

Air pollution, greenhouse gas emissions: monitoring mechanism and implementation of the Kyoto Protocol

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The Annual Report from the Commission on the progress towards achieving the Kyoto objectives shows that the European Union is on track to deliver on its Kyoto Protocol commitments for reducing or limiting emissions of greenhouse gases.

Respecting the Kyoto Protocol commitments: under the Kyoto Protocol, the 15 countries which were EU Member States when the Protocol was agreed (the EU-15) are committed to reducing their collective greenhouse gas emissions in the period 2008-2012 to 8% below levels in a chosen base year (1990 in most cases). This collective commitment has been translated into differentiated national emission targets for each EU-15 Member State which are binding under EU law.

There is no collective target for EU-27 emissions. Ten of the twelve Member States which joined the EU in 2004 and 2007 have individual commitments under the Protocol to reduce their emissions to 6% or 8% below base year levels by 2008-2012. Only Cyprus and Malta have no emission target.

The main issues dealt with in this report are as follows:

- Based on the latest available inventory data of 2007, total **GHG emissions in the EU-15 have fallen for the third consecutive year, and were 5.0% below base year emissions**. Under the Kyoto Protocol, the EU-15 has agreed to reduce its greenhouse gas (GHG) emissions by 8% by 2008–12 compared to base year levels. GHG emissions in EU-15 have been decreasing while the economy has grown significantly. Since 1990, the EU-15 GDP increased by almost 44%. In 2007, EU-15 GHG emissions decreased by 1.6% compared to 2006 while the EU-15 GDP grew by 2.7%. Projections indicate that the EU-15 will reach its Kyoto target.
- Ex-post evaluation of the impact of environmental policies on GHG emissions in EU- 15 between 1990 and 2005 shows that GHG emissions have been reduced by 7.6% (about 350Mt CO₂ eq.).
- In the commitment period, five Member States (France, Germany, Greece, Sweden and the United Kingdom) have projected emissions under existing policies and measures that would allow them to achieve their targets. When all measures are taken into account, including carbon sinks, acquisition of credits by governments and EU ETS sectors, nine further Member States are projected to meet their burden sharing target.
- There is currently only one Member State (Austria) which is projected to have difficulties with achieving its GHG reduction commitment. The projections, however, do not reflect the current economic downturn and the latest forecast on GDP development and may therefore be overestimated.
- Despite the fact that in most of the twelve new Member States emissions are projected to increase between 2007 and 2010, nine of them that have a Kyoto target are projected to meet or over-achieve their Kyoto targets using only existing policies and measures. Slovenia projects that it will meet its target when all the existing and planned measures will deliver as expected.
- Additionally, according to the provisional 2008 data, emissions from the EU-15 Member States fell by 1.2 percentage points, taking them to 6.2% below their levels in the base year. EU-27 emissions

are estimated to have fallen by 1.1 percentage points to stand 13.6% lower than the base year level. Those figures reflect the effects of global economic recession which was not yet the case for 2007 GHG emission data.

GHG emission trends: the overall EU GHG emission trend is strongly influenced by the two largest emitters Germany and the United Kingdom, accounting for about one third of total EU-27 GHG emissions. In 2007, these two Member States have achieved total GHG emission reductions of 394 Mt CO₂ equivalents compared to 1990.

- A favourable trend in Germany can be observed (-21% in 1990-2007) whereas the reduction of GHG emissions in the United Kingdom was -17% during the same period.
- Italy and France are the third and fourth largest emitters both with a share of 11%.
- Spain and Poland are the fifth and sixth largest emitters in the EU-27, accounting for 9% and 8% respectively of total EU-27 GHG emissions. Spain increased emissions by 54 % between 1990 and 2007.
- In 2007, eight Member States had GHG emissions above base year levels whereas the remaining 17 Member States had emissions below base year levels.
- Cyprus and Malta do not have emission reduction commitments under the Kyoto Protocol. In those countries, emissions in 2007 were above 1990 levels. The percentage changes of GHG emissions from the base year to 2007 range from -53.4% (Latvia) to +52.6% (Spain).

