



report

IVL Swedish Environmental Research Institute

Analysis of national allocation plans for the EU ETS

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Rapportens titel och undertitel/Title and subtitle of the report Analysis of national allocation plans for the EU ETS	
Sammanfattning/Summary The EU ETS is a Community-wide scheme established by Directive 2003/87/EC for trading allowances to cover the emissions of greenhouse gases from permitted installations. The first phase of the EU ETS runs from 1 January 2005 to 31 December 2007. Each Member State must develop a National Allocation Plan for the first phase stating: <ul style="list-style-type: none">• the total quantity of allowances that the Member State intends to issue during that phase; and• how it proposes to distribute those allowances among the installations which are subject to the scheme In this paper twelve of the national allocation plans have been analysed and compared to the criteria stated in the EU Directive. The twelve allocation plans analysed are: the Austrian, the Danish, the Finnish, the German, the Irish, the Lithuanian, the Luxembourg, the Dutch, the Swedish, the British and the draft Flemish (Belgium) and Portuguese. Generally most countries have allocated generously to the trading sector. The allocation has often been based on future needs. For most sectors the allocation is higher than current emissions. Many countries will have to make large reductions in the non-trading sector and/or buy credits through JI- and CDM- projects in order to fulfil their commitment according to the EU burden sharing agreement of the Kyoto Protocol. In many of the allocation plans the emission reducing measures in the non-trading sector is poorly described and the credibility of the measures are hard to determine. Two sectors have been analysed in more detail, the energy and the mineral oil refining sectors. Figures presenting allocation vs. current emissions for those sectors are given for those countries where data was available in the allocation plan. The energy sector has been considered to have the best possibilities to pass on costs for the allowances to the consumers and hence the allocation to this sector is often more restricted than the allocation to other sectors. The mineral oil refining sector is more exposed to competition from installations outside the system and hence more sensitive to extra costs. This sector is also affected by other Community legislation that will lead to higher emissions. Some allocation plans have clear infringements to the rules given in the Directive 2003/87/EC. Many countries have suggested ex post adjustment of allocation due to different circumstances, which might violate Article 11.1 to the Directive. This paper also contains a list on the status of the allocation plans as of 18 August 2004 and the comments to the allocation plans given in the Commission decisions taken upon them. As of today, 18 August 2004 not all Member States have submitted their final national allocation plan to the Commissions and not all of the plans submitted have been assessed by the Commission.	
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2 Introduction

The Directive

The EU ETS is a Community-wide scheme established by Directive 2003/87/EC for trading allowances to cover the emissions of greenhouse gases from permitted installations. The first phase of the EU ETS runs from 1 January 2005 to 31 December 2007. Each Member State must develop a National Allocation Plan for the first phase stating:

- the total quantity of allowances that the Member State intends to issue during that phase; and
- how it proposes to distribute those allowances among the installations which are subject to the scheme

These Plans must be based on objective and transparent criteria, including those listed in Annex III of the Directive. Annex III consists of both mandatory and optional criteria. National Allocation Plans must be published and notified to the European Commission. The Commission, together with the other Member States, will then consider each National Allocation Plan. The Commission may reject any aspect of any Plan on the basis that it is incompatible with the Directive, giving reasons, and may propose amendments. Once accepted by the Commission, the National Allocation Plans will form the basis for the final decisions made by each Member State on the total quantity of allowances to be issued and their distribution to installations subject to the Scheme under Article 11 of the Directive. For the period 2005 to 2007, these final allocation decisions must be made by 1 October 2004.

The problem

The allocation methodology implemented by the different member states is likely to differ in several ways, including:

- The choice of allocation methods, i.e. emission based or production based allocation
- The choice of base year periods
- How production expansion and new entrants are considered
- How reduction potential and clean technology is considered
- Special considerations to process related emissions
- Etc.

This will most likely create a situation where installations within the same activity across the EU will differ considerably concerning how many allowances they receive in relation to their future “need”, for instance as expressed by their production, in 2005-2007. This, in turn, may create an unbalance within a sector between member states in the competitive conditions.

Scope and aims of this report

The aims of this report are to describe and analyse the different member state's national allocation plans (NAP) in terms of:

- the consistency of the NAP in relation to the member state's responsibility towards Kyoto and the EU burden sharing agreement;
- the pressure put on the trading sector due to the planned allocation. The pressure expressed on the non trading sector due to the reductions that will be necessary in order to reach the Kyoto target. The balance between these pressures expressed on the trading and non-trading sectors respectively
- allocation methodology
- Other aspects of the allocation plan and it's consistency in relation to the Annex III criteria of the Directive

In a parallel project the following analytical indicators on member state level for the sectors "energy production" and "refineries" are being developed:

- Allocation quotas, i.e. the planned allocation divided by the current or projected emissions
- Climate efficiency indicators showing the sector's CO₂-emissions in relation to the production.

We intend to use these indicators to investigate:

- Which member states will have a surplus/deficit in allowances in relation to the CO₂-emissions?
- Is the allocation correlated with historic emissions, i.e. are high historic emissions rewarded?
- Is the allocation correlated to production, i.e. are low emissions in relation to the production rewarded?

3 Description and analysis of NAP:s

3.1 What has been analysed

The time frame of the establishment of the EU emission trading scheme has been very tight. The deadline set for the old (EU15) Member States to submit their national allocation plans to the Commission was 1 April 2004 and for the new Member States the date of accession, 1 May 2004. However only six of the old Member States actually submitted their allocation plans in time (\pm one week) and only a few of the new Member States were on time. Still today, 16 August 2004, not all Member States have submitted their final versions to the Commission. The constant postponing of accessibility of information due to different reasons finally made us to set a deadline. The analysis below is a “snap shot” of those NAPs that were submitted either in final version or in draft version by 18 May 2004 with a few exceptions. Some figures might have been complemented by later updates but the main facts are from the versions of that date. The table below give the information of which NAPs that have been described and analysed in this report. The reason for not analysing other NAPs available at that date was both that the versions available were in languages we did not have good command of (Estonian, Italian) and that the versions available were draft versions where a lot of crucial information could be subject to changes or be missing. The Member States had only been advised to translate the allocation plan to English, which resulted in a delay of the accessibility of the allocation plans to the public. The Slovenian NAP was available in final version in English but was not analysed due to the higher priority of other countries.

Table 3.1. NAPs analysed and described in this report. Status as of 18 May 2004-08-18

Country	Version
Austria	Final version. (1 April) Adjustments as of 7 April considered. English & German
Belgium	Only the draft version of the Flemish part was analysed. (Dutch version)
Denmark	Final version. At an early stage the plan was available both in Danish and English.
Finland	Final version. Appendices could not be assessed since only Finnish version available
Germany	Final version. (1 April) Adjustments by 21 April considered. German & English
Ireland	Final version. (1 April).
Lithuania	Final version. (6 May?). English version.
Luxembourg	Final version. (6 April). Only available in German.
The Netherlands	Final version (26 April). Dutch version.
Portugal	Draft version. Only available in Portuguese.
Sweden	Final version. (29 April)
UK	Final version. (10 May)

In the Conclusion chapter of this report the current (16 August 2004) status of all NAPs and short reviews of Commission decisions on the NAPs are given.

3.1 Methodology and structure of the evaluation

In sections 3.2 – 3.13 the twelve above-mentioned national allocation plans have been evaluated and analysed. In this section, 3.1, we present the methodology and structure for this evaluation. Note that IVL has not reviewed any of the data given by the countries, the values given in this report are the values found in the allocation plans.

The evaluations of the NAPs have been done by answering the same set of questions for each NAP. The answers were used as a basis for an analysis of how well the plan fulfils the Annex III criteria of Directive 2003/87/EC and other issues important for the trading system. Finally there is a section with concluding remarks on the NAP made by IVL. The result of the evaluation and analysis is given for each of the EU member states presented on the format shown below (section 3.1.1 to 3.1.7).

3.1.1 Path to Kyoto

Two figures summarise the emission situation of the Member State. The first diagram shows historic emissions in the trading and non-trading sectors respectively. These values are compared to the projected emissions and the national commitment according to the EU burden sharing agreement, which are also given in the diagram. The second diagram shows how the Member State according to its national allocation plan is planning to fulfil its Kyoto commitment under the burden sharing agreement.

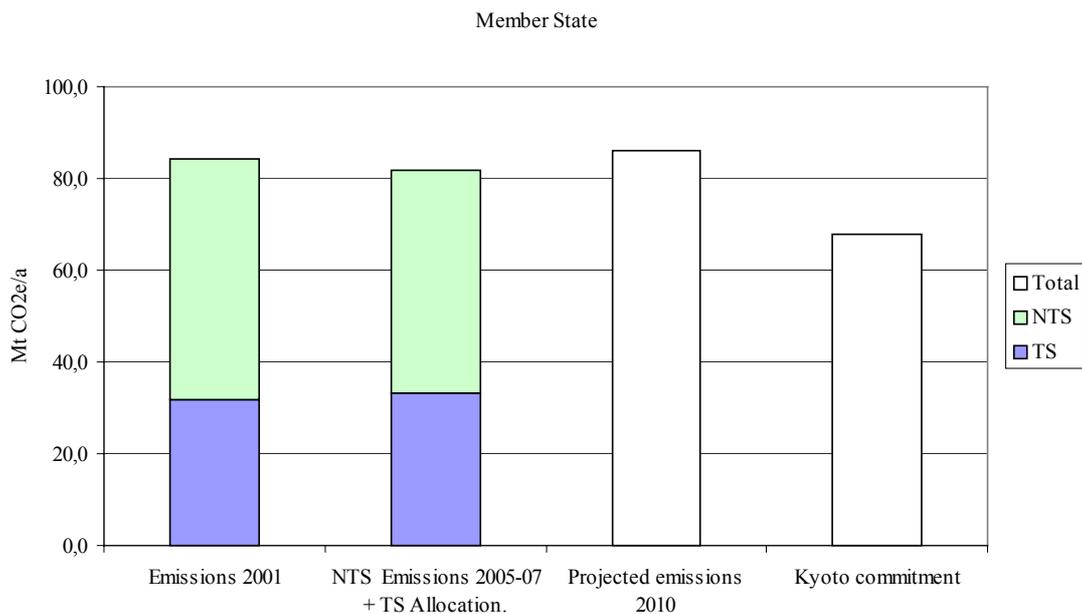


Figure 3.1. The national greenhouse gas emissions budget. The first column (from the left) shows how the present emissions (latest year for which data is available i.e. different year for different countries) are split between trading (TS) and non-trading (NTS) sectors. Note that the trading sector only includes CO₂ emissions whereas the non-trading sector includes all six greenhouse gases (measured in CO₂ equivalents per year [Mt CO₂e/a]). The second column shows the total emissions of greenhouse gases as projected for 2005-2007 (where available). A projection for the non-trading sector is used whereas the allocation is used for the trading sector. The third column shows total greenhouse gas emissions projected for the period 2008-2012 (Kyoto commitment period) where available. The fourth column shows the amount of emissions allowed in accordance

to the national commitment according to the EU burden sharing agreement (or Kyoto commitment for those countries that were not included in the burden sharing agreement).

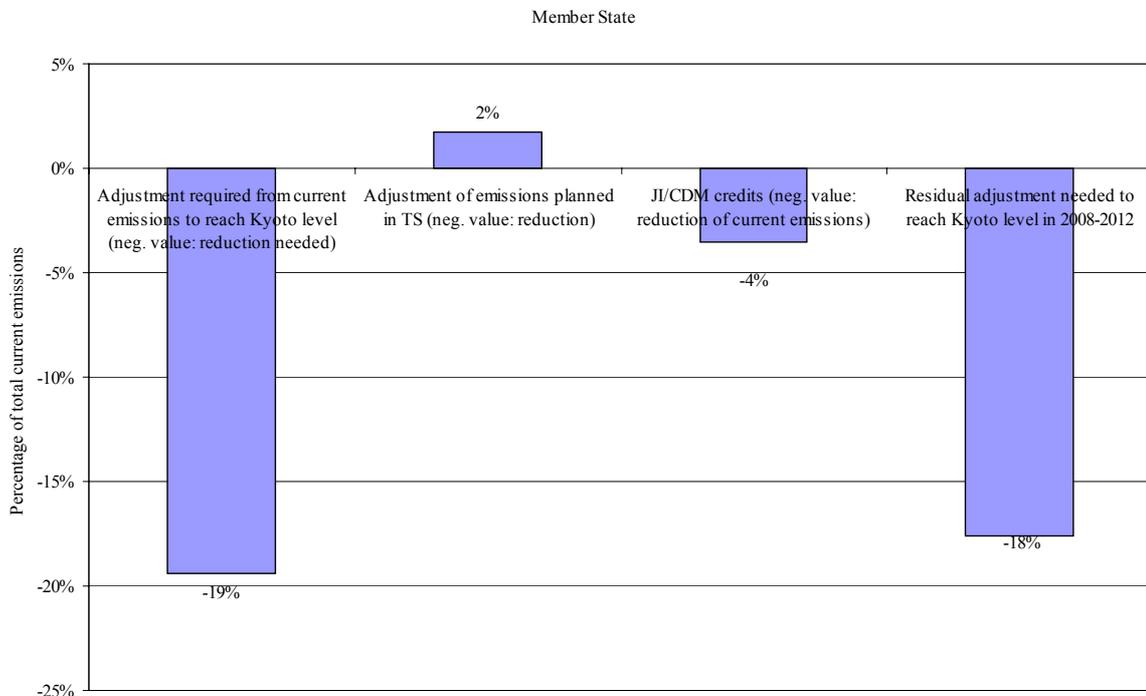


Figure 3.2. Plan on how to fulfil the commitment according to the burden sharing agreement (or Kyoto commitment) using different measures. The first column from the left shows the adjustments necessary to reach the member states’ Kyoto commitment. The second column shows the adjustment of emissions due to the allocation to the trading sector (TS). A negative value means a reduction of emissions and a positive value means an increase of emissions. The third column shows emission reductions due to credits from planned CDM and JI projects. The fourth column is calculated as the residual adjustments needed to be done in order to reach the national commitment according to the EU burden sharing agreement in 2008-2012 under the allocation plan for 2005-2007 and assuming that the planned CDM/JI are realised. All values are given in percentage of current total emissions. The residual reduction can be realised either as measures in the non-trading sector (NTS), as a more restricted allocation in the TS in 2008-2012 or as additional CDM/JI-actions.

Note that the trading sector by definition only includes CO₂ emissions. Even if we talk about different sectors included in the trading system there are greenhouse gas emissions from those sectors that by definition are included in the non-trading sector. Only the CO₂ emissions are included in the trading system. It is not always clear whether or not countries have included the non-CO₂ emissions from the sectors included in the system in figures describing the non-trading sector.

3.1.2 CAP and Allocation methodology

This section makes clear what allocation methodology that has been used. Firstly **the CAP** (total amount of allowances to be allocated over the three-year period) is given. Thereafter the **allocation methodologies** used are described and often a motivation of the size of the CAP is given. Generally,

different allocation methodologies have been used for existing installations and new entrants. Specifically the **allocation methodologies for the energy and mineral oil refining sectors** are described.

3.1.3 Description of how the NAP meets criteria 1 and 2 of Annex III

This section describes how it has been motivated in the NAP that it is in line with criteria 1 and 2 of Annex III (Annex III to the Directive is given in Appendix 1 to this report). Criteria 1 and 2 have been evaluated at different levels. Below criteria 1 and 2 are given.

- Criterion 1. The total quantity of allowances to be allocated for the relevant period shall be consistent with the Member State's obligation to limit its emissions pursuant to Decision 2002/358/EC and the Kyoto Protocol, taking into account, on the one hand, the proportion of overall emissions that these allowances represent in comparison with emissions from sources not covered by this Directive and, on the other hand, national energy policies, and should be consistent with the national climate change programme. 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. Prior to 2008, the quantity shall be consistent with a path towards achieving or over-achieving each Member State's target under Decision 2002/358/ EC and the Kyoto Protocol.
- Criterion 2. The total quantity of allowances to be allocated shall be consistent with assessments of actual and projected progress towards fulfilling the Member States' contributions to the Community's commitments made pursuant to Decision 93/389/EEC.

In order to evaluate how well the NAP is in line with criteria 1 and 2 this chapter begins with a table summarising some important data given in the NAP.

Table 3.2. Key data of the NAP on national and sector level. Note that the trading sector only include CO₂ emissions in consistency with the ETS Directive (Directive 2003/87/EC). All other greenhouse gas emissions are included in the data for the non-trading sector. The emissions in this table given for sub-sectors (energy, mineral oil refining etc.) are only for the trading sector part, hence the values only includes CO₂ emissions (when not else noted).

	Present or Historic emissions.		Projected emissions		Kyoto commitment/ Allocation
Member state	A	Mt CO ₂ e/a	B	Mt CO ₂ e/a (05-07)	C Kyoto commitment: Mt CO ₂ e/a
Trading sector	D	Mt CO ₂ /a	E	Mt CO ₂ /a	F Allocation: Mt CO ₂ /a
Non-trading sector	G	Mt CO ₂ e/a	H	Mt CO ₂ e/a	
Energy sector	I	Mt CO ₂ /a	J	Mt CO ₂ /a (05-07)	K Allocation: Mt CO ₂ /a
Mineral Oil Refining Sector	L	Mt CO ₂ /a	M	Mt CO ₂ /a (05-07)	N Mt CO ₂ /a

Not all data indicated in this table was available in all of the national allocation plans, however in some of the allocation plans more detailed data was available. The data has been used in the subsequent sections in order to compare the allocation and criteria 1 and 2. The criterion evaluation has been split into different levels:

NATIONAL LEVEL

This section focuses on the following parts of criteria 1 and 2:

- Criterion 1. “The total quantity of allowances to be allocated for the relevant period shall be consistent with the Member State's obligation to limit its emissions and the Kyoto Protocol “
- Criterion 2: “The total quantity of allowances to be allocated shall be consistent with assessments of actual and projected progress towards fulfilling the Member States' contributions to the Community's commitments.”

The sum of the allocation to the trading sector (F) and the projected emissions from the non-trading sector (H) is compared to the Kyoto commitment (C). If there is a significant difference between these numbers it should be explained how the country intends to handle this.

SECTOR LEVEL

This section focuses on the following part of criterion 1 and 2 for the trading and non-trading sectors respectively.

Trading sector

The following aspects of criteria 1 and 2 are analysed for the trading sector:

- Criterion 1 “...taking into account the proportion of overall emissions that these allowances represent and, on the other hand, national energy policies”.
- Criterion 2 “total quantity of allowances to be allocated shall be consistent with assessments of actual and projected progress towards fulfilling Kyoto commitment”

Questions answered in this section are:

- Do the projected emissions in the trading sector (E) differ from the present emissions (D)? Why?
- Does the number of allocated allowance (F) differ from the projected emissions (E)? Why?

Non-trading sector

For the non-trading sector the focus is on criterion 1:

- Criterion 1 “...taking into account the proportion of overall emissions that emissions from sources not covered by this Directive represent and, on the other hand, national energy policies.”

A comparison between projected emissions (H) and present emissions (G) in the non-trading sector is made. Planned emission reduction measures in the non-trading sector are described.

SUB-SECTOR LEVEL - THE ENERGY AND MINERAL OIL REFINING SECTORS

Details on projected and present emissions in the energy and mineral oil refining industry are given. Also if there is a difference between allocated allowances and projected emissions for these sectors.

3.1.4 Description of how the NAP meets criteria 3-8 of Annex III

This section describes how the NAP fulfils criteria 3-8 of Annex III (the original formulations of the criteria are given in Appendix 1 of this report). The following questions are answered:

- Criterion 3. Potential to reduce emissions. How has the potential of reducing emissions been considered?

- Criterion 4. Consistency with other legislation. How will new community legislation that will lead to unavoidable increases in emissions for installations be considered? (Ex. For refineries: new legislation on low-sulphur fuels). Existing CO₂-taxes?
- Criterion 5. Non-discrimination between companies or sectors
- Criterion 6. New entrants. How will the allocation to new entrants be done? Energy? Oil mineral refineries? How is expansion treated?
- Criterion 7. Early action. How has early action been considered?
- Criterion 8. Clean technology. How has the use of clean technology been considered?

3.1.5 Other issues

This section describes other issues that might be of importance to the national allocation plan. The specific issues considered are:

- Auctioning. How much will be auctioned?
- Opt in/opt out. Are any installations included or excluded?
- Is emission data on installation level available?
- Is allocation data on installation level available?
- Other issues.

3.1.6 Description on plans to use JI and CDM

This section describes if and how the country is planning to use the other flexible mechanisms in order to fulfil the Kyoto commitment (commitment according to EU burden sharing). Questions answered are:

- Will JI and CDM be used?
- What price on the JI and CDM credits has been assumed?
- Does the country have a program for CDM?
- Will the Government take the whole cost for the JI and CDM programme?
- Is money already set aside for the credits?
- Other relevant information concerning JI and CDM.

3.1.7 Concluding IVL-remarks

In this section the concluding IVL remarks are given. Issues that stand out are commented. Note that this is not an overall summary, only issues of particular interest are commented upon. Generally, the following issues have been commented:

- Allocation methodology
- Fulfilment of criteria 1 and 2 of Annex III
- Fulfilment of criteria 3-8 of Annex III
- Other issues

3.2 Austria

3.2.1 Path to Kyoto

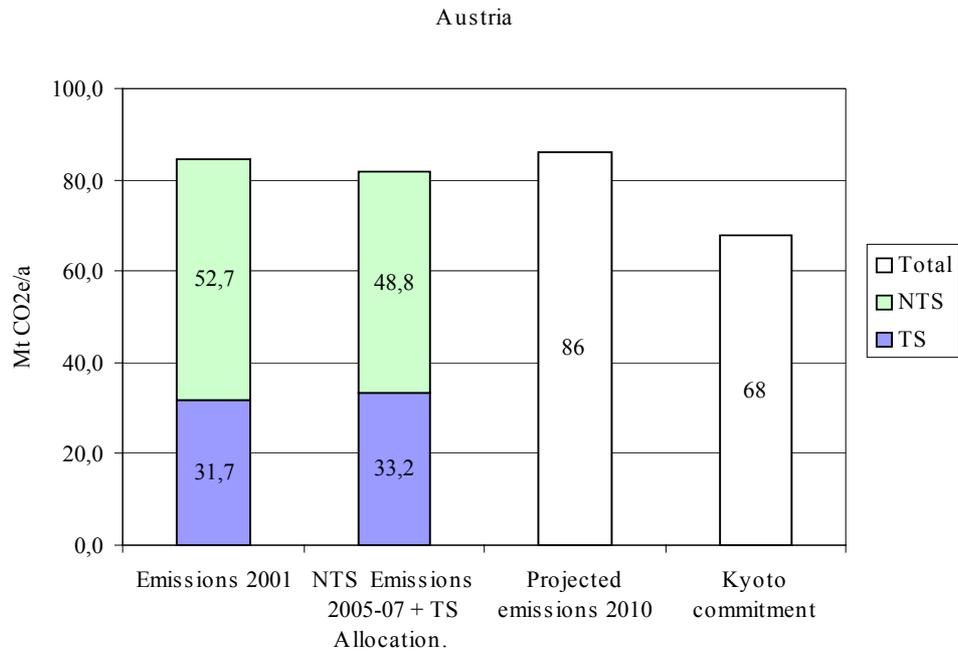


Figure 3.3. The national greenhouse gas emission budget of Austria.

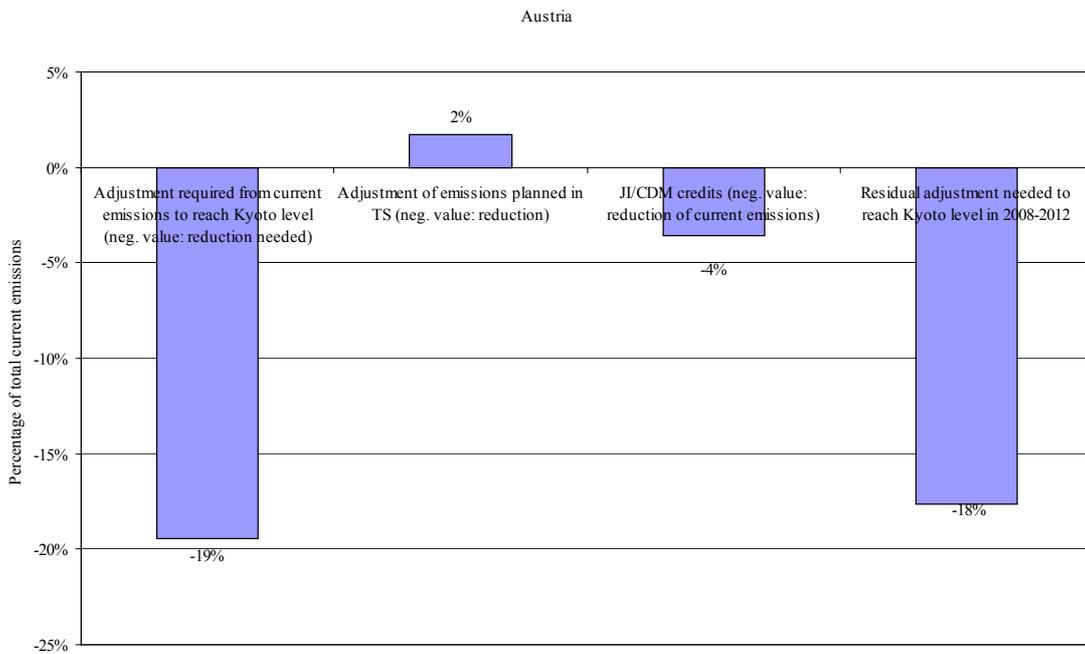


Figure 3.4. Plan on how to fulfil commitment according to the EU burden sharing agreement.

The projected emissions of greenhouse gases for 2010 given in Figure 3.3 are business as usual scenarios based on trend analysis of current/historic trends. Only emission reducing measures existing today have been included. The same is valid for the projected emissions for the non-trading sector for 2005-2007 given in the same figure.

3.2.2 CAP and Allocation methodology

THE CAP

The total number of allowances in the Austrian national allocation plan is 99.6 Mt CO₂ for the three year period, i.e. 33.2 Mt CO₂/a.

GENERAL ALLOCATION METHODOLOGY

The basis of allocation on activity and installation level is grandfathering i.e. allocation based on historic emissions, but also other factors have been considered. The allocation has been specified for four different levels:

- Total level - CAP
- Sector level
- Activity level
- Installation level

The determination of the CAP

In the Austrian Climate Strategy, which was adopted in 2002, distinct emission reduction potentials for each sector that will have to be achieved in 2008-2012 were identified. Business as usual scenarios for each sector used for the establishment of the Austrian climate strategy indicated that greenhouse gas emissions will rise to 86 Mt CO₂e/a by 2010. The business as usual scenarios for the industry and energy sectors (93% of emissions included in ETS) summed up to total yearly emissions of 34.75 Mt CO₂/a. The reduction potential as identified in the Austrian climate strategy was for the energy sector 2.1 Mt CO₂/a and for the industry sector 1.25 Mt CO₂/a. The Bundesregierung (Austrian government) decided that at least 50% of the reduction potential within these sectors should be achieved within the trading sector during the 2005-2007 period. Hence the total amount of emission allowances to be allocated (hereafter referred to as total CAP) was determined to 33.2 Mt CO₂/a (which in total for three years = 99.6 Mt CO₂).

The following calculation was made:

$$34.84 - (1.05 + 0.6) = 33.2 \text{ Mt CO}_2/\text{a}$$

34.84 Mt CO₂/a = Total emissions according to business as usual.

1.05 Mt CO₂/a = 50% of the reduction potential identified in the energy sector.

0.6 Mt CO₂/a = 50% of the reduction potential identified in the industry sector.

The amount includes allowances for new entrants, which were decided to comprise 1% of the total cap.

The allocation of allowances to sectors

The activities included in the trading system have been separated into two sectors, the energy sector (electricity production, heat production and mineral oil refining) and industry sector (the rest of activities included). The allocation on sector level is described in the Austrian national allocation plan by the following formula:

$$\text{Allocation}_{\text{sector}} = (\sum_{\text{activities}} \text{BaU}_{\text{activity}} - \text{climate protection contribution}_{\text{sector}}) * \text{reserve factor}_{\text{sector}}$$

Where: Allocation_{sector} = total amount of allowances allocated to sector

BaU_{activity} = total emissions for each activity in the sector as described by the business as usual scenarios.

Climate protection contribution_{sector} = 50% of the reduction potential as identified in the climate strategy.

Reserve factor_{sector} = factor that sets aside allowances for new entrants and expansion the factor is set to 0.99 and is the same for all sectors.

The allocation of allowances to activities:

Allocation_{(05-07) activity i} = Allocation basis_i * WF_i * PF_i * EF_{sector}

Allocation_{(05-07) activity i} = the allocation of allowances to activity i

Allocation basis_i = the average annual emissions from activity i during the 1998-2001 period.

WF_i = growth factor for activity i (determined by trend analysis).

PF_i = reduction potential factor, this is the weighted mean of reduction potential factors for the installations of the activity (see the section below for further description of the determination of reduction potential factors).

EF_{sector} = (erfüllungs faktor) a compliance factor used to ensure that the total allocation to activities does not exceed the total number of allowances distributed to the sector.

The allocation to installations:

The allocation to installations has been made in a similar way.

Allocation_{(05-07) inst.} = Allocation basis_{inst.} * PF_{inst.} * EF_{inst.}

The denotations are the same as in the equation for the activities but the inst. indicates that it is on installation level instead of sector level. The determination of the PF_{inst.} has been made for the individual installations and considers process emissions, CO₂ intensity of the fuel, CHP-bonus, district heating-bonus, waste heat -bonus and BAT-Malus.

The reduction potential factor:

The following parameters influence the potential factor (PF_{inst.}):

- Process specific emissions \Rightarrow PF = 1 (i.e. no reduction)
- Fuel emissions. Higher CO₂ intensity in a fuel (higher emissions factor) i.e. [t CO₂/TJ] implies a higher reduction potential. If the fuel emission factor :
 = 110 t CO₂/TJ \Rightarrow PF = 0.88 (12% reduction potential) or if fuel emission factor
 = 55 t CO₂/TJ (natural gas) \Rightarrow PF = 0.96 (4% reduction potential) or if fuel emission factor
 = 0 t CO₂/TJ (biofuel) \Rightarrow PF = 1.04 (4% increase).
 Linear interpolation will be used for fuels with emission factors in-between the mentioned ones.
- CHP-Bonus. (Combined heat and power production). If an installation apply for this bonus the reduction potentials given above for the fossil fuels will be reduced by 50%, i.e. instead of a 4% reduction for natural gas the reduction potential will be 2 % hence the PF = 0.98. There are requirements that the co-production must have energy saving of at least 5% compared to if the production of heat and power were made at different plants.
- District heating-Bonus. Same type of reductions as for CHP-Bonus, but the reductions will only be 25%. There are energy efficiency requirements for these installations.
- Waste heat –Bonus. This is virtually the same as the district heating –Bonus but is intended for process industry that are connected to the district heating system and puts in excess heat (waste heat). The reduction of the reduction potential is 25% as for the district heating-Bonus and will be made on fuels used for the excess heat.
- BAT-Malus. If an installation does not use best available technology the required reduction will be increased by 25%.

