity of more than 20 MW_{th}. Pooling is allowed in most Member States and some declarations of intent have been received so far for example in Slovenia and Portugal.¹²

3 Allocation methods

Most Member States use a two-step (or even multi-step) approach for the allocation:

- First Step: macro level or top-down allocation which defines the total target for the entire ET-sector (and sometimes also for the non-ET-sectors) or for individual activities, i.e. power sector or different industry sectors¹³;
- Second step: micro level or bottom-up allocation which governs the allocation of allowances for individual installations.

Typically, compliance factors (of less than 1.0) are applied to guarantee consistency of the bottom-up allocation with the top-down targets for the ET-sector. However, some of the accession MS such as Poland and the Czech Republic, which – like almost all accession MS – will easily reach their Kyoto-targets without further measures, do not use compliance factors. Hence, in these countries, the cap equals the sum of the quantities allocated to individual installations. But the Commission may – e. g. based on state-aid rules - refute this kind of allocation. In the next section the macro level approaches are compared in more detail.

⁹ According to Article 24 of the Directive, MS may, under certain conditions, include installations in the EU ETS which carry out activities listed in Annex I below the capacity limits referred to in Annex I.

¹⁰ According to Article 27 of the Directive, MS may apply to the Commission for installations to be – under certain conditions – temporarily excluded from the EU ETS for the period 2005-07. In particular, penalties, monitoring, reporting and verification requirements must be the same as for installations covered by the EU ETS.

¹¹ The Dutch government has proposed to the European Commission to opt-out installations which emit less than 25,000 tons CO₂ per year, because of the high administrative burden to participate in the EU ETS. So far, 74 of the 139 small installations eligible to opt out have expressed the wish to do so. These installations account for about 0.87 Mt or 1 % of the Dutch ET-budget (Dutch NAP, pp. 23). The UK intends to exclude installations that are covered by the UK Emissions Trading Scheme, or by Climate Change Agreements. Equivalence of environmental effect, monitoring, reporting and verification requirements and penalties are demonstrated (UK NAP, p. 27).

¹² According to Article 28 of the Directive, MS may allow operators to form a pool of installations from the same activity, where a trustee will be obliged.

¹³ For the remainder of the paper these will be referred to as sub-sectors.

3.1 Macro-level allocation

Most of the MS have used the so-called “with-measures scenario” as included in their national climate strategies, possibly updated, to determine the target for 2005-07 of the ET- and non-ET-sector by, e. g. linear interpolation. Only a few Member States, such as the Netherlands, have set separate targets for other sectors like the household and the transport sector (Dutch NAP, p. 29). Furthermore, for 2008-12 MS may use the Flexible Mechanisms of the Kyoto Protocol to reach their Kyoto/Burden-Sharing targets. Most of the former EU 15 countries plan to buy allowances from abroad, i. e. Emission Reduction Units (ERUs) from projects under Joint Implementation (JI), Certified Emission Reductions (CERs) from projects under the Clean Development Mechanism (CDM), Assigned Amount Units (AAUs) from international emissions trading between countries, or allowances from the EU ETS. Some MS have included the projected quantities of these external sources in their NAP. Based on the information available from the NAPs included in this survey, the total expressed interest from governments to purchase allowances (CERs, ERUs, AAUs) from abroad is expected to be around 50 Mt CO₂e/a or for the period 2008-12 a total of 256.5 Mt CO₂e.¹⁴

MS have applied different approaches to determine the ET-budget. Pre-existing voluntary/negotiated agreements between industry and governments were used in the UK, Italy and the Netherlands as a basis for the targets at sub-sector level.¹⁵ In Germany, it was first attempted to base the total reduction target on existing voluntary agreements. However, after tedious political negotiations between the Environmental and the Ministry of Economics and Labour in Germany, the reduction turned out to be much more lenient than originally planned.¹⁶ In most Member States, part of the reduction potential stated in their climate strategies for 2008-2012 was taken as a basis. A cost-optimisation approach to determine the emission budgets between the non-ET- and ET-sectors was rarely used (partially in Slovenia), if this had not already been included in the climate strategy. Ireland has explicitly stated that the reduction of 3.4 Mt CO₂ p.a. is based on domestic emission abate-

¹⁴ The following information on annual purchases was available: Austria (7.0 Mt CO₂e), Denmark (3.7 Mt CO₂e), Finland (3.0 Mt CO₂e), France (not decided yet), Germany (not required), Greece (no information available), Ireland (3.7 Mt CO₂e), Italy (yes, but not quantified yet), Luxembourg (3.0 Mt CO₂e), Netherlands (20 Mt CO₂e), Portugal (6.5 Mt CO₂e), Slovenia (no use), Spain (no information available), Sweden (no use), United Kingdom (no use). In Belgium the situation is rather complex: the Federal State needs to compensate the gap for the regions (2.5 Mt CO₂e/a) through the use of Flexible Mechanisms. However, the regions have also the possibility to use Flexible Mechanisms (Walloon 1.1 Mt CO₂e, Flanders: up to 1.9 Mt CO₂e, Brussels region no specified amount). In total, at least 40 % of the Belgium effort of 11 Mt CO₂ reduction (around 4.4 Mt CO₂e) as compared to 1990/95 might come from the use of Flexible Mechanism.

¹⁵ For the interaction of voluntary agreements with emissions trading in general, see OECD (2003a, 2003b) for the Netherlands, see Sijm et al. (2003) and for France, see Boemare et al. (2004).

¹⁶ According to the German Draft NAP published by the Environmental Ministry in January 2004, the ET budget, which was based on the voluntary agreement, was 15 Mt CO₂ p.a. below the final ET-budget.

ment options in the ET-sector at a cost of € 10 per tonne or less as calculated by ICF/BOC/ESRI (2004).

After determining the total ET-budget on the macro level some Member States have included an intermediate step and set subcategory targets to reflect different reduction potentials and different economic development in the different sub-sectors. Some MS split the total reduction burden between the energy and industry sector, e. g. Austria and the UK, where generally the energy sector has to bear the greater reduction. This is based on lower abatement costs and competition arguments.

3.2 Distance to target analysis / stringency of target

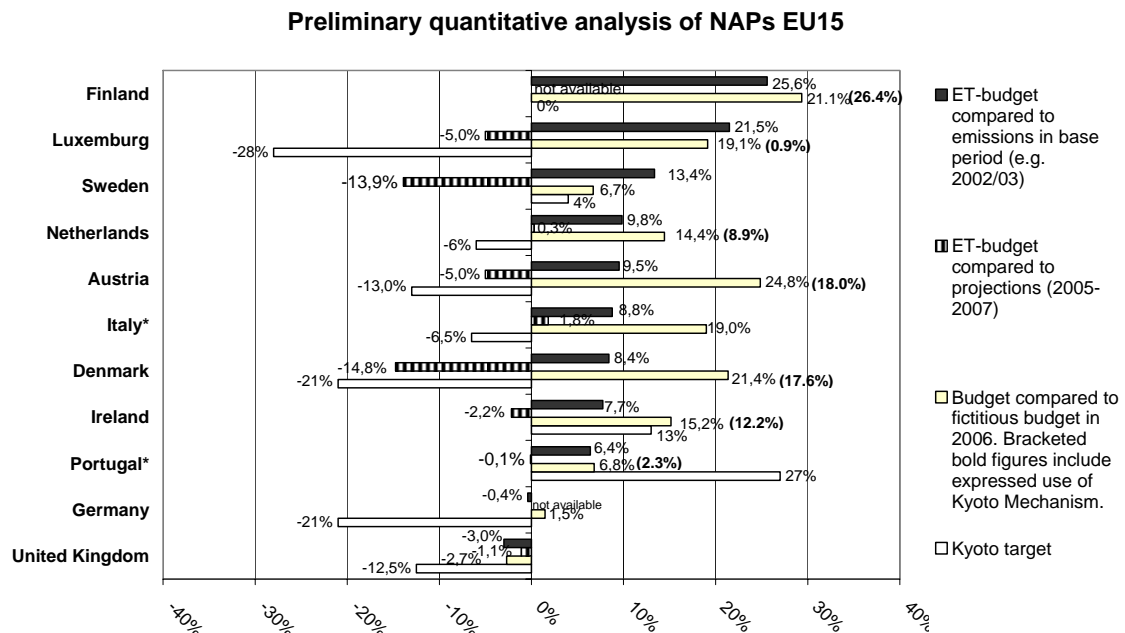
The price on the ET market will – among other things - depend mainly on the total allocation of the MS, whereby excess allocation should be avoided by fulfilling the criteria set by the Commission. As a criteria for the macro allocation, Annex III of the Directive states that the “total quantity of allowances to be allocated shall not be more than is likely to be needed for the strict application of the criteria of this Annex.” Furthermore, “the quantity shall be consistent with a path towards achieving or over-achieving” each Member State's Kyoto target. The interpretation of these criteria is difficult and the Commission published a guidance document which, on the one hand, stated in regard to the path “the path is intended to be a trend line, not necessarily a straight one, but one that is leading towards or goes beyond” achieving the Kyoto target (CEC 2004, p. 5). On the other hand the Commission “understands *'likely to be needed'* as forward-looking and linked to the projected emissions of covered installations as a whole (...)”. The second quote undermines all the stringency of the first sentence, since the Commission allows MS to use projected emissions and not necessarily recent or actual figures to determine the allocation. If those projections are very optimistic, or if affected companies or business associations with a vested interest in a high allocation are included in “negotiating” projected emissions, there is a high risk that the allocated quantities will exceed actual emissions. Thus, the weighting of these two interpretations by the Commission will determine the rejection of a NAP and will greatly affect the market price. In Figure 1 three different ways to determine the stringency of the target for each MS are presented:

- (1) ET-budget (including reserves for new entrants etc.) compared to emissions of ET-sector in the base year / base period (e. g. 2000-2002), which is the year/period the micro level allocation is based on;
- (2) ET-budget (including reserves) compared to reference emissions projections of the ET-sector for 2005-2007 if included in the NAP;
- (3) ET-budget (including reserves) compared to a fictitious ET-budget, which is based on the linear interpolation (2006) between recent actual emissions and the Kyoto target (2010), assuming that the distribution between ET- and non-ET-sectors will remain constant until 2010. Furthermore, the planned purchases of allowances from abroad via Flexible Mechanisms was not inte-

grated in the diagram but was calculated separately (see bold figures in brackets).

Figure 1 shows that most of the EU15 MS are far from a linear path towards reaching their targets, assuming a proportional contribution by all sectors.¹⁷ Most MS also allocate many more allowances than would be needed compared to actual emissions in the base period. This might be due to the expected higher use of existing capacities and the accounting for growth. In contrast, compared to projected emissions, most Member States have an under allocation and this might be accepted by the Commission depending on the weighting between the two criteria. Somewhat surprisingly, based on these figures, Germany and the UK which are among the few MS where the ET-budget is lower than emissions in the base period, appear to apply more stringent targets than most other MS. Italy appears to allocate even more allowances than the projected emissions for 2006.

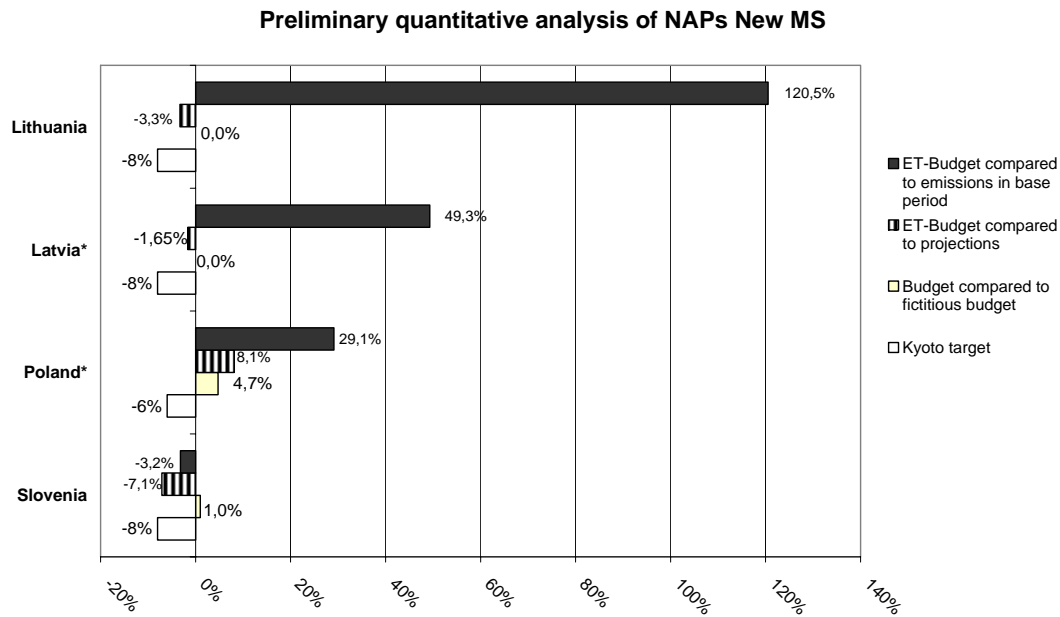
Figure 1: Quantitative analysis of NAPs



*Draft NAPs

Note: No compensation was taken into account for Denmark. For Italy data for 2000 is used; for Denmark data for 2002 (no base period data available) is used.

¹⁷ These findings support the claim by Kruger and Pizer (2004, p. 39) that "the ultimate challenge... may be maintaining the political will in Europe to meet the Kyoto target".



Note: For Poland data for 2001 is used; for Latvia data for 2000 (voluntary energy utilities have not been included) is used.

Source: Different NAPs, CEC2003b, EEA Database.

3.3 Micro level allocation: installation level

Except for Denmark, Ireland and Lithuania, so far all MS have decided to allocate all the allowances for free which is – from a political economics perspective – more appealing because the costs to industry are lower than if some portion of the allowances had been auctioned off. Denmark will auction off 5 % of the ET-budget, which is also the maximum share allowed by the Directive for 2005-07, Lithuania will auction off 1.5 %, and Ireland will auction off at least a share of 0.75 %. The revenue will be used to cover administrative costs. In some MS (e.g. Slovenia, Portugal) surplus allowances from the reserve might be auctioned off.

Most MS decided to allocate allowances based on historic emissions, the so called grandfathering. Typically, a compliance factor is used which may be the same for all installations like in Germany, or – if sub-sectoral targets exist – may differ across sub-sectors like in most other MS e.g. Ireland, Italy and the UK. Grandfathering based on historic emissions is equivalent to an allocation based on the share of historic emissions of an installation of the ET-budget or the sub-sectoral budget, respectively. The use of benchmarks also requires targets on a sub-sectoral level, where the size of these sub-sector budgets may already reflect expected growth as determined in the macro level allocation. So far, only Denmark and Lithuania have proposed a pure benchmarking system for existing installations of the electricity sector and the electricity and heat generating sub-sectors, respectively. Here, pure benchmarking means that allocation will be based on average specific emissions (e.g. t CO₂/MWh) in a sub-sector. In the Netherlands, existing

benchmarks for specific energy use will be used together with other factors for the allocation for energy-intensive emitters (covenant benchmarking). A similar approach is used in the regional NAPs of Belgium, by basing the industrial allocations for installations on historic emissions, efficiency factors derived from sector agreements (Walloon) or benchmarking agreements (Flanders) and assumptions about future growth. In some countries, like Germany, attempts to use pure benchmarking for homogenous products failed because they faced stiff opposition from industrial sectors and there was not enough time to develop proper benchmarks.

Classical grandfathering is usually based on a fairly recent time period which covers the years from 1997 to 2003. No MS has used the Kyoto base year, 1990, as the base year, mainly due to a lack of data. Using average values over several years and eliminating extreme years, especially with particularly low emissions, helps to smooth out the effects of random events and of business-cycle fluctuations on emissions. Especially in Latvia, early base years have been applied, such as 1997 or even 1993, to account for Early Action.

The basic approach of grandfathering is then modified by special factors which reflect the criteria of Annex III of the Directive. Most Member States have included expected sector-specific growth rates such as Austria, Italy, Finland, Luxembourg and the Netherlands. Slovenia has used emissions forecasts for power generation only. Some MS from colder regions, such as Finland and Latvia, have used heat degree days to reflect different outside temperatures in the base period. Other factors which will be taken account of such as the treatment of new entrants, closures, early action, process-related emissions and the transfer of allowances into future periods (banking) will be analysed in more detail in the next sections.

4 New entrants and reserves

Typically, allocation for new entrants is free and taken from a reserve. Some countries like Austria and Slovenia, which had originally planned to have new entrants buy allowances on the market (the approach preferred by the Commission), changed their mind for fear of becoming a less attractive location for newcomers.¹⁸ Although a comparison of the reserves across MS is difficult since they tend to serve different purposes, their share is typically between 2 and 8 % of the ET-budget. Only in Austria, Germany and Slovenia is this share about or below 1 % and in Luxembourg it is above 10 % and in Latvia higher than 20 %. Furthermore, the Walloon region of Belgium foresees a large special reserve of 7.8 % of the ET-budget which primarily accounts for the uncertainties associated with the exact timing of the phase out of the iron and steel industry. For the size of the ET-budget this phase out was projected for the year 2006.

¹⁸ Unlike the second unofficial draft version, in its first draft of the NAP, Slovenia did not foresee a reserve for new entrants.

In general, if the reserve is too small, most countries allocate on a first-come-first-served basis while the remaining operators have to buy on the market. Only in some MS such as Finland and Italy the government will refill the reserve and buy on the market. If it turns out that the reserve is too large, some countries will sell the excess allowances on the market (Austria, Ireland, Portugal, Slovenia), redistribute it to the covered installations (e.g. the Netherlands), or – like Germany – cancel the allowances and thus renounce extra revenue.

Some MS such as the Netherlands, Austria and Luxembourg distinguish between known and unknown new entrants. Known new entrants are then included in the allocation plan, whereas unknown new entrants will be allocated from the reserve. Most MS use some kind of benchmarking for the allocation of new entrants, where benchmarks may either be based on best available technologies¹⁹, or – if feasible – on specific emissions for sufficiently homogenous products and projected output. To avoid excess-allocation, some MS, like Germany, Italy, Portugal and Luxembourg, will use an ex-post adjustment once the actual output data are available thus violating the ex-ante principle for allocation.²⁰ Similarly, in Lithuania, benchmarks in the energy sector will be adjusted ex post, in case energy production grows faster than projected and total emissions exceed the cap for the energy sector. Thus, final allocation will only be known after the completion of the corresponding year (Lithuanian NAP 2004, p. 11).

5 Closure

For most MS, the closure of an installation is defined as the ending of permanent operation and will result in the return of the allowances. Apart from the Netherlands and Italy – where operators will keep all or part of the allowances – in the other MS, the allocation of allowances will cease in the year following closure, unless the transfer of allowances to a new installation is permitted as foreseen, e. g. in Germany, Slovenia, Italy and Luxembourg.²¹ In these MS, allowances of closed instal-

¹⁹ Denmark has published a list of benchmarks for new entrants based on the existing CO₂ tax system (see Annex 2 Danish Parliament 2004). Germany has included benchmarks for electricity in the NAP (max. 750 t CO₂ /GWh – min. 365 t CO₂ /GWh). In Sweden, the benchmark for electricity of the industry sector is 265 t CO₂/GWh and 83 t CO₂/GWh for heat. Lithuania has proposed benchmarks for the generation of heat, power and for most industry sectors.

²⁰ From a purely economic perspective, this ex-post adjustment introduces inefficiencies into the system, since it provides little incentive to reduce output which may – under some circumstances – be cost-efficient.

