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REPORT FROM THE COMMISSION

PROGRESS TOWARDS ACHIEVING THE KYOTO OBJECTIVES

(required under Decision 280/2004/EC of the European Parliament and of the Council concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol)

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1. SUMMARY

Under the Kyoto Protocol, the European Community (EC) has agreed to reduce its greenhouse gas (GHG) emissions by 8% by 2008–12, from base year levels¹. Based on the latest (2004) available inventory data, total GHG emissions in the EU-15, without Land Use, Land Use Change and Forestry (LULUCF) were 0.9% lower, and with LULUCF 3.0% lower, than the base year. Compared to 2003, EU-15 GHG emissions increased by 0.3% in 2004. Projections data based on Member State (MS) submissions up till June 6th, indicate that the EC will reach its Kyoto target, but only under the conditions that:

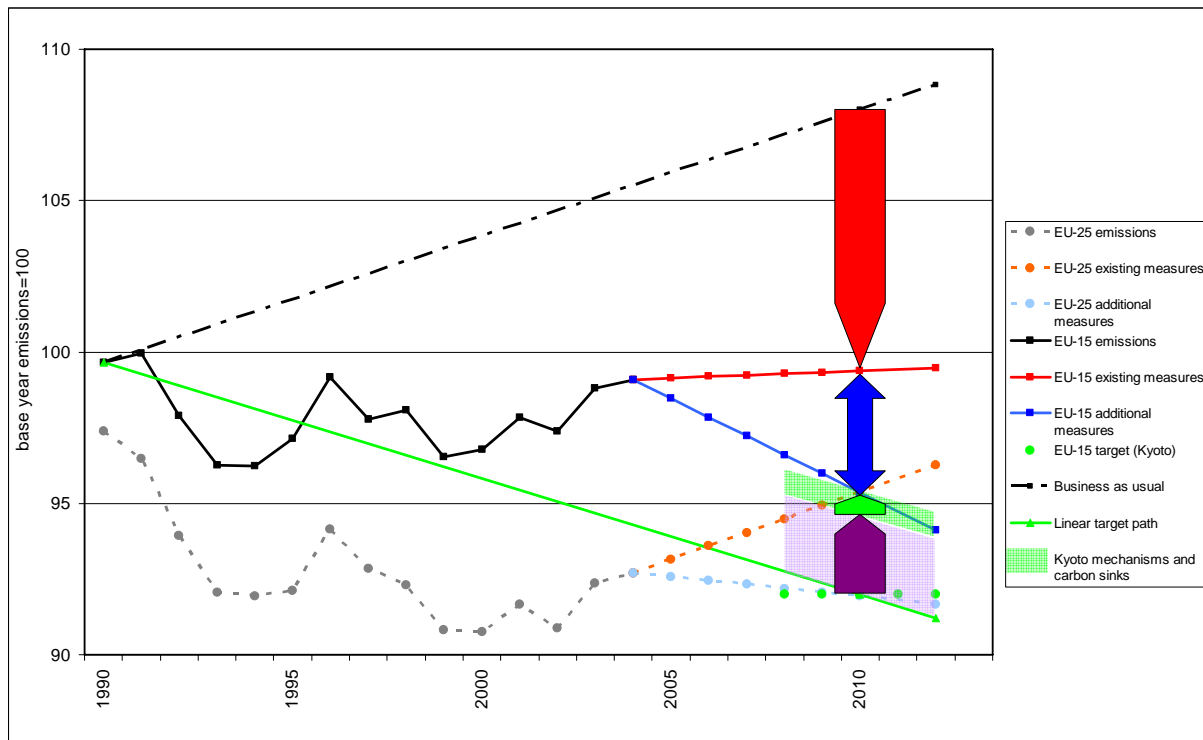
- all additional measures currently under discussion² at a European or at a national level are fully put into force in time to influence the emissions during the commitment period
- Kyoto mechanisms will be used to the full extent planned
- removals from Article 3.3 and 3.4 activities (carbon sinks) contribute to the extent projected by the MS

The divergence between projected and actual emissions clearly indicates that MS need to accelerate their efforts in implementing policies and measures as planned. One of the cornerstones of EU climate change policy is the EU Emissions Trading Scheme. MS are currently in the process of submitting their 2nd National Allocation Plans (NAPs) which will cover the period 2008-2012. Less than two years ahead of the start of the Kyoto's 1st commitment period, it is of crucial importance that MS use their NAPs to ensure that they will meet their reduction obligations.

