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Analysis paper on EU Emissions Trading Scheme Review options

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1 Introduction

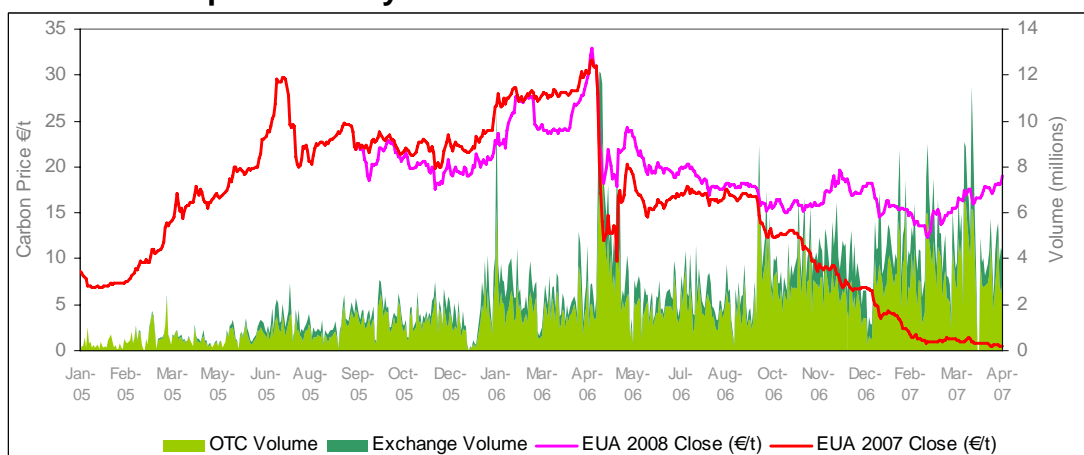
1.1 Background to the EU ETS and performance to date

1.1 The EU emissions trading scheme was established under the European Directive 2003/87/EC that came into force on 25 October 2003. The purpose of the scheme is to promote cost effective emissions reductions. It supports the EU's commitment to a global carbon market as a key instrument for tackling climate change. The Stern Review stated the necessity of carbon pricing as a response to climate change and highlighted the benefits of using emissions trading as the principal policy mechanism for mitigation as it provides both certainty over emission reductions and economically efficient outcomes.

1.2 Phase I of the EU ETS began on 1 January 2005 and will last until 31 December 2007. The first Phase was designed as a learning phase in which policy makers and scheme participants could familiarise themselves with the rules and realities of trading emissions reduction allowances. The experience of Phase I so far has been mixed.

1.3 The scheme has performed well on the level of compliance, with rates across the EU reaching 99 percent for 2005 and 100% for 2006. As chart 1 illustrates the volume of trades has grown steadily; in 2005 320 million over the counter trades were reported with a value of more than €6.5 billion¹. During 2006 the EU ETS was confirmed as the dominant force in the global carbon market, accounting for 80% of monetary value and over 60 percent of the total volume of carbon trades. The market has developed forward markets for the next Phase, and there has even been a forward trade for Phase III, even though Phase III is yet to be defined.

Chart 1: EUA price history



1.4 The EU ETS has, however, not established a robust carbon price, as the chart above illustrates. The release of the first verified emissions data resulted in a dramatic collapse in the carbon price, and with the release of the second year's verified emissions data the value of an EU allowance (EUA) dropped to below half a Euro. This reflected the key weakness of the scheme to date that the cap

¹ State and Trends of the Carbon Market 2006, The World Bank and IETA, available at: <http://carbonfinance.org/docs/StateoftheCarbonMarket2006.pdf>

was not set sufficiently tightly to generate a price of carbon that incentivises real emissions reductions and abatement investment. With six months of the first Phase remaining, EUAs have become virtually worthless.

1.5 The national allocation process for Phase II (2008-2012) *initially* suggested that the mistakes of Phase I would be repeated, with overly generous allocations requested by many Member States. The Commission subsequently rejected all but two of the initial NAPs on the basis that they were over allocated, and developed a formula to set a maximum level of allowances per Member State. This formula embodied levels of emissions reduction effort required of Member States under the Kyoto agreement.

1.6 As Chart 1 illustrates the forward price² for Phase II EUAs would appear to suggest an improved outlook, but with the carbon market still nascent it is not yet clear how effectively the market is transmitting the value of forward allowances.

1.2 The Review of the EU ETS

1.7 The current review of EU ETS provides an opportunity to draw on the experience to date, and to strengthen the design of the scheme in order that it best meets strategic objectives to deliver cost effective emissions reductions without distorting the playing field for competition.

1.8 The Commission has identified a number issues and grouped them into four distinct areas on which to concentrate its efforts:

- The scope of the Directive;
- Further harmonisation;
- Robust compliance and enforcement; and
- Linking with emission trading schemes in third countries and appropriate means to involve developing countries and countries in economic transition.

1.9 The Review process is proceeding over the course of 2007 initially with a series of working groups, based on the four review areas, in which stakeholders could discuss with the Commission how to improve the scheme. The Commission is now in the process of drafting a revised Directive through the summer and autumn of 2007.

1.10 The UK has committed itself to the EU ETS as the central plank of its climate change mitigation policy. Published alongside the Stern Review, the UK government set out a vision statement³ for the future of emissions trading. This confirmed the UK government's commitment to emissions trading and states the desire to have the EU ETS as the nucleus of the global carbon market. The vision statement also set out the Government's priorities for improving the scheme. The UK's key proposals are to:

² The 2008 EUA contract was trading at a price of just over €22 on 30 June 07

³ The full vision statement can be found at http://www.hm-treasury.gov.uk/media/7E3/FC/foi_gore_2.pdf

- set a new Europe-wide emissions reduction target of 30 per cent by 2020 and then at least 60 per cent by 2050, providing greater long-term certainty for business;
- foster a deeper, more liquid market by considering expansion of the EU ETS to cover more sectors and gases;
- move towards more auctioning of allowances in future phases to ensure a more efficient allocation; and
- extend the scheme beyond Europe - first, by guaranteeing that credits from Clean Development Mechanism projects in developing countries will be valid for compliance in the EU ETS beyond 2012, which will enable not only financial flows but technology transfer to the world's poorest countries; and second, by enabling similar schemes in other countries, such as those being developed in Japan, Australia, the North Eastern American states and California, to trade with the European scheme.

1.11 In addition, the UK's March 2007 Manifesto⁴ for the EU ETS was drawn up by a group of leaders from major businesses and NGOs in collaboration with the Government. It calls for a number of factors including: a long term trajectory for the EU ETS cap to at least 2030; a guarantee that credits from JI and CDM schemes be valid for compliance beyond 2012; and that the market is more harmonised, efficient and transparent, and where practicable linked to other emissions trading schemes.

1.3 Purpose of this paper

1.12 This paper has been drawn up as part of the Defra-Office of Climate Change project on the EU ETS Review. It covers the options that could be considered by the UK Government in determining its position for the EU ETS review. It is part of an ongoing process which started with an informal stakeholder consultation, and is the first step towards a final position that will be agreed following a proposal by the Commission, as part of which the UK Government will formally consult. The format of the paper is to list pros and cons of options rather than to state the UK position. Nothing in this paper can be taken as formal Government policy as the paper has been prepared to encourage discussion of possible options within Government and also with stakeholders.

1.13 This paper is structured into six key areas:

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⁴ See: <http://www.defra.gov.uk/environment/climatechange/trading/eu/pdf/manifesto-uk.pdf>

2 Cap-setting

2.1 The overall cap on emissions for a particular phase of the EU ETS fulfils a number of functions:

- it limits the number of allowances within the scheme thereby defining the portion of overall EU emissions that installations covered by the EU ETS should be responsible for. In this way it is an important policy instrument to keep to targets for emissions reductions (whether Kyoto, domestic or future agreements);
- by limiting emissions at levels which are less than the 'business as usual' aggregate emissions, it requires abatement 'effort', and thereby helps to establish a price for emissions allowances (a 'carbon price');

2.2 Caps for successive phases establish an emissions trajectory over time for those sectors covered by the scheme. The way in which this trajectory is set will influence the level of certainty provided by the scheme, and the climate for investment in low carbon technology.

2.3 Important aspects of cap-setting are:

- Who sets the cap and how it is distributed;
- What level the cap is set at;
- How much long term certainty the cap provides;
- The degree to which the cap is met through the collective effort of installations in the scheme itself, versus effort that those installations finance outside of the scheme.

2.1 Who sets the cap?

2.4 For the first two Phases of the scheme (Phase I for the years 2005-7, and Phase II for 2008-12) the EU-wide cap has been set as an aggregate of individual Member State caps agreed with the European Commission. Data from the first year showed that overall emissions were lower than had been projected, and that there were more allowances than emissions, resulting in a surplus of allowances and a collapse in the carbon allowance price. As of 31 May 2007 the EUA price had fallen to €0.29, down from €30 in April 2006. This could have happened because:

- Installations may have abated emissions more quickly than expected, making their emissions lower than forecast. This is unlikely, given the limited scope for making short term emissions reductions;
- Alternatively, countries may have over-estimated their emissions by overestimating forecast economic growth (i.e. giving out allowances to cover forecast growth that did not actually occur).

2.5 The process for Phase II of the scheme may have addressed some of the problems of Phase I. The Commission has revised many of the caps in the

National Allocation Plans submitted by individual Member States, with the first 18 Member States' caps revised downwards by more than 9% on average⁵.

2.6 There are a number of options to build on the progress made in Phase II in order to develop a framework that will deliver a robust cap / scarcity of allowances:

Option 1	Option 2
The Commission provides <i>ex ante</i> a clear set of rules by which it would judge Member States' proposed caps.	Centralised cap-setting process, using a formula to limit the overall EU cap, based on an assessment of the emissions limits needed in the future.
Pros	
<p>May be attractive to Member States who wish to exercise discretion over determining the balance between energy policy goals.</p> <p>Draws on significant investment made in developing Member State expertise in Phases I and II.</p>	<p>Less scope for lobbying by installations, assuming the Commission is less prone to national industry influence than Member States.</p> <p>Greater likelihood that a central cap setting process will result in an ambitious EU ETS cap, particularly where there are competing instruments for meeting climate change goals.</p> <p>A centralised cap-setting process would be based on a transparent process and subject to a high degree of scrutiny.</p> <p>More efficient than the current protracted process.</p>
Cons	
<p>Discretion for Member States could lead to their proposing overly lax caps (e.g. where climate change is not a priority, and / or where there is a desire to protect industry through providing generous free allowance allocations).</p> <p>In addition, Member States prioritising climate change may not wish to use the EU ETS as their instrument to meet any targets.</p> <p>Detailed guidance on cap-setting, with rigorous enforcement and revisions from the Commission, is tantamount to centralised cap-setting. The latter could be done directly, with less iteration (and hence less time and resource) than has been seen in the Phases so far.</p>	<p>Member States could invoke the principle of subsidiarity – but this would be a weak argument given that the current arrangement is tantamount to central cap setting.</p>

⁵See: <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/459&format=HTML&aged=0&language=EN&guiLanguage=en>

2.1.1 To what extent should there be explicit political input to the determination of any EU wide cap?

2.7 In theory the Commission might set an EU-wide cap autonomously, but in practice it may be that Member States would require some form of political process to approve the Commission's proposed cap. The following options are therefore considered:

