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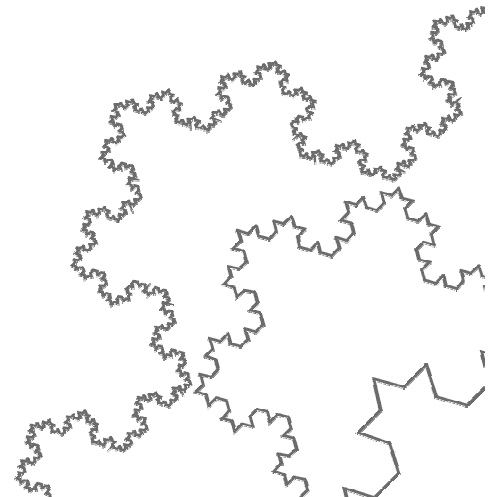
Analysis of the Introduction of Emission Allowance Trading Schemes in Sweden

**Report for the Environmental Statistics
Division of Statistics Sweden**

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Executive Summary

- The E3ME model has been further developed and used to produce an analysis of emissions permits trading in Sweden incorporating the latest information available. The analysis implements the characteristics of the European-wide emissions permit trading scheme as outlined in the European Commission document: COM(2002) 680 final. It also incorporates the available information from the Swedish government on the implementation of the Swedish emissions permit trading scheme in 2005-2007.
- The study uses Swedish national and environmental accounts data provided by Statistics Sweden. The data have been used to update the E3ME databanks and the estimated elasticities of the model. This process involved re-estimating 11,343 time-series econometric equations that reflect the long and short-term behaviour of the Western European economies. Model checks have been carried out to ensure the reliability of the new estimates and the correctness of the scenario results.
- The baseline scenario and forecast have been taken from the Cambridge Econometrics European Sectoral Prospects project and from the European Commission DG TREN Projections in Energy to 2030. EU greenhouse gas emissions are expected to remain around the Kyoto 1990/95 base by 2008-2012, leaving the 8% reduction to be achieved by further policies including emissions trading. The other scenarios focus on various issues involved in achieving the Kyoto target for Sweden and the EU by 2012. The alternative scenarios involve allocating (grandfathering) and auctioning some of the allowances in the basic EU trading scheme. These scenarios show that policies to achieve the interim Kyoto target have very small effects on the EU economies and EU industries.
- The main finding of the study is that, with allowance prices of euro 15/tCO₂, the reduction in GHG emissions in Sweden is ½%, leaving the remaining reduction to be found from (1) importing GHG emission allowances, (2) other policies in the energy-intensive sectors, such as incentives for renewable electricity generation, and (3) policies directed at other sectors of the economy.
- This conclusion is not greatly changed by higher allowance prices (euro 30/tCO₂) or even by introducing a carbon tax at euro 15/tCO₂ for all other non-energy-intensive sectors at a corresponding rate to the allowance price.
- Ancillary benefits in the EU15 of 0.042% of GDP are expected from reductions in SO₂, NO_x and PM₁₀ (based on ExternE cost estimates) over the period. Ancillary benefits in Sweden are in the range of €32-42 million per annum; this represents only a 0.01% GDP average in the period, although using average valuations this corresponds to some 300-400 life-years saved and 17 to 21 thousand fewer activity-days lost through illness.

1 Introduction

1.1 Motivation

The Kyoto agreement included three flexible mechanisms to help achieve the targets for the internalisation of environmental costs and the assessment of taxation, namely:

- emissions trading,
- joint implementation, and
- the clean development mechanism.

To date, a great deal of the literature on the sectoral effects of mitigation policies in a macroeconomic context (ie sectoral effects that consistently aggregate into macroeconomic effects) is concerned with the effects of carbon taxes. The studies show that carbon taxation can be an effective instrument for mitigation. However, the national plans of most European governments on greenhouse gas emission reduction tend to show that the use of carbon taxation is small if it is there at all. In addition, the EU Environmental Council has agreed a greenhouse gas (GHG) emission allowance trading scheme to contribute to the EU commitment to reduce the average GHG emissions in 2008-2012 under the Kyoto Protocol (Directive of the European Parliament and of the Environmental Council establishing a scheme for greenhouse gas emission allowance trading within the Community - Political agreement, 9 December 2002).

The focus of the study is to investigate the effects of implementing the EU allowance scheme on environmental emissions for Sweden and on individual industrial sectors and the overall Swedish economy. The economic assessment looks at the consequences for employment, growth and competitiveness, and seeks to evaluate the effectiveness of different policy options within the scheme.

The analysis was carried out using the Cambridge Econometrics Energy-Environment-Economy Model of Europe (E3ME) as the basis of the analysis. The chosen policy issues were implemented in E3ME via scenario analysis. The policy issues addressed include

- the effects of carbon taxes compared with those of tradable emission allowances
- the effects of grandfathering versus auctioning of the allowances
- the different impacts on the economy from recycling the tax/allowance revenues
- the extent of any ancillary environmental benefits associated with the GHG emissions reduction

To achieve the objectives of the analysis, and to provide an up to date base for the modelling exercise, the current study incorporates in E3ME the latest available Swedish Environmental Economic Accounts (SEEA). In addition, other data sources from Statistics Sweden have been incorporated in the model, including national accounts and employment data. The study has also updated the characteristics of the E3ME-Swedish block by re-estimating the parameters using the latest data.

1.2 Analysis of emission trading

A Cambridge Econometrics study: 'Sectoral Effects of Environmental Policies' (Cambridge Econometrics 2001) is introduced as a starting point and motivation for the present analysis. Some of the issues discussed in the present report draw on this previous study. In a similar assessment of alternative allowance trading, in which different strategies of initial permit allocation, target sectors and national permit trade against EU-wide trade were studied, the conclusions were as follows:

- Six alternative allowance trading scenarios were developed to assess different ways of reducing GHG emissions in the EU to achieve the 4% reduction below the Kyoto 1990/95 base levels by 2005. The alternative schemes involved auctioning versus allocating (grandfathering) the allowances; all sectors versus four energy sectors; and EU multilateral action versus actions by groups of Member States. Analysis of the EU-wide trading schemes showed that the achievement of the interim Kyoto target would have very small effects on the EU economies and EU industries.
- The effect of unilateral auctions was that total EU GHG emissions fell below the interim target in 2005. The reason is that those countries with GHG emissions above the target must reduce their emissions much more than in the co-ordinated scenarios but they could not trade with those countries that over achieved their targets.
- The price of allowances for the EU-wide schemes was found to be about 8 euro/tonne CO₂ in 2002 rising to about 10 e/t CO₂ in 2005. These achieved the 4% reduction target by reducing CO₂ emissions by about 2% below the 2005 values in the reference case. (The reference case included all those policies and measures that were expected to be undertaken irrespective of any requirement related to the Kyoto Protocol.)
- The grandfathering of emissions allowances led to higher profits in the sectors receiving the allowances, but also to a 0.1% slowing in GDP growth and higher inflation (up from 2.3% pa to 2.4% pa). The lower GDP growth also meant that, to achieve the same GHG target, the price of the allowances was lower in the all-sector grandfathered scheme than in the auctioned scheme. A mixture of grandfathering and auctioning of allowances could in principle maintain the profits of carbon-intensive sectors at reference-case levels without leading to significant effects on GDP or inflation.

2 Background

2.1 The effects of environmental policies on CO₂ and other GHG

Past focus on CO₂ emissions One of the first major studies of the effects of mitigation policies on EU output and employment was the DRI study of the effects of the proposed carbon/energy tax for the EC (DRI, 1992). This was followed by a study much wider in scope, covering many more environmental problems and policies (DRI, 1994), that also reported output and employment sectoral effects. Klassen (2000) reviews later work on the proposed additional excise duties on energy products, covering results from the GEM-E3, HERMES and E3ME models. Since then Capros and his associates and partners have undertaken a series of major studies, using GEM-E3, PRIMES and other models, to assess EU mitigation policies. Capros et al. (1999) use the GEM-E3 model to assess the effects of a 10% reduction in CO₂ emissions in 2010 compared to 1990. However, other GHGs are not incorporated in this version of the model and the study does not cover the achievement of the Kyoto target.

The 'Priority Study' Technical Report on Climate Change (Capros et al., 2000) is also based on GEM-E3 and PRIMES and has a detailed discussion of the industrial effects. This study addresses the Kyoto target directly and assesses prospects for non-CO₂ GHGs. It is comparable to the study reported below in this chapter, but it does not cover much on output and employment. E3ME has also been used in a study of the effects of a 10% reduction in CO₂ emissions by 2010 (Barker, 1999) reporting the effects on EU regional (11 Member States) and sectoral outputs (17 industries).

EU-wide schemes achieve additional benefits

Another DG Environment study by the Institute of Prospective Technological Studies (IPTS, 2000) quantifies the impact of the implementation of an EU-wide CO₂ permit market using the POLES model. The results indicate that important gains are achieved in all countries by the EU-wide scheme when compared against individual member states schemes. According to this study, the overall EU abatement cost reduction would be of the order of 0.05% of the Union's GDP in 2010, an equivalent of 25% reduction in the cost burden.

2.2 The effects on price competitiveness

The effects of carbon taxes on price competitiveness are small The effects of carbon taxation on international competitiveness are reviewed by Ekins and Speck (1998) and Barker and Johnstone (1998). Clearly, a carbon tax will raise the cost of production of some sectors of the economy, causing some consumers to switch from their products to the products of the sectors in other countries, changing international trade. National losses (gains) for price competitiveness will be the net sum of the sectors losses (gains) for price competitiveness. The outcome for a particular sector will depend on the policy instruments used, how any tax revenue has been recycled and whether the exchange rate has adjusted to compensate at the national level. The conclusions from these surveys are that the reported effects on international competitiveness are very small and that at the firm and sector level, given well-designed policies there will not be significant loss of competitiveness from tax-based policies to achieve targets similar to those of the Kyoto Protocol.

Small effects on trade have also been measured These conclusions are confirmed by later studies, although in general the effects of environmental taxation in one country on sectors in other countries are not well covered by the literature. Using E3ME, Barker (1998) assesses policies reducing CO₂ emissions in 11 EU Member States at the level of 30 industries and 17 fuel users, comparing unilateral with co-ordinated policies. The carbon tax reduces imports of oil and increases imports of carbon-intensive products. However, the results for trade are negligible.

2.3 Ancillary benefits of GHG mitigation

Mitigation of GHG emissions can lead to reductions in associated externalities, such as emissions of sulphur dioxide (SO₂), fine particulate matter, and other pollutants, some of which are known to damage human health. These so-called ancillary (or secondary) benefits of mitigation policies can be contrasted with the primary benefits of such policies, namely the reduction in climate change. The 'Priority Study' Technical Report on Climate Change (Capros et al. 2000) includes a major cost-benefit study for the EU of climate change mitigation, including ancillary benefits, using results from the GEM-E3/PRIMES analysis of the reference case, and the no-trade and full-trade auctioned emission-allowance scenarios.

Ancillary benefits and Tokyo In a study focussing on ancillary benefits using E3ME, Barker and Rosendahl (2000) describe how some of these benefits (associated with the reduction in 3 pollutants: SO₂, oxides of nitrogen (NO_x) and some fine air-borne particles (PM10)) have been assessed for 19 regions of Western Europe. Their analysis, assumes that Kyoto targets are achieved by using stylised economic instruments, with tax/allowance revenues spent on reducing employer taxes.

Non-CO₂ GHGs are expected to fall over the 1995-2010 period In the study above, local and regional damage costs from emissions of NO_x, SO₂ and PM10 were taken from the ExternE study, which is a substantial assessment of the external costs of electricity generation in Europe funded by the European Commission. Damage costs vary across pollutant and across country in the model. The projection of damage costs to 2010 shows a dramatic fall due to expectations of large target reductions in emissions of NO_x and SO₂. The Kyoto Protocol requires that EU countries reduce GHG emissions (CO₂ and five other GHGs) by 8% in 2008-2012 compared to 1990 (or 1995). Since the non-CO₂ GHGs are projected to fall significantly over the period 1995-2010, CO₂ emissions have to be reduced by merely 2-3% below 1990 levels to achieve the target.

Significant ancillary benefits are obtained Ancillary benefits are estimated under three alternative mitigation scenarios that meet the Kyoto targets: multilateral carbon taxes, a CO₂ emission-allowance scheme, and a combination of policies. The necessary tax rates or allowance prices are 36.8 to 42 euros (2000 currency base) per tonne CO₂. In all the scenarios, the estimated ancillary benefits by 2008-2012 are about 9bn (1990 currency base) euro per year, i.e., about 37.6 euro (2000 currency base) per tonne reduction in CO₂-equivalent (e/t) or 0.11% of total GDP. They represent, each year, a saving of around 104,000 life-years, 11,000 fewer new incidences of chronic bronchitis in adults, and 5.4 million fewer restricted activity days. These benefits constitute 15-35% of the change in GDP brought about by the mitigation policies, showing the importance of including ancillary benefits in the overall assessment of mitigation policy, even though emissions of NO_x and SO₂ are expected to fall significantly by 2010.

There are three reasons why the estimates above may be nearer the lower bound of the range of possible outcomes. First, if the SO₂, NO_x and PM₁₀ target reductions are not reached, and emission coefficients remain at 1995 levels, the ancillary benefits rise to some 81.8 e/t CO₂, or 0.25% of GDP. Second, if CO₂ emissions rise more than the modest 9% from 1990 to 2010 considered in baseline scenarios, then mitigation policy will have to be stronger and the ancillary benefits will also be larger (e.g. 38.2 e/t or 0.34% of GDP). Third, if oil prices fall well below the assumed \$22.5 per barrel (2000 currency base) in the baseline projection, then the tax/allowance policies will again have to be stronger and the ancillary benefits could rise (to 38.5 e/t or 0.22% of GDP). (But if world oil prices rise to about \$40 per barrel (2000 currency base) by 2010, then fuel use is so reduced that no additional mitigation policies are needed; and ancillary benefits are zero.) Finally, ExternE estimates are themselves conservative, covering only 3 main types of air pollutants and including only some of the damages from the pollution. Even where data exist on the pollutants, they are likely to underestimate the true size of the effect.

2.4 Overview of the EU Emissions Trading Scheme Directive

At an Environment Council meeting in December 2002, EU Environment Ministers reached political agreement on the EU Directive to establish an EU-wide greenhouse gas emissions trading scheme (European Commission (2002)), due to commence in 2005. The scheme will establish absolute limits on the emissions of carbon dioxide from the sectors covered. Other greenhouse gases will eventually be included within the scheme upon a separate proposal from the Commission.

A two phase scheme The scheme will be introduced in two phases, the pre-Kyoto Phase 1 covering 2005-07, and Phase 2 covering the Kyoto commitment period of 2008-12. Subsequent 5-year phases are envisaged. There will be a compulsory listing of the installations to be covered, which will include large combustion units in power generation (with rated fuel inputs of >20MW), oil refining, coke ovens, production and processing of ferrous metals, mineral industries (cement, glass, bricks) and pulp, paper and board industrial plants¹. In Phase 1 Member States may apply to the Commission for temporary exclusions of certain installations and activities (only until 2008) although even these excluded activities will need to commit to equivalent emissions cuts and are subject to the same reporting and verification requirements, and will be subject to equivalent penalties for non-compliance, as plants within the trading scheme. The Commission retains the right to veto opt-outs. It is thought that these strict conditions will lead to fewer opt-outs than originally imagined. Member States can allow activities within an industrial sector to form voluntary trading 'pools' for the whole duration of the scheme.

Allocation of permit and fines Member States will grant greenhouse gas emission allowances to operators in relevant industrial sectors, with free-of-charge allocation in Phase 1, and up to 10% auctioning of permits in Phase 2, with any auction revenues accruing to Member States. Allowances may be traded across the EU. The Commission is developing allocation criteria to guide Member States, and retains the right to veto national allocation schemes. In Phase 1 governments may issue extra permits to sectors in exceptional circumstances. Operators whose emissions exceed their emission permits will be

¹ See table C.1 in appendix C for more details

fined 40 Euros per tonne² CO₂ in Phase 1 and 100 Euros per tonne in Phase 2. In Phase 1 only CO₂ will be included in the scheme, but in Phase 2 Member States may add other greenhouse gases and industrial sectors. The scheme is to be coordinated with permits provided under the Integrated Pollution and Prevention Control (IPPC) Directive 96/61/EU and may become part of the IPPC in due course.

An International scheme The directive establishes an EU-wide scheme, but the Commissioner indicated in a speech the willingness to move to an international one. The directive also envisages participation of the EEA countries and in view of the forthcoming EU enlargement, up to 30 countries in the period up to 2012.

² This was reduced from 50 Euros in earlier drafts of the directive.

3 E3ME update

3.1 Data Sources

A great deal of time and resources have gone into making sure that the data in E3ME are consistent across countries and are measured in equivalent units. The majority of data come from four main sources:

- Eurostat is always the first choice among the sources as it establishes a comparable basis across member states. Even where Eurostat data are incomplete or believed to be of poor quality, the Eurostat definitions are adopted and the data are improved via other sources. This allows the inclusion of improved New Cronos data from Eurostat on an annual basis.
- For this study the data for Sweden, covering (mainly) 1993-2000, were provided by Statistics Sweden and came from SEEA and national accounts.
- When Eurostat data are not available or need to be improved, international sources such as OECD or IMF are consulted. These international sources are also important for data covering the world areas outside the E3ME regions.
- National official statistics and other data sources are used for more recent years where Eurostat is lagging national sources.
- Data from the EC's AMECO database are used at the final stage in order to make the total consistent with officially accepted macroeconomic totals.

For the purpose of the present study methodological consistency has been maintained as the data provided by Statistics Sweden have been converted to the units of Eurostat data (1995 euros) and the data originate from the same source as the latest Eurostat datasets.

See Appendix A below for more details about the E3ME 3.1 variables and those that have been updated in this study.

3.2 The Swedish energy system

The energy system in Sweden largely depends on hydro power and nuclear power for electricity production. The use of bio fuels is substantial compared to many other countries in Europe and amounts to slightly less than 25% of the energy use. The iron and steel industry uses coal in its industrial processes, and some of the by-products are used in district heating systems. District heating systems are also fuelled by bio fuels and waste. The pulp and paper industry are important users of energy, but also provide bio fuels for other users.

As a result of this special feature in Sweden, the item Steam in the E3ME classification Fuel Types (J) was redefined to incorporate all other fuels including bio fuels. The category was renamed steam and other.

3.3 Data linking and consistency with past sources

Other data sets used For the purpose of this study, other Eurostat sources have been used to cover the period 1980-1992 and the previous E3ME (version 2) databanks have been used to cover the period 1970-1979.

To generate an adequate estimation of the series, adjustments and sectoral cross classification need to be identified for each of these periods. The procedure applied determines common classifications between the E3ME 3.1 (1990s and projection period), E3ME 2.2 (1970-1979), New Cronos Sec2 (1980-1992) and New Cronos Breakdowns (1991-2000).

Use of cross classifications The common classifications (for industry) are described in tables A.4 and A.5 in Appendix A. They seek to identify, between any two data sets, the common values of the dataset. Once the common values have been replaced in a (generally, broader) classification, the data are split into the more detailed classification using a procedure that attempts to keep the new values as close as possible to the ones available in a more disaggregated classification (for example E3ME 3.1).

Following this procedure ensures that the data disaggregated into sectors (for example at the level of New Cronos Sec2 or E3ME 2.2) will reproduce the values in the data sources.

3.4 Model estimation

Stochastic nature of E3ME Each of the stochastic functions of E3ME is estimated for 40 industries across 18 regions. There are 22 stochastic functions in E3ME and all of them are based on time-series estimated parameters. This gives rise to a rich collection of parameter estimates, potentially 720 significant parameters for each effect, that represent economic influences such as responses to technological progress, economic activity and relative prices. The specific functional form of the equations is based on the econometric techniques of cointegration and error-correction, particularly as promoted by Engle and Granger (1987) and Hendry et al (1984).

Cointegration technique In brief, the parameter estimation process involves two stages (see E3ME 3.1 Manual Chapter 6 for more details). The first-stage is a levels relationship, whereby an attempt is made to identify the existence of a cointegrating relationship between the chosen variables, selected on the basis of economic theory and a priori reasoning. For example the list of variables in the stochastic function for employment demand contains real output, real wage costs, hours-worked, a composite real energy price and a measure of technological progress.

Error correction model If a cointegrating relationship exists, then the second stage regression is known as the error-correction representation, and involves a dynamic, first-difference regression of all the variables from the first stage, along with lags of the dependent variable, lagged differences of the exogenous variables, and the error-correction term (the lagged residual from the first stage regression).

Impact of the new data in other regions With the incorporation of the new Swedish data, where some of the values have been largely revised, the old parameters values did not fit the new data. This is particularly true for the Swedish variables but also for many EU aggregates, for example, average wage costs per industry or EU price indices. These in turn will not fit the stochastic

equations for the other E3ME regions. This means that a full model estimation was necessary. However, the estimation results will have more important differences in the stochastic function for Swedish variables but not to the same extent in the rest of the regions.

3.5 Analysis of new estimated parameters

This section reviews the main changes in the estimated equations, concentrating especially on the stochastic function for Sweden as the main data changes occur there. Overall, the distribution of parameters remains close to the previous estimation (Cambridge Econometrics 2001), while the number of significant effects does not change very much. The specific comments about the parameters refer to comparisons, normally between the average for Sweden and the previous estimates (2001), while the number of significant parameters refers to the total number of estimated parameters. The new set of parameters is overall an improvement. In general, more significant parameters are estimated establishing stronger relationships between model variables. A few effects become less important with the new data.

Model specification The equations were estimated for each of 18 regions in Europe and 40 industries (or products) for both long-term cointegrating relationships and the short-term error correction model making a total of 11,343 new estimated equations. The equations take a log-linear form in the long-term cointegrating relationship and in the short-term error correction structure; the stochastic equations follow the general form:

$$Y_{i,j,t} = \beta_{0,i,j} + \sum_k \beta_{1,i,j,k} X_{i,j,k,t} + \varepsilon_{i,j,t}$$

Where Y is the dependent variable for the corresponding equation (eg employment by industry and region) in logarithms for the long-run and in percentage change for the short-run, i and j are indices for the region and industry. Finally, $X_{i,j,k}$ corresponds to the k independent variables in the equation and $\beta_{i,j,k}$ the parameters associated with these variables.

Industrial Employment The stochastic equation for industrial employment relates demand for employment at each industry with variables such as real output, real wage costs, hours-worked, a composite real energy price and technological progress. Following the changes to the Swedish data the total number of significant parameters estimated increased from 991 to 1,054 in all regions and industries. The average coefficient for Swedish industries for the real output effect in the short-term equation changed substantially from 1.4 to 0.38. Overall in all regions, the new data produced 171 significant parameters, three more than before. The average coefficient for hours worked in Sweden went from -0.26 to -1.18, and overall in all regions the number of significant parameters rose from 67 to 85. Real oil price shows a slight change from 0 to -0.06 increasing from 31 to 45 significant parameters. Finally, the technology index average coefficient for Sweden moved from 0.00 to 0.04 with 54 significant parameters overall in the EU, ten more than before.

In the long-term relationship, most parameters show significant changes. The largest changes are in the relation with real output that falls from 0.73 to 0.53; overall in all EU regions 359 significant parameters are estimated for this effect, 22 less than before. Real wage costs increases its absolute value from -0.53 average for Sweden to

-0.37, with 15 more significant parameters than before; there are 405 significant effects for all the EU regions. Hours worked shrinks from -0.70 to -0.46 but with eight more significant parameters, a total of 76 in all the regions. Real oil price effect rises in absolute value from an average in Sweden of -0.01 to -0.21, corresponding to 234 significant parameters in all the regions, 15 more effects than before. Finally, technological progress goes from a Swedish average of -0.10 to -0.13, with 284 significant parameters in all the regions or 15 more than before.

Industrial Prices The total number of significant parameters in all regions and industries increased from 908 to 917. There was some contrasting change in the main short-term variables, where the average parameter for unit cost in Sweden rose from 0.09 to 0.55 with 235 significant parameters in all EU regions, five less than before. The average parameter for import price in Sweden fell from 0.38 to 0.06 and less significant parameters were estimated to be 93, or eight less than before. The technology index average for Sweden increased from 0.05 to 0.08 although four fewer significant parameters were estimated; 31 in all EU regions. Other parameters changed only slightly and remained similar to the previous set of equations.

Parameters of the long-term equation showed similar movements to the short-term parameters: the average parameter for unit costs in Sweden increased from 0.65 to 0.78 with 220 significant parameters estimated in all EU regions; 12 more than before. Finally, the average coefficient for import price in Sweden decreased from 0.33 to 0.14 although three more significant effects were estimate with a total of 121 in all EU regions.

Import Prices The stochastic equation for import price describes import prices for each product in terms of world commodity price, import price indices inside and outside the EU and exchange rates in both the long-term and short-term equations. The total number of significant parameters in all EU regions increased from 1,494 to 1,526. The average short-term import price indicator for Sweden fell slightly, from 0.36 to 0.18, with a few more significant parameters; 242 in all EU regions. World commodity price effect changed from 0.17 to 0.27 average in Sweden with 23 more significant parameters; a total of 153 significant parameters in all EU regions. The exchange rate parameter increased from 0.49 to 0.58 with eight more significant parameters, or a total of 304 in all EU regions.

In the long-term equations the average parameters in Sweden for import price indicator reduced slightly from 0.38 to 0.21 and estimated only 285 significant parameters in all the EU regions; 17 less than before. The average parameter for rest of world price effect in Sweden rose from 0.11 to 0.21 and six more significant parameters were estimated in all EU region; a total of 156 significant parameters. Finally, the world commodity price average effect was also more significant as the average for Sweden went from 0.03 to 0.18 with 160 significant parameters in all EU region, or two more than before.

Export Prices The stochastic equation for export price has a similar structure to the import price relationship. The total number of significant parameters in all EU regions increased slightly from 1,456 to 1,475. The short-term relationship showed little change from the previous E3ME version. In particular, the short-term average parameter for the world commodity price effect in Sweden increased from 0.13 to 0.45 with the same number of significant parameters; a total of 83 in all EU regions.

There were more changes in the long-run relationship: the average parameter for other EU export price decreased from 0.59 to 0.14 in Sweden while eleven fewer significant parameters were estimated; a total of 198 in all EU regions. The rest-of-world price effect increased from 0.03 to 0.24 on average in Sweden and 107 significant parameters were estimated in all EU regions, or one more parameter than before. The world commodity price effect also increased from 0.09 to 0.23 in average in Sweden estimating five more significant parameters with a total of 123 significant parameters in all EU regions. The exchange-rate-average effect for Sweden decreased from 0.72 to 0.61, although 22 more significant parameters were estimated; a total of 294 in all EU regions. The average parameter for unit labour cost in Sweden increased from 0.28 to 0.39 with 231 significant parameters in all EU regions with nine additional significant parameters in all EU regions. Finally, the average technical progress parameter in Sweden also increased from 0.13 to 0.32 and nine more significant parameters were estimated with a total of 240 significant parameters in all EU regions.

Industrial Investment Industrial investment relates total investment by industry and region with variables such as the real rate of interest, price of investment, real labour costs and the ratio of actual to normal output. The total number of significant parameters estimated in all EU regions increased from 1,218 to 1,324. The short-term parameters show two main changes. The average coefficient for real output in Sweden increased from 0.98 to 1.17 with a reduction of the significant estimated parameters to 215 in total in all the EU regions or eleven less than before. In addition, the average coefficient for price of investment in Sweden increased from -0.8 to -1.0, increasing also the number of significant parameters by 23 to 160 significant parameters in all EU regions.

The long-term parameters also showed increasing average effects with the average coefficient for real output in Sweden going from 0.66 to 0.75 with no change in the number of significant effects with a total of 346 significant parameters in all EU regions. The average price of investment parameter in Sweden went down from -0.50 to -0.54, while 20 more significant effects were estimated in all EU regions; a total of 202 significant parameters. Finally, the average real labour costs parameter for Sweden decreased from 0.27 to 0.21 with 15 more significant effects being estimated out of a total of 114 significant parameters in all EU regions. These changes appear to be relatively small in terms of coefficient changes and the number of significant equations.

Aggregate Energy Demand Following the changes to the Swedish data and parameters there seem to be few large changes to the average coefficients of aggregate energy demand for Sweden. Overall in all the EU regions there were fewer significant parameters (dropping from 357 to 346); there were changes in the number of significant parameters for all effects, but they were greater in the short-term parameters as would be expected, if short-term fluctuations are changing more than long-term trends. The main change in the average coefficients for Sweden was the change in short-run activity measures, falling from 1.06 to 0.9 with eleven fewer parameters being estimated. In the short-run the changes in average coefficients were quite small, the average parameter of average price for Sweden changed from -0.15 to -0.17 with six fewer significant parameters and the effect on the Swedish average of EU R&D in machinery changed from -0.47 to -0.29, maintaining very few significant parameters as before.

In the long run the largest fall for the Swedish average parameter was seen in a fall in the activity measure effect from 1.35 to 1.02 with four fewer significant effects or a total of 86 significant parameters in all EU regions. Finally, the average price ratio

parameter for Sweden changed from -0.26 to -0.21 with 86 significant parameters in all EU regions or three less than before. There were other minor parameter changes in the long-run relationship.

Aggregate The total number of significant effects increased slightly from 36 to 38. The short-
Consumption term parameters were already quite small and the number of significant equations very low. There are no significant changes on this equation.

Other parameter changes that have been omitted here can be found in appendix A3.

4 Model Scenarios

4.1 Policy issues addressed

The scenario work addresses some of the policy issues arising from the design of the trading scheme. This part of the work attempts to measure the consequences of Swedish environmental policies in a European Union context.

Option of auctioning permits Although the EU directive (European Commission 2002) is clear about a number of features of the scheme, there are some questions particularly around the second period of trade from 2008 to 2012. These include, the consequences of the allocation mix; and auctions versus grandfathering (set at a level of up to 10% of the permits for the second period). It is up to national governments to implement this option in the second period. One question is the use that national governments will make of the proceeds from the auctions.

Internationalisation of the scheme Another important question is related to the level of internationalisation of the scheme and whether an EU-wide scheme will be extended outside the EU. This could result from either EU enlargement or the linking of other countries' schemes with that of the EU. The European Commission has voiced its willingness to move towards an international trade in permits. An amendment proposed to the EU trading scheme (European Commission 2003) deals with the use of CDMs and Joint Implementation projects whose application will begin in 2008, provided that the Kyoto protocol has entered in force.

4.2 Basis for allocation of emissions allowances in Sweden

Allocation of permits Following the proposal from the European Parliament for a European system of emissions trading (Commission of the European Communities 2002), the Swedish FlexMex2 Commission³ presented its proposal for a Swedish system of emissions trading as part of the European system in June 2003. The proposal concerns the first period covering the years 2005-2007. According to this proposal, the allocation of permits will be grandfathering based on historical emissions. The historical emissions years will be 1998-2001 and the average emissions during the period will serve a guideline for the allocations.