¹ In Council decision (2002/358/EC), which applies to the EU-15 Member States only, the various commitments of the MS are expressed as percentage changes from the base-year. In 2006 the respective emission levels will be expressed in terms of tonnes of CO₂eq. In this connection, the Council of Environment Ministers and the Commission have, in a joint statement, agreed to take into account inter alia the assumptions in Denmark's statement to the Council Conclusions of 16–17 June 1998 relating to base-year emissions.

² Existing policies and measures are those for which one or more of the following applies: (a) national legislation is in force; (b) one or more voluntary agreements have been established; (c) financial resources have been allocated; (d) human resources have been mobilised; (e) an official government decision has been made and there is a clear commitment to proceed with implementation. Additional (planned) policies and measures are options under discussion with a realistic chance of being adopted and implemented in time to influence the emissions during the commitment period.

Figure 1: Actual and projected emissions for EU-25 and EU-15



Total EU-25³ GHG emissions were, in 2004, 7.3% below base year levels without emissions and removals by LULUCF. EU-25 greenhouse gas emissions rose in 2004 for the second consecutive year by 0.4% compared to 2003 - and are now on the highest level since 1997, when the Kyoto Protocol was adopted.

By 2010, total EU-25 GHG emissions are projected to be about 4.6% below base-year levels taking into account all existing domestic policies and measures that have already been agreed. The projected reduction is 8.1% with additional domestic policies and measures which are already under discussion and 10.8% when the Kyoto mechanisms and carbon sinks are accounted for.

By 2010, two MS out of the EU-15, Sweden and the United Kingdom, are on track to achieve their targets in 2010 using only existing domestic policies and measures. In addition, 6 MS are projected to reach their targets with the additional domestic policies and measures that are already being discussed, the use of the Kyoto mechanisms and carbon sinks. Seven MS (Austria, Belgium, Denmark, Ireland, Italy, Portugal and Spain) project that they will not reach their targets employing all measures included. They will have to identify further emission reduction policies and measures⁴.

³ The base-year emissions for the analysis in this report are calculated by adding base-year emissions of 23 Member States as Malta and Cyprus have no targets under the EU-15 burden sharing agreement or under the Kyoto Protocol. These EU-23 base year emissions have no legal status under the Kyoto Protocol or current EU legislation.

⁴ Based on information available to the Commission as of June 6th 2006. With the 2nd National Allocation Plan under the EU ETS Member States will provide updated projections and plans on policies and measures to be implemented in order to meet their targets.

By 2010, all eight new MS are projected to meet or even over-comply with their Kyoto targets with existing domestic policies and measures. However, in most countries emissions will increase between 2004 and 2010. Slovenia projects that it will meet its Kyoto target with additional policies and measures discussed and carbon sinks.

2. ACTUAL PROGRESS 1990-2004

2.1. GHG emission trends

Under the EU monitoring mechanism all EU-15 MS provided GHG inventory data for 1990 to 2004 for all gases. Three MS have gaps for either a few years or gases (Greece, Ireland, Luxembourg). Most new MS provided GHG inventory data for 1990 to 2004. For many, gaps exist in reporting on fluorinated gases.

MS show large variations in GHG emission trends. The overall EC GHG emissions are dominated by the two largest emitters Germany and the United Kingdom, accounting for about one third of total EU-25 GHG emissions. These two MS achieved total GHG emission reductions of 316 million tonnes compared to 1990.

Italy and France are the third and fourth largest emitters with shares of 12% and 11% respectively. Italy's GHG emissions were about 12% above 1990 levels in 2004. Italian GHG emissions increased since 1990 primarily from road transport, electricity and heat production and petrol-refining. France's emissions were 1% below 1990 levels in 2004. In France, large reductions were achieved in N₂O emissions from the adipic acid production, but CO₂ emissions from road transport increased considerably between 1990 and 2004.

Spain and Poland are the fifth and sixth largest emitters in the EU-25 each accounting for about 9% and 8% of total EU-25 GHG emissions respectively. Spain increased emissions by 48% between 1990 and 2004. This was largely due to emission increases from road transport, electricity and heat production, and manufacturing industries. Poland decreased GHG emissions by 16% between 1990 and 2004 (-32% since the base year, which is 1988 in the case of Poland). Main factors for decreasing emissions in Poland — as for other new MS — was the decline of energy inefficient heavy industry and the overall restructuring of the economy in the late 1980s and early 1990s. The notable exception was transport (especially road transport) where emissions increased by about 16%.