²¹ Taking away allowances for closures results in (economic) inefficiencies, since the opportunity costs of the closure are not accounted for. In fact, such a procedure subsidises output (Graichen and Requate 2003). However, if – as in the US Acid Rain Program for SO₂ emissions trading – operators would have been allowed to keep allowances for closed installations, this may have had negative effects on distribution, since other sectors or activities would have had to reduce more emissions.

lations may be transferred to new installations if they produce similar outputs within the same MS. In Austria, a similar transfer option exists: an operator has the possibility to use at least part of the allowances in other plants if he can prove a better use of capacity in these plants. Since by nature only incumbent firms may benefit from such allowance transfers, negative impacts on competition are to be expected.

6 Early action

Allocating allowances based on historic emissions in a recent base period implies that companies which invested in abatement measures prior to that period receive fewer allowances than companies which did not invest in such measures, *ceteris paribus*. The latter may reduce emissions cheaply and sell the extra allowances on the market at a profit. To address this competitive disadvantage of carbon-efficient installations, some MS made provisions for extra allowances for early-action. However, most Member States – Ireland, UK, Luxembourg and Slovenia have, if at all, only stated that due to the use of a longer (or earlier) base period EA have been rewarded to some extent. The UK and Finland have even stated that it is impossible to consider early action in an objective, transparent, non-discriminatory way at the installation level (UK draft NAP, p. 22; Finnish NAP p. 28). Of all former EU 15 MS, Germany accounts for early action the most generously. Dating back as far as 1994, new or modernised installations may – under certain conditions – benefit from a compliance factor of 1.0 (instead of 0.9755) for 12 years afterwards. The issue of early action was highly contentious and the power utility Vattenfall, which had invested extensively in East German power plants, will be one of the main beneficiaries. In some other countries (Austria, Netherlands, Denmark, Lithuania), using benchmarks favours efficient installations and thus recognises early action within sub-sectors. In Italy allocation is based on the share of production in a sub-sector and will thus account for early action implicitly.

7 Process-related emissions

Process-related emissions which – unlike energy-related emissions – are the product of chemical processes, accrue particularly in the production of lime, cement clinker, steel or glass. Since reducing process-related emissions is, for the prevailing technologies, either very expensive or not feasible, the allocation plans of some MS – in particular those where process-related emissions account for a relatively high share such as Germany, Italy, Luxembourg or Sweden – include special provisions for process-related emissions. In these cases, allowances are allocated according to the total quantities of expected process-based emissions, or by applying a higher compliance factor than for energy-related emissions.

8 Banking

Most likely, all MS will prohibit the transfer of excess allowances from 2007 to 2008.²² The only exception may be France, which plans to allow for limited banking based on the difference between allocated quantities and actual emissions. From the perspective of the individual MS banking may make sense, since allowing for unlimited banking may imply that other sectors would have to reduce emissions accordingly, unless the budget available to the ET-sector in 2008-12 would be adjusted for the transferred allowances. Similarly, excess allowances from MS with banking restrictions would flow into MS without banking restrictions. In addition, from a practical point of view, it would be difficult to estimate the total quantity of allowances that might be banked by the time the allocation plans for the second commitment period have to be submitted (end of June 2006). On the other hand, admitting banking in emissions trading systems reduces overall compliance costs by allowing for inter-temporal flexibility (cost savings can be traded over time)²³ and a ban on banking may result in additional efficiency losses because it leads to poor price signals and inefficient abatement efforts by companies (Ehrhart et al. 2003, Schleich et al. 2004). Thus, from a global perspective, a harmonisation of the banking issue might have been preferable.²⁴

9 Conclusions

The previous sections illustrated how MS approaches to designing their national allocation plans vary considerably. The analysis of the macro-level allocation showed that EU 15 MS in particular do not appear to use emissions trading as a vehicle to reach or stay on a path towards achieving their Burden-Sharing targets. In fact, in most EU 15 MS, the size of the ET-budget is lower than a proportional distance-to-target burden-sharing across all sectors would suggest. Somewhat surprisingly, the only EU 15 MS in which the ET-Budget is smaller than recent emissions, are Germany and the UK²⁵ which are, in contrast to almost all the other EU 15 MS, on track to reaching their respective Burden-Sharing targets.²⁶ To meet their targets

²² Sweden and Italy have not included any decision on banking between 2007/08 in their NAP so far, but will most likely prohibit it.

²³ This is also the reason why most existing trading programmes allow for banking (Boemare and Quirion 2002, Ellerman et al. 2003).

²⁴ Schleich et al. (2005) argue that an EU-wide ban on banking is likely to be a prisoners' dilemma situation.

²⁵ For the UK this holds for the Draft NAP published in January 2004, but may no longer be true for the NAP which will be submitted to the Commission.

²⁶ Both the UK and Germany benefited from special circumstances in the early 1990s: the reunification in Germany resulted in the restructuring of the former East German industry and power sectors, the so-called wall-fall profits (Schleich et al. 2001, Michaelowa 2003). In the UK, the liberalisation of the energy markets resulted in a "dash for gas" (see also Michaelowa 2000).

in 2008-12, many MS will have to buy substantial quantities of ERUs, CERs or AAUs. However, MS differ considerably in terms of the institutional implementation. Whereas the Netherlands, Austria and Denmark have already set up their programmes, other MS such as Ireland, Luxembourg and Portugal are at the very beginning and – given that acquiring and implementing CDM/JI-projects will require considerable lead time – they may run into problems further on down the road.²⁷ In any case, from a political economics perspective (Olson 1965), government purchases of allowances from abroad also mean that poorly-organised taxpayers will have to bear the financial burden for relatively lenient targets for well-organised industrial sectors. The alternative to increased use of the Kyoto Mechanisms – increased reductions in other sectors such as transport and households – is likely to lead to higher costs and political opposition of the sectors concerned. As a result, unless the review process by the EU Commission leads to stricter ET-budgets, overall reduction appears to be quite lenient and expected prices in the allowance market will be rather low. In addition, according to the so-called “Linking Directive”, companies will be able to use relatively low-cost credits from project-based mechanisms (CDM) as early as 2005. Thus, the price for CERs from CDM-projects is expected set the upper limit for EU allowance prices. Furthermore, a market split might occur in the run up to 2007, since CER prices could become higher than EU-ETS-allowances if the Kyoto Protocol enters into force, since CERs would then also be valid after 2007. The impact on the CER market would be a downward pressure in the short term as private sector demand will be lower than expected and an upward trend towards the end of the Kyoto commitment period as governments scramble to make up the shortfalls. Low allowance prices in the EU ETS would provide only little incentives for additional abatement measures and for innovation efforts in new energy saving technologies. Such efforts may be further dampened by the fact that all MS decided to ban banking of excess allowances from the first commitment period into the second period starting in 2008. Combined with a lenient allocation, an EU-wide ban on banking is expected to result in a drop of allowance prices towards the end of the first period. Schleich et al. (2005).

Additional uncertainty for participants' investment and trading strategies arises from the fact, that allocation for future periods is widely unknown. As for the total quantities, only few MS, like Denmark and Germany, provide information on (intended) allocation to the ET-sector in 2008-12. As for the method of allocation, operators may fear that future allocation will depend on actual emissions in 2005-07. In this case, they may be reluctant to invest in additional internal abatement measures and prefer to use the markets for ET-allowances or CERs instead.

²⁷ In addition, if Russia ratifies the Kyoto-Protocol, a large amount of AAUs may be available for international emissions trading of AAUs under Article 17 of the Kyoto-Protocol.

If allowance prices are low, additional costs from the EU ETS for net buyers will also be low. Similarly, windfall profits²⁸ and costs for compliance will be low. On the other hand, participating in the EU ETS may be associated with significant transaction costs, in particular for smaller firms (Betz 2003). For example, in Germany, where 30 % of the allowances are allocated to the ten installations with the highest emissions (i. e. to about 0.4 % of all installations in Germany), about 75 % of the installations receive less than 50,000 t of CO₂-allowances per year.²⁹ Thus, compared to emissions in the base period (2000-02) these installations are short by less than about 1250 t per year (using the compliance factor of 0.9755 for Germany). These observations suggest that the Dutch approach to opt-out small emitters is quite reasonable.

The EU ETS may not only lead to competition distortions because some MS decide to allocate more leniently than others. Additional distortions at the international level will result because MS use different interpretations of the term “installation” so that identical installations may be covered in one country, e. g. Denmark, but not in a neighbouring country, e. g. Germany. Similarly, since the EU ETS is a partial system only, competition issues (and the environmental effectiveness) of the system (leakage) depend on the national regulations for the installations and activities not covered by the EU ETS. Several MS decided to account for combined-heat-and-power plants which compete with systems not covered by the EU ETS such as boilers in private households or smaller co-generation plants. However, since the available NAPs have little to no information about the policies and measures applied to installations not covered by the EU ETS, it is difficult to assess the extent to which other competitive distortions may result at the national level. To a large extent, international competition distortions could be avoided via an EU-wide allocation based on international benchmarks, at least for sufficiently homogenous products. Whether such a harmonised benchmarking will be a practically and politically feasible option also depends on how successfully benchmarks can be applied for allocation in several MS in 2005 - 07.

²⁸ For example, since the EU ETS will increase the marginal cost of electricity production in fossil-fuelled power plants, marginal cost pricing in the wholesale markets will increase power prices and power producers are expected to pass on the additional cost linked to the emission allowances to their customers. The price increase will be independent of whether allowances are allocated for free or auctioned off (opportunity cost principle). Since in the EU ETS the vast majority of allowances will be allocated for free, power producers will benefit at the expense of electricity-intensive industries and private households.

²⁹ Calculations are based on the list of installations published by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety on 29 April 2004 (<http://www.bmu.de/de/1024/js/sachthemen/emissionshandel/oeffentlichkeit/>). For the definition of these installations see Footnote 5. The reported quantities do not include additional allocations for early actions or combined-heat-and power.

Acknowledgements

The authors are grateful for suggestions and helpful comments provided by two reviewers. The usual disclaimer applies.

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Austria

Status and Quantitative Assessment

Status of NAP	Distance to target assessment										
Final NAP, submitted on 31 March 2004 with additions on 7 April 2004 (list of installations and allocation).	Comparison: Allocation budget (incl. reserve for new entrants) / ET-sector emissions 1998-2001: 1.10										
Rationale for ET-budget	Allocation budget (incl. reserve for new entrants) / ET-sector emission projections: 0.95										
Total ET-budget allocated for 2005-07 (incl. reserve): 99.3 Mt CO _{2e} equally distributed on each of the three years. ET-budget is based on the national climate strategy (including business as usual forecast). For energy and industry sector: 50% of reduction potential according to climate strategy 2010 must be fulfilled in the period 2005-2007.	<table border="1" style="margin-top: 10px;"> <caption>ET-Sector (yearly averages)</caption> <thead> <tr> <th>Period</th> <th>Mt CO_{2e}</th> </tr> </thead> <tbody> <tr> <td>Base period 1998-2001</td> <td>30.2</td> </tr> <tr> <td>Allocation 2005-07</td> <td>33.1</td> </tr> <tr> <td>Projection 2005-07</td> <td>34.8</td> </tr> <tr> <td>Reserve (Allocation)</td> <td>0.33</td> </tr> </tbody> </table>	Period	Mt CO _{2e}	Base period 1998-2001	30.2	Allocation 2005-07	33.1	Projection 2005-07	34.8	Reserve (Allocation)	0.33
Period		Mt CO _{2e}									
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Projection 2005-07	34.8										
Reserve (Allocation)	0.33										
Installations covered, Opt-in, Opt-out, Pooling											
Wide interpretation of Annex I of the Directive. The ET scheme covers 209 plants (61 in the energy and 148 in the industry sector) which cover 35 % of total GHG emissions and 43% of CO₂ emissions . Opt-in: In general, it is not planned to extend the ET scheme to plants with a lower capacity than 20 MW. However, some operator with a lower capacity participate voluntarily. Opt-out: No. Pooling: Is allowed, but no application has been received so far.	<p>Sources: Austrian NAP 2004.</p> <p>Distance to Kyoto-target of -13% (the right column reflects intended use of Flexible Mechanisms FM):</p> <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>GHG emissions</th> <th>Without FM (Mt CO_{2e}/a)</th> <th>With FM* (Mt CO_{2e}/a)</th> </tr> </thead> <tbody> <tr> <td>2002 vs. Kyoto base year:</td> <td>+6.6 (+8%)</td> <td>-</td> </tr> <tr> <td>2002 to Kyoto period:</td> <td>-16.7 (-19.8%)</td> <td>-9.7 (-13%)</td> </tr> </tbody> </table>	GHG emissions	Without FM (Mt CO _{2e} /a)	With FM* (Mt CO _{2e} /a)	2002 vs. Kyoto base year:	+6.6 (+8%)	-	2002 to Kyoto period:	-16.7 (-19.8%)	-9.7 (-13%)	
GHG emissions	Without FM (Mt CO _{2e} /a)	With FM* (Mt CO _{2e} /a)									
2002 vs. Kyoto base year:	+6.6 (+8%)	-									
2002 to Kyoto period:	-16.7 (-19.8%)	-9.7 (-13%)									
Contribution of JI / CDM and other sectors to target											
Kyoto target will be fulfilled by both domestic and foreign actions. According to the NAP 3 to 5 MtCO _{2e} p.a. will be purchased by government. Budget: 2004: 12 M€ (1 M€ for 2003 used); 2005: 24 M€, as of 2006: 35 M€ According to presentations in Brussels 7 Mt CO _{2e} will be purchased. The programme to purchase credits and to invest in funds is already operating, see: http://www.ji-cdm-austria.at/ . First projects, e.g. in Bulgaria, Czech Republic, India, Romania and Slovakia, are in the preparation/evaluation phase at the moment; JI and CDM tenders have been launched in December 2003 (still open) Sectoral reductions based on climate strategy, but no sectoral targets are set. If with existing measures the target will not be fulfilled new measures especially in sectors, where emissions are higher than expected and low mitigation costs are presumed will be implemented.	<table border="1" style="margin-top: 10px;"> <caption>Kyoto-Target (yearly averages)</caption> <thead> <tr> <th>Year/Target</th> <th>Mt CO_{2e}</th> </tr> </thead> <tbody> <tr> <td>Base year</td> <td>78.0</td> </tr> <tr> <td>Actual Emissions 2002</td> <td>84.6</td> </tr> <tr> <td>Kyoto target 2008-12</td> <td>67.9</td> </tr> <tr> <td>Projection 2010 (with P&M)</td> <td>86.0</td> </tr> </tbody> </table>	Year/Target	Mt CO _{2e}	Base year	78.0	Actual Emissions 2002	84.6	Kyoto target 2008-12	67.9	Projection 2010 (with P&M)	86.0
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Kyoto target 2008-12	67.9										
Projection 2010 (with P&M)	86.0										

Source: Austrian NAP 2004.

* The external purchase of 7 Mt CO_{2e} has been assumed.

Allocation Rules

Allocation method	New entrants
<p>100% free allocation.</p> <p>Three step approach:</p> <p>Sector level:</p> <p>Two main sectors: energy industry (power generation, district heating, refineries) and industry (14 different categories).</p> <p>Category level:</p> $\sum \emptyset \text{ emissions}_{1998-2001 \text{ category}} * \text{growth rate} * \text{PF}_C * \text{EF}_S$ <p>PF_C: potential factor (considering: process related emissions, CO₂-intensity of primary energy, CHP, district heating, use of waste heating, BAT Malus)</p> <p>EF_S: Compliance factor on sector level; to guarantee that sum of emission allowances of categories equals with total emission allowances</p> <p>Energy industry: EF_S = 0.974</p> <p>Industry EF_S = 0.979</p> <p>Installations level:</p> <p>Allocation per installation:</p> $\emptyset \text{ emissions}_{1998-2001 \text{ installation}} * \text{PF}_A * \text{EF}_A$ <p>PF_A: same as above only on installation level</p> <p>EF_A: Compliance factor on plant level; to guarantee that sum of emission allowances of individual plants equals with total emission allowances on category level.</p>	<p>Distinguish between known planned development and new entrants (permitted after February 04). The permit refers to an operation permit not a GHG permit. All other installations have been included in allocation plan. As long as emission allowances are available in the reserve free allocation for new entrants on a first comes first served basis.</p> <p>Allocation rule for new entrants is based on:</p> <ul style="list-style-type: none"> - approved capacity - average load hours of branch - expected load hours of this plant in this period - expected emissions based on BAT-standard.
	Reserve
	<p>The reserve consists of 1% of total emissions (0.3 Mt CO₂ / a, or 0.9 in total) and is divided by sectors: energy industry and industry.</p>
	Closure of installations
	<p>Allocation will be stopped the year following the closure. Operator has to declare the closure.</p> <p>Emission allowances not used due to closure will be transferred to the reserve of the corresponding sector.</p> <p>Transfer of allocation: On the application operator has the possibility to use (parts of) the allowances in other plants if he can prove a higher utilisation in these plants:</p>
	Technological potential
	<p>Is taken into account in the potential factor, considering processes emissions, CO₂-intensity of primary energy ; CHP, district heating; use of waste heating, BAT Malus. The latter (BAT Malus) increases the reductions by ¼ for installations which do not use best available technique (BAT).</p>
Early action (EA)	Treatment of clean technologies (e.g. CHP)
<p>Early action is considered indirectly via the potential factor which considers benchmarking (BAT-Malus).</p>	<p>CHP is considered indirectly via the potential factor (half reduction potential considered).</p>
Emissions change due to new legislation	Process related emissions
<p>Six different directives have been considered. Especially for refineries higher emissions due to the directive 1999/32/EG and 93/12/EWG will be accounted for. Similar procedure as for process emissions, potential factor of 1.</p>	<p>Is taken into account by the potential factor, no reduction is required, for the process emissions part, potential factor 1.</p>
Banking from 2007 to 2008	Allocation for 2008-2012
<p>No banking allowed.</p>	<p>Not announced and not in NAP for 2005-07 included.</p>

Czech Republic

Status and Quantitative Assessment

Status of NAP

The work on the draft of the NAP is still in progress, the development seems more difficult than expected. The process of development started with communication with industries covered by the ETS Directive.

Status of Implementation of Emissions Trading Directive: The draft of the Emission Trading Act under discussion in the Parliament.

The competence for the NAP is with the Ministry for Environment.

The public discussion on NAP will probably start by end May and the NAP could be submitted to Commission of the EU in June.

Rationale for ET-budget

Total budget allocated for 2005-07 (incl. reserve): No final decision yet, negotiations. 80 to 95 Mt CO₂e/a (average 88 Mt CO₂e/a) seems likely.

Total amount of allocation to be set and justified, including expected growth for Czech Republic (maximal limit) – divided for sectors.

Installations covered, Opt-in, Opt-out, Pooling

Wide interpretation:

About 380 operators contacted – after clarification app. 360 companies covered. Number of installations app. 480. The ET scheme (480 installations assumed, average allocation of 88 Mt CO₂e/a) could cover **59 % of total GHG emissions** and about **69 % of CO₂ emissions**. Questionnaire answered by 190 operators (56%), covering 90% emissions concerned by the EU ETS.

There were problems with the definition of installation.

Contribution of JI / CDM and other sectors to target

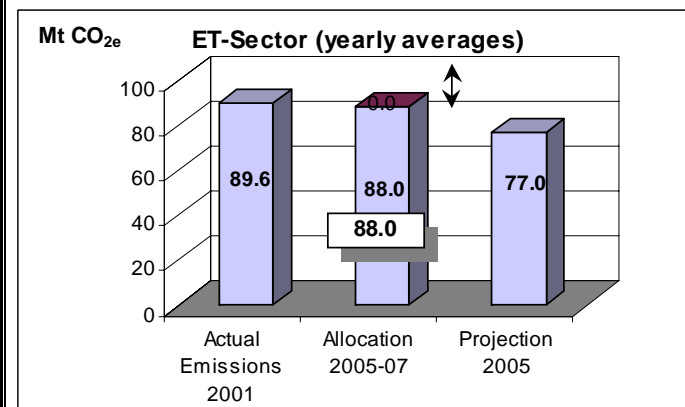
JI/CDM: The Czech Republic will be a seller.