Raw product related emissions Emissions in each sector are categorized as emissions from raw products or emissions from fossil fuels. The raw products related emissions are emissions generated by the carbon included in the raw product used in a process whose purpose is not to create power, heat or energy for transport. Due to economic reasons there is no alternative production process in the period 2005-2007 for the emissions classified as non-exchangeable raw-product-related emissions.

Use of historical emissions Although the allocation of permits during the period 2005-2007 will be based on emissions in the historical period (these amount to 17.4 m tonnes CO₂), the Swedish government estimates the total need for emissions allowances to be in the region of 24m tonnes CO₂ per year (see Table 4.1 below). This amount reflects the historical

³ The Commission for a system and regulatory framework for the flexible mechanisms of the Kyoto Protocol.

fuel-related and other emissions, new entrants to the scheme, other predicted increases in product-related emissions, and statistical uncertainty.

Table 4.1 : Basis for allocation of emissions allowances in Sweden

Historical emissions	
• Historical fuel-related emissions	11.2 M ton CO ₂
• Historical non-exchangeable raw-product-related emissions	6.2 M ton CO ₂
• Statistical uncertainty	2.0 M ton CO ₂
New entrants	
• New plants	2.0 M ton CO ₂
• Prognosis of increased emissions of non-exchangeable raw product-related emissions	2.3 M ton CO ₂
• Other	0.6 M ton CO ₂
Total	24.3 M ton CO ₂
Source(s): Government of Sweden, SOU 2003:60	

4.3 Permit price

The Hansen study Hansen (2002) summarises a number of studies on the price of permits for the period 2008-2012. Table 4.2 below presents price levels from the different studies. According to Hansen (2002) the most likely price levels are 6 €/tCO₂e as a European price in 2010 under an international trading scheme and a price of 15 €/tCO₂e, considering trade only within EU⁴.

Table 4.2 : Full trade between Annex B countries

Source	Price		Assumptions
	€/tCO ₂ e	€/tC	
Natsource ¹	9	33.00	US does not participate, carbon sinks used, Hot Air from Russia available, national restrictions on market limited
GTAP-EG ²	22	80.67	US does not participate, national restrictions on market, no hot air or sinks
PRIMES ³	17	62.33	Full Annex B trade (US participates), no hot air or sinks
ZEW ⁴	0	0.00	US does not participate, carbon sinks used and hot air available without restrictions
ZEW ⁵	10 - 18	36.67-66.00	US does not participate, sinks used and hot air available but limited in supply, and Russia control prices
CERT ⁶ (Grutter)	4 - 5	14.67-18.33	US does not participate, sinks used, hot air available, national restrictions on market limited
Zhang ⁷	2 - 6	7.33-22.00	US participates, no hot air or sinks
HWWA ⁸	1	3.67	US does not participate, banking not allowed, 33% of hot air available on the market
Note(s):	All prices refer to the second trading period 2008-2012 and correspond to values in 2010. E3ME prices correspond to 2001. €/ \$ exchange rate 1 in 2010.		
Source(s):	1 Natsource (2002), 2, 9 and 10 Nilsson and Kriström (2002), 3 Capros and Mantzos (2000a), 4, 5 and 11 Löscher and Zhang (2002), 6 Grütter et al (2002), 7 Zhang (2000), 8 Jotzo and Michalowa (2001), 13 Cambridge Econometrics (2001).		

⁴ An exchange rate of 1 in 2010 is assumed between euros and dollars.

Choice of basic price The price of 15 USD/tonnes CO₂ has been established in a number of studies that meet the terms of the proposed EU-directive on trading between EU-member states 2010, namely a commitment of 8% reduction from the Kyoto base and no trade with other Annex B countries.

Source	Table 4.2 (continued) : Trade only in the EU-system		Assumptions
	Price		
	€/tCO _{2e}	€/tC	
GTAP-EG ⁹	30	110.00	No consideration taken of EU expansion, branches within the system -8% commitment
GTAP-EG ¹⁰	77	282.33	No consideration taken of the coming EU expansion, branches within the system -26% commitment
PRIMES ¹¹	App. 30	App. 110	Full trade between EU14, no consideration taken to the coming EU expansion
EU COM ¹² (based on PRIMES)	App. 20	App. 73.33	As above
CE (E3ME) ¹³	App. 9	App. 33	Full trade between EU15, banking of permits, 2002-2005 reductions based on -8% commitment, no consideration taken of the EU expansion.
Note(s):	All prices refer to the second trading period 2008-2012 and correspond to values in 2010. E3ME prices correspond to 2001. €/€ exchange rate 1 in 2010.		
Source(s):	1 Natsource (2002), 2, 9 and 10 Nilsson and Kriström (2002), 3 Capros and Mantzos (2000a), 4, 5 and 11 Löscher and Zhang (2002), 6 Grütter et al (2002), 7 Zhang (2000), 8 Jotzo and Michalowa (2001), 13 Cambridge Econometrics (2001).		

Factors contributing to a lower price The prices outlined in Table 4.2 above are the result of modelling exercises as indicated in each row. However, these models do not include the participation of new EU member states. For the second period of emissions trading the EU directive does not specify how, but merely announces the progressive incorporation of the new member states into the scheme. Those countries are likely to make reductions more cost-efficient and therefore contribute to a lower price. Other features of the proposed trading system could also contribute to a lower price, for example: more flexibility for the participation of some branches, opt in/opt out opportunities, and the possibility of including other GHGs.

Clean Development Mechanism and Joint Implementation According to the EU directive, the other two flexible mechanisms, Clean Development Mechanism and Joint Implementation, are scheduled to be used within the trade system from 2008. However, the exact mechanism and extent of the use of these two has not specified. The Hansen study argues that the possibility of using credits created outside the EU will be limited and therefore cannot reduce the prices of emission allowances. In addition, with a larger allowance price, more projects which create credits will be profitable. When the projects become more profitable and focus more on technical advancement instead of administrative issues, prices will decrease.

4.4 Scenario design

Table 4.3 below shows the selected scenarios for this study. In addition to a baseline scenario, that in which there is no emissions trading or additional taxes to achieve Kyoto, we present five scenarios involving emissions trading.

- Basic Trading Scheme* The simplest application of the EU directive on emissions trading is implemented as a grandfathering scheme that involves only the energy intensive sectors. The specific activities included in the EU trading scheme are described in Appendix C. These include energy activities such as power generation, oil refining and coke ovens, and heavy industries such as metal production and processing, mineral industries and pulp & paper. Other sectors are not covered by the scheme or are covered by alternative environmental taxes. We use an exogenously given price for the scheme as described in Section 4.3, but allow for banking of permits; we assume a price of 15 €/tCO_{2e} in 2012. We call this the ‘basic emissions trading scenario’.
- High and Low price* Scenarios 3 and 4 are checks on the sensitivity to price of the basic emissions trading scenario. We explore a higher and lower-price scenario setting the exogenous price to 20 €/tCO₂ and 10 €/tCO₂. We call these ‘high price’ and ‘low price scenarios’.
- Auctions of permits and environmental tax* We implement two alternative scenarios with respect to the basic scenario. First, we allow auctioning of the permits in the second period, as stipulated by the EU emissions trading directive. We make the auctioning equal for all Member States and set to the maximum of 10%. Finally, we allow for a mixture of policies, incorporating in the basic emissions trading scheme 10% auctions and an additional tax on emissions for the sectors not covered by the basic scheme. The proceeds from the tax and auctions are used to lower employers’ contributions to social security.

Scenario	Description	Price (€/tCO_{2e})	Code
Baseline	No permit trading or tax	-	GB
Basic emissions trading	Permit trading in energy-intensive sectors	15	GT
Low-price	Basic emission trading and low price	10	GL
High-price	Basic emission trading and high price	20	GH
Auctions	As basic, + 10% auctions in the 2 nd period	15	GA
Auctions and Tax	As auctions, + environmental tax	15	GS

4.5 Model Development

- Two periods of trading* The E3ME model has been developed further to accommodate the new requirements of the scheme according the latest EU directive. In particular this involves the modelling of two, possibly different, periods of trading: 2005-07 and 2008-12.
- Interim targets* In the present implementation, the permit scheme is always assumed to start in 2005. The total number of permits to be issued in the final year, 2012, is given from the target (8 % reduction below Kyoto base) while the target for preceding years is given

by linear interpolation. The coverage of the scheme is also variable, although in this exercise coverage is 100%.

Scenario checks have been implemented to compare the new model version with previous E3ME results that used auctions of permits and grandfathering. The new version of the model has produced adequate responses to all checks.

For more details about the model development see Appendix B.

5 Scenario results

5.1 Baseline Scenario

Table 5.1 shows the levels of various EU15 aggregates for the baseline scenario. The baseline scenario and forecast were taken from the Cambridge Econometrics European Sectoral Prospects project and from the European Commission DG TREN Energy to 2020 projections. To incorporate recent projections on CO₂ emissions the publication *European Energy and Transport Trends to 2030* (European Commission 2003) was also used. In this study the baseline for CO₂ is a business-as-usual scenario and it was conceived as the most likely development of the energy system in the future in the context of current policy objectives and means. The baseline scenario includes existing trends and the effect of policies in place and those being implemented between the end of 2001 and July 2002; but it excludes all additional policies and measures that aim at further reductions of CO₂ emission, including those designed to comply with the Kyoto protocol. In this scenario, CO₂ emissions grow at 0.2% over the period 2001 to 2010 and at 0.7% thereafter. For this reason GHG emissions are low before 2010.

Some differences between E3ME Statistics Sweden data and the DG TREN projections have been detected in the historical period; see Appendix A for more details. These differences have an impact on the achievement of the Kyoto protocol by the model. In particular DG TREN data show trends of significant emissions reductions during the 1990s, larger than those reported by Environmental Accounts of Statistics Sweden.

	2005	2006	2007	2008	2009	2010	2011	2012
1995 (bn) €								
GDP	7,987	8,213	8,479	8,752	9,036	9,332	9,588	9,848
Consumption	4,830	4,969	5,127	5,288	5,458	5,636	5,793	5,952
Investment	1,749	1,854	1,973	2,100	2,237	2,384	2,495	2,611
Exports	3,141	3,376	3,619	3,883	4,166	4,472	4,749	5,043
Imports	3,403	3,677	3,961	4,267	4,602	4,966	5,284	5,623
Current (bn) €								
GDP	14,396	14,875	15,492	16,057	16,654	17,277	17,834	18,424
Consumption	6,142	6,479	6,822	7,188	7,579	7,994	8,376	8,791
Investment	2,107	2,298	2,495	2,714	2,955	3,217	3,436	3,671
Exports	3,900	4,132	4,625	5,062	5,544	6,075	6,592	7,160
Imports	4,482	4,824	5,302	5,827	6,414	7,072	7,708	8,416
Employment (m)	157	160	162	165	168	171	173	175
Earnings (th.€/person-year)	27.146	28.363	29.531	30.576	31.726	32.953	34.220	35.571
CO ₂ emission (mtCO ₂ eq)	3,388	3,396	3,405	3,413	3,421	3,430	3,454	3,478
Price of fuel (€/toe)	545	517	535	546	559	571	582	594
Notes(s) : Price of fuels are averages across fuels and users in €/toe including taxes.								

Table 5.2 below shows the summary of the baseline for Sweden. The levels of the emissions have been set so that the growth rates from DG TREN are maintained but linked with the levels of emissions supplied by Statistics Sweden.

Table 5.2 : Summary baseline scenario for Sweden (levels)								
	2005	2006	2007	2008	2009	2010	2011	2012
1995 (m) €								
GDP	414,774	428,574	445,104	463,204	482,779	503,747	524,730	546,822
Consumption	113,312	116,718	120,320	124,160	128,280	132,729	137,148	142,064
Investment	39,087	41,112	43,213	45,469	47,896	50,444	53,283	56,185
Exports	158,484	166,360	175,003	184,140	193,828	204,103	215,290	227,065
Imports	118,583	125,701	132,879	140,582	148,871	157,746	168,043	179,266
Prices (1995=100)								
GDP	130	130	131	132	133	134	136	138
Consumption	122	122	124	125	126	128	129	131
Investment	123	121	122	124	126	129	132	135
Exports	110	109	111	112	114	117	119	122
Imports	111	111	113	116	118	121	124	128
Employment ('000)								
	4,393	4,435	4,477	4,521	4,566	4,614	4,659	4,708
Earnings (th.€/person-year)								
	32.860	34.490	35.980	37.650	39.430	41.380	43.660	46.090
Price of fuel (€/toe)								
	734	714	738	758	774	789	806	821
Notes(s) : Prices index 1995=100. Price of fuels are averages across fuels and users in €/toe including taxes.								

5.2 Basic emission trade scheme

As explained in Section 4.4, the first scenario corresponds to the simplest implementation of the European Commission's directive for gas emissions allowance trading as outlined in European Commission (2002). This involves the allocation of allowances to the energy-intensive sectors, and allows the trading of permits while no additional environmental policy is in place. There are no proceeds for the national governments from the allocation of permits.

Results of the EU Table 5.3 below summarises the result for EU15 aggregates for the implemented scenario: emissions trading with banking of permits in two periods 2005-2007 and 2008-2012 with an exogenous price of 15 €/tCO₂. The numbers are percentage changes from the baseline. As no other sectors are included in the scheme and there are no additional carbon taxes, the scenario results in an increase of the price of fuel.

Small impact at the EU15 level The impact on total GDP for the EU15 is very small, just below 0.1% negative through the period and it tends to change more slowly towards the end of the period. Other variables move accordingly, with larger negative impacts on aggregate investment reaching a -0.2% by 2012. In this scenario the proceeds from the permits are not recycled to lower employment costs as in environmental tax reform, and so employment follows the fall in GDP throughout the period. The largest price increases are in consumer and export prices at the beginning of the emissions trading

scheme. The impact at the macroeconomic level is, in general, small and the scheme tends to have little effect.

1% reduction of emissions The impacts on emissions and fuel price are more significant. Table 5.4 below shows the effects of the scheme on emissions and its relative size with respect to the Kyoto targets. The baseline scenario shows a decrease from the 1990 levels of more than ½% during the period 2005-2007. The decrease becomes larger only over 2008-10. The Kyoto goal is an 8% reduction for the whole of the EU; but the basic emissions trading scenario only achieves an additional 1% reduction of GHG emission. A further reduction close to 7% will be necessary under this scenario.

	2005	2006	2007	2008	2009	2010	2011	2012
GDP	-0.03	-0.03	-0.04	-0.05	-0.05	-0.06	-0.07	-0.08
Consumption	-0.06	-0.03	-0.04	-0.04	-0.05	-0.06	-0.07	-0.08
Investment	-0.03	-0.08	-0.13	-0.15	-0.16	-0.17	-0.19	-0.21
Exports	0.00	-0.02	-0.04	-0.05	-0.06	-0.07	-0.07	-0.08
Imports	-0.03	-0.04	-0.06	-0.08	-0.09	-0.10	-0.11	-0.12
Deflator								
GDP	0.04	0.07	0.08	0.07	0.06	0.05	0.02	0.00
Consumption	0.06	0.12	0.13	0.12	0.10	0.08	0.05	0.01
Investment	0.02	0.02	0.00	-0.03	-0.05	-0.08	-0.12	-0.16
Exports price	0.11	0.15	0.15	0.13	0.10	0.07	0.05	0.02
Imports price	0.08	0.12	0.11	0.09	0.07	0.04	0.01	-0.02
Employment	0.01	0.00	-0.02	-0.04	-0.05	-0.05	-0.06	-0.06
Earnings	0.01	0.10	0.11	0.11	0.08	0.06	0.03	0.00
CO2 emissions	-0.55	-0.75	-0.88	-0.93	-0.92	-0.95	-0.96	-1.00
Price of Fuel	2.59	2.74	2.82	2.85	2.80	2.82	2.83	2.88

	2005	2006	2007	2008	2009	2010	2011	2012
CO2 base	3388	3396	3405	3413	3421	3430	3454	3479
GHG base	4021	4028	4036	4044	4052	4061	4084	4108
CO2 % from base	-0.55	-0.75	-0.88	-0.93	-0.92	-0.95	-0.96	-1.00
GHG % from base	-0.47	-0.64	-0.76	-0.81	-0.79	-0.82	-0.83	-0.87
GHG % Scenario - Kyoto	-1.23	-1.25	-1.14	-1.01	-0.79	-0.60	-0.03	0.51
GHG % Base - Kyoto	-0.78	-0.61	-0.40	-0.23	-0.02	0.19	0.78	1.36

Environmental emissions in detail Tables T.1 to T.20 in Appendix D present detailed results for this scenario. These include emission by user⁵ and environmental emissions GHG-equivalent tonnes by

⁵ E3ME fuel user: classification (FU): 1 Power Generation, 2 Iron & Steel, 3 Non-ferrous Metals, 4 Chemicals, 5 Mineral products, 6 Ore-extraction, 7 Food, Drink & Tobacc, 8 Tex., Cloth. & Footw, 9 Paper & Printing, 10 Engineering etc, 11 Other Industry, 12 Rail Transport, 13 Road Transport, 14 Air Transport, 15 Inland Navigation, 16 Households, 17 Other Final Use

emissions sources⁶. These tables show the impact of the trading scheme on the fuel mix and emissions by source. The largest impact is on the energy and transport industries, with emissions falling by over 3% at the end of the period. In particular Table T.9 shows that Power Generation, Chemicals and other parts of industry are most responsive to the scheme⁷. Rail transport also shows some significant emissions reductions. Fuel mix and emissions are presented in Table T.11⁸ showing an important impact on coal and heavy fuel oil.

Negative impact in industries

At the industry level the impact on output is generally negative; however, the largest falls in output are in heavy industries such as Metals, Machinery, Electricity and Wood & Paper. Other industries and services are sensitive to the overall economic slowdown; in particular electrical goods that produces components, and business and computer services. Employment by industry follows the trend of output.

Results for Sweden

Table 5.5 below shows the scenario results for Sweden as percentage changes from the baseline. Similar to the EU15 case, GDP is not significantly affected since the reduction is merely 0.1% towards the end of the period. Other macroeconomic aggregates follow GDP; employment falls by over 0.1%. Prices are more or less stable with larger increases toward the beginning of the period and levelling out or increasing more slowly by the end of the period. Fuel prices are around 1% above base throughout the period.

	2005	2006	2007	2008	2009	2010	2011	2012
1995 €								
GDP	-0.01	-0.03	-0.04	-0.06	-0.07	-0.08	-0.10	-0.12
Consumption	-0.03	-0.06	-0.08	-0.10	-0.12	-0.15	-0.19	-0.24
Investment	-0.04	-0.09	-0.11	-0.18	-0.19	-0.23	-0.27	-0.30
Exports	0.00	-0.01	-0.03	-0.04	-0.05	-0.06	-0.07	-0.08
Imports	-0.02	-0.04	-0.06	-0.09	-0.10	-0.12	-0.13	-0.16
Deflator								
GDP	0.10	0.15	0.17	0.18	0.18	0.18	0.16	0.14
Consumption	0.06	0.10	0.12	0.13	0.13	0.13	0.12	0.11
Investment	0.05	0.11	0.14	0.16	0.15	0.15	0.14	0.12
Exports price	0.09	0.15	0.17	0.17	0.15	0.14	0.12	0.10
Imports price	0.10	0.15	0.17	0.17	0.16	0.14	0.12	0.10
Employment	0.01	0.00	-0.01	-0.03	-0.04	-0.05	-0.06	-0.08
Earnings	-0.01	0.06	0.08	0.10	0.10	0.10	0.10	0.08
Price of Fuel	0.79	0.83	0.87	0.93	0.99	1.04	1.09	1.14

⁶ E3ME Emissions Sources classification (EM): 1 Energy & trans. Industries, 2 Industry, 3 Transport, 4 other fuel combustion, 5 Fugitive fuel emissions, 6 Industrial processes, 7 Solvent & other product use, 8 Agriculture, 9 Waste treatment disposal and 10 Other.

⁷ Industries most affected are the ones included in the trading scheme; see section 4.4 above. In particular, Wood & paper and Paper & printing that include pulp in the Industry and the Fuel User classifications respectively.

⁸ E3ME fuel type classification (J): 1 Coal, 2 Coke, 3 Lignite, 4 Heavy Fuel Oil, 5 Middle Distillates, 6 Natural Gas, 7 Derived Gas, 8 Electricity, 9 Nuclear Fuels, 10 Crude Oil and 11 Steam & others

Insufficient emission reduction Table 5.6 below shows the changes in gas emissions for Sweden. There is a significant decrease in both CO₂ and GHG emissions throughout the period with respect to the baseline. Greenhouse gases fall by close to 0.5% by 2012, while CO₂ falls slightly more by over 0.5%. However, this is far from achieving the desired 4% fall from Kyoto levels, if the price is as given in the scenario assumption. Although the scheme reduces emissions, additional action would be needed given the high levels of baseline.

	2005	2006	2007	2008	2009	2010	2011	2012
CO ₂ base	59.43	60.17	60.92	61.68	62.45	63.23	64.73	66.27
GHG base	78.89	79.62	80.38	81.14	81.95	82.72	84.23	85.77
CO ₂ % from base	-0.01	-0.19	-0.34	-0.42	-0.49	-0.52	-0.53	-0.54
GHG % from base	-0.01	-0.15	-0.27	-0.33	-0.39	-0.43	-0.44	-0.45
GHG % Scenario - Kyoto	13.65	14.58	15.53	16.59	17.65	18.77	20.97	23.21
GHG % Base - Kyoto	13.66	14.75	15.83	16.95	18.08	19.24	21.45	23.72

Energy industries are negatively affected At the industry level the results in Sweden follow the overall EU picture: energy industries are the most affected in terms of production, but also some parts of industry show large falls in output. Services in Sweden are also negatively affected, with the exception of Air Transport which contrasts with the poor performance of other transport industries. The scheme negatively affects most fuel types in Sweden and in particular heavy fuel oil with a 25% fall in total emissions by 2012. Coal appears to be a good alternative fuel under the scheme and coal use grows slightly at the beginning of the period, but slows and becomes static by 2012.

5.3 Basic trading scheme, low-price scenario

Lower permit prices give a smaller CO₂ reduction The reduction of prices by one-third from €/tCO₂e 15 to €/tCO₂e 10 produces a smaller effect on emissions in the EU15, cutting one-third off the reduction in the basic trading scheme from 1% to 0.71%. The effect on fuel prices is in line with the reduction of the permit price, while GDP growth is not decreased.

Lower permit prices improve output in Sweden The effects in Sweden are similar. The one-third reduction in price is passed on to GDP and other macroeconomic variables. At each industry level there are no surprises and the negative effects on output and employment are simply smaller under the lower permit price. Detailed industry effects are shown in Appendix D in tables L.15 to L.18. Other detailed results on emissions appear in Tables L.3 to L.14.

5.4 Basic trading scheme, high-price scenario

Higher permit price squeezes the gains This scenario presents another sensitivity analysis of the basic trading scheme. The permit price is increased by one-third from €/tCO₂e 15 to €/tCO₂e 20 producing larger emission reductions up to 1.25% in the EU 15 by the end of the period. This contrasts with the lower 1% reduction from the basic trading scheme. The effect on fuel prices reflects the one-third increase in permit price; while GDP is also more affected falling by 0.1%.

Higher permit prices worsens output in Sweden In Sweden GDP falls by an additional 1/3% compared with the basic trading scheme. Fuel prices increases are in line with those in the EU15. Emissions are reduced but only by half of the EU reductions. In this scenario the different industries show a larger negative effect in both output and employment, than in the basic trading scheme, while maintaining a similar distribution across industries. Detailed industry effects are shown in Appendix D in Tables H.15 to H.18. Other detailed results on emissions appear in Tables H.3 to H.14.

5.5 Basic trading scheme and auctions

A small improvement in employment is achieved This scenario adds to the basic trading scenario the use of the proceeds from the auction of 10% of the permits to lower employment costs. The effects involved are relatively small but they do make employment less vulnerable both to the scheme and to rising fuel costs. This, in turn, improves GDP although only slightly. Emissions levels and fuel costs are very close to the levels of the basic trade scenario. At the industry level, and given the small scale of the changes, output and employment maintain a very similar distribution as in the basic trade scenario.

Impact on emission remains low in Sweden In Sweden the effects of recycling the proceeds from auctioning permits has very similar effects on the macroeconomic variables to those in the EU15. The effect on fuel prices is slightly less pronounced than in the non-auctioning scenario. There are no major changes in the effects on emissions and their sources. Power generation and Chemicals see the largest emissions reductions.

5.6 Basic trading scheme, auctions and tax scenario

This scenario adds to the basic trading scenario the use of the proceeds from the auction of permits and an environmental tax to lower employment costs through the economy. The price of permits is set at the same level of 15 €/tCO₂ and, while only the energy-intensive sectors are included in the scheme, sectors not included in the scheme are assumed to pay a carbon tax whose proceeds are used to lower employers' contribution to social security. This tax is additional to any other existing taxes on emissions that are currently paid by producers. In this scenario all industries in the economy are paying for emissions, either in the form of an emission permit or in the form of an emission tax. The effects involved are larger and more apparent and make employment less vulnerable to the scheme while still raising fuel costs.

Results for the EU Table 5.7 below summarises the EU macroeconomic results for the implemented scenario. The impact on GDP in the EU15 is not very large, around 0.1%, but it is mostly positive through the period, growing more slowly towards the end of the period. Other variables move accordingly with a large impact on aggregate consumption reaching 0.35% by 2012. Due to the tax recycling a larger impact on employment is achieved in the scenario with an increase of around 0.2% by the end of the period. In addition to the consequences of higher consumption, total earnings are also higher by 2012, rising by over 1/2%. The largest price effect is on consumer prices, with an increase of just over 1/2% by the end of the period.

	2005	2006	2007	2008	2009	2010	2011	2012
1995 €								
GDP	-0.01	0.04	0.06	0.08	0.09	0.11	0.11	0.12
Consumption	0.00	0.11	0.18	0.23	0.27	0.30	0.33	0.35
Investment	-0.04	-0.07	-0.07	-0.08	-0.07	-0.08	-0.09	-0.10
Exports	0.03	0.00	-0.01	0.00	0.00	0.00	0.00	0.00
Imports	0.02	0.03	0.06	0.08	0.09	0.10	0.10	0.11
Deflator								
GDP	0.07	0.16	0.20	0.22	0.24	0.25	0.26	0.26
Consumption	0.17	0.35	0.43	0.49	0.53	0.56	0.58	0.59
Investment	-0.03	0.05	0.11	0.13	0.15	0.15	0.13	0.11
Exports price	0.09	0.19	0.22	0.22	0.22	0.22	0.22	0.21
Imports price	0.11	0.22	0.29	0.31	0.33	0.33	0.33	0.32
Employment	0.10	0.13	0.14	0.15	0.16	0.17	0.18	0.19
Earnings	0.17	0.40	0.51	0.56	0.59	0.60	0.61	0.62
CO2 emissions	-1.62	-1.65	-2.43	-2.42	-2.51	-2.56	-2.67	-2.73
Price of Fuel	5.64	6.08	6.30	6.36	6.46	6.53	6.63	6.73

The impact on emissions and fuel price is larger with a rise of more than 6.5% in the price of fuel; this is the result of the combination of the emissions trading and the fuel tax. Table 5.8 below shows the effects of the scheme on emissions and their relation to the Kyoto targets. This scenario shows a decrease of GHG emissions from the 1990 level to 2.5% by 2007. A 2% decrease is achieved during most of the period, while, given the baseline assumptions, the level rises towards 2012. Therefore, an extra reduction to achieve the difference between the reduction in this scenario and the Kyoto target will be necessary.

	2005	2006	2007	2008	2009	2010	2011	2012
CO2 base	3388	3396	3405	3413	3421	3430	3454	3479
GHG base	4021	4028	4036	4044	4052	4061	4084	4108
Auctions+Tax scenario								
CO2 % from base	-1.62	-1.65	-2.43	-2.42	-2.51	-2.56	-2.67	-2.73
GHG % from base	-1.38	-1.40	-2.06	-2.04	-2.11	-2.16	-2.25	-2.30
GHG % Scenario - Kyoto	-2.12	-2.01	-2.44	-2.25	-2.11	-1.95	-1.47	-0.97
GHG % Base - Kyoto	-0.78	-0.61	-0.40	-0.23	-0.02	0.19	0.78	1.36

Economic activity increases in EU industries At the EU15 industry level a general revival of output is obtained in this scenario, particularly in services. Some manufacturing sectors, those most dependent on fuel input, show significant decreases in output and employment. The more significant savings in labour costs in this scenario affects industries diversely, but overall the effect on economic activity is positive. These results are shown in Appendix D in Tables S.15 to S.18.

Results for Sweden Table 5.9 below shows the scenario results for Sweden as percentage changes from the baseline. There is no significant change in GDP from the baseline, merely a mild fall close to 0.1% towards the end of the period. Only consumers' expenditure grows, by 0.7% pa, throughout the period. Prices are higher with consumer prices showing the largest increase and consistent growth through the period. Fuel prices grow by between 3.7% and 5.8% between the beginning and the end of the period.

	2005	2006	2007	2008	2009	2010	2011	2012
1995 €								
GDP	-0.03	-0.03	-0.01	0.00	0.02	0.04	0.06	0.09
Consumption	0.02	0.06	0.12	0.20	0.28	0.39	0.52	0.69
Investment	-0.10	-0.10	-0.07	-0.09	-0.06	-0.07	-0.06	-0.01
Exports	0.01	0.02	0.03	0.04	0.05	0.05	0.05	0.04
Imports	-0.01	-0.01	0.01	0.02	0.05	0.07	0.10	0.14
Deflator								
GDP	0.12	0.21	0.25	0.26	0.27	0.27	0.29	0.29
Consumption	0.29	0.33	0.38	0.43	0.48	0.52	0.57	0.62
Investment	0.05	0.12	0.14	0.15	0.15	0.15	0.14	0.12
Exports price	0.10	0.21	0.25	0.26	0.26	0.27	0.26	0.26
Imports price	0.18	0.29	0.33	0.34	0.35	0.35	0.34	0.33
Employment	0.06	0.07	0.07	0.09	0.11	0.13	0.16	0.20
Earnings	0.09	0.15	0.20	0.23	0.24	0.26	0.27	0.27
Price of Fuel	3.65	4.29	4.62	4.88	5.12	5.40	5.58	5.78

GHG emissions decrease significantly Table 5.10 below shows the changes in gas emissions for Sweden. There is a significant decrease in GHG emissions throughout the period, 2% or more, with respect to the baseline, while CO₂ falls by close to 3%. However, this is still far from the Swedish target of a 4% reduction in GHG emissions compared with 1990⁹. Although the combination of the scheme and environmental taxes reduces emissions, given the high levels of baseline additional action is needed.

CO₂ emissions show large reductions CO₂ emissions by sources in Sweden are much more variable in this scenario: Ore-extraction and Paper & Printing show over 30% reductions through the period. Other industries showing large changes are Chemicals, Mineral Products and others parts of manufacturing. Again Heavy Fuel Oil and Coal are the fuel types showing the largest reductions in emissions. These results are shown in Appendix D in Tables S.3 to S.14.

Industries in Sweden are positively affected At the industry level in Sweden there are some marked differences between industries, with a general positive effect on Services, while parts of manufacturing are still negatively affected by rising fuel costs.