Note that for one installation only one of the three bonuses CHP, district heating or waste heat can be given.

Allocation to new entrants

New entrants will be allocated allowances based on permitted capacity, average capacity use for activity, expected use of capacity of installation and the assumption of best practice. The allocation will be made according to the first come first serve principle. If the reserve for new entrants is empty, installations are put on a waiting list and allocated allowances when/if allowances become available from closed down installations.

ALLOCATION METHODOLOGY USED FOR THE ENERGY SECTOR

The energy sector has been allocated allowances based on the general methodology. The allocation is based on average historic emissions, no benchmarks have been used. There are certain bonuses for some technologies connected to the energy industry; CHP-bonus, waste-heat bonus and district-heating bonus.

ALLOCATION METHODOLOGY USED FOR THE MINERAL OIL REFINING SECTOR

The Mineral Oil refining industry has also been allocated according to the general methodology. The special considerations are the process-specific emissions and the higher emissions due to the common legislation on production of low-sulphur fuels. This is considered by using the reduction potential factor = 1.

3.2.3 Description of how the NAP meets criteria 1 and 2 of Annex III

Table.3.3 Key Data of Austrian allocation on national and sector level.

	Present or Historic emissions.		Projected emissions		Kyoto commitment/ Allocation
Member state	A	84.6 Mt CO ₂ e/a (2002) 84.4 Mt CO ₂ e/a (2001) 78 Mt CO ₂ e/a (1990)	B	88.8 Mt CO ₂ e/a (2005-2007) ¹ 86 Mt CO ₂ e/a (2010)	C Kyoto commitment: 67.55 Mt CO ₂ e/a
Trading sector	D	29.510 Mt CO ₂ /a (1998) 29.364 Mt CO ₂ /a (1999) 30.288 Mt CO ₂ /a (2000) 31.741 Mt CO ₂ /a (2001)	E	34.84 Mt CO ₂ /a (2005-2007) ¹ 36.5 Mt CO ₂ e/a (2010) ²	F Allocation: 33.2 Mt CO ₂ /a ³
Non-trading sector	G	Values of emissions in non-trading sector not given in the NAP. 52.66 Mt CO ₂ e/a (2001), calculated as total – trading sector.	H	54 Mt CO ₂ e/a (2005-2007) ¹ 47.9 Mt CO ₂ e/a (2010) ⁴	
Energy sector	I	10.255 Mt CO ₂ /a ⁵	J	10.56 Mt CO ₂ /a (05-07)	K Allocation: 9.63 Mt CO ₂ /a ⁶
Electricity		9.847 Mt CO ₂ /a ⁵		10.123 Mt CO ₂ /a (05-07)	9.209 Mt CO ₂ /a ⁶
District heating		0.409 Mt CO ₂ /a ⁵		0.441 Mt CO ₂ /a (05-07)	0.417 Mt CO ₂ /a ⁶
Mineral Oil Refinery Sector	L	2.741 Mt CO ₂ /a (1998) 2.562 Mt CO ₂ /a (1999) 2.470 Mt CO ₂ /a (2000) 2.577 Mt CO ₂ /a (2001) ⁷ 2.587 Mt CO ₂ /a (average 98-01)	M	3.005 Mt CO ₂ /a (05-07)	N 2.768 Mt CO ₂ /a ^{8,6}
Pulp & Paper		2.423 Mt CO ₂ /a ⁵		2.457 Mt CO ₂ (05-07)	2.369 Mt CO ₂ ⁶
Steel ⁹		8.950 Mt CO ₂ /a ⁵		11.84 Mt CO ₂ (05-07)	11.42 Mt CO ₂ ⁶
Cement		2.454 Mt CO ₂ /a ⁵ 2.503 Mt CO ₂ /a (average 98-01)		2.703 Mt CO ₂ (05-07)	2,576 Mt CO ₂ ⁶
Glass		0.281 Mt CO ₂ /a ⁵ 0.206 Mt CO ₂ /a (average 98-01)		0.309 Mt CO ₂ (05-07)	0.293 Mt CO ₂ ⁶

There is also a table in the NAP (pg. 37) with the historic emissions for each sector for each of the years 1998-2001¹⁰.

¹ This value is a business as usual value without any reduction measurements for 2005-2007.

² These values are for the sectors energy and industry, given in the Austrian Climate Strategy.

³ This value includes the reserve for new entrants.

⁴ This value is from the Austrian Climate Strategy and does not include non- CO₂ emissions and CO₂ emissions not included in the trading sector from the energy and industry sectors.

⁵ These emissions are the allocation basis for the sector, which essentially corresponds to average emissions during 1998-2001. The difference between allocation basis and average emissions is only new installations constructed during or after the base period.

⁶ Excludes allowances for new entrants.

⁷ According to EPER the CO₂ emissions from the Schwechat refinery was 2.560 Mt CO₂/a in 2001.

⁸ The allocation to the Schwechat refinery only is 2.721 Mt CO₂/a

⁹ Steel industry includes steel and iron industry.

NATIONAL LEVEL – CRITERIA 1 AND 2 OF ANNEX III

- The sum of allocated allowances (F) and projected emissions for the non-trading sector (H) for the period 2005-2007 is 86.2 Mt CO₂e/a. Note that the value of the projected emissions for the non-trading sector is a business as usual value without any reduction measures for 2005-2007. The projected emissions are given in the Austrian Climate Strategy where also the reduction capacity for each sector is given. The total reduction potential for the non-trading sector amounts to 10.5 Mt CO₂e/a.
- According to the Austrian climate strategy the identified reduction potentials in each sector will still leave 3 Mt CO₂e/a to be accomplished outside the country by the use of the other flexible mechanisms JI and CDM. The measures to be undertaken in order to reach the Austrian commitment under the EU burden sharing agreement are described in the Austrian climate strategy (and in the NAP). The following measures are the most important ones:
 - The renewable electricity production. Targets for renewable fuels and technologies and how they will be promoted are described.
 - National price for renewable produced electricity and support for CHP-electricity from public plants.
 - The phase out of PFC-HPFC and SF₆.
 - JI and CDM program. In August 2003 a national program for JI and CDM was established.
 - Road pricing for trucks. Since January 1st 2004 there is a certain kilometre tax for heavy trucks (over 3.5t).
 - Ecological tax reform. Higher taxes on natural gas, oil, petrol and diesel and coal-usage.

TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- An increase of the emissions from the trading sector is projected. There is a rising trend in the energy sector (which includes the mineral oil refining sector) and a trend of decreasing emissions in the industry sector.
- The difference between projected emissions and allocated allowances is 1.64 Mt CO₂/a (= 34.84-33.2). The reduction corresponds to 50% of the reduction potential of the sectors industry and energy (including mineral oil refining sector).

NON-TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- In this case it is difficult to compare present and projected emissions. The value of present emissions in the non-trading sector includes all emissions not included by the ETS, the projected emissions for 2010 only include the emissions from other sectors than the industry and energy. Non-CO₂ emissions from the energy and industry sector and CO₂ emissions from installations belonging to these sectors but not included in the system are not included in the projection. However in the Austrian Climate Strategy it is possible to see a rising trend also in the sectors not included in the ETS. The transport sector and the use of PFCs and HFCs have strongly increasing emission trends. For these sectors large reduction potentials has been identified in the Austrian Climate Strategy.
- Emission reduction measures planned in the non-trading sector are not explicitly dealt with in the NAP. More information is available in the Austrian Climate Strategy.

¹⁰ All sectors except the district heating, mining and iron-producing industry.

ENERGY SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- There is a growing demand on energy and it could lead to higher CO₂ emissions if it was met by the use of fossil-fuelled electricity plants. However Austria has the intention of increasing its percentage of renewably produced electricity to 78% by 2010.
- The amount of allocated allowances is 1.05 Mt CO₂/a lower than the business as usual scenarios. The Austrian Government has decided that 50 % of the reduction potential within the energy and industry sectors shall be achieved by the trading sector until 2005-2007.

MINERAL OIL REFINING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- According to the Austrian business as usual scenarios the emissions from the mineral oil refining industry are likely to increase within the coming years. The increase will be caused partly by increased capacity and partly due to new regulations such as the obligation to produce cleaner fuels (low-sulphur). The future legislation of production of low-sulphur fuels is considered in the so-called reduction potential factor.
- The mineral oil refining sector has been allocated emissions allowances approximately 5% above the average emissions from the sector during 1998-2001.

3.2.4 Description of how the NAP meets criteria 3-8 of Annex III

Criterion 3. Potential to reduce emissions.

Technology specific reduction potential factors have been used when allocating to installations (and the average of those has been used on activity level). The reduction potential factors are described further under clean technology.

Criterion 4. Consistency with other legislation.

Increases of CO₂ emissions due to coming Community legislation will be treated as process specific emissions and will be allocated with the reduction potential factor = 1, i.e. allocated allowances corresponds directly to emissions.

The following directives have been considered in the allocation process with respect to their influence on CO₂ emissions from included installations:

Directive 1996/61/EC concerning integrated pollution prevention and control

Directive 1999/32/EC relating to a reduction in the sulphur content of certain liquid fuels and amending Directive 93/12/EEC

Directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market

Directive 2001/80/EC on the limitation of emissions of certain pollutants into the air from large combustion plants.

Directive 2001/81/EC on national emission ceilings for certain atmospheric pollutants

Directive 2003/30/EC on the promotion of the use of biofuels or other renewable fuels for transport.

The Directive on sulphur content for liquid fuels have been considered when allocating to the Mineral Oil Refining sector.

The Austrian allocation methodology has also considered if an installation has higher CO₂ emissions due to environmental protecting measures undertaken due to Austrian legislation or voluntary action. Such emissions will be allocated allowances using reduction potential factor = 1.

- Criterion 5. Non-discrimination between companies or sectors.
No comment given.
- Criterion 6. New entrants.
The reserve for new entrants is set to 1% of the total cap and will be calculated as such. It will be allocated by the first come – first serve-principle. The reserve for new entrants is also available for expansions of existing installations.

There are no known new entrants that are not included in the allocation plan.
- Criterion 7. Early action.
Early action was only considered by the use of the reduction potential factors (Potentialfaktor), see *clean technology* below.
- Criterion 8. Clean technology.
The use of clean technology has been considered by the use of reduction potential factors.

3.2.5 Other issues

- 100% will be allocated for free. *See other issues below.*
- No opt-out. A few combustion installations with a smaller effect than 20 MW has requested to participate in the trading system and the requests were accepted by the Minister of Environment. Those opt-in installations are marked in the list of installations given in the NAP.
- Emissions data on installation level is not available in the NAP. (It is said in the Austrian NAP, that in the final report from the UBA/IIÖ survey (Federal Environment Agency and the Institute for Industrial Ecology) historic CO₂ emission data at installation level is available. An aggregated version which does not include these data is available at www.eu-emissionshandel.at)
- Allocation data on installation level is available in the NAP
- If an installation is closed the allowances issued will go to the reserve dedicated for the sector to which the closed installation belonged.
Allowances that are left in the new-entrants reserve by November 30th 2007 will be auctioned.

3.2.6 Description on plans to use JI and CDM

- No definite decision on how much of the reduction that will be solved by JI and CDM has been taken in the Austrian climate strategy. However, at least 3 and up to 5 Mt CO₂/a during the commitment period 08-12 should be achievable. (If all the reduction potentials as described in the Austrian climate strategy are achieved the contribution by JI and CDM will have to be 3.15 Mt CO₂/a in order to fulfil the Kyoto commitment. The amount corresponds to approximately 4.6% of the annual greenhouse gas emissions in the Austrian Kyoto target).
- No assumed price on JI and CDM credits have been mentioned.
- Austria has a programme for CDM.
- The Austrian Government has added money to the budget for climate policies in order implementing the climate strategy. + € 30 million for 2004, + € 60 million for 2005 and + € 90 million annually from 2006 and onwards. 40% of this money will go to measures taken within the country and 60% will go to measures realised outside the country (JI and CDM).

3.2.7 Concluding IVL-remarks of the Austrian NAP

Allocation

No remarks additional to the ones described in previous sections above. The methodology seems to be in line with the ETS directive.

Annex III-criteria 1-2

- Emission trends are not in line with Kyoto commitment. Current emissions need to be reduced by 20 % in order to meet Kyoto target.
- Allocation to the trading sectors allows for an increase in emissions (5 % vs. 2001 emissions), implying very large reductions in non-trading sectors if Austria is to meet its Kyoto commitment.
- Emission reductions amounting to 10.5 Mt are identified in the non-trading sectors, equalling 20 % of current emissions, mainly in the transport sector and through changes in the energy system, in the Austrian Climate Strategy Document. On top of this, 3 Mt annually will be reduced using JI/CDM, and another 1,6 Mt reduction potential is estimated in the trading sectors in the period 2008-2012.
- The credibility of the Austrian NAP in terms of meeting Annex III-criteria 1 and 2 is dependent on how realistic the estimated emission reduction potentials in the non-trading sectors are.

Annex III-criteria 3-8

No remarks additional to the ones made in previous sections. NAP seems in line with Annex III-criteria 3-8.

Other Issues

No remarks additional to the ones made in previous sections.

3.3 Denmark

3.3.1 Path to Kyoto

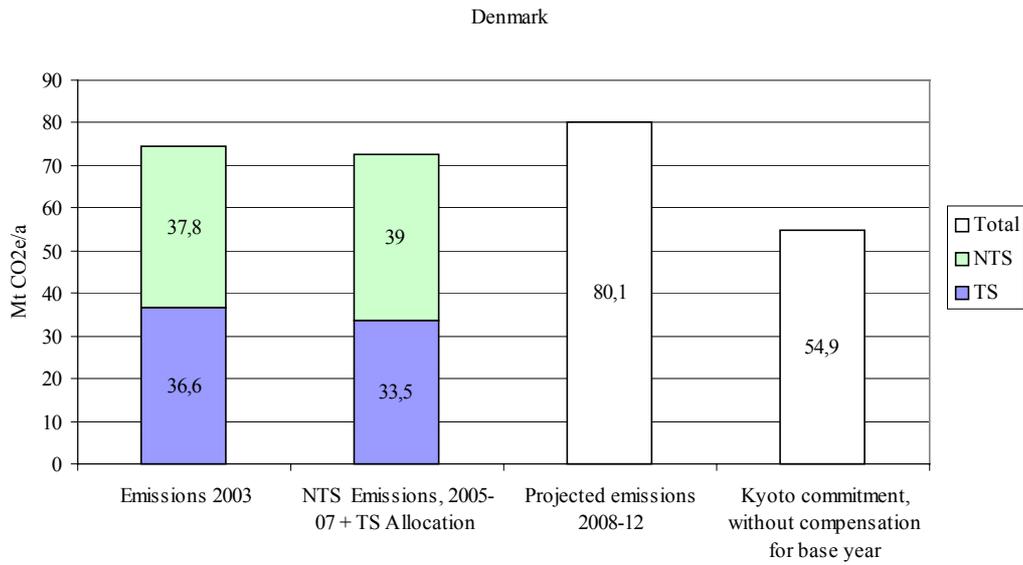


Figure 3.5. The national emission budget of Denmark.

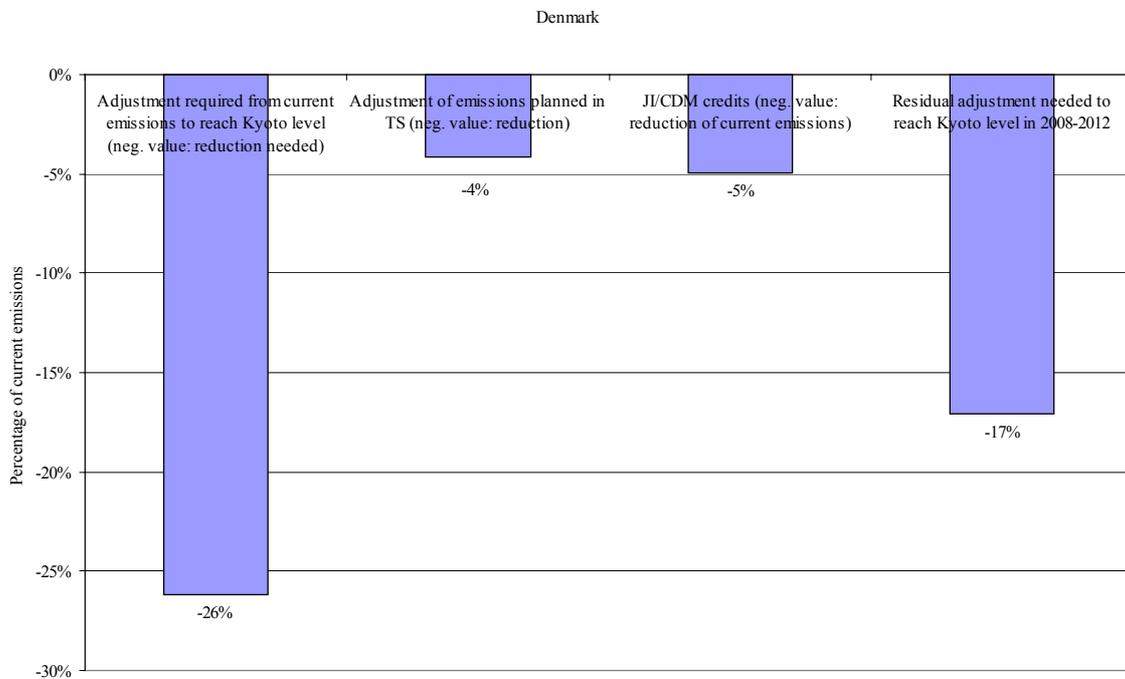


Figure 3.6. Plan on how to fulfil commitment according to EU burden sharing agreement.

The value of projected emissions in Figure 3.5 for 2008-2012 is based on a business as usual scenarios where only present emission reducing measures have been considered. Emission trading was not considered. The same is true for the projected emissions in the non-trading sector for 2005-2007 (same figure).

3.3.2 CAP and Allocation Methodology

THE CAP

- The total amount of allowances given in the Danish NAP is 33.5 Mt CO₂/a (average value). Total amount 2005-2007 = 100.5 Mt CO₂ distributed as 40%, 30% and 30% during the three years (i.e. 40.2 Mt CO₂ 2005, 30.15 Mt CO₂/a in 2006-2007).

GENERAL ALLOCATION METHODOLOGY

- **Combination of top-down and bottom up:** The total cap was set to 85% of the expected emissions (including pools to be auctioned or used for new entrants). All sectors, except the electricity producers, were allocated allowances corresponding to their **historic emissions** during the base years, 1998-2002 (with some adjustments). The electricity sector was allocated what was left of the total cap when the allocation to other sectors had been made.
- For electricity producing installations the allocation has been **based on historic production** during the base years. 0.56 allowances per MWh and year will be allocated to these installations.
- For the use of average emissions or production during the base years the following will apply: January 1st 1998 to December 31st 2002 will be recognised as the base years. If a unit not was in operation during all of the base years the period of operation will be used as base period. If the emissions or production during 2002 was higher than the average value, the 2002 value will be used for the allocation calculations.
- New installations or significant expansions after base period but before the introduction of the Danish Law on CO₂ allowances (after 2nd January 2002 – March 31st 2004) will be allocated allowances based on installed capacity at the specific installation and the average allocation per unit of capacity to existing installations in the same sector that were in operation during the base period.
- New installations after March 31st 2004 will be allocated allowances according to the Danish Law on CO₂ allowances. Allocation will be made per unit of installed capacity based on BAT technology.

ALLOCATION METHODOLOGY USED FOR THE ENERGY SECTOR

- **Allocation to units in operation before January 1st 2002:**
For production of electricity using fossil fuels the allocation for the three-year period will be 1.680 emission allowances/MWh (0.560 allowances/a /MWh) based on average annual electricity production during the base years.
Heat production: The allocation will be based on **historic emissions** during 1998-2002. 3 allowances for every ton of emissions from combustion of fossil fuels for heat production will be allocated.
Allocation to heat production from co-generators: In order to prevent co-generators to pass on the extra cost of buying allowances for the electricity production to heat consumers, a special amendment in the Law on Heat Supply's Price regulations has been made. Otherwise the same allocation methodology as for heat and electricity production is used.
- **Allocation to units that begun operation or had a significant expansion between January 2nd 2002 and March 31st 2004.**
For an electricity-generating installation with the primary objective to deliver electricity and possibly

heat to the collective net, 1589 allowances are allocated annually per installed MW fossil electricity capacity and 530 allowances per installed MW fossil heat capacity.

For other installations, allowances for the 2005-2007 period are allocated annually per installed capacity as follows:

- 1) For power-generation installations in the offshore sector 1420 allowances are allocated per MW of rated thermal capacity.
- 2) For electricity-generating installations the primary objective of which is to generate heat for industrial processes (industrial district-heating or heat for the service sector) 3500 allowances are allocated per installed MW of rated fossil electricity capacity.
- 3) For other power-generation installations in industry, etc. 528 allowances are allocated per installed MW of rated fossil capacity.

In this provision, “significant expansion” is understood as:

- i) For power generating installations; an increase in capacity of at least 10 MW rated thermal capacity.

- **Allocation to new entrants or significant expansions after March 31st 2004.**

A new electricity-producing installation will be allocated 1710 allowances annually per MW installed electricity-production capacity, as well as 350 allowances annually per MW installed heat-production capacity. This allowance allocation corresponds to the allowance need for a natural-gas based, combined-cycle production unit with electrical efficiency of 60%, utilisation time of 5000 hours, and an emission factor of 56.9 kg CO₂/GJ. If it is a question of a co-generation unit, the electricity capacity is calculated with full heat production. This means that, for extraction plants, electricity capacity is calculated with maximum heat yield as opposed to capacity in condensing mode.

A new heat-generating installation which does not generate electricity and the primary objective of which is to generate heat for the public net is allocated 205 allowances per installed MW of heat capacity per year the unit is in operation.

For new power-generation installations in the offshore sector, 4700 allowances are allocated per MW of power-generation capacity measured as shaft power per year the unit is in operation.

In this provision, significant expansion is understood as:

- 1) For power generating installations an increase in capacity of at least 20 MW rated thermal capacity or an increase in capacity of at least 20% in connection with the establishment of combined heat- and electricity generation.
- 2) For other concerned installations an increase of more than 10% of the installed production capacity before the increase.
- 3) For other included installations; an increase in capacity of more than 5% of the installed production capacity before the increase. For these installations, increased CO₂ emission of more than 5% as a result of conversion of the installation to the production of more CO₂-intensive products will also be considered as a significant expansion. The increase is evaluated in relationship to the CO₂ emitted before the conversion.

ALLOCATION METHODOLOGY USED FOR THE MINERAL OIL REFINING SECTOR

- Old installations, in operation before January 1st 2002, have been allocated 3 allowances per ton CO₂ emitted on average during the base years.
- Installations that begun operation or had a significant expansion during January 2nd 2002 - March 31st 2004 will be allocated 46 allowances per installed capacity in tons of refined finished product per day.
- New installations or significant expansions after March 31st 2004 will be allocated per unit of installed capacity based on BAT technology. Processes used directly in the refining and distillation of mineral oil products will be allocated 832 allowances per installed capacity expressed as ton oil equivalents per hour.

3.3.3 Description of how the NAP meets criteria 1 and 2 of Annex III

Table.3.4 Key Data of Danish allocation on national and sector level.

	Present or Historic emissions.	Projected emissions	Kyoto commitment/ Allocation
Member state	A 68.5 Mt CO ₂ e/a (2002) 74.4 Mt CO ₂ e/a (2003)	B 78.3 Mt CO ₂ e/a (05-07) 80.1 Mt CO ₂ e/a (08-12)	C Kyoto commitment: 59.7 Mt CO ₂ e/a. ¹¹ 54.9 Mt CO ₂ e/a. ¹²
Trading sector	D 30.9 Mt CO ₂ /a (2002) 36.6 Mt CO ₂ /a (2003)	E 39.3 Mt CO ₂ /a (05-07)	F Allocation: 33.5 Mt CO ₂ /a
Non-trading sector	G 37.6 Mt CO ₂ e/a (2002) 37.8 Mt CO ₂ e/a (2003)	H 39.0 Mt CO ₂ e/a (05-07)	
Energy sector	I 22.6 Mt CO ₂ /a (2002) 28.1 Mt CO ₂ /a (2003)	J 29.4 Mt CO ₂ /a (05-07)	K Allocation: 21.7 Mt CO ₂ /a (total) 5.3 Mt CO ₂ /a (heat)
Mineral Oil Refining sector	L 0.970 Mt CO ₂ /a (2001) 0.937 Mt CO ₂ /a (2002)	M Not available.	N Allocation: 1.04 Mt CO ₂ /a

NATIONAL LEVEL – CRITERIA 1 AND 2 OF ANNEX III

The sum of allocated allowances (F) and projected emissions for the non-trading sector (H) is 72.5 Mt CO₂e/a, which is much higher than the Danish Kyoto commitment (C). The other flexible mechanisms will be used to reduce the gap between projected emissions and Kyoto target (see JI and CDM below). It is assumed that the State and the ETS sectors will bear the remaining Danish reduction burden for the 2008-2012 period, while the non-ETS sectors emissions remain constant.

TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- The projected emissions are 2.7 Mt CO₂ /a higher than the present emissions. There is an expected increase in the energy producing industry due to large increase of the electricity export. There is also an expected increase in energy demand for the housing sector.
- The allocated amount is considerably lower (ca 15% lower) than projected emissions. Analyses in the climate strategy showed that the least expensive way to fulfil Denmark's international climate obligations would be to require the trading sector to make the largest share of the necessary emissions reductions. This will be achieved by allocating fewer allowances than needed to these sectors. Mentioned activities with low cost reduction potentials are electricity production and offshore (flaring).

NON-TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- In the NAP it is considered to be no change in the non-trading sector, (± 0 Mt CO₂e/a. 2003-2007), however when comparing figures, there is an increase of +1.2 Mt CO₂e/a (3% increase). It is assumed that with current legislation and regulation of greenhouse gas emissions the emissions from the non-trading sector will stay approximately constant at the current level.
- A few new regulations on the non-trading sector are suggested but it is established that new efforts in the non-trading sector will not lead to large reductions before 2008. The plan is to maintain the emissions in the non-trading sector at the current level. The main reason for not trying to reduce them is that the cheap reductions in these sectors already have been carried through.

¹¹ With full compensation for base year. Denmark wishes to adjust its 1990 emissions due to exceptional electricity import during this year.

¹² With no compensation for base year. *See comment above*

ENERGY SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- The projected emissions for the energy sector for 2005-2007 is 1.3 Mt CO₂/a higher than the emissions for the sector in 2003. There is an expected increase in the energy producing industry due to large increase of the electricity export. There is also an expected increase in energy demand for the housing sector.
- The allocated amount to the energy sector is 7.7 Mt CO₂/a lower than the projected emissions for 2005-2007. The energy sector will accomplish the main part of the emission reduction in the trading sector. The reduction will be largest for the electricity-producing activities. The reason is that: The electricity production is not subjected to competition from operators outside the ETS (assumed Norway will be included). It is considered that this sector is particularly positioned to pass on the extra cost for the ETS allowances to the electricity price. Other sectors as for example industry and offshore will have smaller possibilities to pass on extra costs to the product prices since they compete with other operators outside the ETS.

MINERAL OIL REFINING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- There is no data on projected emissions for the mineral oil refining sector
- In the figure showing the trend and the estimated allocation for different sectors (Figure 2.1, p 20 in the Danish NAP) it is clear that all sectors except the energy sector will be allocated allowances close to their projected emissions.

3.3.4 Description of how the NAP meets criteria 3-8 of Annex III

- Criterion 3. Potential to reduce emissions.
Future reductions prioritised according to the least-cost principle - generally expected to occur in ETS-sectors, since inexpensive potential is almost exhausted in the non-ETS sectors due to significant economic and administrative burdens on GHG-emissions in past years. Emissions from ETS-covered sectors were subjected to considerably less pressure and therefore offer greater and less expensive reduction potential – including through access to cheaper international allowances and CO₂ credits.
- Criterion 4. Consistency with other legislation.
Future legislation, which might increase the CO₂ emissions for an installation, will be considered. If the operator can prove that the law will cause the emissions to increase by more than 10% he/she can apply for more allowances from the fund for new installations. CO₂ taxes for installations within the trading sector will be abolished
- Criterion 5. Non-discrimination between companies or sectors.
It has been considered that the electricity production will have better possibilities to pass on the extra cost for reductions to the consumers (since all competitors are included in the ETS. For other industry, like for ex. off-shore there is an international competitiveness with operators not included in the ETS.
- Criterion 6. New entrants.
The reserve for new installations and installations with significant expansion is set to 1.0 Mt CO₂e/a. If an installation is closed before or within the period 2005-2007 the emission allowances for that installation is incorporated in the reserve for new installations and production expansions. The allocation to new entrants will be based on “key-numbers” and emission levels of BAT will be considered.
- Criterion 7. Early action.
Considered by different means in different sectors. For the electricity producing sector consideration to early action has been taken by using historic production. For other sectors

consideration is taken indirectly by the consideration of the total cap and the relatively long basis period.

Criterion 8. Clean technology.

Clean technology is motivated by the same arguments as early action

3.3.5 Other issues

- 5% of the Danish allowances will be auctioned. The auctions will be announced nationally and internationally and is open for everybody, not only Danish installations.
- Opt in/opt out will not be used in 2005-2007 period
- Emission data on installation level is not available.
- Preliminary allocation data on installation level is available.
- Denmark has chosen to follow the EU Commission interpretation of what installations that are covered by the ETS.
Denmark has (and has had) very high CO₂ taxes on non-trading sectors. There has also been high CO₂ taxes on electricity consumption. Most ETS sectors have been exempt from CO₂ taxes until now.

3.3.6 Description of plans to use JI and CDM

- JI and CDM will be used in order to fulfil the Danish commitments. It is mentioned in the Danish NAP that an analysis made for the EU Commission as preparation for the linking Directive indicated price levels on € 14/ton if a ceiling of 6-8% of total allowances issued is set for the conversion of JI and CDM.
That price level is clearly below the costs for most domestic reductions in Denmark.
- The price assumed for JI and CDM credits are 50 DKr/ton CO₂.
- Denmark has a program for CDM. In 2003 contacts were entered for a value of approximately 38 MDKr. Agreements have been made with Ukraine and there are several framework agreements with eastern European countries.
- The Government will take the cost for the amounts of CDM and JI credits mentioned.
- A total of 335 MDKr has been allocated for state purchase of JI and CDM credits. Further annual allocation of MDKr 200 has been allocated for 2005-2007 (total amount 2003-2007 = MDKr 935). This accounts for approximately 3.7 Mt CO₂/a in the 2008-2012 period.
- State purchase of JI and CDM is intended to fulfil the Danish obligation for 2008-2012. However it is not earmarked to cover domestic emissions from particular sectors.