Option 1	Option 2
<p>The Commission sets the EU wide cap according to detailed criteria listed in the Directive. These would include, but not be limited to:</p> <ul style="list-style-type: none"> • EU ETS effort should increase over time; • The cap should deliver emissions reductions at least sufficient to meet GHG targets taking into account other policies. <p>There would be a formula for setting the cap, either in the Directive, or in secondary legislation.</p>	<p>As Option 1, but the Commission position must be agreed either by some form of committee procedure (probably involving the European Climate Change Committee⁶) or by the Council of Ministers, or the European Council.</p>
Pros	
<p>Assuming that there is a robust cap setting formula in the Directive, this would ensure scarcity in the market and a robust carbon price.</p> <p>This would not result in any reduction of sovereignty relative to the current situation, where the EC de facto sets the EU wide cap through its power to reject / order revisions of NAPs. This has been particularly apparent in the Phase II process where the Commission has applied a specific formula and has effectively restricted any MS flexibility in setting NAPs.</p> <p>This would be a relatively simple process to administer and would not require complex political negotiations to agree the cap for each new phase.</p>	<p>Could limit the Commission's discretion in cap setting, providing a greater role / sovereignty for the UK.</p> <p>It is desirable for elected representatives through the Council/EP to be accountable for final decisions on overall caps rather than the Commission.</p>
Cons	
<p>It might be difficult to agree criteria / formula to deliver scarcity.</p> <p>Should the formula/criteria prove to be ill-defined then outcome may be laxer cap than UK would want. Whilst the UK could always withhold allowances to meet domestic targets, a lax cap for the scheme as a whole would undermine EU and global efforts to meet stabilisation goals.</p>	<p>Same danger of agreeing criteria and formula as per Option 1.</p> <p>Explicit Member State political input could dilute any cap proposed by the European Commission reducing the level of ambition in the scheme.</p> <p>May lead to delay in setting cap, and longer period of uncertainty for business as each new Phase's cap is set/agreed politically</p> <p>Could require complex political negotiations to take place in order to agree the cap for each phase. Experience from agreeing fisheries quotas for the EU through a political rather than formulaic approach demonstrates the difficulties that could beset such a process.</p>

⁶ The Climate Change Committee was established by the Council of Ministers to assist the Commission in its work. It is made up of officials from each Member State and the Commission and is the forum in which Phase II National Allocation Plans received peer review and changes to Commission guidance and regulations are discussed.

2.2 How should a central cap be distributed?

2.8A central cap would need to be distributed to individual Member States, or perhaps directly to sectors within the EU. These options are evaluated as follows:

Option 1	Option 2
The cap is distributed to individual Member States according to a clear set of rules, probably based on a burden sharing agreement.	Some of the cap is distributed to sectors across the EU where these are consistently defined across Member States, according to a clear set of rules. The remainder of the cap is distributed to individual Member States according to a clear set of rules.
Pros	
Member States would retain flexibility, with discretion as regards allowance allocation across sectors, providing scope to allow for “local” factors.	Where easy/possible to harmonise the definition of sectors across the EU, it is attractive to distribute a cap to an entire EU-wide sector in order to create a level playing field for competition. The burden share aspect of this option would allow equalisation of the significant allowance redistribution that could occur under central cap setting relative to the current situation. A sectoral approach is a means of extending trading to encompass sectors outside of the EU. This could be a key element of assessing the suitability of linking (discussed in greater depth in Section 6) the EU ETS to other schemes dealing with particular sectors only ⁷
Cons	
Different distributions of allowances relative to Phase I and II could result in potentially significant resource transfer between countries. Could result in a non harmonised approach by sector, although this could be addressed through allocation methodology.	Could be overly harmonised, not allowing for specific national characteristics. This would depend on the basis for sectoral cap setting (e.g. BAT benchmarks, national benchmarks, proportionate shares of the overall cap). Could hinder Member States wishing to set ambitious targets for their industry.

⁷ For example, the North Eastern American States (Connecticut, Delaware, Maine, Maryland, New Hampshire, New Jersey, New York and Vermont) have joined together in developing the Regional Greenhouse Gas Initiative (RGGI). RGGI is a cap and trade scheme, but covers only electricity production.

2.3 Factors to be considered in setting the cap

2.9 The cap should:

- respond to the science of climate change ensuring the EU stays within 'safe' emission levels.
- be consistent with the EU's committed effort, both unilateral and under future multilateral agreements;
- encourage abatement rather than simply create new assets for installations in the scheme;
- balance environmental concerns with economic competitiveness concerns;

2.10 The drafting of an amended Directive is likely to occur far earlier than a post-2012 multilateral agreement has been agreed, and the revised Directive is likely to cover different contingencies as regards EU GHG targets. It should therefore allow sufficient flexibility to allow EU ETS to make the appropriate contribution to different GHG emissions reduction targets. The following options would provide such flexibility:

Option 1	Option 2
Formula based on consistency with achieving an EU emissions reduction target (e.g. - 20/30% by 2020, depending on outcome of negotiations)	Formula based on maintaining the stringency of cap/effort in the scheme, if the cap based on a GHG emissions reduction target is insufficient to provide this stringency
Pros	
Provides a clear and consistent signal in terms of how the EU ETS should contribute to achieving target greenhouse gas emissions reductions;	Would mitigate risks of low carbon price associated with having a 20% GHG target together with a 20% renewable target.
Cons	
There is a risk that a 20% GHG emissions reduction target could prevail at the time that the EU ETS cap for Phase III is set (2010-11), notwithstanding the UK's strong support for the EU to adopt a 30% target. Coupled with a 20% renewable energy target, this might leave little effort required of EU ETS.	<p>Defining 'effort' is challenging, as it should be the difference between the 'need' of those installations covered by the scheme and the number of emissions allowances that they are allocated – although this challenge is not insurmountable.</p> <p>To the extent that defining need involves growth forecasts, this introduces a controversial element. One way to avoid controversy would be to define need on the basis of verified emissions e.g. 2005-6 historical emissions.</p> <p>Maintaining effort at Phase II levels together with a 20% renewable target might well outperform a 20% GHG emissions reduction target. This could be problematic given that Member States have only agreed to a 20% GHG target before any post 2012 agreement.</p>

2.4 How far ahead should the cap be set: the balance between flexibility and certainty?

2.11 The first Phase of the EU ETS will run for three years (2005-7), and the second Phase for five (2008-12). Beyond the end of Phase II, there is no certainty about the level of the cap. This means that installations covered by the scheme face uncertainty about the longer-term carbon price, their costs and the return on their longer-term capital investments. As a result investments may be delayed until there is more certainty around the carbon price.⁸

2.12 Evidence to support this includes:

- Modelling installations' decisions to invest in gas- versus coal-fired power generation plant shows that they will be much more likely to delay their investment decision (due to uncertain return on investment) in a five year versus ten year allocation period⁹;
- Analysis for the Energy White paper indicates that key factors affecting power plant investment decisions are limited visibility of future fossil fuel, carbon and electricity prices and uncertainty on future of EU ETS post 2012. These uncertainties increase investment risk as it becomes more difficult for investors to assess whether a particular power station investment will be profitable—Greater certainty over expected prices facilitates firms' assessment of the investment risks and the returns of possible future projects. Greater certainty that the costs of carbon will be incorporated into electricity prices improves the economics of low carbon¹⁰;
- Installations have expressed the need to have a long-term carbon framework to aid their long-term investment decisions. In the UK, the CBI has stated that:

“UK should set a clear, long term, emissions reduction target, which [...] should be backed up with milestones, in the form of intermediate targets that are realistic yet challenging in terms of what can be achieved, and are structured so that business investment cycles can take them into account”.¹¹

2.13 The UK draft climate change Bill addresses such requests. The Bill provides for the setting in statute of at least three consecutive five-year carbon budgets – capping total emissions of CO₂ during a five year period - at any one time. The intention is to provide approximately 15 years¹² of certainty for the emissions reduction framework, which is in keeping with the timescale of investment decisions for energy intensive industrial sectors.

⁸ This is particularly the case if installations are risk-averse, but there will be some delay (because of the option value of waiting) even if installations are risk-neutral.

⁹ Blyth, W. and M. Yang (forthcoming), 'Impact of climate change policy uncertainty on power generation investments', Paris: IEA.

¹⁰ Redpoint analysis for DTI.

¹¹ Confederation of British Industry submission to the Stern Review http://www.hm-treasury.gov.uk/media/FC6/5C/climatechange_cbi_1.pdf

¹² 15 years is used as a benchmark pay-back period in many industries although some capital intensive sectors, particularly the utilities, plan over much longer timeframes (25 years+).

2.14 The review of the EU ETS Directive provides the opportunity to specify a longer-term framework for the scheme. This could potentially be done in a number of ways:

Option 1	Option 2	Option 3
Maintain five-year phase length, but set caps for a number of phases in advance	Maintain five-year phase lengths, but specify a formula for future phases, which would set caps taking into account future targets and future levels of effort needed to maintain the carbon price.	Use greater phase lengths, such as eight or ten year.
Pros		
Setting caps in advance would provide long term certainty.	A formula would provide longer term certainty, and give flexibility in setting the cap to respond to future developments (e.g. a post Kyoto agreement).	Would provide long term certainty, at least for one longer phase.
Cons		
Would not be flexible / might have to be amended in light of future events, possibly undermining credibility of the scheme.	Would not have the transparency and simplicity of a definite cap on future phases, or of longer future phases.	Would not be flexible / might have to be amended in light of future events.

2.15 In setting out the options above, it is assumed that it would not be appropriate to reduce the phase lengths to less than five years. Ideally a phase length should be long enough so that installations covered by the scheme have some flexibility in deciding when to make what levels of emissions reductions. This flexibility is necessary due to variations from year to year which could cause one year's emissions to be greater-than-expected – an unexpectedly cold winter could create a surge in demand for electrical heating, for example, leading to greater-than-planned emissions from the electricity generation sector. It is assumed that five years provides an acceptably long period to smooth out these variations.

2.4.1 Flexibility mechanisms

2.16 Within a series of fixed caps, or a longer-term cap, banking and borrowing could provide more flexibility without undermining certainty. They could help smooth compliance over time and through investment cycles.¹³

2.17 Banking allows those participants which have verified emissions below their allocations to carry over the difference for use in later phases. The banking of allowances is attractive to participants when it is expected that the carbon price will rise more quickly than the rate of return on others assets. Under these circumstances, allowances are more valuable as a means to cover future emissions.

¹³ As asserted in the Stern Review (15.4, p332)

2.18 Borrowing allows participants to use allowances in future phases for compliance in the current phase. Borrowing becomes attractive when it is anticipated that the price of allowances will rise more slowly than the rate of return on other assets. This could occur because low carbon technology costs are expected to fall in the future, and because tough short term emissions targets provide relatively less opportunity to embed technical improvements over time.

2.19 It is important to distinguish between banking and borrowing within and between phases. The current Directive allows borrowing up to one year ahead within a phase, but not between phases. Unlimited banking is currently allowed between compliance years within phases and from Phase II will be allowed between phases.

