

EU EMISSIONS TRADING SCHEME PHASE II (2008-2012)

ALLOCATION METHODOLOGY

**Full Regulatory Impact Assessment
February 2007**

- 1. TITLE OF PROPOSAL**
- 2. PURPOSE AND INTENDED EFFECT**
 - 2.1 Objective
 - 2.2 Background
- 3. CONSULTATION**
 - 3.1 Within Government and the Devolved Administrations
 - 3.2 Public consultation
- 4. OPTIONS**
- 5. BENEFITS, COSTS AND RISKS**
 - 5.1 Overall allocation methodology approach
 - 5.2 Classification of installations into sectors
 - 5.3 Setting the sector caps
 - 5.4 Installation level allocations within sectors
 - 5.5 Definition of the Large Electricity Producers sector
 - 5.6 Treatment of Combined Heat and Power
- 6. SMALL FIRMS' IMPACT TEST**
- 7. COMPETITION ASSESSMENT**
- 8. ENFORCEMENT, SANCTIONS AND MONITORING**
- 9. IMPLEMENTATION AND DELIVERY PLAN**
- 10. POST IMPLEMENTATION REVIEW**
- 11. SUMMARY AND RECOMMENDATIONS**
- 12. DECLARATION**

1. TITLE OF PROPOSAL

1.1. Options for changes to the method for allocating allowances to incumbent (i.e. existing) installations for Phase II of the EU Emissions Trading Scheme (EU ETS). A separate RIA covers the treatment of New Entrants in Phase II.

2. PURPOSE AND INTENDED EFFECT

2.1. Objectives

2.1.1. The Government's specific aims for Phase II of the EU ETS are to:

- Learn lessons from Phase I and address any anomalies or gaps that may have arisen from implementation in the first phase;
- Create as level a playing field as possible for industry through harmonisation with other Member States;
- Look at the scope to include further CO₂ emissions from existing sectors; and
- Reduce the burden on small emitters.

2.1.2. The Government¹ considers that the allocation methodology should be:

- straightforward to apply (in order to minimise the burden on UK firms and Government);
- easy to understand;
- robust and defensible (and any definitions used must be objective);
- feasible within the timetable (especially for data availability);
- transparent (to improve regulation);
- minimises competitive distortions (to improve regulation);
- Consistent with the Directive;
- Consistent with other approaches set out in the NAP (e.g. treatment of new entrants, etc);
- can be utilised in future phases; and
- does not create a disincentive for emissions reductions during Phase I.

¹ The EU ETS is a devolved matter, so when the term Government is used in the RIA, it covers the UK Government and the devolved administrations of Scotland, Wales and Northern Ireland.

2.1.3. For sector classification, the Government set out the following criteria which were published as part of its consultation on options:

- the methodology must be robust and defensible;
- the definitions used to classify installations should be objective;
- the classification must be transparent, easy to apply and to understand;
- the approach must be consistent with the ETS Directive;
- the approach should be consistent with other member states as far as possible;
- the classification should fit with other elements of the EU ETS, including grandfathering allocation methodology, or benchmarking for specific sectors; and
- the classification should not cause competitive distortions and should treat similar installations the same.

2.1.4. These represent clear criteria that have been used to assess the options for the allocation methodology and sector classification in Phase II, to inform the analysis of the economic, social and environmental impacts of the policy decisions.

2.1.5. It is estimated that the value of allowances to be allocated to incumbent installations for Phase II could be in the range €5.9 billion to €47.4 billion². All options considered in this RIA concern the **distribution** of total UK allowances – they do not have implications for the total number of UK allowances. The total number of UK allowances is considered in a separate RIA, and determines the environmental impact of the scheme.

2.1.6. All the benefits, costs and risks associated with all options that will be considered in this RIA result from distributional impacts only. Therefore the most important economic, social and environmental effects to consider are those on administrative costs to the Government, the costs and availability of goods produced by installations covered by the EU ETS, security of energy supply, impacts on levels of competition within affected sectors, investment and employment behaviour of UK firms within affected sectors due to effects on competition, effects on consumers and incentives for clean technologies. Within this it is important to consider the impacts of distribution of allowances on regions of the UK, devolved countries, and rural communities.

² Based on an allowance price of €5 - €40 per tonne of CO₂ and a final total UK cap within a range that represents an annual reduction of 8MtC against projected business as usual emissions.

2.1.7. Emissions trading gives industry a clear incentive to reduce carbon emissions, whilst enabling it to do so at least cost. The Government considers EU ETS measures in a way that is consistent with the principles of better regulation and will look to achieve its objectives with the minimum additional regulatory burden, taking on board the work of the Better Regulation Commission (previously the Better Regulation Task Force). Evaluations of individual policies will also consider options for simplifying the regulatory landscape as well as ideas for reducing administrative burdens.

2.2. Background - The EU ETS

2.2.1. The Emissions Trading Scheme (EU ETS) is a Community-wide scheme established by Directive 2003/87/EC³ (“the Directive”). The first phase (Phase I) commenced on 1 January 2005 and runs until 31 December 2007 and the second phase (Phase II) runs from 2008-2012. This RIA relates to Phase II of the Scheme. The EU ETS is a crucial element of the EU’s overall strategy for meeting its greenhouse gas emissions reduction target under the Kyoto Protocol⁴. The EU ETS is central to the UK’s long-term policy to reduce CO₂ emissions.

2.2.2. The scheme covers electricity generation and the main energy intensive industries - power stations, refineries and offshore, iron and steel, cement, lime, glass, chemicals, paper, food and drink, ceramics, and engineering and vehicles. Overall, these account for around 50% of UK CO₂ emissions. Expansion of the scheme into other activities for Phase II is considered in a separate RIA.

³ Directive 2003/87/EC http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/l_275/l_27520031025en00320046.pdf

⁴ More information on the EU ETS can be found at the Defra web site <http://www.defra.gov.uk/environment/climatechange/trading/eu/index.htm>

2.2.3. The EU ETS works on a “cap and trade” basis. EU Member State governments are required to set emissions limits for all installations in their country covered by the scheme. Each installation is then allocated allowances equal to that cap for each phase in question. The allocation of allowances for each phase is set out in each Member State’s National Allocation Plan. Installations may meet their individual cap by either reducing emissions below their cap and selling the surplus, or emitting more than their cap and buying allowances from other participants in the EU-wide emissions market to meet their cap. Trading allows lowest cost reductions to take place where they are least costly and therefore represents an efficient solution to the problem of environmental externalities. It also provides clear incentives for investment in energy efficiency and cleaner technology.

Simplification and Better Regulation

2.2.4 As noted in paragraph 2.1.7 above, the policy-making process reflects the Government’s commitment to the Better Regulation Agenda and offsetting simplification measures have been considered throughout the development of policy options.

2.2.5 The Government has, wherever possible, sought to streamline the existing scheme and simplify the methods of distributing allowances to both existing and new installations. Although this RIA contains a number of complex policy options, it should be noted that these would not result in additional complexity for existing operators in terms of compliance. The options reflect Government’s consideration of the most appropriate methods to distribute allowances (and therefore high value financial assets) in the most equitable way.

2.2.6 The Government is proposing to use a similar data baseline to Phase I in order to calculate allocations for Phase II incumbent (i.e. existing) installations. This means that the majority of operators will not need to provide additional data, thus reducing the regulatory burden on them.

3. CONSULTATION

3.1. Within Government and the Devolved Administrations

3.1.1. The overarching Phase II RIA contains details of consultation within Government and the Devolved Administrations.

3.2. Public Consultation

3.2.1. The July 2005 consultation document on Phase II issues sought views on allocation methodology. Alongside this process, individual sector meetings were held with industry associations to explore their views on allocation methodology.

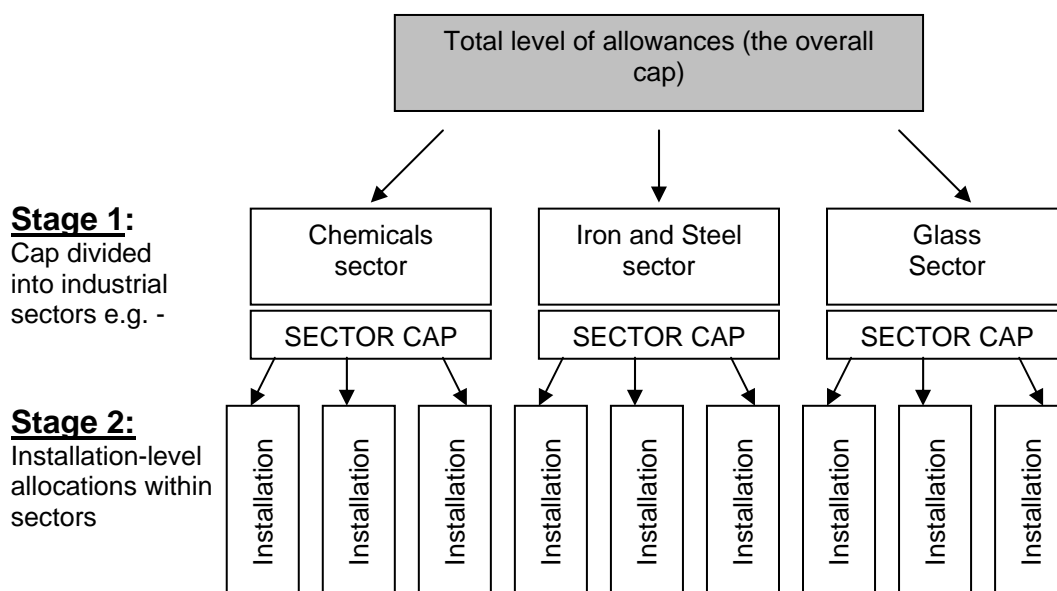
3.2.2. For further details on public consultation and stakeholder engagement in developing Phase II policy, please see the overarching RIA.