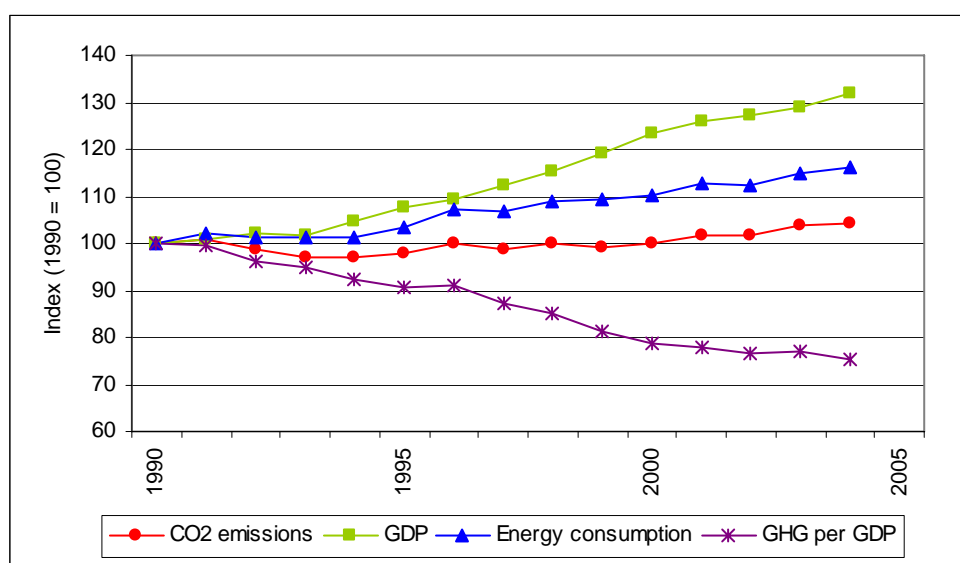
In 2004, 10 MS had GHG emissions above base year levels whereas the remaining 13 MS had emissions below base year levels (Cyprus and Malta do not have a Kyoto target). The percentage changes of GHG emissions from the base year to 2004 range from -60% (Lithuania) to +48% (Cyprus and Spain). The new MS share of the total 2004 emissions was 15%.

2.2. Greenhouse gas emissions intensities in 2004

In the EU-25, the annual GHG emissions per capita decreased by 1 tonne from 1990 to 2004, corresponding to a decline of 9%. In the EU-15, GHG emissions per capita decreased by about 6%, largely due to reductions in Germany and the UK.

Despite substantial decreases exceeding those of the EU-15, per GDP emissions of the new EU MS remain well above the EU-15 average. This indicates potential in the new MS for economic growth at further declining GHG emissions. GHG emissions per GDP for the EU-15 decreased by 25% in the period 1990-2004. This continuous decline indicates decoupling of GHG emissions and economic growth.

Figure 2: GHG emissions, GDP, energy consumption and CO₂ emissions for the EU-15



2.3. GHG emissions in 2004 compared to 2003

The increase in GHG emissions 2003-2004 was mainly due to: a) higher CO₂ emissions from road transport (+1.5%), iron and steel production (+5.4%), and oil refining (+3.3%), and b) higher HFCs emissions from refrigeration and air conditioning (+12.1%). In road transportation the substantial increase of CO₂ from diesel consumption (+5%) was only partly offset by the decrease of CO₂ from gasoline consumption (-3.2%).

Substantial decreases in GHG between 2003- 2004 were noted among other in: a) CO₂ emissions from households and services (-1.4%), and electricity and heat production (-0.3%) and b) CH₄ emissions from landfills (-4.3%), coal mining and handling (-16.5%).

Between 2003 and 2004, Spain and Italy saw the largest emission increases in absolute terms. Spanish emission increases mainly occurred in CO₂ from electricity and heat production, energy consumption in other manufacturing industry, road transport, and iron and steel production. The strong increase from electricity and heat production reflects a strong increase of thermal electricity production partly due to low hydro power generation. In Italy CO₂ emissions increased mostly from oil refining and road transport. On the positive side, 2004 saw emission reductions from Germany, Denmark, and Finland. The German emission reductions occurred primarily in CO₂ from households and services and public electricity and heat production, whereas CO₂ emissions from iron and steel production increased. Danish and Finnish emission reductions are mainly due to CO₂ from electricity and heat production which reflects higher hydro power production in the Nordic electricity market.