2.20 In terms of economic efficiency both banking and borrowing should have the following positive impacts:

- Reduced cost of overall mitigation as installations can adjust their abatement decisions over time;
- Dampened price volatility/smoothed EUA price trajectory in periods and between periods;
- Reduced risk of sudden price spikes/crashes: banking should reduce price crashes as it encourages installations to hold onto allowances. Initial modelling work¹⁴ suggests that there could be severe price drops towards the end of the period without banking;

2.21 Evidence from the US Acid Rain Programme suggests:

- The ability to bank allowances for future use proved crucial to the success of the program because once operators had built up a bank of unused allowances, they had a vested interest in maintaining their value and thus in furthering the program itself¹⁵;
- Banking can incentivise early abatement and therefore offer potential environmental benefits. The US Acid Rain Programme saw 31% of allowances banked in Phase I and drawn down during Phase II, allowing a smooth adjustment to a tighter limit in Phase II. This represented 11.6 million tonnes of sulphur dioxide reduced ahead of schedule, on average by 6 years¹⁶;
- Banking can reduce price volatility in a trading scheme: the US Acid Rain programme which allows nationwide trading and unlimited banking has experienced price fluctuations of no more than 3:1, whereas two NOx programs that had more restricted spatial and temporal scopes have experienced much more extreme price fluctuations ranging between 15:1 and 60:1¹⁷.

¹⁴ Grohman (2001)

¹⁵ Burtraw & Palmer (2003)

¹⁶ From Ellerman and Pontero (2005)

¹⁷ Ellerman and Pontero (2005)

2.22 There are, however, potential downsides to banking:

- Unrestricted banking can also allow emissions to be concentrated in time¹⁸, and such hoards of emissions could have high associated damage costs compared to dispersed emissions;
- Over-generous allocation in one phase effectively loosens the cap for future phases, since that allocation can be carried forward into those future phases.

2.23 Borrowing has the following benefit:

- It would allow a longer term framework to avoid cap adjustments by providing extra flexibility.

2.24 On the downside, borrowing could:

- Weaken the environmental integrity of the scheme because it encourages installations to delay abatement.;
- Reduce incentives for installations to uphold the long term running of the scheme, or give incentives for plants that are closing in a few years' time to borrow allocation from a time after they have closed (only a problem with free allocation);
- Without limitations, borrowing could distort the emissions reduction pathway significantly, potentially creating a more costly long-term abatement pathway. Analysis done for the UK's draft Climate Change Bill¹⁹ shows that too much borrowing in one period would greatly reduce the probability of being able to meet a future period's cap. In the context of the UK this means limiting borrowing to 1% of the next phase's allowance cap.

2.5 The role of project credits in the EU ETS

2.25 Allowing the purchase of Kyoto project credits (CDM and JI) provides a wider set of least-cost emissions reduction opportunities for installations covered by the EU ETS, as well as providing a conduit for helping developing countries achieve low carbon economies through support for investment in emissions reductions projects. Against this, keeping within an emissions limit through purchasing credits which may be relatively cheap in the short term could prevent Member States from investing in low-carbon technologies at home, meaning they face higher costs of abatement in the future (when targets might become more stringent, or when the supply of project credits might become more limited).

2.26 Guidance on the degree to which emissions reductions should be achieved domestically are contained in the international principle of '**supplementarity**'²⁰ which states that:

“the use of the [Kyoto project] mechanisms shall be **supplemental** to domestic action and...domestic action shall thus constitute a significant element of the effort made by each Party...” .

¹⁸ Tietenberg (1998)

¹⁹ UK draft Climate Change Bill partial Regulatory Impact Assessment, p43.

²⁰ Located in the **Marrakech Accords** - a set of agreements reached at the Conference of the Parties 7 (COP 7) meeting in 2001 on the rules of meeting the targets set out in the Kyoto Protocol.

2.27 This principle recognises that

- the developed world has benefited from the burning of fossil fuels to date;
- in order to reach a stabilisation goal it is necessary to reduce emissions in the developed as well as developing world; and
- to generate investment in low carbon technologies in the developed world it is necessary to require some CO₂ reduction effort in developing countries

and demonstrates to developing countries that industrialised countries are willing to take positive action domestically and make real efforts to reduce their own emissions, rather than expecting others to make the reductions for them. The principle also guards against the possibility of rich developed countries buying the least cost emissions reductions from countries which may in the future take on their own targets, but for which few or no “low hanging fruit” emissions reductions remain.

2.28 Internationally, no further interpretation or guidance on complementarity has been given or issued, nor has a quantitative limit been set. It is worthy of note that during the negotiations of the Marrakech Accord the EU submitted that each party should impose stringent limits. Additional guidance exists in the forms of:

- The EU ETS Directive, which states that NAPs shall specify the maximum amount of CERs (allowances based on CDM projects) and ERUs (allowances based on JI projects) which may be used by operators as a percentage of the allocation of the allowances to each installation. The Directive also gives Member States discretion to allow operators to use project credits to comply with their EU ETS obligations;
- Commission Guidance on Phase II NAPs (December 2005), which states that the complementarity requirement is applicable to aggregate greenhouse gas emissions of a Member State and not separately for individual sectors. Member States are recommended to apply the limit for the entire trading period and collectively to all installations;
- the Commission’s November 2006 Communication on the review of the EU ETS, which states that the further harmonisation of the types and percentages of Kyoto Protocol project credits accepted by Member States for compliance with obligations will be considered;
- a Commission memo on 29 November 2006 and as part of the Phase II NAP assessment process, which stated that as a general rule, installations should be allowed to use JI and CDM credits to supplement their allowance allocation by up to 10%. In assessing proposed limits that are greater than 10%, the Commission will take into account the effort a Member State has to undertake to respect its Kyoto target.

2.29 For the Phase II NAPs, there have been a range of agreed limits on the proportion of the cap which can be made up by Kyoto project credits. 11 of the 19 agreed NAPs so far are for project credits of 10% or less of the cap, with the UK specifying a maximum of 8%.

2.30 It is important to consider the degree to which the proportion of future caps which can be achieved through Kyoto project credits should be limited. The following options are considered:

Option 1	Option 2
No limit on the use of clean development credits.	<p>In principle harmonised limit on clean development credits such that some emissions reduction must occur within the EU.</p> <p>To be set taking into account: target emissions reduction, EU abatement potential, cost and availability of clean development credits.</p> <p>Limit should not exceed EU ETS effort.</p>
Pros	
Allows for meeting of EU ETS emissions reduction target at least cost.	Encouraging emissions reductions to occur in the EU would drive a dynamic transition to a lower carbon economy, possibly at a greater rate than if the safety valve of CDMs were present.
Cons	
<p>Could undermine credibility of the EU, given the need to be making emissions reductions alongside developing countries.</p> <p>Allowing unlimited use of the project mechanisms could delay investment in cleaner technologies domestically, potentially contributing to lock-in of more polluting technologies.</p> <p>Not having a cap would risk unlimited use of particular classes of CDM where there is a question over whether these actually represent emissions reductions, undermining environmental integrity of the scheme.</p> <p>Could also encourage unlimited use of credits which are from countries whose emissions are unconstrained, risking lack of additionality in emissions reductions.</p>	<p>Would constrain the flow of finance to developing countries for investment in low carbon technology.</p> <p>A cap could raise the costs of meeting a given target emissions reduction through EU ETS.</p>

2.31 It is assumed that both options include:

- validity of CDM credits from the first crediting period of projects registered by 2012 for compliance in Phase III of EU ETS;
- flexibility to any post Kyoto definition of supplementarity;
- continuing review of process and basis for determining additionality of emissions reductions, including baselines and benchmarks for crediting under CDM project credits.

3 Allocation methodology

3.1 The EU ETS cap determines the degree of scarcity of allowances in any given phase of the scheme, and hence the effort required by the scheme's participants to meet a given level of emissions reduction (see discussion on cap setting in **Section 2**). The allocation methodology determines how allowances are distributed to specific industry sectors, and installations within those sectors.

3.2 In allocating allowances, appropriate objectives might include:

- create the right incentives to price carbon into investment and consumption decisions²¹;
- avoid leakage of production (and emissions) to non-capped economies in response to EU-specific ETS pressures on globally competitive sectors – known as carbon leakage;
- avoid competitive distortions between Member States for similar producers, and ensure EU installations can be competitive globally;
- avoid perverse incentives for less efficient processes;
- ensure an efficient scheme by allocating allowances to those that value them the most; and
- develop a scheme that is administratively simple.

3.3 From the UK perspective, the allocation methodology should be consistent with wider Government objectives and policies such as those on economic growth in the UK, energy security and the UK's wider position on revenue raising in an EU context.

3.4 Aside from placing a limit on the level of auctioning to sectors (of 5 and 10% respectively for phase I and II), the Directive currently leaves allocation methodology to Member State discretion. There is no limit on auctioning for future phases.

3.5 The UK (in common with most other Member States) currently allocates allowances for free using a grandfathering methodology (whereby allowances are allocated at 'need' or close to need based on historic emission levels allowing for growth) to every sector apart from the LEPs (Large Electricity Producers)²². All of the required reductions against need to meet the UK cap are taken from the LEPs (it is noted that some Member States have spread reductions wider). The UK has opted to auction 7% of its Phase II allowance allocation²³. These allowances have also been taken from the LEP sector.

3.6 There is a new entrant reserve of allowances, allocated in the UK using 'Best Practice', capacity-based benchmarks. Where definitions exist these have been based on BAT (Best Available Techniques) and otherwise on likely characteristics of best practice for new entrants. Installations currently do not receive allowances for years after their closure.

²¹ More effective carbon pricing could lead to desirable production shifts and greater take up of cheap abatement lowering the cost of meeting the overall cap.

²² The Dutch use a grandfathering methodology alongside an incentive structure based on energy efficiency benchmarks.

²³ Germany has chosen to auction 8% in phase II and the Dutch 3%.

3.1 Reducing free allocation

3.7 The UK Emissions Trading Vision statement²⁴ states that we should move towards increased auctioning of allowances to ensure more efficient initial allocations; and remove perverse incentives where there is free allocation of allowances through a more standardised methodology.

3.8 In considering the number of allowances to allocate to sectors, and what proportion of those allowances should be free of charge, it is necessary to establish a '**baseline**' level of emissions for sectors.

3.9 Using a *locked down* historical baseline avoids the risk of installations emitting more in order to raise the baseline in the next period (known as updating). The Commission used 2005 data as a baseline to inform their considerations of Phase II NAPs. An alternative would be to use an average of 2005-6 verified emissions, avoiding the risk that 2005 was a one-off or unrepresentative year.

3.10 It can be argued that a historic baseline should be inflated to account for the growth of installations' production (and therefore emissions) but this should be resisted, for two principal reasons:

- the key purpose of the emissions trading scheme is to reduce emissions, and factoring in growth would undermine this aim;
- having said that, new entrants (especially those with lower carbon intensity production) should be encouraged into the market. But this will happen through a New Entrant Reserve, which should account for the majority of growth.

3.11 In order to achieve emissions reductions, the overall EU-wide cap must be set below the baseline – only then will emissions actually reduce over time. This means that at least some sectors/installations will have to face the cost of either abating, or purchasing allowances to cover any emissions beyond any free allowance allocation.

3.12 Beyond this, there are arguments for reducing free allocation further than the cap requires and asking all sectors to purchase a proportion of their allowances:

- There is anecdotal evidence that installations allocated allowances for free and not subject to up-front costs of allowances do not account for carbon costs (they do not 'price carbon'), and so are less likely to abate²⁵. The credibility of the scheme and the market view of the long term carbon price will be fundamental to creating the right incentives for installations to price carbon. Charging for some or all allowances will reinforce these incentives.
- There is strong evidence that installations in the LEP sector²⁶ have made windfall profits by passing on the costs of those allowances allocated to

²⁴ Emissions Trading: UK Government Vision, October 2006

²⁵ The Stern Review (Chapter 15) states that 'emissions trading should not be based on free allocation particularly over sequential time periods – free allowances dampen incentives to reduce emissions, and over time will slow adjustment of capital stock and therefore raise overall compliance costs.