3.3.7 Concluding IVL-remarks of the Danish NAP

Allocation

Denmark has allocated allowances based on historic emissions (old installations, in operation before 2nd January 2002) and benchmarks (new installations taken into operation after 2nd January 2002) to all installations except electricity producers, which have been allocated allowances based on historic production. New installations will be allocated based on installed capacity and benchmarks. Even if some assumptions concerning utilisation have been made it is still possible that this might lead to an over-allocation.

Annex III criteria 1-2

Denmark is not in line with reaching its Kyoto commitment. In order to fulfil its Kyoto commitment Denmark will have to reduce current (2003) emissions by almost 17%. The allocated amount corresponds to a 2.6% reduction of Denmark's total emissions compared to current 2003 emissions (7.4% reduction in trading sector compared to projected emissions). In the trading sector only electricity producers will be allocated less emission allowances than the expected requirements. Denmark plans to use CDM and JI credits corresponding to an amount of 3.7 Mt CO₂/a 2008-2012. That corresponds to reductions of 5% compared to current emissions. Even with the reductions planned to be undertaken Denmark does not seem to be in line with the fulfilment of its Kyoto commitments in 2008-2012. (9.5% reduction compared to current level remains).

Annex III criteria 3-8.

The Danish NAP seem to fulfil these criteria.

Other issues

No additional remarks.

3.4 Finland

3.4.1 Path to Kyoto

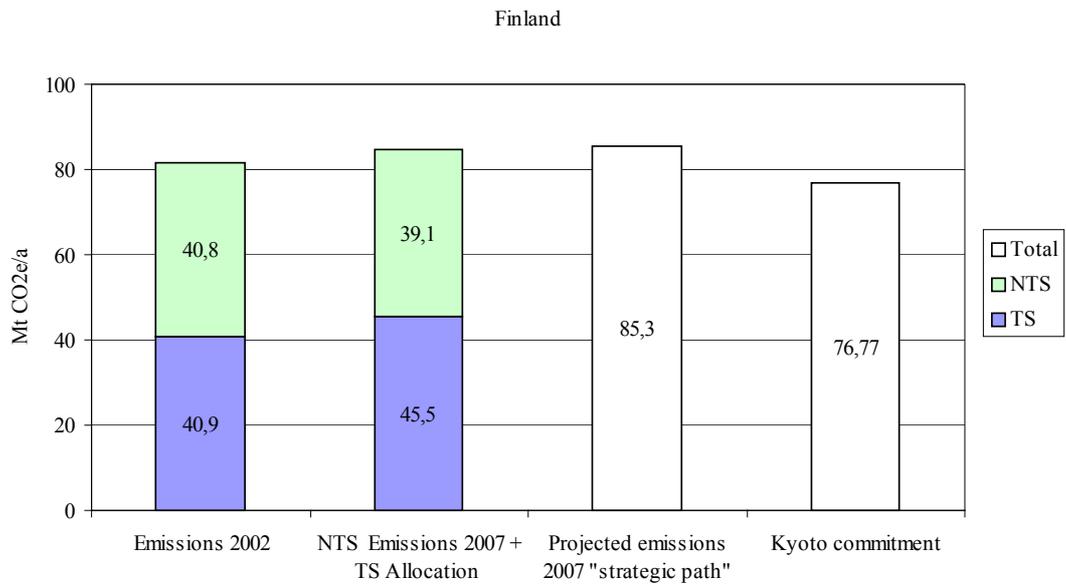


Figure 3.7. The national greenhouse gas budget of Finland.

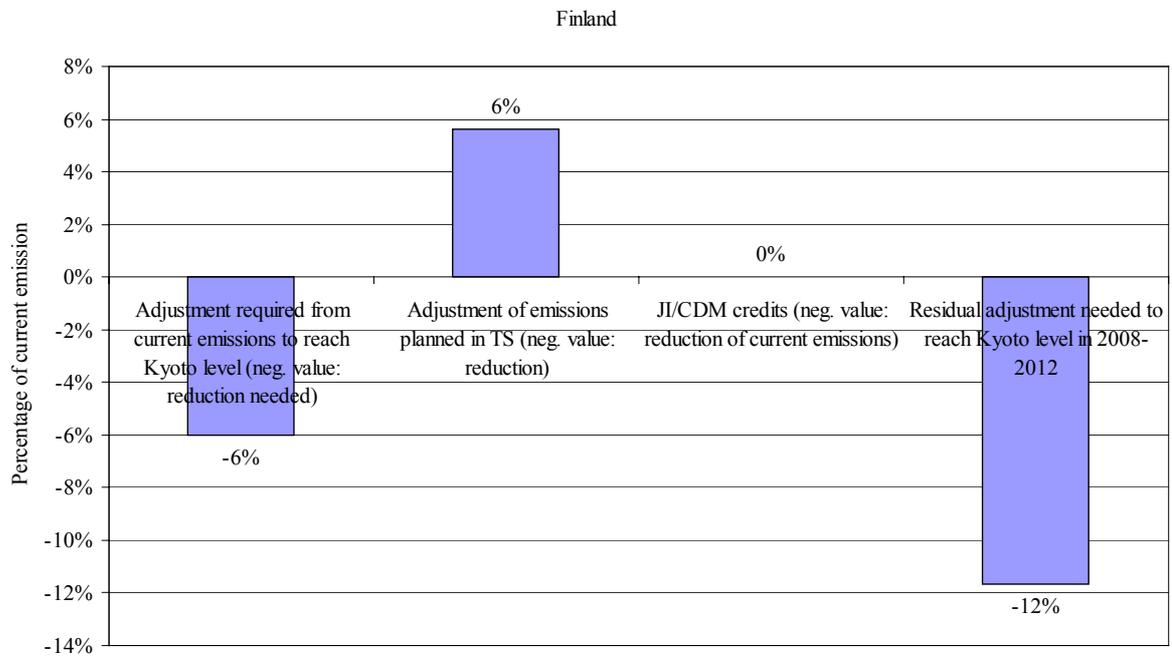


Figure 3.8. Plan on how to fulfil the commitment according to the EU burden sharing agreement.

The value for projected emissions in Figure 3.7, 85.3 Mt CO₂e/a, is called the “strategic path”. This is a target-oriented development path that requires new measures than those already implemented under the current Climate and Energy Strategy.

3.4.2 CAP and Allocation Methodology

THE CAP

- The Finnish allowances will not be allocated with an equal amount annually. The total number of allowances to be allocated for each of the years during 2005 – 2007 is: 2005: 44.9 Mt CO₂; 2006: 45.2 Mt CO₂; 2007: 46.3 Mt CO₂; hence the average allocated amount will be 45.5 Mt CO₂.

GENERAL ALLOCATION METHODOLOGY

- Definitions:
 - A1: Industrial processes in which materials cause emissions
 - A2: Industrial processes in which process fuels cause emissions
 - B: Industrial heat and power production
 - C1: Community heat
 - C2: Cogeneration for external use
 - D: Condensate power
 - E: Peak load power
 - F: New entrants and extensions of old installations
- Installations established 1997 or earlier:

Default methodology for installations producing electricity, heat or steam (categories B, C, D, E): For the base period 1998-2002 yearly specific emission coefficients are calculated as $e = (\text{actual and temperature-corrected annual emissions}) / (\text{the input of fuels})$. The max and min of these five values are omitted and an average value for the three remaining years is calculated. These coefficients are used in the definition of emission allowances for the installations. The formulas for the allocation are given in annex 2 of the NAP (today only available in Finnish). The same method is used to calculate average utilisation degrees, u , and average historic fuel consumption, f .
- Amendments:

The actual fuel consumption figures of installations representing heat consumption and covered by category C1 and C2 (production of heat and electricity mainly delivered outside the place of production) will be corrected to correspond to the long term average temperature.

For installations of the pulp and paper industry covered by the category B1 and B2, only the quantities of peat and fossil fuels are used.

Exception for Category D-installations (condensate power plants and CHP-plants regarded as condensate power). They calculate the correspondent coefficients based on 2000-2003, since these years better correspond to a situation where the temperature and hydropower production in the Nordic countries is more normal.

We (IVL) “guess” that the allocation is calculated as the coefficient, e , multiplied by the fuel consumption, f , possibly multiplied with the utilisation degree, u , (and possibly multiplied by a scaling factor).

- Installations established 1998-2003:

For installation established between 1998 and 2003 the correspondent coefficients are calculated but based on other base years.

ALLOCATION METHODOLOGY USED FOR THE ENERGY SECTOR

- See above.

ALLOCATION METHODOLOGY USED FOR THE MINERAL OIL REFINING SECTOR

- See above.

3.4.3 Description of how the NAP meets criteria 1 and 2 of Annex III**Table 3.5.** Key Data of Finnish allocation on national and sector level.

	Present or Historic emissions.	Projected emissions	Kyoto commitment/ Allocation/
Member state	A 81.7 Mt CO ₂ e/a (2002)	B 85.3 Mt CO ₂ e/a (2007) called "strategic path"	C 76.77 Mt CO ₂ e
Trading sector	D 40.9 Mt CO ₂ /a (2002)	E Assumed as allocation	F 2005: 44.9 Mt CO ₂ 2006: 45.2 Mt CO ₂ 2007: 46.3 Mt CO ₂ 45.5 Mt CO ₂ /a (average)
Non-trading sector	G 40.8 Mt CO ₂ /a (2002)	H 39.1 Mt CO ₂ e/a (2007)	
Energy sector	I 30.6 Mt CO ₂ /a (2002)	J	K 32.6 Mt CO ₂ (2005) 32.6 Mt CO ₂ (2006) 32.6 Mt CO ₂ (2007) 32.6 Mt CO ₂ /a (average)
Mineral Oil Refining sector	L 1.7 Mt CO ₂ /a (2002)	M	N 1.6 Mt CO ₂ (2005) 1.7 Mt CO ₂ (2006) 2.7 Mt CO ₂ (2007) 2.0 Mt CO ₂ /a (average)
A1 and A2:			
Mineral Industry	1.8 Mt CO ₂ /a (2002)		1.9 Mt CO ₂ /a (average)
Oil refineries	1.7 Mt CO ₂ /a (2002)		2.0 Mt CO ₂ /a (average)
Iron and Steel	5.8 Mt CO ₂ /a (2002)		7.0 Mt CO ₂ /a (average)
Pulp & paper	1.2 Mt CO ₂ /a (2002)		1.2 Mt CO ₂ /a (average)
B1, B2: Production of heat, steam, electricity for industry	7.9 Mt CO ₂ /a (2002)		8.3 Mt CO ₂ /a (average)
C1, C2: Community heat, CHP	13.5 Mt CO ₂ /a (2002)		15.0 t CO ₂ /a (average)
D: Condensate power	9.2 Mt CO ₂ /a (2002)		9.3 Mt CO ₂ /a (average)
E: Peak load power	0.05 Mt CO ₂ /a (2002)		0.04 Mt CO ₂ /a (average)
F: New operators	0 Mt CO ₂ /a (2002)		0.8 Mt CO ₂ /a (average)

NATIONAL LEVEL – CRITERIA 1 AND 2 OF ANNEX III

- The sum of allocated allowances (F) and projected emissions for the non-trading sector (H) is 85.3 Mt CO₂/a. The CAP of emission allowances in Finland for the period 2005-2007 has been set to an average of 45.5 Mt CO₂/a, which is a 1-3% reduction of projected emissions (depending on sector).

Added to the projected emissions in the non-trading sector, 39.1 Mt CO₂, this will leave Finland of an 11%-reduction to be achieved within the commitment period 2008-2012. Finland says that this can be resolved either by lowering the emissions or acquiring emission allowances, for example, through Kyoto mechanisms JI and CDM. These measures will be commented in more detail in the Finnish Climate Strategy at the end of 2004.

TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- It is not explained why there is a difference between the projected emissions and present emissions in the trading sector.
- Allocation to industrial activities (A1, A2) allows for an expansion of their capacity (+1,5 Mt CO₂/a). The allocation to energy production plants (B, C and D categories) is higher than emissions 1998-2002 (+2.0 Mt CO₂/a) due to the fact that the allocation formula considers temperature correction for the years 1998-2002. Also extra allowances for new entrants 0.8 Mt CO₂/a

NON-TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- It is not explained why there is a difference between present and projected emissions in the non-trading sector.
- As emission reduction measures planned for in the non-trading sector a target-oriented With-Additional-Measures scenario is referred to in the NAP, but with very little information of its contents.

ENERGY SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- Data on projected emissions for the energy sector is not available:
- The allocation to energy production plants (B, C and D categories) is higher than emissions 1998-2002 (+2.0 Mt CO₂/a) due to the fact that the allocation formula considers temperature correction for the years 1998-2002.

MINERAL OIL REFINERY SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- Data on projected emissions for the mineral oil refining sector is not available.

3.4.4 Description of how the NAP meets criteria 3-8 of Annex III

- Criterion 3. Potential to reduce emissions.
See criteria 8. Clean technology
- Criterion 4 Consistency with other legislation.
No comment.
- Criterion 5 Non-discrimination between companies or sectors.
No comment.
- Criterion 6. New entrants.
New installations: 2.5 Mt CO₂ (total for 2005-2007) is reserved for new installations. This is about 2% of the total quantity.
The allocation is based on the rated thermal (fuel) input, the annual operation time of the installation type and the specific emissions of the fuel used as a reference fuel.
The following specific emission coefficients are used for the calculation of emission allowances:
If the installation has been designed for the combustion of liquid or gas fuel, the specific emission coefficient applied is 56.0 g CO₂/MJ and if designed for the combustion of a solid fuel, the specific emission coefficient applied is 74.2 g CO₂/MJ.

Criterion 7. Early action:

Studies of early actions in the Finnish industry show that early action has mainly been implemented for other reasons than the reduction of emissions. Therefore the draft Finnish proposal for the national allocation plan includes no suggestion for compensating operators for taking early action. The allocation formula to be applied will chiefly benefit those installations that have started burning wood instead of peat or mineral coal in the review period. However, the allocation criteria do not compensate such operators for early action that have implemented actions reducing emissions before 1998.

Criterion 8. Clean technology.

Clean technology has been interpreted as to mainly refer to the utilisation of renewable energy sources and energy efficient technologies. It has been identified that within almost all sectors both renewables (biofuels) and energy efficient solutions (such as CHP combined heat and power generation) are used. Therefore compensation for this is not possible since the total cap remains fixed. The use of clean technology has been considered when determining the total cap and the potential of emissions reductions.

3.4.5 Other issues

- 100% of the Finnish allowances will be allocated for free.
- No opt in or opt out will be used.
- Emission data on installation level is not available.
- Allocation data on installation level is not available.

3.4.6 Description of plans to use JI and CDM

- The use of JI and CDM will be commented on in the revisable Climate Strategy to be completed at the end of 2004.
- No assumed price on JI and CDM credits specified in NAP
- A pilot phase of a JI/CDM programme started in 2000. The intention is to develop capacity for using the project mechanisms and to obtain emission reductions. The aim is to implement around 10 JI and CDM projects. In addition, Finland has invested approximately €10 million in the Prototype Carbon Fund of the World Bank. In all, the emissions reduction units obtained from these projects represent less than 1 per cent of the Finnish emissions quota for the first commitment period.
- It is not specified in the NAP if the Finnish government will take the whole cost for a JI and/or CDM programme.
- Finland has invested approximately € 10 million in the Prototype Carbon Fund of the World Bank
- Finland has signed a letter of intent on JI projects with the following parties of the Kyoto protocol: Latvia, Lithuania, Poland, Ukraine, Hungary and Estonia. Finland has also concluded a convention for any transfer of emission units. Furthermore, Finland has signed a letter of intent on CDM-projects with Costa Rica, El Salvador and Nicaragua.

3.4.7 Concluding IVL-remarks of the Finnish NAP

Allocation

- The complete description of the allocation method is not available in the English version of the NAP, therefore difficult to analyse.

- The allocation method seems to be based on estimations of projected needs of allowances, is quite unrestricted and allows for close to “business as usual” in the installations. Allocated allowances are 1-3 % lower than projected emissions, depending on sector.
- Allowances to new entrants have **not** been deducted from current installations but are “fresh” allowances. This will implicitly put a higher pressure on the non-trading sector to achieve GHG-reductions in order to reach the Kyoto target.
- The total yearly allocation increases throughout the trading period 2005-2007.

Annex III-criteria 1-2

- Current emissions are 6 % above the Kyoto commitment
- Allocation plus projected emissions in NTS are 11 % above the Kyoto commitment

There is no convincing explanation on how this discrepancy will be addressed

- The use of CDM/JI is mentioned as a possibility, but there is no current programme for CDM/JI or funds reserved for these purposes

Annex III criteria 3-8 and other issues

- Finland will not allocate the allowances with an equal amount for each year in the period 2005-2007. The allocation is increasing and the largest amount will be allocated in 2007. This is not explicitly explained in the NAP but it might partly be due to the increasing allocation to the mineral oil refining industry, which will increase by 1 Mt in 2007 compared to earlier years.

3.5 Germany

3.5.1 Path to Kyoto

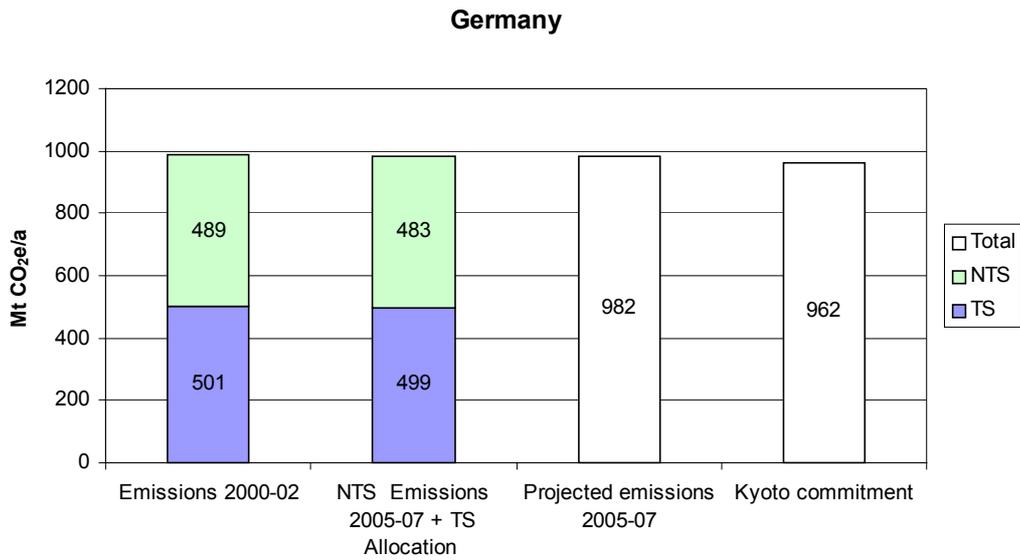


Figure 3.9. The national greenhouse gas emission budget of Germany.

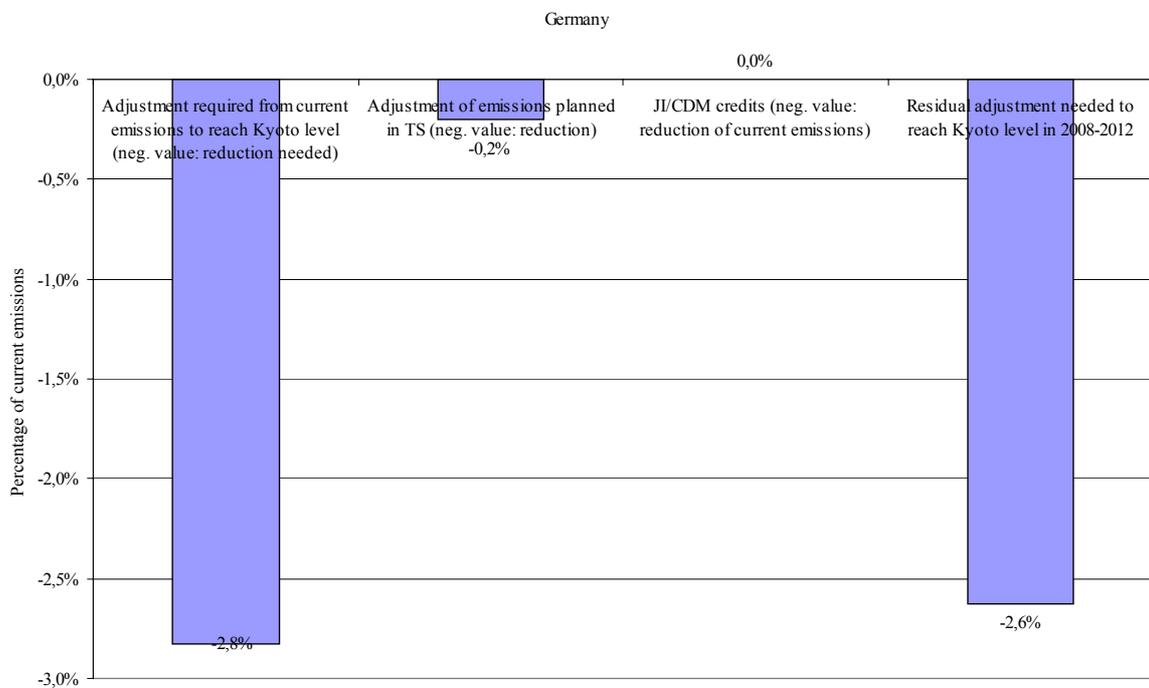


Figure 3.10. Plan on how to fulfil the commitment according to the EU burden sharing agreement.

The amount of projected total greenhouse gas emissions for 2005-2007 in Figure 3.9 is not a projection but an emission budget. No business as usual scenarios are given in the German NAP. Hence the bar illustrating the emissions in 2005-2007 divided on trading and non-trading sectors is equal to the bar illustrating the total emissions in 2005-2007. No data for 2010 other than the target under the EU burden sharing agreement is given in the German NAP.

3.5.2 CAP and Allocation Methodology

THE CAP

- The German CAP is set to 499 Mt CO₂/a.

GENERAL ALLOCATION METHODOLOGY

The German allocation will be based on grandfathering methods with a few exceptions. The allocation will be based on historic emissions in a base period (normally 2000-2003, but different for newer installations). Different methodologies have been used to calculate the emissions:

- energy dependent emissions - calculated based on fuel consumption
- process specific emissions - based on consumption of raw material
- process specific emissions - based on production

The relative reductions for the trading and for the non-trading sectors have been determined to be almost the same. The general reductions that will have to be made in the trading sector is 0.4% (the reduction factor is 0.996). However the overall reduction for installations will not be equal. Consideration to certain circumstances has been taken by using a individual reduction factor. The following installations have been allocated with the reduction factor = 1:

- Process related emissions. (If at least 10% of total CO₂ emissions at installation).
- Installations which qualify for early action status. To qualify installations will have to prove emission reductions amounting to certain percentages. Installations started between January 1st 1994 and December 31st 2002 qualify for early action status without specific reduction evidence. The reduction factor = 1 will be used for 12 years after commissioning for qualified installations.
- New installations (commissioned after January 1st 2005).
- Existing CHP-installations get a special (additional) allocation of 27 t CO₂/GWh. (Note: not if the reduction factor used is = 1 because of early action).

These special considerations will result in that the general reduction for installations not subject to special considerations will have to be somewhat higher, the overall reduction factor or compliance factor EF will be adjusted.

$$EF = 0.9755 = 0.9960 - 0.0090 - 0.0028 - 0.0057 - 0.0030$$

Where: 0.9960 = original reduction factor

0.0090 = reserve for new comers (includes special allocation for nuclear shut-down).

0.0028 = amount to process specific emissions

0.0057 = amount for early action

0.0030 = special treatment for CHP

The equations used for calculating the allocated allowances to different kinds of installations are given below. The same denotation has been used throughout.

1. Allocation to installations in operation before December 31st 2002 (i.e. installations without or with small, < 10% of total emissions, process related emissions).

$$EA = E_{BP} * EF_p * t_p + EA_{SZ} \quad \text{where:}$$

EA = amount of allocated emission allowances for period (2005-2007 or 2008-2012)

E_{BP} = Average yearly emissions during base period.

EF_p = reduction factor during 2005-2007

t_p = number of years in period (= 3 years 2005-2007)

EA_{SZ} = amount of special allocations of emissions allowances in the period (2005-2007 or 2008-2012)

2. Allocation to installations with process related emissions (> 10% of total emissions) (installations taken into operation before December 31st 2002).

$$EA = (E_{BP, ges} - E_{BP, proz}) * EF_p * t_p + E_{PB, proz} * t_p + EA_{SZ}$$

where: EA = amount of allocated emission allowances for period (2005-2007 or 2008-2012)

$E_{BP, ges}$ = Yearly average total emissions during base period.

$E_{BP, proz}$ = Yearly average process related emissions during base period.

EF_p = Reduction factor for period (2005-2007 or 2008-2012).

3. Allocation to new installations or capacity expansion (taken into operation between January 1st 2003 and December 31st 2004).

$$EA = K * t_A * EW * t_p$$

K = production capacity [ex. in MW or t/h]

t_A = planned yearly average utilisation [in hours]

EW = reported specific emissions for the installations per product unit (ex. in t CO₂/MWh).

A post correction will be made based on actual utilisation of the unit (hourly basis).

4. Free allocation to new installations or capacity expansion (taken into operation after January 1st 2005) based on benchmarks, installation specific emission and BAT/produced unit. If not a CHP installation.

$$EA = K * t_A * BAT * RT / GT_p * t_p$$

K = production capacity [ex. in MW or t/h]

t_A = planned yearly average utilisation [in hours]

BAT = Benchmark or installation specific emission factor according to best available technology

RT = number of days from start of unit to December 31st 2007

GT_p = total number of days in period (2005-2007 or 2008-2012).

A post correction will be made based on actual utilisation of the unit.

5. Allocation to new CHP installations/production capacity (taken into operation after January 1st 2005).

$$EA = (AN_A * BAT_A + AN_Q * BAT_Q) * RT / GT_p * t_p$$

EA = amount of allocated emission allowances for period (2005-2007 or 2008-2012)

AN_A = electricity production of the CHP [in MWh]

BAT_A = Benchmark for electricity production plants

AN_Q = heat production

BAT_Q = Benchmark for heat production plants.

RT, GT_p , and t_p are the same as in the equation above. An ex post correction will be made based on the actual annual average utilisation level

6. Allocation to early action installations and for installations started after 1996.

Installations which has been taken into use within the time period January 1st 1996 until December 31st 2002 will be allocated allowances according to the following formula:

$$EA = E_{PB, ges} * EF$$

EA = emission allowances

$E_{PB, ges}$ = yearly average total emissions from the installation during the base period (2000-200?)

EF = reduction factor, in this case EF = 1.

If $\sum EM_{EA} > X\%$

Where X = 7% if taken into use in 1994

X = 8% if taken into use in 1995

...

X = 15% if taken into use in 2002.

EM_{EA} = emission reductions which were produced during 1991 – 1996 bzw 1991 – 2002 (in % compared to a reference period).

7. Special allocation for existing CHP installations (installations in use before December 31st 2004)

This allocation will be added to the allocation according to equation no. 1 (or 2). (Compare with the EA_{SZ} factors in those equations).

$$EA_{SZ, KWK} = A_{Bne-KWK} * KF_{KWK} * t_p$$

$EA_{SZ, KWK}$ = amount of special allocation of emission allowances for CHP installations that were in use by 31st December 2004.

$A_{Bne-KWK}$

KF_{KWK} = compensation factor for CHP = 27 t CO₂/GWh net electricity production.

An *ex post* correction will be made based on the annual average CHP net electricity production.

In the German NAP regulations of termination of operation and substantially decreased activity rate are given:

- An installation will be considered terminated de facto in any given year once the emissions are less than 10% of its average annual baseline emissions unless the operator can prove that operation only ceased temporarily due to prolonged maintenance or failure induced repairs.
- If the actual CO₂ emissions fall below 60% of the average annual baseline emissions, the allocation will be adjusted ex-post by the same proportion as the reduction in utilisation of capacity compared to the reference period.
- There is also a hardship clause which makes it possible to adjust the allocation to an installation if it turns out that the actual emissions are significantly higher (30%) than the baseline period. This should be due to particular circumstances during the baseline period such as prolonged downtime due to repairs or modernisation etc.

Any allowances recalled or not issued due to the above mentioned adjustments rules will be placed in the new entrants reserve.

ALLOCATION METHODOLOGY USED FOR THE ENERGY SECTOR

- The energy sector will be allocated allowances based on the emissions during the baseline period (normally 2000-2002).
- New installations or installations with a significant expansion that were started during 2003 and 2004 will be allocated allowances based on reported specific emissions per product unit (ex. in t CO₂/MWh) with an *ex post* adjustment to output volume. (The reported specific emissions have been determined for installations with similar production. The compliance factor = 1 will be used.

ALLOCATION METHODOLOGY USED FOR THE MINERAL OIL REFINING SECTOR

- No. The general methods have been used. However there might be process related emissions for refineries. These emission will be allocated with the compliance factor = 1 if they correspond to more than 10% of the total CO₂ emissions of the installations.

3.5.3 Description of how the NAP meets criteria 1 and 2 of Annex III

Table 3.6 Key Data of German allocation on national and sector level.

	Present or Historic emissions.	Projected emissions	Kyoto commitment/ Allocation
Member state	A 990 Mt CO ₂ e/a (average 00-02)	B 982 Mt CO ₂ e/a ¹³ (05-07)	C Kyoto commitment: 962 Mt CO ₂ e/a
Trading sector	D 501 Mt CO ₂ e/a (average 00-02)	E Not available.	F Allocation: 499 Mt CO ₂ /a
Non-trading sector	G 489 Mt CO ₂ e/a (average 00-02)	H 483 Mt CO ₂ e/a (05-07)	
Energy sector - total	I 439.2 Mt CO ₂ /a (1990) 365.1 Mt CO ₂ /a (1998) 361.1 Mt CO ₂ /a (2000) 369.1 Mt CO ₂ /a (2001) 373.0 Mt CO ₂ /a (2002) 368 Mt CO ₂ /a (average 00-02)	J Not available.	K Allocation: Not available.
Electricity plants	353.8 Mt CO ₂ /a (1990) 313.1 Mt CO ₂ /a (1998) 309.5 Mt CO ₂ /a (2000) 316.9 Mt CO ₂ /a (2001) 322.0 Mt CO ₂ /a (2002)	Not available.	Not available.
CHP – heat and power, district heating and other conversion activities	85.4 Mt CO ₂ /a (1990) 52.0 Mt CO ₂ /a (1998) 51.6 Mt CO ₂ /a (2000) 52.2 Mt CO ₂ /a (2001) 51.0 Mt CO ₂ /a (2002) 51.6 Mt CO ₂ /a (average 00-02)	Not available.	Not available.
Mineral Oil Refining Sector	L Not available.	M Not available.	N Not available.