Distance to target assessment

Comparison:

Allocation budget (incl. reserve for new entrants) ↔ ET emissions 2001: - **1.8 %**

Allocation budget (incl. reserve for new entrants) ↔ ET projection: + **14.2 %**

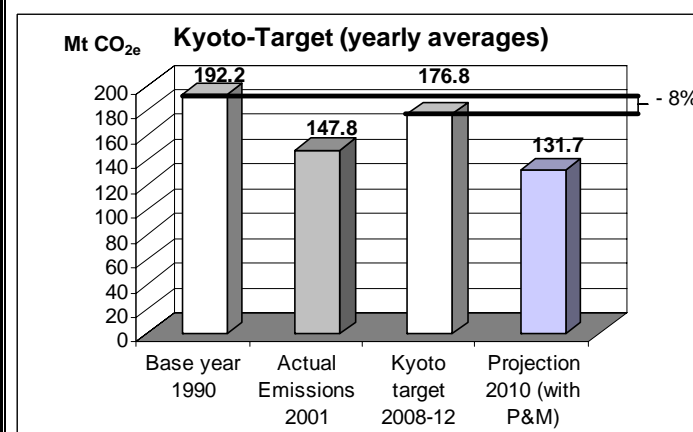


Note : Figures are based on an average of emission allowances calculated from preliminary information on the Czech NAP assuming a constant share of 70% of the ET sector in annual CO₂ emissions. Reserve still unknown. CO₂ projections for 2005 from the Reference Scenario with measures of the 3rd National Communication of the Czech Republic to the UNFCCC.

Source: Preliminary information on the Czech NAP

Distance to Kyoto-target:

2001: Over-compliance 29.0 Mt CO₂e/a (19.6 %) as compared to the Kyoto target.



Source: CEU 2003b

Allocation Rules

Allocation method	New entrants
<p>100 % cost free grandfathering</p> <p>Total amount of allocation to be set and justified, including expected growth for Czech Republic (maximal limit) – divided for sectors.</p> <p>Average historic emissions in 1999-2002 per installation. Algorithm for allocation of basic allowances under discussion.</p> <p>Splitting of individual allocations on installations into two parts:</p> <p>(1) Basic (historical data)</p> <p>(2) Bonus:</p> <ul style="list-style-type: none"> • Early action • CHP • Growth above average • Potentials, competition <p>Industry sector (top-down approach) growth rates taken into account.</p>	-
	Reserve
	Reserve for new entrants foreseen.
	Closure of installations
	-
	Technological potential
	-
	Treatment of clean technologies (e.g. CHP)
	Bonus for CHP
	Process related emissions
-	
Early action (EA)	Banking from 2007 to 2008
Bonus for Early Action	No banking allowed.
	Allocation for 2008-2012
	Allocation rule for 2008-2012 not yet announced.
Emissions change due to new legislation	Interaction with other Policies and Measures
-	No interactions as there are no instruments dealing with CO ₂ . Nevertheless proposal for CO ₂ tax under development.

Denmark

Status and Quantitative Assessment

Status of NAP

Final NAP, submitted on 31st of March (list of installations and allocation in separate document).

Rationale for ET-budget

Total budget allocated for 2005-07 (incl. reserve): 100.5 Mt CO_{2e}. Annual allowance allocation: 40 % (2005), 30 % (2006), 30 % (2007).

Future reductions prioritised according to the least-cost principle – generally expected to occur in ET-sectors, since inexpensive potential is almost exhausted in the Non-ET-sectors due to significant economic (especially high energy CO₂ taxes) and administrative burdens on GHG-emissions in past years. Historically, emissions from ETS-covered sectors were subject to considerably less pressure and therefore offers greater and less expensive reduction potential – including through access to cheaper international allowances and CO₂ credits.

Installations covered, Opt-in, Opt-out, Pooling

Wide interpretation of Annex I of the directive. The ET scheme covers 357 installations (234 electricity and heat production and 123 in the industry sector including offshore) which cover **50 % of total GHG** emissions and **62 % of CO₂** emissions (based on projections for 2005-07).

Opt-in / Opt-out: not used in 2005-2007.

Pooling: Is allowed, but no application has been received so far. First deadline is 1st September 2004.

Contribution of JI / CDM and other sectors to target

Kyoto target will be fulfilled by both domestic and foreign actions, 3.7 Mio. t CO_{2e} p.a. (total of 18.7 Mio. t CO_{2e}) will be purchased by government to fulfil the Kyoto target in 2008-2012. Budget for 2003-2007: in total 125 M€ (2003-2005: total of 45 M€, 2005-07: 26.9 M€/a). In 2003 contracts for 5 M€ have been entered. The programme to purchase credits and to invest in funds is already operating, see: <http://www.mst.dk/homepage/>

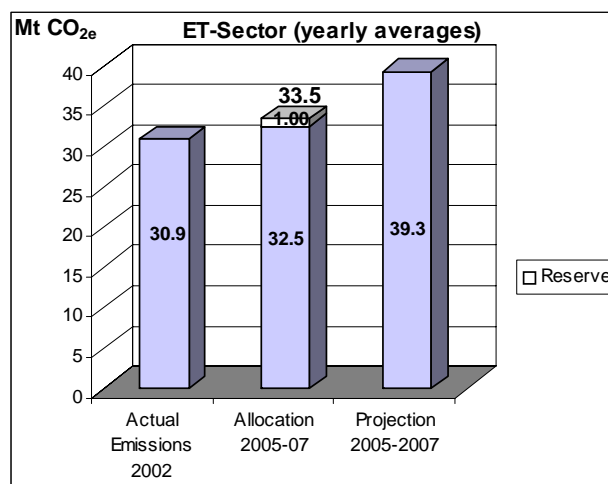
Sector reductions based on climate strategy 2003, but no sector targets are set. Non-ET-sectors have a total target of 39 Mt CO_{2e} /a in 2005-2007 which corresponds to the projected emissions for that period.

Distance to target assessment

Comparison:

Allocation budget (incl. reserve for new entrants) / ET-sector emissions 2002: **1.08**

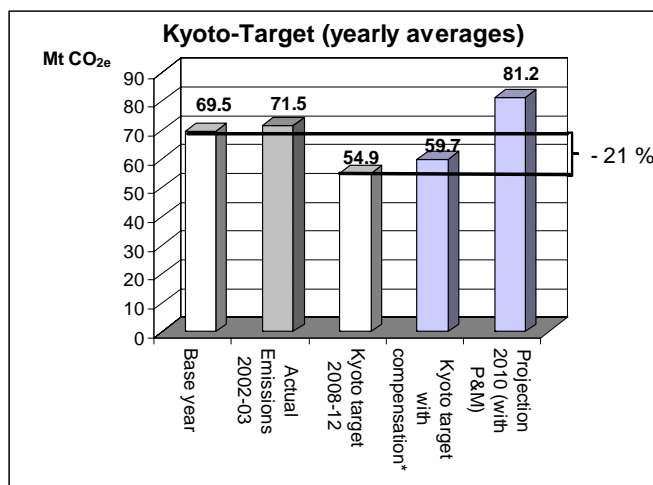
Allocation budget (incl. reserve for new entrants) / ET-sector emissions projections: **0.85**



Source: Danish NAP 2004.

Distance to Kyoto-target of -21% (the right column reflects intended use of Flexible Mechanisms FM):

GHG emissions	Without FM (Mt CO _{2e} /a)	With FM (Mt CO _{2e} /a)
2002/03 vs. Kyoto base year:	+2.4 (+4%)	-
2002/03 to Kyoto target:	-16.9 (-23.7%)	-13.2 (-18%)
2002/03 to Kyoto target*:	-11.8 (-16.4%)	-8.1 (11.3%)



* Denmark claims special compensation, since base year emissions are extremely low due to heavy rainfall that year.

Sources: Danish NAP 2004, CEU 2003b.

Allocation Rules

Allocation method	New entrants
<p>95% free allocation and 5% auction. Auctions internationally open for operators covered by the ETS. The proceeds will accrue to the Danish treasury. Two step approach:</p> <p>Top-down: A reduction factor of -15% (0.85) against projections was set, taking into consideration the significant reduction target and the requirement to be on the path toward fulfilling the target. The reductions ensures that there is no over allocation. The reduction stringency is different for the 3 sub-sectors electricity production, heat production and other industries (incl. offshore). The main reduction is beard by electricity producers (1.3 Mt CO₂e/a) and will be based on the national quota system. Unequal distribution takes differences in: exposure to competition, economic effects of ETS (burden due to rise in electricity price), reductions potentials have been taken into account.</p> <p>Bottom-up: For sub-sectors heat production and other industry the allowances are set corresponding to the historical emissions in 1998-2002 with certain corrections (e.g. if average 1998-2002 is lower than 2002 only 2002 is used, if extension of capacity after 2002).</p> <p>For sub-sector electricity production benchmarking is used, based on the production (MWh) in the base period, which leads to a slight reduction compared to the previous quota system.</p>	<p>New entrant is an installation which has been put into operation or expanded significantly. Only heavy processes will be taken into account. All other installations have been included in allocation plan. Allocation for new entrants is based according to key figures in proportion to new production unit's capacity. The key figures are included in the Bill on CO₂ allowances (Annex 2) for 30 different processes.</p>
	Reserve
	<p>Reserve: 3 % of total emissions (1 Mt CO₂e/a, or 3 in total). As long as emission allowances are available in the reserve free allocation for new entrants on a "first come, first served" basis.</p>
	Closure of installations
	<p>Allocation will stop the year following closure. Unused allowances due to closure will be transferred to the reserve.</p>
	Technological potential
	<p>Is taken into account setting the total quantity of allowances and by setting different targets for sub-sectors. Furthermore due to the common benchmark for electricity (share of historical production) the technological potential was partially taken into account.</p>
Early action (EA)	Treatment of clean technologies (e.g. CHP)
<p>Early action considered to a large extent, generally at the sub-sector level, due to different distribution of reduction burden (more general method). For electricity producers EA directly taken into account through the common benchmark. Finally, is it accounted due to the use of a relatively long base period.</p>	<p>Taken into account generally for electricity production by allocation according to common benchmark and in other sectors by the use of a long base period (similar to early action). Furthermore, there is a law introduced to make sure that district heat customers will not pay the extra costs because costs will be passed from purchasing allowances to cover higher emissions for electricity production to them (co-generation, that means same as heat suppliers). Only if their heat consumption and emissions will increase compared to base period higher costs are acceptable.</p>
Emissions change due to new legislation	Process related emissions
<p>Not yet considered. Operator will prove increase in emissions by applying for emissions permit and allocation. On that basis an operator's allocation will be supplemented according to the expected change. Three different directives may be considered which affect e.g. fishmeal producers or the refinery.</p>	<p>Is taken into account in the reduction factor for industry, which is less stringent than for electricity.</p>
	Interaction with other Policies and Measures
	<p>CO₂ taxes on fuels used in the ETS covered industrial enterprises are revoked.</p>
Banking from 2007 to 2008	Allocation for 2008-2012
<p>No banking allowed.</p>	<p>24.7 Mt CO₂ /a is given as the required level of emissions from the ETS enterprises to reach the target, assuming no further reductions from Non-Et-Sectors and a State purchase of 3.7 Mt CO₂ /a from JI and CDM.</p>

Finland

Status and Quantitative Assessment

Status of NAP

Final NAP submitted 30 March 2004 without final installation / allocation list. Not approved by parliament yet only governmental proposal. Will be a Government Resolution after ratification of Emissions Trading Act, expected in June 2004. Plan was published on 2nd March. Public consultation have been held.

Rationale for ET-budget

Total budget allocated for 2005-07 (incl. reserve): 136.4 Mt CO₂. Issuance: 2005: 44.4 Mt CO₂; 2006: 45.9 Mt CO₂; 2007: 46.2 Mt CO₂.

The With Measure Scenario is the basis. A strategic path (WAM-path) is calculated, which reflects the with measure scenario (including additional national measures and use of Mechanisms). The allocation for the ET-sector is the residual of the WAM-path, of which all additional measures at a cost of max. 10 €/t CO₂ in the Non-ET-sector are subtracted. To reach this ET-budget a compliance Factor of 0.97 is needed, which is the same for all installations.

Installations covered, Opt-in, Opt-out, Pooling

Wide interpretation of installation coverage.

Approximately 137 operators / 330 production plants / 485 installations. About **59 % of CO₂-emissions** are covered; **50 % of all 6 GHG** emissions.

Opt-in: District heating plants < 20 MW, if any installation of the district heating network is covered by Annex I (about 159 installations).

Opt-out: it is not planned to exclude some (mandatory) plants from the ET scheme.

Contribution of JI / CDM and other sectors to target

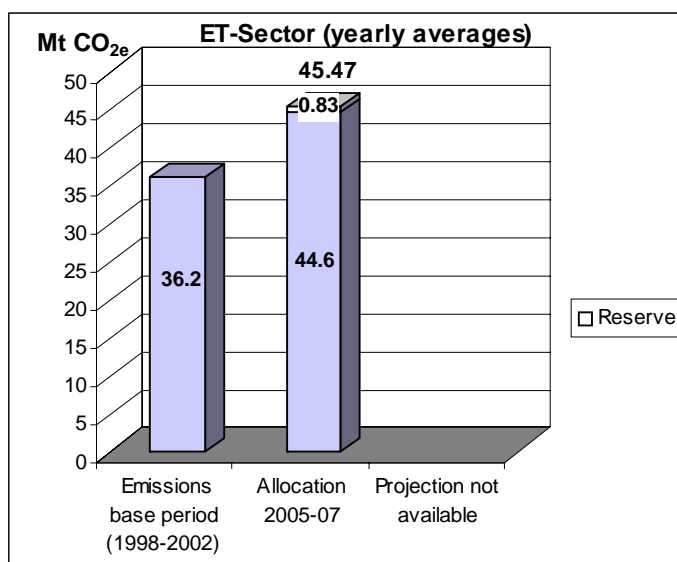
No information in the NAP, but more detail on use of JI and CDM of government in Climate Strategy end of 2004. In the presentation of the NAP in Brussels a total of 3 Mt CO_{2e}, which will be purchased by government is mentioned.

No separate targets for other sectors (Households, Transport) only ET and Non-ET-Budget are distinguished

Distance to target assessment

Comparison:

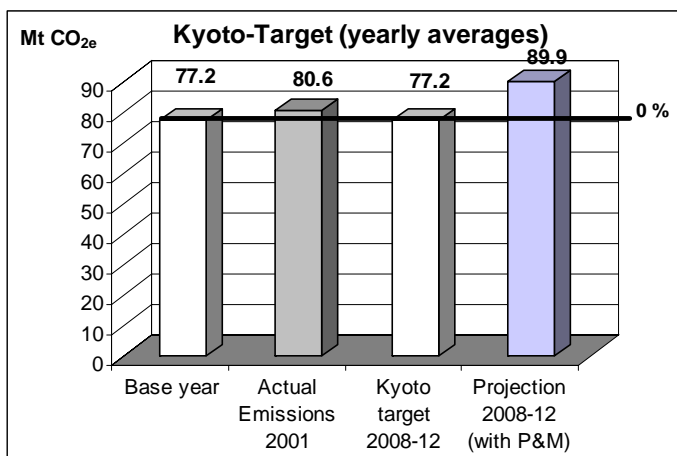
Allocation budget (incl. reserve for new entrants) / ET-sector emissions 1998-2002: **1.26**



Source: Finnish NAP 2004.

Distance to Kyoto-target of 0%(the right column reflects intended use of Flexible Mechanisms FM):

GHG emissions	Without FM (Mt CO _{2e} /a)	With FM (Mt CO _{2e} /a)
2001 vs. Kyoto base year:	+3.4 (+4%)	-
2001 to Kyoto target:	-3.4 (-4.2%)	-0.4 (-0.5%)



Source: Finnish NAP 2004, EEA database 2004.

Allocation Rules

Allocation method	Early action
<p>100% free allocation.</p> <p>Installation level: Different allocation formula for different categories, whereas for each installation <i>i</i> the same compliance factor of 0.97 will apply.</p> <p>A: Industrial processes (A1 in which production materials cause the emissions /A2 fixed relation of emissions and fuel use):</p> $A_{ij} = k_{ka} \times e_i \times (K_{2005j} + K_{2006j} + K_{2007j})$ <p>A2 Oil refinery:</p> $A_{Dz} = [P_{ik} \times e_{ik}] + (R_{Hz} \times 5,6) + T_{Pz}$ <p>B: energy for industry (B1 is heat only production, B2 heat and power CHP)</p> $B1_i \text{ and } B2_i = \sum \left(3 \times Pa_{ik} \times e_{ik} \right) \times \frac{Kp_{1.1.05}}{Kp_{30.6.00}}$ <p>C: District heating (C2 = Condensing power plant - D is added for electricity)</p> $C_i = \sum \left[3 \times Pa_{ik} \times e_{ik} \times \left(0,35 + 0,65 \times \frac{S_{iN}}{S_{im}} \right) \right] \times \frac{Q_{31.12.02}}{Q_{31.12.97}}$ <p>D (condensing power) and E (peaking power plants and reserve power plants etc.):</p> $D_i \text{ and } E_i = \sum \left(3 \times Pa_{ik} \times e_{ik} \right)$ <p>k_{ka} = Average capacity utilization factor K = Production capacity [t / a] P = Consumption of fuel [MJ] e = specific emission [t CO₂/tonnes product or g CO₂/MJ] R_H = arithmetic average of the rest Hydrogen production [t of hydrogen] S = Heating degree days 1971-2000 and 1998-2002 for 16 areas in Finland T_p = Change of CO₂ from process fuel due to the change in distillation process Q = Sum of connection power in district heating agreements with customers in the DH net work. Base period: 1998-2002 emissions are mainly used, whereby mostly min and max are omitted and the arithmetic average of the rest is used. For category D 2000-2003 is used, since the temperature and rain situation was rather typical. Furthermore in condensing part / tails in CHP-plants a calculatory efficiency of 40 % is used to calculate the fuel consumption For installations established after 1998, modified rules apply.</p>	<p>Early action can not be considered in an objective, transparent and non-discriminatory way and Finland is therefore not compensating early action separately. However, due to the formula, early action is compensated partially, especially for operators which have decreased emissions after 1998.</p> <p style="text-align: center;">Emissions change due to new legislation</p> <p>Installations will be treated as new entrants.</p> <p style="text-align: center;">Banking from 2007 to 2008</p> <p>No banking allowed.</p> <p style="text-align: center;">New entrants</p> <p>New entrants will receive allowances for free from the beginning of commercial commissioning.</p> <p>The allocation will be based on rated thermal input, annual running time (which is specified by installation type) and specific emissions of the fuel used (different coefficients are specified for liquid/gas, solid fuel. For category A1 and A2 lowest coefficient in sub-category is used).</p> <p style="text-align: center;">Reserve</p> <p>A reserve is set, encompassing yearly 0.83 Mt CO₂ (total 2.5 Mt CO₂), about 2 % of ET-budget (incl. in budget). If the reserve is too low, missing allowances will be bought from the market or produced by projects linked to and recognised by EU ETS. If it is too high the State (Energy Market Authority) will sell allowances on the market.</p> <p style="text-align: center;">Closure of installations</p> <p>Closures is defined when the use of the installation is permanently ended. The GHG-permit will be cancelled and foreseen allowances will be transferred to reserve.</p> <p style="text-align: center;">Technological potential</p> <p>Is taken into account by setting own category D2 and C2 and formula. The categories are allocated relatively more than condensing power category.</p> <p style="text-align: center;">Treatment of clean technologies (e.g. CHP)</p> <p>Special treatment of CHP by setting own category and formula: see B2. These</p> <p style="text-align: center;">Process related emissions</p> <p>Special subcategory and formula, here A1 and A2. A1 includes the future capacity of installations of process industries and thus accounts for future growth.</p> <p style="text-align: center;">Allocation for 2008-2012</p> <p>No decision yet, since coverage might be changed.</p>

France

Status and Quantitative Assessment

Status of NAP

No final decision yet, negotiations.