²⁶ www.electricitypolicy.org.uk/pubs/wp/eprg0617.pdf and http://ec.europa.eu/energy/energy_policy/doc/10_internal_market_country_reviews_en.pdf

them for free to their customers²⁷. For other sectors a degree of cost pass-through is expected in theory, but as yet there is limited empirical evidence to test and suggest this is significantly occurring in practice²⁸. At a carbon price of €28/tCO₂ the value of the windfall across the EU – assuming all installations can pass through all costs - is around €48bn (before taxation);

- If no free allowances were given to installations (which implies full auctioning of allowances) this would avoid any need for an allocation methodology. It could also be seen as fairer as it would mean that the ‘polluter pays’, and would force all installations in the scheme to incorporate the full cost of carbon into their decision making. A move to full auctioning would reduce the burden and admin costs of the scheme and removes the need for new entrant and closures rules.

3.13 In reducing free allocation, certain risks must be considered:

- To date free allocation has been justified on the basis that it recognises the impact of investments made before the scheme was in existence. It could be argued that by 2013 (eight years into the scheme) installations will have been sufficiently compensated for existing assets. However, many of the assets will have lifetimes well beyond the length of Phases 1 and II and where installations have invested in very different processes there may be an argument for continued differentiation in the levels of free allocation. This needs to be balanced against the need for allocation to reward early movers and good performers;
- One of the key objectives of free allocation is to avoid carbon leakage. If global competition pressures mean that a firm cannot pass through all of the costs of purchasing allowances without losing market share to production outside of the EU, then a proportion of free allocation would mitigate against the risk of carbon leakage at least until a global carbon market is established.
- Significant differences in the level of free allocation between Member States may also result in competitive distortions within the EU. The UK, the Netherlands, Sweden and Germany have all opted for some auctioning in Phase II. These Member States have publicly supported increased levels of auctioning for future phases of the scheme. However, across all Member States the level of ambition varies widely. If other Member States do not choose to opt for some auctioning of allowances in the sectors outside LEPs it is likely to limit the scope to which the UK can auction in these sectors; Differences in the structure of Member States’ economies may also mean that a uniform rate of auctioning could cause further distortions. Discretion to go beyond a minimum auctioning level would allow for any such differences to be taken into account.

²⁷ This is called opportunity cost pricing, and follows from the economic theory that the surrender of free allowances has an opportunity cost associated with it: the cost of using the allowance to cover emissions is the foregone revenue from selling it on the market. This cost should be treated in the same way as any other cost incurred by a firm, and factored into pricing decisions.

²⁸ There is limited evidence on cost pass through in sectors outside LEPs, partly due to limited data, statistical difficulties to isolate pass-through rates of energy and emission trading costs, and the possibility of contractual lags. .

- Smaller installations may not have the in-house capacity to engage in trading, to purchase additional allowances either through auctions or the market. By removing many of these smaller players from future phases of the scheme any burden associated with reductions in free allocation will be reduced (this is discussed in detail in Section 5). Clear timescales and early messages from Government about intentions on allocation will also help to mitigate any risks. There may be arguments to expose each sector to a small amount of trading (through auctioning of allowances) for one phase in order to allow them to develop the necessary skills. This will improve the liquidity in the market and ensure that smaller players do not simply use the scheme as a compliance tool. The needs of smaller compliance buyers will be particularly pertinent to auction design.

3.2 Determining levels of free allocation

3.14 The discussion above suggests that there are benefits in exposing all sectors to less than 100% free allocation, allowing windfall profits to be captured and reinforcing incentives to price carbon. By setting levels of free allocation on a sector by sector basis it is possible to guard against the risks of carbon leakage.

3.15 The options for determining future levels of free allocation are:

- top down - to set minimum levels of auctioning (against the sector baseline) and allocate the remaining allowances for free using a benchmarking or grandfathering methodology; or
- bottom up – to determine levels of free allocation using a benchmark, whereby installations within a sector / sub-sector are allocated a number of allowances based on an agreed standard and auction any remaining allowances within the overall EU ETS cap.

The pros and cons of implementing these options at an individual Member State or EU-wide level are considered below.

Option 1	Option 2	Option 3
Member State discretion to set their own levels of auctioning, with remaining sectoral allocations allocated using benchmarking or grandfathering	Minimum auctioning to apply to each sector, harmonised across all Member States. Other allowances to be allocated using benchmarking or grandfathering.	EU benchmarks used to determine the level of free allocation, with remaining allowances auctioned. This would involve full harmonisation.
<p>Pros</p> <p>Allows flexibility in determining the level of free allowances, which would be attractive to Member States not favouring auctioning.</p> <p>Discretion would allow the UK to auction up to 100% of allowances for the LEP sector in order to capture windfall profits.</p> <p>Maximises national control over Government revenue streams from EU ETS</p>	<p>Enforced reduced free allocation would strengthen abatement incentives and allow capture of windfall profits.</p> <p>Member States could go further and reduce free allocation even more, auctioning higher levels if they wished.</p>	<p>Could strengthen abatement incentives and allow capture of windfall profits.</p> <p>We already benchmark the LEP sector as do seven other Member States – could inform EU benchmarks for this sector.</p>

Cons		
Individual Member States likely to be open to lobbying by sectors which could result in a large proportion of allowances allocated for free.	Risk that Member States would cluster at the minimum level of auctioning in politically sensitive sectors due to perceived or actual intra-EU competitiveness concerns.	<p>Removes all control over a potentially significant revenue stream from Member States with implications for their management of public finances.</p> <p>Wouldn't allow Member States to take into account national circumstances.</p> <p>Uncertain what level of auctioning EU benchmarks would achieve (could be too high or too low).</p> <p>Resource-intensive to negotiate and could result in a race to the bottom as Member States seek to protect their industries.</p> <p>Potentially substantial redistribution impacts between sectors within Member States against the status quo (e.g. under BAT benchmarks).</p>

3.16 Evidence suggests that most sectors could withstand having to purchase at least some of their allowances, without losing profitability, although this varies by specific sector. For those industries able to show that they are unable to pass through carbon costs, there would be a case for special treatment (e.g. free allowance allocation at need).

3.3 Allocation of free allowances at the installation level

3.17 Free allowances can either be distributed through a benchmarking or a grandfathering methodology. Grandfathering is the status quo for much of the current free allocation and has some industry support, but rewards past bad performance and the anticipation of updating creates a perverse incentive for installations to overstate their emissions or to emit more in order to gain more free allowances in future phases.

3.18 If designed correctly, benchmarked allocations send stronger signals about environmental improvement and provide a more standardised way of allocating free allowances. Important design aspects include:

- **Output versus input based benchmarks:** output based benchmarks are more simple, and should be used except where there is a high degree of product heterogeneity.
- **Use of site specific factors:** can make benchmarks more complex and remove the strong signals created by standardised sector benchmarks. However, they might be reflected where site specifics are beyond a sector's control and have a significant impact;
- **National versus EU benchmarks:** national benchmarks may be easier to agree in the first instance, as a first step towards harmonised benchmarks. EU guidance on benchmarking may reduce any intra EU

competitive distortions created by benchmarking and help achieve harmonised benchmarks over the longer term;

- **Ex ante versus ex post benchmarks:** ex post benchmarks to cover actual output, whilst potentially attractive to those firms benefiting from more allowances to cover production growth, could either undermine environmental integrity of the EU ETS or, if sectoral allocations are subject to ex post revision, introduce additional uncertainty as regards carbon cash flows.

3.4 New entrants and closures

3.4.1 New Entrant Reserve (NER) rules

3.19 With respect to new entrants to the trading market it is important to strike a balance between providing the right incentives for investment in clean technology whilst supporting economic growth and not making it too difficult for new entrants to enter the market (and possibly pushing industry towards relocation outside the EU).

3.20 The UK stated goal (as per the Government’s Emissions Trading Vision Statement) is to move to increased auctioning, which would reduce the need for an NER. However the time scale for moving to **full** auctioning is unclear. So a more likely option is to have a staged transition from free allocation towards a situation where new entrants purchase all of their allowances from the market. As new entrants will have opportunities to invest in more efficient equipment it is likely that this could be achieved on a faster time scale for new entrants to that of incumbents.

3.21 Key choices for new entrants are whether or not to award free allocation to new entrants, how much free allocation should new entrants receive in relation to incumbents, and whether we would like to see rules for managing the NER harmonised at EU level. The following options are considered:

Option 1	Option 2
No NER in any Member State (i.e. no free allowances for new entrants).	New entrants receive free allocation (as a proportion of need) which is the same as incumbents in their sector.
Pros	
No administration necessary.	Would reduce competitive distortions between incumbents and new entrants, compared to no NER (option 1) Would encourage investment in cleaner technology, as new entrants would most likely enter with BAT and would not face entry barriers if they received the same share of allowances for free as incumbents.
Cons	
Could delay closure of older dirtier plants and/or push new investment outside the EU. If incumbents continue to receive free allocations, would potentially be a barrier to new entry and inhibit productivity improvements.	New entrants not exposed to full carbon costs.

3.4.2 Who should manage the New Entrant Reserve?

3.22 The existence of an NER raises the question of whether it should be centrally managed or left to Member States to manage. A central NER would only be possible under the following conditions:

- there is a central EU Cap;
- there is a legal framework in place to allow the EU to manage the NER on behalf of Member States;
- all rules relating to the NER are harmonised;
- conditions are put in place to prevent Member States losing large amounts of allowances through the NER.

3.23 A key issue for consideration would be who would manage a central NER. It is most likely that the Commission would delegate responsibility to another authority (be that a sub committee of the European Climate Change Committee or an independent body). A related question is its legal status - the current Directive delegates responsibility for issuing allowances to Member States, but this should not be a barrier to creating a central NER, as the central NER authority could release allowances to the host Member State who would then allocate allowances via the registry.

3.24 Further issues for consideration include deciding who would fund the management of a central NER (perhaps the Commission out of its own funds, or Member States contributions), how appeals to new entrant allocations would be handled, etc.

3.25 A central NER appears feasible, would remove competitive distortion between Member States for investment in EU ETS sectors, and would ensure harmonised rules (eligibility, allocation methodology, level of allocation) for all new entrants across the EU. However, the key issues for Member States would be how the size of the reserve is determined and where the allowances come from. Bearing in mind that a reserve would be allocated on a first come first served basis then there will be Member States which benefit and lose out from the creation of an EU NER.

3.26 Other key concerns for the UK would be whether we could justify allocating less to new entrants than the harmonised allocation methodology permits - we may wish to do this to incentivise investment in cleaner technology and encourage industry to incorporate the cost of carbon in their investment decisions at a faster pace than others (recognising this would be difficult for sectors which face intra-EU competition), or in cases where we choose to allocate fewer free allowances to a sector than the EU common position, (taking into account competitiveness issues).