4. OPTIONS

4.1. DECISION 1 OVERALL ALLOCATION METHODOLOGY APPROACH

4.1.1. In Phase I, the distribution of the total number of allowances (the UK Cap) was based on a two-stage process as shown in Figure 1 below. The overall Cap was first distributed amongst sectors. Except for the power stations sector, sector caps were calculated according to projected business as usual (BAU) emissions⁵. Allowances were deducted from sector caps to fund the New Entrant Reserve; remaining allowances were then distributed amongst installations in sectors based on historic emissions.

Figure 1: Allocation methodology approach for Phase I



4.1.2. The other high-level option for the overall allocation methodology approach for Phase II is a one-stage methodology where all installations

⁵ Allocations for the power stations sector were based on the difference between the total UK Cap and the projected BAU emissions for all other sectors covered by the EU ETS

are effectively in one sector, so the UK cap is allocated directly to installations.

Option 1 Retain Phase I two-stage methodology

Option 2 One-stage methodology

4.2. DECISION 2 CLASSIFICATION OF INSTALLATIONS INTO SECTORS

4.2.1. The Directive sets out 11 activities that must be covered by the Scheme. In Phase I, the Government placed installations into 51 sectors. The majority of installations (around three quarters) were captured under the Directive activity of “combustion installation”, with 31 sectors falling under this one activity type. The creation of a larger number of sectors than the number of activities set out in the Directive was intended to take account of the modelling of sectors for the Updated Energy Projections (UEP), the Directive activities, and the relevant Climate Change Agreements (CCAs) to which installations were committed⁶.

4.2.2. The Government has considered four options for sector classification in Phase II:

Option 1 Retain Phase I sector classification

Option 2 Classify “combustion installations” into sectors better aligned with UEP sectors and non-combustion installations into sectors that match Directive activities

Option 3 Classify combustion installations to increase alignment with UEP sectors, but retain a large undifferentiated [an “other”] sector which contains installations with differences in technology, product or service

Option 4 Classify installations as Option 2, and use interpretation of correlations between Phase I sector emissions, aggregated sector emissions and output data to identify separate sectors where appropriate

⁶ Installations subject to CCAs could apply to be temporarily excluded from the EU ETS in Phase I.

4.3. DECISION 3 SETTING THE SECTOR CAPS

4.3.1. For Phase I, all sector-level allocations, other than for the power stations sector, were equal to projected BAU emissions. The power stations sector⁷ was allocated the difference between the total UK cap and the projected BAU emissions for all other sectors covered by the EU ETS.

4.3.2. The Government has reconsidered the options for setting sector caps for Phase II:

Option 1 Retain Phase I approach (all sectors apart from the Large Electricity Producers sector get allocations equal to projected BAU emissions)

Option 2 All sectors share the burden of reduced allocations below projected BAU emissions

Option 3 Sectors that compete in mainly UK markets should share the burden of reduced allocations below projected BAU emissions

4.4. DECISION 4 INSTALLATION LEVEL ALLOCATIONS WITHIN SECTORS

4.4.1. In Phase I, each installation received a percentage share of the sector's available allowances according to its percentage share of the total relevant emissions in its sector. "Relevant emissions" were defined as average annual historic emissions from 1998 to 2003, dropping the minimum year of emissions.

4.4.2. It should be noted that the options for allocation methodology do not affect the calculation of the total allowances available to a sector. Each option simply provides a different way of ranking sites within a sector, as a basis for distributing allowances within the sector.

⁷ Called the Large Electricity Producers (LEP) sector in Phase II.

4.4.3. The Government has considered a wide range of installation level allocation methodologies for Phase II, including:

Option 1 Retain Phase I methodology (historic emissions data)

Option 2 Historic output/capacity

Option 3 Benchmarking

Option 4 Installation-level projections using any metric (emissions, input, output)

Option 5 Marginal abatement cost

4.5. DECISION 5 DEFINITION OF THE LARGE ELECTRICITY PRODUCERS SECTOR⁸

4.5.1. The Government has considered the definition of the Large Electricity Producers (LEP) sector for Phase II. The definition of this sector is particularly important as its Phase I sector cap was set to cover the difference between the total UK cap and the projected emissions for all other sectors covered by the EU ETS (see paragraph 4.1.1). In addition, this sector will also be subject to a benchmarking methodology in Phase II. This RIA sets out the options that are relevant to incumbent installations, although they may have an effect on new entrants to the sector.

4.5.2. In Phase I, the definition of the power stations sector was based on where large generators were modelled in the DTI Updated Energy Projections (UEP), which is in turn based on DUKES (Digest of UK Energy Statistics).

4.5.3. The Government has considered the following options for defining the LEP sector for Phase II:

Option 1 Retain Phase I classification

Option 2 Electricity Generators with a planning consent

Option 3 Electricity generators with electricity generation licences

Option 4 Electricity generators connected to the transmission network and listed in the National Grid's Seven Year Statement

Option 5 Electricity generators that export a certain proportion of the electricity they produce to the national or local distribution network

⁸ Known as the power stations sector in Phase I.

4.6. DECISION 6: TREATMENT OF COMBINED HEAT AND POWER (CHP)

4.6.1. Government has considered how to treat installations that have installed Good Quality CHP (GQ CHP)⁹ in Phase II. In Phase I the presence (or absence) of GQ CHP capacity at an installation was not considered explicitly in the sector classification nor allocation methodology. Some CHP operators have argued for different treatment for CHP installations, including using a different allocation methodology. The Government commissioned research to examine the impact of the Phase I allocation methodology on CHP¹⁰.

4.6.2. This RIA sets out the options that are relevant to incumbent GQ CHP installations, although they may have an effect on new entrants.

Decision 6a: GQ CHP classification

Option 1 Retain Phase I approach (do not create a GQ CHP sector)

Option 2 Create a GQ CHP sector

Decision 6b: Allocation methodology for GQ CHP

4.6.3. As noted in Paragraph 4.4.3, allocation methodology options do not affect the calculation of the total allowances available to a sector. Each option simply provides a different way of ranking sites within a sector, on which the distribution of allowances in a sector can be based.

⁹ Good Quality CHP is CHP that has been certified under the UK's CHP Quality Assurance programme. This programme helps Government to accurately identify CHP in the UK.

¹⁰ This report is available at

<http://www.defra.gov.uk/environment/climatechange/trading/eu/pdf/euetsphase2-treatmentchp.pdf>.

4.6.4. Government has considered the allocation methodology for CHP in Phase II. Should a separate sector be created or not, as, due to the nature of CHP, different options are available. They are:

Option 1 Retain Phase I approach (historic emissions¹¹)

Option 2 Capacity based benchmark

Option 3 Combined benchmark (based on separate generation of heat and power)

5. BENEFITS, COSTS AND RISKS

5.1 DECISION 1: OVERALL ALLOCATION METHODOLOGY APPROACH

Option 1 Retain Phase I two-stage methodology

Benefits

5.1.1 Retaining a two-stage methodology for Phase II would allow for more accurate determination of installation-level needs (either 'business as usual' or 'business as usual minus effort level') where there are differing growth projections and circumstances between sectors. If sectors with different emissions growth rates are placed together, it is more difficult to accurately predict future need. For example, if a sector with emissions increasing from an historic baseline is placed with other sectors where overall emissions are decreasing, this creates an overall cap with decreasing emissions. If allowances are then allocated according to shares of historic emissions, the sector with increasing emissions would receive less allowances related to need (or need minus the cap effort level) than the other sectors. This may create competitive distortions.

5.1.2 It also allows for sector caps to be set while taking into account factors such as international competition, abilities to pass through costs, sector-specific legislation, etc. Some sectors might be more able to take a cut in allowances rather than others.

¹¹ Good Quality CHP data from the CHPQA programme is only available for 2001-2003.

5.1.3 It allows for the use of different allocation methodologies in different sectors. It is also well understood by companies because it was used in Phase I so provides continuity for business. In addition, changes to the allocation of any one installation only requires amendments to the installation-level allocations of installations in the same sector.

Costs and risks

5.1.4 Option 1 may be complex for Government to initially distribute allowances to sectors and therefore more time-consuming and difficult to implement than option 2, although this must be weighed against cost to industry of potentially less accurate allocation.

5.1.5 It allows for differential treatment of sectors and therefore may have competitive implications and may impact on the efficiency of the scheme (e.g. some sectors may be able to face the burden of emissions reductions as well as others but this may not be accurately reflected in Option 1). In addition, it is not as transparent as a one-stage methodology and may be difficult to understand.

Option 2 One-stage methodology

Benefits

5.1.6 Option 2 is straightforward to initially divide the total amongst all UK installations and therefore easy for Government to implement. There would be administrative savings for Government as it would not be necessary to create separate sectors and consider different methodologies and treatment. There are administrative savings for installations in not having to get involved in this process e.g. the process of developing a sector specific benchmark can be resource intensive.

5.1.7 It may provide equity across installations, depending on the details of methodology used – e.g. compliance factors could be applied to different types of installation which would bring equity into question. It may be a transparent and easily understood methodology, depending on the details of the methodology used

Costs and risks

- 5.1.8 Option 2 could introduce competitive distortions between sectors, where sectors with competing products but different growth rates are put in the same sector (see paragraph 5.1.1 above). It does not allow factors that affect specific sectors to be taken into account e.g. differential growth rates, etc and so may have competitive implications and may impact on the efficiency of the scheme (e.g. some sectors may be able to face the burden of emissions reductions better than others but it would be difficult to reflect this with Option 2).
- 5.1.9 Changes to the allocation of any one installation require consequential amendments to all installation-level allocations therefore it is time-consuming to amend any details, even small errors.

