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THE ENVIRONMENTAL EFFECTIVENESS OF THE EU ETS: ANALYSIS OF CAPS

An executive summary for WWF



October 2005



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EXECUTIVE SUMMARY

Introduction to the project

WWF has commissioned ILEX together with a consortium of consultants¹ from across Europe to evaluate the environmental effectiveness of the EU Emissions Trading Scheme (ETS). We have focused on Phase I (2005 to 2007) and Phase II (2008 to 2012) of the scheme. This is an executive summary of a report of the same title.

Purpose and scope of this report

The purpose of this report is to provide an independent analysis of the national allocation plans (NAPs) in six key Member States: UK, Germany, Italy, Poland, Spain and the Netherlands. This report focuses on the evaluation of the total number of allowances (or caps) allocated by different Member States² by:

- developing criteria against which to assess the environmental effectiveness of the EU ETS;
- evaluating the number of allowances allocated in Phase I (both in terms of the level and the way that that level was calculated);
- recommending best practice principles for setting cap levels in Phase II;
- identifying particular areas and key improvements to address to make NAPs more environmentally effective in Phase II;
- exploring options for the harmonisation of cap-setting approaches in Phase II; and
- discussing recommendations for future phases of the scheme (beyond 2012).

These six key countries were chosen since their NAPs include approximately 68% of the allowances³ allocated under the scheme. As a result, policy decisions in these countries will have a significant impact on the environmental effectiveness of the scheme. In addition, the NAPs for these countries reflect a wide range of approaches to cap setting that has allowed us to compare and contrast a variety of options.

¹ Avanzi, EcoSolutions Consulting (ESC), ILEX Iberia, Öko-Institut.

² A separate report 'The Environmental Effectiveness of the European Union Emissions Trading Scheme – Structural Aspects of the Allocation' authored by the Öko-Institut evaluates the way that these allowances have been distributed to individual installations.

³ Allowance is the term used to describe the emissions permits that are traded in the EU ETS. Each EU allowance (EUA) equates to 1 tonne of carbon dioxide (tCO₂).

Organisations involved

Five consultancies were involved throughout the course of this project: Avanzi (Italy), EcoSolutions Consulting (ESC) (Poland), ILEX (UK), ILEX Iberia (Spain), Öko-Institut (Germany). Each provided country-specific data, analysis and wider comment on the approach and findings. ILEX led the analysis and was ultimately responsible for delivering this report.

The project was funded by WWF-UK, WWF-Germany and WWF-International. The initiation of the project, preparation of draft versions and review of the final report included input from WWF offices in Germany, Italy, Netherlands, Poland, Spain and UK, as well as WWF-International and WWF European Policy Office.

Contact details for these offices are provided on the back cover of this report.

Focus of the study

The study has assessed both the total number of allowances allocated by each Member State (the cap) and the way that these allowances are distributed to individual installations (structural issues)². It is these two areas that determine the effectiveness of the scheme:

- the total number of allowances allocated is a key determinant of the aggregate level of emissions from all these installations; and
- the way that they are allocated can potentially change the way that installations are operated on a day-to-day basis and affect decisions regarding installation closure and construction.

This report focuses on the first of these areas.

Criteria for environmentally effective caps

Definition of a cap

In the context of the EU Emissions Trading Scheme, a ‘cap’ is defined as the total number of emission allowances given to installations in each participating country (i.e. Member State). The sum of all the caps in the EU determines the total level of emissions under the scheme.

Criteria used for this study

We have developed our criteria by reviewing the requirements of the Directive and subsequent guidance provided by the Commission. In light of these criteria and our own experience of the scheme, we consider the following four areas to be important for defining an environmentally effective cap:

- The key driver of environmental effectiveness will be the **level of a cap**. It should be set to achieve emissions levels below those that would have occurred in the absence of the scheme (i.e. beyond ‘business as usual’) and be in line with any national and international (e.g. Kyoto) targets.

- For a cap to be environmentally effective it is also necessary that it is based on a principle of **economic efficiency**; i.e. that it takes into account the costs of abatement (both within and outside the traded sector) in order to meet emissions targets at least cost.
- **Fairness** should also be considered. If a cap is not perceived as fair, it will call into question the integrity of the scheme and therefore impact on its acceptability. A cap level should take into account differences between countries and sectors.
- In order to uphold the integrity of the scheme and gain buy-in from stakeholders, the cap setting process should be **transparent**. The assumptions behind the cap level need to be explained in sufficient detail that the level can be evaluated. The consultation process should be open to all interested parties and the cap should be set early to provide early certainty for investors. All relevant documentation should be made available to the public, preferably by publishing it on a website.