3.4.3 Closure rules

3.27 For Phase II of the EU ETS, installations which close only receive allowances up to the end of the year of closure. No further allowances are then allocated to them. However, if closure itself is considered to be a valid method of abatement, then there is an argument for continuing allocation of free allowances to installations once closed, either to the end of the Phase or for a set period of time following closure. It is important to understand the level of the incentive that these allowances provide to close an installation, versus other factors driving closure. The treatment of closures is very closely allied to the

treatment of new entrants and should not be considered in isolation. The following options are considered:

Option 1	Option 2	Option 3
Upon closure installations do not receive any further annual allocations	Installations receive allowances for the remainder of the phase	Installations receive allowances for a set period of time e.g.2, 5 or 10 years
Pros		
Unused allowances can be cancelled ²⁹ adding to the environmental impact of the scheme, although this could constitute an ex post adjustment to the cap.	Easy to administer. Does not require a definition of closure. Less distortion of decision whether or not to close.	Allows more consistent treatment of closed installations. Does not distort decisions on whether or not to close.
Cons		
Administratively burdensome. Requires clear definition of closure. May deter closure of inefficient plants.	Allocation methodology would need to account for some allowances being allocated to installations that are not operating.	Would require some closed installations to receive allowances in future NAPs. Raises the issue of ownership of those allowances. More difficult to administer than option 2.

4 Expanding the scope of the EU ETS

4.1 The EU ETS currently covers industrial sources responsible for around half of EU CO₂ emissions which in Phase I was equivalent to 38% of EU greenhouse gases. The proportion of EU greenhouse gas emissions covered by the Scheme is expected to grow to at least half by Phase III (2013), including emissions from international aviation. The remaining emissions come from industrial sources not currently included (e.g. ammonia production), but mainly from non-industrial sources, namely transport, small scale combustion (heating) and agriculture.

4.2 The UK's objectives for the expansion of EU ETS are to:

- Ensure opportunities for expanding to new sectors are considered fully;
- Avoid expansions which weaken incentives in the current EU ETS sectors; and to
- Ensure Carbon Capture and Storage (CCS) benefits fully from a carbon price.

4.3 The more emissions that are covered by the scheme, the more cost-effective it will be for all to achieve challenging emissions reduction targets. Expansion to additional industrial sources of CO₂ and other greenhouse gases as well as non-industrial sectors should therefore be considered to avoid the need for more costly measures at Member State level.

²⁹ The alternative is to auction the allowances

4.4 It would be beneficial to expand the scheme for a number of reasons:

- The cap would apply to a greater portion of the EU economy, thereby providing greater certainty over the level of emissions reductions from the EU;
- Emissions trading allows the market to determine where abatement can occur at least cost. This dynamic depends on diversity in the trading community in terms of variable abatement costs and technology options, which a larger scheme would support;
- Application of the scheme to a larger portion of the economy would lessen the burden that the non-traded part of the economy should bear relative to the traded part;
- An increase in traded volumes in the carbon market, which is likely to lead to lower transaction costs. Theoretically, any expansion of the market also increases its liquidity;
- The EU ETS allowance value represents a powerful price signal and its application across new sectors allows the relative carbon intensity of different activities to be reflected in consumer prices assuming the carbon costs are able to be passed through, or cheaper imports are not available.

4.5 Decisions on sectoral coverage cannot be taken with regard only to the impact on the candidate sector itself. The effectiveness of the scheme overall demands stability and a degree of certainty about future carbon price levels. Furthermore, the current relative efficiency of the scheme as a mechanism for pricing carbon into energy-intensive industry sectors if expansion to other sectors introduced new administration costs and lowered this efficiency.

4.1 Eligibility Criteria

4.6 Consideration of the advantages and disadvantages set out above suggests that it could be important to have a set of **standard criteria** for including new sectors in the scheme. To that end it would be useful to establish clear principles in either the revised Directive or supporting Commission guidance to guide the analysis and process for future expansion decisions. These principles should read across all decisions affecting the scope of the scheme, whether in the assessment of applications for opt-in, decisions on harmonised expansion, or moves to streamline existing coverage.

4.7 A clear and consistent framework for analysis and decisions on scope would also mitigate the risk of inclusion of sectors whose inclusion could damage the credibility or long term sustainability of the scheme.

4.8 The principles detailed below combine the various environmental, economic and technical considerations. Indicators are proposed in order that the performance of a particular candidate sector can be assessed for consistency with our twin imperatives of expanding the scheme where possible whilst protecting the integrity and stability of the existing market.

4.9 Performance against individual criteria may vary widely between sectors. The overall assessment of suitability should be made on a sector-by-sector basis

taking a holistic view of all criteria. The table below shows key criteria which should be considered in no particular order of importance:

Criterion	Detail	Indicators to consider
Impact on emissions	Where the sector's emissions represent a significant share of total emissions, are difficult to forecast, or are on a rising trend, the EU ETS would cap the included sector's emissions, and make it face a carbon price – particularly important where emissions are rising fast or represent a large share of total EU emissions. Even if limited abatement potential within the sector, capping its emissions would force it to purchase allowances, which represent reduced emissions elsewhere, so long as the overall cap is sufficiently tight. Care must be taken for large sectors where there is plenty of cheap abatement potential, as a too-lax cap for these sectors could lead to a surplus of allowances, lowering the allowance price.	Proportion of MS/EU emissions; projected emissions trend; potential to reduce emissions.
Monitoring and Enforcement	Ability to conduct robust monitoring, reporting and verification (MRV) of emissions at reasonable cost is key for maintaining environmental integrity of the scheme. The MRV process is simplified by the ability to clearly define the boundaries of an installation and/or sector as this reduces costs to the operator. It also prevents distortions which may arise due to differing interpretations, ensures harmonisation across the EU and allows for the effective enforcement of the scheme by the competent authorities. If the sector includes a large number of small emitters, it is important that the cost of inclusion does not outweigh the benefit.	Clarity of installation/sector definitions; low level of uncertainty in monitoring emissions; feasibility and cost of MRV.
Transaction costs	Compliance costs (e.g. MRV as above) can be high depending on the complexity of the installation and/or process. For some smaller installations, the cost has been disproportionately high compared to the environmental benefit of being included in the Scheme. Expansion to any activity or sector should bring a large volume of emissions into the Scheme without introducing significant administrative burden on operators or regulators. If the sector is already partially included in the EU ETS then expansion to include additional emissions on site could reduce the complexity of MRV and transaction costs.	Compliance costs proportionate to benefits of inclusion; Number and size of installations; Number of installations already partially included in the EU ETS; Administrative burden on scheme regulators.
Competitiveness	Sectors subject to significant global competition could see output losses if they are forced into facing a carbon price in the EU too early, potentially leading to carbon leakage (although allocation methodology should recognise this). With the carbon market extending beyond the EU, this risk reduces. Competitive distortions exist between some Member States as a result of differential implementation and expansion could reduce these. The EU ETS could be used as a stepping stone prior to the development of a global scheme although consideration needs to be given to the legal, diplomatic and technical implications of preceding an internationally agreed framework.	Existing competitive distortions as result of existence of EU ETS; implications for future competitiveness; suitability of EU ETS as stepping stone to global carbon market

Criterion	Detail	Indicators to consider
Compatibility with wider policy framework	<p>Where the candidate sector is subject to other targets or regulations (e.g. emission limits to improve local air quality) this could decrease the flexibility of the market to determine the level of abatement that should occur in the candidate sector, potentially reducing the benefit/cost ratio of including the sector in the EU ETS. The cost of including a sector in the EU ETS needs to be balanced against the impact on emissions. Limited abatement potential should not exclude a sector but high transaction costs may mean that for the same impact on emissions, regulation under IPPC (Integrated Pollution Prevention and Control³⁰) or other legislation is more cost effective than EU ETS. Inclusion in the EU ETS could, however, incentivise reductions beyond other regulations due to potential financial benefits.</p> <p>In addition, potentially adverse secondary impacts need to be considered such as: air quality; local environmental quality, water, waste and/or biodiversity; and impacts on a sector of society (e.g. through transfer of pollution to urban areas or increase fuel poverty)</p>	<p>Interaction with existing regulations; Cost of EU ETS compared to other instruments; Environmental/social impacts of trading.</p>

4.2 Expansion to industrial sectors and gases

4.10 For the Review of the Directive, the Commission has stated its desire to look at the feasibility of expanding the Scheme to the following additional industrial activities and gases:

- CO₂ from petrochemicals;
- CO₂ and N₂O fertilisers and ammonia production;
- CO₂ and PFCs from aluminium production;
- CH₄ from coal mining; and
- N₂O from nitric acid production.

4.11 The emissions from these activities are significant and inclusion in the EU ETS could unlock further emissions reductions. The suitability for inclusion of each sector will be assessed against the criteria detailed above.

4.2.1 N₂O from the production of nitric acid

4.12 Inclusion in the EU ETS has the potential to unlock further abatement than would be captured by existing regulations. France, the Netherlands, Belgium and Norway are keen to include this sector in Phase II but have yet to agree a suitable benchmark. Were this sector to be included, the allocation should be on the basis of an EU wide harmonised benchmark, taking into account the potential effects on the carbon market (e.g. oversupply due to cheap abatement).

³⁰ The aim of the IPPC is to prevent or minimise air, water and soil pollution by emissions from industrial installations in the EU. Participating industrial installations are required to obtain a permit to operate and the permits must be based on installation specific best available techniques (BAT).

4.2.2 CH₄ from active coal mines

4.13 Emissions of methane from coal mines is not currently regulated in the EU. Inclusion in the EU ETS could provide an incentive to abate emissions and result in significant reduction across the EU. Were this sector to be included, further work would be required to determine a suitable allocation methodology (which takes into account cheap abatement options); to develop a framework for monitoring, reporting and verification and to ascertain the options for closed coal mines.

4.2.3 CO₂ from petrochemicals production

4.14 EU25 CO₂ emissions falling outside the current scope of the EU ETS from the petrochemicals sector were approximately 0.9% of total emissions in 2003 (45MtCO₂). A significant proportion of these emissions were captured through expansion to crackers in Phase II. However, depending on the definition of the sector, there could be significant uncovered emissions. The majority of emissions from this sector would be captured under a broad definition of a combustion installation. Emissions from the chemicals sector are projected to increase slightly in the short to long term.

4.15 There are reasonable abatement options in the sector (10-20%). This sector is already covered by other legislation (IPPC and Large Combustion Plant Directive) but the effect of these as a driver for emissions reductions is expected to be limited³¹. Inclusion in the EU ETS could incentivise the implementation of abatement techniques and drive emissions reductions within the sector. The petrochemicals sector operates in a globally competitive environment and were they to be included, the allocation methodology would need to take this into account.

4.2.4 CO₂ and N₂O from ammonia and fertiliser production

4.16 The ammonia and fertiliser sectors contribute 0.6% of the EU's CO₂ emissions, a significant proportion equivalent to approximately 30MtCO₂/year and this is projected to increase slightly in the short and long term. In the UK, ammonia and fertiliser plants emit 2-3MtCO₂ annually. There are reasonable abatement options in the sector (~15% for combustion emissions) and although it is covered by other legislation (IPPC and LCP) the effect of these as a driver for emissions reductions is expected to be limited³². Inclusion in the EU ETS could incentivise the implementation of abatement techniques and drive emissions reductions within the ammonia sector. Emissions from fertiliser production are very small and may not be cost effective to include. It is understood that N₂O from the production of fertilisers is related to the production of nitric acid and therefore covered above.

4.17 The majority of emissions from this sector would be captured under a broad definition of a combustion installation. These sectors operate in a globally

³¹ From LETS Update: http://www.environment-agency.gov.uk/business/444217/590750/590838/1294204/1295326/1291719/?version=1&lang=_e

³² From LETS Update

competitive environment and were they to be included, the allocation methodology would need to take this into account.