5.2 DECISION 2 CLASSIFICATION OF INSTALLATIONS INTO SECTORS

- 5.2.1 The two-stage methodology set out in paragraphs 5.1.1 to 5.1.5 above necessitates grouping installations into sectors and projecting their emissions in order to derive sector caps.
- 5.2.2 As it is not possible to project emissions on a site-by-site basis, some level of aggregation is needed for Phase II. In deciding the appropriate level of aggregation, the Government has sought to strike a balance between the objectives of administrative simplicity and transparency and minimising competitive distortions.
- 5.2.3 Competitive distortions could arise where the projected emissions trends of industries in the same sector diverge significantly; or where the emissions of a sub-sector dominates the remainder in the sector such that any changes to its projections significantly affect the allocations to others.
- 5.2.4 Where an industry sub-sector shows a similar trend in its emissions projections to the average trend of a more aggregate industrial group, combining that industry into the aggregated sector should not excessively impact on the allowances its installations will receive, compared with their allocations if they constituted a separate sector.

- 5.2.5 If sectors are aggregated at too high a level - for example if there are only one or two sectors – competitive distortions could arise. Where an industry is growing at a lower rate from the overall sector it is in, the industry will account for a greater proportion of the total sector emissions calculated by its past emissions than calculated by its projected emissions. This would lead to the redistribution of allowances (cross-subsidisation) from installations in growing industries to installations in declining industries, as individual installations' share of the sector cap are calculated by reference to their historic emissions.
- 5.2.6 The Government commissioned a consultancy report to examine sector classification for Phase II and forms the basis for some of the options set out here¹². **Appendix A** to this RIA sets out comparisons of the options by showing the changes in allocations that would result if allowances were pooled for each new, aggregated sector, then distributed among the incumbents in the same way as in Phase I. It is important to note that these figures have been produced for illustrative purposes and should not be taken as an indication of allocations for Phase II – they are based on Phase I baselines and relevant emissions. The key input data may be different in Phase II.

Option 1 (Phase I approach)

Benefits

- 5.2.7 In Phase I, the UK placed installations into 51 sectors. The majority of installations came within the Directive activity of “combustion installation and 31 sectors fell within this one activity type. This approach leads to considerable differentiation, which could allow for more accurate account to be taken of differences between sectors to ensure that installations are treated fairly – e.g. growth rates, exposure to international competition, etc. A key factor that led to the differentiation was the use of Climate Change Agreement (CCAs) targets to determine projections and to provide a basis for temporary exclusion for some installations. CCAs are made with relatively small sectors; hence the smaller sectors in Phase I of the EU ETS. Using such a large number of sectors would also provide continuity for business from Phase I.

¹² This report is available at <http://www.defra.gov.uk/environment/climatechange/trading/eu/pdf/phase2-final.pdf>.

Costs and risks

- 5.2.8 Classification along CCA lines would not be appropriate for Phase II as temporary exclusion is not available in Phase II, and Phase II covers 3 CCA milestone periods which means that the agreements will not be used for emissions projections. Changes to sector classification will be needed as the scope of EU ETS will change in Phase II. The methodology for Phase I was complex and difficult to understand. It was out of line with other Member States – most had fewer sectors – potentially creating competitive distortions within the EU, and also out of line with Directive activities.
- 5.2.9 While it might seem more likely that more accurate projections would be produced at sub-sector level, the practice of Phase I showed that it is difficult to apply sector growth rates and determine robust emissions growth rates where there is only a small number of installations within sector, increasing the likelihood that sector caps may not be accurate. It is also difficult to apply general rules to small sectors creating costs for industry – e.g. deductions for new entrants may seem relatively high or may be difficult to justify. In Phase I, some installations received far less than their historic emissions because of the way that general rules interacted with sector classification.
- 5.2.10 This approach increases the risk of treating similar installations differently creating competitive distortions. It also increases the risk of classifying installations in wrong sectors (and therefore dissatisfaction with allocations which may be inaccurate creating costs for the installation).

Option 2 (Directive and UEP)

Benefits

- 5.2.11 The sector definitions are closer to Directive activities than Option 1. It is straightforward and administratively simple to apply. It is more consistent with most other Member State approaches than Option 1.
- 5.2.12 Certain combined sectors' emissions are closer to UEP projections and average sector growth rates are more accurate when applied to larger groups. Larger sectors make it less likely that similar installations will be treated differently.

Costs and risks

5.2.13 It may be less transparent to have fewer sectors and may be difficult to verify/consult on larger sector growth rates. It would be difficult to take account of differences between sectors making sector caps less accurately aligned with need and creating costs for installations in these sectors – e.g. growth rates, exposure to international competition, etc.

Option 3 (large “other” sector)

Benefits

5.2.14 The sector definitions would be closer to Directive activities than Option 1. It is straightforward and administratively simple to apply. It is more consistent with most other Member State approaches than Option 1. It fits with UEP projections. Larger sectors make it less likely that similar installations will be treated differently.

Costs and risks

5.2.15 The “other” sector would contain installations with differences in technology, product or service, which may warrant further disaggregation. In addition, sub-sectors may feel overall sector growth rates do not apply to them – esp. growing sectors could lose out from being classified with sectors in decline.

Option 4 (Directive and UEP with some disaggregation)

Benefits

5.2.16 This option would allow greater consideration of key differences between sectors; and consideration of different emissions growth rates and sector caps, creating more accurate sector caps and avoiding potential costs. Emissions projections are available for most disaggregated sectors. It would allow for different allocation methodologies for different sectors where this would be appropriate (e.g. some sub-sectors may be more suitable for benchmarking than large sectors).

Costs and risks

5.2.17 This option would be more administratively complex as there is more disaggregation than Option 2 and 3. It would be less straightforward to apply and difficult to determine criteria and thresholds to set appropriate level of disaggregation. There would be more uncertainty as to which sector an installation fell under – especially where there is a range of technologies with different functions.

5.2.18 It would be less consistent with other Member States than Options 2 and 3. It would also be difficult to apply sector growth rates and determine robust projections where there are only a small number of installations within a sector. It may treat similar sectors differently.

5.3 DECISION 3 SETTING THE SECTOR CAPS

5.3.1 The level of the overall quantity of allowances to be allocated in the UK for Phase II represents an annual reduction of 29.3 million tonnes of CO₂ against projected business as usual (BAU) emissions for the phase¹³.

5.3.2 In considering the ability of individual sectors to take on a reduction in allocation below BAU, the Government has taken into account the following criteria:

- The extent to which a sector can pass on the costs of reducing emissions, if allocations are set below BAU;
- The extent to which it is technically and economically feasible to make reductions below BAU in a sector (i.e. ability to abate)¹⁴; and
- The extent to which the level of the sector cap impacts on incentives for new investment that are important to maintain security of energy supply, or impacts on the competitiveness of the UK as a destination for investment in any sector (minimise distortions in costs and prices).

¹³ This is the subject of a separate RIA.

¹⁴ See: <http://www.defra.gov.uk/environment/climatechange/trading/eu/pdf/abate-opportunity.pdf>

- 5.3.3 The extent to which industry can pass on the costs of EU ETS is limited if it operates in a market where competitors supply the same products but do not face the same EU ETS costs, or compete from outside the EU (particularly from non-Kyoto countries such as the US, China and India), and where the increase in costs arising from the EU ETS is sufficient to alter import/export decisions for these products. The ability to pass on costs is also limited if there are substitute products in the market that do not face EU ETS costs.
- 5.3.4 If the EU ETS operators compete in markets that are characterised by competition that limits their ability to pass on the EU ETS costs, then imposing reductions in allocations below BAU is likely to result in these operators becoming less competitive and losing market share. These sectors would have to absorb any costs of EU ETS (causing lower profits) to maintain market share, unless there is abatement potential. Restrictions on a sector's allocations might have a limited impact on competitiveness if it has significant abatement potential which is cost effective and achievable by 2012, such that a cut in allocation can be absorbed by making savings, rather than by purchasing additional allowances.
- 5.3.5 The energy intensity of sectors is also important. Sectors that are highly energy intensive (i.e. high electricity consumers) are also vulnerable to increasing production costs arising from the EU ETS as they face electricity price increases as a result of the scheme, as well as, potentially, the direct cost of allowances. Those with low energy intensity do not face such pressure on their cost base.

Option 1 Retain Phase I approach so that all sectors apart from the LEP sector get allocations equal to projected BAU emissions

Benefits

- 5.3.6 This option is efficient as it places the burden of emissions reductions where they are least costly to achieve. The LEP sector is considered to be the sector most able to manage reductions below business as usual without compromising its competitiveness, for the following reasons:
- it can be expected to pass on the costs of the EU ETS without substantially impacting its competitive position and to a great extent regardless of how many free allowances the sector is allocated. The sector faces little competition from abroad and almost all suppliers of electricity will continue to be UK based in the 2008-12 period. There is evidence that the LEP sector is already passing through some of the costs of the EU ETS – there is almost full pass through to wholesale electricity prices and more limited pass through to industrial and domestic electricity prices;

- it does not face additional indirect costs of the EU ETS that impact on its competitive position, as the homogeneous product it supplies is not 'electricity intensive' to produce;
- it has the most abatement potential of all sectors covered by the EU ETS. It has been estimated¹⁵ that the LEP sector has an abatement potential of up to 12.8 million tonnes of CO₂ in 2010, depending on carbon price and relative fuel prices assumptions. Further details of abatement potential can be found in Appendix B.