In Table 1, we present eight detailed criteria, under each of these headings, which we have used for this study.

Table 1 – Criteria used to evaluate environmental effectiveness

	Area	Criteria
1	Level of the cap	beyond business as usual (BAU)
2	Level of the cap	in line with Kyoto and national targets ⁴
3	Efficiency	achieve abatement at least cost
4	Fairness	take into account the differences between countries
5	Fairness	take into account the differences between sectors
6	Transparency	clearly documented methodology
7	Transparency	include consultation with all interested parties
8	Transparency	be set early and, as far as possible, indicate the principles upon which future caps will be set

Source: ILEX

⁴ For five of the six countries, we take into account the EU burden sharing agreement. For Poland, which is not part of this agreement, we consider its Kyoto target.

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Table 2 – Summary evaluation of the environmental effectiveness of the Phase I caps for the six Member States

	1	2	3	4	5	6	7	8
Country	Level: beyond BAU	Level: in line with targets	Economic efficiency: least cost abatement	Fairness: differences between countries	Fairness: differences between sectors	Transparency: clearly documented methodology	Transparency: consultation with stakeholders	Transparency: be set early
Germany	☹	☹	☹	☹	n/a	☺	☹	☹
Italy	☺	☹	☹	☹	☹	☹	☹	☹
Netherlands	☹	☹	☺	☹	n/a	☹	☺	☹
Poland	☹	☺	☹	☺	☺	☹	☹	☹
Spain	☺	☹	☹	☹	☺	☹	☹	☹
UK	☹	☹	☹	☹	☺	☹	☹	☹

Key: ☺ good, ☹ average, ☹ weak, n/a not applicable. Source: Avanzi, ESC, ILEX, ILEX Iberia, Öko

Evaluation of Phase I NAPs

By using these criteria we have built an objective basis against which to evaluate each NAP. The ratings are relative, based on a comparison of each of the six countries. As is the case with any evaluation of this sort, a degree of judgement has been applied to produce the summary ratings (shown in Table 2 above) and we recommend that they are considered alongside the full text of this report to give a full picture of the status of each NAP and the reasons behind the rating.

In summary, none of the caps in Phase I meet all our criteria for environmental effectiveness. There are some lessons to learn and other good examples to follow if Phase II caps are to meet our criteria for cap level, economic efficiency, fairness and transparency. Some of the good examples from Phase I include:

- the consultation process in the Netherlands was inclusive;
- the UK reflected the characteristics of different sectors by placing the greatest abatement burden on the power sector; and
- in Spain and Italy, the cap was set below business as usual projections of emissions.

The key points for each country are summarised in Table 3 below.

Table 3 – Key findings from Phase I NAPs

Country	Our view
Germany	The Phase I cap appears lax if it is compared to BAU. In addition, the relative costs of abatement were not taken into account. The bargaining approach to cap setting that was used limited the opportunity for stakeholder input. The cap level was, however, set early compared to other countries and the methodology is relatively clearly documented.
Italy	The final cap in Italy is relatively stringent compared to BAU. However, it does not take into account the Kyoto target directly. The costs of abatement were not incorporated into the cap and the cap is not in line with Italy's commitment under the burden sharing agreement. The cap does take into account differences between sectors to some extent. The stakeholder consultation process was weaker than that in other countries.
The Netherlands	The cap is broadly in line with projected emissions, rather than going beyond them. The methodology sets out how Kyoto will be met and takes into account the relative costs of abatement between sectors. However the commitment under the burden sharing agreement is not reflected and the details of the cap calculation methodology are not presented. The Dutch approach to stakeholder consultation was transparent and the cap level was set relatively early.