4.2.5 CO₂ and PFCs from the production of aluminium

4.18 There are 25 primary aluminium smelters in the EU25. In 2003 the sector emitted 8MtCO₂ of which ~6.7MtCO₂ are broad combustion emissions and ~1.3MtCO₂ are process emissions (combined being 0.2% of EU25 total CO₂). The sector is also the largest source of Perfluorocarbons (PFCs), 65% of EU25 PFC emissions, equivalent to 0.09% of EU25 GHG emissions and 4.23MtCO₂eq. Emissions are projected to stabilize in the short term and possibly decrease in the long term as emissions from plants approach BAT (best available technology).

4.19 According to the LETS Update³³, there is CO₂ abatement potential of 5-10% for process emissions and 20% for combustion emissions at installations in the EU through available technology or energy efficiency. Abatement of PFC emissions is limited given existing abatement technology and action taken during the 1990s.

4.20 Over 90% of emissions (from power generation) are already part of the EU ETS (either directly or indirectly). This sector operates in a globally competitive environment and were they to be included, the allocation methodology would need to take this into account. EU industry appreciate that they are carbon intensive and will need to face emission reduction targets and are discussing the development of a global emissions reduction scheme.

4.3 Expansion to non-industrial sectors

4.21 In addition to the industrial sectors detailed above, additional non-industrial sectors could potentially be included in the scheme in the future. Although further analysis is required to give a more definitive view as to the suitability of including these sectors, an initial assessment of issues for the following sectors is given below:

- Surface transport (including road and rail transport);
- Heat;
- Shipping; and
- Agriculture, forestry and land management.

4.3.1 Road transport

4.22 In 2006 the Government committed to engaging with key organisations, the European Commission and other EU Member States to ensure that the potential for future inclusion of emissions from surface transport in the EU ETS were given serious consideration.

4.23 Analysis to date suggests that incorporating surface transport into the EU ETS could result in cost-effective carbon savings. Key issues to consider include the practical feasibility of the system, likely administrative and transaction costs, impact on

³³ See: <http://www.environment-agency.gov.uk/business/444217/590750/590838/1294204/1295326/1291719/?version=1&lang=e>

EU ETS allowance, fuel and electricity prices and the impact of different levels of allocation and different allocation methodologies.

- 4.24 It would be technically feasible to incorporate road transport on the basis of indirect emissions from road transport fuel producers. Unlike road users (the direct emitters) fuel producers are few in number and are suitable entities for regulation. However, this would represent a significant change to the architecture of the scheme, which is currently designed around direct emissions.
- 4.25 In the short to medium term, due to limited abatement options, it is likely that including road transport fuel providers in the scheme with allowances below 'need' would result in them purchasing EU ETS allowances or CDM credits. In the long term, the carbon price in the EU ETS may be sufficient to support the use of renewable energy in road transport and support investment in fuel efficiency technology. The cost of CO₂ abatement in the transport sector may also come down as oil prices rise and production efficiencies are achieved in renewable energy and energy efficiency technology for fuels and vehicles.
- 4.26 Considerable uncertainty remains, however, particularly about the implications on the existing fiscal framework and the potential impact on EU ETS allowance price.

4.3.2 Rail transport

- 4.27 Increased costs for the rail sector, as a result of including rail fuel producers in the scheme, could raise the price of rail relative to other transport modes, potentially leading to modal shift away from rail to road transport. As rail is a relatively efficient mode of transport this could increase overall emissions. For this reason rail is assumed to be a candidate for incorporation in EU ETS only as part of an expansion to the whole surface transport sector.
- 4.28 There is significant abatement potential in the rail industry which a well designed market-based instrument should theoretically uncover. Bringing diesel fuel producers into the scheme appears feasible and would provide an opportunity to treat rail fuel producers in the same way as road fuel producers as well as addressing the current anomaly whereby electric-powered rail is covered by the EU ETS while other surface transport is not.
- 4.29 Any increase in costs to Train Operating Companies could push up the cost to Government in the form of increased subsidy requirements or smaller premiums. However, it could increase incentives to innovate in the franchising process so as to minimise their carbon operating costs..
- 4.30 This cost of technological abatement options within the rail sector is likely to be expensive relative to likely EUA prices. There may also be structural characteristics and informational failures in the rail industry which dampen incentives to reduce energy consumption. It follows that other non-EU ETS policies to encourage efficiency in the rail sector need to be considered whether or not the option of bringing rail into the EU ETS is pursued.

4.3.3 Heat

- 4.31 Some heat emissions (i.e. emissions from some good-quality combined heat and power (CHP) and emissions from large heat-only boilers) are currently captured by the EU ETS, but large amounts are currently outside of the scheme (i.e. emissions from space heating and cooking in the domestic and service sectors).

- 4.32 It would be feasible to apply an EU ETS obligation up-stream by bringing heating fuel producers into the scheme. Fuel producers would be responsible for the carbon content of the fuel that they sell. So a firm that sold a volume of gas that, when combusted, would produce one million tonnes of CO₂, will have to surrender one million allowances.
- 4.33 There appear to be two feasible options for an upstream implementation: (1) a unilateral UK scheme in which the emissions from heat in the UK are brought into the EU ETS; (2) an EU-wide scheme in which emissions from heat in all Member States are brought into the EU ETS. The unilateral UK option would have a modest impact on the carbon price, but there may be a significant carbon price increase under an EU-wide option. The size of the price increase would depend on the initial level of effort required from the EU ETS and the effort required from the heat sector. Both the unilateral UK and EU-wide options result in large increases in the price of heating fuels, which, without compensating measures, could lead to a significant increase in the number of fuel poor.
- 4.34 Bringing heat into the EU ETS would result in some cost-effective abatement (assuming that it resulted in an increase in overall EU ETS effort). To the extent that abatement would not happen within the heat sector – rather heating fuel producers would pay for low-cost abatement in other sectors (e.g. fuel switching in the power sector & CDM credits). The same result (in terms of low-cost abatement) could be achieved through tightening the cap on existing EU ETS sectors. This would avoid the large increases in fuel costs associated with bringing heat into the EU ETS, but would mean that emissions from heat would remain uncapped.

4.3.4 Shipping

- 4.35 Shipping has the lowest emissions of all transport modes relative to transport performance. However, in absolute terms, emissions from shipping are still significant and growing. Estimates of CO₂ emissions from maritime transport range from 1.8% to 3.5% of global emissions (depending on the calculation methodology employed). Furthermore, the sector's emissions are projected to rise significantly and are not subject to other policy measures.
- 4.36 As with aviation, maritime transport is a global industry and as such should ideally be dealt with at a global level. However, this appears unlikely given the lack of support for effective action among Member States of the International Maritime Organisation (IMO). The European Commission stated in 2002 that unless concrete measures were forthcoming from the IMO by 2003 then the EU would consider taking unilateral action. Commission officials have subsequently indicated that a proposal for the incorporation of shipping in the EU ETS is likely by the end of this year.
- 4.37 Research for the Commission suggests that inclusion in the EU ETS would be technically feasible and is likely to be more cost effective than alternative EU instruments considered. Ship operators calling at EU ports could be required to surrender allowances for the CO₂ emissions associated with their voyage. Such a policy would be in line with current moves to extend the scheme to cover the emissions of flights calling at EU airports. Furthermore, it would allow ship operators flexibility in taking measures to reduce emissions (or buying emission allowances). However, the evidence base is at an early stage, and considerable further work is required to assess the overall cost effectiveness of this option, and the relative impacts of different design options.

4.3.5 Agriculture, Forestry and Land Management

4.38 The characteristics of the agriculture, forestry and land management sector make emissions trading more complicated than for other sectors. For example the sector is made up of a large number of small and heterogeneous units, emissions sources are diffuse and often specific to local circumstances, and emissions can vary considerably depending on what boundaries are set (e.g. emissions for dairy cattle are much higher if Nitrous Oxide emissions associated with feed crops and grazing land are included). Such characteristics could make establishing and monitoring compliance within a trading scheme potentially expensive and admin-intensive. These costs need to be weighed against the benefits (i.e. reduced emissions) that would be achieved through a trading scheme.

4.39 Additionally, in order to incorporate a new sector it is necessary to define the point of obligation in the sector (i.e. who is made responsible for the sector's emissions). For agriculture and forestry it is not yet clear how this point of obligation would be defined. Defra has commissioned a study to look at the feasibility of GHG emissions trading for the sector, which will report in August. The study includes looking at some of these complexities and the question of the point of obligation. It seems likely to conclude that a project-based scheme (under which "credits" would be given to enterprises that implement projects to reduce emissions, which can then be traded) is the most promising option, and that this could be a stepping stone to introducing a mandatory scheme in the future. However, at present, it is not feasible to press for the sector's inclusion within the timescale of the current review of the EU ETS Directive.

5 Harmonising the current scope of the scheme

5.1 During implementation of Phases I and II of the scheme two practical issues arose which Member States agree are priorities for resolution going forward. Both relate to Annex I of the Directive and specifically require clarification as to which installations the scheme is aiming to cover and ensuring harmonisation in terms of interpretation of the Directive across all Member States, thus minimising competitive distortions. These two key issues are treatment of small emitters and the definition of combustion installation.

5.1 Small emitters

5.2 Currently, a large number of small emitters fall within the scope of the EU ETS (around 59% of installations in the scheme emit only 2.5% of emissions). This may not be the most efficient means to unlock carbon emissions reduction potential given high transaction costs (per tonne of CO₂ emitted). It may be the case that other mechanisms provide similar incentives for small emitters to reduce emissions at lower cost (e.g. due to lower administrative burden).

5.3 If small emitters are to be removed (either voluntarily or compulsorily) from the EU ETS, it is important to ensure that there would be other measures which would continue to incentivise these installations to reduce emissions (these could either be Member State or EU policies).

5.4 There are three broad options for dealing with small emitters:

Option 1	Option 2	Option 3
Inclusion of an input capacity <i>de minimis</i> rule (3, 5 or 10 MW) for combustion installations .	Increase the aggregate combustion input capacity at a site from 20 MW (to 35 or 50 MW).	Introduce an emissions threshold (e.g. 25Kt CO ₂ per annum) for installations.
Pros		
Would exclude combustion installations that have many small units (e.g. universities and hospitals) and have high MRV costs due to their complexity. Proven to work: a 3MW <i>de minimis</i> rule in the Phase II UK NAP removed 12% of installations (0.3% of UK emissions from the scheme).	Easiest option to apply, as simple to measure the overall site combustion capacity.	Would remove small emitters from all EU ETS sectors.
Cons		
Would not resolve issue for small emitters in other industrial sectors, which have input capacities above these levels, but may have relatively small emissions.	May not exclude all low emitting installations, e.g. high capacity low emitting installations would still be included, which is the case in many industrial sectors.	Would require clear guidance on the application of an emissions threshold. Operators would be required to monitor emissions even though they are not included in the scheme (although it is likely that they will be under an obligation to do this anyway for other purposes).

5.5 Each of these options could be enacted through either a) allowing those installations already in the scheme to apply to opt-out if they meet the small installation definition; or b) revision of Annex 1 to exempt small emitters from the scheme but to maintain the opt-in provision for those installations wishing to continue participating in the scheme.

5.2 Combustion installations

5.6 In Phases I and II Member States have taken a range of interpretations of the definition of a 'combustion installation'. The Commission has approved the use of two such definitions of combustion: 'medium' (all combustion installations that produce electricity, heat or steam, whose purpose is energy production) and 'broad' (all combustion installations that produce electricity, heat or steam, even if their purpose is not energy production).

5.7 These inconsistent interpretations have led to perceived competition issues between Member States in certain sectors, and Member States and the Commission have recognised the need for more consistency in the scope of the scheme for future phases.