NATIONAL LEVEL – CRITERIA 1 AND 2 OF ANNEX III

- The sum of allocated allowances (F) and projected emissions for the non-trading sector (H) is 982 Mt CO₂e/a. The difference to the Kyoto commitment is 20 Mt CO₂e/a, which corresponds to a further reduction of 2 %.

¹³ These are not projected emissions but the emissions set according to the national greenhouse gas emission budget.

TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- Nothing is said about the projected emissions in the trading sector. However, the emission development from 1990 is given and there has been a trend of decreasing in both the industry and the energy sectors since 1990. Most of the reductions were realised before 1998. (Note: the table with historic trends only includes CO₂ emissions. Other greenhouse gas emissions has also been decreasing).
- No data on projected emissions for the trading sector is available.

NON-TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- There has been a trend of reduction of emissions in most of the non-trading sector. The exception is the transport sector, which has a rising trend of CO₂ emissions
- There is a program for reducing the CO₂ emissions in the transport sector from the 1998 level by ~13 Mt CO₂/a compared to a business as usual development.

ENERGY SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- No data on projected emissions for the energy sector is available.

MINERAL OIL REFINING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- Neither allocated allowances nor projected emissions for the mineral oil refining sector are available in the German NAP.

3.5.4 Description of how the NAP meets criteria 3-8 of Annex III

- Criterion 3. Potential to reduce emissions.
Process specific emissions will be allocated allowances with a reduction factor = 1. But only if the process specific emissions from an installation comprises more than 10% of the total CO₂ emissions. See also criterion 7 – early action.
- Criterion 4. Consistency with other legislation.
The consideration of future Community legislation will only be applied if the expected emission increase will be more than 10% of the total allocated amount to a specific installation. So far no increases have been considered to be of that size.
- Criterion 5. Non-discrimination between companies or sectors.
No comment.
- Criterion 6. A reserve is set aside for new entrants: 3 Mt CO₂/a. All new entrants will be allocated allowances based on a BAT-based specific emission-values. This value will remain unchanged for fourteen years. Benchmarks have been established for installations with comparable products i.e. electricity, hot water, process steam, cement clinker, glass containers (Behälterglas), glass panes (Flachglas), brick stones and roofing-tiles. The benchmarks have been derived from the best available technology for new installations within that class. Further benchmarks might be established for other installations. New entrants with products for which there are no defined benchmarks will be granted an allowance based on the best available technology identified for the specific type of installation.
- Criterion 7. Early action will be considered by a higher compliance factor. Old installations that can prove early action (certain reduction requirements) will be allocated allowances by using the compliance factor = 1. The “early actions” taken to reduce the emission should not have been done due to legislation, nor financed mainly by public means. The emissions reductions should not be due to shut down during a longer period or production decrease. Installations taken into operation after January 1st 1994 will not have to prove specific emission reductions.

Criterion 8. Clean technology.

CHP (combined heat and power production) plants are very efficient installations and the technology will be important in order to increase the efficiency and hence decrease the specific emission from the energy sector. Therefore certain consideration has been taken when allocating to such installations. *See allocation methodology.*

3.5.5 Other issues

- 100 % of the allowances will be allocated for free.
- No opt in or opt out will be used.
- So far no emission data on installation level is available, but it will be sent to the Commission as soon as possible
- So far no allocation data on installation level is available, but it will be sent to the Commission as soon as possible

3.5.6 Description of plans to use JI and CDM

- The only thing mentioned in the German NAP about JI and CDM is that the Bundesregierung will work for an agreement within the EU on the issue, so that CDMs will be used in the first trading period 2005-2007 and JI in the Kyoto period 2008-2012. (KN: This has now been achieved by the Linking Directive.)

3.5.7 Concluding IVL-remarks of the German NAP

Allocation

- Allocation is based on historic emissions. New installations will be allocated based on BAT and installed capacity with the possibility of *ex post* adjustment due to actual unit utilisation. This is a form of updating, which might violate Article 11, section 1.
- If the actual CO₂ emissions fall below 60% of the average annual baseline emissions, the allocation will be adjusted ex-post by the same proportion as the reduction in utilisation of capacity compared to the reference period. This is updating which might violate Article 11, section 1. All rules with ex-post adjustment might violate Article 11.

Annex III-criteria 1-2

- The current German greenhouse gas emissions (2000-2002) will have to be reduced by 2.8% in order to fulfil the German Kyoto commitment. The allocation of allowances corresponds to a reduction of total emissions of 0.2% compared to the current emission level. A decrease of the emissions in the non-trading sector of 0.6% compared to current total emissions is also expected. This will leave another 2% reduction of emissions for the 2008-2012 period to be solved by domestic and international measures (JI and CDM). The allocation in Germany seems to be consistent with the German strategy of fulfilling its Kyoto commitment.

Annex III-criteria 3-8

- The German NAP seems to be consistent with criteria 3-8. All installations taken into operation after January 1st 1994 will be considered as early action installations. Actions taken before this can also be considered if the operator can prove emission reductions to a certain extent.

Other issues

- No further comment.

3.6 Ireland

3.6.1 Path to Kyoto

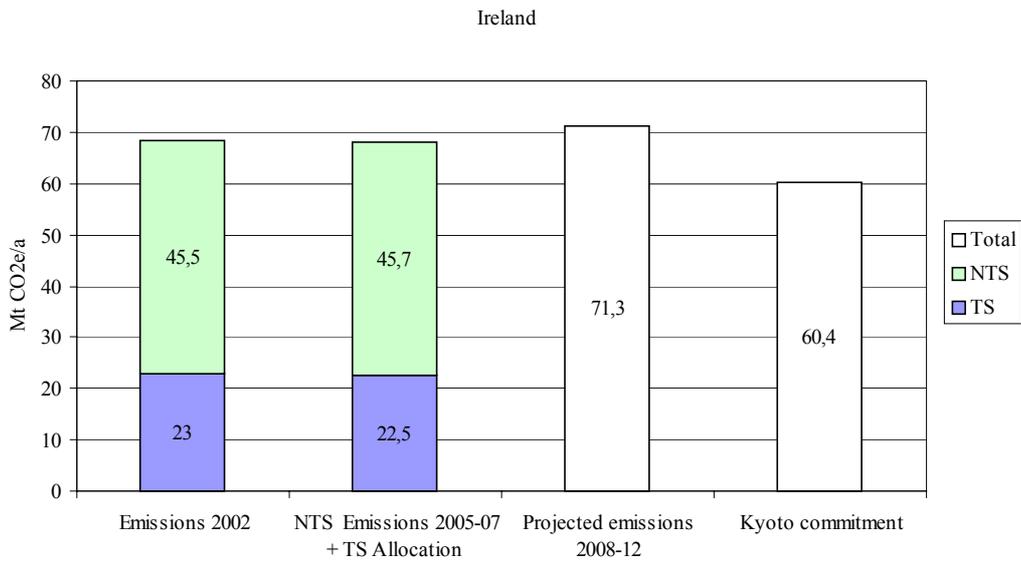


Figure 3.11. The national greenhouse gas emission budget of Ireland.

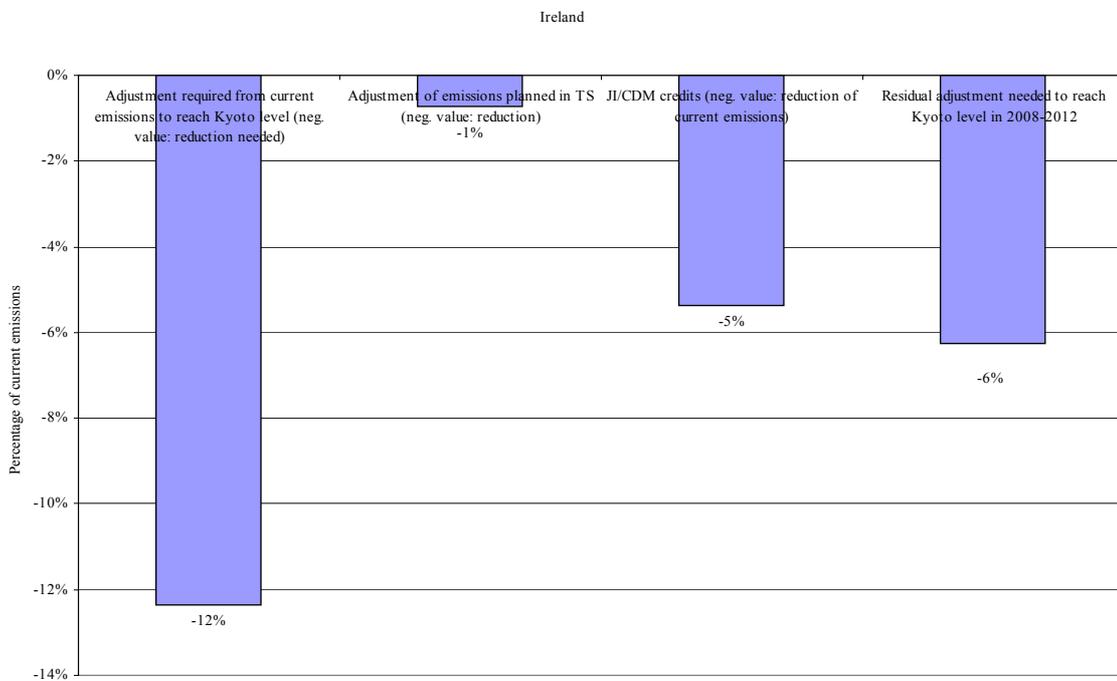


Figure 3.12. Plan on how to fulfil the commitment according to the EU burden sharing commitment.

The value of projected total greenhouse gas emissions for 2008-2012 given in Figure 3.11 is the result of scenarios based on certain assumptions on economic growth and including current emission reducing measures (but no further measures undertaken). The value of projected emission in the non-trading sector 2005-2007 given in the same figure is also assessed by assuming no further emission reducing measures than the current. For more details on the scenarios please consult the Irish NAP under section “Determination of the quantity of allowances” and Appendix 6.

3.6.2 CAP and Allocation Methodology

THE CAP

- The Irish CAP has been set to 67.5 Mt CO₂ for three-year period i.e. 22.5 Mt CO₂/a. The total amount of allowances to be allocated in Ireland was determined by using a combination of forecasted total and sector emissions and an assessment of the costs of emission reductions in each sector. The methodology used for emission forecasts was a combination of top-down macroeconomic assessment, bottom-up surveys and detailed modelling of the Irish electricity market (see Energy sector below). The total quantity of allowances allocated in the period 2005-2007 is 98% of forecasted emissions with existing measures.

GENERAL ALLOCATION METHODOLOGY

The allocation will be made in a two-stage approach that allocates allowances at sector level in the first instance and subsequently allocates to installations within each sector.

Allocation on sector level will be made on the basis of average historic emissions in 2002 and 2003) adjusted for national energy policy and relevant legislation. The general equation for allocation on sector level is:

SA = AST * NTA/CAST where

SA = sector allocation

AST = Adjusted sector total. This value is determined by the historical baseline emissions for each installation (average emissions in 2002 and 2003, which adds up to the total sector emissions which has been adjusted in line with changes due to national energy policy.

NTA = Net Trading Allocation which is the total amount assigned by the Government less the amount set aside for new entrants and auctioning.

CAST = Combined Adjusted Sector Total which is calculated as the sum of all AST's. (I.e. the NTA/CAST factor is a compliance factor in order to bring the allocated amount within the frame of the total CAP.

Allocation on installation level will be based on average historic emissions in 2002 and 2003 except in cases where those emissions are less than 90% of the average of the emissions in the highest three years of 2000-2003. In those cases the average of the emissions in the highest three years of 2000-2003 will be used. The emission basis determined to be used when calculating the amount of allowances will be referred to as **relevant emissions**.

The allocation on installation level is determined by the following equation:

AI = RE * SA/STRE where

AI = allocation to installation

RE = relevant emissions (see above)

SA/STRE = compliance factor that will ensure the total amount of allocated allowances within the sector to stay below the total amount allocated to the sector.

- If the installation commenced operation in 2002 or 2003 the allocation will be based on either:
 - i) a pro rata approach based on emissions during the appropriate months of 2002 and/or 2003. Or (and only in situations where the EPA considers it appropriate)
 - ii) agreed projected emissions where an installation has not completed initial ramp-up.

Allocations calculated on the basis of projections will not be greater than 98% of agreed projected emissions.

Known planned developments (KPDs) are installations that had not commenced operation by January 1st 2004 but had been granted a Greenhouse Gas Permit before March 31st 2004. These installations will be allocated allowances based on agreed projected emissions, assuming use of best available technology. The allowances to these installations will be taken from the relevant sector allocation. If there is any delay of the start of these installations the excess allowances will be redistributed to the relevant sector.

New entrants will be allocated allowances based on agreed projected emissions. The total amount of allowances set aside for new entrants will be split in the ratio 1:2:3 (i.e. 1/6; 2/6; 3/6). If there are surplus allowances in the reserve the first or second year these allowances will be added to the next years quota for new entrants. In the first two years no individual permit holder will be entitled to more than 84 375 allowances. Allocations calculated on the basis of projections will not be greater than 98% of agreed projected emissions and no allocation will be proportionally greater than that which the existing installations in the same sector were allocated.

ALLOCATION METHODOLOGY USED FOR THE ENERGY SECTOR

- There is a special CHP set aside to be taken from the power generating sector allocation and to be used for high efficiency CHP plants other than Known Planned Developments, which first became operational after March 31st 2004. The set aside amounts to 150,000 t/a for the three years. The CHP set aside will just as the set-aside for new entrants be split in the ratio 1:2:3. In the first two years no individual permit holder will be entitled to more than 37,500 allowances from the CHP set aside. Allocation from the CHP set aside will be based on agreed projected emissions. Allocations calculated on the basis of projections will not be greater than 98% of agreed projected emissions and no allocation will be proportionally greater than that which the existing installations in the same sector were allocated. Unused CHP set aside allowances will be returned to the power-generating sector in 2007.

ALLOCATION METHODOLOGY USED FOR THE MINERAL OIL REFINING SECTOR

- No special allocation methodology has been used for the mineral oil refining industry. The standard methodology has been used.

3.6.3 Description of how the NAP meets criteria 1 and 2 of Annex III

Table 3.7 Key Data of Irish allocation on national and sector level.

	Present or Historic emissions.	Projected emissions	Kyoto commitment/ Allocation
Member state	A 68.875 Mt CO ₂ e /a (2002)	B 68.71 Mt CO ₂ e/a (05-07) 71.254 Mt CO ₂ e/a. (08-12)	C Kyoto commitment: ~60.365 Mt CO ₂ e /a.
Trading sector	D > 23 Mt CO ₂ /a (2002) 20.882 Mt CO ₂ /a (average 02-03)	E 22.984 Mt /a (05-07) 26.35 Mt /a (08-12)	F Allocation: 22.5 Mt CO ₂ /a 21.993 Mt CO ₂ /a ¹⁴
Non-trading sector	G ~45-46 ¹⁵ Mt CO ₂ e/a (2002)	H 45.7 Mt CO ₂ e/a (05-07) 43.184 Mt CO ₂ e/a (08-12)	
Energy sector ¹⁶	I 14.022 Mt CO ₂ (average 02-03)	J 16.10 Mt CO ₂ e/a (05-07) 18.45 Mt CO ₂ e/a (08-12)	K Allocation: 14.321 Mt CO ₂ /a
CHP			150,000 ¹⁷ t CO ₂ /a
Mineral Oil Refining sector	L 270,710 t CO ₂ /a (2000) 338,015 t CO ₂ /a (2001) 354,772 t CO ₂ /a (2002) 357,161 t CO ₂ /a (2003) ¹⁸	M 0.366 Mt CO ₂ e/a (05-07) 0.374 Mt CO ₂ e/a (08-12)	N Allocation: 0.390345 Mt CO ₂ /a (05-07)
Paper	0.0206 Mt CO ₂ /a		0.0226 Mt CO ₂ /a
Glass	0.0304 Mt CO ₂ /a		0.0334 Mt CO ₂ /a
Bricks & Ceramics	0.0342 Mt CO ₂ /a		0.0375 Mt CO ₂ /a
Cement & Lime	3.707 Mt CO ₂ /a		4.065 Mt CO ₂ /a
Other combustion	2.711 Mt CO ₂ /a		2.973 Mt CO ₂ /a

NATIONAL LEVEL – CRITERIA 1 AND 2 OF ANNEX III

- $F+H = 22.5 + 45.7 = 68.2$ Mt CO₂e/a (2005-2007)
 $F+H = 22^{19} + 43.2 = 65.2$ Mt CO₂e/a (2008-2012)
- The sum differs considerably from the Kyoto commitment, it is approximately 8 Mt CO₂ higher in 2005-2007 and approximately 4.8 Mt CO₂ higher in 2008-2012. Analyses of available domestic emission abatement options indicate that 3.4 Mt/a can be reduced at a cost of € 10 per tonne or less. As this is the most likely range in the international market it is not considered prudent to implement additional reductions domestically. The remaining distance to target 5.8 Mt/a (the comparison has

¹⁴ Excludes set aside for new entrants and auctioning.

¹⁵ This value was not found in the Irish NAP but was calculated by subtracting the emissions from the trading sector from the total emissions.

¹⁶ Only electricity generation included. In the Irish Energy sector also Mineral Oil Refining, Gas production and Fugitive emissions are included.

¹⁷ A special set aside for high efficient CHP installations is set with 150,000 t/a

¹⁸ The average value of 2002 and 2003 emissions have been used as RE (relevant emissions).

¹⁹ The allocated amount for the trading sector for the 2008-2012 period has been indicated in the Irish NAP. In Graph 1.2 on page 13 it is indicated that the allocated amount will be approximately the same in the Kyoto period.

been made to projected emissions without the ETS) would therefore be purchased through flexible mechanisms either directly by ETS participants or indirectly by the Government on behalf of non-participants. In the 2008-2012 period the Government will purchase JI and CDM credits corresponding to 3.7 Mt CO₂e/a of the distance to target on behalf of the non-trading sector and the ETS sector is expected to purchase (or find additional reductions) corresponding to 2.1 Mt CO₂e/a. Due to uncertainties in the actual price of Kyoto credits the final decision on Government purchase of Kyoto credits will be made as part of Ireland's second National Allocation Plan.

TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- The increasing trend in the trading sector is explained by annual increasing demand in the energy sector of 3.4% until 2009 and 2.3% annually thereafter. The annual rate of increase in the industry sector is 3%.
- The amount of allocated allowances does not differ very much from the projected emissions of the trading sector. The allocated amount is approximately 98% of projected emissions.

NON-TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- The projected emissions do not differ very much from the present emissions. The trend in the residential sector is decreasing emissions whereas the trend in the transport sector is increasing.
- The expected emission reductions in the non-trading sector made in the Irish NAP amounts to 0.58 Mt CO₂e during the pilot period (2005-2007) and 1.16 Mt CO₂e during the Kyoto commitment period. These values are assumed based on the expected market price on emission allowances. The precise mix of additional policies required to achieve this reduction is still to be finalised in the review of the National Climate Change Strategy.

ENERGY SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- The projected emissions for the energy sector differ from the present (15% increase). The increase is not explicitly explained in the NAP but Ireland has made a thorough analysis of the electricity generation using a model, which is a full model of the European electricity market including data on all generating units and transmission systems in the EU.
- The energy sector has been allocated 11% less allowances than projected emissions.

MINERAL OIL REFINING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- There is an increase of emissions projected for the mineral oil refining sector. It is mentioned that the Directive 2003/17/EC on production of low-sulphur liquid fuels will cause an increase of the emissions at the Whitegate refinery (the only Irish refinery) of less than 2%. It was said that this increase will not be considered. It is also mentioned that the increased emissions due to the directive might be higher in the next trading period, 2008-2012 but that will be an issue for the next national allocation plan.
- The allocated emissions for the mineral oil refining sector differ from the projected emissions. The allocated emissions are 6.6% higher than the projected emissions. Why is not explained (see comment above).

3.6.4 Description of how the NAP meets criteria 3-8 of Annex III

- Criterion 3. The potential of installations to reduce emissions were taken into account when determining the total CAP, but not when determining the split between sectors. A detailed study of reduction potentials and costs of those reductions within each sector has been carried through. It has been assumed that all reductions that can be accomplished to a price lower than the expected market value (€ 10/tonne) will be carried out within each sector.
- Criterion 4. Consistency with other legislation.
According to the Commission's guidance document only significant increases or decreases should be considered and suggests that a change of 10% should be considered as significant. The following Directives have been considered when outlining the NAP:
Directive 2003/17/EC Production of low-sulphur liquid fuels.
Directive 1999/13/EC The Solvent Directive
Council Directive 1999/31/EC The Landfill Directive
Directive 2001/80/EC on the limitation of emissions of certain pollutants into the air from large combustion plants.
Directive 96/61/EC concerning Integrated Pollution Prevention and Control and national implementation of the Directive.
Non of the above mentioned Directives were found to result in emission changes of such magnitude that it would warrant any alteration of the allocated amount to any individual installation.
Directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market has been taken into account when determining Ireland's base case emissions and therefore in the total quantity to be allocated.
- Criterion 5. Non-discrimination between companies or sectors.
No comment.
- Criterion 6. There is a set aside for new entrants and significant expansions amounting to 1.5% of the total amount of allowances.
- Criterion 7. Early action.
Any action undertaken for involuntary reasons such as compliance with legislation is excluded. Where a reduction has been achieved accruing a net economic benefit which would arise even in the absence of future carbon constraints there would appear to be little justification for rewarding early action. It is difficult to identify any significant early action that was not related to one or both of these two factors.
However, the use of historic emissions as allocation basis will reward installations that have taken action during the basis period, 2000-2003.
- Criterion 8. Clean technology has not been considered when allocating on installation level.
Putting a cost on emissions of greenhouse gases will be an incentive, or driver, for the use of clean, energy efficient technologies. Therefore it is not considered necessary to further promote the use of clean technologies, other than future high efficiency Combined Heat and Power plants (CHP), in the allocation process to existing installations. In regard to CHP, a set aside is to be taken from the power generating sector allocation (on the basis of 150 000 t/a) to be used for new high efficiency CHP plants other than Known Planned Developments.
Allowances for such CHP plants will be calculated by the EPA from the emissions associated with the installation in the absence of the CHP plant plus an additional allowance for the CHP plant based on its agreed anticipated electricity generation as if it were a best new entrant CCGT gas fired power plant.

3.6.5 Other issues

- The EPA will initially auction a total of 0.75% of the allowances. Unused allowances in the new entrants set aside will be auctioned in 2007.
If an installation closes down the EPA will not issue further allowances. Any unused allowances will be auctioned to the benefit of the Exchequer (in case the EPA has covered the costs of the administration of the system. The EPA will be allowed to auction in total 1% of the total amount of allowances and only 0.75% will be auctioned initially). If the total amount of auctioned allowances reaches the 5% limit, excess allowances will be cancelled.
- No opt in and no opt outs were included in the NAP.
- Emission data on installation level is available in the Irish NAP.
- Allocation data on installation level is also available in the NAP but these data are preliminary since the historic emission data that have been used when calculating the allocated amounts are being verified. The verification is expected to be ready by the end of July 2004.
- No banking to next period will be allowed.
The data used to determine the historic emissions were supplied by the installations. Verification of these data will be carried through prior the notification of final allocation to installations in September 2004.

3.6.6 Description on plans to use JI and CDM

- The Irish Government has announced that it has the intention to purchase JI and CDM credits corresponding to 18.5 Mt CO₂e during 2008-2012 (3.7 Mt CO₂e/a)
- The assumed price on JI and CDM credits is € 10 per tonne. If the price will be significantly higher there might be further domestic reductions to be accomplished at a lower cost and would reduce the total amount of CDM and JI purchase.
- Currently the relevant legislation and budget for a national programme of JI and CDM projects is being finalised together with the full policy mix (including the consideration of a new carbon tax for the non-trading sectors). The final decision on how many Kyoto credit the Government will buy will be settled in the second national allocation plan of Ireland.
- The Irish government will not take the whole cost of the JI/CDM programme. The trading sector should buy JI and CDM credits corresponding to 2.1 Mt CO₂e/a (36% of the total amount).
- However, no money has yet been set aside for the JI/CDM programme, see above.

3.6.7 Concluding IVL-remarks of the Irish NAP

Allocation

- The allocation has been based on historic emissions and projected emissions. The allocation to new installations will be based on agreed projected emissions.
- Although it is expressed that the Directive on production of low-sulphur fuels not will lead to an significant increase of emissions for the mineral oil refining sector this sector will be allocated allowances corresponding to a 6.6% increase of current emissions.

Annex III-criteria 1-2

Ireland is not on track meeting its Kyoto commitment of limiting the growth of emissions to 13% compared to 1990 emission level. Ireland will have to reduce the current emissions (2002) by 12% in order to fulfil the Kyoto commitment. The total amount of allowances allocated has been determined based on projected emissions. The CAP has been set to 98% of projected emissions, which corresponds to

an increase of current emissions in the trading sector by 7.7%. Ireland has in the NAP indicated that the allocation for the next period will be ~22.02 Mt CO₂/a. The amount of reductions to be solved by international measures (JI & CDM) has been determined to 5.8 Mt CO₂e/a. The amount was determined by subtracting the amount of estimated domestic reductions achievable at a cost of €10/t or less from the projected overshoot of the Kyoto target. The state will buy 3.7 Mt CO₂e /a during 2008-2012 and the trading sector is expected to buy corresponding 2.1 Mt CO₂e /a. Why the trading sector would buy another 2.1 Mt CO₂e /a is not explained. Ireland has not explained how the 3.4 Mt CO₂/a low-cost domestic reductions will be achieved. The Irish NAP does not seem to be in line with fulfilling the Irish Kyoto commitment.

Annex III-criteria 3-8

- The Irish NAP seems to be consistent with the criteria.

Other issues

- Ireland has no program for JI and CDM yet but in the NAP it is stated that Ireland aims at buying JI and CDM credits corresponding to approximately 5.8 Mt CO₂e/a. That corresponds to a reduction of current emissions by 8.4%. The state will buy credits generated by CDM and JI corresponding to 3.7 Mt CO₂e/a and the trading sector should buy an amount corresponding to 2.1 Mt CO₂e/a.
- The EPA will auction at least 0.75% of the Irish allowances.

3.7 Lithuania

3.7.1 Path to Kyoto

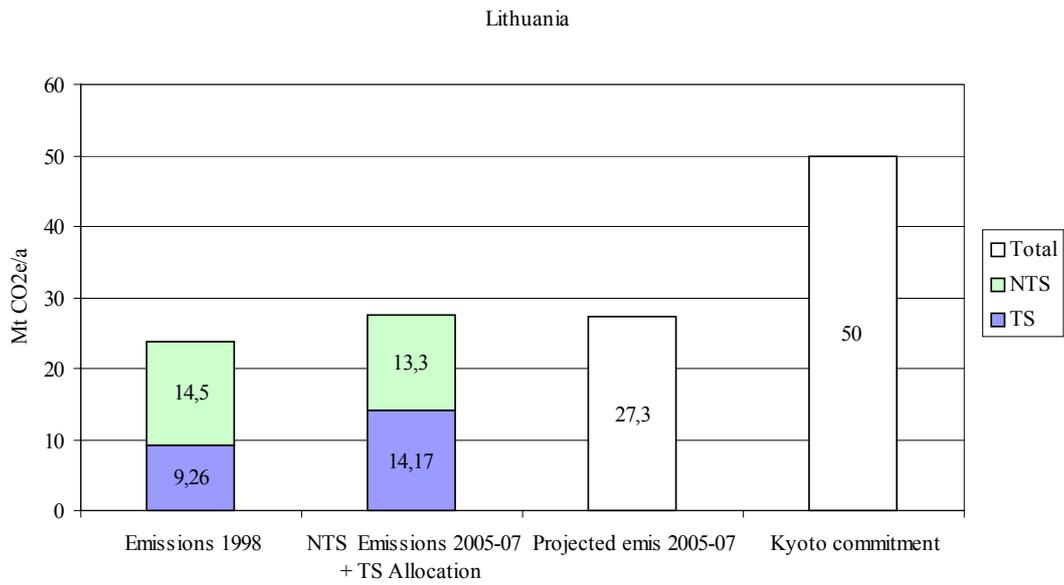


Figure 3.13. The national greenhouse gas emission budget of Lithuania.

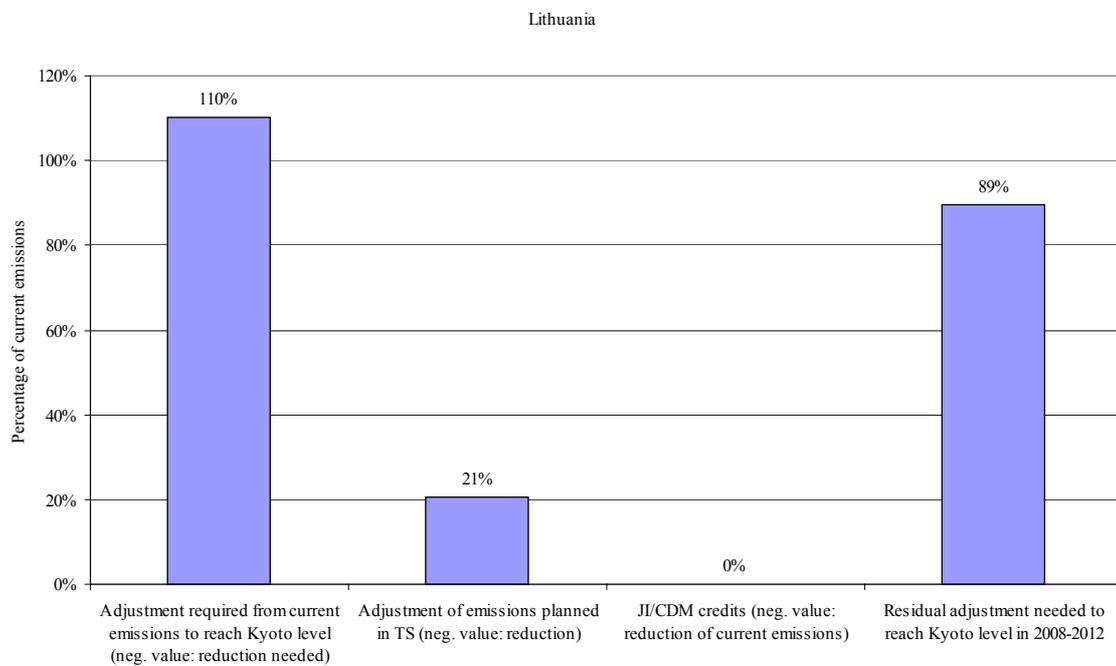


Figure 3.14. Plan on how to fulfil the Kyoto commitment using different measures.