Status of Implementation of Emissions Trading Directive: Ordinance n° 2004-330 of 15 April 2004 (published in the Official Journal JORF n° 91 of 17 April 2004, p. 7089).

The competence for the NAP is with the Ministry for the Environment and Sustainable Development.

Rationale for ET-budget

Total budget allocated for 2005-07 (incl. reserve): No final decision yet, negotiations. 105 to 130 Mt CO₂e/a (average 118 Mt CO₂e/a) seems likely. The Environment Ministry proposes 115 Mt, the Ministry of Economic Affairs and Finance as well as the head organisation of French employers MEDEF 130 Mt.

Installations covered, Opt-in, Opt-out, Pooling

Narrow interpretation of Annex I of the Et-Directive: about 700 installations covered. No coverage of combustion installations in sectors not listed in Annex I (chemical industry, non ferrous metals...). Estimates of the number of installations according to a wide interpretation conform with Commission recommendations could be around 1500 installations.

ET scheme would cover with 105-130 Mt CO₂e/a around **20 % of total GHG** emissions and around **29 % of CO₂** emissions (this reflects, in addition to the low number of installations the low CO₂ intensity of the power generation sector due to the large share of nuclear plants which do not participate in the ETS).

Opt-in / Opt-out: Opt-out for new entrants if reserve empty.

Contribution of JI / CDM and other sectors to target

JI/CDM: According to National programme against climate change (January 2000), Kyoto target will be fulfilled by domestic action only. No final decision yet, negotiations

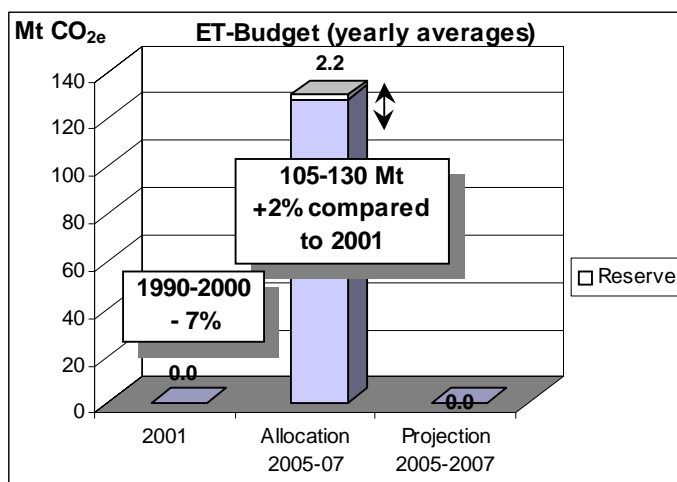
Non ETS sectors: Separate targets defined under the National programme against climate change (PNLCC, January 2000), but according to IEA sector definitions, not Common Reporting Format CRF, and without petroleum refining. PNLCC targets were translated under CRF and refining added in 2003.

Distance to target assessment

Comparison:

Allocation budget (incl. reserve for new entrants) / ET-sector emissions 2001: **1.02**

Allocation budget (incl. reserve for new entrants) / ET-sector emission projections: unknown but ET Sector emissions decreased by about 7% in the nineties

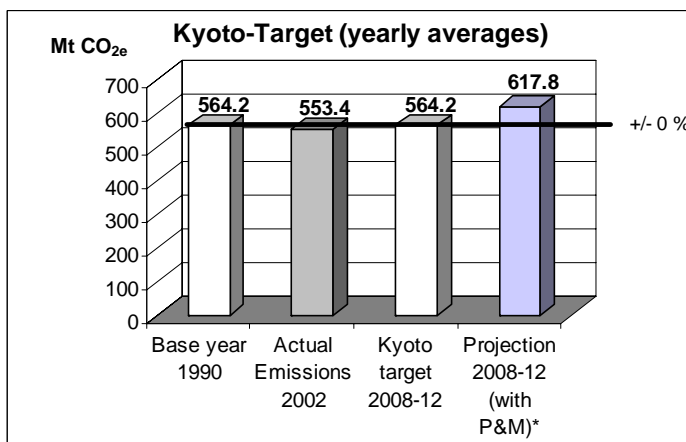


Note:

Source: Preliminary information on the French NAP

Distance to Kyoto-target of +/-0% (the right column reflects intended use of Flexible Mechanisms FM):

GHG emissions	Without FM (Mt CO ₂ e/a)	With FM (Mt CO ₂ e/a)
2002 vs. Kyoto base year:	-10.8 (-2.0%)	-
2002 to Kyoto target:	+10.8 (+2.0%)	use unknown



Note : Projections for 2008-12 are calculated from the expected growth in emissions specified in CEU 2003b taking into account differences in the case year to CITEPA 2004.

Sources: CITEPA 2004, CEU 2003b.

Allocation Rules

Allocation method	New entrants
<p>100% cost free grandfathering (except remainder reserve). Allocations are made in a two-stage approach that allocates allowances to sectors and to installations.</p> <p>At sector level: For each sector: specific emissions (average of 3 highest years between 1997 and 2001) x progress ratio (efficiency factor) x production forecasts</p> <p>At installation level: Sector-dependent. One or several years from 1996 to 2002.</p>	<p>Free allocation for new entrants in the frame of the reserve. Allocation rule for new newcomer installations based on BAT (Best Available Technology)-standards.</p>
	Reserve
	<p>Reserve (incl. in ET-budget): No final decision on quantity. About 1.7-1.8 % of total ET emissions (2.17 Mt CO₂e/a, or 6.5 Mt CO₂e in total for 2005/2007) seems likely. Allocation for new entrants . Opt-out for new entrants if reserve empty.</p>
	Closure of installations
	<p>Allocation will stop the year following closure</p>
Early action (EA)	Technological potential
<p>Early actions is considered as a criteria for the attribution of allowances by using historic emissions as the basis. Other consideration to early action was not given.</p>	-
Emissions change due to new legislation	Treatment of clean technologies (e.g. CHP)
-	-
Banking from 2007 to 2008	
Limited banking (to the difference between allocation and emissions)	
Allocation for 2008-2012	
Allocation rule for 2008-2012 not yet announced.	
Interaction with other Policies and Measures	Process related emissions
-	Waste gases of steel industry allocated to steel producers.

Germany

Status and Quantitative Assessment

Status of NAP	Distance to target assessment									
<p>NAP submitted to Commission on 31 March 2004; NAP-Act passed by government on 21 April 2004, subject to approval by parliament.¹List of installations published later. Emissions need to be verified before final allocation.</p>	<p>Comparison:</p> <p>Allocation budget (incl. reserve for new entrants) / ET-sector emissions 2000-2002: 0.996.</p>									
Rationale for ET-budget	<table border="1" style="margin-top: 10px;"> <caption>ET-Sector (yearly averages) - Mt CO_{2e}</caption> <thead> <tr> <th>Category</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Actual Emissions 2000-2002</td> <td>501.0</td> </tr> <tr> <td>Allocation 2005-07</td> <td>499.0</td> </tr> <tr> <td>Reserve</td> <td>3.00</td> </tr> </tbody> </table>	Category	Value	Actual Emissions 2000-2002	501.0	Allocation 2005-07	499.0	Reserve	3.00	
Category		Value								
Actual Emissions 2000-2002	501.0									
Allocation 2005-07	499.0									
Reserve	3.00									
<p>Total planned budget allocated for 2005-07 (incl. reserve for new entrants): 499 Mt CO₂ p.a. equally distributed across years. The emission budget for ET-installations was set politically and is less stringent than the existing voluntary agreement would have implied.</p>										
Installations covered, Opt-in, Opt-out, Pooling	<p>Distance to Kyoto-target of -21%(the right column reflects intended use of Flexible Mechanisms FM):</p> <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>GHG emissions</th> <th>Without FM (Mt CO_{2e}/a)</th> <th>With FM (Mt CO_{2e}/a)</th> </tr> </thead> <tbody> <tr> <td>2000-02 vs. Kyoto base year:</td> <td>-220 (-18%)</td> <td>-</td> </tr> <tr> <td>2000-02 to Kyoto target:</td> <td>+36 (+3.6%)</td> <td>not intended</td> </tr> </tbody> </table>	GHG emissions	Without FM (Mt CO _{2e} /a)	With FM (Mt CO _{2e} /a)	2000-02 vs. Kyoto base year:	-220 (-18%)	-	2000-02 to Kyoto target:	+36 (+3.6%)	not intended
GHG emissions		Without FM (Mt CO _{2e} /a)	With FM (Mt CO _{2e} /a)							
2000-02 vs. Kyoto base year:		-220 (-18%)	-							
2000-02 to Kyoto target:		+36 (+3.6%)	not intended							
<p>Middel narrow interpretation of Annex I based on the national implementation of the IPPC directive. Under this interpretation about 2.320 installations are covered (the wording "installation" refers to the installations which are covered by one permit not necessarily to individual technical installations). Steam crackers and melting furnaces are not covered. Accumulation rule interpreted according to national implementation of IPPC, i. e. the following criteria have to be fulfilled simultaneously: same operator, same site, same subheading (Appendix I Directive), installations must be technically linked. The ET-sector emits about 50 % of total GHG emissions and 58 % of CO₂.</p> <p>Opt-in: not mentioned.</p> <p>Opt-out: not mentioned.</p> <p>Pooling: feasible.</p>										
Contribution of JI / CDM and other sectors to target	<table border="1" style="margin-top: 10px;"> <caption>Kyoto-Target (yearly averages) - Mt CO_{2e}</caption> <thead> <tr> <th>Category</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Base year</td> <td>1218.2</td> </tr> <tr> <td>Actual Emissions 2001</td> <td>998.1</td> </tr> <tr> <td>Kyoto target 2008-12</td> <td>962.3</td> </tr> </tbody> </table>	Category	Value	Base year	1218.2	Actual Emissions 2001	998.1	Kyoto target 2008-12	962.3	
Category		Value								
Base year	1218.2									
Actual Emissions 2001	998.1									
Kyoto target 2008-12	962.3									
<p>No contribution from JI/CDM projects planned.</p> <p>Policies and measures in non-EU ET sectors are estimated to reduce emissions until 2008-12 compared to 1998 levels by</p> <p>a) 13 Mio t CO₂ p.a. in the <i>transport sector</i> via, for example, the ecological tax reform, additional support for biofuels and highway toll for trucks</p> <p>b) 12 Mio t CO₂ p.a. in the <i>household sector</i> via, for example, credit subsidy programs for thermal insulation of building stock. .</p>										

¹ Although the NAP-Act is based on the NAP submitted to the Commission, it differs in some aspects. In these few cases, the information in the table is based on the NAP-Act. Additional changes are to be expected prior to final approval by the German Parliament.

Allocation Rules

Allocation method	New entrants
<p>100% cost-free allocation.</p> <p>Top-down: Overall ET-budget and compliance factors were set politically. Same compliance factors across all sub-sectors.</p> <p>Bottom-up: Allocated quantities per installation are the arithmetic product of the following two factors:</p> <ol style="list-style-type: none"> 1) Base emissions (average emissions of the base period 2000-2002) 2) Compliance factor (CF) of: <ul style="list-style-type: none"> 1.0 for process-related emissions 0.9755 for energy-related emissions. <p>Allocation will be discounted proportionally if emissions drop below 60 % of the average emissions in the base period.</p>	<p>New entrants are new installations and capacity extensions which commence operation after 1 January 2005.</p> <p>Free allocation from reserve for 14 years based on projected output and on BAT-standards / average specific emissions for sufficiently "homogenous" products (clinker, electricity, heat, etc.). The maximum benchmark allocation for electricity is 750g CO₂/kWh. Ex-post correction for differences between projected and actual output prior to allocation for the following year.</p> <p>Alternatively, allowances from closures may be transferred to a new replacement installation of the same operator in Germany for four years. Afterwards the compliance factor will be 1.0 for another 14 years. Allocation will be adjusted for differences in capacities of old and new installations.</p> <p>Allowances for new entrants which do not use the transfer rule come from reserve on "first come, first served" basis.</p>
	Reserve
	Reserve: 0.6 % of ET-budget (3 Mt CO ₂ p.a., or 9 Mt CO _{2e} in total). Allocation based on "first come, first served" principle. Excess allowances would be cancelled.
	Closure of installations
	Allocation will be terminated the year after closure and the "extra"-allowances will flow into the reserve.
	Technological potential
	Considered for process-related emissions.
Early action (EA)	Treatment of clean technologies (e.g. CHP)
Installations which commenced operation between 1 January 1994 and 31 December 2002 may receive a CF of 1.0 for 12 years after commencement. Closures and production reductions do not qualify as e.a.. Likewise, e.a. may not be the result of significant public subsidies or of legal requirements. Unlike new installations, modernisations require proof of minimum change in carbon intensity. These thresholds range from 7 % for improvements in 1994 to 15 % in 2002 relative to the average of three consecutive years between 1991 and 2001.	Existing CHP bonus system based on electricity production: 27 t CO ₂ /GWh CHP-electricity. Discount if generation of CHP-electricity drops up to 80 % of the average level of CHP-electricity in the base period. Any further drop means no bonus for CHP. CHP operators have to choose whether they apply for early action or the CHP-bonus
Emissions change due to new legislation	Process-related emissions
May be accounted for if induced increase in emissions exceeds 10 %.	If the share of process-related emissions on total emissions is at least 10 %, the CF for process-related emissions is 1.0.
	Interaction with other Policies and Measures
	Not described in the NAP. Modification of eco-taxes for operators of covered installations is under discussion. .
Banking from 2007 to 2008	Allocation for 2008-2012
Not allowed.	Preliminary ET-budget (incl. Reserve): 493 Mt CO _{2e} /a.

Ireland

Status and Quantitative Assessment

Status of NAP

Final NAP notified to EU Commission on 31 March 2004.
List of installations and allocation is included in NAP.
Verification of data will be carried out until September 2004, final allocation.

Rationale for ET-budget

Total budget allocated for 2005-07 (incl. reserve): 67.5 Mt CO₂e/a equally distributed on each of the three years.
Allocation of allowances was based on a combination of (a total and sectoral) forecast and mitigation costs (10 € or less). Sectoral allocation was adjusted for national energy policy, i.e. power generation received a lower allocation due to anticipated renewables penetration and CHP set-aside.

Installations covered, Opt-in, Opt-out, Pooling

Wide interpretation of Annex I of the ET-Directive, whereas energy activities have been further classified as power generation and other combustion. Under the accumulation rule, installations must be technically linked and in addition a proximity rule applies which varies depending on the thermal input capacity (< 2MW must be within 100m and ≥ 2MW within 500m).

111 installations are covered, which corresponds to about **34.5 % of all 6 GHG** or **52 % of total CO₂ emissions**.

Opt-in or opt-out: No

Pooling allowed, but no application to form a pool received so far.

Contribution of JI / CDM and other sectors to target

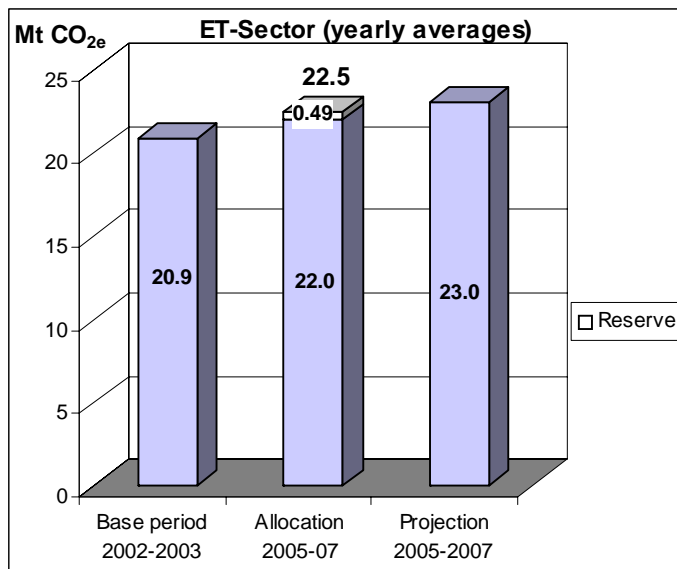
Government has indicated the intent to purchase allowances in Kyoto period (Government decision Feb 5th 2004). 18.5 Mt CO₂ (3.7 Mt CO₂ p.a.) possibly funded through a carbon tax (due to be introduced in Jan 2005.). The expected demand for JI and CDM of ETS-participants is 6.3 Mt CO₂ (2.1 Mt CO₂ p.a.).
No separate sector targets have been published.

Distance to target assessment

Comparison:

Allocation budget (incl. reserve for new entrants) / ET-sector emissions 2002/03: **1.08**

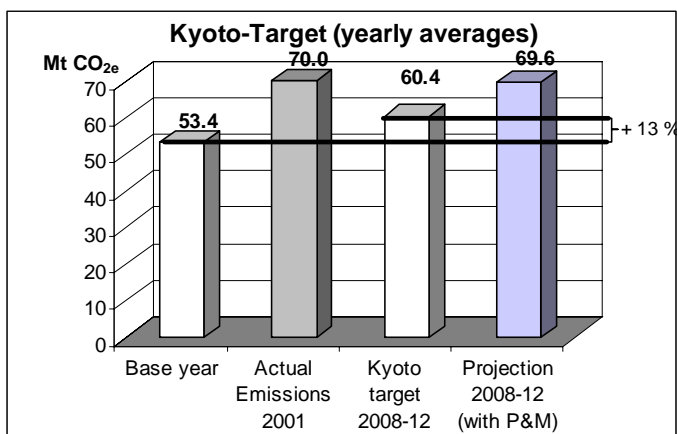
Allocation budget (incl. reserve for new entrants) / ET-sector emission projections: **0.98**



Source: Irish NAP 2004.

Distance to Kyoto-target of +13% (the right column reflects intended use of Flexible Mechanisms FM):

GHG emissions	Without FM (Mt CO ₂ e/a)	With FM (Mt CO ₂ e/a)
2001 vs. Kyoto base year:	+16.6 (+24%)	-
2001 to Kyoto target:	-9.6 (-13.8%)	-5.9 (-8%)



Sources: Irish NAP 2004 and EEA Database 2004.