⁹ This Swedish government target is to reduce the emissions by this amount; however the EU-target for Sweden is an increase of 4%.

	2005	2006	2007	2008	2009	2010	2011	2012
CO2 base	59.43	60.17	60.92	61.68	62.45	63.23	64.73	66.27
GHG base	78.89	79.62	80.38	81.14	81.95	82.72	84.23	85.77
Auctions+Tax scenario								
CO2 % from base	-0.74	-3.12	-3.23	-3.18	-3.10	-2.96	-2.85	-2.76
GHG % from base	-0.63	-2.51	-2.58	-2.54	-2.47	-2.36	-2.28	-2.20
CO2 % Scenario - Kyoto	12.95	11.87	12.84	13.98	15.17	16.43	18.69	20.99
CO2 % Base - Kyoto	13.66	14.75	15.83	16.95	18.08	19.24	21.45	23.72

Ancillary benefits Ancillary benefits have been estimated under the 5 scenarios. The methodology here follows the E3ME ancillary benefits study by Barker and Rosendahl (2000); that study describes in detail how some of these benefits have been assessed for 19 regions of Western Europe. Local and regional damage costs from emissions of NO_x, SO₂ and PM₁₀¹⁰ are taken from the ExternE study (European Commission (1995)).

The ancillary benefits are €32 million (1995) in Sweden and €4,142.5 million in the EU for this scenario. The savings are modest in Sweden and represent an average of 0.01% of the Swedish GDP per annum over the period 2005-2012, although using average valuations this corresponds to an annual estimate of some 300-400 life-years saved and 17 to 21 thousand fewer activity-days lost through illness. In the EU the savings are more significant reaching a 0.04% of GDP by 2012. Other scenarios produced even lower benefits and are not shown here.

The estimated benefits in these scenarios may be nearer the lower bound of the range of possible outcomes. Given that the targets are not reached, it is likely that additional mitigation policy will be in place and the ancillary benefits will also be larger. The ExternE estimates are themselves conservative, covering only 3 main types of air pollutants and including only some of the damages from the pollution.

	2005	2006	2007	2008	2009	2010	2011	2012
Savings mio €								
Sweden	-43.8	-45.9	-42.6	-39.9	-37.8	-34.9	-33.2	-32.1
EU15	-2019.1	-2151.1	-2959.3	-3124.6	-3193.5	-3363.7	-3975.7	-4142.5
Savings %GDP								
Sweden	-0.0106	-0.0107	-0.0096	-0.0086	-0.0078	-0.0069	-0.0063	-0.0059
EU15	-0.0253	-0.0262	-0.0349	-0.0357	-0.0353	-0.0360	-0.0415	-0.0421

¹⁰ In making the estimates of the ancillary benefits of GHG mitigation reported below, it is assumed that the benefits take the form of reductions in the emissions of SO₂, NO_x and PM₁₀ and hence in the damages caused by these pollutants. However, in that there are already policies and measures in place to reduce these emissions, the benefits may also take the form of avoided costs of pollution control.

6 Conclusions

This study has produced an analysis of emissions permits trading in the EU and Sweden incorporating the latest information available. The analysis implemented the characteristics of the European-wide emissions permit trading scheme from the European Commission and the Swedish government.

The main findings of the study arise from scenario analysis focusing on various issues involved in achieving the Kyoto target for Sweden and the EU by 2012. The alternative schemes involve allocating (grandfathering) and auctioning some of the allowances in the basic EU trading scheme. These scenario results show that policies towards achievement of the interim Kyoto target can have very small effects on the EU economies and EU industries.

This study concludes that, through the use of allowance prices of around 15/tCO₂, emissions in Sweden can be reduced by ½% while for the EU15 the reduction could be as high as 1%. This conclusion is not greatly changed by imposing different assumptions about the price of the allowance. A scenario that imposes additional carbon tax in sectors that do not participate in the trading scheme can achieve lower emission at less economic cost.

Finally, the study concludes that trade of emission permits alone cannot will not achieve very large reduction of emissions.

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Appendix A. E3ME Data update

A.1 Data Sources, Coverage and Quality

The System of Accounts and Industrial Classification The accounting structure on which E3ME31 is based is that of the European System of Accounts 1995 (ESA 95). One of the characteristics of the ESA 95 and E3ME31 is the disaggregation of economic variables. The industry and commodity classifications are defined on the 1990 NACE Rev.1 as shown in the Table A.1 below.

E3ME3 Sectors	NACE Rev.1 (1990)	E3ME3 Sectors	NACE Rev.1 (1990)
1 Agriculture etc (AG)	01, 02, 05	21 Electrical goods (EM)	31, 33
2 Non-energy mining (NE)	13, 14	22 Motor vehicles (MV)	34
3 Water supply (WA)	41	23 Other transport equip. (TE)	35
4 Gas distribution (GD)	40.2	24 Other manufactures (OM)	36, 37
5 Electricity etc (EL)	40.1, 40.3	25 Construction (CN)	45
6 Coal (CO)	10	26 Wholesale distrib. (WD)	50, 51
7 Oil & gas extraction (OG)	11,12	27 Retailing (RE)	52
8 Manufactured fuels (MF)	23	28 Hotels & restaurants (HR)	55
9 Food, drink & tob. (FD)	15, 16	29 Land transport (LT)	60
10 Tex., cloth. & footw. (TC)	17, 18, 19	30 Water transport (WT)	61
11 Wood & paper (WP)	20, 21	31 Air transport (AT)	62
12 Printing & publishing (PP)	22	32 Ancillary transport (OT)	63
13 Pharmaceuticals (PH)	24.4	33 Communications (CM)	64
14 Chemicals nes (CH)	24 (less 24.4)	34 Financial services (FS)	65, 66
15 Rubber & plastic pr. (RP)	25	35 Computing services (CS)	72
16 Non-metallic min.pr. (NM)	26	36 Other business serv. (OB)	67, 70, 71, 73, 74
17 Basic metals etc (BM)	27	37 Other market serv. (OS)	90, 91, 92, 93, 95, 99
18 Metal products (MP)	28	38 PAD (PA)	75
19 Machinery etc (MA)	29	39 Education (ED)	80
20 Electronics (IT)	30, 32	40 Health & social work (HS)	85
		41 Unallocated (UN)	50

Endogenous Data All data, exogenous or endogenous to the model, are stored on one of three E3ME databases covering time-series, cross-section or energy-environment data. The list of variables available in E3ME is too large to be described here, but it is enough to say that the model can provide consistent data for most variables relevant to the forecasts, that is, production, value-added, employment, labour productivity, consumption, investment and external trade.

Table A.2 below shows the list of endogenous variables that was updated for the purposes of this analysis.

Table A.2 : Variables updated (or reviewed)

Name	Row	Col	Class	Start Year	End Year	Region	Units	Description	Other comment
FU01_SE	17	31	FU	1968	1998	17	(000)	Actuals for coal demand (FRCT)	COAL_DEMAND_SE_68-98
FU02_SE	17	31	FU	1968	1998	17	(000)	Actuals for coke	COKE_DEMAND_SE_68-98
FU03_SE	17	31	FU	1968	1998	17	(000)	Actuals for lignite	LIGN_DEMAND_SE_68-98
FU04_SE	17	31	FU	1968	1998	17	(000)	Actuals for heavy fuel oil demand (FROT)	HFLO_DEMAND_SE_68-98
FU05_SE	17	31	FU	1968	1998	17	(000)	Actuals for middle distillates	MDIS_DEMAND_SE_68-98
FU06_SE	17	31	FU	1968	1998	17	(000)	Actuals for natural gas demand (FRGT)	NGAS_DEMAND_SE_68-98
FU07_SE	17	31	FU	1968	1998	17	(000)	Actuals for derived gas	DGAS_DEMAND_SE_68-98
FU08_SE	17	31	FU	1968	1998	17	(000)	Actuals for electricity demand (FRET)	ELEC_DEMAND_SE_68-98
FU09_SE	17	31	FU	1968	1998	17	(000)	Actuals for nuclear fuels	NUCF_DEMAND_SE_68-98
FU10_SE	17	31	FU	1968	1998	17	(000)	Actuals for crude oil	CRUD_DEMAND_SE_68-98
FU11_SE	17	31	FU	1968	1998	17	(000)	Actuals for Steam & other	STEA_DEMAND_SE_68-98
EPRT_SE	21	32	EP	1968	1999	17	(95=1.0)	Average fuel prices (ecus/toe) including tax	EPRT_SE_incl_taxes
EPR_SE	21	32	EP	1968	1999	17	(95=1.0)	Average (across uses) fuel prices (ecus/toe) ex tax	EPR_SE_excl_taxes
RMST	19	26	RZ	1973	1998	all	(000)	Regional motor spirit used for road transport in th toe	RMST_TO98
RDET	19	26	RZ	1973	1998	19	(000)	Regional DERV used for road transport in th toe	RDET_TO98
RULR	19	39	RZ	1960	1998	21	rate	Rate of unleaded fuel	RULR_19REGIONS_TO98
JREA17	11	18	J	1995	2012	all	(000)	Fuel use by electricity th toe	JRE_SE_1995-12_EE2020
RDTM	19	39	RZ	1960	1998	0	(ratios)	Regional deviation of temperature from 30-year mean	RDTM_DD_TO98
RCO2	19	51	RZ	1960	2010	all	(000)	Emissions of carbon dioxide th tonnes carbon	RCO2_MTC_IEA
RSO2	19	31	RZ	1990	2020	all	(000)	Emissions of sulfure dioxide th tonnes carbon	Ð SO2_LRTB□P_protocol_90-2
RNOX	19	31	RZ	1990	2020	all	(000)	Emissions of nitrogen oxides th tonnes carbon	Ð NOX_LRTB□P_protocol_90-2
RCO	19	31	RZ	1990	2020	all	(000)	Emissions of carbon monoxide th tonnes carbon	Ð RCO_SN_p6oj_90-2020
RCH4	19	16	RZ	1990	2005	all	(000)	Emissions of methane th tonnes carbon	CH4_ECOFYS_ECFIN_90-2005

Table A.2 (continued) : Variables updated (or reviewed)

Name	Row	Col	Class	Start Year	End Year	Region	Units	Description	Other comment
RBS	19	31	RZ	1990	2020	all	(000)	Emissions of black smoke th tonnes carbon	Ð RBS_SN_p6oj_90-2020
RVOC	19	31	RZ	1990	2020	all	(000)	Emissions of volatile organic compounds th tonnes carbon	Ð VOC_LRTB□P_protocol_90-2
RN2O	19	16	RZ	1990	2005	all	(000)	Emissions of nitrous oxide th tonnes carbon	N2O_ECOFYS_ECFIN_90-2005
RHFC	19	16	RZ	1990	2005	all	(000)	Emissions of hidrofluoride carbon th tonnes carbon	HFC_ECOFYS_ECFIN_90-2005
RPFC	19	16	RZ	1990	2005	all	(000)	Emissions of pentafluoride carbon th tonnes carbon	PFC_ECOFYS_ECFIN_90-2005
RSF6	19	16	RZ	1990	2005	all	(000)	Emissions of sulfure fluoride th tonnes carbon	SF6_ECOFYS_ECFIN_90-2005
RGFR	19	36	RZ	1970	2005	all	(%)	Government financial balance as % of GDP	RGFR_TO_2005
X_SE	41	61	Y	1960	2020	17	(m € 1995)	Total exports by industry	Export_1995_euro_TIPMAC_
M_SE	41	61	Y	1960	2020	17	(m € 1995)	Total imports by industry	Import_1995_euro_TIPMAC_
YVM_SE	41	61	Y	1960	2020	17	(m € 1995)	Gross value added at market prices by industry	GVA_1995_euro_TIPMAC_for
Q_SE	41	61	Y	1960	2020	17	(m € 1995)	Total output by industry	Output_1995_euro_TIPMAC_
YRD_SE	41	61	Y	1960	2020	17	(m € 1995)	Total R&D expenditure by industry	R&D_1995_euro_TIPMAC_for
VX_SE	41	61	Y	1960	2020	17	(m €)	Total exports by industry	Export_euro_TIPMAC_
VM_SE	41	61	Y	1960	2020	17	(m €)	Total imports by industry	Import_euro_TIPMAC_
VYVM_SE	41	61	Y	1960	2020	17	(m €)	Gross value added at market prices by industry	GVA_euro_TIPMAC_for
VYVF_SE	41	46	Y	1960	2005	17	(m €)	Gross value added at factor prices by industry	VYVF_SE
YLC_SE	41	61	Y	1960	2020	17	(m €)	Industrial labour costs	LabCost_euro_TIPMAC_fore
VQ_SE	41	61	Y	1960	2020	17	(m €)	Total output by industry	Output_euro_TIPMAC_
VYRD_SE	41	61	Y	1960	2020	17	(m €)	Total R&D expenditure by industry	R&D_euro_TIPMAC_forecast
YRE_SE	41	61	Y	1960	2020	17	(000)	Total employment by industry	Total_employment_000_TIP
YEE_SE	41	61	Y	1960	2020	17	(000)	Total salary earners by industry	Employees_000_TIPMAC_for
YH_SE	41	46	Y	1960	2005	17	hours	Average hours worked per week by industry	TO_2005
YNH_SE	41	46	Y	1960	2005	17	hours	Normal hours worked per week by industry	Normal_hours_SE

Table A.2 (continued) : Variables updated (or reviewed)

Name	Row	Col	Class	Start Year	End Year	Region	Units	Description	Other comment
C_SE	28	61	C	1960	2020	17	(m € 1995)	Consumers' expenditures by category	Consum_1995_euro_TIPMAC_
VC_SE	28	61	C	1960	2020	17	(m €)	Consumers' expenditures by category	Consum_euro_TIPMAC_
CRVD_SE	28	29	C	1967	1995	17	(standard rate=1)	Consumers' exp. VAT differentials	CRVD_SE
G_SE	5	61	G	1960	2020	17	(m € 1995)	Government current expenditure	Govern_1995_euro_TIPMAC_
VG_SE	5	61	G	1960	2020	17	(m €)	Government current expenditure	Govern_euro_TIPMAC_
K_SE	42	61	K	1960	2020	17	(m € 1995)	Gross fixed capital formation, by ownership branch	Invest_1995_euro_TIPMAC_
VK_SE	42	61	K	1960	2020	17	(m €)	Gross fixed capital formation, by ownership branch	Invest_euro_TIPMAC_
POP_SE	6	61	PA	1960	2020	17	(000)	Population by age group in thousands	Population_000_TIPMAC_fo
LG_SE	3	61	LG	1960	2020	17	(000)	Labour force by gender	Labour_force_000_TIPMAC_
RUNR	19	46	RZ	1960	2005	all	(ratios)	Standardised OECD regional unemployment rates (not %)	RUNR_TO_2005_OECD_BASIS
RERS	19	46	RZ	1960	2005	all	(m)	Regional employers contributions to social security	RERS_TO_2005
REES	19	46	RZ	1960	2005	all	(m)	Regional employees contributions to social security	REES_TO_2005
RDTX	19	46	RZ	1960	2005	all	(m)	Regional deductions for income tax	RDTX_TO_2005
RITX	19	46	RZ	1960	2005	all	(m)	Regional indirect tax revenues	RITX_TO_2005
RBEN	19	46	RZ	1960	2005	all	(m)	Regional social security receipts	RBEN_TO_2005
RGDI	19	46	RZ	1960	2005	all	(m)	Regional gross disposable incomes (QUEST)	RGDI_TO_2005
V_SE	7	46	V	1960	2005	17	(m € 1995)	Gross fixed capital formation, by asset	TO_2005
VV_SE	7	46	V	1960	2005	17	(m €)	Gross fixed capital formation, by asset	TO_2005

Assumptions/Exogenous Variables E3ME has been developed for medium and long-term forecasting and for the purpose of analysing economic policy effects on a regionalised EU basis. Model results for the regions (ie mainly the member states of the EU) partly depend on what is assumed about the developments of economic variables outside the scope of the model, ie exogenous variables.

The clearest case for making assumptions in the model is for variables related to the developments outside the EU that nevertheless affect Europe's economic prospects. For example, growth (measured in terms of industrial production) in the ten world areas adopted in E3ME helps (via trade weighting) to create world activity variables which are relevant for the export equations of the 19 EU regions in the model. Similarly, developments in world wholesale prices and exchange rates affect regional trade by changing relative competitiveness levels. Inflation in the world prices of traded commodities, including food and metals & minerals, helps to explain regional import prices.

Most exogenous variables directly related to the EU are connected with government policy such as tax rates, interest rates and government spending, so analysis of the EU members' spending plans and views on future development are necessary. Other variables included in the model are demographic base-line assumptions for population and the labour force, which are used in the determination of regional consumers' expenditure and labour force participation rates.

Assumptions related to the energy sector include oil prices and oil production while specific assumptions for the different regions' electricity supply industries are made. Regarding the environment, the level of a potential carbon/energy tax can be entered through this method.

Table A.3 below presents the description of the E3ME exogenous variables. These were updated or reviewed in the present study.

Table A.3 : Assumptions for Sweden updated (or reviewed)

No	Code – Description	No	Code - Description
2	RZEX (rate) EU local currency per euro rates	76	REER Employers social contribution % of wage bill
3	RZSR (per cent) EU short-run interest rates (not %)	77	RETR Employers + Employees social contribution % of wage bill
4	RZLR (per cent) EU long-run interest rates (not %)	78	ROIL (level) regional production of crude oil, mtoe
5-45	Output Assumption	79	RGAS (level) regional production of gas, mtoe
46	AMAR(1 – SC) Private Consumption % pa	80	RCOA (level) regional production of coal, mtoe
47	AMAR(2 – SK) Investment % pa	81	RTE (rate) regional EC energy tax rate in \$/bbl oil-equivalent
48	AMAR(3 – SS) Change in Inventories % of GDP	82	RTC (rate) regional EC carbon tax rate in \$/bbl oil-equivalent
49	AMAR(4 – SG) Public Consumption % pa	83	EPRE(01) Auto fuels leaded (euro rate)
50	AMAR(5 – SX) Exports (G&S) % pa	84	EPRE(02) unleaded (euro rate)
51	AMAR(6 – SM) Imports (G&S) % pa	85	EPRE(03) diesel (euro rate)
52	AMAR(7 – GDP) GDP % pa	86	EPRE(04) Light fuel oil indust (euro rate)
53	AMAR(8 – HUC) GDP Deflator % pa	87	EPRE(05) households (euro rate)
54	AMAR(9 – PSC) Private Consumption Price % pa	88	EPRE(06) Heavy fuel oil indust (euro rate)
55	AMAR(10 – PSX) Export Price % pa	89	EPRE(07) electricity (euro rate)
56	AMAR(11 – PSM) Import Price % pa	90	EPRE(08) Electricity industry (euro rate)
57	AMAR(12 – EMPL) Total Employment % pa	91	EPRE(09) households (euro rate)
58	AMAR(13 – UNRA) Unemployment Rate % of labour force	92	EPRE(10) Natural Gas industry (euro rate)
59	AMAR(14 – RGFL) General Government Surplus % of GDP	93	EPRE(11) electricity (euro rate)
60	AMAR(15 – RBTL) Current Balance % of GDP	94	EPRE(12) households (euro rate)
61	GR(1 - DF) (%) Defence Euro1995m	95	EPRE(13) Steam & other coal industry (euro rate)
62	GR(2 - ED) (%) Education Euro1995m	96	EPRE(14) electricity (euro rate)
63	GR(3 - HE) (%) Health Euro1995m	97	EPRE(15) households (euro rate)
64	GR(4 - RE) (%) Other Euro1995m	98	EPRE(16) Coking coal (euro rate)
65	KR(5 - EG) (%) Electricity, etc Euro1995m	99	EPRE(17) Lignite (euro rate)
66	KR(6 - CO) (%) Coal Euro1995m	100	EPRE(18) Derived gas (euro rate)
67	KR(7 - OG) (%) Oil & Gas Extraction Euro1995m	101	EPRE(19) Nuclear fuels (euro rate)
68	KR(38 - PA) (%) Public admin and defence Euro1995m	102	EPRE(20) Crude oil (euro rate)
69	KR(39 - ED) (%) Education Euro1995m	103	EPRE(21) Steam & other (euro rate)
70	KR(40 - HS) (%) Health & social work Euro1995m	104	APAR(1) (level) male population less 15
71	RITR Indirect tax revenue % of consumer spending	105	APAR(2) (level) female population less 15
72	RSVT Standard VAT tax rate % rate	106	APAR(3) (level) male population 15-64
73	RDTR Direct tax revenue % of gross disposable income	107	APAR(4) (level) female population 15-64
74	RBNR Social benefit % of wage bill	108	APAR(5) (level) male population over 64
75	RERR Employees social contribution % of wage bill	109	APAR(6) (level) female population over 64
		110	LGR(1) (level) male labour force
		111	LGR(2) (level) female labour force

A.2 Data Linking

Table A.4 below shows the correspondence between the E3ME version 2.2 industrial classification and the European NACE classification. Table A.5 present the correspondence between the industrial classification of E3ME version 3.1, the NACE CLIO (previously Eurostat standard) and NACE Rev.1 classification.

Table A.4 : E3ME 2.2 NACE 3.1 cross classification		
	E3ME 2.2	Nace 31
1	Agriculture etc	a+b
2	Coal & Coke	ca
3	Oil & Gas extraction	ca
8	Ferrous & non-Ferrous metals	cb+dj
11	Metal products	dj
16	Food, Drink & Tobacco	da
17	Textiles, Clothing and Footwear	db+dc
21	Other Manufactures	dd+dn
18	Paper & Printing products	de
5	Refined Oil	df
10	Chemicals	dg
19	Rubber & Plastic products	dh
9	Non-metallic mineral products	di
12	Agriculture. & Indus. Machinery	dk
13	Office Machines	dl
14	Electrical goods	dl
15	Transport Equipment	dm
4	Gas distribution	e
6	Electricity etc	e
7	Water supply	e
22	Construction	f
23	Distributions etc	g
24	Lodging & Catering	h
25	Inland Transport	i
26	Sea & Air Transport	i
27	Other Transport	i
28	Communications	i
29	Bank., Finance & Insurance	j
30	Other Market Services	k+o+p+q
31	Non-Market Services	l+m+n
20	Recycling/ Emission Abate	
32	Unallocated	

Table A.5 : E3ME 3.1/Nace CLIO/NACE Rev.1 cross classification							
Ox index in New Cronos Matrices	New Cronos code	New Cronos Classification	NACE- CLIO 1970	New Cronos Aggregate	NACE Rev.1 Sections	AMECO Aggregates	E3ME
0	b01	Agricultural, forestry and fishery products	01	Agricultural, forestry and fishery products	A, B	Agricultural, forestry and fishery products	1
1	b02	Fuel and power products	06	Fuel and power products	CA,DF, E		3 to 8
4	b05	Ferrous and non-ferrous ores and metals, other than radioactive	13		DJ(27)		17
5	b06	Non-metallic minerals and mineral products	15		CB,DI		2,16
6	b07	Chemical products	17		DG		13,14
7	b08	Metal products, except machinery and transport equipment	19		DJ(28)		18
8	b09	Agricultural and industrial machinery	21		DK	Industry excluding construction	19
9	b10	Office and data processing machines, precision and optical instruments	23		DL(30,33)		20a,21a
10	b11	Electrical goods	25	Manufactured products	DL(31,32)	Manufacture	20b,21b
11	b12	Transport equipment	28		DM		22,23
12	b13	Food, beverages, tobacco	36		DA		9
13	b14	Textiles and clothing, leather and footwear	42		DB,DC		10
14	b15	Paper and printing products	47		DE		11,12
15	b16	Rubber and plastic products	49		DH		15
16	b17	Other manufacturing products	48		DD,DN		11,24
17	b19	Building and construction	53	Building and construction	F	Building and construction	25
20	b22	Recovery and repair services, wholesale and retail trade services	56		G		26,27
21	b23	Lodging and catering services	59		H		28
22	b24	Inland transport services	61		I(60)		29
23	b25	Maritime and air transport services	63	Market services	I(61,62)		30,31
24	b26	Auxiliary transport services	65		I(63)	Services	32
25	b27	Communication services	67		I(64)		33
26	b28	Services of credit and insurance institutions	69a		J		34
27	b29	Other market services	74		K		35,36
30	b35	General government services		Non-market services	L, M, N		38-40
31	b36	Other non-market services			O, P, Q		37

A.3 Additional estimation results

This section reviews the main changes in the estimated equations for fuel demand by fuel type. The comments concentrate in particular on the stochastic function for Sweden as the main data changes occur there. The specific comments about the parameters refer to comparisons, normally between the average for Sweden and the previous estimates (2001), while the number of significant parameters refers to the total number of estimated parameters.

- Coal Demand* No significant changes were observed in this equation. The total number of significant parameters went from 136 to 134. The short-term parameters show more important changes and in particular the EU R&D that increased from -1.57 to -1.69. Other changes were: price ratio from -0.21 to -0.35, and investment by user from -1.29 to -1.35. The most significant change in the long-term parameters was for the price ratio that went from -3.42 to -2.91.
- Electricity Demand* There is an improvement in the total number of significant estimated parameters that increase from 235 to 263. The most significant change is the short-term parameters for total fuel used by user that increased from 0.34 to 0.69. Finally, the long-term fuel price ratio parameter shows a significant change by falling from -0.33 to -0.65.
- Natural Gas Demand* The total number of significant parameters estimated under the new data increased from 240 to 254. However, the average parameters remained similar to previous versions of E3ME. The most significant changes are the short-term investment parameter that decreased from a value of -10.26 to -7.22. Although it is lower this is still a large effect. In addition, the long-term parameter for investment decreased from a large negative value of -15.54 to -18.15.
- Heavy Fuel Oil Demand* The total number of significant parameters estimated for heavy fuel oil demand decreased from 232 to 215. The short-term price ratio parameters changed from -0.47 to -0.06. The long-term parameter for total fuel used by user decreased from 1.19 to 0.73, while the price ratio effect went from -0.54 to -0.74. Finally, EU R&D effect increased from -0.87 to -0.38. The changes in this equation tend to be large but this is partly due to a low number of estimated parameters for each effect.

A.4 Comparison of emissions baseline

The emission baseline uses data from environmental accounts Statistics Sweden and emissions forecast from the European Commission DG Energy and Transport. Differences in the levels between the European Commission and E3ME are shown in table A.6 below:

- a) European Commission levels are lower during the 1990s for both the EU15 and Sweden. These are based on Eurostat Energy balances that do not take into account non-marketed Steam & other either in boilers or in CHP. European Commission forecasts use levels of Steam & other that have been estimated based on Eurostat data.
- b) According to Statistics Sweden growth of CO₂ emissions in Sweden during the 1990s is much greater than the growth reported by DG Energy and Transport in Energy and Transport Trends to 2030. DG TREN considers a 6.1% fall in the 1990 while statistics Sweden considers only a 0.4% fall.
- c) The EU15 increase in CO₂ emissions during the 1990s is also slower for DG TREN than for E3ME.
- d) After 2000 forecasts trends are similar between E3ME and DG TREN.
- e) The level of emissions in 1990 is crucial for comparisons towards achieving the Kyoto targets. In the present E3ME databank Sweden does not achieve a significant reduction during the 1990s; this means that the trends between 1990 and 2010 approximately 6% higher than the one from European Commission's sources.
- f) Capros and Mantzos (2000b) also present forecasts for total emission of the EU energy system. The trends they report with respect to the 1990 levels towards 2010 are in line with the E3ME figures.

	<i>SE</i>	<i>EU15</i>	<i>SE</i>	<i>EU15</i>	<i>SE</i>	<i>EU15</i>	<i>SE</i>	<i>EU15</i>
	<i>t CO₂⁽¹⁾</i>	<i>t CO₂⁽¹⁾</i>	<i>Index⁽¹⁾</i>	<i>Index⁽¹⁾</i>	<i>t CO₂⁽²⁾</i>	<i>t CO₂⁽²⁾</i>	<i>Index⁽²⁾</i>	<i>Index⁽²⁾</i>
			(2000=100)	(2000=100)			(2000=100)	(2000=100)
1990	56.1	3219.1	100.4	96.1	50.6	3082.1	106.1	98.9
1995	58.6	3177.8	104.8	94.8	53.6	3051.7	112.4	97.9
2000	55.9	3350.4	100.0	100.0	47.7	3117.5	100.0	100.0
2005	59.4	3388.5	106.5	101.0	52.6	3150.9	110.3	101.1
2010	63.2	3430.1	113.3	102.2	54.0	3204.9	113.2	102.8

Source(s) : (1) E3ME 3.2 (2003)
(2) European Energy and Transport Trends to 2030 European Commission DG Energy and Transport (2003)

Appendix B. Model Development

The E3ME model has been developed further to accommodate the new requirement of the scheme according the latest EU directive. In particular this involves the modelling of two possibly different period of trading 2005-07 and 2008-12. The permit scheme is assumed to start in 2005. In the scheme, the total number of permits to be issued in 2012 is assumed to be known from the target (% reduction below 1990) read in REPT¹¹, the coverage of the scheme read in FETS and the CO₂ emissions for 1990 stored in FC90. In principle the scheme can cover any grouping of the 17 fuel users in the 19 regions of E3ME. At present the scheme only covers CO₂ emissions, not those of other GHGs. However only one scheme can be modelled, although the solved permit price can be different country by country (region by region but with one permit price for DO and DW and one for IN and IS) , so that in effect 17 country schemes can be modelled simultaneously.

These calculations are done in EM.FOR, with the variable REPI holding the number of permits to be issued (by auction or by gift to the emitters) in the current year. The issue of the permits is done by a linear interpolation 2000-2010, using the 2012 target and the actual CO₂ emissions in the year 2000. The solution for 2013-20 continues this trend as a linear extrapolation. Note that at present, the coverage of the scheme cannot change over the period of its operation. The permit price is used to obtain the costs of CO₂ emissions by those in the scheme, through the permit use in thousand tonnes C (FEPV), the permit price in euros per tonne C (REPP) and the share of each fuel's CO₂ emissions in the total CO₂ emissions by fuel user and region (FCO2). Thus whatever the % of permits allocated or auctioned, the full cost of the permit is attributed to the price of the fuel by fuel user and region according the CO₂ emissions. The fuel prices are calculated, adding in the emission permit costs, in PJR.FOR

The modelling allows for some or all the permits to be allocated or auctioned among the fuel users by region. The percentage of the permits which are issued and then allocated is given by assumption over the projection period in REPA 2001 to 2015. The allocation of permits affects the government revenues from auctions, industry profits and/or prices, depending on the value of scalars. If all implicit values of permits are allocated to industry and the option to change profits only is taken, then there will be no effect on the solution except that industry profits in YRP will be higher. The values of permits are held in FEPV in fuel user classification and YREP in the industry classification, except consumers expenditure's allocated permits.

The model calculates the net value of the international and national trade in permits, and so in principle the effect on the fuel users profits, but the changes in profits are assumed to leave behaviour unaffected. Thus the allocation of permits is purely a means of persuading fuel users to participate in the scheme. If the permits are auctioned, the revenues can be recycled into reducing employment taxes (proportions used for this recycling is given by assumption in RRTE) and into increasing R&D in energy saving (proportions in RRTR).