5.3.7 Option 1 would have no differential impact on electricity prices compared to Option 2. Where a generator needs an allowance to emit CO₂ by producing electricity, the generator will try and pass on the cost of the allowance into electricity prices, regardless of whether it has actually paid for the allowance. This is because this allowance has an "opportunity cost" – the generator could decide not to emit the extra carbon dioxide and simply sell the allowance for its market price. The Government therefore expects that electricity generators will include the cost of allowances in wholesale electricity prices – whether that cost is an implicit one (an "opportunity cost" as set out above) because of being issued a number of free allowances or an actual one because the sector is issued fewer allowances or all allowances are auctioned.

5.3.8 Other sectors are less able to pass on the cost of carbon because they face more competition from abroad and the price elasticity of demand for their products are higher. The abatement potential for industry is very limited compared to the LEP (see Appendix B for further details). This option therefore minimises the competitive distortions in the UK economy. It would also provide continuity for business from Phase I to II.

Costs and risks

5.3.9 Option 1 may be viewed as an inequitable approach as the burden is placed on one sector only. There is a direct cost for the LEP sector of having to purchase allowances to cover its shortfall. Assuming a carbon price of €5 - €40, if the LEP sector were to purchase the entire shortfall then it could incur costs of £61 - £488 million per year. However, in practice the sector will be able to meet some of this shortfall through abatement.

5.3.10 The impact on future investment is uncertain but a cut in free allowances is unlikely to have a significant impact. Analysis by independent consultants suggests that investment in new capacity is more likely to be affected by policy on the new entrant reserve than incumbent allowances, but is most sensitive to electricity prices.

¹⁵ DTI Updated Energy Projections

Option 2 All sectors share the burden of reduced allocations below projected BAU emissions

Benefits

5.3.11 Option 2 may be viewed as fair to distribute the burden of emissions reductions widely so that they all face direct costs and therefore no sectors get relatively better treatment and competitive implications are not placed on one sector

Costs and risks

5.3.12 Option 2 would impact on the competitive position of those industries that are subject to international competition, such as Aluminium, Pulp & Paper and Ceramics, as their ability to pass on the additional costs of purchasing allowances would be restricted and the abatement potential of industry is limited. Sectors that are highly energy intensive (i.e. high electricity consumers) are also be vulnerable to increasing production costs from the EU ETS as they face both electricity price increases as a result of the scheme and the direct cost of allowances. More detail is set out in Appendix B.

5.3.13 Some industrial sectors face a high price elasticity of demand for their products – so any attempt to pass the cost of carbon (and higher electricity prices from EU ETS) may lead to a loss in profits or market share and therefore impact on UK competitiveness, employment, and GDP. Industrial sectors also tend to be more heterogeneous (e.g. in terms of competition structure and electricity demand). Differential treatment of these sectors under the EU ETS is therefore very difficult to implement.

Option 3 Sectors that compete in mainly UK markets should share the burden of reduced allocations below projected BAU emissions

5.3.14 Industries that compete mainly in UK markets are cement; bricks and construction products; LEP; food, beverages & tobacco; and downstream gas (see Table B1 in Appendix B).

Benefits

5.3.15 This option would place the burden of emissions reductions on those industries that face the least competition from outside the UK and so should be able to pass on the costs of the EU ETS without substantially impacting their competitive position.

Costs and risks

5.3.16 Although there appears to be little non-UK competition in the cement and bricks/construction products industries at present, their electricity expenditure is more than 20% of the value added. Imposing a requirement to purchase allowances for such energy intensive sectors should be considered in the context of increasing energy costs. It is also possible that there is potential for an increase in import penetration, even though there is little non-UK competition currently. Abatement potential in the cement sector is around 20KtCO₂ per annum. This represents only 0.5% saving on the sector's total direct emissions.

5.3.17 The Food, Drink and Tobacco industries, at a high level, have low energy intensity and are not exposed to international competition. However, this sector comprises of a mixture of industries that face diverse competition and energy intensity structures. For example, the manufacture of malt is highly energy intensive, while whisky is highly tradable. Differential treatment of this sector under EU ETS would be very difficult to implement.

5.3.18 The Downstream Gas sector comprises two distinct sub-sectors. Holders of Gas Transporter (GT) Licences, which own/operate gas transportation and/or distribution pipe-lines, are subject to price controls from Ofgem. Cost pass through in the onshore gas supply infrastructure sub-sector is left to the operation of the market. There is a risk that cost pass through in this sub-sector would affect households (including 2m fuel poor); industrial and commercial operators (some operators have reduced output temporarily due to high gas prices); the public sector; and power generators.

5.3.19 There is also the risk that if National Grid's investment incentive regime is not adjusted to compensate for the higher costs that could be incurred, there could be disincentives to build certain gas supply infrastructure projects feeding gas into the onshore pipeline system. There could also be concerns among investors about equivalent treatment of new entrants, and the increased utilisation of some existing infrastructure, and about regulatory risk. A larger impact on security of supply is expected where there is no pass through of costs.

5.4 DECISION 4 - INSTALLATION LEVEL ALLOCATIONS WITHIN EACH SECTOR

- 5.4.1 The second stage of the two-stage allocation methodology is the division of sector allocations among all the installations in each sector. The Phase I allocation methodology bases each installation's share of its sector's allowances on its share of total sector "relevant emissions". An installation's relevant emissions are its average emissions for 1998-2003, calculated after dropping the lowest year from the time series.
- 5.4.2 The Government has considered and consulted extensively on a number of alternative mechanisms for the Phase II allocation methodology against the following criteria: that the methodology should be straightforward to apply, well understood, feasible within the timetable for preparation of the Phase II NAP, transparent, usable in future phases, and should avoid providing a disincentive to emissions reductions in Phase I.

Option 1 Retain Phase I (historic emissions) approach

Benefits

- 5.4.3 This would provide continuity for business and would not require collection of new data, thus reducing the potential regulatory burden on incumbent installations, many of which are small emitters. As the same unit of emission is used across sectors and installation, this methodology is relatively transparent. This option may reward early action if it was taken during the baseline period. It is administratively easier to implement – for Government, regulators, and installations – as it was used for Phase I.
- 5.4.4 Using an average of several years' emissions would be more representative of installations' ongoing shares in the sector if, various installations' emissions have been erratic over the baseline period, as it allows for differences between years to be taken into account and for one year of unusually low emissions to be dropped.
- 5.4.5 Shortening the Phase I baseline period by dropping the most distant historic years (1998 and 1999) would mean that the most recent data available was used. This would give the best indication of appropriate shares in the sector if installations' shares followed clear trends and would mean that the poorest quality data would not be used.

Costs and risks

5.4.6 This option would reward historically high emitters but may not reward early action (if action was taken before the baseline period). It may not necessarily be a good guide to future emissions as by the end of Phase II, 2003 data will be 9 years out of date. A different allocation methodology would be needed for those incumbents and new entrants that don't have sufficient historic emissions data. It could not be used in future phases without updating the baseline.

Option 2 (historic output or capacity)

Benefits

5.4.7 Where installation activity levels do not differ substantially, a capacity metric may be most convenient. Capacity basis might align well with the benchmark approach for Phase I and Phase II new entrants, although such benchmarks do also make an assumption about utilisation rates. An output metric may be fairer than an emissions metric for installations that have reduced emissions through efficiency improvements, rather than through declining production.

Costs and risks

5.4.8 Using this methodology would require additional data collection. This would impose costs on industry which would fall disproportionately on smaller installations. It is likely to be less transparent than emissions-based metrics and cannot be applied identically across all sectors. There would be costs in time and administration for Government and installations in developing a sector specific approach.

5.4.9 Obtaining installation-level data on output might be problematic in most sectors (other than electricity generators) due to product heterogeneity. This could be resolved by creating multiple small sectors as in Phase I, although this could raise potential competitive distortions (see paragraph 5.2.10 above).

5.4.10 Capacity represents a relatively crude metric since it is unlikely to reflect actual installation activity levels, as it assumes a straight-line relationship between output, fuel or capacity and emissions. This could potentially mean less accurate allocations creating costs for those who are under-allocated relative to need. It would not recognise past or potential efforts to improve energy efficiency, unless more than one metric used in combination thereby not recognising such costs. It would bring a perverse incentive to retain old / unnecessary capacity in operation, creating environmental costs

Option 3 (benchmarks)

Benefits

5.4.11 This option would be consistent with the Government's long term aspiration to move towards benchmarking as a methodology for allocation of free allowances. It would be easier to harmonise benchmarking with other Member States than other methodologies.

5.4.12 As paragraph 5.1.3 above notes, a two-stage approach allows for different installation-level methodologies to be adopted for different sectors. Research commissioned by the Government commissioned on benchmarking for all sectors for Phase II concluded that the LEP sector would be a particularly desirable candidate for this approach¹⁶. A capacity approach would be likely to reward more efficient forms of generation, particularly by distinguishing different sub-categories of LEP (e.g. coal, CCGT, etc).

Costs and risks

5.4.13 This option would require significant additional data and analysis to develop and use benchmarks for a large number of sectors. Data collection costs would fall disproportionately on smaller installations. There are significant costs for Government in ensuring that sufficient industrial expertise is available to develop robust benchmarks, for example through the use of specialist consultants. It is unlikely that robust benchmarks could be developed within the time available.

5.4.14 It would be very difficult to establish standardised factors for use in benchmarks for many sectors. Without standardised factors, it would be difficult to pursue EU harmonisation, possibly creating competitive distortions. The derivation of load and emissions factor assumptions for a benchmark may be contentious.