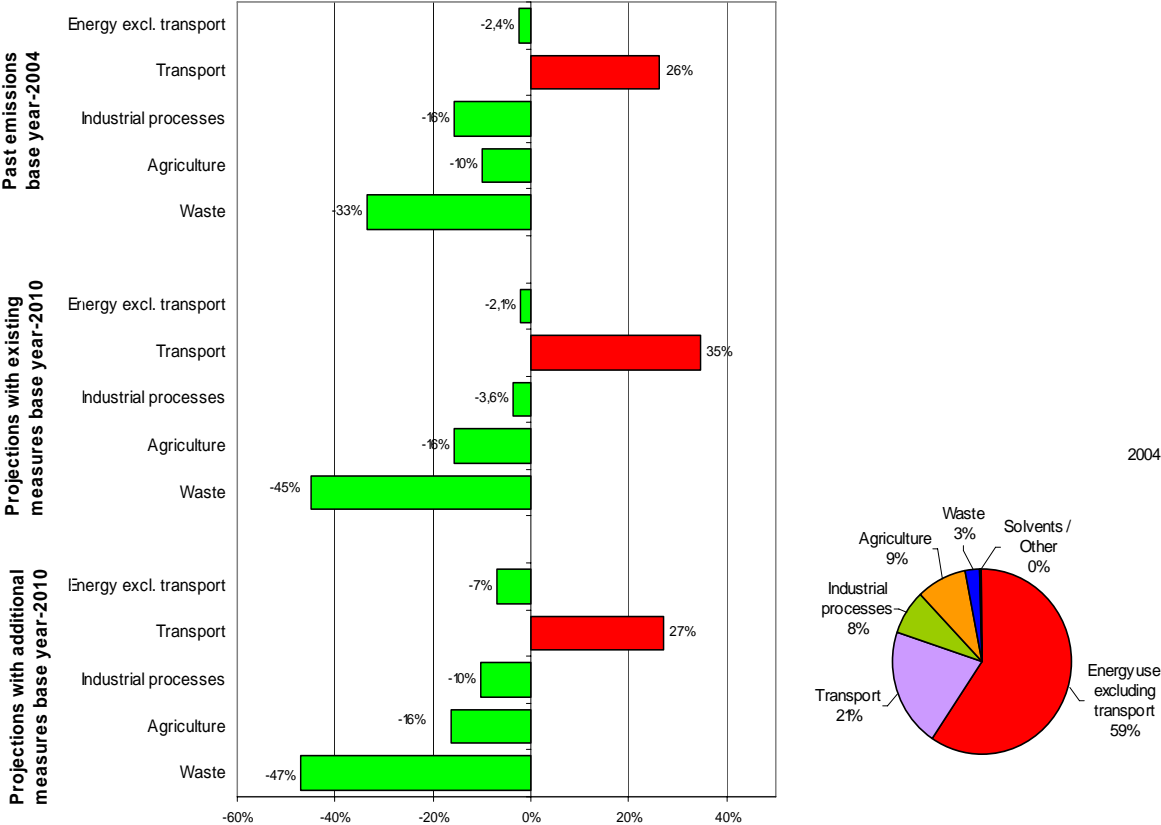
2.4. Emission trends in the main economic sectors

The most important sector is 'Energy' (including transport) which accounted in 2004 for 80% of total EU-15 emissions, a 3.8% increase compared to 1990. Transport is responsible for 24% of the energy-related emissions. Then follows 'Agriculture' responsible for 9% of the emissions and 'Industrial processes' responsible for 8%. The 2004 increase in EU-15 emissions was mainly due to higher CO₂ emissions from road transport, iron and steel production and oil refining, as well as increased emissions of hydrofluorocarbons (HFCs)

from refrigeration and air conditioning. On the positive side, there were reductions in emissions of methane from landfills and from coal mining and handling.