Allocation Rules

Allocation method	New entrants
<p>99.25 % of ET-budget will be allocated for free to the trading sector. 0.75 % of ET-budget will be auctioned to defray the administration costs for the scheme. The auction will be open EU wide. Unused allowances from new entrants reserve (1.5 %) or unissued allocations to installations that close will be auctioned (up to the Directive 5% limit, the remainder being cancelled).</p> <p>Two stage approach: Sector allocation SA given by $SA=AST*NTA/CAST$ where AST: Adjusted Sector Total (=sector total for all sectors except power generation, adjusted to reflect national energy policy and CHP set aside) NTA: Net Trading Allocation calculated from total allocation less set asides CAST: Combined Adjusted Sector Total, the sum of all ASTs $NTA / CAST = 1.096$, that means growth is accounted for. Main reduction for power generation sector since renewable energy target was included.</p> <p>Allocation to installations (AI) given by $AI=RE*SA/STRE$ where RE: Relevant Emissions (average historic emissions for 2002 – 2003, except where < 90% of the average of the highest three years in the period 2000 – 2003, in which case the average of the highest three years in the period 2000 – 2003 is used). SA: Sector Allocation STRE: Sector Total of Relevant Emissions (AST adjusted for recent entrants, anomalous years of activity or known planned developments)</p>	<p>Distinguish between known planned development and new entrants (permitted after 31 March 2004). The first is included in installation allocation, the latter is taken from the reserve.</p> <p>Free Allocation based on agreed projected emissions (assuming use of BAT) and allocated in advance.</p> <p>Allocations made sequentially to applications received from plants with all necessary consents. No allocation will be proportionately greater (adjusted for period of operation) than that which the existing installations in the same sector were allocated. No individual permit holder will be entitled to more than 25 % of total new entrant reserve in 2005 and 2006.</p>
	Reserve
	<p>New entrant set-aside (0.337 Mt CO₂ p.a. new entrants and 0.15 Mt CO₂ p.a. for new CHP, in total 0.49 Mt CO₂ p.a. which corresponds 2.12 % of the ET-budget) and will be split into annual proportions, but transfer from previous year to next is possible. If there are any surplus allowances in the <i>New Entrant Set-Aside</i> after allocation to the relevant operators on 28 February 2007, these will be auctioned.</p>
	Closure of installations
	<p>No further allocations will be issued to an installation deemed by EPA to be closed. Unused allowances arising in this way will be auctioned with the proceeds going to the Exchequer, subject to the Directive 5% limit</p>
	Technological potential
	<p>Technological potential was taken into account for setting the ET-budget and sector allocation.</p>
Early action (EA)	Treatment of clean technologies (e.g. CHP)
<p>Not specifically rewarded in the NAP, but the use of a four year average for historical emissions, where there has been a significant decrease, provides some reward.</p>	<p>Existing CHP not specifically rewarded, but some reward provided by use of four year average for historical emissions, where there has been a significant decrease.</p> <p>For new 'high efficiency' CHP-installations: distinguish between a) displacement of energy plant and b) other than a) additional electricity allowances based on CCGT gas fired plant added to previous allocation (kind of transfer rule). b) agreement on projected increased emissions.</p>
Emissions change due to new legislation	
<p>Different directives have been assessed, but no legislative requirement is expected to result in a change in emissions > 10 %. Only directive on the promotion of renewable energy has been taken into account in determining the total ET-budget and sectoral allocation (SA) for power generation.</p>	
Banking from 2007 to 2008	Process related emissions
<p>No banking is allowed.</p>	<p>No special treatment for process related emissions.</p>
Allocation for 2008-2012	Interaction with other Policies and Measures
<p>Not announced and not included in NAP for 2005-07.</p>	<p>Installations within scheme will be exempted from carbon taxation.</p>

Italy

Status and Quantitative Assessment

Status of NAP

No final decision. A NAP has been presented on 20 April 2004 and it has to be discussed and approved. A two week consultation period is expected before NAP presented to Commission.

Rationale for ET-budget

Total budget allocated for 2005-07 (incl. reserve): 837.4 Mt CO₂e/a almost equally distributed on each of the three years.

Voluntary agreement with industry-sector specific target, which are based on expected growth rates of emissions. The annual growth rates vary between 0 and 5.8% (e.g. co-generation).

Installations covered, Opt-in, Opt-out, Pooling

Wide interpretation of Annex I of the Directive.

About 1900 to 2100 installations are covered (figure was not included in NAP, but earlier statement), which corresponds to about **47 % of all 6 GHG** (based on 2000 data) or **61 % of total CO₂ emissions**. No opt-in or opt-out. Pooling most likely not allowed..

Contribution of JI / CDM and other sectors to target

Kyoto target will not be fulfilled by domestic action. Use Joint Implementation and Clean Development Mechanism will be needed to achieve the reductions of the Burden Sharing Agreement. No detailed strategy yet.

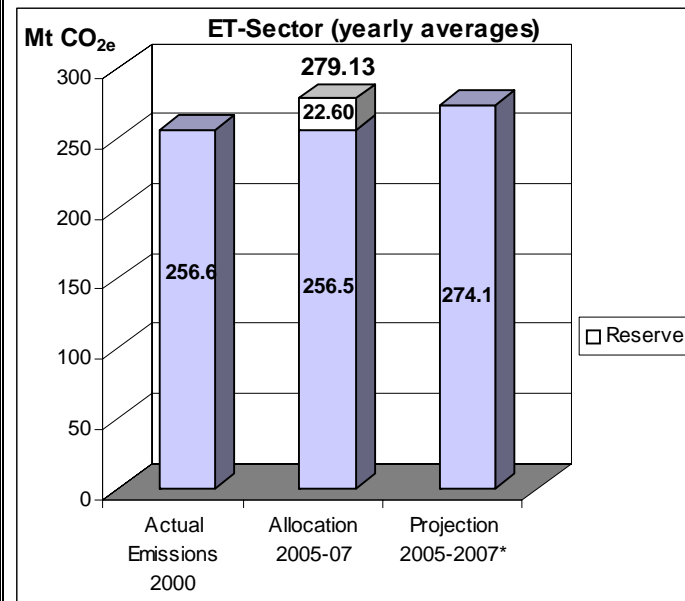
2010 targets for other sectors e.g. transport are presented. Enforcement not clear yet.

Distance to target assessment

Comparison:

Allocation budget (incl. reserve for new entrants) / ET-sector emissions 2000: **1.09**

Allocation budget (incl. reserve for new entrants) / ET-sector emission projections: **1.02**

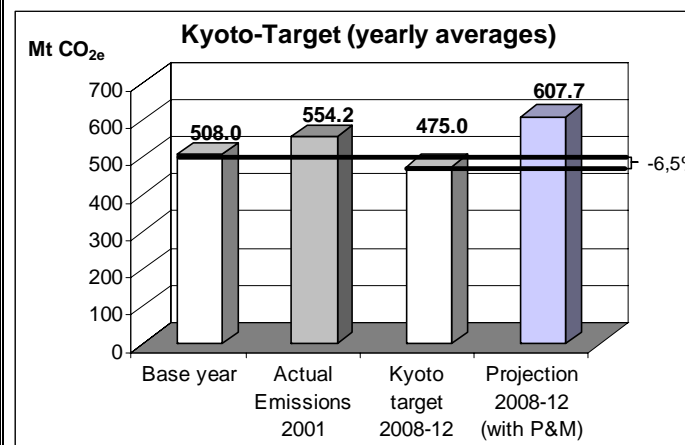


* own estimates, based on linear interpolation 2000 / 2010.

Source: Draft Italian NAP.

Distance to Kyoto-target of -6.5% (the right column reflects intended use of Flexible Mechanisms FM):

GHG emissions	Without FM (Mt CO ₂ e/a)	With FM (Mt CO ₂ e/a)
2001 vs. Kyoto base year:	+46.2 (+9%)	-
2001 to Kyoto target:	-79.2 (-14.3%)	intended, but amount not specified



Sources: Draft Italian NAP and EEA data base.

Allocation Rules

Allocation method	New entrants
<p>100 % free allocation.</p> <p>Two step approach:</p> <p>First step: Targets are set on activity level based on emissions and annual growth rates.</p> <p>Second step: Formula used for single installation</p> $Q_{t,j,k} = Q_{t,j} * X_{k,j}$ <p>$Q_{t,j,k}$ = allocation at the installation k belonging to activity j for the year t</p> <p>$Q_{t,j}$ = share allocated to activity j in the period t for the existing installations</p> <p>$X_{k,j}$ = share (reference values can be: emissions, input or production) referring to installation k in the activity j. The choice of the relevant reference value depends on the sector to which an installation belongs.</p> <p>Base period: Average historic emissions between 2000-2003 with the exclusion of the lowest value.</p> <p>The reference values are as follows:</p> <p>Electricity excluding co-generation: <i>expected</i> emissions Co-generation: energy production Heat excluding co-generation: fuel input Refineries: emissions Limes: production Ferrous metals: production Pulp and paper: emissions Ceramics, excluding bricks: production Bricks: emissions Cement: production Glass: emissions</p>	<p>Free allocation for the new entrants.</p> <p>Allocation will be based on BAT-standards and expected production. Ex-post adjustments on basis of actual production. Special treatment of power plants, where three types are distinguished.</p>
	Reserve
	<p>22.6 Mt CO₂ p.a. (6 %) or 67.8 Mt CO₂ for the period 2005-2007. The reserve's initial size depends on the growth of the emissions.</p> <p>The reserve is split: Power generation gets the majority, with 57 Mt CO₂ for non-co-generation power installations and 8.5 Mt CO₂ for co-generation. The reserve for other sectors ranges from 0.4 Mt to 0.9 Mt CO₂.</p> <p>If the reserve is too small the authority will buy on the market. If the reserve is too high the shares will be distributed to existing installations using the same criteria as for the initial assignment.</p>
	Closure of installations
	<p>Distinction between:</p> <p>Permanent or temporary closure: the operator may transfer (if activity is: refinery, lime, cement, glass, ferrous metal, ceramic) or must surrender part of the allowances issued for the year of closure. If the transfer rule is not applied, the operator: (i) has to surrender 50% of allowances allocated for that year, if emissions are < 50% or (ii) can keep remaining allowances, if emissions are 50% of issued emissions for that year.</p> <p>Factual closure: emissions are less than 10 % of issued allowances or for power plants if production hours are outside the range of load regimes according to permit. The operator has to surrender all unused allowances.</p>
Early action (EA)	Treatment of clean technologies (e.g. CHP)
<p>Implicitly accounted via reference value by using production shares (see list of reference values above).</p>	<p>Existing CHP not specifically rewarded. For new CHP-installations part of reserve of 8 Mt CO₂ is set aside.</p>
Emissions change due to new legislation	Process related emissions
<p>No special treatment.</p>	<p>No special treatment for process-related emissions. Allowances are allocated to installations generating process gas and will be subsequently transferred to the user of the process gas for energy production.</p>
	Interaction with other Policies and Measures
	<p>Voluntary agreements have been taken as a basis for allocation.</p>
Banking from 2007 to 2008	Allocation for 2008-2012
<p>Not allowed.</p>	<p>Not announced and not included in NAP for 2005-07.</p>

Latvia

Status and Quantitative Assessment

Status of NAP	Distance to target assessment										
<p>No official NAP yet. The public discussion procedure of NAP is closed and the NAP is submitted to Government for the final approval. A list of installations was included in NAP.</p>	<p>Comparison: Allocation budget (incl. reserve for new entrants) / ET-sector emissions 2000: 1.49</p> <p>Allocation budget (incl. reserve for new entrants) / ET sector emission projections: 0.98</p>										
Rationale for ET-budget	<div style="text-align: center;"> ET-Sector (yearly averages) </div> <table border="1" style="margin-top: 10px; width: 100%; border-collapse: collapse;"> <caption>ET-Sector (yearly averages) Data</caption> <thead> <tr> <th>Category</th> <th>Value (Mt CO_{2e})</th> </tr> </thead> <tbody> <tr> <td>Actual Emissions 2000*</td> <td>3.1</td> </tr> <tr> <td>Allocation 2005-07</td> <td>4.59</td> </tr> <tr> <td>Projection 2005-2007**</td> <td>4.7</td> </tr> <tr> <td>Reserve</td> <td>0.74</td> </tr> </tbody> </table> <p>* voluntary energy utilities are not included (0,13 Mio. t CO₂) ** own projections based on allocation plus reduction potential</p>	Category	Value (Mt CO _{2e})	Actual Emissions 2000*	3.1	Allocation 2005-07	4.59	Projection 2005-2007**	4.7	Reserve	0.74
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Actual Emissions 2000*		3.1									
Allocation 2005-07	4.59										
Projection 2005-2007**	4.7										
Reserve	0.74										

Allocation Rules

Allocation method	New entrants
<p>The allocation is 100 % free and based on historical data. The calculation of allowances for public energy utilities is as follows:</p> <p>a) $CO_2 \text{ (tons/year)} = Q \cdot R \cdot 100/n$, where Q - produced energy, R - emission factor, n – individual efficiency coefficient (in %)</p> <p>b) in case of using natural gas as a fuel: $CO_2 \text{ (tons/year)} = B \cdot Q_d^z \cdot R$, where B - the volume of used natural gas, in thousand m³, Q_d^z = the lowest calorific value, MWh/1000 m³</p> <p>The following three factors are taken into account:</p> <p>1) Climate - number of (heating) degree-days, that means days of the heating season corresponding to the Latvian climate conditions (applies only for energy utilities). Allocation = Emissions₁₉₉₇ * (Climate coefficient – 1)</p> <p>2) Technical and engineering - the voluntary measures (see Early Action) to reduce GHG emissions, already performed by energy utility, are included into allocation: Allocation = Emissions_{Base year} + Δ voluntary measures</p> <p>3) Heat Loads - the changes in heat loads due to changes of the number of energy consumers and related changes in GHG emissions are calculated.</p> <p>For public energy utilities 1997 is taken as base year, containing 4323 degree-days, which corresponds to the average annual figure for 1993-2002. 2001 or 2002 are taken as basis for those energy utilities which were put into operation after the year 1997 and the data are recalculated to the number of degree-days corresponding 1997.</p> <p>For other industrial and energy installations of the industry sector, an individual choice of the base year from 1993 onwards is foreseen, to take the economic restructuring of the Latvian economy into account.</p>	<p>Free allocation for new installations (according the sequence of putting of these installations into operation). The efficiency coefficients for new energy production plants are higher as for existing ones.</p> <p>Reserved Allowances EQ are calculated according the formulae: $EQ \text{ (tons of } CO_2) = [N \cdot T \cdot R \cdot 100]/n$, where: N - total installed capacity in MW of new cogeneration plant (in case of new condensing plant N_{el} is taken - total installed electric power capacity in MW) T - annual working hours (assumed 5000, if there is no other data available), R - emission factor, tons of CO_2/MWh, n - efficiency coefficient, which is assumed the following (if there is no other data available): In case of new cogeneration plants: 87% (for coal or peat) and 90% (for natural gas); in case of new condensing plants: 49% (for coal or peat) and 60% (for natural gas).</p>
	Reserve
	<p>A reserve of 0.74 Mt CO₂ or a total of 2 Mt CO₂ for 2005-07. The reserve includes 16 new energy (heat-power co-generation plants) which probably will be put into operation 2005-2007. After the reserve is used, new installations will have to buy allowances in the market.</p>
	Closure of installations
	<p>The NAP states only that the exclusion of installation from the emissions trading system will be done in correspondence with the procedure determined in Latvian legislation, which is still under development.</p>
	Technological potential
	<p>Is taken into account for energy utilities, see rationale of ET-budget.</p>
Early action (EA)	Treatment of clean technologies (e.g. CHP)
<p>Two ways: For public energy utilities through voluntary measures which include the following four types of measures: (i) fuel switching, (ii) improvement of efficiency of boilers equipment, (iii) decrease of heat losses in heat distribution networks, (iv) improvement of energy efficiency in buildings). For other industrial and energy installations through the choice of the base year.</p>	<p>The NAP does not include the impact of clean industrial production technologies which were implemented in Latvia (due to lack of appropriate methodology how to account for this impact).</p>
	Process related emissions
	<p>Most likely no special treatment.</p>
Emissions change due to new legislation	Interaction with other Policies and Measures
<p>Not yet considered.</p>	<p>Installations under ETS are not paying CO₂ tax.</p>
Banking from 2007 to 2008	Allocation for 2008-2012
<p>No banking allowed.</p>	<p>Not included in the NAP of 2005-07.</p>

Lithuania

Status and Quantitative Assessment

Status of NAP	Distance to target assessment										
<p>NAP was submitted on 1 April 2004. List of installations included. Law implementing Emission Trading directive is currently under preparation.</p>	<p>Comparison: Allocation budget (incl. reserve for new entrants) / ET-sector emissions 2000-2003: 2.32 Allocation budget (incl. reserve for new entrants) / ET sector emission projections: 1.0.</p>										
Rationale for ET-budget	<table border="1" style="margin-top: 10px;"> <caption>ET-Sector (yearly averages) - Mt CO_{2e}</caption> <thead> <tr> <th>Period</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Base period 2000-03</td> <td>6.1</td> </tr> <tr> <td>Allocation 2005-07</td> <td>14.17</td> </tr> <tr> <td>Projection 2005-2007</td> <td>14.17</td> </tr> <tr> <td>Reserve (Allocation)</td> <td>0.67</td> </tr> </tbody> </table>	Period	Value	Base period 2000-03	6.1	Allocation 2005-07	14.17	Projection 2005-2007	14.17	Reserve (Allocation)	0.67
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Projection 2005-2007	14.17										
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<p>Total ET-budget allocated for 2005-07 (incl. reserve for new entrants) is 42518 Mt CO_{2e}. Allowances for installations in industry sectors will be allocated in equal yearly parts, but for energy enterprises allocation varies. Total quantities to be allocated are: 2005: 14705 2006: 14154 2007: 13659 Size of ET-budget reflects projected emissions. Forecast is based on anticipated growth of the economy, fast growing electricity demand, closure of a nuclear power plant in 2005, increase in renewable energy sources for electricity generation, increase in efficiency in power sector, emission savings potential in industry, etc. Since projections for energy sector are difficult, allocation to energy producers will depend on actual production to avoid over allocation.</p>											
Installations covered, Opt-in, Opt-out, Pooling	<p>Source: Lithuanian NAP 2004.</p> <p>Distance to Kyoto-target of -8% (the right column reflects intended use of Flexible Mechanisms FM):</p> <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>GHG emissions</th> <th>Without FM (Mt CO_{2e}/a)</th> <th>With FM (Mt CO_{2e}/a)</th> </tr> </thead> <tbody> <tr> <td>2000-03 vs. Kyoto base year:</td> <td>-34.2 (-62.9%)</td> <td>-</td> </tr> <tr> <td>2000-03 to Kyoto target:</td> <td>+29.8 (+148%)</td> <td>not intended</td> </tr> </tbody> </table>	GHG emissions	Without FM (Mt CO _{2e} /a)	With FM (Mt CO _{2e} /a)	2000-03 vs. Kyoto base year:	-34.2 (-62.9%)	-	2000-03 to Kyoto target:	+29.8 (+148%)	not intended	
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2000-03 to Kyoto target:	+29.8 (+148%)	not intended									
<p>Wide interpretation of Annex I. In total 107 installations are covered: energy (grid connected) (70); oil processing (1), cement or lime production (2); glass, bricks and ceramics production (11); burning of fossil fuels for auto-consumption including paper and pulp producers (23). Accumulation rule is applied according to IPCC directive: same operator, same address and same smoke stack. ET-sector currently emits about 30 % of total GHG emissions. CO₂-share of ET-sector is projected to increase from 38.9 % in 1998 to 51.2 % in 2005-07. Opt-in: feasible. Opt-out: not foreseen. Pooling: feasible, but no requests received yet.</p>											
Contribution of JI / CDM and other sectors to target	<table border="1" style="margin-top: 10px;"> <caption>Kyoto-Target (yearly averages) - Mt CO_{2e}</caption> <thead> <tr> <th>Category</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Base year</td> <td>54.4</td> </tr> <tr> <td>Actual Emissions 2002</td> <td>20.2</td> </tr> <tr> <td>Kyoto target 2008-12</td> <td>50.0</td> </tr> <tr> <td>Projection 2008-12 (with P&M)</td> <td>31.5</td> </tr> </tbody> </table>	Category	Value	Base year	54.4	Actual Emissions 2002	20.2	Kyoto target 2008-12	50.0	Projection 2008-12 (with P&M)	31.5
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Base year	54.4										
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Projection 2008-12 (with P&M)	31.5										
<p>Kyoto target will be fulfilled by domestic action only. Indirect emission reduction for ET-sector via implementation of EC directives and the National Energy Strategy: 1.13 Mt CO_{2e}/a. Implementation of EC directives on pollution taxes on fuel and electricity, biofuels, buildings, landfill waste, etc Implementation of EC directives and measures in other sectors: ca. 1 Mt CO_{2e}/a.</p>											
<p>Source: Lithuanian NAP 2004.</p>											