Option 4 – use of installation-level projections

Benefits

5.4.15 This methodology could take into account the potential to reduce emissions at an installation level. It could provide a harmonised approach for incumbents and new entrants.

¹⁶ This report is available at <http://www.dti.gov.uk/files/file27734.pdf>.

Costs and risks

5.4.16 There would be considerable costs for Government in producing projections for over 1,000 installations. There would also be costs for installations in having to provide detailed data and discussing with Government. Smaller installations would find it more difficult – and probably impossible - to engage in this process. There would also be issues of commercial confidentiality in obtaining and publishing installation-level projections.

5.4.17 It would be difficult to find a transparent, objective and consistent way to project installation level emissions. The accuracy of projections is dependant on the information available: companies with longer term investment plans and in a sector more subject to market analysis are therefore more likely to have more accurate projections, whereas smaller installations with a less long term forward look are less likely to have accurate allocations and would therefore incur costs. There is therefore little certainty that allocations would be accurate despite costs. In addition, such projections could not be verified.

Option 5 (marginal abatement costs)

Benefits

5.4.18 This methodology would take account of the cost effective potential to reduce emissions for each installation. It would be an efficient method of distribution and may recognise early action.

Costs and risks

5.4.19 It would be extremely complex to establish marginal abatement costs on an installation-level or sector basis. Abatement potential is dependant on a number of factors, including the size of the installation as larger installations may be better able to make necessary investment than smaller installations. It may be perceived as inequitable as some installations in some sectors would face higher burden than others.

5.4.20 There would be administrative costs for Government and installations in developing detailed marginal abatement costs curves. Government would need to recruit detailed industry expertise; industry would need to devote resources to detailed discussions with Government.

5.5 DECISION 5: DEFINITION OF THE LARGE ELECTRICITY PRODUCERS SECTOR (FORMERLY THE ELECTRICITY SUPPLY INDUSTRY SECTOR)

5.5.1 The Government has concluded that allowances should be allocated to the LEP sector below business as usual emissions for Phase II (see Decision 3 above). This raises three main issues for LEP sector classification:

- Equitable treatment. It is important that all installations included in the LEP sector are undertaking similar activities and share similar characteristics (i.e. that there is an ability to pass on costs, little exposure to international competition, and an ability to abate). Combustion installations generating electricity comprise a diverse range of installations. In general, that the larger the installation and the greater the proportion of electricity they supply to the grid, the more likely it is that they will possess these characteristics. Smaller generators and generators on industrial sites may not be able to pass through carbon costs to the same extent;
- Objectivity. The definition should be objective and robust; and
- Suitability for a benchmark. The Government intends to use a benchmark for the purpose of allocation to the LEP sector in Phase II (see Decision 4 above).

5.5.2 The Government commissioned a consultancy report to examine sector classification for Phase II. This report identified several options that could be used to categorise installations within the LEP¹⁷.

Option 1 Retain Phase I classification

5.5.3 In Phase I, the definition of the power stations sector was based on where large generators were modelled in the DTI Updated Energy Projections (UEP), which is in turn based on the list of power stations operational at the end of May 2004 in DUKES (Digest of UK Energy Statistics).

Benefits

5.5.4 This approach is feasible as it was used in Phase I.

¹⁷ This report is available at <http://www.dti.gov.uk/files/file27070.pdf>.

Costs and risks

5.5.5 This definition includes a diverse range of plants, some of which may be smaller and less likely to be able to pass on costs. However, it excludes some large generators as these are classified in industrial sectors even if they have similar characteristics to other generators in LEP. The definition includes generators that are Good Quality CHP and renewables that have very low emissions and should be treated differently from conventional generators

Option 2 Electricity Generators with a planning consent

5.5.6 Before a generating plant is built, planning consent is needed under section 36 of the Electricity Act 1989. Although the legislation makes explicit reference to a 'generating station', it does not specifically define it.

Benefits

5.5.7 This definition would provide equitable treatment on capacity and would be objective.

Costs and risks

5.5.8 This definition would include installations on industrial plants that are auto-generators and which should be treated differently from conventional generators. As some consents were granted decades ago, they may be difficult to track down. The definition has a threshold of 50MW so would include some smaller generators, especially CHP. These installations are quite diverse both in terms of what they do and in terms of the technology they use, which would make them unsuitable for a benchmarking approach based on technology type.

Option 3 Electricity generators with electricity generation licences

5.5.9 The electricity generation licensing regime captures all installations that generate electricity, but identifies installations that are exempt from the requirement to hold a licence and therefore unlikely to be appropriate for inclusion. The regime requires all generators to hold a generation licence (unless they qualify for an exemption), and requires operators to be party to the Grid Code and trading arrangements. It operates on a company basis.

Benefits

5.5.10 This definition is objective. It would limit the LEP sector to large electricity generators that supply electricity for general supply, rather than primarily to an industrial host. The generators that would fall within the sector would be insulated from international competition and are able to pass through the costs of carbon. It would reduce the regulatory burden on smaller installations and auto-generators that do not have a large impact on the overall supply network.

Costs and risks

5.5.11 This definition operates on company basis, so it could include some small installations that happen to be owned by a large generator. However, this could be remedied by using a 100MW capacity threshold to ensure that smaller installations that happen to be owned by a large electricity generator are not captured by the definition. This would also ensure that all similar installations are treated in a similar way by avoiding a situation where installations below 100MW that were owned by a licensed generator would be included in the LEP sector but installations that are not and qualify for an exemption would not be included in the sector. It is estimated that using a 100MW threshold would exclude 4 plants that would otherwise fall within the scope of the LEP sector.

Option 4 Electricity generators connected to the transmission network and listed in the National Grid's Seven Year Statement

5.5.12 Seven year statements provide a wide range of information for the purpose of electricity transmission system planning in the UK. These include existing generation, new generation capacity and the generation plant mix in terms of fuel, geographic and system generation disposition.

Benefits

5.5.13 This definition is feasible as a list of generators is published in Seven Year Statement.

Costs and risks

5.5.14 There are different definitions of 'large' across UK regions so this definition may treat similar plants differently. For example, a 60MW generator that is only connected to a local distribution network would be included in Scotland (as it is classified as large) but not in England and Wales. The definition could include a diverse range of plants. The list is incomplete; it is based on distribution rather than what the

installation does – so two similar installations being treated differently depending on, for example, their geographical location.

Option 5 Electricity generators that export a certain proportion of the electricity they produce to the national or local distribution network

Benefits

5.5.15 This definition would capture those exporting electricity rather than using it on-site (i.e. it would exclude auto-generators).

Costs and risks

5.5.16 This definition is not objective as it is based on operational factors. It could be problematic if sites use the grid as a balancing mechanism but with low net exports. It could include diverse range of plants and would be difficult to implement.

5.6 DECISION 6 - TREATMENT OF COMBINED HEAT AND POWER (CHP)

5.6.1 The Government has a target of 10GW of Good Quality CHP (GQ CHP) capacity¹⁸ by 2010. CHP is an efficient form of providing heating and electricity at the same time, whose overall fuel efficiency is around 70-90%, compared to an efficiency of around 40-50% for equivalent heat or electricity-only generators. Therefore, in theory, the introduction of a value of carbon into European energy markets through the EU ETS should be an advantage to CHP plant, as the value of their energy output should increase by more than the associated increase in fuel costs.

5.6.2 However, some CHP operators consider that both the introduction of the EU ETS and the way in which allowances were allocated in Phase I have had a detrimental effect on both output from existing CHP capacity and investment in new plant. The Government has therefore considered a number of options for the treatment of CHP in Phase II and has commissioned independent research to review the different approaches adopted by other Member States and suggest approaches for the treatment of CHP in Phase II¹⁹.

5.6.3 The core objectives for the treatment of CHP in Phase II are:

¹⁸ Good Quality CHP refers to CHP generation that meets energy efficiency standards prescribed in the Government's CHP Quality Assurance programme.

¹⁹The report is available at:
<http://www.defra.gov.uk/environment/climatechange/trading/eu/pdf/euetsphase2-treatmentchp.pdf>

- To ensure that incumbent CHP plant are not disincentivised by the implementation of Phase II;
- To ensure investment in GQ CHP is not discouraged by the implementation (rather than the existence) of the Scheme;
- To move towards a more harmonised treatment of CHP across EU25 in future phases; and
- To help safeguard future security of energy supply.

5.6.4 The objective relating to investment in GQ CHP is affected by decisions on rules for new entrants to the EU ETS. This is the subject of a separate RIA.

Decision 6a - CHP classification

5.6.5 The sector in which an installation is classified has an effect on the level of its allocation, because allocations are calculated on the basis of sector growth projections. The sectoral classification of CHP plant in Phase I depended on the sector in which it was modelled in DTI's updated energy projections (UEP). This is determined by whether it was listed as a power station in DUKES Table 5.11, the sector to which it provided a majority of its energy output and whether it was part of a Climate Change Agreement (CCA).

Option 1 Retain Phase I approach (do not create a GQ CHP sector)

Benefits

5.6.6 This option would provide certainty for business as it was used in Phase I. No complex additional modelling would be required so this would reduce the cost to Government. It is consistent with those Member States that have not created a CHP sector. It would ensure that no competitive distortions are created by treating differently two installations that create a similar product e.g. GQCHP and non-GQCHP within the same sector. Depending on the allocation methodology (but see paragraph 5.6.9 below) would not require resubmission of data from installations.

Costs and risks

5.6.7 Putting CHP installations in their host sectors is likely to mean that CHP installations are treated differently, depending on their host sector's growth and allocation methodology, especially for installations that fall within the LEP sector.