¹¹ See glossary below.

Glossary of terms

FC90 : user emissions of CO₂ 1990 in th tonnes carbon

FCO₂ : user emissions of carbon dioxide th tonnes carbon

FEPU : emission permit use in th tonnes carbon

FEPV : value of allocated (not auctioned) emission permits m euro

FETS : coverage of emission permit scheme (in scheme=1)

REPA : regional emission permits allocated (rest auctioned)

REPI : regional emission permits issued (thousand tC)

REPP : regional emission permit price (euro/tC)

REPT : regional target 2005/2010 for emission permits (% below 1990)

RRTE : use of tax revenues to reduce RERS (employers SS) (proportion)

RRTR : use of tax revenues to increase RRDE (energy-saving R&D) (prop.)

YRP : industry profits

Appendix C. Emissions Trade Scheme

Table C.1 : Categories of activities referred to in articles 2(1), 3, 4, 14(1) and 26	
Activities	Greenhouse gases
<u>Energy activities</u>	
Combustion installations with a rated thermal input exceeding 20 MW (excepting hazardous or municipal waste installations)	Carbon dioxide
Mineral oil refineries	Carbon dioxide
Coke ovens	Carbon dioxide
<u>Production and processing of ferrous metals</u>	
Metal ore (including sulphide ore) roasting or sintering installations	Carbon dioxide
Installations for the production of pig iron or steel (primary or secondary fusion) including continuous casting, with a capacity exceeding 2.5 tonnes per hour	Carbon dioxide
<u>Mineral industry</u>	
Installations for the production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or lime in rotary kilns with a production capacity exceeding 50 tonnes per day or in other furnaces with a production capacity exceeding 50 tonnes per day	Carbon dioxide
Installations for the manufacture of glass including glass fibre with a melting capacity exceeding 20 tonnes per day	Carbon dioxide
Installations for the manufacture of ceramic products by firing, in particular roofing tiles, bricks, refractory bricks, tiles, stoneware or porcelain, with a production capacity exceeding 75 tonnes per day, and/or with a kiln capacity exceeding 4 m ³ and with a setting density per kiln exceeding 300 kg/m ³	Carbon dioxide
<u>Other activities</u>	
Industrial plants for the production of	
(a) pulp from timber or other fibrous materials	Carbon dioxide
(b) paper and board with a production capacity exceeding 20 tonnes per day	Carbon dioxide
Source(s) : European commission (2001).	
Note(s) : (1) Installations or parts of installations used for research, development and testing of new products and processes are not covered by this Directive. (2) The threshold values given below generally refer to production capacities or outputs. Where one operator carries out several activities falling under the same subheading in the same installation or on the same site, the capacities of such activities are added together.	

Appendix D. Scenario results

D.1 Scenario GT: Basic emissions trade; permit trade in energy intensive sectors

	2005	2006	2007	2008	2009	2010	2011	2012
GDP (1995 €)	-0.03	-0.03	-0.04	-0.05	-0.05	-0.06	-0.07	-0.08
Consumption (1995 €)	-0.06	-0.03	-0.04	-0.04	-0.05	-0.06	-0.07	-0.08
Investment (1995 €)	-0.03	-0.08	-0.13	-0.15	-0.16	-0.17	-0.19	-0.21
Exports (1995 €)	0.00	-0.02	-0.04	-0.05	-0.06	-0.07	-0.07	-0.08
Imports (1995 €)	-0.03	-0.04	-0.06	-0.08	-0.09	-0.10	-0.11	-0.12
GDP deflator	0.04	0.07	0.08	0.07	0.06	0.05	0.02	0.00
Consumer prices	0.06	0.12	0.13	0.12	0.10	0.08	0.05	0.01
Investment deflator	0.02	0.02	0.00	-0.03	-0.05	-0.08	-0.12	-0.16
Export prices	0.11	0.15	0.15	0.13	0.10	0.07	0.05	0.02
Import prices	0.08	0.12	0.11	0.09	0.07	0.04	0.01	-0.02
Employment	0.01	0.00	-0.02	-0.04	-0.05	-0.05	-0.06	-0.06
Wages	0.01	0.10	0.11	0.11	0.08	0.06	0.03	0.00
CO2	-0.55	-0.75	-0.88	-0.93	-0.92	-0.95	-0.96	-1.00
Price of Fuel	2.59	2.74	2.82	2.85	2.80	2.82	2.83	2.88

	2005	2006	2007	2008	2009	2010	2011	2012
GDP (1995 €)	-0.01	-0.03	-0.04	-0.06	-0.07	-0.08	-0.10	-0.12
Consumption (1995 €)	-0.03	-0.06	-0.08	-0.10	-0.12	-0.15	-0.19	-0.24
Investment (1995 €)	-0.04	-0.09	-0.11	-0.18	-0.19	-0.23	-0.27	-0.30
Exports (1995 €)	0.00	-0.01	-0.03	-0.04	-0.05	-0.06	-0.07	-0.08
Imports (1995 €)	-0.02	-0.04	-0.06	-0.09	-0.10	-0.12	-0.13	-0.16
GDP deflator	0.10	0.15	0.17	0.18	0.18	0.18	0.16	0.14
Consumer prices	0.06	0.10	0.12	0.13	0.13	0.13	0.12	0.11
Investment deflator	0.05	0.11	0.14	0.16	0.15	0.15	0.14	0.12
Export prices	0.09	0.15	0.17	0.17	0.15	0.14	0.12	0.10
Import prices	0.10	0.15	0.17	0.17	0.16	0.14	0.12	0.10
Employment	0.01	0.00	-0.01	-0.03	-0.04	-0.05	-0.06	-0.08
Wages	-0.01	0.06	0.08	0.10	0.10	0.10	0.10	0.08
Price of Fuel	0.79	0.83	0.87	0.93	0.99	1.04	1.09	1.14

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-1.56	-2.35	-2.78	-2.96	-3.00	-3.04	-3.11	-3.17
Industry	-0.08	-0.17	-0.13	-0.20	-0.13	-0.22	-0.15	-0.24
Transport	0.02	0.02	0.01	0.00	0.00	-0.01	-0.03	-0.05
Other fuel combustion	-0.21	0.01	0.03	0.05	0.07	0.05	0.04	0.03
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.55	-0.75	-0.88	-0.93	-0.92	-0.95	-0.96	-1.00

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-0.11	-2.11	-3.42	-4.02	-4.25	-4.27	-4.15	-3.97
Industry	0.02	0.13	0.14	0.22	0.11	0.03	0.00	-0.02
Transport	-0.01	0.00	0.00	-0.01	-0.03	-0.02	-0.04	-0.06
Other fuel combustion	0.00	-0.01	-0.04	-0.06	-0.08	-0.10	-0.12	-0.15
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.01	-0.19	-0.34	-0.42	-0.49	-0.52	-0.53	-0.54

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other fuel combustion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.02	-0.01	-0.02	-0.02	-0.03	-0.04	-0.04	-0.05
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.02	-0.01	-0.02	-0.02	-0.03	-0.04	-0.04	-0.05

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other fuel combustion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.02	-0.02	-0.03	-0.04	-0.04	-0.05	-0.05	-0.06
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.02	-0.02	-0.03	-0.04	-0.04	-0.05	-0.05	-0.06

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-1.53	-2.06	-2.43	-2.56	-2.61	-2.78	-3.08	-3.22
Industry	0.00	-0.13	-0.14	-0.36	-0.28	-0.49	-0.34	-0.53
Transport	0.01	0.02	0.02	0.02	0.02	0.02	0.00	-0.01
Other fuel combustion	-0.31	0.00	0.16	0.25	0.29	0.28	0.24	0.24
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.10	-0.06	-0.07	-0.07	-0.07	-0.07	-0.09	-0.10
Solvent & other prod. use	0.00	-0.34	-0.31	-0.30	-0.28	-0.27	-0.26	-0.30
Agriculture	0.04	0.04	0.05	0.05	0.05	0.05	0.03	0.03
Waste treatment disposal	-0.06	-0.02	0.00	0.01	0.02	0.03	0.00	-0.01
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-1.02	-1.32	-1.56	-1.65	-1.67	-1.78	-1.77	-1.86

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-0.16	-3.06	-4.99	-5.89	-6.24	-6.29	-6.14	-5.87
Industry	0.05	0.08	0.16	0.31	0.16	0.13	0.11	0.11
Transport	0.02	0.04	0.05	0.06	0.05	0.08	0.07	0.07
Other fuel combustion	0.18	0.18	0.13	0.10	0.08	0.04	0.00	-0.05
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.02	-0.04	-0.06	-0.08	-0.10	-0.11	-0.14	-0.17
Solvent & other prod. use	0.00	-0.48	-0.42	-0.39	-0.36	-0.33	-0.27	-0.31
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	-0.03	-0.05	-0.06	-0.07	-0.09	-0.10	-0.13	-0.16
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	-0.09	-0.17	-0.20	-0.25	-0.25	-0.27	-0.28

	2005	2006	2007	2008	2009	2010	2011	2012
Power Generation	-1.56	-2.35	-2.78	-2.96	-3.00	-3.04	-3.11	-3.17
Iron & Steel	-0.04	-0.01	-0.05	-0.01	-0.02	-0.02	-0.03	-0.03
Non-ferrous Metals	0.73	0.79	0.84	0.72	0.50	0.31	0.23	0.25
Chemicals	-1.40	-1.78	-1.82	-2.24	-1.98	-2.35	-2.17	-2.51
Mineral Products	0.05	0.09	0.12	0.14	0.16	0.16	0.14	0.13
Ore-extraction	0.11	0.18	0.23	0.70	0.37	0.24	0.07	0.05
Food, Drink & Tobacc	0.09	0.07	0.12	0.22	0.31	0.41	0.51	0.60
Text. cloth. & footwear	0.44	0.47	0.60	0.59	0.68	0.76	0.92	1.05
Paper & Printing	-1.61	-2.24	-2.56	-2.74	-2.90	-3.11	-3.42	-3.66
Engineering etc	0.22	0.27	0.33	0.35	0.34	0.33	0.32	0.32
Other Industry	0.48	0.08	0.46	0.15	0.48	0.11	0.45	0.04
Rail Transport	0.02	-0.13	-0.20	-0.25	-0.28	-0.30	-0.30	-0.30
Road Transport	0.02	0.02	0.01	0.00	-0.01	-0.02	-0.03	-0.05
Air Transport	0.01	0.05	0.05	0.06	0.05	0.04	0.01	-0.01
Inland Navigation	-0.01	-0.01	-0.01	-0.01	0.00	0.01	0.01	0.01
Households	-0.30	-0.12	-0.09	-0.07	-0.05	-0.06	-0.07	-0.08
Other Final Use	0.00	0.33	0.31	0.33	0.35	0.32	0.31	0.31
Total	-0.55	-0.75	-0.88	-0.93	-0.92	-0.95	-0.96	-1.00

	2005	2006	2007	2008	2009	2010	2011	2012
Power Generation	-0.11	-2.11	-3.42	-4.02	-4.25	-4.27	-4.15	-3.97
Iron & Steel	0.08	0.01	-0.03	-0.05	-0.07	-0.09	-0.10	-0.10
Non-ferrous Metals	0.17	-0.04	0.01	0.00	0.00	0.00	0.00	0.00
Chemicals	0.16	-1.17	-2.49	-3.62	-4.59	-5.49	-6.22	-6.85
Mineral Products	0.00	-0.04	-0.04	-0.04	-0.03	-0.03	-0.03	-0.02
Ore-extraction	0.01	0.33	0.54	1.92	1.27	0.59	0.10	-0.02
Food, Drink & Tobacc	0.15	-0.05	0.24	0.63	0.67	0.46	0.57	0.57
Text. cloth. & footwear	-0.20	0.84	0.77	0.69	0.60	0.54	0.49	0.45
Paper & Printing	0.00	-0.05	-0.08	-0.09	-0.10	-0.12	-0.14	-0.18
Engineering etc	0.02	0.06	0.09	0.11	0.11	0.11	0.11	0.11
Other Industry	-0.01	0.00	0.04	0.05	0.04	0.04	0.03	0.00
Rail Transport	-0.30	-0.37	-0.33	-0.27	-0.22	-0.17	-0.15	-0.15
Road Transport	0.00	0.00	-0.01	-0.02	-0.05	-0.06	-0.08	-0.12
Air Transport	-0.08	-0.04	-0.05	-0.06	-0.07	-0.05	-0.06	-0.06
Inland Navigation	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02
Households	-0.01	-0.02	-0.05	-0.08	-0.10	-0.13	-0.16	-0.19
Other Final Use	0.03	0.01	-0.01	-0.02	-0.02	-0.03	-0.04	-0.04
Total	-0.01	-0.19	-0.34	-0.42	-0.49	-0.52	-0.53	-0.54

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	-2.23	-2.77	-3.28	-3.70	-3.88	-4.14	-4.30	-4.51
Coke	-0.15	-0.15	-0.19	-0.16	-0.18	-0.19	-0.22	-0.24
Lignite	-0.43	-0.24	-0.09	-0.12	-0.19	-0.26	-0.31	-0.34
Heavy Fuel Oil	0.71	-1.81	-2.77	-3.05	-3.27	-3.65	-3.83	-4.13
Middle Distillates	-0.09	-0.04	-0.05	-0.05	-0.05	-0.07	-0.09	-0.10
Natural Gas	-0.53	-0.68	-0.84	-0.80	-0.67	-0.61	-0.59	-0.62
Derived Gas	-1.45	-1.14	-0.93	-1.03	-0.87	-0.79	-0.70	-0.65
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nuclear Fuels	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.55	-0.75	-0.88	-0.93	-0.92	-0.95	-0.96	-1.00

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	0.02	0.31	0.39	0.41	0.37	0.33	0.24	0.20
Coke	0.04	-0.02	-0.03	-0.04	-0.05	-0.08	-0.09	-0.09
Lignite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Fuel Oil	-0.05	-1.61	-2.88	-3.61	-4.07	-4.22	-4.25	-4.27
Middle Distillates	-0.01	-0.02	-0.03	-0.03	-0.07	-0.09	-0.12	-0.14
Natural Gas	-0.27	-0.18	-0.22	-0.26	-0.31	-0.37	-0.42	-0.48
Derived Gas	0.03	0.04	0.06	0.05	0.04	0.03	0.00	-0.02
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nuclear Fuels	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.01	-0.19	-0.34	-0.42	-0.49	-0.52	-0.53	-0.54

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	-2.38	-2.75	-3.20	-3.64	-3.84	-4.07	-4.24	-4.45
Coke	-0.18	-0.16	-0.21	-0.20	-0.19	-0.22	-0.23	-0.25
Lignite	-0.49	-1.03	-1.06	-1.14	-1.24	-1.34	-1.44	-1.52
Heavy Fuel Oil	0.30	-0.58	-0.66	-0.64	-0.54	-0.74	-0.73	-0.84
Middle Distillates	-0.07	-0.03	-0.04	-0.04	-0.05	-0.06	-0.07	-0.09
Natural Gas	-0.39	-0.46	-0.58	-0.48	-0.28	-0.18	-0.11	-0.09
Derived Gas	-0.75	-0.56	-0.45	-0.50	-0.48	-0.44	-0.39	-0.38
Electricity	-0.47	-0.46	-0.55	-0.55	-0.60	-0.58	-0.64	-0.62
Nuclear Fuels	-0.86	-0.31	-0.13	-0.05	-0.08	-0.06	-0.07	-0.05
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	-0.10	-0.30	-0.29	-0.28	-0.28	-0.35	-0.34	-0.39
Total	-0.51	-0.51	-0.57	-0.56	-0.54	-0.54	-0.55	-0.56

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	0.03	0.10	0.30	0.42	0.39	0.37	0.23	0.19
Coke	0.06	-0.02	-0.04	-0.06	-0.08	-0.11	-0.12	-0.13
Lignite	-0.01	-0.02	-0.05	-0.07	-0.10	-0.13	-0.16	-0.19
Heavy Fuel Oil	0.00	-0.71	-1.30	-1.61	-1.87	-1.94	-1.92	-1.92
Middle Distillates	-0.01	-0.02	-0.03	-0.03	-0.06	-0.09	-0.11	-0.14
Natural Gas	-0.27	-0.18	-0.22	-0.26	-0.31	-0.37	-0.42	-0.48
Derived Gas	0.05	0.02	0.01	-0.01	-0.02	-0.04	-0.06	-0.08
Electricity	-0.04	-0.06	-0.10	-0.06	-0.17	-0.21	-0.24	-0.27
Nuclear Fuels	0.00	0.08	0.14	0.15	0.14	0.12	0.09	0.05
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	-0.01	-0.04	-0.05	-0.07	-0.10	-0.12	-0.14	-0.17
Total	-0.01	-0.03	-0.06	-0.06	-0.11	-0.14	-0.17	-0.19

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	0.02	0.02	0.02	0.02	0.02	0.01	0.00	-0.01
Non-energy mining	-0.04	-0.06	-0.07	-0.07	-0.08	-0.07	-0.06	-0.04
Water supply	-0.03	-0.02	-0.04	-0.05	-0.05	-0.05	-0.06	-0.06
Gas distribution	-0.15	-0.08	-0.09	-0.09	-0.07	-0.08	-0.10	-0.11
Electricity etc	-0.15	-0.18	-0.21	-0.23	-0.24	-0.25	-0.26	-0.27
Coal	-0.09	-0.21	-0.23	-0.17	-0.16	-0.15	-0.15	-0.14
Oil and gas extraction	0.00	0.00	-0.02	-0.02	-0.03	-0.03	-0.04	-0.05
Manufactured fuels	-0.04	-0.02	-0.02	-0.02	-0.03	-0.03	-0.04	-0.06
Food, drink and tobacco	-0.01	0.01	0.01	0.01	0.01	0.00	0.00	-0.01
Text. cloth. & footwear	-0.01	-0.01	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03
Wood and paper	-0.01	-0.02	-0.04	-0.07	-0.10	-0.14	-0.18	-0.22
Printing and publishing	-0.01	-0.01	-0.03	-0.05	-0.05	-0.07	-0.08	-0.09
Pharmaceuticals	0.00	-0.02	-0.04	-0.05	-0.05	-0.06	-0.06	-0.06
Chemicals nes	-0.01	-0.02	-0.04	-0.05	-0.06	-0.07	-0.07	-0.08
Rubber and plastic pr.	-0.01	-0.02	-0.03	-0.04	-0.05	-0.05	-0.06	-0.06
Non-metallic min. Pr.	0.00	-0.03	-0.04	-0.04	-0.04	-0.05	-0.05	-0.06
Basic metals etc	-0.04	-0.06	-0.08	-0.09	-0.11	-0.13	-0.16	-0.19
Metal products	0.00	-0.04	-0.07	-0.09	-0.10	-0.11	-0.13	-0.14
Machinery etc	-0.01	-0.07	-0.12	-0.15	-0.17	-0.20	-0.22	-0.23
Electronics	0.00	-0.01	-0.02	-0.03	-0.03	-0.02	-0.02	-0.02
Electrical goods	-0.02	-0.11	-0.19	-0.24	-0.25	-0.26	-0.26	-0.26
Motor vehicles	-0.02	-0.02	-0.04	-0.05	-0.06	-0.06	-0.07	-0.07
Other transp. eq.	-0.01	-0.01	-0.03	-0.05	-0.07	-0.08	-0.10	-0.11
Other manufactures	-0.01	-0.02	-0.05	-0.06	-0.05	-0.06	-0.07	-0.07
Construction	-0.02	-0.04	-0.06	-0.07	-0.07	-0.08	-0.09	-0.11
Wholesale distribution	-0.03	-0.03	-0.04	-0.06	-0.06	-0.08	-0.10	-0.11
Retailing	-0.03	-0.01	-0.03	-0.04	-0.06	-0.08	-0.10	-0.12
Hotels and restaurants	-0.08	-0.05	-0.06	-0.07	-0.07	-0.07	-0.08	-0.07
Land transport	-0.02	-0.02	-0.04	-0.05	-0.07	-0.08	-0.09	-0.09
Water transport	0.00	-0.01	-0.02	-0.02	-0.04	-0.06	-0.07	-0.09
Air transport	-0.01	-0.01	-0.02	-0.02	-0.02	-0.03	-0.03	-0.04
Ancillary transport	-0.02	-0.02	-0.04	-0.05	-0.06	-0.07	-0.08	-0.09
Communications	-0.01	-0.02	-0.04	-0.05	-0.06	-0.07	-0.08	-0.09
Financial services	0.00	0.01	0.01	0.02	0.03	0.04	0.05	0.05
Computing services	-0.02	-0.05	-0.08	-0.10	-0.11	-0.12	-0.13	-0.14
Other business services	-0.02	-0.03	-0.04	-0.05	-0.05	-0.06	-0.07	-0.08
Other market services	-0.01	-0.02	-0.04	-0.05	-0.06	-0.08	-0.09	-0.09
Pad	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01
Health and social work	-0.01	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.02	-0.02	-0.04	-0.05	-0.05	-0.06	-0.07	-0.07

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	-0.01	-0.03	-0.05	-0.07	-0.09	-0.12	-0.14	-0.18
Non-energy mining	0.02	-0.02	-0.02	-0.01	-0.01	-0.01	0.00	0.01
Water supply	-0.04	-0.07	-0.09	-0.11	-0.14	-0.16	-0.20	-0.24
Gas distribution	-0.02	-0.06	-0.09	-0.11	-0.12	-0.13	-0.15	-0.16
Electricity etc	-0.01	-0.05	-0.08	-0.11	-0.13	-0.16	-0.19	-0.22
Coal	0.00	0.00	-0.01	-0.01	-0.02	-0.02	-0.03	-0.03
Oil and gas extraction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufactured fuels	-0.02	-0.03	-0.05	-0.08	-0.10	-0.12	-0.15	-0.19
Food, drink and tobacco	-0.02	-0.04	-0.07	-0.09	-0.11	-0.14	-0.17	-0.21
Text. cloth. & footwear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wood and paper	-0.05	-0.08	-0.12	-0.17	-0.23	-0.30	-0.38	-0.46
Printing and publishing	-0.01	-0.02	-0.03	-0.04	-0.06	-0.08	-0.11	-0.14
Pharmaceuticals	-0.01	-0.02	-0.04	-0.06	-0.08	-0.09	-0.10	-0.11
Chemicals nes	0.00	0.00	-0.01	-0.02	-0.02	-0.03	-0.04	-0.05
Rubber and plastic pr.	-0.09	-0.13	-0.14	-0.14	-0.13	-0.11	-0.09	-0.07
Non-metallic min. Pr.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Basic metals etc	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Metal products	-0.01	-0.03	-0.04	-0.06	-0.07	-0.09	-0.10	-0.12
Machinery etc	-0.01	-0.02	-0.03	-0.06	-0.07	-0.09	-0.10	-0.11
Electronics	0.00	-0.01	-0.04	-0.05	-0.07	-0.06	-0.06	-0.07
Electrical goods	-0.05	-0.10	-0.14	-0.27	-0.26	-0.30	-0.33	-0.34
Motor vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other transp. eq.	-0.01	-0.02	-0.03	-0.05	-0.05	-0.06	-0.06	-0.07
Other manufactures	0.00	0.02	0.02	0.01	-0.01	-0.04	-0.06	-0.08
Construction	-0.04	-0.10	-0.13	-0.18	-0.20	-0.24	-0.27	-0.31
Wholesale distribution	-0.02	-0.04	-0.05	-0.07	-0.09	-0.11	-0.13	-0.16
Retailing	-0.05	-0.08	-0.11	-0.14	-0.17	-0.20	-0.24	-0.29
Hotels and restaurants	-0.03	-0.03	-0.04	-0.04	-0.04	-0.04	-0.04	-0.05
Land transport	-0.01	-0.03	-0.04	-0.05	-0.07	-0.08	-0.10	-0.12
Water transport	0.01	-0.02	-0.04	-0.04	-0.05	-0.06	-0.06	-0.05
Air transport	0.00	0.03	0.06	0.11	0.18	0.31	0.32	0.53
Ancillary transport	-0.01	-0.02	-0.03	-0.03	-0.04	-0.04	-0.04	-0.05
Communications	-0.02	-0.03	-0.05	-0.07	-0.08	-0.10	-0.12	-0.15
Financial services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Computing services	0.00	-0.02	-0.04	-0.05	-0.06	-0.07	-0.08	-0.09
Other business services	-0.01	-0.03	-0.04	-0.06	-0.08	-0.10	-0.12	-0.16
Other market services	-0.02	-0.03	-0.04	-0.06	-0.09	-0.11	-0.15	-0.19
Pad	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	0.00	-0.01	-0.01	-0.01	-0.02	-0.02	-0.03	-0.03
Health and social work	-0.01	-0.01	-0.01	-0.02	-0.02	-0.02	-0.03	-0.04
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.01	-0.03	-0.04	-0.06	-0.07	-0.08	-0.10	-0.12

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	0.00	0.03	0.04	0.04	0.04	0.04	0.03	0.02
Non-energy mining	0.08	0.07	0.06	0.03	0.00	0.00	-0.02	-0.03
Water supply	0.01	0.00	-0.02	-0.04	-0.06	-0.07	-0.08	-0.09
Gas distribution	-0.40	-0.17	-0.12	-0.06	0.00	-0.02	-0.05	-0.06
Electricity etc	2.09	1.67	1.49	1.38	1.25	1.16	1.18	1.19
Coal	-0.01	-0.06	-0.07	-0.02	-0.02	-0.01	0.00	0.00
Oil and gas extraction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufactured fuels	0.02	-0.18	-0.22	-0.21	-0.15	-0.09	-0.05	-0.02
Food, drink and tobacco	0.02	0.03	0.02	0.01	0.00	0.00	0.00	0.01
Text. cloth. & footwear	0.04	-0.05	-0.03	-0.08	-0.06	-0.09	-0.07	-0.08
Wood and paper	0.07	-0.08	-0.13	-0.16	-0.17	-0.17	-0.17	-0.15
Printing and publishing	0.04	0.02	-0.05	-0.16	-0.29	-0.38	-0.45	-0.47
Pharmaceuticals	0.04	0.07	0.07	0.03	-0.03	-0.08	-0.13	-0.16
Chemicals nes	0.07	0.06	0.05	0.02	0.00	-0.02	-0.02	-0.02
Rubber and plastic pr.	0.03	0.04	0.03	-0.01	-0.05	-0.10	-0.13	-0.15
Non-metallic min. Pr.	0.09	0.08	0.06	0.05	0.05	0.06	0.07	0.09
Basic metals etc	0.04	0.03	0.03	0.03	0.02	0.01	0.01	0.01
Metal products	0.00	-0.03	-0.08	-0.12	-0.15	-0.17	-0.18	-0.19
Machinery etc	-0.01	-0.04	-0.08	-0.12	-0.15	-0.19	-0.22	-0.24
Electronics	0.01	-0.04	-0.12	-0.19	-0.22	-0.21	-0.17	-0.13
Electrical goods	0.01	-0.02	-0.07	-0.11	-0.13	-0.15	-0.17	-0.19
Motor vehicles	0.01	0.01	0.01	0.00	-0.01	-0.03	-0.04	-0.05
Other transp. eq.	0.04	0.01	-0.01	-0.02	-0.03	-0.03	-0.02	-0.01
Other manufactures	0.02	0.00	-0.02	-0.03	-0.03	-0.02	-0.02	-0.04
Construction	0.00	-0.03	-0.04	-0.05	-0.05	-0.06	-0.07	-0.08
Wholesale distribution	-0.05	-0.02	-0.03	-0.05	-0.06	-0.06	-0.06	-0.07
Retailing	-0.02	-0.05	-0.08	-0.09	-0.08	-0.07	-0.06	-0.04
Hotels and restaurants	0.00	-0.01	-0.03	-0.04	-0.05	-0.05	-0.05	-0.05
Land transport	0.02	0.01	-0.01	-0.01	-0.02	-0.01	0.00	0.00
Water transport	0.00	-0.04	-0.07	-0.08	-0.08	-0.08	-0.08	-0.08
Air transport	0.01	-0.01	-0.01	0.00	0.03	0.06	0.09	0.12
Ancillary transport	0.00	-0.01	-0.04	-0.05	-0.07	-0.07	-0.07	-0.07
Communications	0.03	0.06	0.03	0.00	-0.06	-0.09	-0.10	-0.09
Financial services	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.02	-0.02
Computing services	-0.05	0.12	0.24	0.33	0.41	0.46	0.50	0.54
Other business services	-0.01	-0.03	-0.05	-0.07	-0.08	-0.09	-0.09	-0.10
Other market services	-0.01	-0.05	-0.10	-0.14	-0.17	-0.20	-0.24	-0.28
Pad	0.03	0.01	-0.01	-0.02	-0.03	-0.03	-0.03	-0.03
Education	0.01	0.01	0.00	-0.01	-0.02	-0.02	-0.03	-0.03
Health and social work	0.02	0.01	0.00	-0.01	-0.02	-0.02	-0.02	-0.03
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.00	-0.02	-0.04	-0.05	-0.05	-0.06	-0.06

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02
Non-energy mining	0.22	0.16	0.13	0.20	0.06	0.05	0.04	0.02
Water supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas distribution	0.64	0.19	0.07	-0.04	-0.12	-0.11	-0.10	-0.11
Electricity etc	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil and gas extraction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufactured fuels	0.01	-0.04	-0.08	-0.12	-0.15	-0.16	-0.20	-0.23
Food, drink and tobacco	0.00	0.00	-0.01	-0.01	-0.03	-0.04	-0.06	-0.08
Text. cloth. & footwear	0.04	0.03	0.02	0.02	0.02	0.02	0.02	0.02
Wood and paper	0.00	0.01	0.03	0.04	0.06	0.08	0.11	0.14
Printing and publishing	0.04	0.06	0.07	0.06	0.03	-0.01	-0.04	-0.07
Pharmaceuticals	0.03	0.09	0.12	0.14	0.13	0.12	0.10	0.08
Chemicals nes	0.11	0.10	0.14	0.16	0.16	0.14	0.12	0.11
Rubber and plastic pr.	0.07	0.07	0.06	0.05	0.03	0.02	0.00	-0.01
Non-metallic min. Pr.	0.00	0.01	0.02	0.04	0.05	0.05	0.05	0.06
Basic metals etc	0.13	0.18	0.20	0.20	0.19	0.18	0.16	0.15
Metal products	0.01	-0.03	-0.08	-0.12	-0.14	-0.15	-0.16	-0.16
Machinery etc	-0.01	-0.01	-0.02	-0.03	-0.04	-0.05	-0.06	-0.07
Electronics	0.00	0.00	-0.02	-0.03	-0.04	-0.05	-0.05	-0.06
Electrical goods	0.00	-0.06	-0.09	-0.21	-0.22	-0.26	-0.29	-0.31
Motor vehicles	0.00	0.01	0.02	0.02	0.02	0.02	0.01	0.00
Other transp. eq.	0.00	-0.01	-0.02	-0.03	-0.04	-0.04	-0.04	-0.04
Other manufactures	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Construction	-0.01	-0.02	-0.02	-0.04	-0.05	-0.06	-0.07	-0.09
Wholesale distribution	-0.02	-0.04	-0.06	-0.07	-0.08	-0.09	-0.10	-0.12
Retailing	-0.03	-0.06	-0.10	-0.14	-0.19	-0.24	-0.30	-0.38
Hotels and restaurants	-0.02	-0.03	-0.03	-0.02	-0.01	-0.01	0.00	0.00
Land transport	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Water transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ancillary transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Communications	-0.01	-0.03	-0.04	-0.06	-0.07	-0.09	-0.11	-0.14
Financial services	0.00	0.00	-0.01	-0.02	-0.03	-0.04	-0.04	-0.05
Computing services	-0.01	-0.03	-0.03	-0.04	-0.03	-0.03	-0.03	-0.03
Other business services	0.00	-0.02	-0.06	-0.08	-0.11	-0.13	-0.16	-0.20
Other market services	0.00	0.00	-0.01	-0.02	-0.03	-0.04	-0.05	-0.06
Pad	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.00
Education	0.02	0.01	0.01	0.00	-0.01	-0.01	-0.02	-0.02
Health and social work	0.03	0.01	0.01	0.00	-0.01	-0.01	-0.02	-0.03
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.00	-0.01	-0.03	-0.04	-0.05	-0.06	-0.08