Allocation Rules

Allocation method	New entrants
<p>Up to 98.5% of allowances will be allocated free and at least 1.5 % will be auctioned off. Share of auction will increase if reserve for new entrants is too large. Revenues from sales will be used to cover administrative costs.</p> <p>Top-down: Total emission budgets (net of auction) for <i>industry sectors</i> (including auto-producers of energy) are product of: a) total average sector emissions for base period (1998-2002) (excluding year with lowest emissions) b) growth factors (78% for cement and lime, 53% for all other industry sectors) c) technical potential for emission reduction (-14.9% for lime and cement, 2.5 % for all other sectors)</p> <p>Budget for <i>electricity production</i> are based on projected emissions taking into account growth in demand, closure of a nuclear power plant, efficiency improvements, demand side measures etc. Budget for <i>heat generation</i> depends on projected demand.</p> <p>Bottom-up: Benchmarks for power (0.551t/MWh), heat (0.231t/MWh); To avoid over allocation, benchmarks will be reduced ex-post if budgets for power or heat are exceeded. So, final allocation for energy installations happens after completion of corresponding year.</p> <p>For all other sectors (including auto-producers of energy) allocation is based on historic emission shares in base period (excluding year with lowest emissions).</p>	<p>Free allocation for all new market entrants from reserve and possibility to buy additional allowances from auctions. New market entrants are glass, brick and ceramic product manufacturing, paper production, oil processing, and metal casting installations that start or extend their activities after 1 January 2003 and new auto-energy producers. For these, allocation is based on emission benchmarks per product (and on capacity use) or, for auto-producers, on installed capacities. Ex-post correction for output for every year.</p> <p>If growth of installation exceeds assumed growth of sector, new entrant rule applies to additional allowances.</p>
	Reserve
	Reserve: 4.7 % of ET-budget (0.665 Mt CO ₂ e p.a., or 1.995 Mt CO ₂ e in total). Any excess would be auctioned off at the end of each year.
	Closure of installations
	No additional information provided in NAP.
	Technological potential
	Taken into account to determine total quantity to various sectors in the economy. Negative factor for lime and cement industry results from expected substitution of cheap coal for oil.
	Treatment of clean technologies (e.g. CHP)
	No special treatment for CHP-
	Process-related emissions
	No special treatment.
	Interaction with other Policies and Measures
	No information provided in NAP.
	Allocation for 2008-2012
	No information provided in NAP.
Early action (EA)	
No special provisions, but by accounted via benchmarks for electricity and heat production and, to a lesser extent via historic emission shares for other sectors.	
Emissions change due to new legislation	
Desulphurisation equipment to be installed in power plants taken into account in projected emissions in power sector.	
Banking from 2007 to 2008	
Not allowed.	

Luxembourg

Status and Quantitative Assessment

Status of NAP	Distance to target assessment																													
<p>NAP submitted to Commission on 6 March 2004 with list of installations; NAP-Act not yet passed; List of installations published later. Emissions need to be verified before final allocation.</p>	<p>Comparison: Allocation budget (incl. reserve for new entrants) / ET-sector emissions 2003*: 1.2. Allocation budget (incl. reserve for new entrants) / ET sector emission projections: 0.95.</p>																													
Rationale for ET-budget	<div style="text-align: center;"> <p>Mt CO_{2e} ET-Sector (yearly averages)</p> <table border="1" style="margin: 10px auto;"> <caption>ET-Sector (yearly averages) Data</caption> <thead> <tr> <th>Category</th> <th>Value (Mt CO_{2e})</th> </tr> </thead> <tbody> <tr> <td>Actual Emissions 2003*</td> <td>2.9</td> </tr> <tr> <td>Allocation 2005-07</td> <td>3.1</td> </tr> <tr> <td>Projection 2005-2007</td> <td>3.7</td> </tr> <tr> <td>Reserve (for Allocation)</td> <td>0.40</td> </tr> </tbody> </table> </div> <p>* Assuming full capacity use for the largest for the largest emitter - a new CCGT plant accounting for about 30 % of ET-budget</p> <p>Distance to Kyoto-target of -28%(the right column reflects intended use of Flexible Mechanisms FM):</p> <table border="1" style="margin: 10px auto;"> <thead> <tr> <th>GHG emissions</th> <th>Without FM (Mt CO_{2e}/a)</th> <th>With FM (Mt CO_{2e}/a)</th> </tr> </thead> <tbody> <tr> <td>2002 vs. Kyoto base year:</td> <td>-3.0 (-21%)</td> <td>-</td> </tr> <tr> <td>2002 to Kyoto target:</td> <td>-0.9 (-8.4%)</td> <td>+2.1 (+19%)</td> </tr> </tbody> </table> <div style="text-align: center;"> <p>Mt CO_{2e} Kyoto-Target (yearly averages)</p> <table border="1" style="margin: 10px auto;"> <caption>Kyoto-Target (yearly averages) Data</caption> <thead> <tr> <th>Category</th> <th>Value (Mt CO_{2e})</th> </tr> </thead> <tbody> <tr> <td>Base year</td> <td>14.0</td> </tr> <tr> <td>Actual Emissions 2002</td> <td>11.02</td> </tr> <tr> <td>Kyoto target 2008-12</td> <td>10.09</td> </tr> <tr> <td>Projection 2008-12 (with P&M)</td> <td>14.9</td> </tr> </tbody> </table> </div>	Category	Value (Mt CO _{2e})	Actual Emissions 2003*	2.9	Allocation 2005-07	3.1	Projection 2005-2007	3.7	Reserve (for Allocation)	0.40	GHG emissions	Without FM (Mt CO _{2e} /a)	With FM (Mt CO _{2e} /a)	2002 vs. Kyoto base year:	-3.0 (-21%)	-	2002 to Kyoto target:	-0.9 (-8.4%)	+2.1 (+19%)	Category	Value (Mt CO _{2e})	Base year	14.0	Actual Emissions 2002	11.02	Kyoto target 2008-12	10.09	Projection 2008-12 (with P&M)	14.9
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<p>Middle wide interpretation of Annex I of ET-Directive. 19 installations are covered.</p> <p>The EU-sector emits about 26 % of total GHG emissions and 28 % of CO₂.</p> <p>Opt-in: not allowed. Opt-out: not allowed. Pooling: not mentioned.</p>																														
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<p>Indicative sectoral targets for other sectors are included for 2005-07 and for 2008-12. There are virtually no savings potentials in the electricity sector, and only small savings potentials in the transportation and buildings sector exist..</p> <p>For 2008-12 substantial use of JI, CDM and international Emissions Trading under the Kyoto-Protocol is planned. The total amount of these ERUs, CERs and AAUs is projected to be 3 Mt CO_{2e} p.a. Proceeds from reserve may be used for fund to buy ERUs and CERs.</p>																														

Source: NAP of Luxembourg (2004)

Allocation Rules

Allocation method	New entrants
<p>100% cost-free allocation.</p> <p>Top-down:</p> <p>No sector-specific targets.</p> <p>Bottom-up:</p> <p>The allocation per installation is the mathematical product of the following three factors:</p> <ol style="list-style-type: none"> 1) Reference emissions (average emissions of three years from 1998-2002 emissions) 2) Projection factor (sector specific factor to account for economic growth and capacity use in 2005-07). 3) Arithmetic compliance factor (CF) of: <ul style="list-style-type: none"> 1.0 for process-related emissions 1.0 emissions from CHP and energy-efficient installations (like the new CCGT-plant) 0.91 for all other energy-related emissions 	<p>Free allocation to new installations and capacity extensions. New installations which were known by 15 March 2004 are already included in the NAP. Ex-post adjustment if actual emissions of these installations turn out to be lower than projected</p> <p>Allocation of allowances for yet “unknown” entrants comes from the reserve and will be based on international benchmarks (BAT and feasible minimum emission fuel). Ex-post adjustment if output is lower than projected.</p> <p>CF of 1.0 until 2008-12 for all new entrants.</p> <p>For individual cases, allowances from closed installations may be transferred to a new replacement installation of the same operator. In this case, an adjustment for differences in the capacities of old and new installations will be made.</p>
	Reserve
	<p>Reserve for “unknown” new entrants of 0.4 Mt CO₂ p.a. (i.e. ca. 11 % of ET-budget). The national authority may sell unused allowances on the market and use the proceeds to buy ERUs and CERs. If the reserve is too small, the national authority may buy additional ERUs and CERs.</p>
	Closure of installations
	<p>Allocation will be terminated the year after closure. An installation is considered to be closed if emissions are below 10 % of the average emissions in 1998-2002.</p>
	Technological potential
	<p>Potentials have largely been realised, share of emissions from energy and industry on total emissions dropped from 60 % to 30 % in 2001. No savings potential exists for new CCGT-plant. Profitable savings potential for the ET-sector for 2005-07 is projected to be only 0.05 Mt CO₂.</p>
Early action (EA)	Treatment of clean technologies (e.g. CHP)
<p>No specific account for early action apart from using average historic emissions back to 1998.</p>	<p>The new CCGT-plant and CHP which meets certain criteria for the production of electricity will qualify for a compliance factor of 1.0.</p>
Emissions change due to new legislation	Process-related emissions
<p>Not relevant.</p>	<p>The compliance factor for process-related emissions is 1.0.</p>
	Interaction with other Policies and Measures
	<p>Not mentioned.</p>
Banking from 2007 to 2008	Allocation for 2008-2012
<p>Not allowed.</p>	<p>Indicative CAP (incl. reserve of 0.75 Mt p.a.): 4.265 Mt CO₂e/a.</p>

Netherlands

Status and Quantitative Assessment

Status of NAP	Distance to target assessment										
<p>Final draft sent to European Commission on 16 April 2004. Act to implement the EU ETS directive expected to be submitted to Parliament in May 2004. Competence for the NAP is with the Ministry of Economic Affairs.</p>	<p>Comparison: Allocation budget (incl. reserve for new entrants) / ET-sector emissions 2001-02: 1.1 Allocation budget (incl. reserve for new entrants) / ET-sector emission projections: 1.0</p>										
<p>Rationale for ET-budget</p>	<table border="1" style="margin-top: 10px;"> <caption>ET-Sector (yearly averages)</caption> <thead> <tr> <th>Period</th> <th>Mt CO_{2e}</th> </tr> </thead> <tbody> <tr> <td>Base period 2001-02</td> <td>89.5</td> </tr> <tr> <td>Allocation 2005-07</td> <td>98.3</td> </tr> <tr> <td>Projection 2005</td> <td>98.0</td> </tr> </tbody> </table>	Period	Mt CO _{2e}	Base period 2001-02	89.5	Allocation 2005-07	98.3	Projection 2005	98.0		
Period	Mt CO _{2e}										
Base period 2001-02	89.5										
Allocation 2005-07	98.3										
Projection 2005	98.0										
<p>Total budget allocated for 2005-07 (incl. reserve): 98.3 Mt CO_{2e}/a (excluding 0.87 Mt CO₂ for the proposed 'opt-out' installations) equally distributed across years.</p> <p>ET budget based on existing policies, notably on voluntary agreements of energy-intensive industries (incl. energy/electricity sector). ET budget derived from total CO₂ cap 2005-07 on energy/industry companies of 115 Mt CO_{2e}/a. Total target/sectoral growth rates controversially discussed.</p> <p>Sector-wise annual allocations: Refineries 13.9, Mining 1.6, Chemicals 15.5, Basic metals 10.9, Building materials 1.3, Pulp and Paper 2.1, Food industries 3.7, Electricity production 39.8, El-production joint venture 5.4 Mt.</p>	<p>Source: Dutch NAP</p>										
<p>Installations covered, Opt-in, Opt-out, Pooling</p>	<p>Distance to Kyoto-target of -6% (the right column reflects intended use of Flexible Mechanisms FM):</p> <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>GHG emissions</th> <th>Without FM (Mt CO_{2e}/a)</th> <th>With FM (Mt CO_{2e}/a)</th> </tr> </thead> <tbody> <tr> <td>2001 vs. Kyoto base year:</td> <td>+3.7 (+1.7%)</td> <td>-</td> </tr> <tr> <td>2001 to Kyoto target:</td> <td>-16.4 (-7.6%)</td> <td>+3.6 (+1.7%)</td> </tr> </tbody> </table>	GHG emissions	Without FM (Mt CO _{2e} /a)	With FM (Mt CO _{2e} /a)	2001 vs. Kyoto base year:	+3.7 (+1.7%)	-	2001 to Kyoto target:	-16.4 (-7.6%)	+3.6 (+1.7%)	
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2001 to Kyoto target:	-16.4 (-7.6%)	+3.6 (+1.7%)									
<p>Wide interpretation of Annex I of the ET-Directive: ET scheme includes 333 installations covering 44 % of total GHG emissions and about 54 % of CO₂ emissions (based on 2005-07 projections). Use of a fairly wide interpretation based on implementation of IPPC directive ("installation" refers to the installations covered by one permit not necessarily individual technical installations).</p> <p>Opt-in / Opt-out: the Dutch government has proposed to the European Commission to opt-out 74 small installations (<25.000 ton CO₂) from the EU ETS.</p>	<table border="1" style="margin-top: 10px;"> <caption>Kyoto-Target</caption> <thead> <tr> <th>Year/Target</th> <th>Mt CO_{2e}</th> </tr> </thead> <tbody> <tr> <td>Base year</td> <td>212.5</td> </tr> <tr> <td>Actual Emissions 2001</td> <td>216.1</td> </tr> <tr> <td>Kyoto target 2008-12</td> <td>199.7</td> </tr> <tr> <td>Projection 2010 (with P&M)*</td> <td>239.0</td> </tr> </tbody> </table>	Year/Target	Mt CO _{2e}	Base year	212.5	Actual Emissions 2001	216.1	Kyoto target 2008-12	199.7	Projection 2010 (with P&M)*	239.0
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Projection 2010 (with P&M)*	239.0										
<p>Contribution of JI / CDM and other sectors to target</p>	<p>* The difference between projections 2010 and target is expected to be covered roughly half/half by additional measures and flexibility instruments.</p>										
<p>JJ/CDM: For 2005-07 no government purchase of credits occurred/planned. For 2008-12 government purchase of credits from JI/CDM expected to amount to some 20 Mt CO_{2e}/a (100 Mt CO₂ for total 5-year period i.e. about half the annual Kyoto reduction target). 77 Mt CO₂ already bought through public contracts to individual companies (CERUPT and ERUPT contracts) and contracts with EBRD and Prototype Carbon Fund. If the 'linking' directive accepted according to present proposal, companies may buy CERs and ERUs. No specifics given yet in the NAP.</p> <p>Other sector targets: indicative targets 2008-12 for: Agriculture: 7 Mt CO₂ p.a. (responsibility: Ministry of Agriculture). Transport: 38 Mt CO₂ p.a. (Ministry of Transport). Households and services: 29 Mt CO₂ p.a. (Ministry of Environment).</p>	<p>Sources: Dutch NAP, CEU 2003b.</p>										

Allocation Rules

Allocation method	New entrants
<p>The allocation is 100 % free grandfathering.</p> <p>Sector allocation: Total quantity of CO₂ allowances for allocation derived from Dutch Kyoto objective, partly fulfilled by CDM/JI. Domestic CO₂ emission allowance is divided across the sectors: agriculture, industry and energy (115 Mt CO₂e/a including ETS and non-ETS companies), traffic and transport, and the built environment. This takes account of expected sectors developments and the effect of existing policy. Separate targets for non-CO₂ GHG.</p> <p>BAU-projections are estimated for the energy-intensive sector as a whole (incl. some installations/emissions not covered by the EU ETS): 109 Mt CO₂e/a for 2005, 112 for 2010. They differ from the above mentioned industry + energy sector target of 115 Mt CO₂ (see RIVM/ECN, 2004). Growth rates set for 8 energy-intensive sectors.</p> <p>Allocation formula for the ET installations: Historic emissions x Sector production growth x Efficiency level x Correction factor for total cap. The efficiency level factor rewards previous efforts in reducing emissions.</p> <ul style="list-style-type: none"> • Historic emission = average CO₂ emission 2001/02 • Production growth = production growth over 2003-06 • Energy efficiency = energy efficiency established within the framework of Benchmarking covenant (distance to world top) or Long-term agreement (definite energy saving measures retained in the company energy saving plan). Specific values apply to installations not participating in agreements (0.85). If companies have saved more energy than according to covenants, they receive extra rights. • Allocation factor (0.97 for all installations) = factor to keep sum of individual emissions within total allowance. 	<p>New entrants: companies extending production capacity or starting up in 2003-2008. Free allocation (up to maximum reserve). Allocation for 'new' newcomer installations based on 'realistically planned' annual CO₂ emissions, adjusted by overall correction factor (0.97).</p>
	Reserve
	<p>Reserve (incl. in ET-budget): 4.1 % of ET allowances (4.0 Mt CO₂e/a, or 12 in total) for <u>unknown</u> newcomer installations and appeals made to courts leading to extra allocation. If reserve too small: first come - first served. If too high abundant allowances allocated proportionally for free to all covered installations (by 31/12/2006). For <u>known</u> newcomers additional reserve in the 98.3-4 = 94.3 Mt CO₂e/a.</p>
	Closure of installations
	<p>Installations that will stop their activities during the trade period 2005-2007 will maintain their allocated allowances.</p>
	Technological potential
	<p>Technological potential to reduce CO₂ taken into in sector targets for industry and energy, agriculture, traffic and transport, and built environment. Industry emissions allowed to rise due to limited further reduction potential.</p>
	Emissions change due to new legislation
	<p>Environmental requirements on refining (desulphurisation) and Directive 2001/77/EC for electricity from renewables (reduced emissions due to bio-mass in coal-fired power stations - coal covenant) taken into account .</p>
Early action (EA)	Treatment of clean technologies (e.g. CHP)
<p>Early action is accounted for by means of the relative energy efficiency factor in the allocation formula (implying that installations with relatively high energy efficiencies will receive relatively more allowances).</p>	<p>Criterion 8 about clean technologies is optional and can only be applied at the installation level. In addition, it can only be applied simultaneously with criterion 7 about early action if the early action does not involve an investment in clean technology. Given that early action encompasses all energy-saving measures, criterion 8 is not used in the draft NAP. Investments in CHP installations are also regarded as early action and not as clean technology. CHP: Allocation based on fixed performance standards for power/heat generation, adjusted by the relative energy efficiency ratio (maximised to 1.1). New CHP installations receive free allowances from reserve in order not to penalise CHP as compared to separate generation. Allowances to new installations attributed on basis of Best Available Technologies BAT.</p>
Banking from 2007 to 2008	
<p>No banking allowed.</p>	
Allocation for 2008-2012	
<p>No formal ET budget for 2008-12. 'Indicative target' for the energy-intensive sector as a whole (including non-ETS installations): 112 Mt CO₂e/a for 2008-12 compared to 115 Mt for 2005-07. A new NAP will be drawn up and must be complete by mid 2006.</p>	
Interaction with other Policies and Measures	Process related emissions
<p>Benchmarking covenants and (second round of) Long-Term Agreements on energy efficiency (LTA). In allocating allowances, it has been decided to work as closely as possible to the existing agreements within the scope offered by the EU directive.</p>	<p>Process-related emissions are taken into account with a compliance factor of 1.0.</p>