5.6.8 It has been argued by stakeholders that the decision to run CHP does not depend on host sector growth therefore its pattern of past emissions and future growth is different to non-CHP installations and is more similar to other CHP installations. Treating CHP installations

differently according to the sector in which it sits could therefore mean that these installations do not receive an allocation which reflects future growth prospects and that there is not sufficient new entrant reserve available.

5.6.9 Having CHP installations in host sectors may limit the extent to which some allocation methodology options can be applied to them, as this would mean that installations would be treated differently within the same sector. This would require a more complex allocation methodology than Phase I. It is difficult to assess how CHP growth has factored into host sector projections and therefore more difficult to accurately allocate to the sector as a whole, potentially creating costs for CHP and non-CHP. It is also difficult to assess new entrant requirements for CHP from host sectors

Option 2 Create a GQ CHP sector

Benefits

5.6.10 This option would directly ensure that CHP (those with potentially identical kit) in different sectors are treated equitably with respect to each other. It would directly address the argument that the pattern of past emissions and future growth of CHP is different to non-CHP installations.

5.6.11 There is more potential to develop an accurate sector cap based on accurate projections that does not disincentivise CHP, and the method of subtracting new entrant CHP from the sector cap is more transparent and more equitable as it will come directly from the GQCHP sector. The more accurate projections will also ensure that sufficient new entrant reserve is available. It is also more transparent to see how CHP growth factors into UK emissions projections if such a separate sector is created. UEP and other forecasts used for EU ETS can be adapted more easily to update forecasts of CHP capacity

5.6.12 Having a separate CHP sector increases the possible allocation methodologies options for CHP, and, depending on such options, may not require any extra data submission or verification from operators. It is more consistent with other member states who treated CHP more favourably. This might therefore ensure that CHP investment continues to take place in the UK rather than shift to other member states.

Costs and risks

5.6.13 The creation of a separate CHP sector has the potential to create more complexity for the allocation and reporting of emissions for operators that are partially qualified and/or have other elements on their installations apart from the GQ CHP scheme. Adjustments to the

allocation methodology would be necessary to separate out the “good quality” element of CHP to ensure inclusion in the sector is consistent with projections.

5.6.14 As the sector would be likely to include CHP of diverse scales and functions (despite being the same technology), this might create other distortions within the industrial sectors. Too small a projection for the CHP sector would adversely impact on CHP installations; too large a projection would have costs for those sectors that have had to contribute to the CHP cap. Non-CHP installations could be disadvantaged by removing CHP from industrial host sector projections if this is not done accurately and therefore it could impact on the relative competitiveness of industrial sectors with and without CHP. It would also require additional modelling so would be more costly for Government.

Decision 6b - Allocation methodology for CHP

5.6.15 In Phase I, the presence or absence of GQ CHP at an installation was not considered explicitly in the allocation methodology.

Option 1 Retain Phase I (historic emissions) approach

Benefits

5.6.16 This approach is familiar. Further data collection, with its associated costs that fall disproportionately on smaller installations, is not required as specific verified CHP data from 2001 is available from the CHP Quality Assurance programme. It is consistent with many other Member States that use a historic emissions approach. It would also ensure that CHP installations were treated in the same way as other installations.

Costs and risks

5.6.17 Using a historic approach may reward historically higher CHP emitters that may be least efficient. It may also make little difference to CHP allocations because it is a similar methodology to Phase I.

Option 2 Capacity benchmarks

5.6.18 This approach ranks CHP installations based on a formula using standard factors or assumptions to indicate the amount of emissions an efficient installation might produce.

Benefits

5.6.19 In theory, this approach may reward the most efficient CHP within the sector. It could also be applied to new entrants.

Costs and risks

5.6.20 This methodology is complex and would require significant resources from Government and industry to develop. It is likely to be infeasible within the timescale and is likely to require new data collection at a cost to installations. The fact that CHP scheme data usually does not resemble the CHP prime mover (the part of the installation which is efficient) but includes auxiliary or standby boilers, means that benchmarking will not necessarily reward the most efficient CHP within the sector as theory may suggest. It may be inappropriate to use the same benchmark as for new entrants as older kit might be more complex and require more recognition of investment that has taken place without knowledge of the scheme.

Option 3 Combined benchmark (based on separate generation of heat and power)

5.6.21 This option ranks CHP installation based on the emissions that might be produced by two separate efficient suppliers of the heat and power in question, using their benchmarks.

Benefits

5.6.22 The benefits of this option are the same as in paragraph 5.6.19 above. In addition, a combined benchmark may reward the CHP that delivers the most emissions savings compared to the separate generation of heat and power – within the sector's total allocation.

Costs and risks

5.6.23 The costs and risks of option 3 are the same as in paragraph 5.6.20 above.

6 SMALL FIRMS' IMPACT TEST

- 6.1 The scope of the EU ETS is defined in Annex I of the EU ETS Directive as “activities of a combustion installation with a thermal input capacity of more than 20MW” It also includes non-combustion sectors which include small installations – particularly ceramics. Decisions on allocation methodology do not affect which companies fall within the scope of the EU ETS; rather, they are a method of distributing allowances to businesses within the scope of the scheme free of charge for compliance purposes. However, some of the options may incur costs of data collection (e.g. a different method to Phase I of allocating to installations) and administrative costs (e.g. discussing the detail of a benchmark) which are likely to fall disproportionately on small installations.
- 6.2 The overarching RIA accompanying this document details the general enforcement, monitoring and verification costs that are applicable to all EU ETS installations.
- 6.3 The Government intends to allocate allowances to all sectors apart from the LEP sector on the basis of business as usual emissions. It is therefore considered that none of the decisions that are discussed in this RIA will particularly impact on small firms.

7 COMPETITION ASSESSMENT

- 7.1 The overarching Full RIA accompanying this document outlines the general competitiveness impacts of EU ETS Phase II on UK businesses. The level of allowances (the cap) will determine the burden of the EU ETS placed on UK business. The overarching RIA considers the impacts of different levels of the cap on UK business.
- 7.2 This RIA concerns the distribution of the total allowances in the UK and therefore the distribution of that burden. The impact on competitiveness of the options set out in this RIA mainly depends on the extent to which industry is expected to face this burden and how far it can pass through the direct costs (particularly the carbon price) from the EU ETS in the form of higher prices. This varies according to the strength of international competition in the markets concerned, the geographical origin of that competition, as well as the price elasticity of demand for different industrial goods.

7.3 The Government has concluded that having a two stage allocation methodology (Decision 1) is preferable as it provides flexibility to allow factors that affect specific sectors to be taken into account. The issue of competitive distortions has also been taken into account when considering the classification of installations into sectors (Decision 2). The Government has sought to ensure that, wherever possible, industry sub-sectors are aggregated with an industrial group where they show a similar trend in their emissions projections. The aim of this is to minimise competitive distortions that could arise where the projected emissions trends of industries in the same sector diverge significantly.

7.4 The Government has concluded that all sectors apart from the Large Electricity Producers (LEP) sector should be allocated at a level equivalent to “business as usual” (Decision 3). One of the criteria taken into account in reaching this decision is the extent to which an industry can pass on the costs of the EU ETS. It was recognised that other sectors are less able to pass on the cost of carbon as they face more competition from abroad and the price elasticity of demand for their products are higher. The Government has concluded that this option would minimise the competitive distortions in the UK economy.

7.5 The distribution of allowances (Decision 4) may also result in some installations receiving more or less than they consider they need, as it is not possible to allocate to each installation at need. However, the Government has sought to provide allocations as close to need as possible, while balancing the aims of certainty and continuity for business and preserving incentives to provide accurate information on an equitable basis. The use of an average of several years’ emissions aims to ensure that data is more representative of installations’ ongoing shares in the sector as it allows for one year of unusually low emissions to be dropped.

7.6 The burden of different allocation methodology options on business has also been considered throughout this RIA in terms of the costs of providing and verifying additional data and the complexity of the options.

8 ENFORCEMENT, SANCTIONS AND MONITORING

8.1 For information on the general enforcement, sanction and monitoring requirements of the EU ETS, please see the overarching Phase II full RIA.

9 IMPLEMENTATION AND DELIVERY PLAN

9.1 The EU ETS Directive requires that the UK’s Phase II National Allocation Plan (NAP) is submitted to the European Commission by 30 June 2006.

9.2 A formal consultation on the draft NAP was launched in March 2006 and revised Partial RIAs (including this RIA) were published alongside that document. The draft NAP included policy decisions on the NER for Phase II

9.3 The Partial RIAs were also published with the NAP, when submitted to the European Commission in August 2006. The full RIA is being published with the final decision on installation-level allocations.

10 POST IMPLEMENTATION REVIEW

10.1 Please see the overarching Phase II final RIA for details of post-implementation review and delivery plan.

11. SUMMARY AND RECOMMENDATIONS

11.1 The table below summarises the benefits and costs of the main options. The Government's preferred options are italicised.

