working draft

EEA Core Set of Indicators - CSI 011

Projections of green-house gas emissions and removals and policies and measures

May 2005 assessment

About this document
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European Environment Agency

Key policy question: What is the projected European progress (to 2010) in GHG emissions reduction towards the Kyoto Protocol targets: with current domestic policies and measures, with additional domestic policies and measures and with additional use of the Kyoto mechanisms?

Key message:

- The aggregate projections of the EU-15 for 2010 based on existing domestic policies and measures show emissions rising to just 1.0 % below base year levels. This leaves a shortfall of 7.0 % to reach the EU's Kyoto commitment of an 8% reduction in emissions in 2010 compared to base year levels.
- Savings from additional measures being planned by Member States would result in further emissions reductions sufficient to cover the shortfall and thus meet the target. However, this relies on over-delivery by some Member States (the UK, Sweden, France, Greece, Finland and Ireland) compared to their burden sharing targets.
- The use of Kyoto mechanisms by Austria, Belgium, Denmark, Ireland, Luxembourg and the Netherlands would reduce the gap of EU-15 by about one percentage point in 2010.
- Six new Member States (Czech Republic, Estonia, Hungary, Latvia, Poland and Slovakia) project that existing domestic measures will be sufficient to meet their Kyoto targets in 2010. Although Slovenia's existing domestic measures are projected to be not sufficient, Slovenia's Kyoto target can be met with accounting carbon sinks.

- For the EU-15, the aggregate projections of total GHG emissions for 2010 based on existing domestic policies and measures show a small fall to 1.0 % below base-year levels. This means the current small emission reduction of 2.9 % achieved by 2002 on the base-year level is projected to be reversed to an increase by 2010. That development leads to a shortfall of 7.0 %, assuming only existing domestic policies and measures, in meeting the EU's Kyoto commitment of an 8 % reduction in emissions in 2010 from base-year levels. A 'with existing domestic measures' projection encompasses currently implemented and adopted policies and measures.
- The use of Kyoto mechanisms by Austria, Belgium, Denmark, Ireland, Luxembourg and the Netherlands, of which quantitative effects have been approved by the Commission in the EU emission trading scheme, would reduce the gap of the EU-15 by one additional percentage point. This would lead to a shortfall of 6.0 % for the EU-15 with existing domestic measures and the use of Kyoto mechanisms.
- Sweden and the United Kingdom project that existing domestic policies and measures will be sufficient to meet their burden-sharing targets. Their relative gaps are -4 % and -1.4 %, respectively, meaning that these Member States may even over-deliver on their targets. If these two countries did no more than meet their agreed targets, the EU-15 reduction would be just 0.6 %. This would lead to

a shortfall of 7.4 %, from the EU's Kyoto target in 2010. Emissions in Austria, Belgium, Denmark, Finland, France, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain are all projected to be significantly above their commitments on the basis of their existing domestic measures. The relative gaps for these Member States range between more than + 30 % for Denmark and Spain to about + 6 % for Luxembourg.

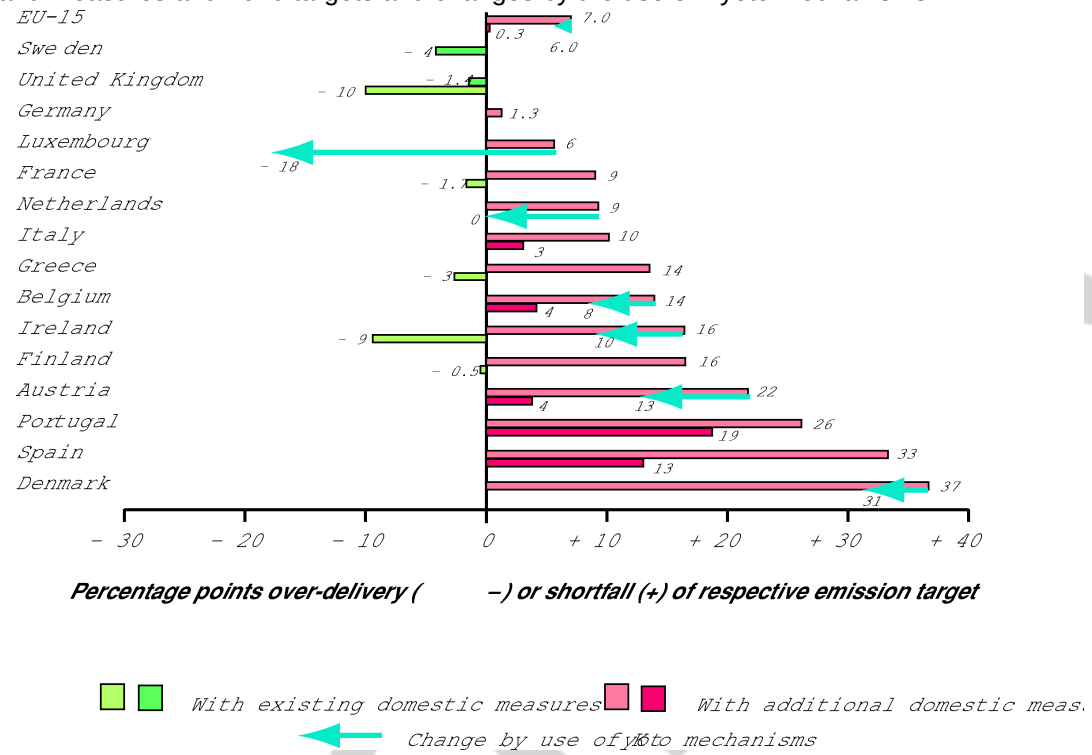
- The use of Kyoto mechanisms by Austria, Belgium, Denmark, Ireland, Luxembourg and the Netherlands would reduce their gaps by 9, 6, 6, 7, 24 and 9 percentage points respectively, which means that Luxembourg and the Netherlands would meet their targets with existing domestic measures and the use of Kyoto mechanisms.