The value for projected emissions in Figure 3.13, 27.3 Mt CO₂e/a, considers already planned reduction measures such as the implementation of the National Energy Strategy (ca 1.1 MtCO₂e/a) and the implementation of EC directives and pollution reduction measures in other sectors (1 MtCO₂e/a).

3.7.2 CAP and Allocation Methodology

THE CAP

- The total number of allowances allocated to the trading sector in Lithuania is not evenly distributed between the years 2005-2007. The annual total amounts are:
2005: 14.70 Mt CO₂
2006: 14.15 Mt CO₂
2007: 13.66 Mt CO₂

GENERAL ALLOCATION METHODOLOGY

Electricity and heat production for external users:

First a maximum CAP has been set for the sub-sector based on projected production and emissions.

The projected electricity production is estimated to be 26.3 TWh 2005-07 and corresponding emissions 14.64 Mt CO₂. This corresponds to an average emission factor of 560 t CO₂/GWh electricity.

The projected heat production is estimated to be 37.2 TWh (3*12.4) for the whole period 2005-07 and corresponding emissions 8.70 Mt CO₂ for 2005-2007. This corresponds to an average emission factor of 235 t CO₂/GWh heat. This information is based on questionnaires to the installations.

Production based allocation (benchmarking) is applied:

Allocation = Production * Benchmark

Data on production will be actual production during 2005-Benchmarks: Electricity: 551 t CO₂/GWh.
Heat: 231 t CO₂/GWh.

If total number of allowances exceeds the total CAP for the energy sector the benchmarks will be scaled down so that the energy CAP is sustained.

Other activities:

Emission based allocation with adjustments for growth, technical reduction potential and 1.5 % general reduction due to auction.

Allocation = SEKT*(1+AUG)*(1-POT)*(1-AUKC), where:

SEKT= four year average emissions from period 1998-2002 excluding the lowest year

AUG= expected economic growth in the sector, i.e. 52%

POT= technical potential for reductions, i.e. 2.5%

AUKC= percentage to be auctioned, suggested at 1.5%

ALLOCATION METHODOLOGY USED FOR THE ENERGY SECTOR

See above

ALLOCATION METHODOLOGY USED FOR THE MINERAL OIL REFINING SECTOR

- Same allocation method as other industries, i.e. emission based using base year period 1998-2002, excluding lowest year. Assumed economic growth in sector 52 % (from 1998-02 to 2005-07) and reduction potential 2.5 %.

3.7.3 Description of how the NAP meets criteria 1 and 2 of Annex III**Table 3.8** Key Data of Lithuanian allocation on national and sector level.

	Present or Historic emissions.	Projected emissions	Kyoto commitment/ Allocation
Member state	A 54.4 Mt CO ₂ e/a (1990) 23.8 Mt CO ₂ e/a (1998)	B 27.3 Mt CO ₂ e/a (05-07)	C Kyoto commitment: 50.0 Mt CO ₂ e/a
Trading sector	D 9.26 Mt CO ₂ /a (38.9%, 1998)	E 14.0 Mt CO ₂ /a (05-07)	F Allocation: 14.70 Mt CO ₂ (2005) 14.15 Mt CO ₂ (2006) 13.66 Mt CO ₂ (2007)
Non-trading sector	G 14.5 Mt CO ₂ e/a (61.1%, 1998)	H 13.3 Mt CO ₂ e/a (05-07)	
Energy sector	I No data available. Measured from figure 1: 4.0 Mt CO ₂ /a (98-02 excl. lowest year)	J Total 23.3 Mt CO ₂ , i.e. average 7.8 Mt CO ₂ /a (05-07)	K Electricity Allocation: 5.34 Mt CO ₂ (2005) 4.79 Mt CO ₂ (2006) 4.29 Mt CO ₂ (2007) 4.81 Mt CO ₂ /a (average 05-07) Heat Allocation: 2.86 Mt CO ₂ /a (05-07) el.+heat: 7.67 Mt CO ₂ /a
Mineral Oil Refining sector	L 1.547 Mt CO ₂ (98-02)	M 2.293 Mt CO ₂ /a (05-07)	N 2.258 Mt CO ₂ /a (05-07)
Other, including Pulp & Paper	1.092 Mt CO ₂ /a (98-02 excl. year with lowest emissions)	1.616 Mt CO ₂ /a (05-07)	1.594 Mt CO ₂ /a (05-07)
Glass, bricks & Ceramics	0.161 Mt CO ₂ /a (98-02 excl. year with lowest emissions)	0.238 Mt CO ₂ /a (05-07)	0.235 Mt CO ₂ /a (05-07)
Cement & Lime	0.766 Mt CO ₂ /a (98-02 excl. year with lowest emissions)	1.157 Mt CO ₂ /a (05-07)	1.544 Mt CO ₂ /a (05-07)

NATIONAL LEVEL – CRITERIA 1 AND 2 OF ANNEX III

- The sum of allocated allowances (F) and projected emissions for the non-trading sector (H) is 28.0 Mt CO₂/a which is well below the Lithuanian Kyoto commitment.

TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- The main reason for a difference between present emissions and projected emissions in the energy sector is due to closure of first nuclear reactor at Ignalina. This will increase the need for electricity from Lithuanian thermal power plants from 3.0 TWh/a (2003) to 8.8 TWh/a (2005-2007).

Another reason for differences between present emissions and projected emissions in most sectors is the expected high economic growth. In cement industry 78%, in other sectors 52% between 1998-2002 and 2005-2007.

- The number of allocated allowances is consistent with the projected emissions.

NON-TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- The differences between present emissions and projected emissions have already been explained in the previous section.
- There are various emission reducing measures planned in the non-trading. Measures planned in within transport, housing, landfills and small-scale energy production sectors amount to ca 1 Mt CO₂e/a.

ENERGY SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- The difference between present and projected emissions in the energy sector is mainly due to closure of first nuclear reactor at Ignalina. This will increase the need for electricity from Lithuanian thermal power plants from 3.0 TWh/a (2003) to 8.8 TWh/a (2005-2007).
- The number of allowances allocated will result in a reduction of 1.5 % compared to projected emissions due to allowances reserved for auction. Consistent with projected emissions.

MINERAL OIL REFINING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- The difference between present and projected emissions in the mineral oil refining sector is due to the high economic growth (52%) expected between 1998-2002 and 2005-2007.
- The allocated amount of allowances will mean a reduction of 1.5 % compared to projected emissions due to allowances reserved for auction. Consistent with projected emissions.

3.7.4 Description of how the NAP meets criteria 3-8 of Annex III

- Criterion 3. Potential to reduce emissions.
Energy producing sector: By applying benchmarks
Other industrial activities: By applying a factor “POT= technical potential for reductions”
- Criterion 4. Consistency with other legislation.
No comment.
- Criterion 5. Non-discrimination between companies or sectors.
No comment
- Criterion 6. New entrants.
1.995 Mt CO₂ (5%) is reserved for new entrants. Allocation method:
Electricity and heat production for sale to external users (not industrial energy production):
Production based allocation, applying same benchmarks as for old installations (Electricity: 551 tons/GWh. Heat: 231 tons/GWh) Production data based on actual production 2005-2007.
Other activities including energy production for internal use (industrial energy production):
Production based allocation applying activity specific benchmarks listed in the NAP
- Criterion 7. Early action.
Electricity and heat:
Since allowances are allocated to electric power and heat energy generating enterprises under emission benchmarks that are equal to all installations, those electric power and heat energy generating enterprises that have not made any prior investments into pollution reduction and whose relative emissions are lower than the determined emission benchmark will be in a more favourable situation.

Other activities:

When allocating allowances to different enterprises the quantity of allowances issued to each of them is not specifically adjusted in view of its previous actions – investments into pollution reduction measures made prior to that date.

Criterion 8. Clean technology.

When allocating allowances to new market entrants, the quantity of allowances shall correspond to the benchmarks for pollution emissions from clean technologies that correspond to the best available technologies as defined in Directive 96/61/EC.

3.7.5 Other issues

- 1.5 % of the Lithuanian allowances will be auctioned. The auctions will make the allowances available to all potential buyers.
- **Opt in:** Enterprises whose activities fall within the categories of activities listed in Annex I to Directive 2003/87 but whose production capacities are lower than those specified in Annex I to the aforementioned Directive may, on their request, be included in the 2005-2007 emission trading scheme.

Opt-out: There are no plans to exclude before 31 December 2007 from the emission trading system individual installations meeting the criteria laid down in Annex I to the Directive.

- No emission data on installation level is available in the Lithuanian NAP.
- Allocation data on installation level is available to all activities but electricity production installations.

3.7.6 Description on plans to use JI and CDM

- JI and CDM will not be used in Lithuania. However it is expected that other countries will implement JI in the Lithuanian non-trading sector.

3.7.7 Concluding IVL-remarks of the Lithuanian NAP**Allocation**

- Benchmarks used for allocation in the energy sector are calculated from projected emissions and production. These do not consider reduction potentials.
- Production data in energy sector will be based on actual production 2005-2007. Updating problem. Probable violation of Article 11 section 1.
- If total number of allowances exceeds the total CAP for the energy sector the benchmarks will be scaled down so that the energy CAP is sustained. This introduces an uncertainty of how many allowances are distributed. Also creates an incentive to overproduce in order to get the largest share possible of the CAP

Annex III criteria 1-2

- Emissions today are 23.8 Mt CO₂e/a (1998) which is only 55 % of the Kyoto commitment of Lithuania, 50.5 Mt CO₂e/a. Emission trends are therefore clearly consistent with Kyoto commitment.
- Total CAP allocated is consistent with projected emissions in trading sector. However, the projected emissions are assumed to increase in proportion to the economic growth, which is considerable (52%-78%). The allocation has taken little consideration to the reduction potentials in the sectors.

- The allocation to the trading sector are 14.0 Mt CO₂/a, which is 51 % higher than emissions in the trading sector 1998-2002 (9.26 Mt CO₂). In spite of this considerable increase the allocation plus emissions in the non-trading sector will still be clearly lower than Lithuania's Kyoto commitment.
- It is said that emissions in the NTS will decrease by ca 1.2 Mt CO₂/a due to various measures. However, with an economic growth of 52% between 1998-2002 and 2005-2007, emission reduction measures in the non-trading sectors like housing, transportation and other industries need to be very powerful in order to stabilise emissions at current levels.

Annex III criteria 3-8

No further comments.

Other issues

No further comments.

3.8 Luxembourg

3.8.1 Path to Kyoto

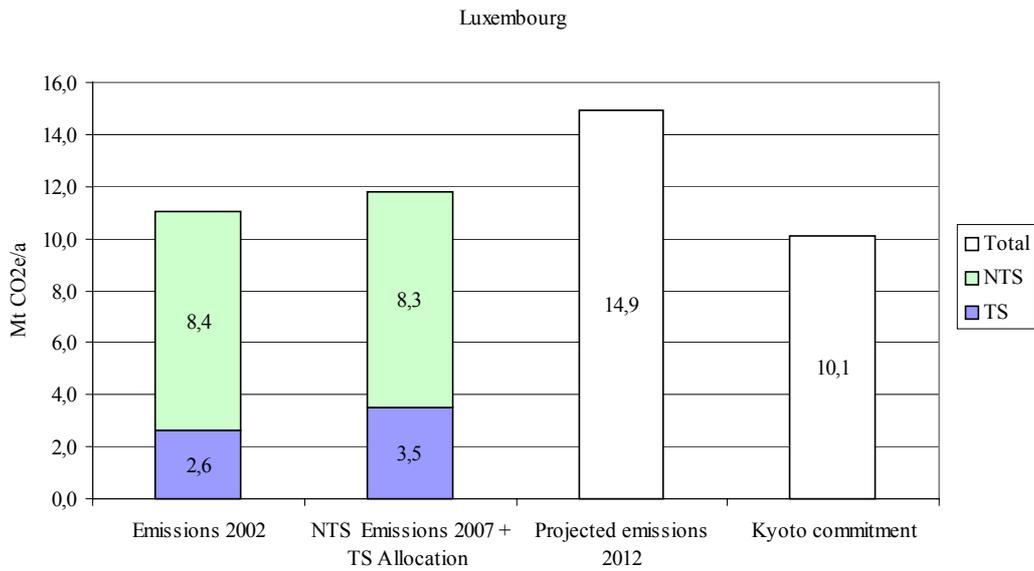


Figure 3.15. The national greenhouse gas budget of Luxembourg.

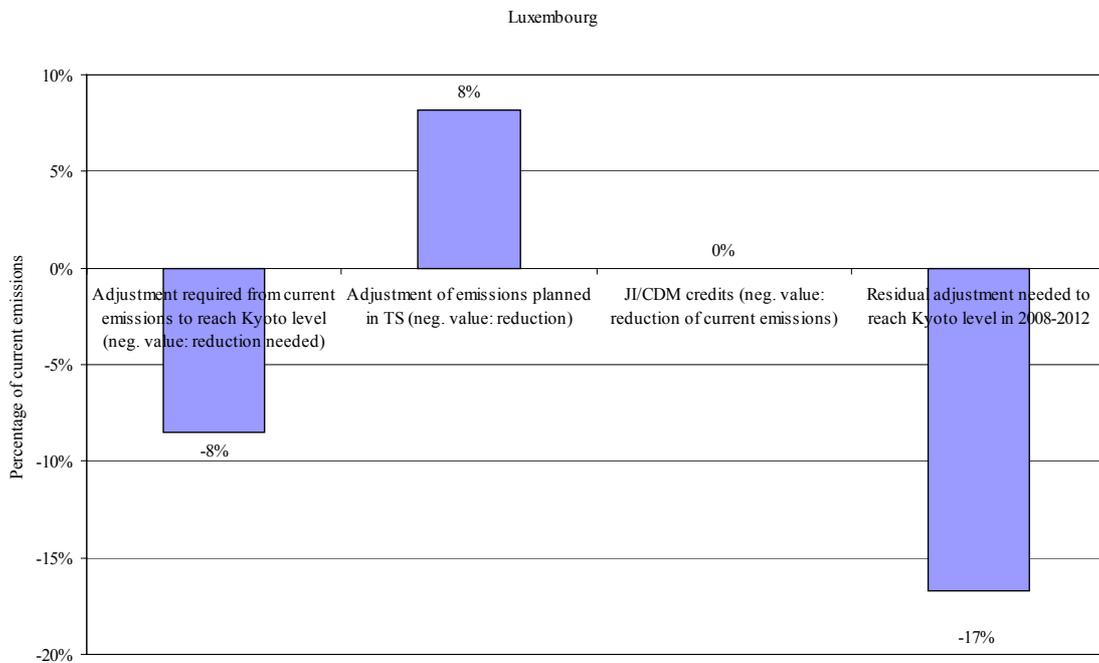


Figure 3.16. Plan on how to fulfil commitment according to EU burden sharing agreement.

The projected total greenhouse gas emissions for 2012 given in Figure 3.15 is based on population and economic development and does not include any emission reducing measures not already implemented. The same is true for the projected emissions in the non-trading sector given in the same figure for the period 2005-2007. However these business as usual scenarios have been used in order to identify reduction potentials.

3.8.2 CAP and Allocation Methodology

THE CAP

- The total number of allowances to be allocated by Luxembourg is 3.515 Mt CO₂/a. Luxembourg has chosen a “narrow” definition of which installations should be included. Only energy transforming installations that generate secondary and tertiary energy carriers like electricity, steam and hot water are included. This results in a total of 19 installations included.

GENERAL ALLOCATION METHODOLOGY

- The average of historic emissions during a three-year period has been determined and used as allocation basis. The installations have decided which three years of the 1998-2002 that has been used in order to determine these emissions. In order to keep the total amount of allocated allowances within the determined CAP a compliance factor will be used.

ALLOCATION METHODOLOGY USED FOR THE ENERGY SECTOR

- The default methodology has been used. However for the new (and only large) electricity producing unit GuD-Werk of TWINerg the compliance factor = 1 has been used. The individual allocation methodology for each of the installations can be found in the table at the end of the NAP.

ALLOCATION METHODOLOGY USED FOR THE MINERAL OIL REFINING SECTOR

- There are no mineral oil refineries in Luxembourg.

3.8.3 Detailed description of how the NAP meets criteria 1 and 2

Table 3.9 Key Data of Austrian allocation on national and sector level.

		Present or Historic emissions.	Projected emissions	Kyoto commitment/ Allocation
Member state	A	14.009 Mt CO ₂ e/a (1990) 8.460 Mt CO ₂ e/a (1998) 10.006 Mt CO ₂ e/a (2001) 11.022 Mt CO ₂ e/a (2002)	B 12.220 Mt CO ₂ e/a (2007) 14.918 Mt CO ₂ e/a (2012) ²⁰	C Kyoto commitment: 10.086 Mt CO ₂ e/a
Trading sector	D	8.500 Mt CO ₂ (1990) 1.828 Mt CO ₂ (2001) 2.613 Mt CO ₂ (2002)	E 3.700 Mt CO ₂ (2007)	F Allocation: 3.515 Mt CO ₂ /a
Non-trading sector	G	5.509 Mt CO ₂ e/a (1990) 8.178 Mt CO ₂ e/a ²¹ (2001) 8.409 Mt CO ₂ e/a ²¹ (2002)	H 8.500 Mt CO ₂ e/a ²¹ (2007)	
Energy sector - total	I	1 244 916 t CO ₂ /a 1 258 268 t CO ₂ /a ²² (average 98-02)	J 1.288 511 Mt CO ₂ /a (05-07)	K Allocation: 1.280 Mt CO ₂ /a
CHP - total		169 929 t CO ₂ /a (average 98-02)	188 752 ²⁴ t CO ₂ /a (05-07)	188 752 t CO ₂ /a
Steel		608 791 ²³ t CO ₂ /a (average 98-02)	672 333 ²⁴ t CO ₂ /a (05-07)	649 136 t CO ₂ /a
Glass		258 336 t CO ₂ /a (average 98-02)	258 336 ²⁴ t CO ₂ /a (05-07)	258 336 t CO ₂ /a
Mineral Oil Refining Sector	L	Not applicable.	M Not applicable	N Not applicable.

NATIONAL LEVEL – CRITERIA 1 AND 2 OF ANNEX III

- The sum of allocated allowances (F) and projected emissions for the non-trading sector (H) is 12.015 Mt CO₂e/a. The difference to the Kyoto commitment is 1.929 Mt CO₂e/a, which corresponds to a further reduction of 17.5 % compared to current emissions. Luxembourg explains that there are a few circumstances that results in difficulties:
 - ❑ The country is small and decisions of individual installations can have a major impact on the total amount of emissions.
 - ❑ The country has an increasing population, which demand for more energy, heating, traffic and building.
 - ❑ The historic usage of electricity was based on import of electricity. The country has invested in a very efficient power plant but the overall result is a burden to their total budget of greenhouse gas emissions.

²⁰ This projection does not include any reduction measures but only demographic and economic development.

²¹ Includes all other emissions than the CO₂ emissions in the trading sector (hence also no-CO₂ emissions within the trading sector.)

²² This value includes a known expansion. The lower value above does not include that expansion.

²³ Includes known new entrant with expected emissions of 115 948 t CO₂/a.

²⁴ These are the allocation basis, the historic emissions multiplied with the prognosis factor.

- It is said that the current measures will not be enough in order to fulfil the Kyoto commitment under the EU burden Sharing but will have to be complemented by the use of flexible mechanisms such as CDM, JI and Emission Trading.

TRADING SECTOR - CRITERIA 1 AND 2 OF ANNEX III

- There are a number of reasons for the rising trend of emissions within the trading sector.
Growing industry due to economic upswing
Growing energy demand due to growing industry and population.
Growing fuel consumption due to growing population and more commuters
- Allocation is 5% lower than projected emissions. Reductions have to be made in order to fulfil the Kyoto target under the EU burden sharing of –28% compared to the 1990 emission level. The attempt to identify reduction potentials within the country established that the large reduction potentials within Luxembourg lies within the use of mineral oil, by the use of fuels within the transport sector and the use of oil coal and natural gas for heating. The only reduction potential within the energy sector of importance is the connection of industrial production of electricity to CHP.

NON-TRADING SECTOR - CRITERIA 1 AND 2 OF ANNEX III

- The difference between projected emissions and present emissions in the non-trading sector is small (rise with 1%) and due to partly the same reasons as for the trading sector; Growing industry due to economic upswing, growing population and commuters. The growing population will also create a growing demand in the building sector

The following emission reduction potentials within the non-trading sector have been identified:

- The redevelopment of old buildings that have a total reduction potential of 0.850 Mt CO₂ of which 0.170 Mt CO₂/a will be possible to achieve within a ten year period.

Setting modern building standards for new productions can reduce the increasing demands within the sector by 20-30%.

In the transport sector inefficient vehicles will be subjected to new rules which are estimated to lead to reductions amounting to 0.209 Mt CO₂/a within the next 10-year period.

Investments in communal transport systems in order to replace automobiles. The response on total emission of these investments will not be immediate but will be very important in a longer perspective. Within the first 10-year period the emission reductions have been estimated to amount to 0.070 Mt CO₂.

Luxembourg is also planning for a more detailed study of reduction potentials within different sectors.

ENERGY SECTOR - CRITERIA 1 AND 2 OF ANNEX III

- No exact data of projected emissions for the energy sector is available. However the allocation basis where the current emissions have been multiplied with the prognosis factor is given in the NAP and the emissions are then 1 288 511 t CO₂/a. There is a projected growth in the energy and industry sector of 22% to 2007 from the 2002 level. (Energy sector 15-17% growth)
- The expected growth in the country has been explained by a economic upswing which will lead to increasing job opportunities which will increase the population and commuters.
- Since there is no exact figure on projected emissions in the energy sector it is not possible to compare allocated amount and projected emissions. However, when calculating the amount of allowances to

be allocated the average present emissions have been multiplied with a prognosis factor and for most energy producing installations that factor was between 1.15-1.17. Thereafter the amount has been multiplied with the compliance factor (0.91 for old installations 1.0 for CHP installations and 1.0 for new installations). The largest energy producer in the country the GuD-plant has been allocated emission allowances using the compliance factor = 1.

3.8.4 Description of how the NAP meets criteria 3-8 of Annex III

Criterion 3. Potential to reduce emissions.

Process related emissions have been allocated allowances using the compliance factor 1.0. The expected growth has also been considered when calculating the allowances. Very efficient plants has also been allocated with the compliance factor = 1.0.

Criterion 4. Consistency with other legislation.

There is no direct explanation other than stated that the allocation is in line with the legal and political instruments within the union.

Criterion 5. Non-discrimination between companies or sectors.

No comment.

Criterion 6. New installations will be allocated allowances by the reserve for new entrants. It is stated that known new entrants can have their allocation adjusted if the installation does not reach the projected emissions. This in order to avoid over-allocation is made. Unknown new entrants will be allocated allowances from the reserve for new entrants and significant expansion. The operator will have to apply for allowances and base the amount on the specific emissions factor of the activity based on BAT. The BAT should consider technology as well as choice of fuels (which should be low-emission) and raw material. The amount of allowances allocated will be calculated by an assumed utilisation degree of the unit. Also unknown new entrants can be subject to ex post adjustments if the assumed utilisation differ significantly from actual utilisation

Criterion 7. No special consideration has been made in order to promote early action.

Criterion 8. Clean technology.

CHP and other energy efficient technology will be allocated allowances using the compliance factor 1.0. There is also a possibility for low emission installations (ex. combustion plants using biomass) to get an ex-post allocation from the new entrants reserve in case they for a limited time period will have to reduce or cancel the use of biomass.

3.8.5 Other issues

- 100 % of the allowances will be allocated for free both in this first period 2005-2007 and in the following period 2008-2012.
- No opt in or opt out will be made, but the “narrow” definition of installations to be included has been used.
- Both emission data, allocation data and allocation methodology on installation level is available in the NAP.

3.8.6 Description on plans to use JI and CDM

- It is concluded in the Luxembourg NAP that it will not be possible for the country to fulfil the national commitment by just domestic efforts, but the flexible mechanisms foreseen by the Kyoto protocol will have to be used in order to fulfil the target by projects outside the country. It is

estimated that Luxembourg will have to import emission allowances generated by JI and CDM mechanisms corresponding to approximately 3 Mt CO₂/a during 2008-2012.

- No assumed price on JI or CDM credits is given in the NAP.
- Luxembourg does not have a programme for JI and CDM but the country will during 2004 initiate the process to build frame conditions for participation in CDM's which will facilitate and improve the possibilities for the Luxembourg companies to participate.
- It is not declared in the NAP whether or not the government will take the whole cost for the JI/CDM programme.
- It is not mentioned in the NAP if money already has been set aside for the JI/CDM programme.
- If not all of the allowances in the reserve for new entrants will be used the government can auction the allowances and the income from the auctioning will be included in the fund for a national JI/CDM program. If the allowances in the reserve for new entrants will turn out to be too small, the government can allocate extra allowances which then will be bought on the international market as JI, CDM or EU ETS allowances.

3.8.7 Concluding IVL-remarks of the Luxembourg NAP

Allocation

- The allocation has been based on historic emissions and a prognosis factor, which is both sector and installation specific. Known new entrants will be subject to *ex post* adjustment if they do not reach projected emissions. This in order to avoid over-allocation. Note that this is updating which might violate the Article 11 section 1. For unknown new entrants the allocation methodology is not explicitly explained. The values of estimated utilisation and BAT are not quantified. The reserve for new entrants is relatively high, 11% of total amount of allowances.

Annex III-criteria 1-2

- In the Luxembourg NAP it is concluded that due to the circumstances of the small country it is not possible to achieve the necessary reductions domestically. Luxembourg has reduced its emissions substantially since 1990 but in the most recent years the emissions have been increasing. The allocation of allowances will lead to an increase of the emissions from the trading sector of 34.5% compared to current emissions (15% earmarked for new installations or significant expansions). The current emissions will have to be reduced. It is stated that JI and CDM will be used in order to fulfil the Kyoto commitment. However, Luxembourg does not have a program for the other flexible mechanisms yet. The Luxembourg NAP does not seem to be consistent with the fulfilment of its Kyoto commitment.

Annex III-criteria 3-8

- The Luxembourg NAP is not very precise on how the allocation to unknown new entrants (criterion 6) will be made. The NAP seems to be in line with the rest of criteria 3-8.

Other issues

Luxembourg will use JI and CDM in order to meet its Kyoto commitment. It is estimated that Luxembourg will have to buy JI and CDM mechanism credits corresponding to approximately 3 Mt CO₂e/a during 2008-2012.

3.9 The Netherlands

3.9.1 Path to Kyoto

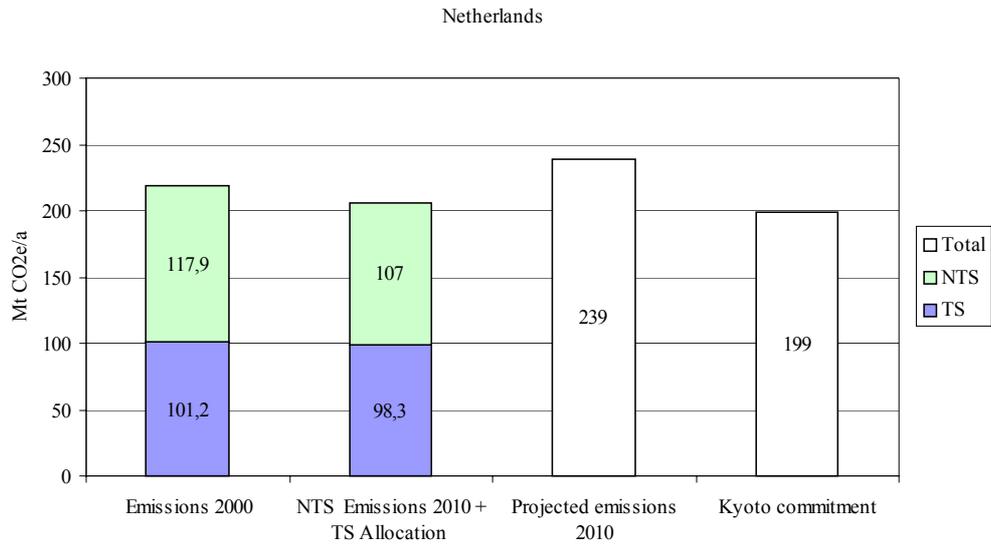


Figure 3.17. The national greenhouse gas emission budget of the Netherlands.

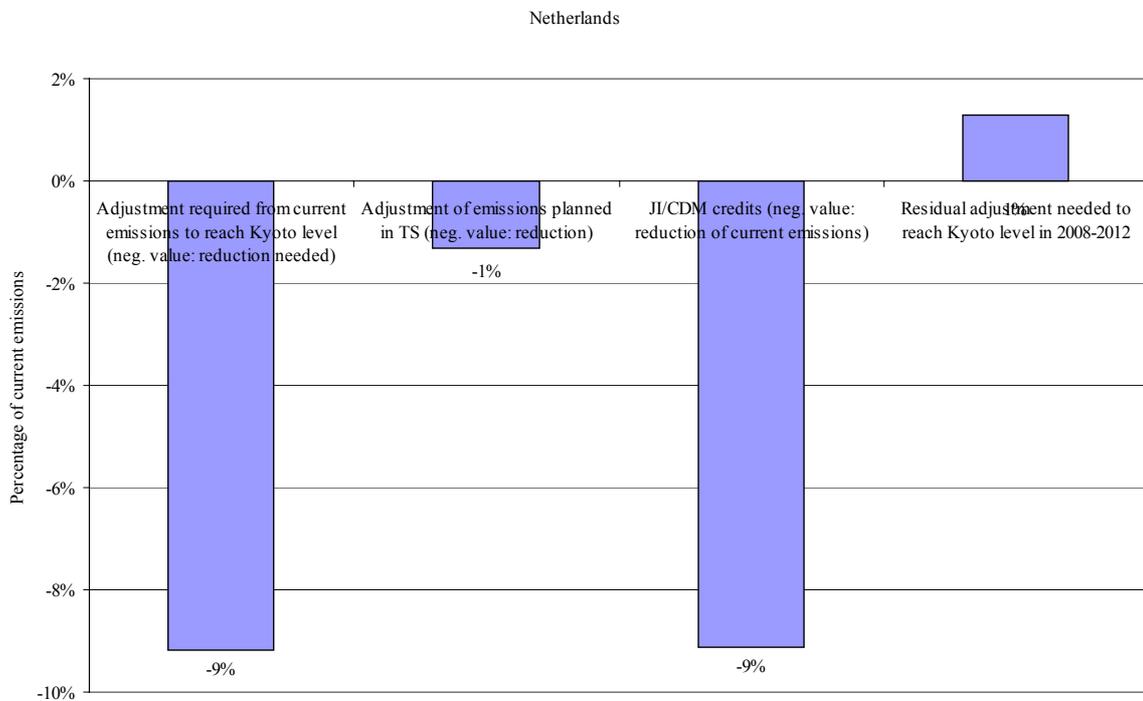


Figure 3.18. Plan on how to fulfil the commitment according to the EU burden sharing agreement.