Decision	Options	Benefits	Costs
Overall allocation methodology	<i>Two stage methodology</i>	<ul style="list-style-type: none"> ▪ <i>Feasible</i> ▪ <i>Familiar</i> ▪ <i>Enables flexibility to account for sector differences</i> 	<ul style="list-style-type: none"> ▪ <i>Complex</i>
	One stage methodology	<ul style="list-style-type: none"> ▪ Transparent, easy to implement 	<ul style="list-style-type: none"> ▪ Difficult to amend ▪ Difficult to account for sector differences
Sector classification	Phase I (many sectors)	<ul style="list-style-type: none"> ▪ Recognises different sector growth rates etc. 	<ul style="list-style-type: none"> ▪ unnecessary – no CCAs ▪ Complex and opaque ▪ Likely to treat similar installations differently
	classify installations to increase alignment with UEP	<ul style="list-style-type: none"> • Closer to Directive activities than retaining Phase I classification • Straightforward and administratively simple to apply. • Consistent with most other Member State approaches • Certain sectors' emissions would be closer to UEP projections and average sector growth rate projections are more accurate when applied to larger groups 	<ul style="list-style-type: none"> • May be less transparent to have fewer sectors • May be difficult to verify or consult on larger sector growth rates • Difficult to take account of difference between sectors

	classify installations to increase UEP alignment, with large “other” sector	<ul style="list-style-type: none"> • Same benefits as classification in line with UEP • Easy to decide which sector an installation falls under 	<ul style="list-style-type: none"> • The “other” sector would contain installations with differences in technology, product or service, which may warrant further disaggregation • Sub-sectors may feel overall sector growth rates do not apply to them – in particular, growing sectors could lose out from being classified with sectors in decline
	<i>Annex 1 Activities and some disaggregation</i>	<ul style="list-style-type: none"> ▪ <i>More in line with Directive</i> ▪ <i>Allows some flexibility in taking account of sector differences</i> 	<ul style="list-style-type: none"> ▪ <i>May be complex</i> ▪ <i>May treat similar sectors and installations differently</i>
LEP definition	DUKES	<ul style="list-style-type: none"> ▪ Feasible ▪ Familiar 	<ul style="list-style-type: none"> ▪ Treats similar installations differently ▪ Includes small generators that don’t have large effect on market
	Generators with planning consent	<ul style="list-style-type: none"> ▪ Equitable treatment on capacity ▪ Objective 	<ul style="list-style-type: none"> ▪ Includes auto-generators that perhaps should be treated differently from conventional generators ▪ May be difficult to obtain consents granted a long time ago ▪ Includes small generators
	<i>Electricity Generation licences</i>	<ul style="list-style-type: none"> ▪ <i>Necessarily discriminatory – so includes only large generators with large effect on market</i> ▪ <i>Sector fits neatly into technology categories</i> 	<ul style="list-style-type: none"> ▪ <i>Operates on company basis so need capacity threshold to exclude small generators</i>

	Grid connected	<ul style="list-style-type: none"> ▪ Feasible as list published in Seven Year Statement 	<ul style="list-style-type: none"> ▪ Different definitions of “large” plants across UK regions so may treat similar plants differently ▪ Could include diverse range of plants ▪ Seven Year Statement list is incomplete
	Generators exporting a proportion of electricity to national or local distribution network	<ul style="list-style-type: none"> ▪ Captures those exporting electricity rather than those using it on-site 	<ul style="list-style-type: none"> ▪ Not objective ▪ Problematic if sites use grid as balancing mechanism but with low net exports ▪ Could include diverse range of plants ▪ Difficult to implement
Setting of sector caps	<i>LEP receive allocation below BAU</i>	<ul style="list-style-type: none"> ▪ <i>Low impact on competitiveness</i> ▪ <i>Efficient as places burden where it can be achieved</i> 	<ul style="list-style-type: none"> ▪ <i>Other sectors may be able to bear a some part of burden</i>
	All sectors receive allocation below BAU	<ul style="list-style-type: none"> ▪ Equitable approach 	<ul style="list-style-type: none"> ▪ Likely to impact on competitiveness
Installation level allocation methodology	<i>Historic emissions</i>	<ul style="list-style-type: none"> ▪ <i>Feasible within timescales</i> ▪ <i>Little extra data required</i> 	<ul style="list-style-type: none"> ▪ <i>Rewards historically higher emitters</i>

	Historic output or capacity	<ul style="list-style-type: none"> ▪ Might resolve some issues raised by use of emissions in Phase I ▪ May be the most convenient where installation activity levels do not differ substantially ▪ Might align well with benchmark approach for Phase I and Phase II new entrants ▪ Output metric may be fairer than emissions metric for installations that have reduced emissions through efficiency improvements, rather than through declining production 	<ul style="list-style-type: none"> ▪ Requires additional data collection ▪ Likely to be less transparent than emissions-based metrics and cannot be applied identically across all sectors ▪ Installation-level data on output availability might be problematic in most sectors due to product heterogeneity. Could create multiple small sectors as in Phase I ▪ Capacity represents a relatively crude metric since it is unlikely to reflect actual installation activity levels ▪ Assumes a straight-line relationship between output, fuel or capacity and emissions ▪ No recognition of past or potential efforts to improve energy efficiency, unless more than one metric used in combination ▪ Perverse incentive to retain old / unnecessary capacity in operation
	Benchmarks	<ul style="list-style-type: none"> ▪ Rewards efficient producers within sectors ▪ <i>Feasible for well defined LEP sector</i> 	<ul style="list-style-type: none"> ▪ Infeasible for most sectors in timescales due to complexity and heterogeneity of sectors

	Installation-level projections	<ul style="list-style-type: none"> ▪ Could take into account the potential to reduce emissions at an installation level ▪ Could be harmonised approach for incumbents and new entrants 	<ul style="list-style-type: none"> ▪ May difficult to find a transparent, objective and consistent way to project installation level emissions ▪ Cannot be verified ▪ Projections likely to be out of date by Phase II begins ▪ Issues of commercial confidentiality in accessing / publishing installation-level projections
	Marginal abatement cost	<ul style="list-style-type: none"> ▪ Accounts for the cost effective potential to reduce emissions for each installation ▪ Efficient distribution ▪ May recognise early action 	<ul style="list-style-type: none"> ▪ Extremely complex to establish on installation level basis ▪ May be perceived as inequitable as some installations in some sectors face higher burden than others
CHP sector	Don't create CHP sector	<ul style="list-style-type: none"> ▪ Feasible ▪ Familiar 	<ul style="list-style-type: none"> ▪ May have disadvantaged CHP in Phase I
	<i>Create CHP sector</i>	<ul style="list-style-type: none"> ▪ <i>Equitable treatment for this technology across sectors</i> 	<ul style="list-style-type: none"> ▪ <i>May not advantage CHP in Phase II depending on allocation methodology</i> ▪ <i>Complex methodology and modelling required</i>
CHP allocation methodology	<i>Historic emissions</i>	<ul style="list-style-type: none"> ▪ <i>Feasible</i> ▪ <i>No data required</i> 	<ul style="list-style-type: none"> ▪ <i>May not make much difference to CHP</i> ▪ <i>Rewards historically high emitters</i>
	Capacity and combined benchmarks	<ul style="list-style-type: none"> ▪ Presentationally attractive ▪ Same methodology could be applied to new entrants 	<ul style="list-style-type: none"> ▪ Complex ▪ May require new data collection ▪ May not reward most efficient CHP ▪ Does not reward CHP

12 DECLARATION

12.1 I have read the regulatory impact assessment and I am satisfied that the benefits justify the costs.

Signed

Date

IAN PEARSON, MINISTER OF STATE

DEPARTMENT FOR ENVIRONMENT FOOD AND RURAL AFFAIRS

**APPENDIX A: COMPARISON OF SECTOR CLASSIFICATION OPTIONS
(DECISION 4)**

TABLE A1: Option 1 compared to Option 2 (combustion sectors)

Phase I Sector	Phase I Incumbent Annual Allocation	No. incumbents	CLASSIFICATION 2:		
			Combined Sector	Combined Sector Incumbents	Change in Allocations due to Aggregation
Chemicals -- CIA	6,277,337	80	Chemicals	103	0.7%
Chemicals -- non-CCA	2,998,314	23			-1.4%
Engineering & Vehicles -- non-CCA	179,718	15	Engineering	50	62%
Semiconductors -- SC	8,707	3	& Vehicles		50%
Cathode Ray Tubes -- CRT	20,030	1			-26%
Aerospace -- SBAC	145,993	13			-10%
Rubber -- BRMA-T	96,014	4			-12%
Vehicle Manufacture -- SMMT	477,850	14			-18%
Rendering -- UKRA	11,652	10	Food & Drink	134	270%
Poultry -- BPMF2	10,859	2			2%
Food & Drink -- FDF	1,457,565	51			-3%
FDT -- CIA	75,073	1			-4%
FDT -- non-CCA	1,046,213	21			7%
Brewing -- BBPA	291,674	20			-3%
Dairies -- DIAL	296,650	19			-5%
Spirits -- SEEC	260,128	6			-10%
Malting -- MAGB	64,001	4			-15%
Coal Mining -- non-CCA	33,988	2	Other	358	89%
Textiles -- BATC	20,297	3			36%
Nuclear Fuel -- CIA	72,768	1			4%
Nuclear Fuels -- non-CCA	487	1			-12%
Wood Board -- WPIF	213,495	3			-13%
Other Non-metallic -- non-CCA	90,674	1			-17%
Foundries -- T2010	Empty Sector				
Wood & Wood Products -- non-CCA	New Entrant Only				
Non-Ferrous -- NFA	50,633	1			8%
Aluminium -- AFED	2,940,685	1			-14%
Services	1,779,835	204			13%
Other Oil & Gas	1,575,697	33			2%
Offshore	17,142,460	108			1%
Power Stations	126,627,038	110	ESI	110	0%
TOTAL	164,265,833	755		755	

TABLE A2: Option 1 compared to Option 3 (combustion sectors)