- Savings from additional policies and measures being planned by Member States would result in total emission reductions of about 7.7 % from 1990, almost sufficient to meet the shortfall for the EU-15 projected on existing domestic policies and measures. Assuming that all additional domestic policies and measures will actually be implemented and will have the expected effect, this would lead to only a small shortfall of 0.3 percentage points in meeting the target of -8 %.

- Regarding the new Member States, all 'with existing measures' projections, except for Slovenia, result in emissions in 2010 being lower than the Kyoto commitments. For Estonia, Latvia and Lithuania, the emissions are projected to be significantly lower than in 1990. Slovenia expects emissions to be above the target in 2010 with existing domestic measures. However, Slovenia's Kyoto target can be met with accounting carbon sinks from LULUCF according to information Slovenia gave to the Commission in June 2004 during the approval process of its National Allocation Plan to the EU Emission trading scheme.

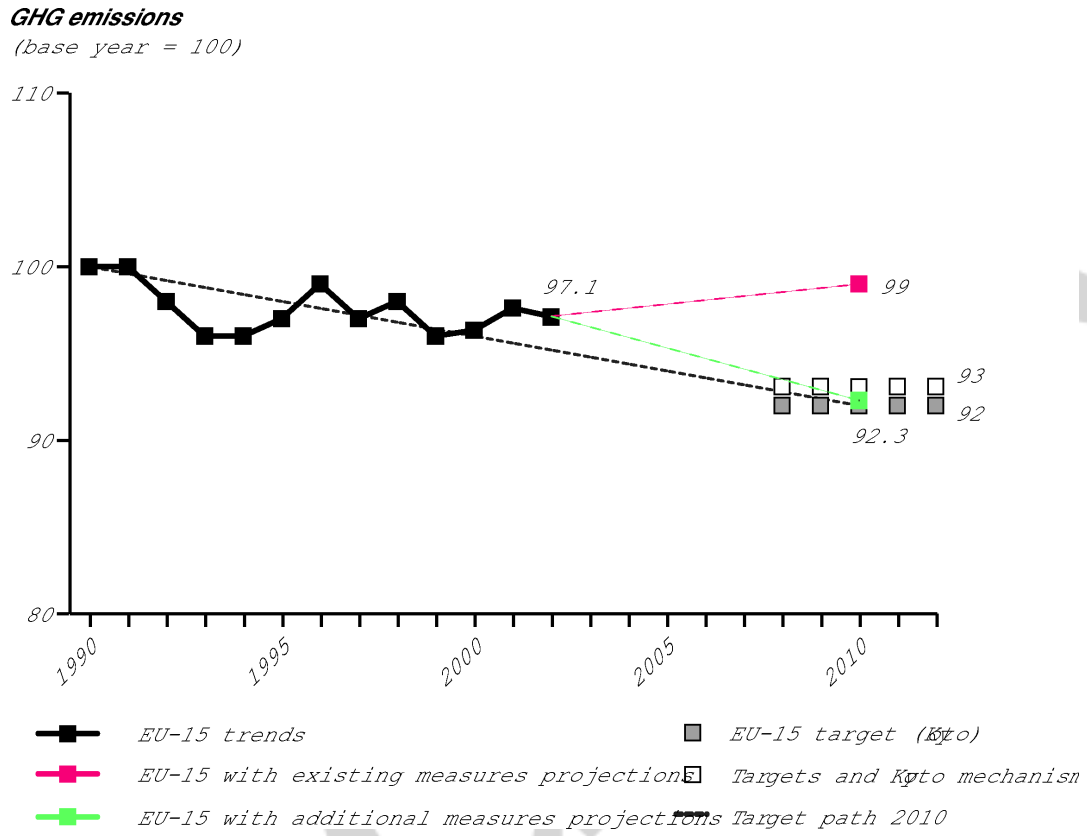
- In part, the projected reductions in most new Member States are the result of the economic restructuring that has already occurred in these countries. However, all countries have policies and measures in place to reduce GHG emissions. These measures are primarily aimed at energy use and waste but there are a limited number of measures in other sectors. The whole range of types of measures is used, although the use of voluntary agreements is limited. Measures implemented or proposed in most countries include: 1) clean air legislation to reduce air pollution, this generally has a beneficial effect on GHG emissions, 2) energy market liberalisation, 3) changes in building regulations to improve energy efficiency, 4) harmonisation with EU environmental legislation, 5) measures to reduce traffic growth; 6) and limitation on the disposal of biodegradable waste to landfills.