The increase in 2004 in the energy sector was due to road transport while CO₂ emissions from households and services, and from electricity and heat production decreased. The increase in the energy sector in 2004 was offset by decreases in all other source categories: emissions from ‘Industrial processes’ decreased by 16%, emissions from ‘Agriculture’ by 10%, emissions from ‘Waste’ by 33% and emissions from ‘Solvent and other product use’ by 20% compared to 1990.

Figure 3: Change in EU-15 GHG emissions by sector base year-2004, sector projections with existing and with additional measures, base year-2010 and share of sectors in 2004



Source: EEA.

Energy supply and use, excluding transport

- Between 1990 and 2004, CO₂ emissions from public electricity and heat production increased by 6% due to an increase of 35% in electricity production in thermal power plants.
- Between 1990 and 2004, the rise in energy demand exceeded the increase in emissions in all EU-15 Member States. Sweden, France and the UK were most successful at accomplishing a decoupling of emission levels and demand. In Germany and the United Kingdom, emission decreases were mainly due to improved efficiency in Germany’s coal-fired power plants and to the fuel switch from coal to gas in power production in the

United Kingdom. The remarkable decoupling between thermal power production and CO₂ emissions in Sweden was mainly due to a shift towards biomass.

- On current trends, electricity from renewable energy sources will probably achieve a share of 19 % by 2010. The renewable energy target for the EU-15 is 22% of gross electricity consumption, and for the EU-25, 21% of gross electricity consumption.
- In the EU-15, the share of combined heat and power (CHP) in total electricity production declined from 10% in 2000 to 9% in 2002.
- CO₂ emissions from households increased by 3% from 1990 to 2004, while the number of dwellings increased by 12% up till 2000. Thus, this shows some decoupling. Remarkably, Denmark, Finland and Sweden reduced their household fuel use as a result of the increase of district heating. In Germany, efficiency improvements through thermal insulation of buildings and fuel switch in particular in eastern German households, solar thermal energy production and biomass district heating were largely responsible for CO₂ reductions from households.

Transport

- Between 1990 and 2004, EU-15 GHG emissions from domestic transport increased by 26% with emissions from transport by road increasing also by 26% over the same period. Only, Finland, Germany, Sweden and the UK saw a small increase of their transport emissions.
- EU-15 GHG emissions from domestic transport are projected to increase by 35% from 1990 levels by 2010 using only existing domestic policies and measures⁵.
- Passenger transport by road increased by 27% between 1990 and 2004 and freight transport by road by 51% between 1990-2003.
- The average CO₂ emissions of new passenger cars were reduced by about 12% from 1995 to 2004, but 21% more cars were sold in the same period. This increase thereby offset efficiency gains in new cars.
- EU-15 CO₂ emissions from international aviation and maritime transport (not addressed under the Kyoto Protocol) have increased by 59% between 1990 and 2004.
- EU-10 emissions from transport have decreased by 6% between the base-year level and 1995, but increased sharply afterwards. By 2004 these emissions exceeded base-year levels by 28%.

⁵ EU-15 GHG emission projections from transport are missing for Germany, and from agriculture, industrial processes, and waste management are missing from both Germany and Luxembourg.

Agriculture

- Overall, EU-25 GHG emissions from agriculture fell by 13% between 1990 and 2004 despite the fact that they increased in Spain, Portugal, Cyprus, Malta and Poland. The main reasons for declining agricultural emissions were decreasing cattle numbers and declining fertiliser and manure use.
- Based on existing domestic policies and measures, EU-15 GHG emissions from agriculture are projected to decrease to 16% below the 1990 level in 2010.

Industry (non-energy related)

- EU-15 GHG emissions from industrial processes (carbon dioxide, nitrous oxide and fluorinated gases) were reduced by 16% compared to base year levels. In 2010, they are projected to rise again to 4% below base year levels with existing domestic policies and measures and would remain only slightly above 2004 levels with additional domestic measures.
- The emissions increase in 2004, compared to 2003, was due to increases in cement production in France, Germany and Italy and increases in HFC consumption from refrigeration and air conditioning equipment in Germany and Italy.
- EU-15 hydrofluorocarbon emissions from refrigeration and air conditioning, currently accounting for 1% of total EU-15 GHG emissions, increased by a factor of nine between base year and 2004.
- EU-15 nitrous oxide emissions from chemical industries decreased by 55% between 1990 and 2004.