Country	Our view
Poland	The Polish cap level seems high compared to some projections of BAU, even after the Commission adjustment. However, the cap is still below the level implied by Poland's Kyoto's commitment. The cap does not take into account the costs of abatement but does account for the differences between sectors. The prolonged negotiations in Poland have meant the cap setting process has not been transparent, although the total number of allowances was set relatively early.
Spain	The Phase I cap stabilises traded sector emissions at historical levels (the average of 2000 to 2002). The resulting cap is below projected emissions (which are expected to rise). However, it is not in line with either the Kyoto target or the burden sharing agreement. Differences between sectors have been taken into account. The approach to stakeholder consultation was relatively transparent and the cap calculation methodology can largely be understood from the documentation ⁵ .
UK	The UK cap is broadly in line with both business as usual and the Kyoto target. However, it is arguably not stringent when compared to the reduction implied by the national target. The contribution of other policies and measures included in the UK Climate Change Programme (which covers installations in the non-traded sector as well) was listed in an appendix to the NAP. The cap set for the power sector reflects the differences between sectors. The supporting documentation is relatively transparent and a similar approach to consultation was used to that in other countries. The cap definition was linked to emission projections, which meant that it changed when the projections changed. The UK cap was set late.

Source: Avanzi, ESC, ILEX, ILEX Iberia, Öko

Lessons learned and recommendations

The evaluation above shows how different countries set their cap for Phase I in a range of different ways. The key lessons that we have learned from Phase I are those set out below.

One of the things that we have seen is how difficult it is to compare different NAPs when each is presented in a different way, contains different information and explains each aspect of the cap decision differently. Improved co-ordination of the way that information is presented is a key consideration for Phase II.

Level of cap

- The total number of allowances should be fixed as soon as possible and be left unchanged, as was the case in Germany.
- The cap level should be based on a clear and transparent methodology – we discuss our preferred approach below.

⁵ The approach to installation-level allocations is evaluated in a separate report authored by the Öko-Insitut.

- The relationship between the cap level and the Kyoto (and national) targets should be explained – for instance, the UK NAP includes a chart which illustrates trend line emissions based on Kyoto and the national target and where the cap sits in relation to these.

Economic efficiency

- The implied abatement burden on the non-traded sector should be set out clearly and justified – for instance information published for the Netherlands allows stakeholders to build up a picture of total national emissions taking into account all the different sectors.

Fairness

- The Commission evaluation of the NAPs should include an assessment of whether and how the contribution of the non-traded sector has been incorporated into each Member State's cap level.
- The Commission approval process should consider the burden that each Member State has placed on its traded sector in the light of the caps set by other Member States.

Transparency

- The assumptions behind the cap calculation should be presented explicitly.
- Where projections are used, they should be agreed at the start of the process, rather than changed as debate develops.
- The cap definition should not be linked to projections, but rather a historic level that is fixed and will not change over time.
- Projections will continue to be used to evaluate the level of 'need' of the traded sector and so to ensure that the cap level is consistent with the Directive criteria. In order to ensure that the cap is fixed early, however, it is necessary to ensure that it is linked either to historic emissions or a fixed absolute amount, rather than to a projected level.
- Consultation should be formalised both to increase the transparency of the way that governments take into account stakeholder views and to ensure that all stakeholders are given a comparable opportunity to input at an early stage.
- Where possible, the Commission should set guidelines to ensure that each Member State follows minimum requirements for consultation with interested parties.
- All relevant information should be published on a single website to ensure equal access to information for all interested parties.
- Data should be published to allow stakeholders to understand the derivation of the final figure.

We suggest that guidance from the Commission to standardise the information provided in the NAPs could help stakeholders to evaluate the NAPs and compare the approaches in different countries more easily. Without access to this

information, it is difficult to evaluate the environmental effectiveness of the scheme.

Principles for Phase II NAPs

Best-practice cap setting approaches for Phase II

The evaluation above has shown how countries used a variety of approaches and methodologies to set caps in Phase I. The Directive and subsequent guidance issued by the European Commission allowed each country considerable flexibility in this regard.

WWF has asked us which cap methodology we would recommend based on the evaluation of environmental effectiveness and lessons learned from Phase 1. In our view, the distance to target approach is the most attractive. Under this approach the cap is set at a level that reflects a predefined emissions target for the traded sector or progress towards it. This target could be either an international target (e.g. Kyoto) or a national target or one set on the basis of economic efficiency considerations.

A distance to target approach facilitates:

- like-for-like comparison of caps from one period to another – i.e. it is transparent;
- comparison with international (or national) emissions targets – i.e. it enables an evaluation of whether the cap level is environmentally effective. Where these targets have been set in a way that is agreed to be ‘fair’, the approach can also result in cap levels that are ‘fair’;
- consistency over a number of phases (thus providing a degree of certainty and so ensuring that appropriate and efficient abatement decisions are made); and
- can be calculated from published information – again assisting transparency.

Some key elements of the approach are described below.