Poland

Status and Quantitative Assessment

Status of NAP	Distance to target assessment										
<p>Final or draft version of NAP not yet published. Preliminary information</p> <p>The competence for the NAP is with the Ministry for Environment.</p>	<p>Comparison:</p> <p>Allocation budget (incl. reserve for new entrants) / ET-sector emissions 2001: 1.29 (1.19 at lower end of discussed allocation)</p> <p>Allocation budget (incl. reserve for new entrants) / ET-sector emission projections: 1.08 (1.0 at lower end of discussed allocation)</p>										
Rationale for ET-budget											
<p>Total budget allocated for 2005-07 (incl. reserve): No final decision yet, negotiations. Depending on the method:</p> <ul style="list-style-type: none"> • 274.4 Mt CO₂e/a – active allocation (proposed by the Ministry of Environment) • 253.8 Mt CO₂e/a - base allocation- as per guidance from the EU Commission. 	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Mt CO₂e ET-Budget (yearly averages)</p> <table border="1" style="margin-top: 10px; width: 100%; border-collapse: collapse;"> <caption>ET-Budget (yearly averages) Data</caption> <thead> <tr> <th>Category</th> <th>Value (Mt CO₂e)</th> </tr> </thead> <tbody> <tr> <td>Actual Emissions 2001</td> <td>212.5</td> </tr> <tr> <td>Allocation 2005-07</td> <td>274.4</td> </tr> <tr> <td>Projection 2005</td> <td>253.8</td> </tr> <tr> <td>Reserve (for Allocation)</td> <td>5.8</td> </tr> </tbody> </table> </div> <p>Source: Preliminary information on the Polish NAP</p>	Category	Value (Mt CO ₂ e)	Actual Emissions 2001	212.5	Allocation 2005-07	274.4	Projection 2005	253.8	Reserve (for Allocation)	5.8
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Installations covered, Opt-in, Opt-out, Pooling											
<p>Narrow interpretation of Annex I of the ET-Directive: 1,079 installations qualify (only such processes which result in energy production- electricity, heat or steam) covering more than 70 % of total GHG emissions and more than 80 % of CO₂ emissions.</p>	<p>Distance to Kyoto-target of -6%(the right column reflects intended use of Flexible Mechanisms FM):</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">GHG emissions</th> <th style="text-align: center;">Without FM (Mt CO₂e/a)</th> <th style="text-align: center;">With FM (Mt CO₂e/a)</th> </tr> </thead> <tbody> <tr> <td>2001 vs. Kyoto base year:</td> <td style="text-align: center;">-183 (-32%)</td> <td style="text-align: center;">-</td> </tr> <tr> <td>2001 to Kyoto target:</td> <td style="text-align: center;">+149 (+39%)</td> <td style="text-align: center;">not intended</td> </tr> </tbody> </table>	GHG emissions	Without FM (Mt CO ₂ e/a)	With FM (Mt CO ₂ e/a)	2001 vs. Kyoto base year:	-183 (-32%)	-	2001 to Kyoto target:	+149 (+39%)	not intended	
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2001 vs. Kyoto base year:	-183 (-32%)	-									
2001 to Kyoto target:	+149 (+39%)	not intended									
Contribution of JI / CDM and other sectors to target											
<p>JI/CDM: Poland will have credits for sale and is therefore not interested in purchasing them. Already AIJ and JI contracts with Netherlands (Erupt), Canada, Finland and other countries. Planned for 2008-2012: some 69 Mt CO₂e/a</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Mt CO₂e Kyoto-Target (yearly averages)</p> <table border="1" style="margin-top: 10px; width: 100%; border-collapse: collapse;"> <caption>Kyoto-Target (yearly averages) Data</caption> <thead> <tr> <th>Category</th> <th>Value (Mt CO₂e)</th> </tr> </thead> <tbody> <tr> <td>Base year 1986</td> <td>565.3</td> </tr> <tr> <td>Actual Emissions 2001</td> <td>382.8</td> </tr> <tr> <td>Kyoto target 2008-12</td> <td>531.3</td> </tr> <tr> <td>Projection 2010 (with P&M)*</td> <td>394.0</td> </tr> </tbody> </table> </div> <p>Source: CEU 2003b.</p>	Category	Value (Mt CO ₂ e)	Base year 1986	565.3	Actual Emissions 2001	382.8	Kyoto target 2008-12	531.3	Projection 2010 (with P&M)*	394.0
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Allocation Rules

Allocation method	New entrants	
The allocation is 100 % free grandfathering.	-	
<p>Allocation at sector level: In order to calculate overall allocations there are two approaches considered: a historical emission approach and a forecasting approach. A least cost-approach was not considered for Poland due to a surplus of emissions. For both approaches the following formula is applied:</p> <ul style="list-style-type: none"> • $Total_NUM_{aa} = SHARE_{ets} \times LIM_EMI_{05-07}$ with • $Total_NUM_{aa}$: allocated allowances (270.1 Mt CO₂e/a in the historical emissions approach, 276.2 Mt CO₂e/a in the forecasting approach) • $SHARE_{ets}$: share of installations under the ETS – under the first method the historical data are considered, under the 2nd forecasting methods. 1988: 59.6%, 2001: 59.6%, 2005-07: 60.9% • LIM_EMI_{05-07} allowable emissions for 2005-07 derived from Kyoto protocol: 453.2 Mt CO₂e /a <p>There are 3 variants for $Total_NUM_{aa}$ in the forecasting variant according to the underlying scenario:</p> <ul style="list-style-type: none"> • 276.2 Mt CO₂e /a it is a linear reduction from emissions in 1988 to the Kyoto target. This will probably not be accepted by the European Commission. • 255.1 Mt CO₂e /a is calculated from a base scenario assuming that the Kyoto target will be fulfilled without additional reduction • 218.8 Mt CO₂e /a are derived from the so-called BLN scenario with emissions 16% lower than the Kyoto target <p>It is likely that the allocation accepted by the Commission could be between 218.8 and 255.1 Mt CO₂e/a.</p> <p>2 types of allocation:</p> <ul style="list-style-type: none"> • Base allocation = Forecast emissions for 2005-2007 (base allocation 221.8, early action 16.8, non-identified 1.7, economic growth 7.8, new installations 5.8, total: 253.8 Mt CO₂e/a) • Active allocation: = Forecast emissions for 2005-2007 + Cogeneration 2005-2007 (base allocation 239.3, early action 16.8, non-identified 1.7, economic growth 7.8, new installations 5.0, cogeneration 3.8, total: 274.4) <p>Allocation at installation level for 2005-07 is based on the historic emissions for installations in the period 1999-2002. Mean average from 3 years (one year with lowest emissions excluded).</p>	Reserve	
		Reserve for new entrants foreseen. It includes: new installations and non-identified and increase of activity (min. 2-3% up to 5% of total emission allowances)
		Closure of installations
		Definition and treatment of closures under consultation
		Technological potential
		-
		Treatment of clean technologies (e.g. CHP)
		Co-generation bonus 50% according to 2004/8/EC Directive chapter 6.4.3 formula 6.9 (7.5 Mt CO ₂ e/a)
		Emission reduction factor: 0.0946 t CO ₂ /TJ
		Process related emissions
		-
		Early action (EA)
		Early action bonus 75% of effect in the database (22.4 Mt CO ₂ e/a).
	Emissions change due to new legislation	
	-	
	Banking from 2007 to 2008	
	No banking allowed.	
	Allocation for 2008-2012	
	Allocation rule for 2008-2012 not yet announced.	
	Interaction with other Policies and Measures	
	-	

Portugal

Status and Quantitative Assessment

Status of NAP

Draft published on 17 March 2004. Emissions Trading Directive in the process of becoming national law.

The competence for the NAP is with the Ministry for Urban and Spatial Planning and the Environment and the Ministry for Economy.

Rationale for ET-budget

Total budget allocated for 2005-07 (incl. reserve): 116.8 Mt CO_{2e} equally distributed across three years.

For the determination of the total quantity of allowances the reference scenario is taken from the National Climate Change Programme PNAC (average of the high and the low scenario). This scenario is revised according to the most recent information from the installations and takes into account the plans for the expansion of the electricity supply system. It also incorporates the impacts of Community legislation.

Installations covered, Opt-in, Opt-out, Pooling

Wide interpretation of Annex I of the ET-Directive: ET scheme includes 239 installations covering **43.7 % of total GHG emissions** and about **56 % of CO₂ emissions** (based on projections for 2005-07): 17 thermal electric power stations with 58 % of allocations, 2 refineries with 8.3 % of allocations, 32 co-generation plants with 6.7 % of allocations, 22 other combustion installations, remainder: various industrial installations, in particular from cement/chalk production with 19.2 % of allocations). Emissions from participants in ET scheme were 42.8 % of total national GHG emissions in 2002.

Opt-in / Opt-out: not used in 2005-2007.

Pooling: Is allowed, and interest has been manifested. The intentions must be formalised 30 days after the ET Directive is transposed to national law.

Contribution of JI / CDM and other sectors to target

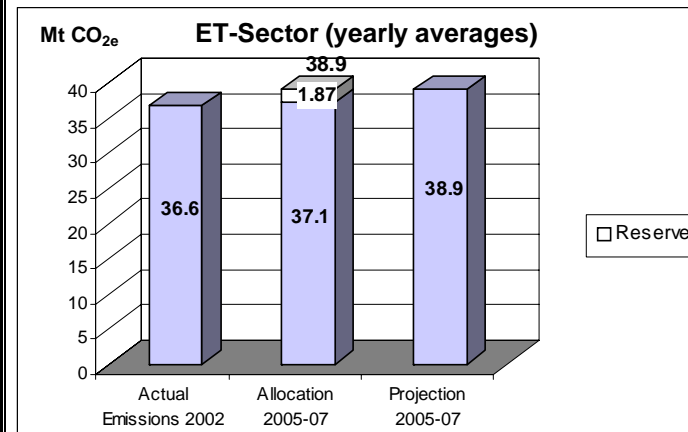
In 2010 the distance to Kyoto target, assuming efficiency in the additional (domestic) measures proposed in the National Programme for Climate Change (PNAC), amounts to a deficit of 6.5 Mt CO_{2e}/a. This deficit will be covered using the Flexible Mechanisms together with new additional domestic measures, in a proportion to be defined according to future monitoring results of the PNAC.

Distance to target assessment

Comparison:

Allocation budget (incl. reserve for new entrants) / ET-sector emissions 2002: **1.06**

Allocation budget (incl. reserve for new entrants) / ET sector emission projections: **0.99**

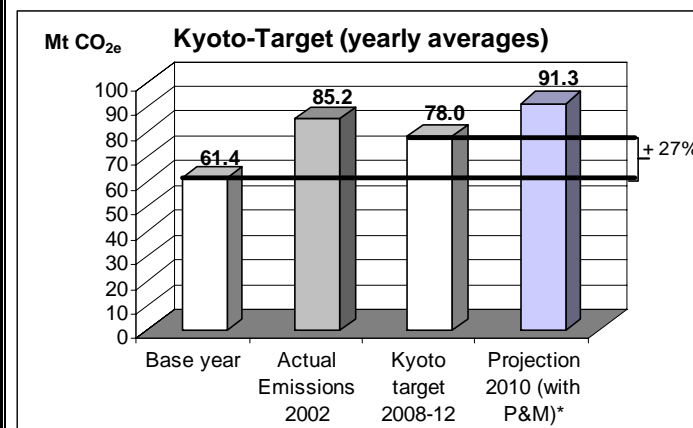


Note: 2002 was a dry year raising emissions (low availability of hydro electr.) ET emissions were 33.5 Mt CO_{2e}/a in 2000, but figure was comparatively low due to repair of a refinery. The allocation for 2005-07 corrects this as well as changes in electricity supply (-1.5 Mt CO_{2e}/a) but incorporates a new combined cycle plant to take up service and new CHP (+2.2 Mt CO_{2e}/a).

Source: Draft Portuguese NAP 2004.

Distance to Kyoto-target of +27%(the right column reflects intended use of Flexible Mechanisms FM):

GHG emissions	Without FM (Mt CO _{2e} /a)	With FM (Mt CO _{2e} /a)
2002 vs. Kyoto base year:	+23.8 (+38.7%)	-
2002 to Kyoto target:	-7.2 (-8.4%)	-0.7 (-0.8%)



Note : Difference projections 2010 and target expected to be covered equally by additional measures and FM.

Sources: Draft Portuguese NAP 2004, CEU 2003b.

Allocation Rules

Allocation method	New entrants
<p>100% cost free grandfathering (except remainder reserve). Allocations are made in a two-stage approach that allocates allowances to sectors and to installations.</p> <p>At sector level: Historic emissions (2002) are combined, when applied, with production projections for 2005-07 (corrected reference scenario from the National Climate Change Programme - PNAC). This yields an emission forecast without additional measures. Combined with the potential for realistic reduction measures the allocation for 2005-07 is obtained, taking into account confirmed plans for expansion at installation level, not considered in the PNAC, to decrease increase or emissions, such as the impact of the EU-Directive for the de-sulphurisation of fuels. Allocation is provisionally subject to more information from installation level (revision of historic emissions, 2003 emissions, identification of additional installations).</p> <p>At activity/installation level: The basic criteria to allocate emissions to installations are the historic emissions from either 2000-02 or 2001-03, excluding at each time the lowest emission levels and by choosing the maximum of the two periods. Correction is made for exceptional periods such as large repair. There are exceptions to this base allocation in cases of major capacity increases between 2000-04, or changes in the processes (e.g. electric steel replacing oxygen steel) or transferred emissions to CHP installations. A global adjustment factor of 1.011 accommodates sector and installation levels (including the reserve for new installations) in the total cap estimated for ET.</p>	<p>New entrants: installations taking up operation (or undergoing substantial changes or extensions) 30 days after the national law that transposes the EU ETS Directive enters into force. Free allocation for new entrants from the reserve. Allocation rule for new newcomer installations based on BAT (Best Available Technology)-standards. After one year of operation, the provisional allocation is reanalysed and the final allocation defined for 2005-2007.</p>
	Reserve
	<p>Reserve (incl. in ET-budget): 4.8 % of total ET emissions (1.87 Mt CO₂e/a, or 5.6 in total). As long as allowances available in reserve: free allocation for new entrants ("first come, first served" basis). After exhaustion of reserve new entrants need to buy allowances on the market. If reserve too large: Government will auction remaining allowances in first trimester of 2008.</p>
	Closure of installations
	<p>Allocation will stop the year following closure except if there is a transfer of activities to a new installation. Emission allowances not used due to closure transferred to reserve. Definition of closure: the competent authority may cancel the allocation if an installation has reduced emissions by more than 50% for reasons other than energy efficiency improvement or fuel substitution. Similar, if an installation increases emissions by 50%, allocation may be based on rules for new entrants..</p>
Early action (EA)	Technological potential
<p>Early actions is considered as a criteria for the attribution of allowances by using historic emissions as the basis. Other consideration to early action was not given.</p>	<p>Incorporated in the form of realistic economic reduction measures in the definition of the reference scenario which forms the basis for overall and sectoral allocation.</p>
Emissions change due to new legislation	Treatment of clean technologies (e.g. CHP)
<p>Reference projections from PNAC at basis of overall allocation incorporate (positive/negative) impacts on emissions of Community legislation, in particular expected emission increase from fuel de-sulphurisation Directive.</p>	<p>New CHP installations will receive allowances for free from the reserve in order not to penalise CHP compared to separate generation.</p> <p>Allowances to new installations will be allocated on the basis of Best Available Technologies BAT.</p>
Banking from 2007 to 2008	
<p>No banking allowed.</p>	
Allocation for 2008-2012	
<p>Allocation rule for 2008-2012 not yet announced.</p>	
Interaction with other Policies and Measures	Process related emissions
<p>Previous voluntary agreements taken into account. Exemption of companies participating in trading scheme from a CO₂ tax under discussion.</p>	<p>Process-related emissions are taken into account with a compliance factor 1.0.</p>

Slovenia

Status and Quantitative Assessment

Status of NAP

Public debate 1st Draft on 16. April 2004. Final version adopted 29 April 2004 by government. Implementation of Emissions Trading Directive: Environmental protection act (Zakon o varstvu okolja), adopted on 31 March 2004. Competence for NAP, within the Ministry for Environment, Spatial Planning and Energy (MOPE).

Rationale for ET-budget

Total budget allocated for 2005-07 (incl. reserve): 26.3 Mt CO₂e or 8.78 Mt CO₂e/a on average. Annual allowance allocation: 35.1 % (2005), 33.3 % (2006), 31.6 % (2007).

Slovenia relies: for power generation on forecast emissions (based on Slovenian Operational Program for Greenhouse emissions reduction - OPGHG 6); for the Industry Sector on a combination of grandfathering/BAT-benchmarking. Allocation according to least-cost principle considering the Kyoto target.

Installations covered, Opt-in, Opt-out, Pooling

Wide interpretation: ET scheme includes 98 installations covering **45 % of total GHG emissions** and about **60 % of CO₂ emissions** (based on projections for 2005-07): 6 from the power sector with 70 % of allocations, industrial installations with 29.2 %). Emissions from participants in ET scheme were 60 % of total national GHG emissions in 2002. **Opt-in / Opt-out:** Opt-ins are energy conversion installations with fuel input power 15-20 MW that will be included on voluntary basis (18 installations, included in analysis with 1.2% of allowances). **Pooling:** One application by two power generators (55% of total allocation and 74% of sector allocation). Application will be considered by the Ministry for the final version of National Allocation Plan.

Contribution of JI / CDM and other sectors to target

JI/CDM: Apart from a general framework, no use of the Kyoto flexible mechanisms JI/CDM. Interested installations may participate in activities outside Slovenia by buying CERs and ERUs. Specifics not yet known.

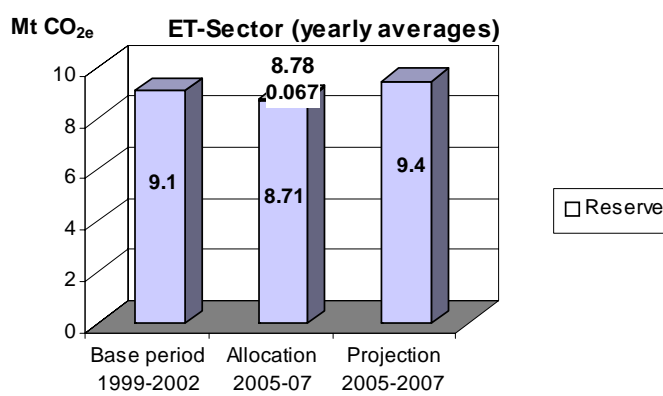
Other sector targets: Set in the "Operational Programme for GHG Emission Reduction" and "National Energy Programme NEP" (2004) adopted by Parliament. With existing policies and measures, emissions from non-ETS sectors are projected to about 6.5 Mt CO₂e/a for 2008-12. According to OPGHG, emissions reduction for non-ETS sector is expected to be 0.5 Mt of CO₂e/a in 2008-12.