Waste management

- EU-15 CH₄ emissions from landfills fell by 38% between 1990 and 2004.
- Most EU-15 Member States reduced GHG emissions from waste management between 1990 and 2004; only Ireland, Italy, Portugal and Spain showed emission increases. The emission reductions from waste management were partly achieved due to the implementation of the landfill waste directive and similar legislation in Member States.
- EU-15 GHG emissions from the waste sector are projected to be more than 40% below 1990 levels by 2010 (with existing policies and measures).

3. PROJECTED PROGRESS 1990-2008/2012

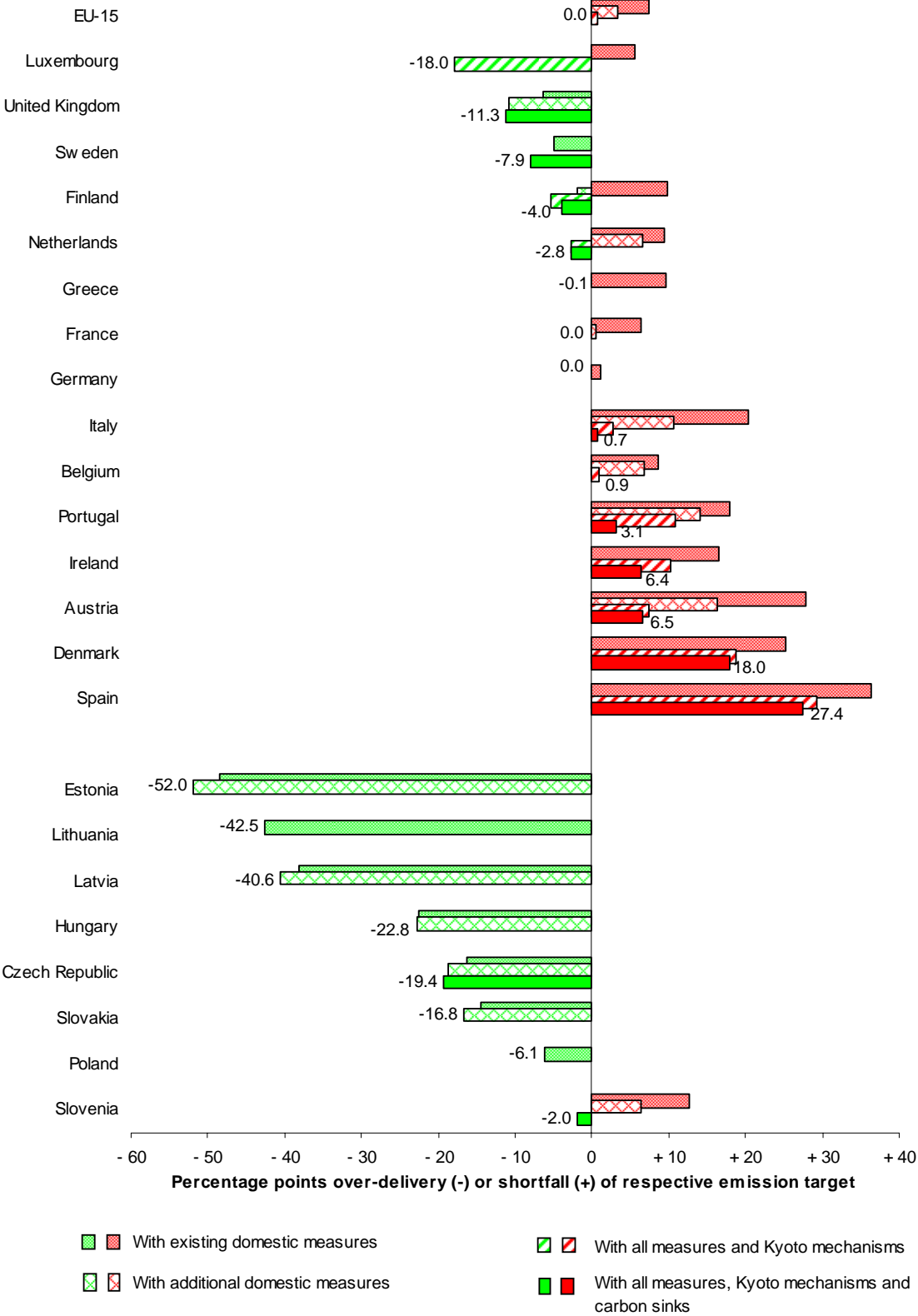
This assessment contains information on the 25 EU MS, but is most detailed for the EU-15. The assessment of whether MS are on track to reach their targets is based mainly on an analysis of domestic policies and measures at EU level that have already been agreed. Updated projections were available from 18 MS. Information on the use of flexible mechanisms under the Kyoto Protocol was available for 19 MS (Hungary, Poland, Latvia and Lithuania did not submit any information). This year for the first time, activities concerning LULUCF ('carbon sinks') under Articles 3.3 and 3.4 of the Kyoto Protocol were included as reported by a total of 14 MS. Reporting on the use of carbon sinks has substantially improved, partly due to reporting duties towards the UNFCCC in 2006.