	2005	2006	2007	2008	2009	2010	2011	2012
GHG Baseline - Kyoto	-0.78	-0.61	-0.40	-0.23	-0.02	0.19	0.78	1.36
GHG Scenario - Kyoto	-1.23	-1.25	-1.14	-1.01	-0.79	-0.60	-0.03	0.51
GHG Scenario - Baseline	-0.47	-0.64	-0.76	-0.81	-0.79	-0.82	-0.83	-0.87
CO2 Scenario - Baseline	-0.55	-0.75	-0.88	-0.93	-0.92	-0.95	-0.96	-1.00

	2005	2006	2007	2008	2009	2010	2011	2012
GHG Baseline - Kyoto	13.66	14.75	15.83	16.95	18.08	19.24	21.45	23.72
GHG Scenario - Kyoto	13.65	14.58	15.53	16.59	17.65	18.77	20.97	23.21
GHG Scenario - Baseline	-0.01	-0.15	-0.27	-0.33	-0.39	-0.43	-0.44	-0.45
CO2 Scenario - Baseline	-0.01	-0.19	-0.34	-0.42	-0.49	-0.52	-0.53	-0.54

D.2 Scenario GL: Basic emission trade and low price

	2005	2006	2007	2008	2009	2010	2011	2012
GDP (1995 €)	-0.02	-0.02	-0.03	-0.03	-0.04	-0.04	-0.05	-0.05
Consumption (1995 €)	-0.04	-0.02	-0.03	-0.03	-0.03	-0.04	-0.05	-0.06
Investment (1995 €)	-0.02	-0.06	-0.09	-0.11	-0.11	-0.12	-0.13	-0.15
Exports (1995 €)	0.00	-0.01	-0.03	-0.03	-0.04	-0.05	-0.05	-0.05
Imports (1995 €)	-0.02	-0.03	-0.04	-0.05	-0.06	-0.07	-0.07	-0.08
GDP deflator	0.03	0.05	0.05	0.05	0.04	0.03	0.02	0.00
Consumer prices	0.04	0.08	0.09	0.08	0.07	0.05	0.03	0.01
Investment deflator	0.01	0.01	0.00	-0.02	-0.03	-0.05	-0.08	-0.11
Export prices	0.07	0.10	0.10	0.09	0.07	0.05	0.03	0.01
Import prices	0.05	0.08	0.07	0.06	0.04	0.02	0.00	-0.02
Employment	0.01	0.00	-0.01	-0.03	-0.03	-0.04	-0.04	-0.04
Wages	0.01	0.07	0.08	0.07	0.06	0.04	0.02	0.00
CO2	-0.38	-0.52	-0.61	-0.66	-0.65	-0.67	-0.68	-0.71
Price of Fuel	1.74	1.85	1.91	1.93	1.90	1.91	1.92	1.95

	2005	2006	2007	2008	2009	2010	2011	2012
GDP (1995 €)	-0.01	-0.02	-0.03	-0.04	-0.05	-0.06	-0.07	-0.08
Consumption (1995 €)	-0.02	-0.04	-0.05	-0.07	-0.08	-0.10	-0.13	-0.16
Investment (1995 €)	-0.03	-0.06	-0.08	-0.12	-0.13	-0.16	-0.18	-0.20
Exports (1995 €)	0.00	-0.01	-0.02	-0.03	-0.04	-0.04	-0.05	-0.06
Imports (1995 €)	-0.01	-0.03	-0.04	-0.06	-0.07	-0.08	-0.09	-0.11
GDP deflator	0.07	0.10	0.11	0.12	0.12	0.12	0.11	0.10
Consumer prices	0.04	0.06	0.08	0.09	0.09	0.09	0.08	0.07
Investment deflator	0.04	0.08	0.10	0.11	0.10	0.10	0.09	0.08
Export prices	0.06	0.10	0.11	0.11	0.10	0.09	0.08	0.07
Import prices	0.06	0.10	0.11	0.11	0.11	0.09	0.08	0.07
Employment	0.01	0.00	-0.01	-0.02	-0.03	-0.03	-0.04	-0.05
Wages	0.00	0.04	0.06	0.07	0.07	0.07	0.07	0.06
Price of Fuel	0.53	0.56	0.59	0.63	0.67	0.70	0.73	0.77

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-1.09	-1.66	-1.98	-2.12	-2.16	-2.19	-2.25	-2.30
Industry	-0.05	-0.09	-0.06	-0.11	-0.06	-0.11	-0.07	-0.12
Transport	0.01	0.01	0.02	0.01	0.01	0.00	-0.01	-0.02
Other fuel combustion	-0.14	0.01	0.03	0.04	0.05	0.04	0.03	0.02
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.38	-0.52	-0.61	-0.66	-0.65	-0.67	-0.68	-0.71

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-0.08	-1.54	-2.56	-3.05	-3.25	-3.29	-3.22	-3.09
Industry	0.02	0.09	0.09	0.15	0.07	0.02	-0.01	-0.02
Transport	0.00	0.00	0.00	-0.01	-0.02	-0.02	-0.03	-0.04
Other fuel combustion	0.00	-0.01	-0.02	-0.04	-0.05	-0.07	-0.08	-0.10
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.01	-0.14	-0.26	-0.31	-0.37	-0.40	-0.41	-0.41

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other fuel combustion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.02	-0.01	-0.01	-0.02	-0.02	-0.03	-0.03	-0.03
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.02	-0.01	-0.01	-0.02	-0.02	-0.03	-0.03	-0.03

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other fuel combustion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.01	-0.01	-0.02	-0.02	-0.03	-0.03	-0.04	-0.04
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.01	-0.01	-0.02	-0.02	-0.03	-0.03	-0.04	-0.04

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-1.06	-1.46	-1.74	-1.84	-1.88	-2.01	-2.26	-2.37
Industry	-0.02	-0.09	-0.09	-0.24	-0.18	-0.32	-0.24	-0.35
Transport	0.01	0.01	0.01	0.01	0.01	0.02	0.00	0.00
Other fuel combustion	-0.20	0.00	0.11	0.17	0.20	0.19	0.16	0.17
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.06	-0.04	-0.04	-0.05	-0.04	-0.05	-0.06	-0.07
Solvent & other prod. use	0.00	0.00	0.00	-0.30	0.00	-0.27	-0.18	-0.20
Agriculture	0.04	0.04	0.00	0.05	0.00	0.05	0.02	0.02
Waste treatment disposal	-0.04	-0.01	0.00	0.01	0.02	0.02	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.71	-0.94	-1.12	-1.19	-1.20	-1.29	-1.30	-1.36

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-0.11	-2.23	-3.73	-4.47	-4.79	-4.87	-4.78	-4.60
Industry	0.04	0.05	0.11	0.22	0.11	0.09	0.07	0.06
Transport	0.01	0.03	0.03	0.04	0.03	0.05	0.05	0.04
Other fuel combustion	0.12	0.12	0.09	0.07	0.05	0.03	0.00	-0.03
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.01	-0.02	-0.04	-0.05	-0.07	-0.08	-0.09	-0.11
Solvent & other prod. use	0.00	0.00	0.00	-0.39	0.00	-0.33	-0.18	-0.21
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	-0.02	-0.03	-0.04	-0.05	-0.06	-0.07	-0.09	-0.11
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	-0.07	-0.13	-0.15	-0.19	-0.20	-0.21	-0.22

	2005	2006	2007	2008	2009	2010	2011	2012
Power Generation	-1.09	-1.66	-1.98	-2.12	-2.16	-2.19	-2.25	-2.30
Iron & Steel	0.00	-0.01	0.00	0.00	0.01	0.00	0.00	0.00
Non-ferrous Metals	0.48	0.53	0.55	0.48	0.34	0.22	0.16	0.18
Chemicals	-0.97	-1.09	-1.12	-1.36	-1.20	-1.40	-1.33	-1.51
Mineral Products	0.04	0.06	0.08	0.10	0.10	0.11	0.10	0.08
Ore-extraction	0.08	0.13	0.16	0.50	0.27	0.16	0.05	0.03
Food, drink and tobacco	0.08	0.06	0.10	0.17	0.24	0.31	0.38	0.43
Text. cloth. & footwear	0.30	0.32	0.42	0.41	0.48	0.53	0.64	0.74
Paper & Printing	-0.94	-1.36	-1.58	-1.71	-1.83	-1.98	-2.20	-2.39
Engineering etc	0.15	0.18	0.22	0.24	0.23	0.22	0.22	0.21
Other Industry	0.32	0.06	0.31	0.11	0.32	0.09	0.30	0.04
Rail Transport	0.01	-0.08	-0.14	-0.17	-0.19	-0.20	-0.20	-0.20
Road Transport	0.01	0.01	0.01	0.01	0.01	0.00	-0.01	-0.02
Air Transport	0.01	0.03	0.03	0.04	0.04	0.03	0.02	0.00
Inland Navigation	-0.01	0.00	-0.01	0.00	0.00	0.00	0.01	0.01
Households	-0.20	-0.09	-0.05	-0.05	-0.03	-0.04	-0.05	-0.06
Other Final Use	0.01	0.22	0.23	0.23	0.24	0.22	0.22	0.21
Total	-0.38	-0.52	-0.61	-0.66	-0.65	-0.67	-0.68	-0.71

	2005	2006	2007	2008	2009	2010	2011	2012
Power Generation	-0.08	-1.54	-2.56	-3.05	-3.25	-3.29	-3.22	-3.09
Iron & Steel	0.05	0.01	-0.02	-0.04	-0.05	-0.06	-0.07	-0.07
Non-ferrous Metals	0.12	-0.03	0.01	0.00	0.00	0.00	0.00	0.00
Chemicals	0.09	-0.82	-1.72	-2.50	-3.18	-3.81	-4.34	-4.78
Mineral Products	0.00	-0.02	-0.03	-0.03	-0.02	-0.02	-0.02	-0.01
Ore-extraction	0.01	0.23	0.36	1.36	0.88	0.38	0.03	-0.05
Food, drink and tobacco	0.10	-0.03	0.16	0.42	0.45	0.31	0.38	0.38
Text. cloth. & footwear	-0.13	0.56	0.52	0.46	0.40	0.36	0.33	0.30
Paper & Printing	0.00	-0.04	-0.06	-0.06	-0.07	-0.08	-0.10	-0.12
Engineering etc	0.01	0.04	0.06	0.07	0.07	0.07	0.07	0.07
Other Industry	0.00	0.00	0.03	0.03	0.03	0.02	0.02	0.00
Rail Transport	-0.20	-0.25	-0.22	-0.18	-0.15	-0.11	-0.10	-0.10
Road Transport	0.00	0.00	-0.01	-0.02	-0.03	-0.04	-0.06	-0.08
Air Transport	-0.06	-0.03	-0.03	-0.04	-0.04	-0.03	-0.04	-0.04
Inland Navigation	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01
Households	-0.01	-0.02	-0.03	-0.05	-0.07	-0.09	-0.10	-0.13
Other Final Use	0.02	0.01	0.00	-0.01	-0.02	-0.02	-0.02	-0.03
Total	-0.01	-0.14	-0.26	-0.31	-0.37	-0.40	-0.41	-0.41

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	-1.60	-2.00	-2.36	-2.69	-2.83	-3.02	-3.15	-3.31
Coke	-0.07	-0.10	-0.09	-0.10	-0.09	-0.11	-0.12	-0.14
Lignite	-0.30	-0.15	-0.01	-0.03	-0.08	-0.13	-0.16	-0.17
Heavy Fuel Oil	0.52	-1.30	-2.14	-2.39	-2.62	-2.93	-3.13	-3.35
Middle Distillates	-0.06	-0.03	-0.02	-0.03	-0.03	-0.04	-0.05	-0.06
Natural Gas	-0.35	-0.45	-0.55	-0.52	-0.42	-0.38	-0.37	-0.38
Derived Gas	-1.02	-0.78	-0.60	-0.69	-0.59	-0.53	-0.45	-0.43
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nuclear Fuels	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.38	-0.52	-0.61	-0.66	-0.65	-0.67	-0.68	-0.71

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	0.01	0.21	0.27	0.29	0.27	0.23	0.18	0.15
Coke	0.03	-0.02	-0.02	-0.03	-0.03	-0.05	-0.06	-0.06
Lignite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Fuel Oil	-0.03	-1.18	-2.16	-2.74	-3.12	-3.27	-3.32	-3.36
Middle Distillates	0.00	-0.01	-0.02	-0.02	-0.04	-0.06	-0.08	-0.09
Natural Gas	-0.19	-0.12	-0.15	-0.17	-0.20	-0.24	-0.28	-0.32
Derived Gas	0.02	0.03	0.05	0.05	0.05	0.03	0.02	0.01
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nuclear Fuels	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.01	-0.14	-0.26	-0.31	-0.37	-0.40	-0.41	-0.41

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	-1.71	-1.98	-2.29	-2.63	-2.78	-2.95	-3.09	-3.25
Coke	-0.10	-0.11	-0.10	-0.12	-0.10	-0.13	-0.13	-0.15
Lignite	-0.33	-0.73	-0.74	-0.79	-0.86	-0.93	-1.01	-1.08
Heavy Fuel Oil	0.23	-0.40	-0.52	-0.51	-0.47	-0.62	-0.65	-0.72
Middle Distillates	-0.04	-0.02	-0.02	-0.02	-0.02	-0.03	-0.04	-0.05
Natural Gas	-0.25	-0.30	-0.37	-0.29	-0.14	-0.07	-0.02	0.00
Derived Gas	-0.52	-0.37	-0.27	-0.33	-0.31	-0.29	-0.25	-0.26
Electricity	-0.31	-0.31	-0.36	-0.36	-0.39	-0.38	-0.41	-0.41
Nuclear Fuels	-0.59	-0.19	-0.05	0.00	-0.02	-0.01	-0.01	0.00
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	-0.05	-0.19	-0.19	-0.18	-0.18	-0.22	-0.23	-0.25
Total	-0.34	-0.35	-0.38	-0.38	-0.36	-0.36	-0.37	-0.37

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	0.02	0.07	0.21	0.29	0.27	0.26	0.16	0.14
Coke	0.04	-0.01	-0.03	-0.04	-0.05	-0.07	-0.08	-0.09
Lignite	0.00	-0.02	-0.03	-0.05	-0.07	-0.09	-0.10	-0.13
Heavy Fuel Oil	0.00	-0.52	-0.97	-1.22	-1.43	-1.50	-1.51	-1.51
Middle Distillates	0.00	-0.01	-0.02	-0.02	-0.04	-0.06	-0.08	-0.09
Natural Gas	-0.19	-0.12	-0.15	-0.17	-0.20	-0.24	-0.28	-0.32
Derived Gas	0.03	0.02	0.01	0.00	-0.01	-0.02	-0.03	-0.04
Electricity	-0.03	-0.04	-0.07	-0.04	-0.11	-0.14	-0.17	-0.18
Nuclear Fuels	0.00	0.06	0.11	0.12	0.12	0.11	0.09	0.07
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	-0.01	-0.02	-0.04	-0.05	-0.06	-0.08	-0.09	-0.11
Total	-0.01	-0.02	-0.04	-0.04	-0.07	-0.09	-0.11	-0.13

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	0.01	0.01	0.01	0.01	0.01	0.00	0.00	-0.01
Non-energy mining	-0.03	-0.04	-0.04	-0.04	-0.05	-0.04	-0.04	-0.03
Water supply	-0.02	-0.01	-0.03	-0.04	-0.03	-0.04	-0.04	-0.04
Gas distribution	-0.10	-0.06	-0.06	-0.06	-0.05	-0.06	-0.07	-0.07
Electricity etc	-0.10	-0.12	-0.14	-0.16	-0.16	-0.17	-0.18	-0.18
Coal	-0.06	-0.14	-0.15	-0.11	-0.11	-0.10	-0.10	-0.10
Oil and gas extraction	0.00	0.00	-0.01	-0.02	-0.02	-0.02	-0.03	-0.03
Manufactured fuels	-0.03	-0.01	-0.01	-0.02	-0.02	-0.02	-0.03	-0.04
Food, drink and tobacco	-0.01	0.01	0.00	0.00	0.01	0.00	0.00	-0.01
Text. cloth. & footwear	0.00	-0.01	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
Wood and paper	-0.01	-0.01	-0.03	-0.05	-0.07	-0.09	-0.12	-0.15
Printing and publishing	-0.01	-0.01	-0.02	-0.03	-0.04	-0.04	-0.05	-0.06
Pharmaceuticals	0.00	-0.01	-0.03	-0.03	-0.04	-0.04	-0.04	-0.04
Chemicals nes	0.00	-0.01	-0.02	-0.03	-0.04	-0.04	-0.05	-0.05
Rubber and plastic pr.	-0.01	-0.01	-0.02	-0.03	-0.03	-0.04	-0.04	-0.04
Non-metallic min. Pr.	0.00	-0.02	-0.03	-0.03	-0.03	-0.03	-0.04	-0.04
Basic metals etc	-0.03	-0.04	-0.05	-0.06	-0.07	-0.09	-0.11	-0.13
Metal products	0.00	-0.03	-0.05	-0.06	-0.07	-0.08	-0.09	-0.09
Machinery etc	-0.01	-0.05	-0.08	-0.10	-0.12	-0.13	-0.15	-0.16
Electronics	0.00	-0.01	-0.01	-0.02	-0.02	-0.02	-0.02	-0.02
Electrical goods	-0.01	-0.07	-0.13	-0.16	-0.17	-0.17	-0.18	-0.18
Motor vehicles	-0.02	-0.01	-0.02	-0.03	-0.04	-0.04	-0.05	-0.05
Other transp. eq.	-0.01	-0.01	-0.02	-0.04	-0.05	-0.06	-0.07	-0.07
Other manufactures	-0.01	-0.02	-0.03	-0.04	-0.03	-0.04	-0.05	-0.05
Construction	-0.02	-0.03	-0.04	-0.05	-0.05	-0.05	-0.06	-0.07
Wholesale distribution	-0.02	-0.02	-0.03	-0.04	-0.04	-0.05	-0.07	-0.08
Retailing	-0.02	-0.01	-0.02	-0.03	-0.04	-0.05	-0.07	-0.08
Hotels and restaurants	-0.05	-0.03	-0.04	-0.05	-0.05	-0.05	-0.05	-0.05
Land transport	-0.01	-0.02	-0.03	-0.04	-0.04	-0.05	-0.06	-0.06
Water transport	0.00	-0.01	-0.01	-0.02	-0.03	-0.04	-0.05	-0.06
Air transport	0.00	-0.01	-0.01	-0.01	-0.02	-0.02	-0.02	-0.02
Ancillary transport	-0.02	-0.01	-0.02	-0.03	-0.04	-0.05	-0.06	-0.06
Communications	-0.01	-0.01	-0.03	-0.03	-0.04	-0.05	-0.06	-0.06
Financial services	0.00	0.00	0.01	0.01	0.02	0.03	0.03	0.04
Computing services	-0.02	-0.04	-0.05	-0.07	-0.07	-0.08	-0.09	-0.10
Other business services	-0.02	-0.02	-0.03	-0.03	-0.04	-0.04	-0.05	-0.06
Other market services	-0.01	-0.01	-0.03	-0.04	-0.04	-0.05	-0.06	-0.06
Pad	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Health and social work	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.01
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.01	-0.02	-0.03	-0.03	-0.03	-0.04	-0.05	-0.05

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	-0.01	-0.02	-0.03	-0.05	-0.06	-0.08	-0.10	-0.12
Non-energy mining	0.01	-0.01	-0.01	0.00	-0.01	0.00	0.00	0.01
Water supply	-0.03	-0.04	-0.06	-0.08	-0.09	-0.11	-0.13	-0.16
Gas distribution	-0.02	-0.04	-0.06	-0.07	-0.08	-0.09	-0.10	-0.11
Electricity etc	-0.01	-0.03	-0.05	-0.07	-0.09	-0.11	-0.13	-0.15
Coal	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.02	-0.02
Oil and gas extraction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufactured fuels	-0.01	-0.02	-0.04	-0.05	-0.07	-0.08	-0.10	-0.12
Food, drink and tobacco	-0.01	-0.03	-0.04	-0.06	-0.08	-0.09	-0.12	-0.14
Text. cloth. & footwear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wood and paper	-0.03	-0.05	-0.08	-0.12	-0.16	-0.21	-0.26	-0.31
Printing and publishing	-0.01	-0.01	-0.02	-0.03	-0.04	-0.05	-0.07	-0.09
Pharmaceuticals	0.00	-0.01	-0.03	-0.04	-0.05	-0.06	-0.07	-0.08
Chemicals nes	0.00	0.00	-0.01	-0.01	-0.02	-0.02	-0.03	-0.03
Rubber and plastic pr.	-0.06	-0.09	-0.09	-0.09	-0.09	-0.07	-0.06	-0.05
Non-metallic min. Pr.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Basic metals etc	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Metal products	-0.01	-0.02	-0.03	-0.04	-0.05	-0.06	-0.07	-0.08
Machinery etc	-0.01	-0.02	-0.02	-0.04	-0.05	-0.06	-0.07	-0.07
Electronics	0.00	-0.01	-0.03	-0.03	-0.05	-0.04	-0.04	-0.04
Electrical goods	-0.03	-0.07	-0.10	-0.19	-0.17	-0.20	-0.22	-0.23
Motor vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other transp. eq.	-0.01	-0.01	-0.02	-0.03	-0.04	-0.04	-0.04	-0.05
Other manufactures	0.00	0.01	0.01	0.01	-0.01	-0.02	-0.04	-0.06
Construction	-0.03	-0.07	-0.09	-0.12	-0.13	-0.16	-0.18	-0.21
Wholesale distribution	-0.01	-0.03	-0.04	-0.05	-0.06	-0.07	-0.09	-0.11
Retailing	-0.03	-0.06	-0.07	-0.09	-0.11	-0.13	-0.16	-0.19
Hotels and restaurants	-0.02	-0.02	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03
Land transport	-0.01	-0.02	-0.03	-0.04	-0.04	-0.05	-0.07	-0.08
Water transport	0.01	-0.01	-0.02	-0.03	-0.04	-0.04	-0.04	-0.04
Air transport	0.00	0.02	0.04	0.07	0.12	0.21	0.21	0.36
Ancillary transport	0.00	-0.01	-0.02	-0.02	-0.03	-0.03	-0.03	-0.03
Communications	-0.01	-0.02	-0.03	-0.04	-0.05	-0.07	-0.08	-0.10
Financial services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Computing services	0.00	-0.02	-0.03	-0.03	-0.04	-0.05	-0.05	-0.06
Other business services	-0.01	-0.02	-0.03	-0.04	-0.05	-0.07	-0.08	-0.11
Other market services	-0.01	-0.02	-0.03	-0.04	-0.06	-0.08	-0.10	-0.13
Pad	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.02
Health and social work	0.00	-0.01	-0.01	-0.01	-0.01	-0.02	-0.02	-0.02
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.01	-0.02	-0.03	-0.04	-0.05	-0.06	-0.07	-0.08

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	0.00	0.02	0.02	0.03	0.03	0.02	0.02	0.02
Non-energy mining	0.05	0.05	0.04	0.02	0.00	0.00	-0.01	-0.01
Water supply	0.01	0.00	-0.02	-0.03	-0.04	-0.05	-0.06	-0.06
Gas distribution	-0.27	-0.12	-0.07	-0.04	0.00	-0.02	-0.04	-0.04
Electricity etc	1.40	1.12	1.01	0.93	0.84	0.78	0.79	0.80
Coal	0.00	-0.04	-0.05	-0.01	-0.01	-0.01	0.00	0.00
Oil and gas extraction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufactured fuels	0.01	-0.12	-0.15	-0.14	-0.10	-0.06	-0.03	-0.01
Food, drink and tobacco	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00
Text. cloth. & footwear	0.03	-0.03	-0.02	-0.05	-0.04	-0.06	-0.05	-0.06
Wood and paper	0.04	-0.05	-0.09	-0.11	-0.12	-0.12	-0.11	-0.10
Printing and publishing	0.02	0.01	-0.03	-0.11	-0.19	-0.26	-0.30	-0.32
Pharmaceuticals	0.03	0.05	0.05	0.02	-0.02	-0.06	-0.09	-0.11
Chemicals nes	0.04	0.04	0.03	0.01	0.00	-0.01	-0.01	-0.02
Rubber and plastic pr.	0.02	0.02	0.02	-0.01	-0.04	-0.07	-0.09	-0.10
Non-metallic min. Pr.	0.06	0.05	0.04	0.03	0.03	0.04	0.05	0.06
Basic metals etc	0.03	0.02	0.02	0.02	0.01	0.01	0.01	0.01
Metal products	0.00	-0.02	-0.06	-0.08	-0.10	-0.11	-0.12	-0.13
Machinery etc	-0.01	-0.03	-0.05	-0.08	-0.10	-0.13	-0.15	-0.16
Electronics	0.01	-0.02	-0.08	-0.13	-0.15	-0.14	-0.11	-0.09
Electrical goods	0.01	-0.02	-0.05	-0.07	-0.09	-0.10	-0.12	-0.13
Motor vehicles	0.01	0.01	0.00	0.00	-0.01	-0.02	-0.03	-0.03
Other transp. eq.	0.02	0.01	-0.01	-0.01	-0.02	-0.02	-0.01	-0.01
Other manufactures	0.01	0.00	-0.01	-0.02	-0.02	-0.02	-0.02	-0.02
Construction	0.00	-0.02	-0.03	-0.03	-0.04	-0.04	-0.05	-0.05
Wholesale distribution	-0.03	-0.02	-0.02	-0.03	-0.04	-0.04	-0.04	-0.05
Retailing	-0.01	-0.03	-0.05	-0.06	-0.06	-0.05	-0.04	-0.03
Hotels and restaurants	0.00	-0.01	-0.02	-0.03	-0.03	-0.03	-0.03	-0.04
Land transport	0.01	0.01	0.00	-0.01	-0.01	-0.01	0.00	0.00
Water transport	0.00	-0.03	-0.04	-0.06	-0.06	-0.05	-0.06	-0.06
Air transport	0.00	-0.01	-0.01	0.00	0.02	0.04	0.06	0.08
Ancillary transport	0.00	-0.01	-0.02	-0.04	-0.04	-0.05	-0.05	-0.05
Communications	0.02	0.04	0.02	0.00	-0.04	-0.06	-0.07	-0.06
Financial services	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.02
Computing services	-0.04	0.08	0.16	0.22	0.27	0.31	0.33	0.36
Other business services	0.00	-0.02	-0.04	-0.05	-0.06	-0.06	-0.06	-0.07
Other market services	-0.01	-0.04	-0.07	-0.09	-0.12	-0.14	-0.16	-0.19
Pad	0.02	0.01	0.00	-0.01	-0.02	-0.02	-0.02	-0.02
Education	0.01	0.01	0.00	-0.01	-0.01	-0.02	-0.02	-0.02
Health and social work	0.01	0.00	0.00	-0.01	-0.01	-0.01	-0.02	-0.02
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.00	-0.01	-0.03	-0.03	-0.04	-0.04	-0.04

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.02
Non-energy mining	0.15	0.11	0.09	0.14	0.03	0.03	0.02	0.02
Water supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas distribution	0.42	0.14	0.05	-0.02	-0.08	-0.07	-0.07	-0.06
Electricity etc	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil and gas extraction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufactured fuels	0.01	-0.03	-0.05	-0.08	-0.10	-0.11	-0.14	-0.16
Food, drink and tobacco	0.00	0.00	0.00	-0.01	-0.02	-0.03	-0.04	-0.05
Text. cloth. & footwear	0.03	0.02	0.02	0.02	0.02	0.02	0.01	0.01
Wood and paper	0.00	0.01	0.02	0.03	0.04	0.06	0.08	0.10
Printing and publishing	0.02	0.04	0.05	0.04	0.02	0.00	-0.03	-0.05
Pharmaceuticals	0.02	0.06	0.08	0.09	0.09	0.08	0.07	0.05
Chemicals nes	0.07	0.07	0.09	0.11	0.11	0.09	0.08	0.07
Rubber and plastic pr.	0.05	0.04	0.04	0.03	0.02	0.01	0.00	-0.01
Non-metallic min. Pr.	0.00	0.01	0.02	0.02	0.03	0.03	0.04	0.04
Basic metals etc	0.09	0.12	0.13	0.13	0.13	0.12	0.11	0.10
Metal products	0.01	-0.02	-0.05	-0.08	-0.09	-0.10	-0.11	-0.11
Machinery etc	0.00	-0.01	-0.01	-0.02	-0.03	-0.03	-0.04	-0.05
Electronics	0.00	0.00	-0.01	-0.02	-0.03	-0.03	-0.03	-0.04
Electrical goods	0.00	-0.04	-0.06	-0.14	-0.15	-0.18	-0.20	-0.20
Motor vehicles	0.00	0.01	0.01	0.02	0.01	0.01	0.01	0.00
Other transp. eq.	0.00	-0.01	-0.01	-0.02	-0.03	-0.03	-0.03	-0.03
Other manufactures	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction	-0.01	-0.01	-0.02	-0.03	-0.03	-0.04	-0.05	-0.06
Wholesale distribution	-0.01	-0.03	-0.04	-0.05	-0.05	-0.06	-0.07	-0.08
Retailing	-0.02	-0.04	-0.07	-0.09	-0.13	-0.16	-0.21	-0.26
Hotels and restaurants	-0.02	-0.02	-0.02	-0.01	-0.01	-0.01	0.00	0.00
Land transport	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Water transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ancillary transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Communications	-0.01	-0.02	-0.03	-0.04	-0.05	-0.06	-0.07	-0.09
Financial services	0.00	0.00	-0.01	-0.01	-0.02	-0.02	-0.03	-0.03
Computing services	0.00	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
Other business services	0.00	-0.02	-0.04	-0.06	-0.07	-0.09	-0.11	-0.13
Other market services	0.00	0.00	-0.01	-0.01	-0.02	-0.02	-0.03	-0.04
Pad	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Education	0.01	0.01	0.00	0.00	0.00	-0.01	-0.01	-0.01
Health and social work	0.02	0.01	0.00	0.00	0.00	-0.01	-0.01	-0.02
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.00	-0.01	-0.02	-0.03	-0.03	-0.04	-0.05

	2005	2006	2007	2008	2009	2010	2011	2012
GHG Baseline - Kyoto	-0.78	-0.61	-0.40	-0.23	-0.02	0.19	0.78	1.36
GHG Scenario - Kyoto	-1.09	-1.06	-0.92	-0.78	-0.56	-0.37	0.20	0.76
GHG Scenario - Baseline	-0.33	-0.45	-0.53	-0.57	-0.56	-0.58	-0.59	-0.62
CO2 Scenario - Baseline	-0.38	-0.52	-0.61	-0.66	-0.65	-0.67	-0.68	-0.71

	2005	2006	2007	2008	2009	2010	2011	2012
GHG Baseline - Kyoto	13.66	14.75	15.83	16.95	18.08	19.24	21.45	23.72
GHG Scenario - Kyoto	13.65	14.63	15.61	16.68	17.76	18.89	21.09	23.34
GHG Scenario - Baseline	-0.01	-0.11	-0.20	-0.25	-0.30	-0.32	-0.34	-0.34
CO2 Scenario - Baseline	-0.01	-0.14	-0.26	-0.32	-0.37	-0.40	-0.41	-0.41

D.3 Scenario GH: Basic emission trade and high price.