Cap definition

One of the most important things is that it must be possible to evaluate the level of a cap in order to establish whether or not it is environmentally effective. If the baseline for change is an historic data point (rather than a projection), this can stay fixed over time, which again assists with transparency.

Consistency with international and national commitments

If the cap is set based on international (or national) commitments, then this approach can result in an environmentally effective level of cap that is also perceived to be fair. For instance, Member States have agreed that the burden sharing agreement distributes abatement in a manner that is fair and so setting a cap on this basis could also meet the fairness criterion.

Economic efficiency

We think that if an analysis of the marginal costs of abatement⁶ feeds into the level at which the target is set, then the resulting cap can also be economically efficient. However, the only way to ensure that the total number of allowances allocated at an EU level is economically efficient (at an EU level) is to discard national caps in favour of a pan-EU cap. We expect that caps will continue to be set independently by each country in Phase II.

Liquidity

Where a liquid carbon market exists (and so the EU ETS functions ‘perfectly’), emissions abatement will be undertaken wherever it can be achieved at least cost, regardless of which installations the initial allocation is made to. However, as soon as there is a lack of liquidity⁷ and it becomes less likely that the market will work efficiently, it becomes more important that the initial allocation of allowances (the caps) are determined on an efficient basis if abatement is to be achieved at least cost.

Best practice menu for Phase II

We have highlighted throughout our analysis how environmental effectiveness requires caps that are transparent, economically efficient, fair, and are set at a level that achieves real emissions reductions. The purpose of this best practice menu is to summarise the findings that we have drawn from the detailed analysis.

A best practice cap would:

- fix the total number of allowances (cap) early, in line with the Directive timescales as a minimum, in order to provide certainty and assist in the optimisation of investment decisions;
- be based on a clear and transparent methodology, preferably expressed as:
 - a distance to target (in terms of the change on an historic base year); and
 - include an analysis of the marginal costs of abatement (for both the traded and non-traded sectors) to show why it is environmentally efficient;
- present the NAP calculation step-by-step:
 - the national Kyoto commitment (including that under the burden sharing agreement where applicable);
 - the expected level of carbon dioxide emissions from the traded sector to meet this commitment;

⁶ The marginal abatement cost is the cost to reduce emissions by one unit. This cost will vary between countries and organisations depending on the source of emissions, the technology employed and the fuel used in each.

⁷ For instance, due to delays in the issuance of allowances, or because a small number of participants control a large share of the allowances.

- the expected level of carbon dioxide emissions from the non-traded sector to meet this commitment;
- the targets and measures in place to meet each of these levels;
- comparison of each of these levels against the Kyoto base year and a recent historic year's emissions;
- use projections that are:
 - independently verified and agreed at the start of the process;
 - based on published and clearly identified input assumptions;
 - explained clearly;
- show the relationship between the cap, the Kyoto target and any national commitments explicitly; and
- be subject to formal consultation and comment:
 - early enough in the decision making process for views to be taken into account;
 - taking into account views of all interested parties (including stakeholders and the public);
 - supported by informal discussions with all stakeholders; and
 - the timetable for consultation should be published and kept up-to-date.

In our view, it is likely that governments would need to use projections to inform their view of the appropriate reduction on the base year. However, it would be possible to fix the projections used relatively early on to minimise the uncertainty that changes to the projections at a later stage could cause. Bottom up data could be used to verify the projections.

Key areas of focus for Phase II

We have noted above that none of the caps in Phase I meet all our criteria for environmental effectiveness. We note here three key areas of focus in each country in order to improve the environmental effectiveness of the caps in Phase II.

Table 4 – Key areas of focus for each country in Phase II

Country	Key areas of focus for Phase II
Germany	<ul style="list-style-type: none"> • Level and distance below BAU – could Germany do more? • Fairness of allocation between sectors – the allocation to the power sector in Phase I appears relatively generous. • Transparency of documentation – the explanation of the assumptions used to build up the cap could be clearer.