Fig. 1: Relative gap between GHG projections based on existing and additional domestic policies and measures and 2010 targets and changes by the use of Kyoto mechanisms



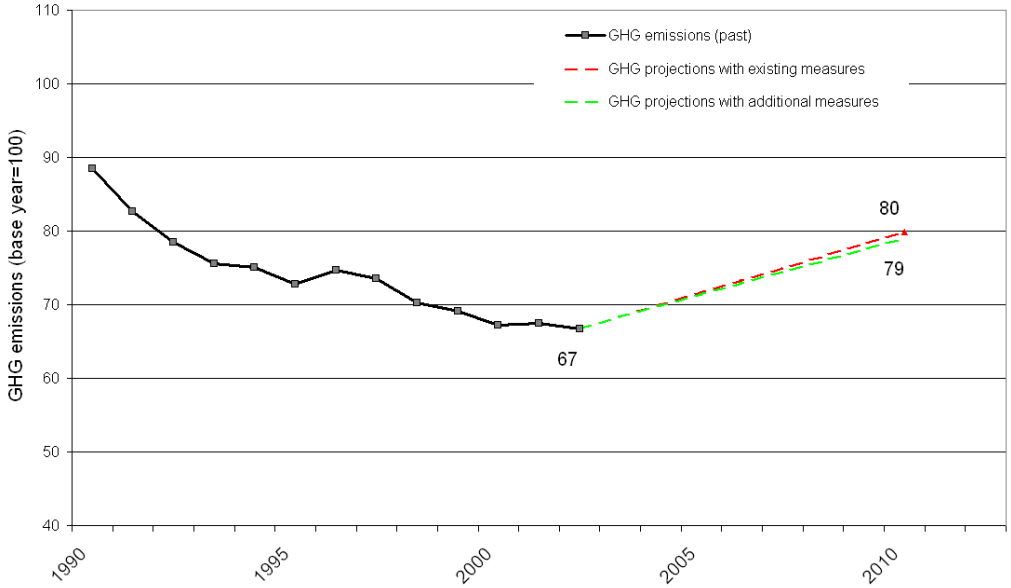
Data source: ETC/ACC 2004

Fig. 2: Actual and projected EU-15 greenhouse gas emissions compared with Kyoto target for 2008-12



Data source: ETC/ACC 2004

Fig. 3: Actual (EU-8) and projected (EU7) greenhouse gas emissions



Data source: ETC/ACC 2004

Note: Past GHG emissions include the eight new Member States which have Kyoto target (not Cyprus and Malta). GHG projections include seven new Member States (not Cyprus, Lithuania, Malta).

Specific policy question: What is the projected European progress (to 2010) in GHG by sectors?

- Energy supply and use excluding transport is by far the largest sector accounting for 61 % of total EU-15 greenhouse gas emissions (mainly CO2 from fossil fuel combustion in electricity and heat production, refineries, manufacturing industries, households and services). Total GHG emissions from energy supply without transport were 5 % below 1990 levels in 2002, but are projected to increase again to 3 % below 1990 levels by 2010 in the with existing measures scenario. In the with additional measures scenario emissions are projected to be 11 % below 1990 levels in 2010.