Distance to target assessment

Comparison:

Allocation budget (incl. reserve for new entrants) / ET-sector emissions 1999-2002: **0.97**

Allocation budget (incl. reserve for new entrants) / ET sector emission projections: **0.93**

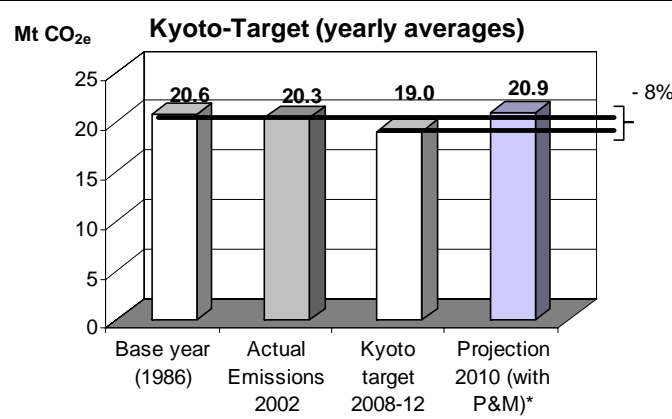


Note: Projections for 2005-2007 are based on a constant share of 60% in the CO₂ emissions.

Source: Slovenian NAP

Distance to Kyoto-target of -8% (the right column reflects intended use of Flexible Mechanisms FM):

GHG emissions	Without FM (Mt CO ₂ e/a)	With FM (Mt CO ₂ e/a)
2002 vs. Kyoto base year:	-0.3 (-1.5%)	-
2002 to Kyoto target:	-1.3 (-6.6%)	not intended



Note: Emission including for the base year 1986 are based on revised inventories as used in the Slovenian NAP.

Sources: Slovenian NAP.

Allocation Rules

Allocation method	New entrants
<p>100% cost free grandfathering with benchmarking correction for industry. No auctions for allowances except for surplus allowances from closures or from reserve for new entrants.</p> <p>Allocation based on a bottom-up approach with adjusted totals for the two sectors ("power generation" and "industry", the latter including any other installations e.g. district heating). Allocation partially based on respective potential for low-cost emission reduction and considering the Kyoto target. Necessary adjustment made by fitting the Sectoral Reduction Factors (SRF) according to the Operational Plan for GHG Emissions Reduction (OPGHG):</p> <ul style="list-style-type: none"> For each permitted installation "relevant emissions" (IRE – Installation Relevant Emissions) are established as the highest annual emissions in the period 1999-2002. Modified by installation benchmark factors and annual compliance factors (for industry only) this is also the installation allocation for 2005. Sector Emission Reduction Factor (SRF) is calculated to achieve projected emissions in the sector according to the OPGHG, as a straight-line from 2005 to 2007 and 2008, first target year. SRF require reduction during 2005-2007 of 10.6% and 4.2% for the "power generation" and "industry" sectors, respectively. $SRF_{pwg}=0.894$, $SRF_{ind} = 0.958$ Allocation 2006: average of 2005/2007 allocations. Allocations for industrial process emissions kept constant at the reference level (maximum for the period 1999-2002). <p>Allocation formula for the ET installations:</p> <p>Power generation: As above, no benchmark factors are used. (Note: term "forecasted emissions" also used in NAP for power generation, not clarified).</p> <p>Industry: $IRE * A * K_{year}$ with:</p> <ul style="list-style-type: none"> IRE – Installation Relevant Emissions = maximal annual emissions in the period 1999-2002 A: BAT factor: 0.85 for BAT non-compliance, 0.9 for BAT compliance; implicitly: A= 1 for CHP bonus K_{year} annual compliance factor, average $K_{year}=1$ 	<p>Free allocation for new entrants from the reserve. Allocation for new newcomer installations based on BAT (Best Available Technology)-standards.</p>
	Reserve
	<p>Reserve (incl. in ET-budget): 0.76 % of total ET emissions (0.066 Mt CO₂e/a, or 0.2 in total). Free allocation for new entrants ("first come, first served" basis). After exhaustion of reserve new entrants need to buy allowances on the market. If reserve too large government auctions remaining allowances off in early 2007; proceeds go into national budget.</p>
	Closure of installations
	<p>Allocation will stop the year following closure except if they are transferred to new installation. Operator has to declare closure; no formal definition yet. Transfer of allocation: Operator has the choice: either rule for newcomer or transfer of allowances for replaced installation.</p>
	Technological potential
	<p>Considered in analysis and presented in OPGHG. Acknowledged by: (1) different Sectoral Reduction Factors for "Power generation" and "Industry", (2) benchmarking factor (A-factor) for industrial installations</p>
	Treatment of clean technologies (e.g. CHP)
	<p>Use of benchmark factors for industry installations. Combined Heat/Power (CHP): For existing CHP bonus for electricity production, no compliance factor applied to this allocation. Standard for CHP is 0.44 t CO₂/MWh. This standard is also applicable to new entrants.</p>
	Process related emissions
	<p>Process-related emissions are taken into account with a compliance factor of 1.0.</p>
Early action (EA)	Banking from 2007 to 2008
<p>Slovenia does not take into account early action at the installation level as it believes a robust methodology for determining early action is not feasible. However, the allocation method based on historical emissions (1999-2002) takes into account all decreases in later years.</p>	<p>No banking allowed.</p>
	Allocation for 2008-2012
	<p>Allocation rule for 2008-2012 not yet announced.</p>
Emissions change due to new legislation	Interaction with other Policies and Measures
<p>Reference projections from OPGHG at basis of overall allocation incorporate (positive/negative) impacts on emissions of Community legislation.</p>	<p>CO₂ tax – will be abolished for ET participants. Industry will be, on average, better off than under CO₂ tax (effectively lower financial burden on the average). Power generation has effectively not been under CO₂ levy regime (exemption)</p>

Sweden

Status and Quantitative Assessment

Status of NAP	Distance to target assessment																															
Final NAP, submitted on 22 April 2004. List of installations included.	<p>Comparison:</p> <p>Allocation budget (incl. reserve for new entrants) / ET-sector emissions 1998-2001: 1.13.</p> <p>Allocation budget (incl. reserve for new entrants) / ET sector emission projections: 0.86.</p> <div style="text-align: center;"> <table border="1" style="margin: 10px auto;"> <caption>ET-Sector (yearly averages)</caption> <thead> <tr> <th>Period</th> <th>Mt CO_{2e}</th> </tr> </thead> <tbody> <tr> <td>Base period 1998-2001</td> <td>20.2</td> </tr> <tr> <td>Allocation 2005-07</td> <td>22.1</td> </tr> <tr> <td>Projection 2005-2007</td> <td>26.6</td> </tr> <tr> <td>Reserve (Allocation)</td> <td>0.8</td> </tr> </tbody> </table> </div> <p>Source: Swedish NAP 2004.</p> <p>Distance to Kyoto-target of +4% (the right column reflects intended use of Flexible Mechanisms FM):</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">GHG emissions</th> <th style="text-align: center;">Without FM (Mt CO_{2e}/a)</th> <th style="text-align: center;">With FM (Mt CO_{2e}/a)</th> </tr> </thead> <tbody> <tr> <td>2001 vs. Kyoto base year:</td> <td style="text-align: center;">-0.9 (-1.3%)</td> <td style="text-align: center;">-</td> </tr> <tr> <td>2001 to Kyoto target:</td> <td style="text-align: center;">-4.5 (-6.4%)</td> <td style="text-align: center;">not intended</td> </tr> </tbody> </table> <div style="text-align: center;"> <table border="1" style="margin: 10px auto;"> <caption>Kyoto-Target (yearly averages)</caption> <thead> <tr> <th>Category</th> <th>Mt CO_{2e}</th> </tr> </thead> <tbody> <tr> <td>Base year</td> <td>71.4</td> </tr> <tr> <td>Actual Emissions 2001</td> <td>70.5</td> </tr> <tr> <td>Kyoto target 2008-12</td> <td>75.0</td> </tr> <tr> <td>Projection 2008-12 (with P&M)</td> <td>69.4</td> </tr> <tr> <td>Target (+4% from 75.0)</td> <td>76.4</td> </tr> </tbody> </table> </div> <p>Source: Swedish NAP 2004.</p>	Period	Mt CO _{2e}	Base period 1998-2001	20.2	Allocation 2005-07	22.1	Projection 2005-2007	26.6	Reserve (Allocation)	0.8	GHG emissions	Without FM (Mt CO _{2e} /a)	With FM (Mt CO _{2e} /a)	2001 vs. Kyoto base year:	-0.9 (-1.3%)	-	2001 to Kyoto target:	-4.5 (-6.4%)	not intended	Category	Mt CO _{2e}	Base year	71.4	Actual Emissions 2001	70.5	Kyoto target 2008-12	75.0	Projection 2008-12 (with P&M)	69.4	Target (+4% from 75.0)	76.4
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There are no targets included for other sectors in the NAP. However, an emissions target exists for the transportation sector for 2010 not to increase CO ₂ emissions above 1990-level, but this target is not mentioned in the NAP.																																

Allocation Rules

Allocation method	New entrants
<p>100% cost-free allocation.</p> <p>Top-down:</p> <p>Different treatment of energy sector and industry sector, because industry sector is subject to international competition rather than the energy sector, and because the potential to reduce emission in the energy sector is higher.</p> <p>Bottom-up: Allocation at installation level for energy-related emissions is the mathematical product of:</p> <ol style="list-style-type: none"> 1) average historic emissions in 1998-2001 2) compliance factor of 1.0; or 3) compliance factor of 0.8 for power or heat plants and for CHP-plants in the energy sector. <p>A correction factor larger than one can be used if there has been any exceptional event such as breakdown or reconstruction.</p>	<p>Free allocation for all new entrants from:</p> <ol style="list-style-type: none"> a) amount dedicated to planned expansion (1.0 Mt CO₂e/a); b) reserve (0.8 Mt CO₂e p.a.). <p>For energy plants in industry and CHP plants allocation will be based on average emission levels for existing heat, power and cogeneration plants (including biomass plants). In the energy sector, the benchmark for electricity will be 265 t CO₂/GWh and for heat 83 t CO₂/GWh. To get the final allocated quantities the sums are multiplied by a factor of 0.8 in the energy sector and of 1.0 for energy plants in industry.</p> <p>For installations other than those producing power, heat and/or steam, allocation will be based on BAT</p> <p>For process-related emissions allocation will be based on projected emissions.</p> <p>Quantities from reserve will be allocated based on first-come-first-served principle. No decision on what to do with any left-over allowances.</p>
	Reserve
	Reserve: 3.5 % of ET-budget (0.8 Mt CO ₂ e p.a., or 2.4 Mt CO ₂ e in total) for unknown new entrants. Quantities will be allocated on a “first come, first served” basis.
	Closure of installations
	No decision.
	Technological potential
	Considered for process-related emissions.
Early action (EA)	Treatment of clean technologies (e.g. CHP)
No specific account for early action apart from using average historic emissions back to 1998.	Existing and new CHP-plants in industry are entitled to compliance factor of 1.0.
Emissions change due to new legislation	Process-related emissions
The directive 1999/32/EG and additions to 93/12/EEC regarding reduced sulphur content in some liquid fuels are will lead to the construction of a new hydro cracker and hydrogen plant. The plant will be allocated emissions according to projected demand.	The compliance factor for process-related emissions is 1.0.
	Interaction with other Policies and Measures
	Not described in the NAP. However, a carbon tax is levied on fuels used both in district heating systems and industry that might interact with the trading system. There is an on-going discussion whether the tax system should be changed as a consequence of the trading system but no decision is made yet.
Banking from 2007 to 2008	Allocation for 2008-2012
No decision.	No information in NAP..

United Kingdom

Status and Quantitative Assessment

Status of NAP

Final NAP was submitted beginning of May 2004. There was a list of installations (annex A) included but no list of allocation. The revised list of installations with individual allocations will be published by late July/early August 2004. Draft NAP was issued in January 2004, and public comments have been summarised and incorporated.

Rationale for ET-budget

Total budget allocated for 2005-07 (incl. reserve): 736 Mt CO_{2e}/a equally distributed across years.

Overall target based upon DTI projections of sector emissions for 2005 and 2010, including the effect of the UK climate change programme (CCP) which includes the effects of Climate Change Agreements. The power generating sector will be responsible for reductions of 1.83 MtCO_{2e}/a in 2005-2007, since this sector faces limited international competition and a relatively large scope for low cost abatement opportunities. Further more this sector may be in a better position to roll over the higher marginal costs of generation. The total ET-budget might be modified e.g. due to updated projections, receipt of revised data on historic emissions from installations, review of the Climate Change Agreement targets (CCAs), identification of additional installations and other factors.

Installations covered, Opt-in, Opt-out, Pooling

Fairly wide interpretation based upon UK interpretation of the wording of the IPPC directive and the UK definition of terms such as 'directly associated'.

<http://www.defra.gov.uk/environment/climatechange/trading/eu/pdf/eu-ets-guidance01.pdf>

About **1.500 installations** will be included, which cover about **38% of total GHG** and **46% of CO₂** emissions.

Opt-in: Not applied.

Opt-out: Signatories of Climate Change Agreements and participants of the UK Emissions Trading Scheme may apply to opt-out of the Scheme for the first phase.

Pooling: Limited to operators of combustion installations with a rated thermal input of less than 50MW.

Contribution of JI / CDM and other sectors to target

No governmental purchase of credits Flexible Mechanisms since UK is likely to comply with the burden sharing target.

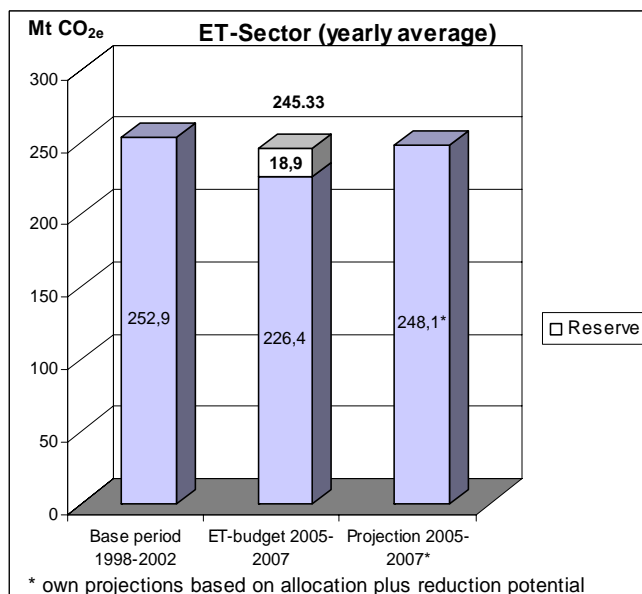
No formal targets for other sectors, but CCP sets out BAU projections for each sector, lists the planned policies and estimates the effect of each policy.

Distance to target assessment

Comparison:

Allocation budget (incl. reserve for new entrants) / ET-sector emissions 1998-2002: **0.97**

Allocation budget (incl. reserve for new entrants) / ET sector emission projections: **0.99**

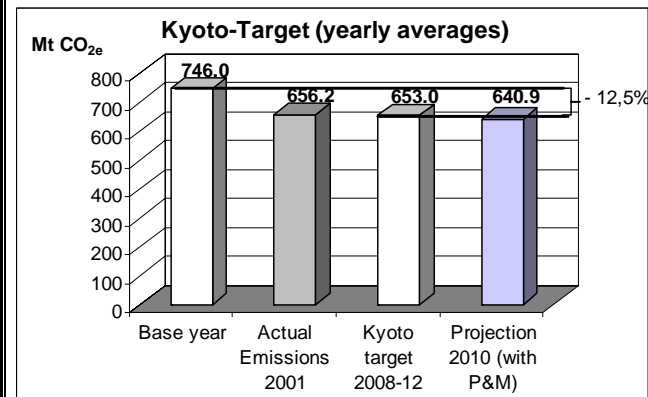


Sources: UK NAP 2004.

Distance to Kyoto-target of -12.5% (the right column reflects intended use of Flexible Mechanisms FM):

GHG emissions	Without FM (Mt CO _{2e} /a)	With FM (Mt CO _{2e} /a)
2002 vs. Kyoto base year:	-89.8 (-12%)	-
2002 to Kyoto target:	-3.4 (-0.5%)	not intended

Compared to projections the UK is going to over-achieve its Burden Sharing Agreement by most likely 12 Mt CO_{2e}.



Sources: UK NAP 2004, EEA database 2004, CEC(2003c).

Allocation Rules

Allocation method	New entrants
<p>Two-stage approach: allocation at sector level and subsequently allocation to installations within each sector.</p> <p>Sector allocation: Projected emissions for 2005-2007. The projections are based on the energy use and emissions projections which have been and are still to be updated. Different sub-sectors have been distinguished to incorporate the Climate Change Agreements targets. The power sector will be allocated 5.5 Mt CO₂ below the projected emissions.</p> <p>Allocation for individual installations according to each installations share of relevant historic emissions over the period 1998-2003. This average excludes the lowest year's emissions for each installation.</p> <p>Formula: $\text{Installations relevant emissions}_{1998-2003 \text{ (-lowest year)}} / \text{sum of relevant emissions of all installations in the sub-sector} * \text{Total sub-sector allocation}$</p> <p>Special rules for calculating the relevant emissions of:</p> <ul style="list-style-type: none"> - installations undergoing commissioning during the baseline period, - inter-site rationalisation of production has taken place during the baseline period, - installations commencing operations in 2003. 	<p>Free allocation for new installations commencing operation after 31 December 2003 and some exceptions (e.g. for recommencing operation). Allocation in advance on first-come-first-served basis. Partial allocation for installations whose operations commence during the course of a year, and full allocation for subsequent years. Allocation to be based on a standardised methodology (e.g. benchmarking) which will be developed (criteria are set in Appendix C).</p>
	Reserve
	<p>A reserve of 7.7% of total allocation or 18.9 Mt CO₂ p.a. has been created for new entrants, which is subtracted from allocation to existing installations. Any surplus allowances remaining in the new entrant reserve at the end of each year will be auctioned off.</p>
	Closure of installations
	<p>Allocation will stop the year following closure. Emission allowances not used due to closure will be transferred to reserve.</p>
	Treatment of clean technologies (e.g. CHP)
	<p>No special treatment for existing CHP. New CHP to be allocated allowances from a ring-fenced portion of the NER on the basis of benchmarks. Allocation for new entrants to be based upon benchmarking methodology, which should encourage clean technology.</p>
Early action (EA)	Process related emissions
<p>EA due to base period (average of period 1998-2003) and special treatment of rationalisation during the base period.</p>	<p>Process-related emissions were forecasted separately from non-process emissions in calculation of sector totals.</p>
Emissions change due to new legislation	Interaction with other Policies and Measures
<p>More than 12 policies have been assessed. The only policy which will lead to an unavoidable increase in CO₂ emissions is the Liquid Fuel Directive. This effect was incorporated in the projections and reflected in the budget for the refinery sector.</p>	<p>Extremely complex: existing energy tax (CCL), existing negotiated agreements (CCAs) and existing UK emissions trading scheme (UK ETS). Also concerns about the increase in electricity prices from the EU ETS and the consequent double regulation of electricity if the CCL on electricity is retained</p>
Technological potential	Allocation for 2008-2012
<p>The technological potential was taken into account in determining the total quantity of allowances and the distribution of allowances on activity level, due to the fact that: a) emissions projections incorporate the current estimates of CO₂ savings from each measures described in the Climate Change Programme. B) The Climate Change Agreements took into account the emission reduction potential in each sector. They have been the basis for activity level allocation.</p>	<p>Not announced. However, it is stated, that the ET-sector will make an appropriate contribution to reach the national goal of a 20 % reduction in CO₂-emissions in 2010. Further assessment in review of Climate Change Programme in 2004.</p>
	Banking from 2007 to 2008
	<p>Not allowed.</p>