5.8 The Commission's further guidance on the development of Phase II National Allocation Plans (NAPs)³⁴ made it clear that the Commission believed the broad interpretation of the definition of a combustion installation to be correct. However, recognising the difficulty many Member States would have in implementing the broad definition for Phase II, in particular the large number of additional small installations it would bring into the scheme (in the absence of any amendment to exempt such installations), the Commission took a pragmatic approach and listed activities with significant emissions that should be included as a minimum in Phase II³⁵.

5.9 The following options for the definition of combustion installations have been considered:

Option 1	Option 2	Option 3
Do nothing	Clarify the definition of combustion installation to be Medium	Clarify the definition of combustion installation to be Broad
Pros		
No additional administrative burden.	<p>Would result in harmonisation across EU reducing competitive distortion.</p> <p>In keeping with UK interpretation of combustion installation in Phases I and II.</p> <p>Would not lead to inclusion of additional small emitters.</p>	<p>Would result in harmonisation across EU reducing competitive distortion.</p> <p>Would lead to simpler MRV for operators as all emissions as a result of combustion on site are included.</p> <p>Would increase the amount of emissions covered by the scheme.</p>
Cons		
Would not provide any level of clarity or achieve harmonisation, competitive distortions as a result of differing interpretations of combustion definition would still remain.	<p>Would result in some installations in Member States that have adopted a broad definition falling out of the scheme.</p> <p>Would not resolve small emitter issue but should be applied along with a <i>de minimis</i> or emission threshold to remove small emitters.</p> <p>Not the Commission's preferred option.</p>	<p>Would require some installations not covered in the scheme in Phases I and II to now be included.</p> <p>Would bring in a number of small emitters, therefore would only be acceptable to UK if brought in alongside a <i>de minimis</i> or emission threshold to remove small emitters.</p>

³⁴ Issued December 2005 see: http://europa.eu.int/comm/environment/climat/pdf/nap_2_guidance_en.pdf

³⁵ Petrochemicals (crackers), offshore flaring, carbon black, rockwool, furnaces, integrated steelworks

5.10 There are two ways in which clarification to either the medium or broad definition could be achieved:

- through wording in Annex 1 to clarify the definition of combustion definition; or
- to replace the definition of a combustion installation in Annex I with specified sector definitions capturing the larger emitters falling within the scope of the current definition (e.g. chemicals, food and drink etc) and excluding small emitters (e.g. hospitals and universities). All CO₂ emissions (whether from process or combustion sources) would be covered at installations covered by the Scheme.

6 Linking to other trading schemes

6.1 The Review of the EU ETS is considering:

- the design of third country emissions trading schemes that are in operation or planned, and the possibility of linking third country schemes with EU ETS;
- whether the Directive's provisions for concluding agreements with ratifying Parties listed in Annex B to the Kyoto Protocol should be extended to cover other arrangements in respect to mandatory emissions trading schemes capping absolute emissions at national or regional level within third countries which have yet to ratify the Protocol; and
- means and arrangements to provide for such extension.

6.2 Linking trading schemes should lower the cost of abatement, by providing a greater range of abatement options. Market liquidity should also improve and volatility should decrease. In addition, certain competitiveness concerns may be addressed when linking to sectoral schemes.

6.3 In addition to the economic benefits, establishing a linked network of trading schemes could also help to solidify climate change mitigation action in the participant countries and regions.

6.4 There are, however, considerations that should be taken into account before linking is undertaken. For example the EU is still learning lessons through implementation of the scheme. In addition a scheme starting out may often have temporary 'transition' measures that will affect the functioning of the market. It could therefore be important that schemes are sufficiently 'mature' before they are linked.

6.5 The existing Directive (Article 25) allows linking to other emissions trading schemes in countries listed in Annex B to the Kyoto Protocol which have ratified the Protocol. This means the EU can currently enter into linking agreements with Canada, Iceland, Japan, Liechtenstein, Monaco, New Zealand, Norway, Russian Federation, Switzerland and The Ukraine.

6.6 Under the current Directive, the EU is **unable** to enter into agreements to link with:

- Annex B countries that have not ratified, e.g. Australia and the USA;
- Non-Annex B countries, e.g. China, India, Brazil, South Korea;
- Non-national Governments, e.g. US and Australian state schemes;
- Non-Governmental schemes, e.g. Chicago Climate Exchange.

6.7 However paragraph 18 of the Linking Directive states that the Commission should examine the possibility of allowing links to Annex B countries that are yet to ratify the Protocol, which offers the potential for links to a national level US or Australian trading scheme, but not the other types of schemes listed above.

6.8 The UK Government's Vision on Emissions Trading states that to bring about emissions reductions at lower cost and more effectively the global carbon market should be made deeper, more liquid and with wider coverage, and that the EU should consider linking with schemes in other countries to develop a truly global carbon market.

6.1 Key considerations surrounding linking

6.9 Linking to other emissions trading schemes carries risks, which may impact on the integrity of existing schemes, including:

- Compromising the confidence and credibility of the linked schemes. This could arise if, for example, the monitoring, verification and reporting procedures are not sufficiently robust;
- Lowering the environmental effectiveness of the linked schemes, by reducing the level of emissions reductions compared with the two separate schemes. This may occur if price caps exist or if boundaries are not well defined;
- Reducing the economic efficiency of the scheme, which could occur if linking induces significant volatility in the allowance price or if linking substantially increases transaction and administration costs.

6.10 It is vital that before schemes agree to link, certain criteria should be carefully considered, in order to minimise the risks that linking may present. Some of these criteria are:

- Mutual recognition of trading units: It is crucial that before linking is agreed, every allowance unit that is allowed to enter every scheme must be mutually recognisable, so as to enable surrendering of allowances for compliance purposes;
- Monitoring, Verification and Reporting of Emissions (MRV): In order to maintain confidence and credibility in the scheme, reported emissions must be sufficiently accurate and verifiable, enforcement must be effective and the integrity of the allowance registry must be ensured;
- Sufficient stringency must be maintained: When two schemes link, allowances should be allocated such that aggregate emissions from the combined scheme should not be greater than the emissions from each scheme separately, and there should be sufficient scarcity in both markets;
- Boundaries must be well defined: If the boundaries of the trading schemes are not well defined, linking may also reduce the level of emissions reductions compared to two separate schemes. To reduce emissions leakage, scope must be complete, emissions reductions should not be counted more than once and the schemes should be mandatory;

- Market Function - Liquidity & Price impact: Any restrictions on market function in one scheme (e.g. a price ceiling or floor) may reduce liquidity in a linking scheme, compromising the goal of least cost allocation of resources. If linking causes large and sudden changes in the carbon price, this may disrupt the market functioning of the scheme;
- Administrative burden: Care must be taken to ensure that linking schemes does not result in an administrative burden that is so high as to outweigh the economic benefits of linking.

6.11 There are also important political considerations which need to be weighed up when considering the review of the Directive.

- International framework: Climate Change is a problem which requires multilateral action. Linking the EU ETS with another trading scheme would help to deliver the emission reductions needed at least cost, and send a powerful message about the ability to take international action. Global Carbon Markets are likely to remain a key part of any future international framework;
- National vs State level schemes: A significant number of the schemes currently under development are state level schemes, for instance: RGGI and the Western American States proposal. National schemes may be able to deliver stronger emissions reductions than State schemes as they may be able to provide stronger political leadership, and greater certainty. However, the EU ETS may still benefit from linking with State level schemes that meet the key criteria, as a first step towards wider (national-level) linking;
- Sectoral schemes: There is a growing interest in the development of sectoral international schemes, in large part to address the problems of international competition and leakage.

6.2 Key choices for linking to other schemes

6.12 Bearing in mind the criteria and political considerations which would inform the suitability of linking the EU ETS to other schemes, there are different options which could be considered for the review of the EU ETS:

Option 1	Option 2
Maintain current text (thereby excluding linking to sub-national schemes and those in Kyoto non-ratifiers).	Amend Directive so that it includes language on necessary scheme criteria, which would enable linking to a wider variety of schemes, whilst being clear about the need to consider the impact of key design issues.
Pros	
Kyoto schemes are expected to provide a level of confidence as regards environmental and economic integrity.	Focuses on key criteria, allowing for a broader range of trading schemes to be linked to, provided the criteria were fulfilled.
Cons	
Current EU ETS Directive is restrictive and would not allow linking with schemes that we might want to engage (e.g. state level schemes in the US), nor does it provide sufficient flexibility given the uncertainty over the future framework or potential future schemes.	Criteria would have to be robust and stringently applied, otherwise the integrity of the EU ETS could suffer.

6.13 A third possible option, to amend the Directive to identify specific schemes or countries for linking, is not considered because of the current uncertainties on the future international framework and the rapid proliferation and development of trading schemes outside the EU.

7 Monitoring, Reporting and Verification (MRV)

7.1 The major objectives of reviewing the provisions for compliance and enforcement set out in the Directive are to increase harmonisation, improve the accuracy and reputation of MRV in the EU ETS, and to ensure that this does not place a disproportionate regulatory burden on scheme participants. Future development of the scheme should also seek to capture the efficiency and record keeping benefits offered by implementing IT systems for all aspects of the MRV process.

7.2 The Commission has asserted that robust compliance and enforcement procedures are important for the good functioning of the scheme, not least in view of linking with schemes in third countries³⁶. This analysis examines the following specific issues and options concerning MRV:

³⁶ November 2006 Communication on the review of the Directive

- Frequency of reporting;
- Legal status of Monitoring and Reporting Guidelines (MRG);
- The arrangements for verification of emissions;
- The arrangements for the accreditation of verifiers;
- Compliance arrangements.

7.3 An additional consideration is whether to extend the MRV process to cover emissions from entire installations. The Directive currently requires MRV to cover emissions only from those units which fall into the scheme. It would make more practical sense, however, to cover emissions from an entire installation, as this would allow for the monitoring of units which may be close to the threshold of being included in the scheme, and would allow the MRV process to easily respond to any changes in scope of the scheme, in terms of including/excluding units on a site below certain thresholds.

7.4 These issues do not represent a radical departure from the current status quo. However as part of the review of MRV and compliance procedures we will also be investigating the feasibility of applying methodologies and technology already employed in the United States, for the monitoring of SO₂ and NO_x cap and trade programs, to the EU ETS³⁷. Key considerations in this work will be the cost of such a departure from the current status quo, implications for linking to other emissions trading schemes and the appetite for such comprehensive reform to MRV in other Member States.