	2005	2006	2007	2008	2009	2010	2011	2012
GDP (1995 €)	-0.04	-0.04	-0.05	-0.06	-0.07	-0.08	-0.09	-0.10
Consumption (1995 €)	-0.07	-0.04	-0.05	-0.06	-0.07	-0.08	-0.09	-0.11
Investment (1995 €)	-0.04	-0.11	-0.17	-0.20	-0.21	-0.23	-0.26	-0.28
Exports (1995 €)	0.00	-0.03	-0.05	-0.07	-0.08	-0.09	-0.10	-0.11
Imports (1995 €)	-0.04	-0.06	-0.08	-0.10	-0.11	-0.13	-0.14	-0.16
GDP deflator	0.06	0.10	0.11	0.10	0.08	0.06	0.03	0.00
Consumer prices	0.08	0.16	0.17	0.16	0.14	0.10	0.06	0.02
Investment deflator	0.02	0.03	0.00	-0.03	-0.06	-0.10	-0.15	-0.21
Export prices	0.14	0.19	0.19	0.17	0.13	0.10	0.06	0.03
Import prices	0.11	0.16	0.15	0.12	0.09	0.05	0.01	-0.03
Employment	0.02	0.00	-0.03	-0.05	-0.06	-0.07	-0.07	-0.08
Wages	0.01	0.14	0.15	0.14	0.11	0.08	0.04	0.00
CO2	-0.71	-0.95	-1.11	-1.18	-1.15	-1.19	-1.20	-1.25
Price of Fuel	3.43	3.61	3.72	3.76	3.69	3.71	3.73	3.79

	2005	2006	2007	2008	2009	2010	2011	2012
GDP (1995 €)	-0.02	-0.04	-0.05	-0.07	-0.09	-0.11	-0.13	-0.16
Consumption (1995 €)	-0.04	-0.07	-0.10	-0.13	-0.16	-0.20	-0.25	-0.31
Investment (1995 €)	-0.06	-0.12	-0.15	-0.24	-0.25	-0.31	-0.36	-0.40
Exports (1995 €)	0.00	-0.02	-0.03	-0.05	-0.07	-0.08	-0.09	-0.11
Imports (1995 €)	-0.03	-0.06	-0.08	-0.11	-0.13	-0.16	-0.18	-0.21
GDP deflator	0.13	0.19	0.22	0.24	0.24	0.23	0.21	0.19
Consumer prices	0.09	0.13	0.16	0.17	0.18	0.18	0.16	0.15
Investment deflator	0.07	0.15	0.19	0.21	0.20	0.19	0.18	0.16
Export prices	0.12	0.20	0.22	0.22	0.21	0.18	0.16	0.14
Import prices	0.13	0.20	0.22	0.22	0.21	0.19	0.16	0.14
Employment	0.01	-0.01	-0.02	-0.03	-0.05	-0.07	-0.08	-0.11
Wages	-0.01	0.08	0.11	0.13	0.14	0.14	0.13	0.11
Price of Fuel	1.05	1.10	1.15	1.23	1.31	1.38	1.44	1.50

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-1.99	-2.99	-3.50	-3.71	-3.75	-3.80	-3.87	-3.94
Industry	-0.13	-0.25	-0.21	-0.31	-0.22	-0.34	-0.25	-0.37
Transport	0.02	0.03	0.03	0.01	0.00	-0.01	-0.03	-0.05
Other fuel combustion	-0.27	0.02	0.05	0.06	0.09	0.07	0.05	0.04
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.71	-0.95	-1.11	-1.18	-1.15	-1.19	-1.20	-1.25

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-0.14	-2.60	-4.13	-4.80	-5.03	-5.02	-4.86	-4.63
Industry	0.03	0.17	0.18	0.29	0.14	0.04	0.00	-0.02
Transport	-0.01	0.00	0.00	-0.01	-0.03	-0.03	-0.05	-0.08
Other fuel combustion	0.00	-0.02	-0.05	-0.08	-0.10	-0.13	-0.16	-0.20
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.01	-0.23	-0.41	-0.50	-0.58	-0.62	-0.64	-0.64

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other fuel combustion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.03	-0.02	-0.02	-0.03	-0.04	-0.05	-0.06	-0.06
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.03	-0.02	-0.02	-0.03	-0.04	-0.05	-0.06	-0.06

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other fuel combustion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.03	-0.03	-0.04	-0.05	-0.05	-0.06	-0.07	-0.08
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.03	-0.03	-0.04	-0.05	-0.05	-0.06	-0.07	-0.08

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-1.94	-2.59	-3.04	-3.19	-3.25	-3.44	-3.79	-3.95
Industry	0.02	-0.16	-0.18	-0.47	-0.37	-0.65	-0.43	-0.68
Transport	0.01	0.02	0.03	0.03	0.03	0.03	0.00	-0.01
Other fuel combustion	-0.40	0.00	0.20	0.31	0.38	0.36	0.30	0.31
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.12	-0.08	-0.09	-0.09	-0.09	-0.10	-0.11	-0.13
Solvent & other prod. use	0.00	-0.69	-0.31	-0.30	-0.28	-0.27	-0.34	-0.39
Agriculture	0.04	0.04	0.05	0.05	0.05	0.05	0.04	0.04
Waste treatment disposal	-0.08	-0.02	-0.01	0.01	0.03	0.03	0.00	-0.01
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-1.29	-1.67	-1.95	-2.07	-2.07	-2.22	-2.18	-2.29

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-0.20	-3.76	-6.01	-7.02	-7.37	-7.38	-7.16	-6.83
Industry	0.07	0.11	0.22	0.40	0.22	0.18	0.15	0.16
Transport	0.03	0.05	0.07	0.08	0.07	0.10	0.10	0.09
Other fuel combustion	0.24	0.23	0.18	0.13	0.10	0.06	0.00	-0.06
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.02	-0.05	-0.07	-0.11	-0.13	-0.15	-0.19	-0.22
Solvent & other prod. use	0.00	-0.48	-0.42	-0.39	-0.36	-0.33	-0.36	-0.41
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	-0.03	-0.07	-0.07	-0.10	-0.12	-0.15	-0.17	-0.22
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	-0.11	-0.20	-0.23	-0.29	-0.30	-0.32	-0.33

	2005	2006	2007	2008	2009	2010	2011	2012
Power Generation	-1.99	-2.99	-3.50	-3.71	-3.75	-3.80	-3.87	-3.94
Iron & Steel	-0.09	-0.02	-0.09	-0.04	-0.05	-0.05	-0.07	-0.07
Non-ferrous Metals	0.97	1.05	1.11	0.95	0.64	0.39	0.28	0.32
Chemicals	-1.80	-2.46	-2.54	-3.12	-2.79	-3.30	-3.03	-3.54
Mineral Products	0.07	0.12	0.15	0.18	0.20	0.20	0.18	0.16
Ore-extraction	0.13	0.20	0.27	0.86	0.44	0.28	0.06	0.04
Food, drink and tobacco	0.08	0.04	0.10	0.21	0.33	0.46	0.58	0.69
Text. cloth. & footwear	0.58	0.61	0.78	0.76	0.88	0.98	1.18	1.34
Paper & Printing	-2.40	-3.23	-3.65	-3.87	-4.05	-4.29	-4.59	-4.87
Engineering etc	0.28	0.34	0.42	0.46	0.44	0.43	0.42	0.41
Other Industry	0.63	0.10	0.60	0.18	0.64	0.13	0.60	0.02
Rail Transport	0.02	-0.17	-0.27	-0.33	-0.37	-0.39	-0.40	-0.40
Road Transport	0.03	0.03	0.02	0.00	0.00	-0.02	-0.03	-0.06
Air Transport	0.02	0.07	0.07	0.08	0.07	0.05	0.02	-0.01
Inland Navigation	-0.01	-0.01	-0.01	-0.01	0.00	0.01	0.01	0.02
Households	-0.39	-0.16	-0.11	-0.10	-0.06	-0.08	-0.10	-0.11
Other Final Use	0.00	0.43	0.41	0.43	0.46	0.41	0.40	0.40
Total	-0.71	-0.95	-1.11	-1.18	-1.15	-1.19	-1.20	-1.25

	2005	2006	2007	2008	2009	2010	2011	2012
Power Generation	-0.14	-2.60	-4.13	-4.80	-5.03	-5.02	-4.86	-4.63
Iron & Steel	0.10	0.01	-0.04	-0.07	-0.09	-0.12	-0.13	-0.14
Non-ferrous Metals	0.23	-0.06	0.01	0.01	0.00	0.00	0.00	0.00
Chemicals	0.23	-1.50	-3.22	-4.66	-5.90	-7.04	-7.96	-8.74
Mineral Products	0.01	-0.05	-0.06	-0.05	-0.05	-0.04	-0.03	-0.03
Ore-extraction	0.01	0.44	0.71	2.42	1.64	0.80	0.20	0.05
Food, drink and tobacco	0.20	-0.07	0.32	0.83	0.89	0.61	0.76	0.76
Text. cloth. & footwear	-0.27	1.12	1.03	0.91	0.80	0.72	0.65	0.61
Paper & Printing	0.00	-0.07	-0.11	-0.11	-0.13	-0.15	-0.19	-0.23
Engineering etc	0.02	0.08	0.12	0.14	0.15	0.14	0.14	0.14
Other Industry	-0.01	0.00	0.05	0.06	0.06	0.05	0.04	0.01
Rail Transport	-0.40	-0.49	-0.44	-0.36	-0.29	-0.22	-0.20	-0.20
Road Transport	-0.01	0.00	-0.01	-0.03	-0.06	-0.07	-0.11	-0.15
Air Transport	-0.11	-0.05	-0.06	-0.08	-0.09	-0.07	-0.08	-0.08
Inland Navigation	0.02	0.02	0.02	0.02	0.01	0.03	0.03	0.03
Households	-0.01	-0.03	-0.07	-0.10	-0.13	-0.17	-0.21	-0.25
Other Final Use	0.04	0.01	-0.01	-0.02	-0.03	-0.04	-0.05	-0.05
Total	-0.01	-0.23	-0.41	-0.50	-0.58	-0.62	-0.64	-0.64

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	-2.78	-3.46	-4.08	-4.59	-4.80	-5.12	-5.29	-5.54
Coke	-0.23	-0.21	-0.28	-0.25	-0.27	-0.29	-0.33	-0.35
Lignite	-0.56	-0.35	-0.18	-0.22	-0.32	-0.42	-0.49	-0.52
Heavy Fuel Oil	0.88	-2.25	-3.25	-3.55	-3.74	-4.18	-4.33	-4.68
Middle Distillates	-0.12	-0.06	-0.05	-0.06	-0.07	-0.09	-0.11	-0.13
Natural Gas	-0.72	-0.90	-1.10	-1.09	-0.91	-0.85	-0.83	-0.86
Derived Gas	-1.83	-1.49	-1.25	-1.34	-1.13	-1.05	-0.94	-0.87
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nuclear Fuels	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.71	-0.95	-1.11	-1.18	-1.15	-1.19	-1.20	-1.25

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	0.02	0.40	0.51	0.53	0.48	0.41	0.30	0.24
Coke	0.05	-0.03	-0.04	-0.06	-0.06	-0.11	-0.11	-0.12
Lignite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Fuel Oil	-0.05	-1.98	-3.47	-4.29	-4.80	-4.94	-4.94	-4.93
Middle Distillates	-0.01	-0.02	-0.04	-0.05	-0.09	-0.12	-0.15	-0.19
Natural Gas	-0.35	-0.24	-0.29	-0.35	-0.41	-0.49	-0.56	-0.63
Derived Gas	0.04	0.05	0.06	0.05	0.04	0.01	-0.02	-0.06
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nuclear Fuels	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.01	-0.23	-0.41	-0.50	-0.58	-0.62	-0.64	-0.64

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	-2.97	-3.44	-4.00	-4.53	-4.76	-5.05	-5.24	-5.48
Coke	-0.27	-0.24	-0.30	-0.29	-0.29	-0.32	-0.34	-0.37
Lignite	-0.63	-1.30	-1.36	-1.46	-1.59	-1.71	-1.83	-1.93
Heavy Fuel Oil	0.36	-0.73	-0.76	-0.74	-0.57	-0.82	-0.76	-0.92
Middle Distillates	-0.09	-0.04	-0.04	-0.05	-0.06	-0.07	-0.09	-0.11
Natural Gas	-0.54	-0.63	-0.77	-0.68	-0.43	-0.31	-0.23	-0.20
Derived Gas	-0.96	-0.73	-0.61	-0.65	-0.62	-0.59	-0.53	-0.52
Electricity	-0.63	-0.62	-0.75	-0.75	-0.81	-0.79	-0.87	-0.83
Nuclear Fuels	-1.11	-0.42	-0.22	-0.12	-0.16	-0.13	-0.15	-0.12
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	-0.14	-0.41	-0.39	-0.38	-0.38	-0.47	-0.46	-0.52
Total	-0.66	-0.67	-0.73	-0.74	-0.71	-0.70	-0.71	-0.73

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	0.05	0.13	0.39	0.54	0.51	0.47	0.29	0.23
Coke	0.08	-0.02	-0.06	-0.09	-0.11	-0.14	-0.16	-0.17
Lignite	-0.01	-0.03	-0.06	-0.10	-0.13	-0.17	-0.21	-0.25
Heavy Fuel Oil	0.01	-0.86	-1.56	-1.91	-2.21	-2.27	-2.23	-2.22
Middle Distillates	-0.01	-0.02	-0.04	-0.04	-0.08	-0.12	-0.15	-0.18
Natural Gas	-0.35	-0.24	-0.29	-0.35	-0.41	-0.49	-0.56	-0.63
Derived Gas	0.07	0.02	0.00	-0.02	-0.04	-0.07	-0.09	-0.12
Electricity	-0.05	-0.07	-0.14	-0.09	-0.22	-0.28	-0.32	-0.36
Nuclear Fuels	-0.01	0.09	0.15	0.16	0.15	0.12	0.08	0.03
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	-0.01	-0.05	-0.07	-0.10	-0.13	-0.16	-0.18	-0.22
Total	-0.02	-0.04	-0.08	-0.08	-0.14	-0.18	-0.22	-0.26

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	0.02	0.03	0.02	0.02	0.02	0.01	-0.01	-0.02
Non-energy mining	-0.05	-0.08	-0.09	-0.09	-0.10	-0.09	-0.07	-0.06
Water supply	-0.04	-0.03	-0.06	-0.07	-0.06	-0.07	-0.08	-0.08
Gas distribution	-0.20	-0.10	-0.12	-0.12	-0.10	-0.11	-0.13	-0.14
Electricity etc	-0.19	-0.24	-0.28	-0.31	-0.32	-0.33	-0.35	-0.36
Coal	-0.12	-0.27	-0.30	-0.22	-0.21	-0.20	-0.19	-0.18
Oil and gas extraction	0.01	0.00	-0.02	-0.03	-0.04	-0.04	-0.05	-0.06
Manufactured fuels	-0.05	-0.02	-0.02	-0.03	-0.03	-0.04	-0.06	-0.07
Food, drink and tobacco	-0.01	0.01	0.01	0.01	0.01	0.00	0.00	-0.01
Text. cloth. & footwear	-0.01	-0.02	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04
Wood and paper	-0.02	-0.02	-0.06	-0.09	-0.14	-0.18	-0.24	-0.29
Printing and publishing	-0.02	-0.02	-0.04	-0.06	-0.07	-0.09	-0.10	-0.12
Pharmaceuticals	0.00	-0.03	-0.05	-0.07	-0.07	-0.07	-0.08	-0.08
Chemicals nes	-0.01	-0.03	-0.05	-0.07	-0.08	-0.09	-0.10	-0.10
Rubber and plastic pr.	-0.02	-0.02	-0.04	-0.05	-0.06	-0.07	-0.08	-0.08
Non-metallic min. Pr.	0.00	-0.04	-0.06	-0.05	-0.06	-0.06	-0.07	-0.07
Basic metals etc	-0.05	-0.07	-0.11	-0.12	-0.14	-0.17	-0.21	-0.25
Metal products	-0.01	-0.06	-0.09	-0.12	-0.13	-0.15	-0.17	-0.18
Machinery etc	-0.02	-0.09	-0.15	-0.20	-0.23	-0.26	-0.29	-0.31
Electronics	-0.01	-0.02	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03
Electrical goods	-0.03	-0.14	-0.25	-0.31	-0.33	-0.34	-0.34	-0.34
Motor vehicles	-0.03	-0.03	-0.05	-0.06	-0.08	-0.09	-0.09	-0.09
Other transp. eq.	-0.01	-0.02	-0.04	-0.07	-0.09	-0.11	-0.13	-0.14
Other manufactures	-0.01	-0.03	-0.07	-0.08	-0.07	-0.07	-0.09	-0.10
Construction	-0.03	-0.06	-0.08	-0.09	-0.10	-0.11	-0.12	-0.14
Wholesale distribution	-0.04	-0.04	-0.06	-0.07	-0.08	-0.10	-0.13	-0.15
Retailing	-0.04	-0.02	-0.04	-0.06	-0.08	-0.10	-0.13	-0.16
Hotels and restaurants	-0.10	-0.06	-0.08	-0.09	-0.09	-0.10	-0.10	-0.10
Land transport	-0.03	-0.03	-0.05	-0.07	-0.09	-0.10	-0.11	-0.12
Water transport	-0.01	-0.01	-0.02	-0.03	-0.05	-0.07	-0.10	-0.12
Air transport	-0.01	-0.01	-0.02	-0.03	-0.03	-0.04	-0.04	-0.05
Ancillary transport	-0.03	-0.03	-0.05	-0.06	-0.08	-0.09	-0.11	-0.12
Communications	-0.02	-0.03	-0.05	-0.06	-0.08	-0.09	-0.11	-0.12
Financial services	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07
Computing services	-0.03	-0.07	-0.11	-0.13	-0.14	-0.16	-0.18	-0.19
Other business services	-0.03	-0.04	-0.05	-0.06	-0.07	-0.08	-0.10	-0.11
Other market services	-0.02	-0.02	-0.05	-0.07	-0.08	-0.10	-0.11	-0.12
Pad	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01	-0.01
Health and social work	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.02	-0.02
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.03	-0.03	-0.05	-0.06	-0.07	-0.08	-0.09	-0.10

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	-0.01	-0.04	-0.07	-0.09	-0.12	-0.15	-0.19	-0.23
Non-energy mining	0.02	-0.03	-0.02	-0.01	-0.01	-0.01	0.00	0.02
Water supply	-0.05	-0.09	-0.12	-0.15	-0.18	-0.22	-0.26	-0.32
Gas distribution	-0.03	-0.08	-0.11	-0.14	-0.16	-0.18	-0.20	-0.22
Electricity etc	-0.01	-0.06	-0.10	-0.14	-0.18	-0.21	-0.25	-0.30
Coal	0.00	-0.01	-0.01	-0.02	-0.02	-0.03	-0.03	-0.04
Oil and gas extraction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufactured fuels	-0.02	-0.04	-0.07	-0.10	-0.14	-0.16	-0.20	-0.25
Food, drink and tobacco	-0.03	-0.06	-0.09	-0.12	-0.15	-0.19	-0.23	-0.28
Text. cloth. & footwear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wood and paper	-0.06	-0.10	-0.16	-0.23	-0.31	-0.40	-0.50	-0.61
Printing and publishing	-0.02	-0.03	-0.04	-0.05	-0.07	-0.11	-0.14	-0.18
Pharmaceuticals	-0.01	-0.03	-0.06	-0.08	-0.10	-0.12	-0.13	-0.15
Chemicals nes	0.00	0.00	-0.01	-0.02	-0.03	-0.05	-0.06	-0.07
Rubber and plastic pr.	-0.11	-0.17	-0.18	-0.18	-0.17	-0.14	-0.12	-0.09
Non-metallic min. Pr.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Basic metals etc	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Metal products	-0.02	-0.04	-0.05	-0.08	-0.10	-0.12	-0.14	-0.16
Machinery etc	-0.02	-0.03	-0.05	-0.08	-0.09	-0.11	-0.13	-0.14
Electronics	0.00	-0.01	-0.05	-0.07	-0.09	-0.08	-0.08	-0.09
Electrical goods	-0.06	-0.13	-0.19	-0.35	-0.34	-0.40	-0.43	-0.45
Motor vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other transp. eq.	-0.01	-0.03	-0.04	-0.06	-0.07	-0.08	-0.08	-0.09
Other manufactures	0.00	0.02	0.03	0.01	-0.02	-0.05	-0.08	-0.11
Construction	-0.06	-0.13	-0.17	-0.23	-0.27	-0.31	-0.36	-0.41
Wholesale distribution	-0.03	-0.05	-0.07	-0.10	-0.12	-0.14	-0.17	-0.21
Retailing	-0.06	-0.11	-0.15	-0.19	-0.22	-0.26	-0.31	-0.38
Hotels and restaurants	-0.03	-0.05	-0.05	-0.05	-0.06	-0.06	-0.06	-0.06
Land transport	-0.02	-0.04	-0.05	-0.07	-0.09	-0.11	-0.13	-0.16
Water transport	0.01	-0.02	-0.05	-0.06	-0.07	-0.08	-0.08	-0.07
Air transport	0.01	0.05	0.09	0.14	0.24	0.41	0.42	0.70
Ancillary transport	-0.01	-0.02	-0.04	-0.04	-0.05	-0.05	-0.06	-0.06
Communications	-0.02	-0.05	-0.06	-0.09	-0.11	-0.13	-0.16	-0.20
Financial services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Computing services	0.00	-0.03	-0.05	-0.07	-0.08	-0.09	-0.10	-0.11
Other business services	-0.02	-0.04	-0.05	-0.08	-0.10	-0.13	-0.16	-0.21
Other market services	-0.03	-0.04	-0.05	-0.08	-0.11	-0.15	-0.20	-0.25
Pad	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	-0.01	-0.01	-0.01	-0.02	-0.02	-0.03	-0.03	-0.04
Health and social work	-0.01	-0.02	-0.02	-0.02	-0.03	-0.03	-0.04	-0.05
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.02	-0.04	-0.05	-0.07	-0.09	-0.11	-0.13	-0.16

Table H.17: EU-15 total employment by industry (% difference from base)

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	0.00	0.04	0.05	0.05	0.05	0.05	0.04	0.03
Non-energy mining	0.11	0.10	0.08	0.04	0.01	0.01	-0.02	-0.03
Water supply	0.02	0.00	-0.03	-0.06	-0.08	-0.10	-0.11	-0.12
Gas distribution	-0.52	-0.22	-0.15	-0.09	0.01	-0.03	-0.07	-0.08
Electricity etc	2.77	2.20	1.97	1.81	1.65	1.54	1.56	1.57
Coal	-0.01	-0.09	-0.10	-0.03	-0.02	-0.01	-0.01	0.00
Oil and gas extraction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufactured fuels	0.02	-0.24	-0.29	-0.28	-0.20	-0.13	-0.07	-0.04
Food, drink and tobacco	0.02	0.04	0.03	0.02	0.01	0.00	0.00	0.01
Text. cloth. & footwear	0.06	-0.07	-0.04	-0.10	-0.08	-0.11	-0.10	-0.11
Wood and paper	0.09	-0.11	-0.17	-0.21	-0.23	-0.23	-0.22	-0.20
Printing and publishing	0.05	0.02	-0.07	-0.22	-0.38	-0.51	-0.59	-0.62
Pharmaceuticals	0.05	0.10	0.09	0.04	-0.04	-0.11	-0.17	-0.21
Chemicals nes	0.09	0.07	0.06	0.02	0.00	-0.03	-0.03	-0.03
Rubber and plastic pr.	0.04	0.05	0.03	-0.01	-0.07	-0.13	-0.18	-0.20
Non-metallic min. Pr.	0.12	0.10	0.08	0.07	0.07	0.08	0.10	0.12
Basic metals etc	0.05	0.05	0.05	0.04	0.03	0.02	0.01	0.01
Metal products	0.00	-0.04	-0.11	-0.16	-0.20	-0.22	-0.24	-0.25
Machinery etc	-0.01	-0.05	-0.10	-0.16	-0.20	-0.25	-0.28	-0.32
Electronics	0.02	-0.05	-0.16	-0.26	-0.29	-0.27	-0.22	-0.17
Electrical goods	0.02	-0.03	-0.09	-0.14	-0.17	-0.20	-0.22	-0.26
Motor vehicles	0.01	0.01	0.01	0.00	-0.02	-0.04	-0.05	-0.06
Other transp. eq.	0.05	0.01	-0.01	-0.03	-0.04	-0.03	-0.02	-0.02
Other manufactures	0.02	0.00	-0.02	-0.04	-0.04	-0.03	-0.03	-0.05
Construction	0.00	-0.03	-0.06	-0.07	-0.07	-0.08	-0.09	-0.10
Wholesale distribution	-0.06	-0.03	-0.04	-0.07	-0.07	-0.08	-0.08	-0.09
Retailing	-0.02	-0.06	-0.10	-0.11	-0.11	-0.09	-0.08	-0.06
Hotels and restaurants	0.01	-0.01	-0.04	-0.06	-0.06	-0.07	-0.07	-0.07
Land transport	0.03	0.01	-0.01	-0.02	-0.02	-0.01	-0.01	0.00
Water transport	0.00	-0.05	-0.09	-0.11	-0.11	-0.11	-0.11	-0.11
Air transport	0.01	-0.01	-0.01	0.01	0.04	0.08	0.12	0.16
Ancillary transport	0.00	-0.02	-0.05	-0.07	-0.09	-0.10	-0.10	-0.10
Communications	0.04	0.07	0.04	0.00	-0.08	-0.12	-0.13	-0.12
Financial services	0.01	0.00	-0.01	-0.01	-0.01	-0.02	-0.02	-0.03
Computing services	-0.07	0.15	0.32	0.45	0.55	0.62	0.67	0.72
Other business services	-0.01	-0.04	-0.07	-0.10	-0.11	-0.12	-0.12	-0.13
Other market services	-0.02	-0.07	-0.13	-0.18	-0.23	-0.27	-0.31	-0.37
Pad	0.04	0.01	-0.01	-0.02	-0.03	-0.04	-0.04	-0.04
Education	0.02	0.02	0.00	-0.01	-0.02	-0.03	-0.04	-0.04
Health and social work	0.02	0.01	0.00	-0.01	-0.02	-0.03	-0.03	-0.03
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.02	0.00	-0.03	-0.05	-0.06	-0.07	-0.07	-0.08

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	0.01	0.01	0.02	0.02	0.02	0.02	0.03	0.03
Non-energy mining	0.29	0.21	0.18	0.26	0.08	0.07	0.05	0.03
Water supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas distribution	0.83	0.25	0.07	-0.04	-0.16	-0.15	-0.14	-0.14
Electricity etc	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil and gas extraction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufactured fuels	0.01	-0.06	-0.11	-0.16	-0.20	-0.21	-0.27	-0.31
Food, drink and tobacco	0.00	0.00	-0.01	-0.02	-0.04	-0.06	-0.08	-0.11
Text. cloth. & footwear	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Wood and paper	0.00	0.02	0.03	0.05	0.08	0.11	0.15	0.19
Printing and publishing	0.05	0.09	0.10	0.08	0.04	-0.01	-0.05	-0.09
Pharmaceuticals	0.04	0.12	0.16	0.18	0.18	0.16	0.13	0.10
Chemicals nes	0.14	0.14	0.18	0.21	0.21	0.18	0.16	0.14
Rubber and plastic pr.	0.09	0.09	0.08	0.06	0.05	0.02	0.00	-0.01
Non-metallic min. Pr.	0.00	0.01	0.03	0.05	0.06	0.07	0.07	0.07
Basic metals etc	0.17	0.24	0.26	0.27	0.25	0.24	0.22	0.21
Metal products	0.02	-0.04	-0.10	-0.16	-0.18	-0.20	-0.21	-0.21
Machinery etc	-0.01	-0.01	-0.02	-0.04	-0.05	-0.07	-0.08	-0.10
Electronics	0.00	0.00	-0.02	-0.04	-0.06	-0.06	-0.07	-0.08
Electrical goods	0.00	-0.07	-0.13	-0.27	-0.29	-0.35	-0.39	-0.40
Motor vehicles	0.01	0.02	0.03	0.03	0.03	0.03	0.02	0.01
Other transp. eq.	0.00	-0.01	-0.03	-0.04	-0.05	-0.05	-0.05	-0.05
Other manufactures	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
Construction	-0.01	-0.02	-0.03	-0.05	-0.06	-0.08	-0.10	-0.11
Wholesale distribution	-0.03	-0.06	-0.07	-0.09	-0.10	-0.11	-0.13	-0.15
Retailing	-0.03	-0.08	-0.13	-0.19	-0.25	-0.32	-0.40	-0.51
Hotels and restaurants	-0.03	-0.04	-0.04	-0.03	-0.02	-0.01	-0.01	-0.01
Land transport	0.02	0.03	0.03	0.03	0.02	0.03	0.02	0.02
Water transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ancillary transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Communications	-0.02	-0.04	-0.05	-0.07	-0.09	-0.12	-0.14	-0.18
Financial services	0.00	0.00	-0.01	-0.03	-0.04	-0.05	-0.06	-0.07
Computing services	-0.01	-0.03	-0.04	-0.05	-0.05	-0.04	-0.04	-0.04
Other business services	0.01	-0.03	-0.07	-0.11	-0.14	-0.18	-0.21	-0.26
Other market services	0.00	-0.01	-0.01	-0.02	-0.03	-0.05	-0.06	-0.08
Pad	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.00
Education	0.03	0.01	0.01	0.00	-0.01	-0.01	-0.02	-0.03
Health and social work	0.04	0.02	0.01	0.00	-0.01	-0.02	-0.03	-0.03
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	-0.01	-0.02	-0.03	-0.05	-0.07	-0.08	-0.11