3.1. Projections by Member States

3.1.1. EU-25

By 2010, total EU-25 GHG emissions are projected to be about 4.9% below base-year levels. This projection is based on MS' own estimates which take into account all existing domestic policies and measures. The projected decline is 8.1% with additional domestic policies and measures under discussion and 10.8% when the Kyoto mechanisms and carbon sinks are accounted for. Emissions are expected to increase between 2004 and 2010 without the implementation of additional domestic policies and measures.

Figure 4: Distance to Kyoto target indicating the relative gap (over-delivery or shortfall) between GHG projections for 2010 and the respective 2010 targets based on ‘existing’ and ‘additional’ domestic policies and measures, including the use of Kyoto mechanisms and carbon sinks



3.1.2. EU-15

The aggregate projections based on existing domestic policies and measures show that GHG emissions of the EU-15 in 2010 will only be 0.6% below base-year levels (7.4% distance from the Kyoto target). Additional measures discussed as reported by MS are measures promoting electricity generation from renewable energy sources, cogeneration and energy efficiency. These additional domestic measures have the potential to reduce the gap by 4.0% down to 3.4%. Still, emission reductions achieved through domestic measures alone will not suffice to reach the Kyoto target. The use of Kyoto mechanisms is expected to deliver an additional 2.6% emission reduction. The total removal due to Article 3.3 and 3.4 activities in the EU-15 is estimated to be about 32.6 million tonnes CO₂ equivalents per year, corresponding to an additional 0.8%. Taking all measures into account, the EU-15 is projected to reduce its emissions by 8.0% meeting its Kyoto target.

3.1.3. EU-10

Emissions aggregated from all new MS (excluding Cyprus and Malta for which data were not available) are projected to increase after 2004 but will still be 12% below 1990 by 2010. Only the Czech Republic and Estonia project decreasing emissions between 2004 and 2010. In Hungary and Poland GHG emissions in 2010 are projected to be significantly above 2004 emission levels. The projections for the new MS reported here are 2% lower than those reported last year.

All countries have policies and measures in place to reduce GHG emissions and six countries have identified additional policies and measures. Slovenia is the only country out of the EU-8 that intends to use Kyoto mechanisms as an investor country, but has not yet decided on their contribution to its Kyoto target. With existing and additional measures as well as Slovenia's activities under Articles 3.3 and 3.4, the EU-10 are expected to overachieve their respective targets in 2010 by a total of 163 million tonnes of CO₂ equivalent, corresponding to 16%.

3.1.4. Accessing and candidate countries

Per capita GHG emissions declined significantly from 1990 to 2004 in Bulgaria, and Romania and only slightly in Turkey and Croatia. At 4.2 tonnes per year, the per capita emissions in Turkey are less than half of the average EU-25 per capita emissions. In all countries, the emission level per GDP has also declined, indicating a decoupling of economic growth and resource consumption.

In 2004, Bulgaria, Croatia and Romania were on track to meet their Kyoto targets. For 2010, projections taking into account domestic policies and measures show that Bulgaria and Romania will over-achieve their Kyoto targets. No projections were available for Croatia.

3.2. Implementation of the European Climate Change Programme (ECCP)

In June 2001, the European Climate Change Programme (ECCP) identified a number of EU-wide common and coordinated policies and measures (CCPMs). The large majority of these policies and measures under the ECCP I are now implemented. The Commission launched ECCP II with a Stakeholder Conference, held in October 2005 in Brussels. The focus for ECCP II is on the ECCP I review, energy efficiency, energy supply, aviation, agriculture and forestry, non CO₂ gases, carbon capture and storage, CO₂ and cars, aviation and the role of the EU in reducing vulnerability and promoting adaptation in Europe.