Sectors: energy (supply and use) and transport are the most important sectors, accounting for **80% of total EU-15 emissions in 2007**. Transport is responsible for 21% of total GHG emissions, agriculture for 9%, industrial processes for 8% and waste for 3%. The decreases in energy, agriculture, industrial processes and waste has been partially offset by significant increases in the transport sector. In summary, compared to 1990, emissions in the EU-15 from

- energy (supply and use, excluding transport) decreased by 7%,
- transport increased by 24%,
- industrial processes decreased by 11%,
- agriculture declined by 11%,
- waste decreased by 39%.

Projections by Member States: the GHG emission projections include the impact of the EU Emissions Trading Scheme. However, the underlying methodology for the estimation of the effect of the EU ETS needs further improvement.

A) EU-15: the aggregate projections for all sectors and based on existing domestic policies and measures , including the effect of the EU emission trading system on domestic emissions, show that GHG emissions of the EU-15 will be 6.9% below base-year levels in the commitment period (1.1% distance from the Kyoto target). When including the, (1) government use of the Kyoto mechanisms which are expected to deliver an additional 2.2% emission reduction, (2) total removal due to activities referred to in Art. 3.3 and 3.4 of the Kyoto Protocol in the EU-15 corresponding to a 1.0% reduction, and (3) use by the ETS sectors of allowance and credit acquisitions, corresponding to a 1.4% reduction.

The EU-15 is projected to reduce its emissions by even more than 8.0% in the commitment period, exceeding the Kyoto target (-8%). Assuming that all measures deliver as expected, the projected overall reduction of GHG emissions could be up to 13.1% in commitment period compared to base year levels (including -1.6% effect of additional domestic measures).

Given, however the EU's ambitious reduction target of 20% by 2020 compared to 1990 and in order to pave the way for a smooth compliance with this target, it is imperative that Member State not only ensure the timely delivery of emissions reductions from existing policies and measures but also that they accelerate the development and full implementation of their additional policies and measures.

B) EU-12: aggregate emissions based on existing domestic policies and measures from the other 12 Member States are projected to increase after 2007 but will still be about 29.8% below their base year levels in the commitment period. Slovenia is the only Member State out of the EU-12 that intends to invest in Kyoto mechanisms. Slovenia, the Czech Republic and Poland intend to account for carbon sinks.

C) EU-27: in the commitment period, total EU-27 GHG emissions are projected to be about 12.8% below base-year levels. The projected decline is 15.0% when the effect of acquisitions of credits via the Kyoto mechanisms by governments and carbon sinks is accounted for, and it could reach 16.5% if the additional policies and measures were to be implemented on time and deliver as estimated.

These emission projections need to be considered in the perspective of the effective reductions already achieved, which amounted to -9% for the EU-27 and -4% for the EU-15 between 1990 and 2007. Therefore, reduction efforts will need to accelerate substantially across the EU in the future if it is to meet its -20% or -30% target by 2020.

New measures to reach the EU's ambitious 2020 target: the report recalls that in December 2008 the climate and energy legislative package proposed by the European Commission in January 2008 was agreed. For the first time a set of legal acts provides an integrated and ambitious package of policies and measures to tackle climate change until 2020 and beyond.

From 2013 onwards the total EU effort to reduce greenhouse gas emissions by 20% compared to 1990 by 2020 will be divided between the EU ETS and non-ETS sectors as follows:

- a 21% reduction in EU ETS sector emissions compared to 2005;
- a reduction of around 10% compared to 2005 for the sectors that are not covered by the EU ETS.

Taken together, this results in an overall reduction of -20% compared to 1990, which also accounts to -14% compared with 2005. A larger reduction is required by the EU ETS sector because it is more cost effective to reduce emissions in the sectors covered by the ETS rather than in the other sectors, not covered by the system.

The new set of climate and energy measures also include: legally binding targets for increasing the share of renewables in the energy mix by 2020, new rules on carbon capture and storage, new rules on environmental subsidies, as well as reduction of CO₂ emissions from cars and improved fuel quality.