	2005	2006	2007	2008	2009	2010	2011	2012
GHG Baseline - Kyoto	-0.78	-0.61	-0.40	-0.23	-0.02	0.19	0.78	1.36
GHG Scenario - Kyoto	-1.37	-1.42	-1.33	-1.21	-0.98	-0.80	-0.23	0.30
GHG Scenario - Baseline	-0.61	-0.82	-0.95	-1.02	-0.99	-1.03	-1.05	-1.09
CO2 Scenario - Baseline	-0.71	-0.95	-1.11	-1.18	-1.15	-1.19	-1.20	-1.25

	2005	2006	2007	2008	2009	2010	2011	2012
GHG Baseline - Kyoto	13.66	14.75	15.83	16.95	18.08	19.24	21.45	23.72
GHG Scenario - Kyoto	13.65	14.55	15.47	16.51	17.56	18.68	20.87	23.11
GHG Scenario - Baseline	-0.01	-0.18	-0.33	-0.40	-0.47	-0.51	-0.53	-0.54
CO2 Scenario - Baseline	-0.01	-0.23	-0.41	-0.50	-0.58	-0.62	-0.64	-0.64

D.4 Scenario GA: Basic + 10% auctions

	2005	2006	2007	2008	2009	2010	2011	2012
GDP (1995 €)	-0.03	-0.03	-0.04	-0.04	-0.05	-0.05	-0.06	-0.07
Consumption (1995 €)	-0.06	-0.03	-0.04	-0.03	-0.04	-0.04	-0.05	-0.06
Investment (1995 €)	-0.03	-0.08	-0.13	-0.15	-0.16	-0.17	-0.19	-0.21
Exports (1995 €)	0.00	-0.02	-0.04	-0.05	-0.06	-0.06	-0.07	-0.07
Imports (1995 €)	-0.03	-0.04	-0.06	-0.07	-0.08	-0.09	-0.10	-0.11
GDP deflator	0.04	0.07	0.08	0.07	0.06	0.04	0.02	-0.01
Consumer prices	0.06	0.12	0.13	0.12	0.10	0.08	0.05	0.02
Investment deflator	0.02	0.02	0.00	-0.04	-0.06	-0.09	-0.13	-0.17
Export prices	0.11	0.15	0.15	0.12	0.09	0.06	0.03	0.01
Import prices	0.08	0.12	0.11	0.09	0.06	0.03	0.00	-0.03
Employment	0.01	0.00	-0.02	-0.03	-0.04	-0.04	-0.04	-0.05
Wages	0.01	0.10	0.11	0.12	0.09	0.06	0.03	0.00
CO2	-0.55	-0.75	-0.88	-0.93	-0.92	-0.94	-0.96	-1.00
Price of Fuel	2.59	2.74	2.82	2.85	2.79	2.81	2.82	2.87

	2005	2006	2007	2008	2009	2010	2011	2012
GDP (1995 €)	-0.01	-0.03	-0.04	-0.06	-0.07	-0.08	-0.09	-0.11
Consumption (1995 €)	-0.03	-0.06	-0.08	-0.09	-0.11	-0.14	-0.17	-0.22
Investment (1995 €)	-0.04	-0.09	-0.11	-0.18	-0.19	-0.23	-0.27	-0.29
Exports (1995 €)	0.00	-0.01	-0.03	-0.04	-0.05	-0.05	-0.06	-0.07
Imports (1995 €)	-0.02	-0.04	-0.06	-0.08	-0.09	-0.11	-0.12	-0.14
GDP deflator	0.10	0.15	0.17	0.17	0.17	0.16	0.14	0.12
Consumer prices	0.06	0.10	0.12	0.12	0.12	0.12	0.11	0.10
Investment deflator	0.05	0.11	0.14	0.15	0.14	0.13	0.12	0.10
Export prices	0.09	0.15	0.17	0.16	0.14	0.12	0.10	0.08
Import prices	0.10	0.15	0.17	0.16	0.14	0.12	0.10	0.08
Employment	0.01	0.00	-0.01	-0.03	-0.04	-0.05	-0.06	-0.07
Wages	-0.01	0.06	0.08	0.10	0.10	0.10	0.09	0.07
Price of Fuel	0.79	0.83	0.87	0.93	0.98	1.03	1.08	1.12

Table A.3: EU-15 source emissions of CO₂ (% difference from base)

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-1.56	-2.35	-2.78	-2.95	-2.99	-3.04	-3.10	-3.16
Industry	-0.08	-0.17	-0.13	-0.20	-0.13	-0.22	-0.15	-0.24
Transport	0.02	0.02	0.01	0.00	-0.01	-0.02	-0.03	-0.05
Other fuel combustion	-0.21	0.01	0.03	0.05	0.07	0.06	0.04	0.04
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.55	-0.75	-0.88	-0.93	-0.92	-0.94	-0.96	-1.00

Table A.4: Sweden source emissions of CO₂ (% difference from base)

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-0.11	-2.11	-3.42	-4.02	-4.24	-4.26	-4.14	-3.95
Industry	0.02	0.13	0.14	0.22	0.11	0.02	0.00	-0.02
Transport	-0.01	0.00	0.00	-0.01	-0.03	-0.03	-0.04	-0.06
Other fuel combustion	0.00	-0.01	-0.04	-0.06	-0.08	-0.10	-0.12	-0.14
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.01	-0.19	-0.34	-0.42	-0.49	-0.52	-0.53	-0.54

Table A.5: EU-15 source emissions of sulphur hexafluoride (% difference from base)

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other fuel combustion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.02	-0.01	-0.02	-0.02	-0.03	-0.03	-0.04	-0.04
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.02	-0.01	-0.02	-0.02	-0.03	-0.03	-0.04	-0.04

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other fuel combustion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.02	-0.02	-0.03	-0.03	-0.04	-0.04	-0.05	-0.05
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.02	-0.02	-0.03	-0.03	-0.04	-0.04	-0.05	-0.05

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-1.53	-2.06	-2.43	-2.55	-2.60	-2.76	-3.07	-3.21
Industry	0.00	-0.13	-0.14	-0.36	-0.28	-0.49	-0.34	-0.53
Transport	0.01	0.02	0.02	0.02	0.02	0.02	0.00	-0.01
Other fuel combustion	-0.31	0.00	0.16	0.23	0.29	0.28	0.23	0.24
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.10	-0.06	-0.07	-0.07	-0.06	-0.07	-0.08	-0.09
Solvent & other prod. use	0.00	-0.34	-0.31	-0.30	-0.28	-0.27	-0.25	-0.29
Agriculture	0.04	0.04	0.05	0.05	0.05	0.05	0.03	0.03
Waste treatment disposal	-0.06	-0.02	0.00	0.02	0.04	0.04	0.01	0.01
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-1.02	-1.32	-1.56	-1.65	-1.66	-1.78	-1.77	-1.85

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-0.16	-3.06	-4.99	-5.89	-6.24	-6.29	-6.13	-5.86
Industry	0.05	0.08	0.16	0.30	0.16	0.13	0.10	0.10
Transport	0.02	0.04	0.05	0.06	0.04	0.07	0.06	0.05
Other fuel combustion	0.18	0.18	0.13	0.10	0.08	0.05	0.01	-0.03
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.02	-0.04	-0.06	-0.08	-0.10	-0.11	-0.13	-0.16
Solvent & other prod. use	0.00	-0.48	-0.42	-0.39	-0.36	-0.33	-0.26	-0.30
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	-0.03	-0.05	-0.06	-0.07	-0.08	-0.10	-0.12	-0.15
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	-0.09	-0.17	-0.20	-0.25	-0.26	-0.27	-0.28

	2005	2006	2007	2008	2009	2010	2011	2012
Power Generation	-1.56	-2.35	-2.78	-2.95	-2.99	-3.04	-3.10	-3.16
Iron & Steel	-0.04	-0.01	-0.05	-0.01	-0.02	-0.02	-0.03	-0.03
Non-ferrous Metals	0.73	0.79	0.84	0.72	0.50	0.31	0.22	0.25
Chemicals	-1.40	-1.78	-1.82	-2.24	-1.98	-2.34	-2.17	-2.51
Mineral Products	0.05	0.09	0.12	0.14	0.16	0.16	0.15	0.13
Ore-extraction	0.11	0.18	0.23	0.70	0.37	0.24	0.07	0.05
Food, drink and tobacco	0.09	0.07	0.12	0.21	0.31	0.42	0.52	0.60
Text. cloth. & footwear	0.44	0.47	0.60	0.60	0.70	0.78	0.93	1.08
Paper & Printing	-1.61	-2.24	-2.56	-2.74	-2.90	-3.11	-3.41	-3.66
Engineering etc	0.22	0.27	0.33	0.35	0.34	0.33	0.32	0.32
Other Industry	0.48	0.08	0.46	0.15	0.49	0.12	0.46	0.05
Rail Transport	0.02	-0.13	-0.20	-0.25	-0.28	-0.30	-0.30	-0.30
Road Transport	0.02	0.02	0.01	0.00	-0.02	-0.02	-0.04	-0.06
Air Transport	0.01	0.05	0.05	0.06	0.05	0.03	0.01	-0.01
Inland Navigation	-0.01	-0.01	-0.01	0.00	0.00	0.01	0.01	0.01
Households	-0.30	-0.12	-0.09	-0.07	-0.04	-0.05	-0.07	-0.08
Other Final Use	0.00	0.33	0.31	0.33	0.35	0.32	0.31	0.32
Total	-0.55	-0.75	-0.88	-0.93	-0.92	-0.94	-0.96	-1.00

	2005	2006	2007	2008	2009	2010	2011	2012
Power Generation	-0.11	-2.11	-3.42	-4.02	-4.24	-4.26	-4.14	-3.95
Iron & Steel	0.08	0.01	-0.03	-0.05	-0.07	-0.09	-0.10	-0.10
Non-ferrous Metals	0.17	-0.04	0.01	0.00	0.00	0.00	0.00	0.00
Chemicals	0.16	-1.17	-2.49	-3.62	-4.59	-5.49	-6.23	-6.85
Mineral Products	0.00	-0.04	-0.04	-0.04	-0.03	-0.03	-0.03	-0.02
Ore-extraction	0.01	0.33	0.54	1.91	1.26	0.57	0.07	-0.05
Food, drink and tobacco	0.15	-0.05	0.24	0.63	0.66	0.45	0.57	0.57
Text. cloth. & footwear	-0.20	0.84	0.77	0.68	0.59	0.54	0.50	0.46
Paper & Printing	0.00	-0.05	-0.08	-0.09	-0.10	-0.11	-0.14	-0.18
Engineering etc	0.02	0.06	0.09	0.11	0.11	0.10	0.10	0.10
Other Industry	-0.01	0.00	0.04	0.05	0.05	0.04	0.03	0.01
Rail Transport	-0.30	-0.37	-0.33	-0.27	-0.22	-0.16	-0.15	-0.15
Road Transport	0.00	0.00	-0.01	-0.03	-0.05	-0.06	-0.08	-0.11
Air Transport	-0.08	-0.04	-0.05	-0.06	-0.07	-0.06	-0.07	-0.07
Inland Navigation	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02
Households	-0.01	-0.02	-0.05	-0.08	-0.10	-0.12	-0.15	-0.18
Other Final Use	0.03	0.01	-0.01	-0.02	-0.02	-0.03	-0.04	-0.04
Total	-0.01	-0.19	-0.34	-0.42	-0.49	-0.52	-0.53	-0.54

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	-2.23	-2.77	-3.28	-3.70	-3.88	-4.14	-4.29	-4.50
Coke	-0.15	-0.15	-0.19	-0.16	-0.18	-0.19	-0.22	-0.24
Lignite	-0.43	-0.24	-0.09	-0.11	-0.18	-0.25	-0.31	-0.33
Heavy Fuel Oil	0.71	-1.81	-2.77	-3.05	-3.26	-3.65	-3.82	-4.11
Middle Distillates	-0.09	-0.04	-0.05	-0.05	-0.06	-0.07	-0.09	-0.11
Natural Gas	-0.53	-0.68	-0.84	-0.80	-0.66	-0.61	-0.59	-0.61
Derived Gas	-1.45	-1.14	-0.93	-1.02	-0.87	-0.79	-0.69	-0.64
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nuclear Fuels	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.55	-0.75	-0.88	-0.93	-0.92	-0.94	-0.96	-1.00

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	0.02	0.31	0.39	0.40	0.37	0.32	0.25	0.20
Coke	0.04	-0.02	-0.03	-0.04	-0.05	-0.08	-0.09	-0.09
Lignite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Fuel Oil	-0.05	-1.61	-2.88	-3.61	-4.06	-4.22	-4.25	-4.26
Middle Distillates	-0.01	-0.02	-0.03	-0.03	-0.07	-0.09	-0.11	-0.14
Natural Gas	-0.27	-0.18	-0.22	-0.26	-0.31	-0.36	-0.41	-0.46
Derived Gas	0.03	0.04	0.06	0.05	0.05	0.03	0.01	-0.01
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nuclear Fuels	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.01	-0.19	-0.34	-0.42	-0.49	-0.52	-0.53	-0.54

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	-2.38	-2.75	-3.20	-3.64	-3.84	-4.07	-4.23	-4.44
Coke	-0.18	-0.16	-0.21	-0.20	-0.19	-0.22	-0.23	-0.25
Lignite	-0.49	-1.03	-1.06	-1.13	-1.23	-1.33	-1.43	-1.51
Heavy Fuel Oil	0.30	-0.58	-0.66	-0.64	-0.53	-0.74	-0.72	-0.83
Middle Distillates	-0.07	-0.03	-0.04	-0.04	-0.05	-0.06	-0.07	-0.09
Natural Gas	-0.39	-0.46	-0.58	-0.48	-0.27	-0.18	-0.11	-0.08
Derived Gas	-0.75	-0.56	-0.45	-0.49	-0.47	-0.44	-0.39	-0.38
Electricity	-0.47	-0.46	-0.55	-0.55	-0.60	-0.58	-0.63	-0.61
Nuclear Fuels	-0.86	-0.31	-0.13	-0.05	-0.08	-0.06	-0.07	-0.05
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	-0.10	-0.30	-0.29	-0.28	-0.28	-0.34	-0.34	-0.38
Total	-0.51	-0.51	-0.57	-0.57	-0.54	-0.54	-0.54	-0.55

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	0.03	0.10	0.30	0.40	0.39	0.36	0.23	0.18
Coke	0.06	-0.02	-0.04	-0.06	-0.08	-0.11	-0.12	-0.13
Lignite	-0.01	-0.02	-0.05	-0.07	-0.10	-0.12	-0.15	-0.18
Heavy Fuel Oil	0.00	-0.71	-1.30	-1.60	-1.87	-1.94	-1.92	-1.92
Middle Distillates	-0.01	-0.02	-0.03	-0.03	-0.06	-0.09	-0.11	-0.13
Natural Gas	-0.27	-0.18	-0.22	-0.26	-0.31	-0.36	-0.41	-0.46
Derived Gas	0.05	0.02	0.01	-0.01	-0.02	-0.04	-0.05	-0.07
Electricity	-0.04	-0.06	-0.10	-0.06	-0.16	-0.21	-0.24	-0.26
Nuclear Fuels	0.00	0.08	0.14	0.15	0.15	0.13	0.10	0.07
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	-0.01	-0.04	-0.05	-0.07	-0.09	-0.11	-0.13	-0.16
Total	-0.01	-0.03	-0.06	-0.06	-0.11	-0.13	-0.16	-0.19

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.00
Non-energy mining	-0.04	-0.06	-0.07	-0.06	-0.07	-0.06	-0.05	-0.04
Water supply	-0.03	-0.02	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04
Gas distribution	-0.15	-0.08	-0.09	-0.08	-0.07	-0.07	-0.08	-0.09
Electricity etc	-0.15	-0.18	-0.21	-0.23	-0.24	-0.24	-0.25	-0.26
Coal	-0.09	-0.21	-0.23	-0.17	-0.15	-0.14	-0.13	-0.12
Oil and gas extraction	0.00	0.00	-0.02	-0.02	-0.03	-0.03	-0.04	-0.04
Manufactured fuels	-0.04	-0.02	-0.02	-0.02	-0.02	-0.03	-0.04	-0.05
Food, drink and tobacco	-0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.00
Text. cloth. & footwear	-0.01	-0.01	-0.03	-0.03	-0.02	-0.03	-0.03	-0.02
Wood and paper	-0.01	-0.02	-0.04	-0.07	-0.09	-0.13	-0.17	-0.21
Printing and publishing	-0.01	-0.01	-0.03	-0.04	-0.05	-0.06	-0.07	-0.08
Pharmaceuticals	0.00	-0.02	-0.04	-0.05	-0.05	-0.05	-0.05	-0.06
Chemicals nes	-0.01	-0.02	-0.04	-0.05	-0.05	-0.06	-0.06	-0.07
Rubber and plastic pr.	-0.01	-0.02	-0.03	-0.04	-0.04	-0.05	-0.05	-0.05
Non-metallic min. Pr.	0.00	-0.03	-0.04	-0.04	-0.04	-0.04	-0.05	-0.05
Basic metals etc	-0.04	-0.06	-0.08	-0.09	-0.10	-0.12	-0.15	-0.18
Metal products	0.00	-0.04	-0.07	-0.09	-0.10	-0.11	-0.12	-0.13
Machinery etc	-0.01	-0.07	-0.12	-0.15	-0.17	-0.19	-0.21	-0.23
Electronics	0.00	-0.01	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
Electrical goods	-0.02	-0.11	-0.19	-0.23	-0.24	-0.25	-0.25	-0.25
Motor vehicles	-0.02	-0.02	-0.04	-0.04	-0.05	-0.05	-0.06	-0.06
Other transp. eq.	-0.01	-0.01	-0.03	-0.05	-0.06	-0.07	-0.08	-0.09
Other manufactures	-0.01	-0.02	-0.05	-0.06	-0.05	-0.05	-0.06	-0.06
Construction	-0.02	-0.04	-0.06	-0.07	-0.07	-0.08	-0.09	-0.10
Wholesale distribution	-0.03	-0.03	-0.04	-0.05	-0.05	-0.07	-0.08	-0.09
Retailing	-0.03	-0.01	-0.03	-0.03	-0.04	-0.06	-0.08	-0.09
Hotels and restaurants	-0.08	-0.05	-0.06	-0.06	-0.05	-0.05	-0.05	-0.05
Land transport	-0.02	-0.02	-0.04	-0.04	-0.06	-0.07	-0.08	-0.08
Water transport	0.00	-0.01	-0.02	-0.02	-0.04	-0.05	-0.07	-0.08
Air transport	-0.01	-0.01	-0.02	-0.02	-0.02	-0.02	-0.03	-0.03
Ancillary transport	-0.02	-0.02	-0.04	-0.04	-0.05	-0.06	-0.07	-0.07
Communications	-0.01	-0.02	-0.04	-0.04	-0.05	-0.06	-0.07	-0.07
Financial services	0.00	0.01	0.01	0.03	0.04	0.05	0.06	0.07
Computing services	-0.02	-0.05	-0.08	-0.09	-0.10	-0.11	-0.12	-0.13
Other business services	-0.02	-0.03	-0.04	-0.04	-0.05	-0.05	-0.06	-0.07
Other market services	-0.01	-0.02	-0.04	-0.05	-0.05	-0.06	-0.07	-0.08
Pad	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Health and social work	-0.01	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.02	-0.02	-0.04	-0.04	-0.04	-0.05	-0.06	-0.06

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	-0.01	-0.03	-0.05	-0.07	-0.09	-0.11	-0.13	-0.16
Non-energy mining	0.02	-0.02	-0.02	-0.01	-0.01	-0.01	0.00	0.01
Water supply	-0.04	-0.07	-0.09	-0.11	-0.13	-0.15	-0.18	-0.22
Gas distribution	-0.02	-0.06	-0.09	-0.11	-0.12	-0.13	-0.14	-0.15
Electricity etc	-0.01	-0.05	-0.08	-0.11	-0.13	-0.15	-0.18	-0.21
Coal	0.00	0.00	-0.01	-0.01	-0.02	-0.02	-0.03	-0.03
Oil and gas extraction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufactured fuels	-0.02	-0.03	-0.05	-0.08	-0.10	-0.11	-0.15	-0.18
Food, drink and tobacco	-0.02	-0.04	-0.07	-0.09	-0.11	-0.13	-0.16	-0.20
Text. cloth. & footwear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wood and paper	-0.05	-0.08	-0.12	-0.16	-0.21	-0.27	-0.34	-0.41
Printing and publishing	-0.01	-0.02	-0.03	-0.04	-0.05	-0.07	-0.10	-0.13
Pharmaceuticals	-0.01	-0.02	-0.04	-0.06	-0.08	-0.09	-0.10	-0.11
Chemicals nes	0.00	0.00	-0.01	-0.02	-0.03	-0.03	-0.04	-0.05
Rubber and plastic pr.	-0.09	-0.13	-0.14	-0.13	-0.12	-0.09	-0.07	-0.05
Non-metallic min. Pr.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Basic metals etc	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Metal products	-0.01	-0.03	-0.04	-0.06	-0.07	-0.09	-0.10	-0.11
Machinery etc	-0.01	-0.02	-0.03	-0.06	-0.07	-0.08	-0.10	-0.11
Electronics	0.00	-0.01	-0.04	-0.05	-0.06	-0.05	-0.04	-0.04
Electrical goods	-0.05	-0.10	-0.14	-0.27	-0.25	-0.29	-0.31	-0.31
Motor vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other transp. eq.	-0.01	-0.02	-0.03	-0.05	-0.05	-0.06	-0.06	-0.07
Other manufactures	0.00	0.02	0.02	0.01	-0.02	-0.04	-0.06	-0.08
Construction	-0.04	-0.10	-0.13	-0.18	-0.20	-0.23	-0.26	-0.30
Wholesale distribution	-0.02	-0.04	-0.05	-0.07	-0.09	-0.10	-0.12	-0.15
Retailing	-0.05	-0.08	-0.11	-0.14	-0.16	-0.19	-0.22	-0.26
Hotels and restaurants	-0.03	-0.03	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04
Land transport	-0.01	-0.03	-0.04	-0.05	-0.06	-0.08	-0.09	-0.12
Water transport	0.01	-0.02	-0.04	-0.04	-0.04	-0.05	-0.04	-0.04
Air transport	0.00	0.03	0.06	0.10	0.16	0.28	0.29	0.48
Ancillary transport	-0.01	-0.02	-0.03	-0.03	-0.03	-0.04	-0.04	-0.04
Communications	-0.02	-0.03	-0.05	-0.06	-0.08	-0.09	-0.11	-0.14
Financial services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Computing services	0.00	-0.02	-0.04	-0.05	-0.06	-0.06	-0.07	-0.08
Other business services	-0.01	-0.03	-0.04	-0.06	-0.07	-0.09	-0.12	-0.15
Other market services	-0.02	-0.03	-0.04	-0.07	-0.09	-0.11	-0.14	-0.18
Pad	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	0.00	-0.01	-0.01	-0.01	-0.02	-0.02	-0.02	-0.03
Health and social work	-0.01	-0.01	-0.01	-0.02	-0.02	-0.02	-0.03	-0.03
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.01	-0.03	-0.04	-0.06	-0.07	-0.08	-0.09	-0.11

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	0.00	0.03	0.04	0.04	0.05	0.04	0.04	0.03
Non-energy mining	0.08	0.07	0.06	0.04	0.01	0.01	-0.02	-0.03
Water supply	0.01	0.00	-0.02	-0.04	-0.05	-0.06	-0.07	-0.08
Gas distribution	-0.40	-0.17	-0.12	-0.05	0.02	-0.01	-0.04	-0.04
Electricity etc	2.09	1.67	1.49	1.39	1.27	1.18	1.20	1.21
Coal	-0.01	-0.06	-0.07	-0.02	-0.02	-0.01	0.00	0.00
Oil and gas extraction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufactured fuels	0.02	-0.18	-0.22	-0.19	-0.13	-0.07	-0.04	-0.02
Food, drink and tobacco	0.02	0.03	0.02	0.02	0.01	0.01	0.01	0.02
Text. cloth. & footwear	0.04	-0.05	-0.03	-0.06	-0.04	-0.06	-0.05	-0.06
Wood and paper	0.07	-0.08	-0.13	-0.16	-0.17	-0.17	-0.16	-0.15
Printing and publishing	0.04	0.02	-0.05	-0.16	-0.29	-0.38	-0.45	-0.47
Pharmaceuticals	0.04	0.07	0.07	0.03	-0.02	-0.08	-0.12	-0.15
Chemicals nes	0.07	0.06	0.05	0.02	0.00	-0.02	-0.02	-0.02
Rubber and plastic pr.	0.03	0.04	0.03	-0.01	-0.05	-0.09	-0.12	-0.14
Non-metallic min. Pr.	0.09	0.08	0.06	0.05	0.05	0.07	0.08	0.10
Basic metals etc	0.04	0.03	0.03	0.03	0.02	0.02	0.01	0.01
Metal products	0.00	-0.03	-0.08	-0.12	-0.14	-0.16	-0.17	-0.18
Machinery etc	-0.01	-0.04	-0.08	-0.12	-0.15	-0.18	-0.21	-0.23
Electronics	0.01	-0.04	-0.12	-0.19	-0.22	-0.20	-0.16	-0.12
Electrical goods	0.01	-0.02	-0.07	-0.10	-0.12	-0.14	-0.16	-0.18
Motor vehicles	0.01	0.01	0.01	0.00	-0.01	-0.02	-0.03	-0.04
Other transp. eq.	0.04	0.01	-0.01	-0.02	-0.02	-0.01	0.00	0.00
Other manufactures	0.02	0.00	-0.02	-0.02	-0.03	-0.02	-0.02	-0.03
Construction	0.00	-0.03	-0.04	-0.05	-0.05	-0.05	-0.06	-0.07
Wholesale distribution	-0.05	-0.02	-0.03	-0.04	-0.05	-0.05	-0.05	-0.06
Retailing	-0.02	-0.05	-0.08	-0.07	-0.06	-0.04	-0.03	-0.01
Hotels and restaurants	0.00	-0.01	-0.03	-0.04	-0.04	-0.04	-0.04	-0.04
Land transport	0.02	0.01	-0.01	-0.01	-0.01	-0.01	0.00	0.01
Water transport	0.00	-0.04	-0.07	-0.08	-0.07	-0.07	-0.07	-0.07
Air transport	0.01	-0.01	-0.01	0.01	0.03	0.06	0.10	0.13
Ancillary transport	0.00	-0.01	-0.04	-0.05	-0.06	-0.06	-0.06	-0.06
Communications	0.03	0.06	0.03	0.00	-0.05	-0.08	-0.09	-0.08
Financial services	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02
Computing services	-0.05	0.12	0.24	0.34	0.43	0.48	0.52	0.56
Other business services	-0.01	-0.03	-0.05	-0.07	-0.08	-0.08	-0.08	-0.08
Other market services	-0.01	-0.05	-0.10	-0.13	-0.16	-0.19	-0.23	-0.26
Pad	0.03	0.01	-0.01	-0.01	-0.02	-0.02	-0.02	-0.02
Education	0.01	0.01	0.00	-0.01	-0.01	-0.02	-0.02	-0.02
Health and social work	0.02	0.01	0.00	-0.01	-0.01	-0.01	-0.01	-0.01
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.00	-0.02	-0.03	-0.04	-0.04	-0.04	-0.05

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02
Non-energy mining	0.22	0.16	0.13	0.20	0.05	0.04	0.03	0.02
Water supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas distribution	0.64	0.19	0.07	-0.04	-0.12	-0.13	-0.12	-0.13
Electricity etc	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil and gas extraction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufactured fuels	0.01	-0.04	-0.08	-0.12	-0.14	-0.15	-0.19	-0.22
Food, drink and tobacco	0.00	0.00	-0.01	-0.01	-0.03	-0.04	-0.06	-0.08
Text. cloth. & footwear	0.04	0.03	0.02	0.02	0.02	0.02	0.02	0.02
Wood and paper	0.00	0.01	0.03	0.04	0.06	0.08	0.10	0.13
Printing and publishing	0.04	0.06	0.07	0.06	0.03	-0.01	-0.05	-0.07
Pharmaceuticals	0.03	0.09	0.12	0.13	0.13	0.12	0.09	0.07
Chemicals nes	0.11	0.10	0.14	0.16	0.16	0.14	0.12	0.10
Rubber and plastic pr.	0.07	0.07	0.06	0.05	0.03	0.02	0.00	-0.01
Non-metallic min. Pr.	0.00	0.01	0.02	0.04	0.04	0.05	0.05	0.05
Basic metals etc	0.13	0.18	0.20	0.20	0.18	0.17	0.16	0.15
Metal products	0.01	-0.03	-0.08	-0.12	-0.14	-0.15	-0.15	-0.15
Machinery etc	-0.01	-0.01	-0.02	-0.03	-0.04	-0.05	-0.06	-0.07
Electronics	0.00	0.00	-0.02	-0.03	-0.04	-0.04	-0.04	-0.05
Electrical goods	0.00	-0.06	-0.09	-0.21	-0.22	-0.25	-0.28	-0.29
Motor vehicles	0.00	0.01	0.02	0.02	0.02	0.02	0.01	0.00
Other transp. eq.	0.00	-0.01	-0.02	-0.03	-0.04	-0.04	-0.04	-0.04
Other manufactures	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Construction	-0.01	-0.02	-0.02	-0.04	-0.05	-0.06	-0.07	-0.08
Wholesale distribution	-0.02	-0.04	-0.06	-0.07	-0.07	-0.08	-0.09	-0.11
Retailing	-0.03	-0.06	-0.10	-0.14	-0.18	-0.23	-0.28	-0.36
Hotels and restaurants	-0.02	-0.03	-0.03	-0.02	-0.01	0.00	0.00	0.00
Land transport	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Water transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ancillary transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Communications	-0.01	-0.03	-0.04	-0.05	-0.07	-0.08	-0.10	-0.13
Financial services	0.00	0.00	-0.01	-0.02	-0.03	-0.04	-0.04	-0.05
Computing services	-0.01	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03
Other business services	0.00	-0.02	-0.06	-0.08	-0.11	-0.13	-0.15	-0.19
Other market services	0.00	0.00	-0.01	-0.02	-0.03	-0.04	-0.05	-0.06
Pad	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00
Education	0.02	0.01	0.01	0.00	-0.01	-0.01	-0.02	-0.02
Health and social work	0.03	0.01	0.01	0.00	-0.01	-0.01	-0.02	-0.02
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.00	-0.01	-0.03	-0.04	-0.05	-0.06	-0.07

	2005	2006	2007	2008	2009	2010	2011	2012
GHG Baseline - Kyoto	-0.78	-0.61	-0.40	-0.23	-0.02	0.19	0.78	1.36
GHG Scenario - Kyoto	-1.23	-1.25	-1.14	-1.01	-0.79	-0.60	-0.03	0.52
GHG Scenario - Baseline	-0.47	-0.64	-0.76	-0.81	-0.79	-0.82	-0.83	-0.87
CO2 Scenario - Baseline	-0.55	-0.75	-0.88	-0.93	-0.92	-0.94	-0.96	-1.00

	2005	2006	2007	2008	2009	2010	2011	2012
GHG Baseline - Kyoto	13.66	14.75	15.83	16.95	18.08	19.24	21.45	23.72
GHG Scenario - Kyoto	13.65	14.58	15.53	16.59	17.65	18.78	20.97	23.22
GHG Scenario - Baseline	-0.01	-0.15	-0.27	-0.33	-0.39	-0.42	-0.44	-0.45
CO2 Scenario - Baseline	-0.01	-0.19	-0.34	-0.42	-0.49	-0.52	-0.53	-0.54

D.5 Scenario GS: Basic + 10% auctions + environmental tax.