Country	Key areas of focus for Phase II
Italy	<ul style="list-style-type: none"> • Cap level – the Phase I cap level does not appear to be in line with the Kyoto target. • Economic efficiency – the relative costs of abatement should be considered to determine the abatement required from the package of abatement measures that forms Italy’s climate change programme. • Transparency of documentation – the level of detail in the Italian NAP could be improved to allow a more complete understanding of the cap calculation.
The Netherlands	<ul style="list-style-type: none"> • The Netherlands places a relatively small proportion of the abatement burden on the traded sector due to its reliance on project credits. • The relationship between the burden placed on the traded sector and meeting the Kyoto commitment should be confirmed. • The NAP should clearly set out the assumptions made to determine the total cap amount.
Poland	<ul style="list-style-type: none"> • The traded sector should be required to deliver real emissions reductions. • The process to set the cap should be aligned with the allocation methodology at an installation-level. • All stakeholders should be given equal access to all information.
Spain	<ul style="list-style-type: none"> • The Spanish cap is not in line with the Kyoto target given historic trends in emission. • The NAP should make clear the assumptions made regarding the relative costs of abatement in the traded and non-traded sectors. • The consultation process with stakeholders could be improved to ensure that all interested parties are given equal opportunity to influence the process.
UK	<ul style="list-style-type: none"> • Set any projections before the cap-setting process begins. • Use a cap-setting process that requires a fixed proportionate reduction on a historic base year and is in line with both Kyoto targets and national commitments.
Set the final cap within the timescales prescribed by the Directive.	

Source: Avanzi, ESC, ILEX, ILEX Iberia, Öko

Harmonisation

Our evaluation of the Phase I caps has highlighted how different Member States set their caps in a wide range of ways. This has made it difficult to be sure that we are comparing like with like and to understand the detailed assumptions behind the final caps. There is therefore significant scope for both the cap setting methodologies and the documentation explaining them to be harmonised in Phase II.

In order to improve the environmental effectiveness of the scheme, harmonisation would need to affect each of the areas we have considered above:

- the level of each cap;
- the way that it is calculated, to take into account:
 - economic efficiency, i.e. the costs of abatement inside and outside the scheme;

- fairness, the way that abatement is distributed between different countries and installations; and
- the way that the cap calculation is explained and presented, to improve transparency.

In this context, harmonisation means aligning the level of national caps by ensuring that the ways that they are calculated and presented are similar.

We consider that it would be possible to align the approach used in different countries more closely in Phase II than was the case in Phase I, and improve each of these areas.

- In terms of ensuring that the cap level is environmentally effective, using a single set of projections to evaluate the NAPs would help to ensure that each country cap was being assessed in the same way and would also assist in ensuring fairness between countries.
- Given the time constraints for Phase II, it might at least be possible to ensure that the level of each cap is compared against the same source of historic data. This would assist transparency and help to ensure that caps are assessed in a consistent way, both of which would help to ensure that caps are perceived to be ‘fair’.
- Member States could be encouraged to explain the way that they have incorporated both national and international targets in a similar way, in order to improve transparency and to assist the comparison of the cap levels across countries.
- From an economic efficiency perspective, it would be best to ensure that all cap levels are set together, to ensure that the total number of allowances is set at a level that is efficient on an EU-wide scale.
- However, given the time and political constraints that would need to be overcome to make this feasible for Phase II, it should at least be possible to ensure that each cap takes into account the marginal costs of abatement between the traded and non-traded sectors.
- Lastly, there is plenty of room for harmonisation in the way that information is presented and the way the cap levels and their calculation are described and explained. For instance, the format and structure of each NAP could be made consistent, all relevant documentation could be published on a single website and the timetables for the cap setting process could be published and kept up to date.

Beyond 2012: cap recommendations

Given our analysis of the Phase I NAPs, the key issues that we consider important for the setting of environmentally effective caps beyond 2012 are set out below. These are points that could be borne in mind by all decision makers when determining policies for the period beyond Phase II.

- Decisions should be made as early as possible not just on the cap level, but also on the principles for the long-term operation of the scheme in order to provide operators with a degree of certainty.
- The total number of allowances and role of project credits should be set at as aggregate a level as possible (i.e. an EU level).
- Harmonisation of approach at any level would help keep things simple, reducing the range of methodologies that interested parties need to understand and facilitating the like-for-like comparison of each aspect;
- Steps should be taken to ensure that a liquid market develops – this objective could be facilitated through expansion of the scheme.
- The length of each Phase should be fixed. Keeping to the same length as Phase II (5 years) would help ensure consistency.
- Projections will inform the debate but a single, published set should be used by everybody.
- Given the uncertainties surrounding projections, targets and commitments should also be described against a historical base.
- Rules and decisions should be explained in as transparent a way as possible.

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WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by:

- conserving the world's biological diversity
- ensuring that the use of renewable natural resources is sustainable
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