Table 1: Effectiveness of ECCP I policies and measures

	EU-15: Estimated reduction potential (Mt. CO₂ eq.)	State of Play	
		Fully implemented (Mt. CO₂ eq.)	Being finalized (Mt. CO₂ eq.)
Energy supply	236-278	-	200-230
Energy demand	194-239	86 – 106	85-110
Transport	152-185	75-80	72-95
Non CO ₂ gases	59-62	41	18-21
Agriculture & Forestry	133	45	0
TOTAL	774-897	247-272	375-456

A number of the CCPMs have been adopted or are at an advanced stage of preparation and could as shown in Table 1 deliver almost 272 Mt CO₂ eq. of emission reductions over the coming years. In several MS similar national policies and measures were already in place.

3.3. Implementation of the EU Emissions Trading Scheme (ETS)

The emissions trading directive is the cornerstone of the ECCP as it created a market for CO₂ allowances as of 1.1.2005. It helps ensure that emission reductions take place where they are most economically efficient. The linking of the EU emissions trading scheme to the Kyoto mechanisms is aimed at reducing costs for those companies participating and at promoting the transfer of environmentally sound technology to countries with economies in transition and to developing countries. In the first year of its existence, the EU ETS has acted as a catalyst for the CDM and JI market and currently there are many more such projects than in previous years.

Table 5 in the annex provides an overview of the number of installations, their verified 2005 emissions and the respective allocated allowances for the first year of operation of the EU ETS as recorded in the Community Independent Transaction Log (CITL) on 5 September 2006.

The NAPs for the first commitment period 2008-2012 are being assessed during the second half of 2006. The Commission will ensure that the NAPs contribute significantly to the achievement of the EU's Kyoto target and allow MS to meet their reduction objectives.

3.4. Projected use of Kyoto mechanisms

Nineteen MS – all EU-15 countries plus the Czech Republic, Estonia, Slovakia and Slovenia – have provided information on their intended use of Kyoto mechanisms (Joint Implementation (JI), Clean Development Mechanism (CDM) and international Emissions Trading to achieve their targets for the commitment period 2008–2012).

For the EU-15, the intended use of Kyoto mechanisms by 10 MS amounts to 110.6 million tonnes of CO₂eq. per year of the commitment period. This amount corresponds to over 30% of the total required emission reduction for the EU-15 of about 342 million tonnes CO₂ equivalents per year during the first commitment period. Ten MS have already allocated

resources for the use of Kyoto mechanisms: Austria, Belgium, Denmark, Finland, Germany⁶, Ireland, Italy, the Netherlands, Spain and Sweden. Austria, Italy, the Netherlands and Spain allocated the largest budgets of EUR 288 million, EUR 1,320 million, EUR 600 million and EUR 250 million, respectively, for the five-year commitment period. The total budget allocated by the ten MS amounts to about EUR 2,830 million.

3.5. Projected use of carbon sinks

In addition to policies and measures targeting sources of GHG emissions, MS can make use of carbon sinks. 14 MS have provided preliminary estimates of their intended use of carbon sinks to achieve their targets: Austria, Belgium, Czech Republic, Denmark, Finland, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Slovenia, Spain, Sweden and the UK.

The projected use of carbon sinks for achieving the EU-15 Kyoto target is so far relatively small, however it is important for reaching the Kyoto target. For the EU-15, so far, there are plans to remove, by 2008–2012, a net amount of about 18 million tonnes CO₂ per year through afforestation and reforestation. These estimates are relatively uncertain also because details on the types of carbon sinks included are missing. This figure has decreased by around 13 Mt CO₂ per year since last year's estimate due to corrections by Ireland and the UK. Additional reductions of GHG emissions from activities in forest management are projected to amount to around 14.2 million tonnes CO₂ per year. Additionally, Portugal projects to achieve 0.5 Mt/yr removals through cropland and grazing land management. Hence the total removal due to activities under Articles 3.3 and 3.4 of the Kyoto Protocol during the Kyoto commitment period is estimated at 32.6 Mt CO₂ per year, or in total at about 0.8% in relation to the EU-15 target of –8%.

Additionally, Slovenia expects a net removal of about 0.4 million tonnes CO₂ equivalents per year.

⁶ The funds provided by Germany are for pilot programmes. Germany does not intend to use Kyoto mechanisms for reaching its target.