Table S.1: Macroeconomic results for the EU-15 (% difference from base)								
	2005	2006	2007	2008	2009	2010	2011	2012
GDP (1995 €)	-0.01	0.04	0.06	0.08	0.09	0.11	0.11	0.12
Consumption (1995 €)	0.00	0.11	0.18	0.23	0.27	0.30	0.33	0.35
Investment (1995 €)	-0.04	-0.07	-0.07	-0.08	-0.07	-0.08	-0.09	-0.10
Exports (1995 €)	0.03	0.00	-0.01	0.00	0.00	0.00	0.00	0.00
Imports (1995 €)	0.02	0.03	0.06	0.08	0.09	0.10	0.10	0.11
GDP deflator	0.07	0.16	0.20	0.22	0.24	0.25	0.26	0.26
Consumer prices	0.17	0.35	0.43	0.49	0.53	0.56	0.58	0.59
Investment deflator	-0.03	0.05	0.11	0.13	0.15	0.15	0.13	0.11
Export prices	0.09	0.19	0.22	0.22	0.22	0.22	0.22	0.21
Import prices	0.11	0.22	0.29	0.31	0.33	0.33	0.33	0.32
Employment	0.10	0.13	0.14	0.15	0.16	0.17	0.18	0.19
Wages	0.17	0.40	0.51	0.56	0.59	0.60	0.61	0.62
CO2	-1.62	-1.65	-2.43	-2.42	-2.51	-2.56	-2.67	-2.73
Price of Fuel	5.64	6.08	6.30	6.36	6.46	6.53	6.63	6.73

Table S.2: Macroeconomic results for Sweden (% difference from base)								
	2005	2006	2007	2008	2009	2010	2011	2012
GDP (1995 €)	-0.03	-0.03	-0.01	0.00	0.02	0.04	0.06	0.09
Consumption (1995 €)	0.02	0.06	0.12	0.20	0.28	0.39	0.52	0.69
Investment (1995 €)	-0.10	-0.10	-0.07	-0.09	-0.06	-0.07	-0.06	-0.01
Exports (1995 €)	0.01	0.02	0.03	0.04	0.05	0.05	0.05	0.04
Imports (1995 €)	-0.01	-0.01	0.01	0.02	0.05	0.07	0.10	0.14
GDP deflator	0.12	0.21	0.25	0.26	0.27	0.27	0.29	0.29
Consumer prices	0.29	0.33	0.38	0.43	0.48	0.52	0.57	0.62
Investment deflator	0.05	0.12	0.14	0.15	0.15	0.15	0.14	0.12
Export prices	0.10	0.21	0.25	0.26	0.26	0.27	0.26	0.26
Import prices	0.18	0.29	0.33	0.34	0.35	0.35	0.34	0.33
Employment	0.06	0.07	0.07	0.09	0.11	0.13	0.16	0.20
Wages	0.09	0.15	0.20	0.23	0.24	0.26	0.27	0.27
Price of Fuel	3.65	4.29	4.62	4.88	5.12	5.40	5.58	5.78

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-1.51	-1.99	-2.68	-2.78	-2.76	-2.76	-2.78	-2.81
Industry	-3.20	-2.98	-3.90	-3.49	-3.84	-3.63	-3.90	-3.91
Transport	-0.84	-1.05	-1.80	-2.11	-2.26	-2.47	-2.63	-2.77
Other fuel combustion	-1.83	-1.18	-2.04	-1.71	-1.72	-1.79	-1.85	-1.90
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-1.62	-1.65	-2.43	-2.42	-2.51	-2.56	-2.67	-2.73

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-0.21	-2.10	-3.35	-3.89	-4.06	-4.02	-3.83	-3.55
Industry	-0.12	-4.90	-7.27	-8.34	-8.64	-8.51	-8.47	-8.49
Transport	-3.61	-3.76	-3.66	-3.68	-3.70	-3.64	-3.64	-3.66
Other fuel combustion	-0.06	-0.40	-0.64	-0.81	-0.93	-1.01	-1.04	-1.05
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.77	-2.24	-2.91	-3.14	-3.20	-3.16	-3.12	-3.07

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other fuel combustion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.01	0.01	0.05	0.07	0.08	0.08	0.08	0.09
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.01	0.01	0.05	0.07	0.08	0.08	0.08	0.09

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other fuel combustion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	0.01	0.01	0.02	0.03	0.04	0.05	0.05	0.06
Solvent & other prod. use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.01	0.02	0.03	0.04	0.05	0.05	0.06

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-1.44	-1.61	-2.30	-2.34	-2.34	-2.48	-2.84	-2.97
Industry	-5.31	-5.63	-6.04	-5.89	-6.35	-6.42	-7.03	-7.00
Transport	-1.31	-1.44	-1.98	-2.21	-2.36	-2.54	-2.89	-3.01
Other fuel combustion	-1.32	-0.93	-1.71	-1.83	-1.44	-1.66	-2.21	-2.35
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.25	-0.09	-0.28	-0.23	-0.24	-0.25	-0.24	-0.25
Solvent & other prod. use	0.00	-0.69	0.00	-0.30	0.00	0.00	-0.01	0.04
Agriculture	0.00	0.13	0.09	0.14	0.05	0.05	0.03	0.02
Waste treatment disposal	0.04	0.16	0.24	0.31	0.38	0.43	0.43	0.48
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-1.74	-1.88	-2.47	-2.50	-2.52	-2.64	-3.01	-3.09

	2005	2006	2007	2008	2009	2010	2011	2012
Energy & trans. Industries	-0.34	-3.22	-5.14	-6.04	-6.40	-6.43	-6.26	-5.96
Industry	-0.87	-3.55	-6.01	-6.74	-7.92	-8.59	-9.35	-9.98
Transport	-9.65	-9.66	-9.07	-8.78	-8.58	-8.26	-8.06	-7.96
Other fuel combustion	-3.65	-4.60	-4.12	-3.74	-3.41	-2.97	-2.58	-2.18
Fugitive fuel emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial processes	-0.39	-0.50	-0.57	-0.64	-0.69	-0.71	-0.73	-0.74
Solvent & other prod. use	0.00	-0.48	0.00	-0.39	0.00	0.00	0.04	0.11
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste treatment disposal	0.01	0.04	0.08	0.13	0.19	0.24	0.33	0.43
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-4.64	-5.29	-5.40	-5.28	-5.20	-5.00	-4.84	-4.71

	2005	2006	2007	2008	2009	2010	2011	2012
Power Generation	-1.51	-1.99	-2.68	-2.78	-2.76	-2.76	-2.78	-2.81
Iron & Steel	-5.74	-4.30	-5.93	-4.55	-5.41	-4.97	-5.49	-5.44
Non-ferrous Metals	-1.02	-2.74	-2.76	-2.94	-2.70	-2.40	-2.35	-2.57
Chemicals	-1.38	-1.76	-1.43	-1.97	-1.52	-1.94	-1.72	-2.06
Mineral Products	-0.71	-1.64	-2.36	-2.87	-3.23	-3.56	-3.81	-4.01
Ore-extraction	-2.30	-6.71	-8.75	-11.24	-11.48	-11.16	-11.99	-10.14
Food, drink and tobacco	-2.29	-2.30	-3.17	-3.40	-3.86	-4.18	-4.46	-4.70
Text. cloth. & footwear	-3.31	-4.40	-4.46	-4.06	-4.59	-4.51	-4.69	-4.87
Paper & Printing	-1.59	-2.22	-2.43	-2.30	-2.79	-3.03	-3.31	-3.52
Engineering etc	-0.76	-1.67	-2.06	-2.34	-2.76	-2.98	-3.11	-3.20
Other Industry	-2.57	-1.75	-3.39	-2.84	-2.56	-1.13	-1.49	-0.87
Rail Transport	-0.66	-1.12	-0.98	-1.09	-1.31	-1.36	-1.40	-1.44
Road Transport	-0.79	-0.74	-1.41	-1.65	-1.77	-1.96	-2.13	-2.27
Air Transport	-1.04	-2.90	-4.48	-5.38	-5.86	-6.36	-6.58	-6.74
Inland Navigation	-1.77	-2.44	-2.93	-3.37	-3.62	-3.73	-3.80	-3.89
Households	-1.34	-0.90	-1.55	-1.31	-1.35	-1.41	-1.47	-1.51
Other Final Use	-2.98	-1.84	-3.17	-2.67	-2.60	-2.69	-2.77	-2.84
Total	-1.62	-1.65	-2.43	-2.42	-2.51	-2.56	-2.67	-2.73

	2005	2006	2007	2008	2009	2010	2011	2012
Power Generation	-0.21	-2.10	-3.35	-3.89	-4.06	-4.02	-3.83	-3.55
Iron & Steel	1.58	-0.17	-1.08	-1.70	-2.23	-2.71	-3.12	-3.48
Non-ferrous Metals	-3.66	0.36	-0.32	-0.27	-0.26	-0.25	-0.22	-0.25
Chemicals	0.14	-1.16	-2.49	-3.58	-4.54	-5.52	-6.25	-6.87
Mineral Products	-0.17	-3.30	-4.47	-5.06	-5.46	-5.81	-6.17	-6.56
Ore-extraction	-1.26	-8.05	-19.03	-31.01	-41.13	-43.16	-39.38	-33.40
Food, drink and tobacco	-1.86	-0.64	-1.30	-1.46	-2.67	-3.80	-4.97	-5.59
Text. cloth. & footwear	-0.36	-21.83	-30.70	-32.75	-32.45	-31.88	-31.86	-32.00
Paper & Printing	0.00	-0.03	-0.01	0.07	0.14	0.19	0.22	0.25
Engineering etc	0.03	-1.57	-2.76	-3.58	-4.24	-4.80	-5.27	-5.69
Other Industry	-0.88	-2.37	-3.49	-4.16	-4.54	-4.73	-4.85	-4.94
Rail Transport	-1.30	-1.29	-1.23	-1.12	-1.00	-0.83	-0.75	-0.76
Road Transport	-1.15	-1.33	-1.48	-1.65	-1.81	-1.88	-1.98	-2.08
Air Transport	-3.08	-3.28	-3.44	-3.74	-4.02	-4.21	-4.44	-4.69
Inland Navigation	-5.93	-6.14	-5.91	-5.86	-5.85	-5.76	-5.76	-5.84
Households	0.10	-0.17	-0.37	-0.49	-0.56	-0.59	-0.57	-0.52
Other Final Use	-0.39	-0.88	-1.23	-1.52	-1.78	-2.01	-2.22	-2.42
Total	-0.77	-2.24	-2.91	-3.14	-3.20	-3.16	-3.12	-3.07

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	-3.72	-3.91	-4.83	-5.05	-5.12	-5.13	-5.33	-5.40
Coke	-3.77	-2.87	-4.91	-3.51	-4.40	-4.04	-4.59	-4.56
Lignite	-0.59	-0.90	-0.68	-0.66	-0.74	-0.84	-0.92	-0.97
Heavy Fuel Oil	0.20	-2.58	-3.82	-4.18	-4.58	-5.15	-5.52	-5.98
Middle Distillates	-0.91	-0.92	-1.61	-1.78	-1.91	-2.08	-2.22	-2.32
Natural Gas	-1.98	-1.57	-2.54	-2.31	-2.19	-2.12	-2.10	-2.10
Derived Gas	-2.53	-1.53	-2.26	-1.81	-2.11	-1.81	-1.92	-1.81
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nuclear Fuels	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-1.62	-1.65	-2.43	-2.42	-2.51	-2.56	-2.67	-2.73

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	-0.32	-8.24	-12.91	-13.00	-12.22	-10.85	-9.91	-9.14
Coke	0.82	-0.67	-2.05	-2.59	-2.93	-3.26	-3.62	-3.95
Lignite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Fuel Oil	-2.38	-4.80	-6.60	-7.79	-8.74	-9.36	-9.84	-10.27
Middle Distillates	-0.67	-1.00	-1.18	-1.29	-1.40	-1.45	-1.49	-1.51
Natural Gas	-0.27	0.61	0.96	1.11	1.21	1.29	1.36	1.42
Derived Gas	0.61	-0.03	-0.33	-0.51	-0.66	-0.79	-0.89	-0.95
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nuclear Fuels	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.77	-2.24	-2.91	-3.14	-3.20	-3.16	-3.12	-3.07

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	-3.72	-3.72	-4.42	-4.65	-4.83	-4.93	-5.13	-5.24
Coke	-3.65	-2.64	-4.68	-3.34	-4.14	-3.84	-4.31	-4.29
Lignite	-0.63	-1.59	-1.55	-1.53	-1.62	-1.72	-1.82	-1.90
Heavy Fuel Oil	-0.18	-1.31	-1.67	-1.71	-1.72	-2.13	-2.27	-2.52
Middle Distillates	-0.82	-0.86	-1.50	-1.69	-1.79	-1.96	-2.09	-2.19
Natural Gas	-1.74	-1.25	-2.13	-1.82	-1.63	-1.51	-1.43	-1.38
Derived Gas	-1.92	-1.20	-1.84	-1.43	-1.68	-1.46	-1.60	-1.55
Electricity	0.53	1.24	1.12	1.38	1.55	1.60	1.63	1.62
Nuclear Fuels	-0.88	-0.18	-0.09	0.03	0.04	0.10	0.12	0.19
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	-0.26	-0.63	-0.62	-0.58	-0.60	-0.68	-0.69	-0.73
Total	-1.08	-0.87	-1.37	-1.30	-1.30	-1.32	-1.36	-1.39

	2005	2006	2007	2008	2009	2010	2011	2012
Coal	-0.40	-3.67	-6.55	-6.46	-6.77	-6.61	-6.62	-6.50
Coke	1.20	-0.29	-1.32	-1.84	-2.25	-2.63	-2.98	-3.30
Lignite	0.10	-0.18	-0.38	-0.50	-0.57	-0.60	-0.59	-0.54
Heavy Fuel Oil	-2.54	-4.14	-5.29	-6.07	-6.83	-7.36	-7.80	-8.22
Middle Distillates	-0.80	-1.11	-1.28	-1.39	-1.50	-1.55	-1.60	-1.61
Natural Gas	-0.27	0.61	0.96	1.11	1.21	1.29	1.36	1.42
Derived Gas	1.03	-0.10	-0.67	-1.02	-1.31	-1.57	-1.78	-1.96
Electricity	0.08	0.50	0.68	0.84	0.83	0.88	0.91	0.94
Nuclear Fuels	-0.10	0.09	0.21	0.28	0.34	0.39	0.44	0.50
Crude Oil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Steam & other	0.01	-0.32	-0.56	-0.72	-0.83	-0.90	-0.94	-0.95
Total	-0.31	-0.46	-0.54	-0.57	-0.63	-0.65	-0.66	-0.65

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	0.08	0.15	0.26	0.31	0.36	0.40	0.41	0.43
Non-energy mining	-0.07	-0.12	-0.16	-0.18	-0.22	-0.23	-0.24	-0.25
Water supply	0.01	0.08	0.20	0.26	0.34	0.40	0.45	0.50
Gas distribution	-0.70	-0.19	-0.56	-0.40	-0.37	-0.35	-0.34	-0.34
Electricity etc	-0.09	0.00	-0.02	0.04	0.08	0.11	0.14	0.16
Coal	-0.09	-0.33	-0.31	-0.04	0.03	0.10	0.17	0.23
Oil and gas extraction	-0.09	-0.13	-0.13	-0.15	-0.17	-0.18	-0.19	-0.20
Manufactured fuels	-0.24	-0.30	-0.38	-0.43	-0.48	-0.52	-0.56	-0.59
Food, drink and tobacco	0.06	0.12	0.22	0.27	0.31	0.35	0.37	0.39
Text. cloth. & footwear	0.06	0.09	0.13	0.15	0.17	0.19	0.21	0.23
Wood and paper	0.05	0.07	0.14	0.16	0.17	0.17	0.17	0.16
Printing and publishing	0.04	0.05	0.10	0.12	0.14	0.15	0.16	0.17
Pharmaceuticals	0.04	0.03	0.05	0.06	0.08	0.10	0.11	0.12
Chemicals nes	0.02	0.02	0.05	0.06	0.08	0.09	0.10	0.11
Rubber and plastic pr.	0.01	0.02	0.05	0.06	0.07	0.08	0.08	0.09
Non-metallic min. Pr.	0.04	-0.04	-0.04	0.00	0.00	0.01	0.01	0.02
Basic metals etc	-0.17	-0.17	-0.20	-0.20	-0.22	-0.23	-0.24	-0.24
Metal products	0.02	-0.03	-0.02	-0.02	-0.01	-0.02	-0.03	-0.03
Machinery etc	-0.02	-0.06	-0.07	-0.09	-0.11	-0.13	-0.15	-0.17
Electronics	0.00	0.00	0.00	0.01	0.02	0.03	0.03	0.03
Electrical goods	0.02	-0.06	-0.10	-0.14	-0.14	-0.13	-0.12	-0.11
Motor vehicles	0.01	0.02	0.05	0.05	0.05	0.05	0.05	0.06
Other transp. eq.	0.04	0.09	0.16	0.18	0.20	0.20	0.21	0.21
Other manufactures	0.02	0.05	0.06	0.07	0.09	0.10	0.10	0.11
Construction	-0.03	-0.03	-0.01	0.01	0.02	0.03	0.03	0.03
Wholesale distribution	-0.02	0.01	0.05	0.06	0.09	0.09	0.09	0.09
Retailing	0.13	0.21	0.36	0.42	0.47	0.50	0.53	0.55
Hotels and restaurants	0.07	0.16	0.31	0.37	0.42	0.45	0.49	0.52
Land transport	-0.09	-0.15	-0.08	-0.09	-0.10	-0.09	-0.09	-0.09
Water transport	-0.12	-0.26	-0.38	-0.48	-0.60	-0.72	-0.84	-0.95
Air transport	0.02	0.03	0.07	0.10	0.12	0.13	0.14	0.14
Ancillary transport	0.00	-0.01	0.06	0.06	0.07	0.07	0.06	0.06
Communications	0.04	0.09	0.15	0.18	0.20	0.22	0.23	0.24
Financial services	0.12	0.13	0.19	0.23	0.26	0.30	0.33	0.37
Computing services	0.03	0.01	0.05	0.05	0.07	0.07	0.08	0.09
Other business services	-0.01	0.01	0.10	0.14	0.17	0.19	0.21	0.22
Other market services	0.09	0.10	0.19	0.21	0.24	0.26	0.28	0.30
Pad	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
Education	0.01	0.01	0.02	0.03	0.03	0.03	0.04	0.04
Health and social work	0.01	0.02	0.04	0.05	0.06	0.07	0.08	0.08
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.03	0.08	0.10	0.12	0.14	0.15	0.16

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	0.01	0.04	0.09	0.14	0.20	0.25	0.31	0.39
Non-energy mining	0.11	-0.03	-0.09	-0.11	-0.14	-0.17	-0.20	-0.22
Water supply	0.00	0.03	0.08	0.15	0.22	0.31	0.41	0.54
Gas distribution	-0.01	-0.06	-0.08	-0.08	-0.07	-0.05	-0.03	0.00
Electricity etc	-0.11	-0.04	0.00	0.03	0.06	0.10	0.15	0.21
Coal	0.01	-0.02	-0.04	-0.05	-0.05	-0.06	-0.06	-0.05
Oil and gas extraction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufactured fuels	-0.71	-0.90	-1.02	-1.14	-1.24	-1.27	-1.30	-1.34
Food, drink and tobacco	0.01	0.03	0.05	0.09	0.14	0.21	0.30	0.43
Text. cloth. & footwear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wood and paper	0.06	0.14	0.35	0.49	0.61	0.70	0.77	0.83
Printing and publishing	-0.01	0.01	0.05	0.08	0.10	0.12	0.14	0.15
Pharmaceuticals	0.00	-0.04	-0.06	-0.07	-0.07	-0.06	-0.06	-0.06
Chemicals nes	-0.02	-0.02	-0.02	-0.01	0.00	0.01	0.02	0.02
Rubber and plastic pr.	0.09	-0.08	-0.10	-0.05	-0.02	0.02	0.05	0.08
Non-metallic min. Pr.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Basic metals etc	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Metal products	-0.02	-0.03	-0.02	-0.01	0.00	0.00	0.01	0.02
Machinery etc	-0.02	-0.03	-0.02	-0.03	-0.02	-0.03	-0.03	-0.02
Electronics	0.03	0.08	0.10	0.11	0.10	0.10	0.08	0.04
Electrical goods	-0.09	-0.03	0.06	0.01	0.05	0.02	0.02	0.05
Motor vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other transp. eq.	-0.04	-0.04	-0.05	-0.05	-0.05	-0.04	-0.03	-0.01
Other manufactures	-0.02	0.00	0.03	0.05	0.05	0.06	0.06	0.07
Construction	-0.11	-0.11	-0.08	-0.07	-0.04	-0.01	0.04	0.11
Wholesale distribution	-0.22	-0.25	-0.27	-0.28	-0.29	-0.27	-0.26	-0.23
Retailing	0.00	0.04	0.10	0.17	0.25	0.34	0.46	0.61
Hotels and restaurants	0.00	0.01	0.02	0.04	0.06	0.08	0.09	0.11
Land transport	-0.04	-0.04	-0.03	-0.01	0.01	0.04	0.08	0.13
Water transport	0.00	-0.31	-0.73	-1.08	-1.38	-1.67	-2.00	-2.36
Air transport	-0.02	-0.01	-0.02	-0.05	-0.12	-0.26	-0.32	-0.67
Ancillary transport	0.00	-0.01	-0.03	-0.05	-0.06	-0.07	-0.08	-0.08
Communications	-0.01	0.00	0.03	0.06	0.09	0.14	0.19	0.26
Financial services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Computing services	0.03	-0.01	-0.02	-0.02	-0.02	-0.01	0.00	0.01
Other business services	-0.06	-0.06	-0.04	-0.02	0.02	0.06	0.11	0.19
Other market services	-0.09	-0.06	-0.02	0.02	0.07	0.12	0.18	0.25
Pad	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	0.00	0.01	0.01	0.02	0.04	0.05	0.07	0.10
Health and social work	0.00	0.01	0.01	0.02	0.04	0.05	0.07	0.10
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	-0.03	-0.03	-0.01	0.00	0.02	0.04	0.06	0.09

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	0.08	0.14	0.20	0.24	0.28	0.31	0.34	0.37
Non-energy mining	0.25	0.30	0.31	0.29	0.24	0.20	0.13	0.05
Water supply	0.13	0.14	0.15	0.15	0.16	0.17	0.18	0.19
Gas distribution	-0.58	0.67	-0.66	-0.13	-0.03	-0.02	-0.01	0.01
Electricity etc	2.27	2.21	1.71	1.81	1.74	1.75	1.76	1.77
Coal	0.01	-0.23	-0.26	-0.08	-0.09	-0.07	-0.05	-0.04
Oil and gas extraction	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Manufactured fuels	0.14	-0.21	-0.81	-0.94	-1.02	-1.09	-1.13	-1.17
Food, drink and tobacco	0.12	0.20	0.29	0.34	0.39	0.44	0.48	0.52
Text. cloth. & footwear	0.23	0.13	0.15	0.12	0.12	0.09	0.10	0.08
Wood and paper	0.23	0.08	0.05	0.04	0.04	0.03	0.03	0.04
Printing and publishing	0.11	0.09	0.01	-0.07	-0.16	-0.23	-0.27	-0.29
Pharmaceuticals	0.09	0.17	0.18	0.14	0.08	0.02	-0.02	-0.06
Chemicals nes	0.12	0.13	0.14	0.13	0.13	0.12	0.13	0.14
Rubber and plastic pr.	0.10	0.15	0.19	0.19	0.19	0.17	0.15	0.15
Non-metallic min. Pr.	0.42	0.44	0.45	0.48	0.49	0.51	0.53	0.55
Basic metals etc	0.18	0.29	0.39	0.49	0.57	0.64	0.70	0.76
Metal products	0.08	0.09	0.08	0.08	0.09	0.10	0.12	0.14
Machinery etc	0.00	0.00	0.01	0.02	0.02	0.01	0.00	-0.02
Electronics	0.12	0.09	-0.02	-0.11	-0.17	-0.16	-0.13	-0.09
Electrical goods	0.10	0.11	0.07	0.04	0.02	-0.01	-0.03	-0.06
Motor vehicles	0.09	0.12	0.15	0.17	0.16	0.15	0.14	0.13
Other transp. eq.	0.20	0.18	0.16	0.16	0.16	0.19	0.22	0.25
Other manufactures	0.18	0.13	0.15	0.14	0.14	0.14	0.13	0.11
Construction	0.05	0.06	0.10	0.14	0.17	0.19	0.20	0.21
Wholesale distribution	0.03	0.11	0.13	0.11	0.10	0.10	0.10	0.09
Retailing	0.20	0.25	0.28	0.32	0.35	0.38	0.43	0.48
Hotels and restaurants	0.05	0.06	0.06	0.06	0.08	0.08	0.09	0.08
Land transport	0.20	0.32	0.32	0.33	0.32	0.31	0.32	0.34
Water transport	0.29	0.43	0.54	0.61	0.67	0.70	0.71	0.72
Air transport	0.12	0.09	0.07	0.08	0.10	0.14	0.18	0.23
Ancillary transport	0.04	0.04	0.03	0.03	0.04	0.04	0.04	0.04
Communications	0.09	0.26	0.25	0.25	0.21	0.20	0.19	0.21
Financial services	0.03	0.05	0.07	0.09	0.11	0.12	0.13	0.13
Computing services	-0.02	0.22	0.51	0.66	0.78	0.87	0.93	0.98
Other business services	0.02	0.01	0.02	0.04	0.07	0.10	0.13	0.16
Other market services	0.03	0.01	-0.01	-0.02	-0.03	-0.04	-0.06	-0.09
Pad	0.16	0.15	0.12	0.08	0.05	0.03	0.01	0.01
Education	0.08	0.14	0.14	0.15	0.15	0.15	0.15	0.14
Health and social work	0.11	0.14	0.16	0.17	0.18	0.19	0.20	0.20
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.10	0.13	0.14	0.15	0.16	0.17	0.18	0.19

	2005	2006	2007	2008	2009	2010	2011	2012
Agric., forest. and fish.	0.05	0.08	0.11	0.13	0.15	0.18	0.20	0.22
Non-energy mining	0.69	0.62	0.56	0.64	0.52	0.52	0.51	0.50
Water supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas distribution	1.09	-0.58	0.67	0.02	-0.10	-0.15	-0.21	-0.25
Electricity etc	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil and gas extraction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufactured fuels	-1.03	-0.98	-0.94	-0.95	-0.97	-0.91	-0.91	-0.93
Food, drink and tobacco	0.00	0.01	0.02	0.03	0.05	0.07	0.10	0.14
Text. cloth. & footwear	0.10	0.07	0.06	0.07	0.07	0.08	0.09	0.09
Wood and paper	0.00	0.01	0.00	-0.02	-0.05	-0.08	-0.11	-0.14
Printing and publishing	0.12	0.21	0.27	0.30	0.30	0.31	0.32	0.33
Pharmaceuticals	0.05	0.13	0.20	0.25	0.26	0.26	0.25	0.24
Chemicals nes	0.16	0.12	0.14	0.17	0.18	0.17	0.15	0.13
Rubber and plastic pr.	0.16	0.24	0.27	0.30	0.34	0.37	0.40	0.43
Non-metallic min. Pr.	0.00	0.04	0.09	0.15	0.20	0.25	0.29	0.33
Basic metals etc	0.75	1.13	1.33	1.49	1.60	1.71	1.78	1.84
Metal products	0.16	0.17	0.15	0.12	0.11	0.12	0.14	0.17
Machinery etc	-0.01	0.00	0.02	0.03	0.05	0.06	0.07	0.09
Electronics	0.02	0.07	0.11	0.13	0.14	0.15	0.14	0.12
Electrical goods	0.08	0.13	0.21	0.19	0.22	0.20	0.20	0.22
Motor vehicles	0.02	0.05	0.08	0.10	0.11	0.12	0.12	0.12
Other transp. eq.	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.01
Other manufactures	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Construction	-0.02	0.00	0.01	0.01	0.01	0.01	0.02	0.04
Wholesale distribution	-0.18	-0.23	-0.21	-0.19	-0.16	-0.11	-0.07	-0.01
Retailing	0.06	0.14	0.23	0.35	0.50	0.67	0.88	1.13
Hotels and restaurants	0.00	0.03	0.07	0.12	0.17	0.21	0.25	0.28
Land transport	0.11	0.10	0.07	0.06	0.04	0.02	0.00	-0.02
Water transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ancillary transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Communications	-0.01	0.01	0.05	0.12	0.19	0.27	0.36	0.46
Financial services	0.00	0.00	-0.01	-0.02	-0.03	-0.05	-0.06	-0.08
Computing services	0.01	-0.01	-0.01	0.00	0.01	0.03	0.06	0.08
Other business services	0.02	0.01	0.01	0.03	0.07	0.12	0.18	0.26
Other market services	0.03	0.03	0.02	0.01	0.00	-0.01	-0.02	-0.03
Pad	0.08	0.09	0.08	0.08	0.08	0.08	0.08	0.08
Education	0.12	0.13	0.11	0.12	0.13	0.14	0.15	0.17
Health and social work	0.19	0.19	0.16	0.17	0.16	0.17	0.18	0.20
Unallocated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.06	0.07	0.07	0.09	0.11	0.13	0.16	0.20

	2005	2006	2007	2008	2009	2010	2011	2012
GHG Baseline - Kyoto	-0.78	-0.61	-0.40	-0.23	-0.02	0.19	0.78	1.36
GHG Scenario - Kyoto	-2.12	-2.01	-2.44	-2.25	-2.11	-1.95	-1.47	-0.97
GHG Scenario - Baseline	-1.38	-1.40	-2.06	-2.04	-2.11	-2.16	-2.25	-2.30
CO2 Scenario - Baseline	-1.62	-1.65	-2.43	-2.42	-2.51	-2.56	-2.67	-2.73

	2005	2006	2007	2008	2009	2010	2011	2012
GHG Baseline - Kyoto	13.66	14.75	15.83	16.95	18.08	19.24	21.45	23.72
GHG Scenario - Kyoto	12.95	11.87	12.84	13.98	15.17	16.43	18.69	20.99
GHG Scenario - Baseline	-0.63	-2.51	-2.58	-2.54	-2.47	-2.36	-2.28	-2.20
CO2 Scenario - Baseline	-0.74	-3.12	-3.23	-3.18	-3.10	-2.96	-2.85	-2.76