7.1 Frequency of reporting

7.5 At present installations are required to report emissions on an annual basis. An installation has to monitor its emissions for a calendar year and report those emissions by the end of March the following year. The emissions must be verified. Annual reporting only provides the market with one set of data on which to base trading and future trends. This was evident in 2005 when the market varied dramatically once the emissions for the first year of the scheme were released. As the scheme matures and more annual reports are available this effect may diminish. The following options are considered:

³⁷ This joint Environment Agency/Environmental Protection Agency project aims to deliver its final report by September 2007 and will also look to compare proposed MRV systems for RGGI and California's emissions trading scheme. UK contact: Howard Leberman - howard.leberman@environment-agency.gov.uk

Option 1	Option 2	Option 3
Maintain annual reporting with one release of data	Move to a more frequent un-verified reporting framework – on a half yearly or quarterly basis. Still have one verified emissions report at the end of the year.	Maintain annual reporting, but with ‘staged’ release of data e.g. with some Member States’ emissions results released before others, or some sectors’ results before others
Pros		
<p>Maintains current system which has been refined over Phase I.</p> <p>Industry are expressly against changing from the current annual reporting process.</p> <p>Larger companies may already be required to release emissions data outside of their formal EU ETS reporting obligations to comply with financial auditing requirements.</p>	<p>Would improve the frequency of market signals and therefore lead to increased certainty and stability of the price of a tonne of CO₂.</p> <p>Unverified additional reporting would reduce the cost to scheme members.</p>	<p>Staged release of data could ‘trickle’ information into the market and provide signals of emissions in the previous year over a longer period (say a few months rather than just in March).</p> <p>This would relieve the pressure on the verification and reporting process, giving it more time to deliver verified results for the whole EU.</p> <p>Staged release of data by sector could be consistent with a sectoral approach to cap-setting.</p>
Cons		
Annual reporting only provides the market with one set of data on which to base trading and future trends (which could increase likelihood of price ‘shocks’).	<p>Greater administrative burden for the scheme compared to current annual reporting requirement. Particularly for small emitters who do not regularly monitor their emissions.</p> <p>Potential for inaccurate data being released to the market due to unverified reports being formally submitted before being scrutinised by the annual verification process.</p>	<p>Contention in deciding which Member States’ / sectors’ data is released first.</p> <p>Emissions from one sector/Member State would not necessarily give an idea of performance of another, so questionable as to what early emissions signals this approach would provide.</p> <p>Certain sectors/Member States represent a disproportionate share of total EU ETS emissions. Therefore a staged release of emissions might not improve the current situation of one yearly report of significant emissions.</p>

7.2 Legal status of Monitoring and Reporting Guidance

7.6 The Monitoring and Reporting Guidelines (MRG) is an EC Decision providing guidance and interpretation on the EU ETS Directive. The guidance is legally binding, and agreed by all Member States, which must ensure that its requirements are adhered to by operators. It is up to each Member State as to how they implement the guidelines, but the Directive states that where the MRG are not properly enforced the Commission should take action.

7.7 There is benefit in considering removing any discretion that Member States may have to implement the MRG, through incorporating the MRG into EU-wide legislation. The following options are therefore considered:

Option 1	Option 2
Maintain Current system with MRG as an EC Decision and some discretion to interpret by Member States.	Transposition of MRG into an EU-wide regulation.
Pros	
<p>Current system is now in place and understood, with a very low rate of non-verified emissions in Phase I.</p> <p>MRG as an EC Decision will be easier to update in the future than if it were transposed into a regulation.</p>	Possible that Member States would be more inclined to rigorously enforce MRG if it was made into a regulation.
Cons	
<p>With guidance only, there is a continuing risk that monitoring and reporting practices could vary across Member States, potentially undermining confidence in the scheme.</p>	<p>No guarantees that an MRG regulation would be any more likely to be enforced, than in its current status as an EC Decision.</p> <p>Lack of discretion for Member States could result in a 'race to the bottom', where the most flexible (and least stringent) MRG would be agreed, depending on the most 'laissez-faire' Member States' approach.</p> <p>Future amendments to MRG would be a more laborious process – due to the process for amending a regulation.</p>

7.3 Verification options

7.8 The major requirement of the verification process within the EU ETS is for 'competence', which requires the fulfilment of key criteria³⁸. At present there are a variety of different approaches taken by Member States: in some cases this involves a private accredited verifier; in others the competent authority (i.e. the organisation responsible for compliance with the Directive) itself takes responsibility for verification. The review offers an opportunity to harmonise the approach to verification to ensure that it is competent and independent i.e. the verifier is independent of the operator whose emissions are being verified and independent of the competent authority overseeing the scheme as a whole.

³⁸ Specifically, competence requires the verifier to: carry out its activities in a sound and professional manner; understand the EU legislation and requirements; and understand the generation of all information related to each source of emissions in the installation.

7.9 Of 27 Member States we know the status of verification for 17:

- 13 Member States (including the UK): Verification carried out by private verifier independent of operator and the competent authority;
- 2 Member States (Belgium and Spain): Verification carried out by competent authority;
- 2 Member States: Verification carried out by either the competent authority or a private verifier independent of the operator.

Whilst verification is treated as a separate issue, it is vital to consider how the recommendation interacts with any accreditation system for verifiers (discussed in 7.4).

Option 1	Option 2	Option 3
Maintain current system which allows a mix of independent verifiers and competent authorities.	Require verification to be carried out by the competent authority.	Require verification to be carried out by a firm/individual independent of the operator and the competent authority.
Pros		
<p>Allows Member State discretion, according to their own views on the benefits of independent verifiers versus competent authorities and upholds the current status quo.</p> <p>There were few reported instances of non/unverified annual emissions in Phase I.</p>	<p>Advantages of a harmonised approach where the competent authority verifies emissions in all Member States – could underpin confidence in the validity of verification process.</p> <p>Competent authorities do not rely on operators' fees to make a living – and are therefore less likely to take a lenient approach to verification process in order to secure more business for the next calendar year.</p>	<p>Matches the current status quo in the UK.</p> <p>Provides extra 'challenge function' to scheme operators: verifiers scrutinise the operators monitoring and reporting methods, and are in turn scrutinised by the competent authority.</p>
Cons		
Lack of harmonisation across Member States risks undermining confidence in the quality of the verification process.	<p>Competent authority would need to establish specialist expertise – could be costly and difficult compared to allowing several expert independent verifiers.</p> <p>Would need to be 'Chinese walls' between the part of the Competent Authority approving monitoring plans/verified reports, and the part verifying the emissions i.e. competent authority less likely to find fault with its own</p>	<p>Potential for verifiers to be over-disposed in considering the needs of the scheme operator – in order to secure future contracts.</p> <p>Requires trusted accreditation organisation to ensure that high standards are maintained.</p>

³⁹ This was supported in responses to the Issues Paper 30 March: a majority of responses stated the belief that the costs of verification would rise if it was carried out by the competent authority.

	<p>verifiers. Without a guarantee of this there is a danger that the rigor of MRV is undermined by removing one of the checks and balances from the process.</p> <p>Could be more costly to the economy compared to several independent verifiers³⁹: on the one hand could streamline the process and reap economies of scale; on the other, would put several expert independent organisations out of business;</p> <p>Would mark a clear change from the current UK system where private third party verifiers, accredited by UKAS, carry out verification.</p>	
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7.4 Accreditation options

7.10 Many Member States insist that verifiers must be accredited by an accreditation service, to ensure verification is being completed to the appropriate standard. It is important for the accreditation service to be independent to the extent that this is reasonably possible. This should mean independent from industry, from the competent authority and from the verifiers, as all of these actors have a clear interest in the results of the verification process and might therefore not be best placed to police its implementation.

7.11 Member States including Austria, Denmark, France, Finland, the Netherlands Sweden, Spain and the UK, have independent accreditation services. However in Portugal and Austria verifiers sit an exam set by the Competent Authority.

7.12 The EU ETS Directive sets out minimum requirements for verifiers and the European Co-operation for Accreditation (EA) have developed formal standards for the verification process⁴⁰. However not all Member States are members of the European Co-operation for Accreditation and there are concerns that other Member States may adopt less rigorous accreditation requirements.

⁴⁰ EA-6/03 – which sets standards for verification bodies who are responsible for ensuring that their employees are sufficiently qualified to meet standards set out in the document. <http://www.european-accreditation.org/n1/doc/EA-6-03.pdf>

Option 1	Option 2	Option 3
Continue with current hybrid system of accreditation.	Accreditation should be carried out by independent organisation linked to EA.	Harmonise requirement across the EU that accreditation should be carried out by Competent Authority.
Pros		
Allows Member State discretion.	Combines a degree of independence for Member States with a standardisation through membership of the EA. Independent accreditors would mean separation of tasks from the Competent Authority, so no 'Chinese Walls' issues.	Allows a high degree of harmonisation of standards as Competent Authorities are already trusted administrators of the scheme in individual Member States.
Cons		
Too much variability of accreditation standards, potentially harming the integrity of the scheme. Does not allow for verifiers to practice throughout the EU under one common standard.	Would have to ensure strict policing of independent accreditation bodies, to maintain confidence in the accreditation process and compliance with EA standards. Including a peer review process – potentially funded by the EC. Current EA standards would mean that some German and Austrian verifiers could not gain accreditation. It will therefore be difficult to negotiate.	Creates potential need to develop additional accreditation skills in competent authorities. Some competent authorities may carry out verification to a more robust standard than others. This still does not provide for a single common standard for accreditation.

7.13 It is clear that, to maximise the strength of the accreditation process, there should be a compulsory set of standards to ensure that accreditation across the EU is appropriate. A sensible approach would be for the Commission to take a strategic position and oversee the accreditation carried out by each national accreditation service. This would ensure harmonisation across Member States and also retain the knowledge and experience of the national accreditation bodies. This should also require that all Member States are members of the EA. An independent accreditation organisation is preferable to a system administered by the Competent Authority as it provides for an additional actor scrutinising the work of verifiers (the competent authority already do this by reviewing verified emissions reports).

7.14 It is possible that a competent authority could comply with standards set by the EA and thus continue to accredit verifiers – this would allow Member States such as Portugal to continue with their current systems providing they met agreed standards.

7.5 Compliance arrangements

7.15 Harmonisation of civil penalties/enforcement: Over the course of Phase I there has been flexibility in the administering of civil penalties (required by the Directive if an installation is deemed to be non-compliant). A number of Member States have not strictly enforced the compliance rules or issued civil penalties in the very first year of Phase I, treating it instead as a “learning by doing” period.

7.16 There should be no room for a lenient approach for the remaining years in Phase I or future phases of the scheme. The Directive states that Member States shall take all measures necessary to ensure that its rules are implemented. The penalties provided for must be effective, proportionate and dissuasive. This expression is fairly standard in many European Directives and is therefore well understood by Member States. The UK regards the enforcement of civil penalties as being fundamental to the success of the scheme.

7.17 Following the 2005 compliance period the UK has completed its investigation into installations which are non-compliant and issued civil penalties against 4 installations. Across the EU a total of 63 installations were deemed to be non-compliant, although the UK is the only Member State to have issued civil penalties so far⁴¹.

7.18 In looking to improve the compliance system it is worth considering the following three options:

Option 1	Option 2	Option 3
Maintain current system which allows Member States autonomy in their compliance measures	Harmonise compliance provisions across all Member States	A high level guidance note outlining key instances of non-compliance could be prepared by the Commission
Pros		
Allows Member State discretion, and consistency with their national legislative framework.	Would ensure all installations are treated the same in every Member State.	Would focus the attention of Member States and the Commission on key instances of non-compliance, and be a step forward in harmonisation compared to the current system.
Cons		
Lack of harmonisation (and variance in severity of penalties across Member States) risks undermining confidence in the stringency of the scheme, and could create an unfair playing field for installations across the EU.	The setting of civil and criminal penalties has so far been considered an issue for Member States. Any attempt to harmonise penalties would raise questions of Community competence.	Guidance in itself is non-binding.

⁴¹ Application of the emissions trading directive by EU Member States – ‘Article 21 Report’ European Environment Agency 2006.

7.19 Fine per tonne of CO₂: Article 16 of the Directive also states that operators surrendering insufficient amounts of allowances at the end of an emissions year will be fined per tonne of CO₂ as well as receiving fewer allowances the following year. Fines are set at €40 per tonne CO₂ for Phase 1 and €100 for Phase II. For Phase III these figures must be reviewed. One way of reviewing the fine could be to link it automatically to inflation.