CLASSIFICATION 1:					
Phase I Sector	Phase I Incumbent Annual Allocation	No. incumbents	Combined Sector	Combined Sector Incumbents	Change in Allocations due to Aggregation
Chemicals -- CIA	6,277,337	80	Chemicals	103	0.7%
Chemicals -- non-CCA	2,998,314	23			-1.4%
Engineering & Vehicles -- non-CCA	179,718	15	Engineering & Vehicles	50	62%
Semiconductors -- SC	8,707	3			50%
Cathode Ray Tubes -- CRT	20,030	1			-26%
Aerospace -- SBAC	145,993	13			-10%
Rubber -- BRMA-T	96,014	4			-12%
Vehicle Manufacture -- SMMT	477,850	14			-18%
Rendering -- UKRA	11,652	10	Food & Drink	134	270%
Poultry -- BPFM2	10,859	2			2%
Food & Drink -- FDF	1,457,565	51			-3%
FDT -- CIA	75,073	1			-4%
FDT -- non-CCA	1,046,213	21			7%
Brewing -- BBPA	291,674	20			-3%
Dairies -- DIAL	296,650	19			-5%
Spirits -- SEEC	260,128	6			-10%
Malting -- MAGB	64,001	4			-15%
Coal Mining -- non-CCA	33,988	2	Other	12	114%
Textiles -- BATC	20,297	3			54%
Nuclear Fuel -- CIA	72,768	1			18%
Nuclear Fuels -- non-CCA	487	1			0%
Wood Board -- WPIF	213,495	3			-1%
Other Non-metallic -- non-CCA	90,674	1			-5%
Foundries -- T2010	Empty Sector				
Wood & Wood Products -- non-CCA	New Entrant Only				
Non-Ferrous -- NFA	50,633	1			23%
Aluminium -- AFED	2,940,685	1			-2%
Services	1,779,835	204	Services	204	0%
Other Oil & Gas	1,575,697	33	Other Oil & Gas	33	0%
Offshore	17,142,460	108	Offshore	108	0%
Power Stations	126,627,038	110	ESI	110	0%
TOTAL	164,265,833	755		754	

TABLE A3: Option 1 compared to Option 3 (industrial sectors)

CLASSIFICATION 1:					
Phase I Sector	Phase I Incumbent Annual Allocation	No. incumbents	Combined Sector	Combined Sector Incumbents	Change in Allocations due to Aggregation
Cement -- BCA	8,458,048	12	Cement	12	0%
Cement -- non-CCA	New entrant only				
Lime -- UKSA	443,856	1	Lime	9	8%
Lime -- BLA	2,188,407	8			-2%
Ceramics -- BCC-R	41,651	12	Ceramics	111	15%
Ceramics -- BCC-M	52,492	3			7%
Ceramics -- BCC-W	46,452	3			3%
Ceramics -- BCC-N	1,352,021	90			0.5%
Ceramics -- non-CCA	1,917	1			-3%
Ceramics -- BCC-F	253,232	2			-7%
Glass -- BGMC	1,774,141	28	Glass	33	1%
Glass -- BCC-M	Empty Sector				
Glass -- non-CCA	8,163	1			-10%
Mineral Wool -- EUR	113,451	4			-17%
Iron & Steel UKSA	19,997,466	14	Iron & Steel	14	0%
Iron & Steel -- non-CCA	New entrant only				
Refineries -- CIA	81,019	2	Refineries	12	1.7%
Refineries nonCCA	19,308,813	10			-0.01%
Pulp & Paper -- TPF	4,260,851	72	Pulp & Paper	72	0%
Pulp & Paper -- non-CCA	2003 Benchmk only				
TOTAL	58,381,981	263		263	

TABLE A4: Option 1 compared to Option 4 (combustion sectors)

CLASSIFICATION 3:					
Phase I Sector	Phase I Incumbent Annual Allocation	No. incumbents	Combined Sector	Combined Sector Incumbents	Change in Allocations due to Aggregation
Chemicals -- CIA	6,277,337	80	Chemicals	103	0.7%
Chemicals -- non-CCA	2,998,314	23			-1.4%
E&V -- non-CCA (General E&V)	98,829	5	E&V	13	33%
Semiconductors -- SC	8,707	3			23%
Cathode Ray Tubes -- CRT	20,030	1			-40%
Rubber -- BRMA-T	96,014	4			-28%
Aerospace -- SBAC	145,993	13	Aerospace	18	-17%
E&V -- non-CCA (Aerospace)	51,440	5			49%
Vehicle Manufacture -- SMMT	477,850	14	Vehicles	19	-5%
E&V -- non-CCA (Vehicles)	29,448	5			86%
Rendering -- UKRA	11,652	10	F&D	123	266%
Poultry -- BPMF2	10,859	2			1%
Food & Drink -- FDF	1,457,565	51			-4%
FDT -- CIA	75,073	1			-5%
FDT -- non-CCA (not Spirits)	1,042,105	20			6%
Brewing -- BBPA	291,674	20			-4%
Dairies -- DIAL	296,650	19			-6%
Spirits -- SEEC	260,128	6	Spirits	7	0%
FDT -- non-CCA (Spirits)	4,108	1			18%
Malting -- MAGB	64,001	4	Malting	4	0%
Coal Mining -- non-CCA	33,988	2	Other	12	88%
Textiles -- BATC	20,297	3			35%
Nuclear Fuel -- CIA	72,768	1			4%
Nuclear Fuels -- non-CCA	487	1			-12%
Wood Board -- WPIF	213,495	3			-13%
Other Non-metallic -- non-CCA	90,674	1			-17%
Foundries -- T2010	Empty Sector				
Wood & Wood Products -- non-CCA	New Entrant Only				
Non-Ferrous -- NFA	50,633	1			8%
Aluminium -- AFED	2,940,685	1	Aluminium	1	0%
Services	1,779,835	204	Services	204	0%
Other Oil & Gas	1,575,697	33	OOG	33	0%
Offshore	17,142,460	108	Offshore	108	0%
Power Stations	126,627,038	110	ESI	110	0%
TOTAL	164,265,833	755		755	

Appendix B - Sector Caps (Decision 3)

1. Energy intensity and exposure to competition

Table B1 below classifies sectors in terms of their relative ability to pass on costs, and therefore take on reductions in allocations below BAU. The bottom right-hand side box in the table contains the most likely candidates for below-BAU reduction.

Trade and energy expenditure data for sectors in the EU ETS have been analysed. Sectors have been categorized by their energy intensity of production (high or low) and their relative exposure to trade in EU and non-Kyoto markets. Non-Kyoto markets here are classified as US, China and India: these are 3 of the largest countries not subject to the Kyoto regime and 16% of total UK exports go to these countries, mainly the US. Some sectors may face increasing competition from other regions (e.g. Chemicals and Plastic face increasing competition from the Middle East).

Table 1: Classification of sectors according to abilities to pass on costs

Increasing ability to pass through costs →

Note: Asterisks denote subdivision of EU ETS established sectors.

Increasing ability to pass through costs	High Energy Intensity	Competition Structure		
		Facing stronger competition from non-Kyoto (US, China, India) markets relative to other sectors	Competing in mainly EU markets relative to other sectors	Competing in mainly UK markets relative to other sectors
		Aluminium	Lime, plaster	Cement
		Pulp & paper	Iron & Steel	Bricks & construction products
		Chemicals ³	Hollow and Flat Glass	Primary rubber*
		Man-made Fibres*	Primary plastic*	
		Mining of clays and kaolin*		
	Low Energy Intensity	Facing stronger competition from non-Kyoto (US, China, India) markets relative to other sectors	Competing in mainly EU markets relative to other sectors	Competing in mainly UK markets relative to other sectors
		Textiles, Leather & Clothing	Printing and publishing*	Large Electricity Producers
		Ceramics	Wood & Wood Products*	Food, Beverages & Tobacco
		Other Non-Metallic minerals	Other Glass	Downstream Gas
		Engineering and Vehicles	Rubber & Plastics*	
		Non-Ferrous metals		
Refining of petroleum products				
Other Chemicals				
Offshore oil & gas				

Energy intensity is measured as electricity expenditure as a proportion of Value Added. High energy intensity is defined as expenditure above 20% of Value Added. Please note that electricity expenditure here is defined as electricity purchased from the grid. It does not include the purchase of fuel inputs for on-site generation. Sectors with export intensity and import penetration levels below the UK averages (39% and 45% respectively) are viewed as

relatively non-tradable, and thus placed in the mainly-UK competition category (e.g. cement, food and drink, and energy). Sectors with high exposure to international competition, especially and/or high energy intensity should have a lower ability to pass on costs.

2. Abatement potential

Table B2 shows abatement potential for some of the above sectors based on an FES report (February).²⁰

Table B2: Estimates of sectors' abatement potentials

Sector	Sector abatement potential (KtCO ₂)		
	2005	2008	2010
Bricks	41	20	20
Ceramics	8	8	11
Paper	336	173	110
Glass	62	50	62
Steel	1,345	1,295	1,267
Cement	24	23	22
Lime	2.0	1.8	1.7
Total	1,818	1,571	1,494

Notes:

1. Abatement potential is related to cost effective reductions on direct emissions, at CO₂ prices of 15€/t in 2005 and 25€/t in 2010.
2. UEP considers that the abatement potential in the refining sector is negligible due to the expected increase in carbon intensity of production following de-sulphurisation regulation in the period.

Table 3: LEP abatement potential in 2010, under different fossil fuel price scenarios (Mt C)

DTI fossil fuel price scenarios	Carbon Price scenarios			
	10 €/tCO ₂	20 €/tCO ₂	30 €/tCO ₂	40 €/tCO ₂
Central (1) favouring gas	1	2.5	3	3.5
Central (2) favouring coal	0.2	1	1.5	2.5
Low	0.5	2	2	2.5
High	0	0.2	0.5	0.8

²⁰ See: <http://www.defra.gov.uk/environment/climatechange/trading/eu/pdf/abate-opportunity.pdf>