The value for projected emissions in Figure 3.17, 239 Mt CO₂e/a, is a business as usual scenario. Alternatively, The Netherlands has also estimated that emissions levels 2008-2012 need to be reduced to 219 Mt CO₂e/a in order to reach the Kyoto target when planned CDM/JI-reductions are accounted for (20 Mt CO₂e/a).

3.9.2 CAP and Allocation Methodology

THE CAP

- The CAP in the Dutch NAP is set to 98.3 Mt CO₂/a

GENERAL ALLOCATION METHODOLOGY

- Default methodology: $A = HE \times P \times EE \times C$

Allocated allowances (A) = average individual, historic emissions (HE) for the years (2001-2002), adjusted for sector production growth (P), relative energy-efficiency (EE) and an allocation factor (C) to keep the emissions within the set cap.

This general methodology is used for all installations participating in the ETS, the factors vary in accordance with the following:

Exceptions to the calculation of historical emissions as an arithmetic mean of the total CO₂-emissions of an installation in the years 2001-2002 are made when specific circumstances apply. Special circumstances include repair stoppage, calamity, change in primary fossil fuel, stringent environmental requirements or if a long-term mean value for determining the energy efficiency is common practice in a certain sector. In case of repair stoppage or calamity, the year with the highest CO₂-emissions of the two calendar years 2001 and 2002 is doubled. The average emission over both years is then calculated using this figure. In the event of a change in primary fossil fuel the new fuel will be used in the calculation from the start-up date. CO₂-emission allowances required to cover the implementation of stringent environmental requirements are evaluated by either VBE or Novem, in consultation with the Ministry for Economic Affairs. In case it is common practice in a sector to use a long-term mean value for determining the energy efficiency for its participation in the Benchmarking Covenant or Long-term Agreement, this method may be used for the calculation of CO₂-emission allowances as well. This is under the presumptions that it may be verified that the years 2001 and 2002 are not representative for the determination of CO₂-emission allowances and that the calculation base is a maximum of five continuous calendar years, including the years 2001 and 2002.

Production growth has been considered for the years 2003-2006 on a sector basis. Nine sectors have been recognised – electricity, joint ventures for electricity production (including the greenhouse horticulture sector), refineries, mining, chemicals and rubber/plastics, basic metal, construction materials, paper and cardboard, food and luxury foods (including glass and other industrial sectors). Prognoses have been made for the yearly production growth based on studies performed by The Energy Research Centre of the Netherlands (ECN) and the National Institute for Public Health and the Environment (RIVM). Specific growth factors per sector are given in table 5, page 26 of the NAP. For the sector refineries the sector growth has been quantified as CO₂-emission growth instead of production growth, see further specific remark for the mineral oil refinery sector below.

The allocation factor is 0.97 for all installations.

The energy efficiency factor (EE) is set for each individual installation adapted to its participation in either the Benchmarking Covenant or the Long-term Agreement, see further specific remark for the energy sector below and answer to question 3, part 3. For process emissions EE = 1.

New installations that are known today are included in the NAP and will receive allowances in accordance with the calculation methodology that applies to the sector to which the new installation belongs. $P = 1$, $C = 0.97$ and EE is not applicable. If parts of the depot for known new entrants remains of Dec. 31st 2006, due to e.g. delayed start-up, these allowances will be allocated to the existing installations of the respective sector to which the known new entrants belong.

The same calculation methodology applies to new installations that are unknown today. An allocation reserve equivalent to 4 Mt CO₂ has been established for this category. If parts of the reserve for unknown new entrants remains of Dec. 31st 2006 these allowances will be allocated to the existing installations of the ETS in accordance with the general calculation methodology.

Reallocation⁷ of the above described, remaining allowances is done on February 28th 2007.

For remaining gases from the basic metal sector allowances for the process-related part of the emissions are allocated to the producer of the gas and allowances for the combustion-related emissions are allocated to the installation where the gases are combusted.

ALLOCATION METHODOLOGY USED FOR THE ENERGY SECTOR

- Specific rules apply for the calculation of allowances for installations for electricity production and combined heat and power generation (includes free-standing boilers). Regardless of whether the installation participates in any of the voluntary agreements for energy efficiency, see further under question 3, part 3, allowances are allocated as if the electricity and heat production had taken place at a fixed yield. These yields, specific for each kind of fuel, are derived from the world's best.

For combined heat and power plants, a distinction is made between WKC's (Warmte/Kracht Centrale) and WKK's (Warmte/Kracht Koppeling), the former for which the main function is to supply electricity/steam/warm water to production units that belong to the installation or to other installations or district heating, the latter which is an inseparable part of the benchmark study for the production process. When calculating the average emissions from electricity and heat production and WKC over the years 2001 and 2002 the following equation is used;

$$E_B = \zeta_E \times Q_E \times 3.6 / \eta_E + \zeta_W \times Q_W / \eta_W \text{ where;}$$

ζ_E and ζ_W = Emission factor [ton CO₂/a] for fuel used for electricity and heat production respectively

Q_E = average electricity production in million [kWh] (2001-2002)

Q_W = average heat production in [TJ] (2001-2002)

η_E and η_W = Production yield (as a factor) for electricity and heat production respectively.

If an electricity production installation consists of several production units, the first term of the formula (for electricity production) is repeated per production unit, and the second term (heat production) is the aggregated heat production for all production units. If one production unit uses several fuels, an average production yield is established for both electricity and heat production, on the basis of the fuel specific yields.

The formula is corrected in the case of biomass use as no allowances are issued for biomass. Specific assumptions are made for electricity production installations that use blast-furnace gas.

ALLOCATION METHODOLOGY USED FOR THE MINERAL OIL REFINING SECTOR

- The growth factor for the sector refineries has been established on the basis of CO₂-emission growth, as opposed to production growth. This is due to the fact that the CO₂-emissions per ton product will increase due to the Directive 1999/32/EG and amendments in 93/12/EEC on reduction of sulphur in liquid fuels.

3.9.3 Description of how the NAP meets criteria 1 and 2 of Annex III

Table 3.10. Key Data of Dutch allocation on national and sector level.

	Present or Historic emissions.	Projected emissions	Kyoto commitment/ Allocation
Member state	A 219.1 Mt CO ₂ e/a (2000)	B 239 Mt CO ₂ e/a (2010)	C Kyoto commitment: 199 Mt CO ₂ e/a
Trading sector	D 101.2 Mt CO ₂ /a (2000)	E 115 Mt CO ₂ /a (05-07) 112 Mt CO ₂ /a (08-12)	F Allocation: 98.3 Mt CO ₂ /a
Non-trading sector	G 117.9 Mt CO ₂ e/a (2000)	H 107 Mt CO ₂ e/a (2010)	
Energy sector	I Not given explicitly	J Not given explicitly	K Not given explicitly
Mineral Oil Refining sector	L Not given explicitly	M Not given explicitly	N Not given explicitly

NATIONAL LEVEL – CRITERIA 1 AND 2 OF ANNEX III

- The Netherlands commitment according to the burden sharing agreement is 199 Mt CO₂e/a. The sum of allocated allowances (F) and projected emissions in the non-trading sector (H) is 205 Mt CO₂e/a. The Kyoto target will be reached by means of the mechanisms JI and CDM. This will lead to the reduction of 20 Mt CO₂/a in the first Kyoto-period. Through these mechanism the Dutch cap will amount to a total of 219 Mt CO₂e/a for the years 2008 to 2012.

TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- The contents of the voluntary agreements BM and LTA have been taken into account. It has been decided, in line with criterion 7, to reward those installations that have performed better than agreed in terms of energy efficiency measurements. Projected emissions are based on a bottom-up analysis, where these considerations have been taken into account.
AK: Dutch industry is relatively CO₂- and energy efficient – the energy mix consists of 50% natural gas – and the marginal costs for reducing GHG are estimated at 100 Euro/ton CO₂. Projected emissions include increased process emissions as well as the ‘rewards’ stated above.
- There is no difference between allocated allowances and projected emissions.

NON-TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- No explanation to the difference between present and projected emissions for the non-trading sector is given in the NAP.
- Nothing is mentioned of emission reducing measures in the non-trading sector.

ENERGY SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- No data on present or projected emissions for the energy sector is given in the NAP.

MINERAL OIL REFINERY SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- No data on present or projected emissions for the mineral oil refining sector is given in the NAP.

3.9.4 Description of how the NAP meets criteria 3-8

Criterion 3. The potential to reduce emissions has been considered on a (n overall) sector level. Four major sectors have been considered – agriculture, industry (including energy), transportation and “housing and surroundings”. A target has been set for each of these sectors. The technical potential to reduce emissions as well as cost-efficiency was considered when setting these values. A major part of the sector ‘industry (including energy)’ is subject to the emission trading system. The potential to reduce emissions within the different sectors of the ETS has been considered in the establishment of sector and/or installation specific factors of the calculation methodology.

The calculation methodology for allocating CO₂-emission allowances has been adapted to current status of agreements between government and industry concerning improvement of energy efficiency. The following two agreements exist;

Long-term energy efficiency Agreement (LTA) for installations with an energy consumption of below 0.5 PJ/a. For an installation that has signed the LTA, the distance to a reference point, determined through subtraction of ‘profitable projects’ from the installation’s energy consumption. Profitable projects are those of which an implementation was anticipated between the years 1998 and 2006 in the Energy Business Plan (EBP). For CO₂-emission trading, profitable projects are defined as all ‘unconditional projects’ with a cost-recovery time of five years. The EE factor for LTA is thus calculated as the installation’s energy consumption in 1998 minus profitable projects divided by the installation’s actual energy consumption in 1998.

Benchmarking Covenant (BM) for installations with an energy consumption of more than 0.5 PJ/a. For an installation that has signed the BM, the distance to the world’s best as well as an energy efficiency plan has been established. These form the basis for establishing the EE factor. The distance to the world’s best is the difference between the energy consumption of a production process at the installation and the energy consumption of the same production process that numbers among the best 10% of the world. As an installation often comprises of several production processes, a separate world’s best has been established for each process, and subsequently clustered to create one value for every installation. In principle, this value is used when calculating the EE factor; (Energy consumption of the world’s best) divided by the energy consumption of the installation, all multiplied by the inverted Energy Efficiency Index (EEI) in 2001 (relative index – compared with the benchmark year 1999). EEI is established using the installation’s monitoring report for 2001.

When establishing the EE factor for an installation account is taken to these agreements, which implies that account is taken to early actions. The EE factor cannot exceed 1.1. For installations that have not signed any of the voluntary agreements above an increase in energy efficiency of 15% is assumed for the years 2005-2007 as opposed to 2001-2002, EE factor is thus set to 0.85.

Criterion 4. Consistency with other legislation.

The following EU legislation have been considered in the NAP:

Directive 1999/32/EG and amendments in 93/12/EEC on reduction of sulphur in liquid fuels

Directive 2003/96/EG on restructuring of common framework for taxation of energy products and electricity

Directive 2001/77/EG on promotion of electricity from renewable energy sources on the common electricity market

Directive 2001/77/EG implies that 9% of the Dutch electricity consumption shall be produced by means of renewable energy carriers (fuels) in the year 2010. This is partly achieved with the co-combustion of biomass in coal combustion plants. The Dutch government has therefore closed a coal covenant, in which it is agreed that emissions of CO₂ shall be reduced by 3.2 Mt during the period 2008-2012. It is assumed that 37.5% of this reduction is achieved in the period of 2005-2007, therefore the allowances for the relevant installations will be reduced with the equivalent amount.

Criterion 5. Non-discrimination between companies or sectors.

The objective and non-discriminating characteristics of the calculation rules guarantee a fair and just allocation of allowances to all participants of the ETS, new and existing.

The potential of over-allocation through the purchase of assigned amount units – JI or CDM credits – has been considered and is found to be non-existing. The method for purchase has been described in detail in the allocation plan.

Criterion 6. New entrants.

Allowances will be allocated free of charge to new entrants as well. A distinction is made between the following:

New entrants, date unknown (4 Mt of the total 98.5 Mt CO₂/a)

New entrants, date known (depot within 94.5 Mt CO₂/a)

The general calculation methodology applies for the allocation of CO₂-emission allowances to new entrants. If the installation is started later than planned the amount of allowances will be reduced in relation to the time-period of delay. An earlier installation will not lead to a larger amount of allocated allowances. If parts of the depot for known new entrants remain on Dec. 31st 2006, the allowances will be allocated to the sector to which the new entrant belongs. If parts of the depot for unknown new entrants remain on Dec. 31st 2006, the allowances will be allocated to the participants of the ETS.

For new entrants the following factors are used in the general calculation methodology; P = 1, C = 0.97 and EE is not applicable.

Criterion 7. Early actions have been accounted for in the EE factor. It can, however, not exceed 1.1 in this way the over-allocation of allowances for early actions is avoided. For new entrants the EE factor may not exceed 1.

Criterion 8. Clean technology.

This criterion has not been used in the allocation plan.

3.9.5 Other issues

- All CO₂-emission allowances will be allocated free of charge. Auctioning is not applied.
- The administrative burdens for both industry and government shall be kept as small as possible, for this reason the Netherlands will ask for a temporary exclusion from the ETS of installations with CO₂-emissions <25 kton, i.e. opt-out is applied due to large administrative costs in relation to environmental benefits. These installations are included in the NAP but are not subject to allocation of allowances.
- No emission data on installation level is available in the Dutch NAP.
- Allocation data on installation level is available.

3.9.6 Description on plans to use JI and CDM

- JI and CDM will be used in order to fulfil the Dutch commitment.
- An implied price is given in the NAP – see below.
- The Dutch government has set aside a reserve of 736 M Euro for the purchase of 100 Mt CO₂. 77 of these 100 ton CO₂ have already been contracted and are presented in table 1, page 16 of the NAP, another 23 Mt CO₂ are planned.
- The Government will take the whole cost of the national programme for JI and CDM.

3.9.7 Concluding IVL-remarks on the Dutch NAP

Allocation

Allocation methodology includes the use of existing long-term agreements and the Dutch Benchmarking Covenant, resulting in an allocation where the energy efficiencies in the installations are important.

Annex III-criteria 1-2

Current emissions are 9 % above Kyoto commitment, and projections indicate that Kyoto target will be missed by 20 Mt/a (9% of current emissions) for 2008-2012. The trading sector will reduce current emissions by 3 % in 2005-2007 under the suggested allocation scheme.

The deficit in relation to the Kyoto target will be handled by purchasing 100 Mt of JI/CDM generated allowances. Through the ERUPT and CERUPT programmes 77 Mt have been contracted by the Dutch government to date, and financial reserves have been set aside to cover the costs for the entire 100 Mt.

Compliance with annex III-criteria 1-2 seems likely assuming that:

- the emissions in the non-trading sectors do not rise significantly
- the stated CDM/JI projects are realised as planned. If a dramatic increase in the price of CER/ERUs should occur this could be a potential threat. Further, the Netherlands have planned JI projects in the trading sectors of a number of the previous accession countries, e.g. conversions of coal fired power plants. These projects may prove less attractive for the participants since the linking directive significantly limits the economic incentives to execute JI in the trading sectors. An analysis of the JI project portfolio and assurance that the contracted ERU will be delivered would therefore be of interest.

Annex III-criteria 3-8

No remarks additional to the ones made in previous sections. NAP seems in line with Annex III-criteria 3-8.

Other issues

The Netherlands will ask for a temporary opt-out of installations with CO₂-emissions below 25 kton.

3.10 Sweden

3.10.1 Path to Kyoto

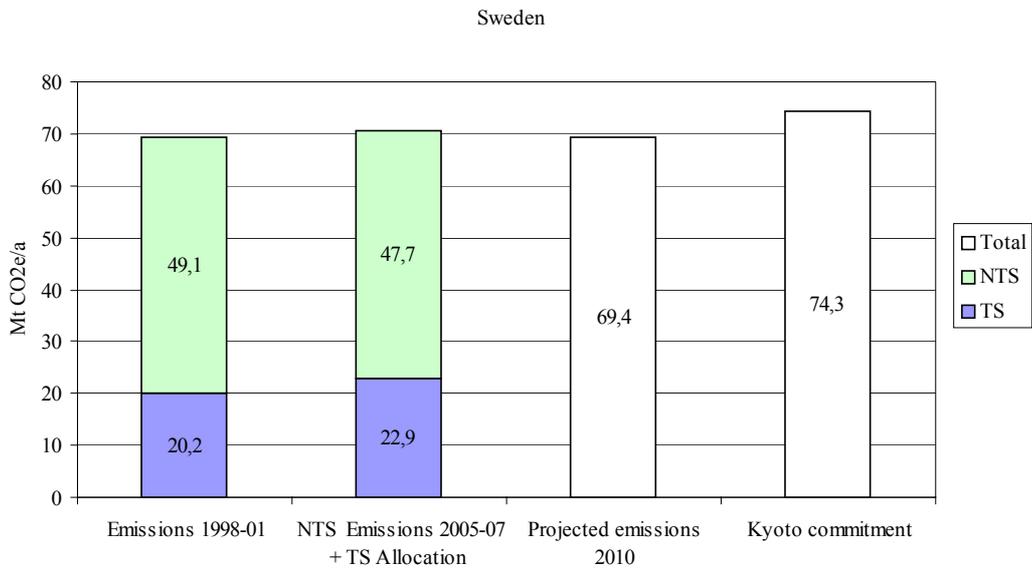


Figure 3.19. The national greenhouse gas emission budget of Sweden.

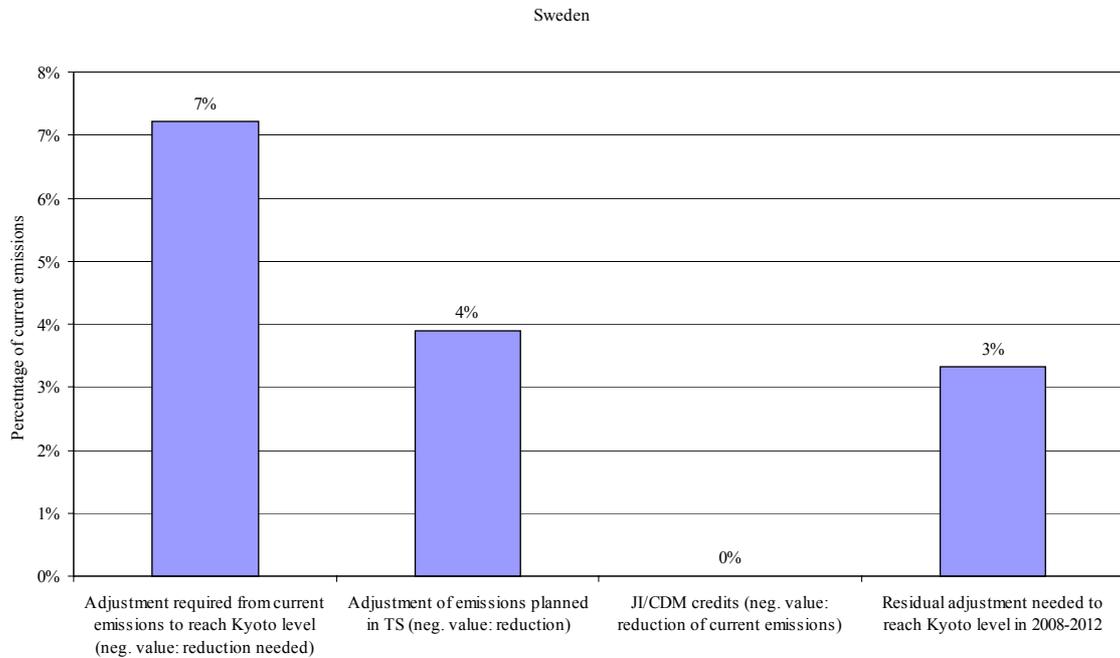


Figure 3.20. Plan on how to fulfil the commitment according to the EU burden sharing agreement.

The projected emissions of greenhouse gases for 2010 given in Figure 3.19, 69.4 Mt CO₂e/a, are business as usual scenarios based on trend analysis of current/historic trends. Only emission reducing measures existing today have been included.

3.10.2 CAP and Allocation Methodology

THE CAP

- The total number of allowances is set to 22.9 Mt CO₂/a in the Swedish NAP.

GENERAL ALLOCATION METHODOLOGY

- Default methodology: Allocated allowances = average emissions 1998-2001 with the following amendments:
Installations with process related emissions (i.e. metallurgy, cement etc.) will receive an addition of allowances corresponding to expected increase in process related emissions from 1998-2001 to 2005-2007.

Electricity and heat producing installations will receive 80 % of emissions 1998-2001 with the exception for industrial CHP that will receive 100 % of emissions 1998-2001.

Installations with exceptional events during 1998-2001 leading to at least 10 % lower emissions this particular year than the “normal” years in the period 1998-2001 will receive allowances based on the “normal” years.

New installations (known today) will receive allowances based on benchmarks and expected production. Total of 1 Mt CO₂ allocated in NAP.

New installations that are unknown today will receive allowances based on benchmarks and expected production up to a maximum of 0.8 Mt CO₂ on a first come – first serve basis.

ALLOCATION METHODOLOGY USED FOR THE ENERGY SECTOR

- The energy sector will receive allowances corresponding to 80 % of emissions 1998-2001.
- New energy installations: Allowances will be only be given to CHP-installations based on the following formula: Allocation = projected production x benchmark x scaling factor. Benchmark for electricity: 265 ton/GWh; Benchmark for heat 83 ton/GWh. Scaling factor 0.8

ALLOCATION METHODOLOGY USED FOR THE MINERAL OIL REFINING SECTOR

- The General methodology has been used for the mineral oil refining sector.

3.10.3 Description of how the NAP meets criteria 1 and 2 of Annex III

Table 3.11. Key Data of Swedish allocation on national and sector level.

	Present or Historic emissions.	Projected emissions	Kyoto commitment/ Allocation
Member state	A 72.1 Mt CO ₂ e (1990) 69.3 Mt CO ₂ e/a (average 98-01)	B 69.4 Mt CO ₂ e/a (08-12)	C 74.3 Mt CO ₂ e
Trading sector	D 20.2 Mt CO ₂ /a (average 98-01)	E Not available	F 22.9 Mt CO ₂
Non-trading sector	G 49.1 Mt CO ₂ e/a (average 98-01)	H 47.7 Mt CO ₂ e (05-07)	
Energy sector	I Not available	J Not available	K Not available
Mineral Oil Refining sector	L Not available	M Not available	N Not available

NATIONAL LEVEL – CRITERIA 1 AND 2 OF ANNEX III

- Sweden's commitment according to the EU burden sharing agreement is 104 % of 1990 emissions (CO₂e.) or 74.3 Mt CO₂e. Total planned allocation of allowances (CAP) will be 22.9 Mt CO₂. Projections on emissions development for 2005-2007 for non-trading sectors is 47.7 Mt CO₂e. The sum of allocated allowances and emissions from non-trading sector is therefor 70.7 Mt CO₂. This is well below the commitment of 74.3 Mt CO₂e.
- National Climate Policy: The Swedish parliament decided 2002 that Sweden's emissions 2008-2012 shall be at least 4% lower than 1990 without compensation for sinks or use of the flexible mechanisms. This national target corresponds to 68.5 Mt CO₂e/a. Sweden will during 2004 revise this national target to include the flexible mechanisms

TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

The basis for calculating this CAP is the emissions 1998-2001, which were 20.2 Mt CO₂/a. This figure has been adjusted due to the following factors:

- A reduction in energy sector by 20% (except industrial CHP) of the emissions corresponding to 0.9 Mt CO₂/a.
- An increase in process related emissions from the steel, mineral and oil refinery sectors due to increased production capacity corresponding to 1.8 Mt CO₂/a.
- An increase due to new entrants and expansion of existing installations 1.8 Mt CO₂/a.
- The proportion of the emissions in the trading sector compared to Sweden's total emissions have increased from 20 % 1990 to 29 % 1998-2001. This is mainly due to two things: Firstly, emissions from heating of houses have "moved" over to the energy sector as a result from an increase in district heating. Secondly, there has been an expansion in the steel, cement, refinery and pulp and paper industry in the 1990's. The suggested allocation of 22.9 Mt/a will mean a further increase of the trading sector's proportion to 31 % of Sweden's total emissions in 2005-2007. This is due to a continuation of the above mentioned trends and will not jeopardise Sweden's Kyoto commitment as presented under criterion 1.

NON-TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

A wide range of emission reducing measures planned for the non-trading sector are presented including:

- CO₂ and energy taxes
- local climate investment programmes, KLIMP (-0.1 Mt CO₂e)
- measures against fluorinated gases (-0.3 Mt CO₂e)
- the stimulation of CHP through decreased taxation
- measures in the waste sector (-0.5 Mt CO₂e), and
- a list of measures in the transport sector (-1.0 Mt CO₂e).

ENERGY SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- Electricity and heat producing installations will receive 80 % of emissions 1998-2001 with the exception for industrial CHP that will receive 100 % of emissions 1998-2001. Sweden considers that the potential to reduce emissions in the energy sector is higher than in other sectors and that this sector is not subject to the same competitive pressure from other countries as the other sectors.

MINERAL OIL REFINING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- The Scanraff refinery is suggested to receive allowances corresponding to 0.8 Mt CO₂ more than average emissions 1998-2001 due to a planned new hydrocracker unit and a hydrogen production unit. These units are a direct result of the Directive 1999/32/EC and amendments in 93/12/EEC on reduction of sulphur in liquid fuels. Estimates have shown that the new fuels will reduce emissions from the vehicles by ca 1 Mt CO₂/a, whereof 0.26 Mt CO₂ in Sweden and the rest in other European countries.

3.10.4 Description of how the NAP meets criteria 3-8 of Annex III

- Criterion 3. Potential to reduce emissions.
 Process related emissions that are difficult to reduce have been identified in the steel, cement, glass, ceramics and refinery industries. Blast furnace gas and LD converter gas from the steel industry that is sold to CHP-installations are also considered process related. These process related emissions are ca 35 % of the total emissions 1998-2001. These installations are treated favourably in the NAP in the way they will receive allowances based on prognoses of process related emissions 2005-2007.
 The allocation to energy installations is scaled down by a factor 0.8. The Nap considers that the potential to reduce emissions in the energy sector is higher than in other sectors and that this sector is not subject to the same competitive pressure from other countries as the other sectors.
 LZ note: the use of benchmarks for new entrants also considers potential to reduce emissions.
- Criterion 4. Consistency with other legislation.
 The following EU legislation have been considered in the NAP:
 Directive 1999/32/EG and amendments in 93/12/EEC on reduction of sulphur in liquid fuels
 Directive 2003/96/EG on restructuring of common framework for taxation of energy products and electricity
 Directive 2001/77/EG on promotion of electricity from renewable energy sources on the common electricity market
- Criterion 5. Non-discrimination between companies or sectors.
 Downscaling the allocation to the energy sector to 80% of its historical emissions is motivated in the NAP by the fact that it is probably in the energy sector were the cheapest reduction measures are available.

Criterion 6. New entrants.

A total of 1.8 Mt CO₂ are reserved for new entrants. 1 Mt are reserved for installations that already have permits according to Swedish law. 0.8 Mt are reserved for installations that do not have permits according to Swedish law or are unknown to the authorities on a first come-first serve basis.

New installations (with or without permits today) will receive allowances based on benchmarks and expected production.

Allocation to energy installations will be scaled down with a factor of 0.8 and only given to CHP-installations.

Criterion 7. Early action.

Sweden has not rewarded emission reduction actions taken before 1998 in the NAP. On the other hand installations that have implemented reduction measures between 1998-2001 will be rewarded for these “semi-early actions”.

Criterion 8. Clean technology.

Allocation to new entrants will be based on benchmarks. New energy installations will only receive allowances if they are CHP.

3.10.5 Other issues

- No allowances will be auctioned.
- No opt-out. Opt-in of energy installations below 20 MW in district heating nets where total net capacity is above 20 MW.
- No emission data on installation level is available in the Swedish NAP.
- Allocation data on installation level is available in the Swedish NAP.

3.10.6 Description on plans to use JI and CDM

- Sweden has been involved in pilot projects of JI and CDM since 1993 in order to develop the project based flexible mechanisms. Since 2003 the Swedish government has strengthened this work. CDM/JI will not be used in order to fulfil Sweden’s part of EU:s burden sharing agreement/Kyoto commitment. However, Sweden may use JI/CDM in order to reduce climate gas emissions further.
- Sweden has a programme for CDM. Contracts are being negotiated with Russia, Estonia, Lithuania and Romania.
- It is not mentioned if the Swedish government will take the whole cost of the CDM programme.
- Sweden participates in the Prototype Carbon Fund (PCF) with 10 million USD.

3.10.7 Concluding IVL-remarks of the Swedish NAP:**Allocation**

- Installations are suggested to receive allowances corresponding to what they emitted in 1998-2001, with two exceptions: 1) installations with process related emissions which will receive allowances according to their projected increased emissions 2005-2007; and 2) energy production installations that will receive 80 % of emissions 1998-2001. No general downscaling is suggested. This allocation method is quite unrestricted and allows for “business as usual” in the installations, save the energy sector, giving the installations as many allowances as they historically would have needed. On the other hand, such a “generous” plan can be motivated by the fact that Sweden is today well below (-7%) its Kyoto commitment.

- The allowance reserve for new entrants is 1.8 Mt CO₂. These allowances have **not** been deducted from current installations (such as in the UK NAP) but are “fresh” allowances. This will implicitly put a higher pressure on the non-trading sector to achieve GHG-reductions in order to reach the Swedish climate target. The allocation of allowances to a new production unit in the refinery sector is said to be compensated by lower emissions in the transport sector.
- There is an asymmetry in the energy sector where industrial CHP-units receive 100% of 1998-2001 emissions, while other CHP will receive 80% of 1998-2001 emissions.
- Company estimates of projected production in the Steel and mineral industries have been used to calculate the projected process related emissions for these companies and consequent allocation. These projections needs to be verified.

Annex III-criteria 1 and 2:

- According to the EU burden sharing agreement of the EU Kyoto commitment Sweden may increase its 1990 emissions (71.4 Mt CO₂e/a) by +4% to 74.3 Mt CO₂e. In 2002 emissions were 69.3 Mt CO₂e or 7 % lower than the Kyoto commitment. Sweden suggests the total allocation to be 22.9 Mt CO₂. This is 13% higher than emissions in the trading sector 1998-2001. Total allowances plus projected emissions in the non trading sector amounts to 70.7 Mt CO₂e/a for 2005-2007 showing that Sweden is well on track with the burden sharing agreement.
- The Swedish parliament has taken a more restrictive national GHG emission target of –4%, which amounts to 68.5 Mt CO₂e. If this is to be realised, Sweden needs to further reduce emissions by 2.2 Mt CO₂e for 2008-2012.

Annex III-criteria 3-8

- New energy installations will only receive allowances if they are CHP.

Other issues

- No further comment.