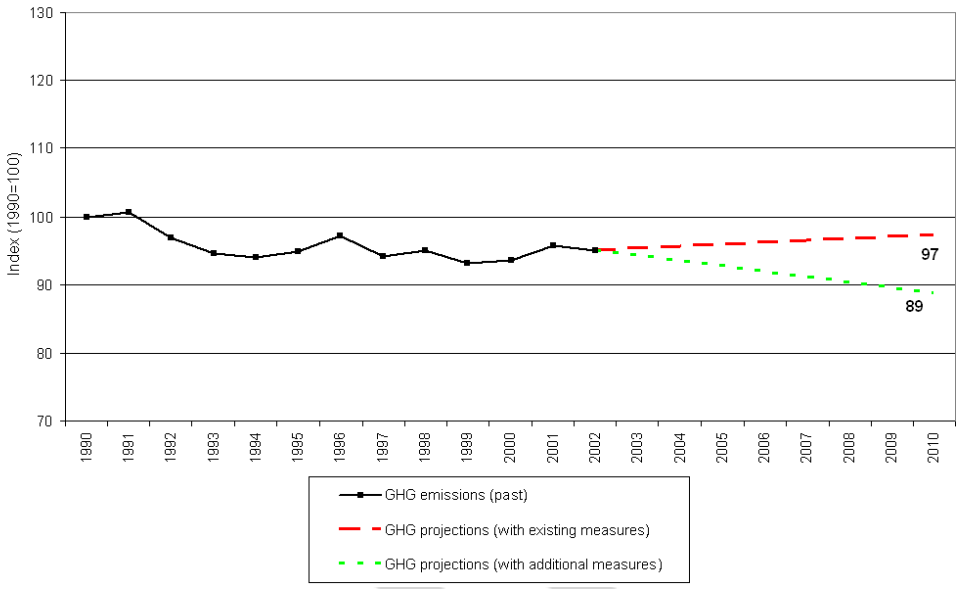
- Transport accounts for 21 % of total EU-15 GHG emissions (mainly CO2 from fossil fuel combustion, but also N2O). Total GHG emissions from transport and are projected to increase to 34 % above 1990 levels by 2010 in the with existing measures projections. With additional measures emissions are projected to remain at 2002 levels by 2010.

- Agriculture accounts for 10 % of total EU-15 GHG emissions (mainly CH4 from enteric fermentation and manure management and N2O from soils and manure management). In 2002, total GHG emissions from agriculture were 9 % below 1990 levels and are projected to further decrease to 13 % below 1990 levels by 2010 in the with existing measures projections. With additional measures emissions are projected to be 15 % below 1990 levels by 2010. The main reasons for declining agricultural emissions are decreasing cattle numbers and declining fertiliser and manure use.

- Industrial processes account for 6 % of total EU-15 GHG emissions (mainly CO2 from cement production, N2O from chemical industry, HFCs). Total GHG emissions from industrial processes are projected to increase to 6 % below base year levels by 2010 in the with existing measures projections. With additional measures emissions are projected to be 26 % below base year levels by 2010.

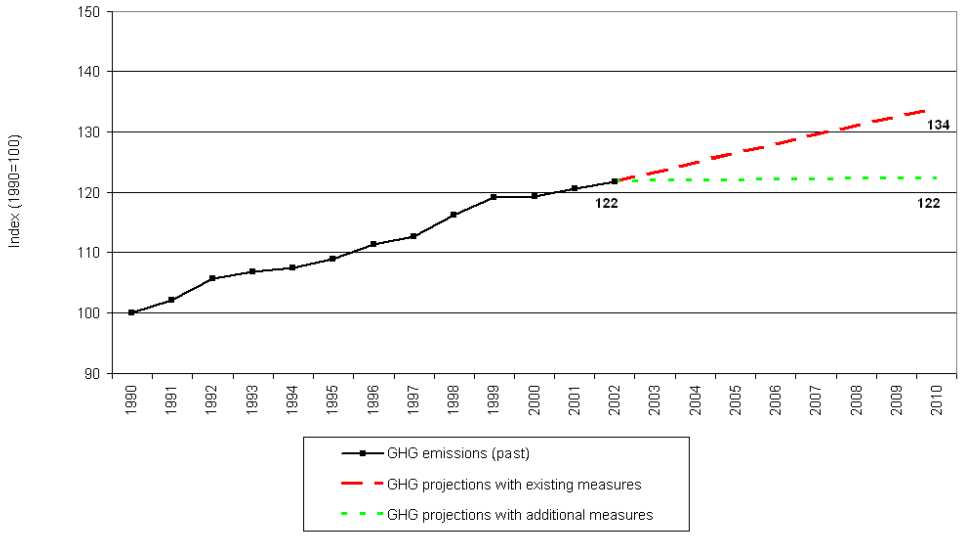
- Waste management accounts for 2 % of total EU-15 GHG emissions (mainly CH4 from waste disposal sites). In 2002, total GHG emissions from waste management were 28 % below 1990 levels, and are projected to further decrease to 54 % below 1990 levels by 2010 in the with existing measures projections. With additional measures emissions are projected to be 58 % below base year levels by 2010. The decline of biodegradable waste being landfilled and the growing share of CH4 recovery from landfill sites are the main reasons for falling emissions.