3.11 The United Kingdom

3.11.1 Path to Kyoto

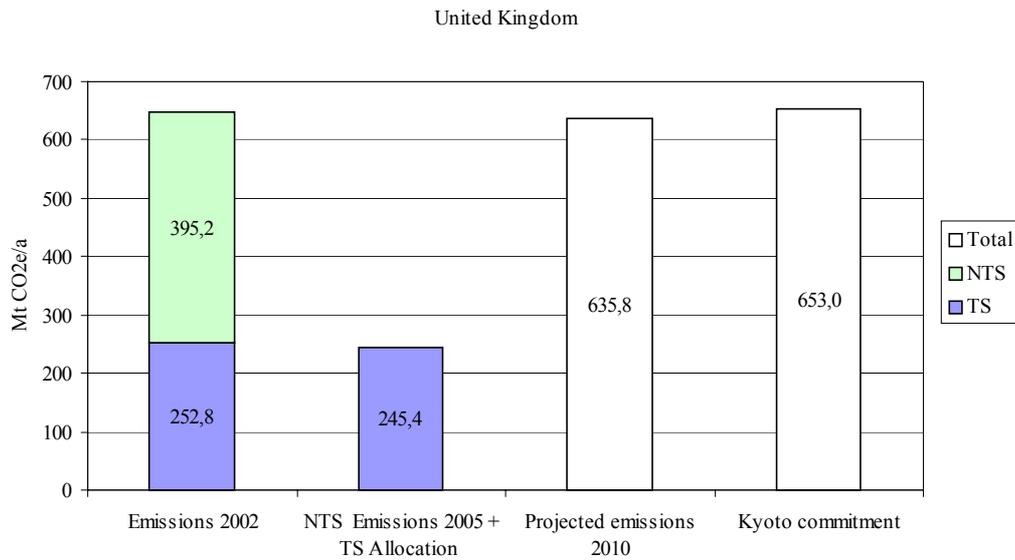


Figure 3.21. The national greenhouse gas emission budget of the United Kingdom.

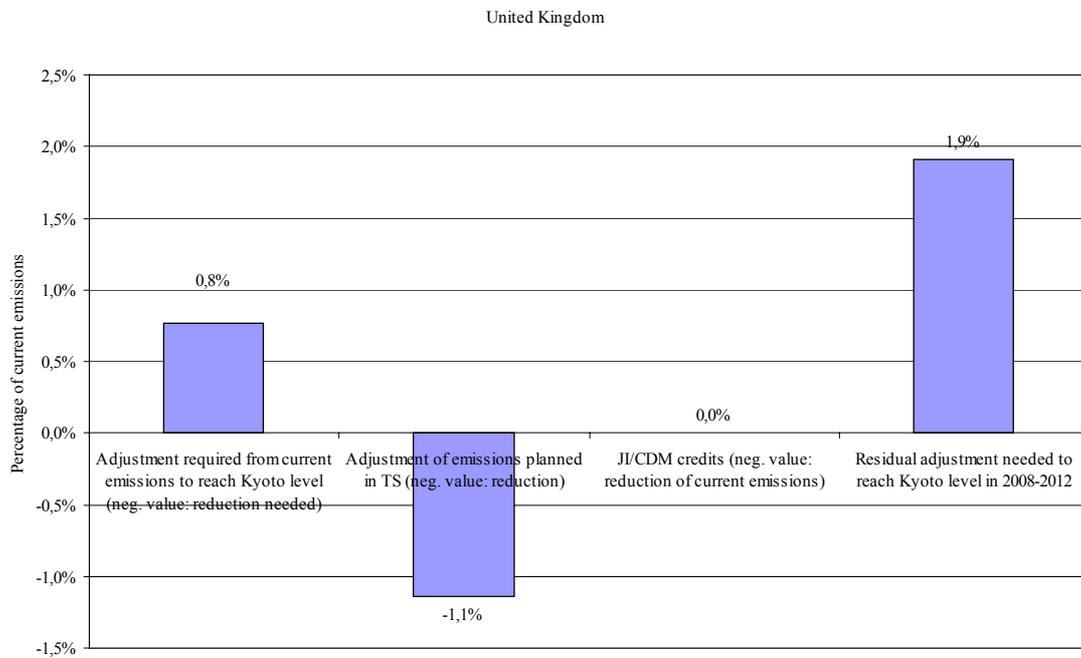


Figure 3.22. Plan on how to fulfil the commitment according to the EU burden sharing agreement.

The value for projected emissions in Figure 3.21, 635.8 Mt CO₂e/a, considers planned measures according to The United Kingdom's industrial Climate Change Agreements.

3.11.2 CAP and Allocation Methodology

THE CAP

- The total CAP for the three year period has been determined to 736 Mt CO₂

GENERAL ALLOCATION METHODOLOGY

- Allocations of allowances will be made in a two-stage approach that allocates allowances at sector level the first instance and subsequently allocates to installations within each sector.

Allocation to sectors:

All sectors covered by the scheme will be allocated allowances equivalent to their projected emissions; save for the Power Station sector which will be allocated 5.5 Mt CO₂ less than that sector's projected emissions during 2005-2007

The UK government has also decided to create a New Entry Reserve (NER) of allowances for new entrant installations that join the scheme during Phase 1. Estimated allocations to the new entrants in each sector are taken off the estimated total emissions from that sector before allocating allowances from the sector total to existing installations.

The calculation of projected emissions also considers the earlier UK Climate Change Agreements (CCA)

To estimate the projected emissions from the EU ETS covered sectors, the UK has used its energy model (UEP). The projected emissions for each EU ETS sector are calculated after incorporating the effects of current Climate Change Programme policies and measures on that sector.

Allocation to installations:

First, the installations "relevant emissions" are calculated as the average annual emissions for the years in the baseline period when the installation was in operation after excluding the lowest year's emissions. In other words:

- for installations commencing operation in or before 1998, the average of the highest 5 years from 1998 to 2003;
 - for installations commencing operation in 1999, the average of the highest 4 years from 1999 to 2003;
 - for installations commencing operation in 2000, the average of the highest 3 years from 2000 to 2003;
 - for installations commencing operation in 2001, the average of the highest 2 years from 2001 to 2003;
- and
- for installations commencing operation in 2002, the higher of 2002 and 2003.

The allocation, A_i , is then calculated as:

$$A = (\text{installation's relevant emissions} / \text{sum of relevant emissions in the sector}) * \text{total sector allowances}$$

Special rules for calculating relevant emissions of:

- installations undergoing commissioning during baseline period;
- installations where rationalisation of production has taken place during baseline period; and
- installations commencing operations in 2003

ALLOCATION METHODOLOGY USED FOR THE ENERGY SECTOR

- See above

ALLOCATION METHODOLOGY USED FOR THE MINERAL OIL REFINING SECTOR

- See above

3.11.3 Description of how the NAP meets criteria 1 and 2 of Annex III**Table 3.12** Key Data of British allocation on national and sector level.

	Present or Historic emissions.	Projected emissions	Kyoto commitment/ Allocation
Member state	A 648 Mt CO ₂ e/a (2002) 551 Mt CO ₂ /a (2002)	B Without CCA-measures: 572 Mt CO ₂ /a (2010) With CCA-measures: 512.4 Mt CO ₂ /a (2010) For all 6 Kyoto gases 14.8 % below 1990-levels.	C 653 Mt CO ₂ e/a
Trading sector	D 252.8 Mt CO ₂ /a (2002)	E 247.2 Mt CO ₂ /a	F 245.4 Mt CO ₂ /a
Non-trading sector	G	H	
Energy sector	I 158.2 Mt CO ₂ /a (2002)	J 145.5 Mt CO ₂ /a (2005-2007)	K 143.7 Mt CO ₂ /a (before 8% set aside to NER)
Mineral Oil Refining sector	L 17.8 Mt CO ₂ /a (2002)	M 19.0 Mt CO ₂ /a (2005-2007)	N 19.0 Mt CO ₂ /a (before 8% set aside to NER)

NATIONAL LEVEL – CRITERIA 1 AND 2 OF ANNEX III

- The UK argues that: The Kyoto commitment will be reached if planned measures (CCA) are fulfilled. Taking into consideration these measures projected emissions have been calculated. The allocation is based on these projections.

The number of allocated allowances (CAP) is lower than emissions in 2002.

The trading sector's share of total emissions (46%) will be sustained in the allocation.

TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- There is a reduction of 1.8 Mt CO₂/a of allocated allowances compared to present emissions for the energy sector:

NON-TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- No data on present or projected emissions in the non-trading sector is available in the NAP.
- There is a list of emission reducing measures planned in the non-trading sector presented on pages 12-14 in the NAP.

ENERGY SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- It is not commented in the NAP why there is a difference between the present and the projected emissions in the energy sector.
- The amount of allocated allowances to the energy sector is 1.8 Mt CO₂/a lower than the projected emissions for the sector.

MINERAL OIL REFINING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- It is not commented in the NAP why there is a difference between the present and the projected emissions in the mineral oil refining sector. Neither the difference between allocated allowances and projected emissions for the sector is commented.

3.11.4 Description of how the NAP meets criteria 3-8 of Annex III

- Criterion 3. Potential to reduce emissions.
The potential of different sectors to achieve emissions reductions by using technologies which are cost-effective has already been reflected in the policies and measures set out in the UK Climate Change Programme. The UK Climate Change Programme is based on a number of principles, including taking a balanced approach, with all sectors and all parts of the UK playing their part, and focusing on flexible and cost effective policy options that work together to form an integrated package. The review of the Climate Change Programme which will take place during 2004 will take into account the potential of different sectors to achieve reductions
- Criterion 4. Consistency with other legislation.
No comment.
- Criterion 5. Non-discrimination between companies or sectors.
No comment.
- Criterion 6. New entrants.
The UK has decided to set aside a quantity of allowances to be distributed for free to installations that commence operation after December 2003 but before the end of 2007 and that are eligible as new entrants for a free allocation of allowances from the New Entrant Reserve (NER). The total size of this reserve will be 56.8m allowances (roughly 7.7% of the total allowances to be issued).
- Allocation process:**
It is envisaged that the allocation to a new entrant is calculated through application of a standardised allocation methodology. This methodology should reflect technology, load and fuel specific factors. The methodology being developed is expected to take into account various criteria, including the need to:
- a) be transparent;
 - b) be simple;
 - c) be feasible to implement;
 - d) gives certainty to industry;
 - e) be consistent with other Member States (in areas particularly exposed to international competition);
 - f) be verifiable;
 - g) incentivise clean/energy efficient technology;
 - h) meet .need., i.e. what the new entrant would use if they had to buy in the market (subject to any adjustments to ensure consistency with incumbents);
 - i) minimise risk of over allocation;
 - j) be defensible vis-à-vis allocation to similar incumbents (i.e. those in the National Allocation Plan);

- k) maintains the attraction of the UK for investment
- l) reinforce security of supply;
- m) be consistent with the operation of the ETS as a market based instrument;
- n) not be subject to ex post adjustment of allowances once the new entry has commenced.

The allocation to the new entrant installations will be determined via the following process:

- the operator provides the regulator with information on how the standardised allocation methodology should be applied to its new entrant installation;
- the regulator and operator agree an appropriate allocation of allowances to the new entrant, on the basis of the application of the standardised allocation methodology .if no agreement can be reached, the operator would be entitled to submit its proposal directly to the Minister for determination;
- and having checked there are sufficient allowances left in the NER, the Minister determines the allocation (presuming there are sufficient allowances remaining) by either:
 - approving the agreement reached between the operator and regulator;
 - determining an allocation if the agreement between the operator and regulator is deemed to be inappropriate;
 - or determining an appropriate allocation, taking suitable account of the operator's proposal for the allocation (if no agreement was reached between the operator and the regulator).

Criterion 7. Early action.

The UK considers that it is very difficult to identify instances of early action other than those undertaken either (a) in compliance with relevant legislation or other policies – which the Commission guidance states is not covered by the definition of early action or (b) for economic reasons for which there would appear to be little justification for additional reward. Therefore, the UK does not consider that it is appropriate to reward early action more specifically in the NAP. However, the use of averaged emissions information from 1998 to 2003 to distribute allowances to individual installations takes account of major decreases in later years, by incorporating higher emissions data from earlier years, thereby rewarding an operator who has taken significant early action during this period. It also avoids the penalty for earlier action which would result from using a single recent year (e.g. 2002 or 2003) or from basing allocations on forecasts of emissions.

Criterion 8. Clean technology.

The UK considers that one of the principal effects of establishing the EU ETS will be to provide an incentive for clean, energy efficient technologies by putting a price on emissions of carbon. Therefore, the UK has not considered it necessary to take any express steps to take account of clean technologies in the allocation process to existing installations. However, the use of benchmarks to allocate to new entrants , where possible, will encourage investment in clean technology and energy efficiency.

3.11.5 Other issues

- Any surplus allowances remaining in the new entrant reserve at the end of each year in Phase 1 will be auctioned.
- The UK is submitting separate applications for the temporary exclusion of installations that are covered by the UK Emissions Trading Scheme or by Climate Change Agreements alongside this NAP
- No emission data on installation level is available in the British NAP.
- No data on allocation to individual installations is given in the NAP documents.

- Installations that cease to carry out an Annex 1 activity will not be issued with allowances for the years after cessation.

3.11.6 Description on plans to use JI and CDM

- Given that the projections set out above show that the UK is on course to meet its Kyoto Protocol target, it is not intended that any use will be made of the flexible mechanisms by the UK government to meet its Burden Sharing Agreement target.

3.11.7 Concluding IVL-remarks of the British NAP:

Allocation

- The sector allocation is based on projections assuming that the CCA-measures have been realised.
- From these projected emissions a percentage of the corresponding allowances are deducted for the New Entrants Reserve (NER). This percentage is sector dependent and on average 7.7 %.
- The calculated allowances for the energy sector are further reduced by 1.8 Mt CO₂/a.
- The plan suggests that pressure is put on both the trading sector and non-trading sector for performing emission reductions. In the trading sector this is done through suggesting an allocation plan with certain restrictions such as the deductions of allowances for new entrants and the reduction of allowances in the energy sector. In the non-trading sector the reduction pressure is realised through the Climate Change Agreements.
- The allocation plan is quite complex to understand and likely to become administratively resource demanding.
- We can't find information on allocation to installations in available NAP documents.

Annex III-criteria 1-2

- Current emissions are 1 % below the Kyoto commitment
- Projected emissions in NTS plus allocated allowances in the TS will be 3 % below the Kyoto commitment if suggested measures from the UK Climate Change agreements (CCA) are realised. If these measures are not realised the Kyoto target will not be achieved.

Annex III-criteria 3-8 and other issues

- New entrants. The allocation method for new entrants is elaborate and well explained in its general features, but is not very specific when it comes to calculating the actual allocation. This gives the administrator a certain flexibility to select and tailor make a specific allocation methodology for each new entrant.
- Early action. The NAP does not attempt to reward early action since these actions are a result from either legislation, policies or justified by economical reasons. However, actions taken 1998-2002 are rewarded since these are the base years for the allocation.
- Clean technology. One of the principal effects of establishing the EU ETS will be to provide an incentive for clean, energy efficient technologies by putting a price on emissions of carbon. Therefore, the UK has not considered it necessary to take any express steps to take account of clean technologies in the allocation process to existing installations.

UK will auction remaining allowances from the New Entrants Reserve. But since New Entrants Reserve amounts to 7.7 % of the total allowances there is a (small) risk that more than 5 % of the total allowances will be auctioned, thus violating article 10.

3.12 Belgium Flanders - Draft

3.12.1 Path to Kyoto

The required data was not available in order to make the corresponding figures for Belgium/Flanders.

3.12.2 CAP and Allocation Methodology

THE CAP

- For the period 2005 to 2007, the CAP has been set to a total of 92.744 Mt CO₂ and will be distributed over the years in the following way;
 - 2005: 31.673 Mt CO₂/a
 - 2006: 30.761 Mt CO₂/a
 - 2007: 30.310 Mt CO₂/a

GENERAL ALLOCATION METHODOLOGY

- Default methodology:
 - $A_v ('05 - '07) = [\sum_n (E_v \times V.F._n \times P)]$, where
 - A_v = Allocated allowances
 - E_v = Average CO₂-emissions of the reference year or period (reference year or period is not given)
 - $V.F._n$ = energy efficiency factor in which the energy plan has been considered.
 - P = Expected sector growth

An installation that has signed a benchmarking covenant has agreed, within a set period, to belong to the world's top in terms of energy efficiency. If the installation falls under the definition of an installation that may participate in the benchmarking covenant, but wishes not to participate, the $V.F._n$ is set to 0,85.

$V.F._n$ does not apply to, or is equal to 1 for, process emissions.

A study is being performed by AMINAL (the Flemish Environmental Administration) in order to establish relevant growth factors per sector. Sector development and conditions on installation level are considered when establishing this factor.

ALLOCATION METHODOLOGY USED FOR THE ENERGY SECTOR

- Calculation methodology for electricity production:
 - $A_e = [3.6 \times (P_e \times U) / N] \times C_e$,

Allocated allowances are dependant on electricity production in the reference year (P_e), best production yield for the specific production technology (N), the emission factor for the specific fuel (U) and a correction factor for the specific production technology. The constant 3.6 is merely a unit conversion factor.

Calculation methodology for CHP production:
 $A_e = BV \times U \times C_e$

Combined heat and power generation installations will receive an amount of allowances that corresponds to the actual CO₂-emissions in the reference period (**BV**). The allowances are thus not adjusted for actions to increase energy efficiency. A combined heat and power generation installation is considered to be an energy-saving technology and the development of this technology may not be hindered by the ETS. The stimulation of high performance CHP is done by a system of CHP-certificates.

The correction factor **C_e** will vary with technology, as a general correction factor may lead to the discrimination of clean production technologies. For this reason the **C_e = 1** for CHP and installations that produce electricity by means of best available technology (BAT).

Calculation methodology for heat production from free-standing boilers: **A_q = P_q x U / N**

Allocated allowances are dependant on the heat production (**P_q**), the emission factor of the specific fuel (**U**) and (**N**) = 0,9.

Calculation methodology for electricity production from blast furnace gas: **A_{HO} ('05 – '07) = [Σ (HO x U)**

This is solely for the electricity production from blast furnace gas. The increased emissions from blast furnace gas due to expected growth within the industry are accounted for in the general calculation methodology of the industry. In case a larger amount of blast furnace gas is used for electricity production, the needed allowances will be transferred from the installation that produces the blast furnace gas.

ALLOCATION METHODOLOGY USED FOR THE MINERAL OIL REFINING SECTOR

- No special allocation methodology for the mineral oil refining sector is given

3.12.3 Description of how the NAP meets criteria 1 and 2 of Annex III

Table 3.13 Key Data of Flemish allocation on national and sector level.

	Present or Historic emissions.	Projected emissions	Kyoto commitment/ Allocation
Member state	A 88.424 Mt CO ₂ e/a (1990)	B 90.811 Mt CO ₂ e/a (2005) 89.414 Mt CO ₂ e/a (2006) 88.017 Mt CO ₂ e/a (2007) 83.826 Mt CO ₂ e/a (2010)	C Kyoto commitment: 81.792 Mt CO ₂ e/a
Trading sector	D Not available	E 31.673 Mt CO ₂ /a (2005) 30.761 Mt CO ₂ /a (2006) 30.310 Mt CO ₂ /a (2007)	F Not available
Non-trading sector	G 117,9 Mt CO ₂ e/a:	H 53.964 Mt CO ₂ e/a (2005) 53.186 Mt CO ₂ e/a (2006) 52.917 Mt CO ₂ e/a (2007)	
Energy sector	I Not available	J 14.198 Mt CO ₂ /a (2005) 13.291 Mt CO ₂ /a (2006) 12.838 Mt CO ₂ /a (2007)	K Not available
Mineral Oil Refining sector and remaining industries	L Not available	M 17.475 Mt CO ₂ /a (2005) 17.470 Mt CO ₂ /a (2006) 17.472 Mt CO ₂ /a (2007)	N Not available

NATIONAL LEVEL – CRITERIA 1 AND 2 OF ANNEX III

- The sum of allocated allowances (F) and projected emissions for the non-trading sector (H) is 83.227 Mt CO₂e/a.
- It is stated that the Kyoto target will be met by means of the mechanisms JI and CDM. No plan or program for this is presented.
- The Flemish government foresees a deficit in emission allowances of 1.942 Mt CO₂/a for the period 2005-2012.

TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- No data on present emissions from the trading sector is given in the NAP. It is not stated if or why there is a difference between present and projected emissions for the trading sector.

NON-TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- No data on present emissions in the non-trading sector is given (only for the country as a whole).

ENERGY SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- No data on present emissions or amount of allocated allowances is given for the energy sector in the Flemish NAP.

MINERAL OIL REFINING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- No data on present emissions or amount of allocated allowances is given for the mineral oil refining sector in the Flemish NAP.

3.12.4 Description of how the NAP meets criteria 3-8 of Annex III

Criterion 3. Potential to reduce emissions.

The technical and economic potentials to reduce emissions were considered in relation to the improvements agreed upon in the benchmarking covenant for energy efficiency. This is stated in the energy plan of the installation.

Criterion 4. Consistency with other legislation.

Not given

Criterion 5. Non-discrimination between companies or sectors.

Not given.

Criterion 6. New entrants.

A reserve will be set aside for new entrants. The size of it is not mentioned in the draft NAP. Allowances will be allocated on the condition that the installation can show by means of an energy study that the energy efficiency is equivalent to that of 'best practice'. For new entrants within the energy sector the calculation of allocated allowances will be based on the emission factor for natural gas. If the condition of 'best practice' cannot be met, the amount of allowances will be reduced by 15%.

Criterion 7. Early actions have been accounted as allocation of allowances is done on the basis of benchmarks on energy efficiency.

Criterion 8. Clean technology.

Specific rules apply for the allocation of allowances to WKK installations and BAT for new entrants. See further part 1, comment on energy sector, above.

3.12.5 Other issues

- It is not stated whether or not any of the allowances will be auctioned.
- Opt-out is used for installations of an installed capacity of more than 20 MW that are exclusively used for heating. The argument is that this sector is non-profit and not familiar with 'trading activities'. Conditions of energy efficiency measurements will be applied to this sector instead.
- No emission data on installation level is available in the NAP.
- Allocated allowances per installation will be published after the 1st of July 2004.

3.12.6 Description on plans to use JI and CDM

- JI and CDM will be used in order to fulfil the Belgian commitment according to the EU burden sharing agreement.
- No assumed price on JI and CDM credits has been stated in the NAP
- Belgium do have a programme for CDM.
- The Belgium government will take the whole cost for the CDM programme.
- Money has been set aside for the CDM programme.

3.12.7 Concluding IVL-remarks of the Flemish Draft NAP

Allocation

Allocation methodology includes the use of existing long-term agreements and the Belgian Benchmarking Covenant, resulting in an allocation where the energy efficiencies in the installations are important.

The NAP is still a draft, and allocation on installation level is yet to be presented. The so-called growth factors, which are important variables in the allocation methodology, are also still under development.

Annex III-criteria 1-2

It is difficult to analyse the NAP for Flanders, since it only one region of Belgium, whereas the Kyoto Commitment obviously covers the entire Member state. However, the Flemish government foresees a deficit in emission allowances of almost 2 Mt annually during 2005-2012. This deficit, it is indicated, will be met with JI/CDM. However, since no plan for this is presented in the NAP, the credibility of the NAP in terms of meeting criteria 1 and 2 remains unclear.

Annex III-criteria 3-8

Heat production receives a general over allocation of 11 %, which could be a violation of criteria 3 and/or 5.

Other issues

Heat-only generation installations will be opted out.

3.13 Portugal - Draft

3.13.1 Path to Kyoto

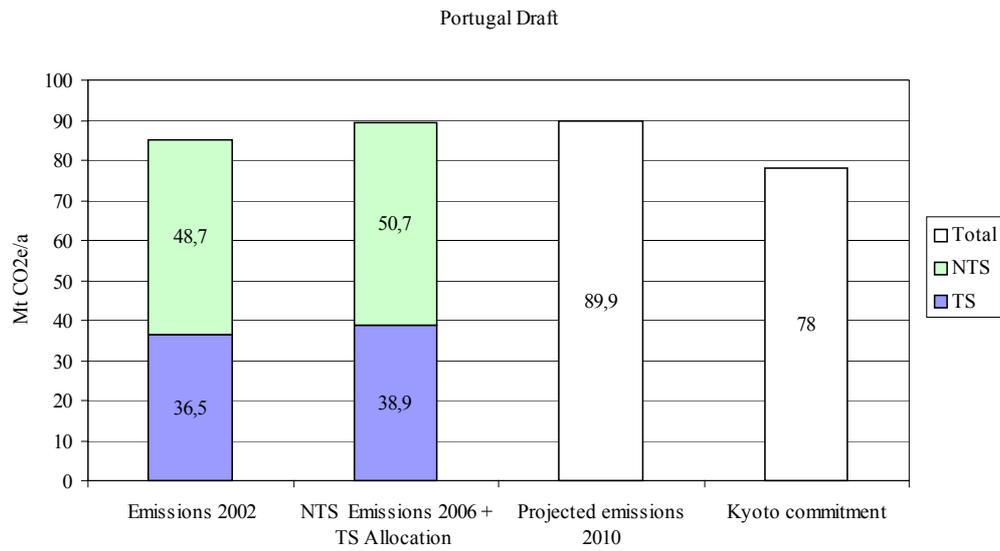


Figure 3.23. The national greenhouse gas emission budget of Portugal.

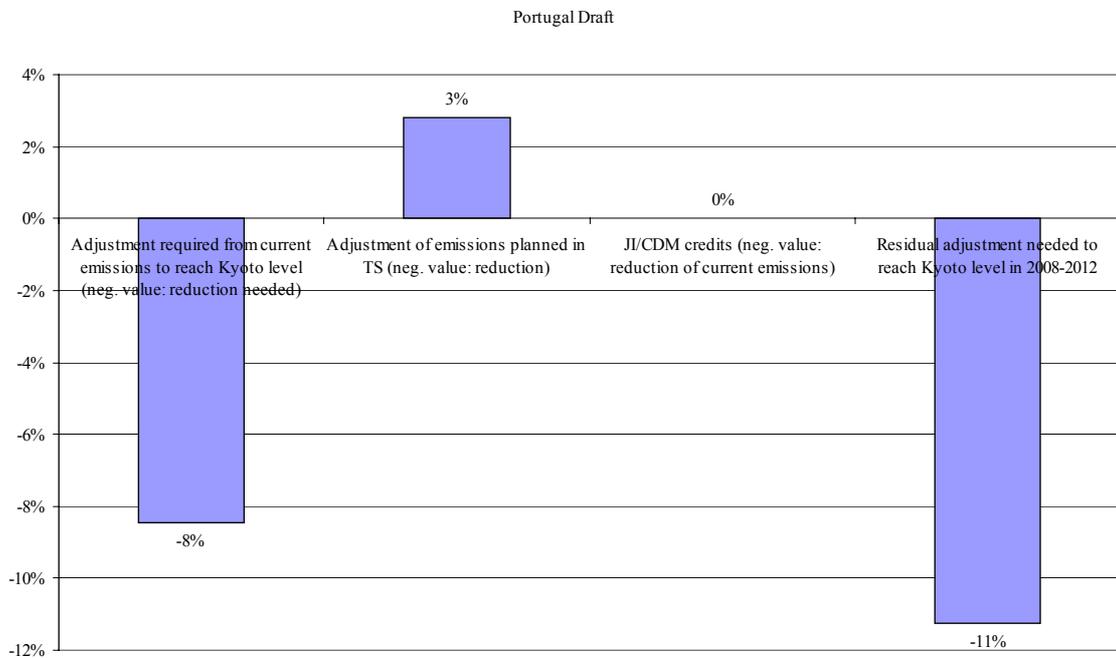


Figure 3.24. Plan on how to fulfil the commitment according to the EU burden sharing agreement.

The projected total greenhouse gas emissions for 2010 given in Figure 3.23 is the value resulting from a “medium” scenario considering an growth of GDP (Gross Domestic Product) of 3% per year until 2015. The same scenario is behind the figure for the non-trading sector for 2005-2007.

3.13.2 CAP and Allocation Methodology

THE CAP

- The CAP in the Portuguese NAP is set to 38.9 Mt CO₂/a

GENERAL ALLOCATION METHODOLOGY

- Default methodology: Allocated allowances = average emissions 2000-2002 or 2001-2003 multiplied with a “global adjustment factor” of 1.011 with the following amendments:

Average emissions are calculated by using the two years with the highest emissions of the three years used as base.

Each installation can be adjusted in case of

- increasing capacity between 2000 and 2004
- substantial changes of the process in the sector (for example change to electrical oven in iron production, which reduces emissions with 90%)
- development of supply and demand within electrical sector (in the national plan for climate changes there is a scenario made for the electricity market, and the allocation will be made according to that scenario instead of historical data, which means a reduction of 1.4 Mt CO₂).

A reserve of 1.87 Mt CO₂/a will be available for new entrants.

In the first quarter of 2008 the part of the reserve that is not used will be auctioned.

ALLOCATION METHODOLOGY USED FOR THE ENERGY SECTOR

- The combustion processes in Portugal represented 75% of emissions of CO₂e year 2000. Alternative energy sources would be an effective way to decrease the emissions.

ALLOCATION METHODOLOGY USED FOR THE MINERAL OIL REFINING SECTOR

- No special allocation methodology has been used for the mineral oil refining sector.

3.13.3 Description of how the NAP meets criteria 1 and 2 of Annex III

Table 3.14 Key Data of Portuguese allocation on national and sector level.

	Present / Historic emissions CO ₂ e./a	Projected emissions CO ₂ e./a	Kyoto commitment/ Allocation
Member state	A 61.4 Mt CO ₂ e/a (1990) 80.1 Mt CO ₂ e/a (2000) 85.2 Mt CO ₂ e/a (2002)	B 89.9 Mt CO ₂ e/a (2010)	C Kyoto commitment: 78 Mt CO ₂ e/a (08-12)
Trading sector	D 26.1 Mt CO ₂ e/a (1990) 32.9 Mt CO ₂ e/a (2000) 36.5 Mt CO ₂ e/a (2002)	E 38.2 Mt CO ₂ e/a (2010)	F Allocation: 38.9 Mt CO ₂ /a (05-07)
Non-trading sector	G 35.4 Mt CO ₂ e/a (1990) 47.2 Mt CO ₂ e/a (2000) 48.7 Mt CO ₂ e/a (2002)	H 51.7 Mt CO ₂ e/a (2010)	
Energy sector - total	I 24.4 Mt CO ₂ /a (2002)	J Not available	K 24.3 Mt CO ₂ /a
Electricity	21.9 Mt CO ₂ /a (2002)		21.2 Mt CO ₂ /a
CHP – total	2.0 Mt CO ₂ /a (2002)		2.5 Mt CO ₂ /a
Other combustion	0.5 Mt CO ₂ /a (2002)		0.6 Mt CO ₂ /a
Pulp & paper	0.3 Mt CO ₂ /a (2002)		0.3 Mt CO ₂ /a
Steel	0.2 Mt CO ₂ /a (2002)		0.3 Mt CO ₂ /a
Glass	0.6 Mt CO ₂ /a (2002)		0.7 Mt CO ₂ /a
Lime	7.1 Mt CO ₂ /a (2002)		7.0 Mt CO ₂ /a
Ceramics	0.9 Mt CO ₂ /a (2002)		0.9 Mt CO ₂ /a
Mineral Oil Refining sector	L 2.9 Mt CO ₂ /a (2002)	M Not available	N 3.0 Mt CO ₂ /a

NATIONAL LEVEL – CRITERIA 1 AND 2 OF ANNEX III

- The sum of allocated allowances (F) and projected emission for the non-trading sector (H) is 89.9 Mt CO₂e/a
- The Portuguese government will strive to create conditions, via legislation and administrative conditions, that will facilitate reductions of emissions in the energy sector and more efficient use of energy in the producing industry. There are also measurements planned, additional to those already in force, that has the potential of reducing emissions with 6.8 Mt CO₂e/a. Decreases are planned within Transports (3.5 Mt CO₂e), Forestry (0.8 Mt CO₂e) and Agriculture (1.1 Mt CO₂e). The specific measurements are not described in the NAP.

TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- There is a national plan where scenarios for the future emissions in Portugal are shown, and the figures in Table 3.14 come from this plan. It is not described in the NAP what are the reasons behind the increase of emissions in the trading sector. Technical and economical developments are taken into account
- The amount of allocated allowances to the trading sector is higher than the projected emissions 2010. Portugal is calculating with a higher increase of emissions within non-trading sector than within trading sector. Therefore the trading sector has to decrease over time.

NON-TRADING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- There is a national plan where scenarios for future Portuguese emissions are shown, and the figures in Table 3.14 come from this plan. It is not described in the NAP what are the reasons behind the increase of emissions from the non-trading sector. Technical and economical developments are taken into account.
- Emission reducing measures are planned within Transports (3.5 Mt CO₂e), Forestry (0.8 Mt CO₂e) and Agriculture (1.1 Mt CO₂e). The specific measurements are not described in the NAP.

ENERGY SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- No data on projected emissions for the energy sector is given in the NAP.

MINERAL OIL REFINING SECTOR – CRITERIA 1 AND 2 OF ANNEX III

- No data on projected emissions for the mineral oil refining sector is given in the NAP.

3.13.4 Description of how the NAP meets criteria 3-8 of Annex III

Criterion 3. Potential to reduce emissions.

With a joint effort of politics and measurements Portugal intends to reach the fixed goals of Kyoto.

There are measures that are already in force, and there are additional measures. Together the reduction of the measures will be 13.6 Mt CO₂e/a, if they will have expected effects. Measures are implemented and will be taken within Energy sector, Transports, Households, Forestry and Agriculture.

Criterion 4. Consistency with other legislation.

The following EU legislation have been considered in the NAP:

Directive 2002/91/EC on “energy performance in buildings”

Directive 2003/30/EC on “promotion of the use of biofuels and other renewable fuels within transports”

Directive 2001/77/EC on promotion of electricity from renewable energy sources on the common electricity market

Additionally, the Directive 1999/32/EC and amendments in 93/12/EEC on reduction of sulphur in liquid fuels is considered and will impact the refining sector. The reserve for new entrants will be used for this.

Criterion 5. Non-discrimination between companies or sectors.

The allowances are based on historical data for each installation and the distribution within each sector will be equal. The sectors of Electricity and Steel will have allocations based on both historical data and changes in the structure of the sector, respectively changes in

production process. (Explanations of structure of Electricity sector and Steel production process – see the sections of General allocation and Allocation to energy sector.)

- Criterion 6. New entrants are new installations or installations who increase emissions with more than 50%.

Installations who decrease emissions with more than 50% loose their allowances and have to apply for allowances as a new entry.

The allocation will be made for free from the reserve to new entries using BAT or, if not applicable, best technique among existing installations.

When a new installation is started, an amount of allowances will be allocated that is proportional to other installations of the same size in the same sector.

After one year of operation an evaluation will be made and the allocation adjusted to a fixed level.

Nothing specific is mentioned about Energy and Oil mineral refineries.

- Criterion 7. Early action.
Portugal has not rewarded emission reduction actions performed before 2000.

- Criterion 8. Clean technology.
When allocating allowances a model is made for the sector, based on the mix of fuels, which results in an allocation where installations with clean technology get more allowances per produced unity than an installation with less clean technology. This gives an incentive for clean technology compared to allocating only on base of historical emission data.

3.13.5 Other issues

- A reserve of 1.87 Mt CO₂/a for new entrants etc. is not allocated (which is 4.8% of the total allowances). In the first quarter of 2008 the part of the reserve that is not used will be auctioned
- No opt in or opt out will be used in Portugal.
- No emission data or data on amounts of allocated allowances to individual installations is available in the NAP. The allocation plan is preliminary until all emission data is collected from each installation
- There is a National Plan for Greenhouse Gases at www.iambiente.pt that describes what actions to take to be able to fulfil the goal of the Kyoto-agreement as a whole (both trading sectors and others). The base of that document is scenarios and simulations of the techno-economical development of the country. The scenarios showed an increase in CO₂e between 40.7%-47.5% and whereas the Kyoto-limit is an increase of 27%. Additional measures were proposed, and with these taken into account Portugal still has to decrease the greenhouse gases between 1.3 Mt CO₂e and 5.6 Mt CO₂e. Portugal has been discussing taxes of carbon-emissions but has still not agreed on how much that would be and has not made a scenario of the effects of such a tax yet.

3.13.6 Description on plans to use JI and CDM

- JI and CDM will not be used in order to fulfil the Portuguese Kyoto commitment according to the EU burden sharing agreement.

3.13.7 Concluding IVL-remarks of the Portuguese Draft NAP

Allocation

Installations that decrease their emissions with more than 50 % loose their allocated allowances and will have to apply for new allowances as a new entrant. This updating component of the allocation methodology may be in violation of Article 11 section 1.

Annex III-criteria 1-2

Emission trends are not in line with Kyoto commitment. Current emissions need to be reduced by 9 % in order to meet Kyoto target, but projected emissions are rising.

Allocation to the trading sectors allows for an increase in emissions, implying large reductions in non-trading sectors (9,6 Mt or 12 % of current emissions if the trading sectors' emissions remain constant after 2007) if Portugal is to meet its Kyoto commitment.

Unrealised mission reductions of 6,8 Mt are identified, equalling 8 % of the total 2002 emissions. The majority of the reductions are to be made within the transport and agricultural sectors, but the measures are not described in detail.

It is not evident that the Portuguese draft NAP is in compliance with annex III criteria 1-2. Even if the stated reduction potentials are realised, there is still a discrepancy (2,8 Mt) between the projected emissions and the Kyoto target. Since no other flexible mechanisms are mentioned as a way to meet the Kyoto commitment, the allocation to the trading sector in 2008-2012 will have to be reduced significantly.

Annex III-criteria 3-8

No remarks additional to the ones made in previous sections.

Other issues

If there remain allowances in the reserve set aside for new entrants during 2005-2007, these will be auctioned during the first quarter of 2008. Portugal does not intend to use other flexible mechanisms in order to reach its Kyoto target. There are ongoing discussions on tax reforms in order to reduce emissions further.

4 Conclusions

In this chapter we have summarised our conclusions on the 12 investigated NAP:s, plus for some aspects also including Italy.

Several member states are far from Kyoto levels

Several member states have current emissions that are considerably higher than the emissions allowed according to the EU burden sharing agreement of the Kyoto protocol as shown in the table below

	Current total emissions <i>Mt CO₂e/a</i>	Year	Kyoto Commitment <i>Mt CO₂e/a</i>	Current total emissions vs. Kyoto level
Austria	84.4	2001	68	124%
Denmark	74.4	2003	54.9	136%
Finland	81.7	2002	76.8	106%
Germany	990	2000-02	962	103%
Ireland	68.9	2002	60.4	114%
Lithuania	23.8	1998	50	48%
Luxembourg	11.0	2002	10.1	109%
Netherlands	219.1	2000	199	110%
Sweden	69.3	1998-01	74.3	93%
United Kingdom	648	2002	653	99%
Italy Draft	544	2000	570.3	95%
Portugal Draft	85.2	2002	78	109%

Allocation is generous

Allocation is often based on projected needs, for instance by multiplying data on historic emissions with a growth factor. In some cases these figures have then been adjusted considering emission reduction potentials.

Allocation in the trading sector is usually higher than current emissions in the trading sector. This is the case for Austria, Finland, Lithuania, Luxembourg, Sweden and Italy. The most extreme example is Lithuania where allocation is more than 50% above emissions 1998.

The allocation quota (allocation divided by emissions) in the trading sector is often higher than the “Kyoto quota”, i.e. the member state’s current total emissions divided by the Kyoto commitment. This implies that in order to comply with the Kyoto targets, the Member State will need to reduce emissions more in the non-trading sector than in the trading sector. In other words, the trading sector is treated more favourably than the non-trading sector in terms of sharing the responsibility for reaching the member state’s Kyoto target. This is the case for Austria, Denmark, Finland, Germany, Ireland, Luxembourg, The Netherlands, Sweden and Italy (see figure 4.1 below). In five of these countries, Austria, Denmark, Finland, Ireland, and Luxembourg considerable reductions are necessary in the non-trading sector in order to reach the Kyoto levels.

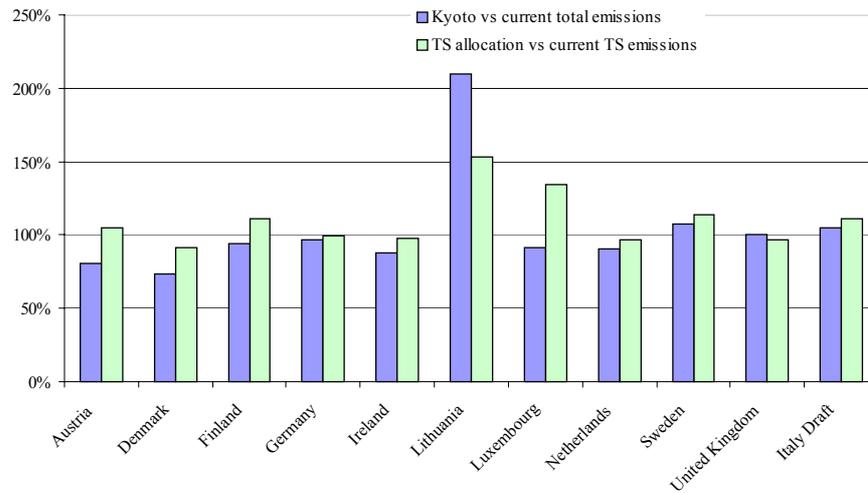


Figure 4.1. The left column (blue) shows the Kyoto commitment divided by the current emissions for the member state. A value of 0.9 shows that the Kyoto commitment is 10 % below current emissions. The right column (green) shows the suggested allocation to the trading sector divided by the current emissions in the trading sector. A value of 0.9 shows that suggested allocation is 10 % below the current emissions in the trading sector. If the columns are equal this implies that the trading sector will need to reduce its emissions by the same percentage as the member state in whole. If the right column is higher than the left column, this implies that the trading sector will need to reduce its emissions less (in percent) than the member state and that a higher proportion of reductions are needed in the non-trading sector or through CDM/JI-mechanisms.

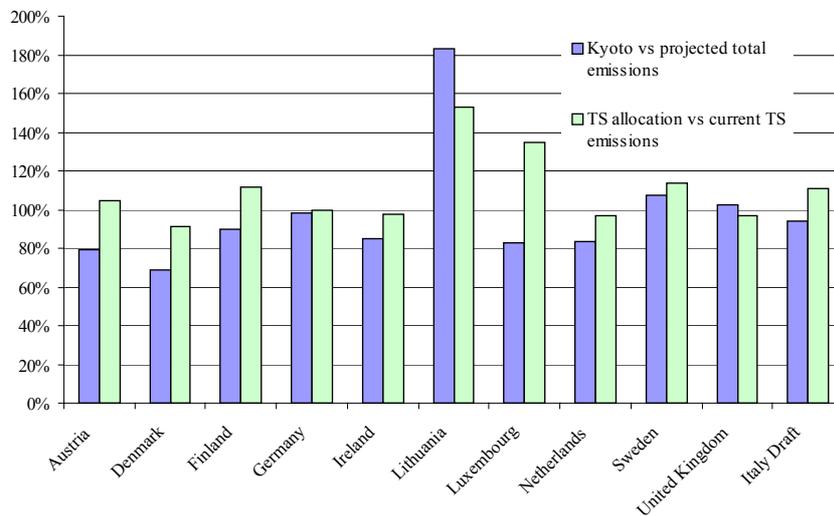


Figure 4.2. This figure is analogous with figure 4.1, with the difference that the left column (blue) shows the Kyoto commitment divided by the projected emissions for the Member State. It should be noted that the term “projected emissions” has different meanings in the different member states. In some states projected emissions refer to “business-as-usual” emissions, while other states consider reduction programs in their projected emissions. The projections usually refer to the year 2010 or 2008-2012. In Finland and Luxembourg however, the projections refer to the year 2007 and in Germany and Lithuania to the period 2005-2007.

In Figure 4.2 the Kyoto commitment level is compared to the projected total emissions. This comparison is an indication of what actual deviations/reductions from the projected path that will have to be done in each country respectively. Only Lithuania, Sweden and the UK (the UK have already included planned reduction measures in the projection) have projections that are below the Kyoto commitment (a value over 100% in the figure). Some countries have projections close to the Kyoto commitment (Italy and Germany) whereas the majority will have to make large reductions compared to the projected emissions. Note the different meanings of the projected emissions as described in the figure text. Not all countries have made projections and the projections available fell often short in transparency, as it was difficult to see what assumptions that had been made when making them and if present measures were included or not.

Transparency and credibility of measures in non-trading sector

Projected emissions are often used as input in the calculation of the allocation. It is generally difficult to assess if the projected emissions are a “Business as usual”-projection or if they include reduction programmes.

Details of the allocation methodology are in some cases not available for scrutiny. In the Finnish NAP important parts of the allocation formula is only published in an annex in Finnish. In the Luxembourg NAP the allocation methodology for unknown new entrants is not explicitly explained. Moreover, the values of estimated utilisation and BAT are not quantified. The British NAP has not included information on the actual allocation (in tons CO₂) to installations. The allocation method for new entrants in the UK allows for flexibility in its interpretation.

Several member states count heavily on measures in the non-trading sector to reach the Kyoto targets. This is the case of Austria, Denmark, Finland, Ireland, and Luxembourg. The credibility of these NAP:s in terms of meeting Annex III-criteria 1 and 2 is dependent on how realistic the estimated emission reduction potentials in the non-trading sectors are. But measures in the non-trading sector are often poorly described and therefore it is difficult to assess their credibility. In general, the measures in the non-trading sector originate from national climate programmes that have been initiated prior to the development of the EU ETS. There is a risk that these programmes are or will soon become outdated.

In the case of Lithuania, it is clearly questionable if emissions in the NTS will decrease as stated when emissions in the trading sector will grow by 52% due to economic growth 1998-2002 and 2005-2007.

It is often unclear if supplied data on current and projected emissions in the non-trading sector includes the five greenhouse gases in the Kyoto basket that are not regulated in the EU ETS.

Ex-post adjustment common

The term “ex-post adjustment” refers to the situation when the original allocation is adjusted after trading has started (or more precisely, if the allocation to participants of the trading system is adjusted due to activities affected by the participants after the allocation plan or parts of it has been published). For instance ex-post adjustment has occurred if the allocation to an installation is either increased or decreased from the original value when it turns out that emissions are higher or lower than expected. In general, ex-post adjustment compromises the cost-efficiency of an emission trading system, i.e. obtaining emission reductions to the lowest price. For example, if the owner of an installation knows that the allocation is dependent on factors that can be influenced by operation, such as the installation’s emissions, production etceteras, he will have an incentive to adjust these factors in order to maximise the allocation.

In the allocation plans of Lithuania, Germany, Luxembourg and Portugal ex-post adjustment is used. In Germany if the actual emissions from an installation fall below 40% of the allocation, the allocation will be adjusted. In the Lithuanian plan production data in energy sector will be based on actual production 2005-2007. In the Luxembourg NAP, known new entrants will be subject to ex post adjustment if they do not reach projected emissions. In Portugal installations that decrease their emissions with more than 50 % lose their allocated allowances and will have to apply for new allowances as a new entrant.

Ex-post adjustment is a possible violation of article 11.1 in the Directive.

The use of CDM/JI

Nine countries plan on using CDM/JI for reaching their Kyoto commitment (Austria, Denmark, Finland, Germany, Ireland, Luxembourg, Netherlands, Flanders and Italy).

Three countries, Ireland, Luxembourg and Flanders, refer to CDM/JI but have no programs initiated for this purpose.

Several member states plan on using JI from other member states. This will be restricted.

The use of opt-out and opt-in

Netherlands, the Flanders and United Kingdom will use the opt-out possibility. Sweden, Finland and Lithuania will use the opt-in possibility.

Auction

Auction will be performed in Denmark, Ireland and Lithuania. United Kingdom and Portugal will use auction if there is a surplus of allowances that originally has been reserved for new entrants.

The energy and mineral oil refining sectors

The figures below summarise the allocation to the energy and mineral oil refining sectors in different the different Member States.

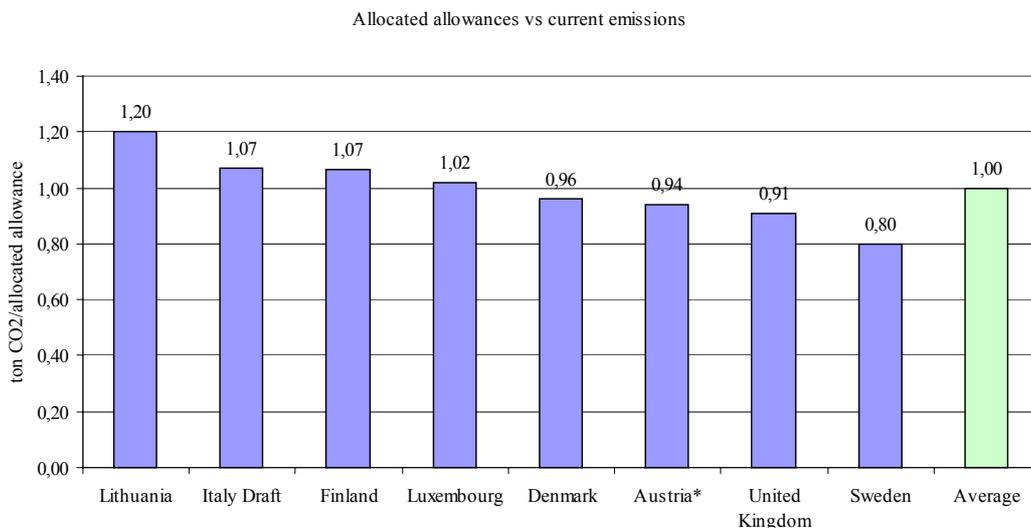


Figure 4.3. Allocation vs. current emissions for the energy sector. For Sweden, the figure is not based on actual data, but it is the calculation rule that will be used in the allocation process.

For the mineral oil refining sector a comparison between the allocation/ projected emissions quota has also been made.

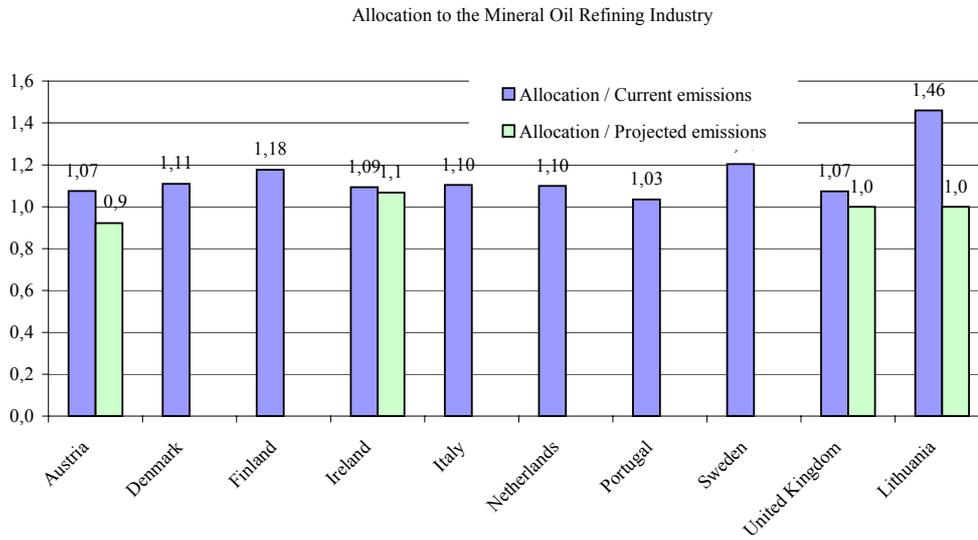


Figure 4.4. This figure shows the allocation/historic emissions quota along with the allocation/projected emissions quota for the mineral oil refining industry for those countries where data was available. In Sweden and some of the other countries, the allocation to ongoing expansions is included. That means that current installations might receive less allocation than the quota indicated in this figure.

4.1 Current Status of National Allocation Plans

As of today, 16 August 2004 the European Commission has approved some of the National Allocation Plans whereas some still not yet have been submitted. The table below gives the current (16 August) status of all national allocation plans. If there has been a Commission decision upon the allocation plan and if the country has made changes to the finally notified plan it will be described in this section. Most of the allocation plans have been either supplemented by additional information or more detailed described to the Commission by the answering of questions sent to the Member State. Thus the decision of the Commission is based on the latest version of the NAP and the supplementary information from the Member State. The supplementary information has not been worked into the allocation plan and submitted as a final version and is not easily available to us.

Table 4.1. Current status of National Allocation Plans (as of 16 August 2004).

Country	Status	Date of submission
Austria	Approved	1 April
Belgium	Final. Not yet assessed by the Commission	23 June (?)
Cyprus	Cyprus will not submit a national allocation plan.	-
Czech Republic	Draft version. In Czech only.	2 June (?)
Denmark	Approved without objections	5 April
Estonia	Final. Not yet assessed by the Commission ²⁵	May (?)
Finland	Final. Not yet assessed by the Commission ²⁶	30 March
France	Final. Not yet assessed by the Commission ²⁵	6 July
Germany	Approved.	1 April
Greece	Not submitted.	-
Hungary	Draft version. In Hungarian only.	June
Ireland	Approved.	1 April
Italy	Final. Not yet assessed by the Commission ²⁵	No information
Latvia	Final. Not yet assessed by the Commission ²⁵	31 May (?)
Lithuania	Final. Not yet assessed by the Commission	No information
Luxembourg	Final. Not yet assessed by the Commission ²⁵	6 April (?)
Malta	Malta will not submit a national allocation plan.	-
The Netherlands	Approved without objections.	26 April
Poland	Not submitted.	-
Portugal	Final. Not yet assessed by the Commission	4 May
Slovak Republic	Final. Not yet assessed by the Commission	June (?)
Slovenia	Approved.	3 May
Spain	Final. Not yet assessed by the Commission ²⁵	29 July
Sweden	Approved without objections.	29 April
UK	Approved	10 May

Note that the dates of submission are uncertain for some countries. In some cases the submission refers to the submission of a draft and in other cases the submission of the final version. Note that some of the countries that have submitted final version earlier notified the Commission with a draft version.

The following list gives information about the decisions (approvals) on the NAPs made by the Commission.

Austria

The Austrian allocation plan was approved with conditions. Amendments will have to be submitted by 30 September 2004 at the latest. It is not allowed to change the initial allocation due to the closure of other installations. Austria has answered to questions from the Commission and has sent additional information before the approving decision was taken.

²⁵ Only available in national language.

²⁶ Appendices still only available in Finnish.

Denmark

The Danish allocation plan was approved without objections. Denmark had both answered to the Commissions questions and delivered additional information before the approval.

Germany

The German allocation plan was approved with conditions. Ex-post adjustment of allocation to new installations will not be allowed. Neither will the adjustment to the allocation of allowances to an installation as a result of other installations having closed down. Finally, the Commission disapproved the adjustment to the allocation of allowances to an installation due to the following reasons:

The installation experiences lower capacity utilisation than foreseen

* that its annual CO₂ emissions are lower than 40% of its base years emissions

* it generates lower amount of power production from CHP than in the base period.

Germany had answered questions sent by the Commission and also complemented the allocation plan with additional information before the Commission took the final decision.

Ireland

The Irish allocation plan was approved without objections. Ireland had both answered to the Commissions questions and delivered additional information before the approval. Among the additional information was:

the decision of reducing the annual allocation by 180 000 tonnes of allowances compared to the originally submitted allocation plan and

the decision not to adjust the quantity allocated to existing installations after adoption of the decision referred to in Article 11 (1) of the Directive.

The Netherlands

The Dutch allocation plan was approved without objections. The Netherlands had both answered to the Commissions questions and delivered additional information before the approval. Among the additional information was the decision to reduce the initially determined CAP by 3 Mt allowances and the decision not to adjust the quantity of allowances allocated to existing installations after adoption of the decision referred to in Article 11 (1) of the Directive.

Slovenia

The Slovenian allocation plan was approved by the Commission without objections. Slovenia had both answered to the Commissions questions and delivered additional information before the approval.

Sweden

The Swedish allocation plan was approved by the Commission without objections. Sweden had both answered to the Commissions questions and delivered additional information before the approval.

The UK

The British allocation plan was approved with conditions. Amendments will have to be submitted by 30 September 2004 at the latest. The UK will have to provide information on the manner in which new entrants will be able to begin participating in the Community scheme and it will have to make an amendment to the list of installations including the installations in the territory of Gibraltar. The UK had both answered to the Commissions questions and delivered additional information before the approval.

5 References

5.1 Literature

Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC

Commission Decision of 29 January 2004 establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council.

Nationaler Zuteilungsplan für Österreich gemäss § 11 EZG, 31. März 2004 mit Ergänzungen vom 7. April 2004. Bundesamt für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft.

National Allocation Plan for Austria pursuant to Art. 11 of the EZG, 31 March 2004 with additions dated 7 April 2004. Federal Ministry of Agriculture, Forestry, Environment and water Management.

Strategie Österreichs zur Erreichung des Kyoto – Ziels, Klimastrategie 2008/2012 vom Ministerrat angenommen am 18. Juni 2002, BMLFUW, Wien.

Vlaams Allocatie Plan, 05 04 2004.

Danish National Allocation Plan, Ministry of the Environment, March 2004.

National Allokationsplan for Danmark, Miljøministeriet, Marts 2004.

Draft Bill on CO2 allowances 19 February 2004.

Finnish Proposal for National Allocation Plan for Greenhouse Gas Emission Allowances for the years 2005-2007. Ministry of Trade and Industry, Draft of 30 March 2004. (Quick translation between 30 March – 1 April, may contain some errors).

Nationaler Allokationsplan für die Bundesrepublik Deutschland 2005-2007, Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit. 31. März 2004, Berlin.

National Allocation Plan for the Federal Republic of Germany 2005-2007, Federal Ministry of the Environment, Nature Conservation and Nuclear safety. 31 March 2004, Berlin, Translation 7 May 2004.

Ireland's National Allocation Plan 2005-2007, As notified to the Commission, 31 March 2004.

Lithuania's National Allocation Plan for Greenhouse Gas Emission Allowances for the Period 2005-2007.

Nationaler Allokationsplan für Luxemburg nach Art. 9 RICHTLINIE 2003/87/EC DES EUROPÄISCHEN PARLAMENTS UND DES RATES vom 13. Oktober 2003 über ein System für den Handel mit Treibhausgasemissionszertifikaten in der Gemeinschaft. Ministère de l'Environnement, Luxembourg den 6. April 2004.

Allocatieplan CO₂-emissierechten 2005 t/m 2007. Nederlands nationaal toewijzingsplan inzake de toewijzing van broeikasgasemissierechten aan bedrijven. 16 April 2004.

Plano Nacional de Atribuição de Licenças de Emissão de CO₂ (PNALE) 2005-2007. Versão para Discussão Pública. Ministério da Economia, Ministério das Cidades Ordenamento do Território e Ambiente, 17 de Março de 2004.

Sveriges nationella allokeringsplan, Regeringskansliet, Näringsdepartementet, Promemoria 2004-04-22.

EU Emission Trading Scheme. UK National Allocation Plan 2005-2007. Defra.

5.2 Web-sites

http://europa.eu.int/comm/environment/climat/emission_plans.htm

<http://www.lebensministerium.at/umwelt/>

Annex 1

Criteria for national allocation plans referred to in articles 9, 22 and 30 of Directive 2003/87/EC

1. The total quantity of allowances to be allocated for the relevant period shall be consistent with the Member State's obligation to limit its emissions pursuant to Decision 2002/358/EC and the Kyoto Protocol, taking into account, on the one hand, the proportion of overall emissions that these allowances represent in comparison with emissions from sources not covered by this Directive and, on the other hand, national energy policies, and should be consistent with the national climate change programme. 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. Prior to 2008, the quantity shall be consistent with a path towards achieving or over-achieving each Member State's target under Decision 2002/358/EC and the Kyoto Protocol.
2. The total quantity of allowances to be allocated shall be consistent with assessments of actual and projected progress towards fulfilling the Member States' contributions to the Community's commitments made pursuant to Decision 93/389/EEC.
3. Quantities of allowances to be allocated shall be consistent with the potential, including the technological potential, of activities covered by this scheme to reduce emissions. Member States may base their distribution of allowances on average emissions of greenhouse gases by product in each activity and achievable progress in each activity.
4. The plan shall be consistent with other Community legislative and policy instruments. Account should be taken of unavoidable increases in emissions resulting from new legislative requirements.
5. The plan shall not discriminate between companies or sectors in such a way as to unduly favour certain undertakings or activities in accordance with the requirements of the Treaty, in particular Articles 87 and 88 thereof.
6. The plan shall contain information on the manner in which new entrants will be able to begin participating in the Community scheme in the Member State concerned.
7. The plan may accommodate early action and shall contain information on the manner in which early action is taken into account. Benchmarks derived from reference documents concerning the best available technologies may be employed by Member States in developing their National Allocation Plans, and these benchmarks can incorporate an element of accommodating early action.
8. The plan shall contain information on the manner in which clean technology, including energy efficient technologies, are taken into account.
9. The plan shall include provisions for comments to be expressed by the public, and contain information on the arrangements by which due account will be taken of these comments before a decision on the allocation of allowances is taken.
10. The plan shall contain a list of the installations covered by this Directive with the quantities of allowances intended to be allocated to each.
11. The plan may contain information on the manner in which the existence of competition from countries or entities outside the Union will be taken into account.

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