Fig. 4: EU-15 greenhouse gas past emissions and emission projections (energy sector excluding transport)



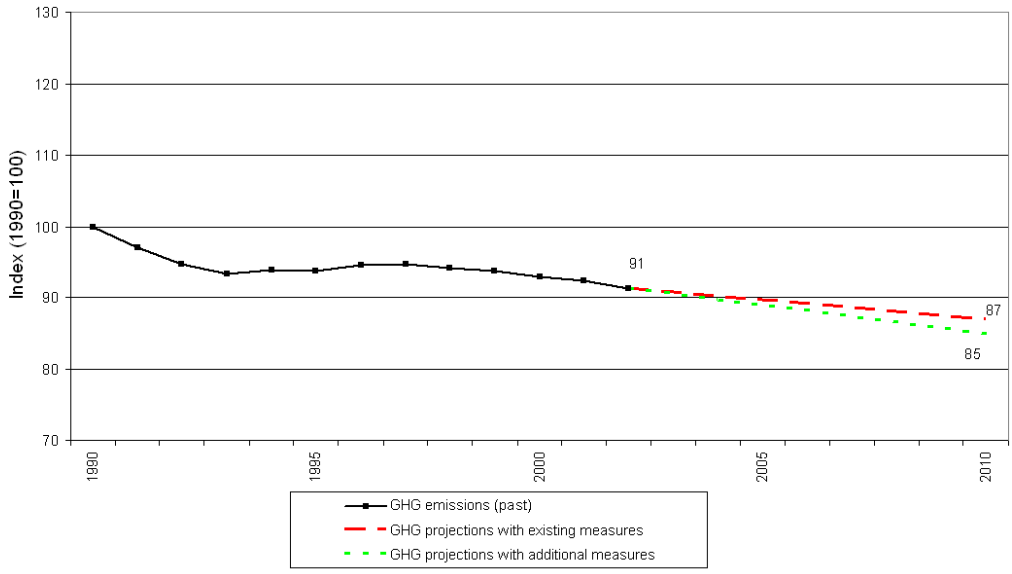
Data source: ETC/ACC 2004

Fig. 5: EU-15 greenhouse gas past emissions and emission projections (transport sector)



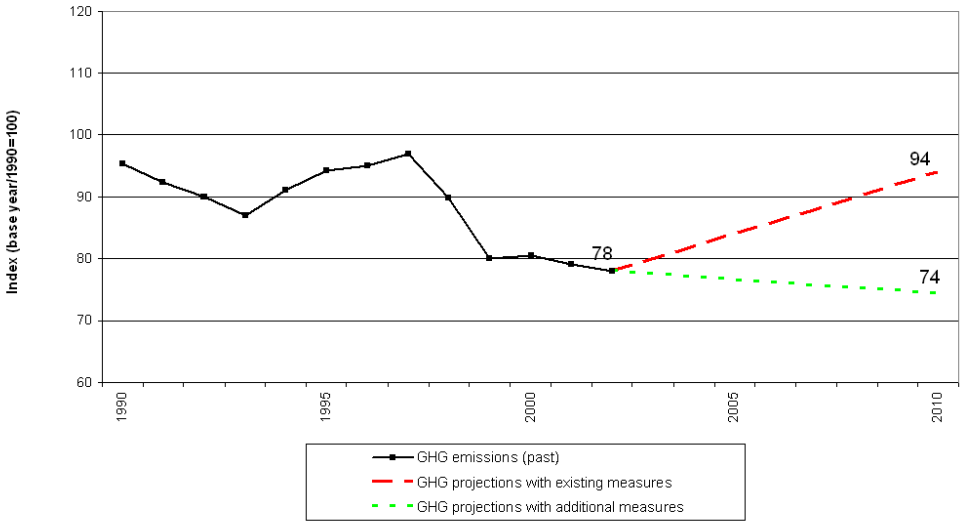
Data source: ETC/ACC 2004

Fig. 6: EU-15 greenhouse gas past emissions and emission projections (agriculture sector)



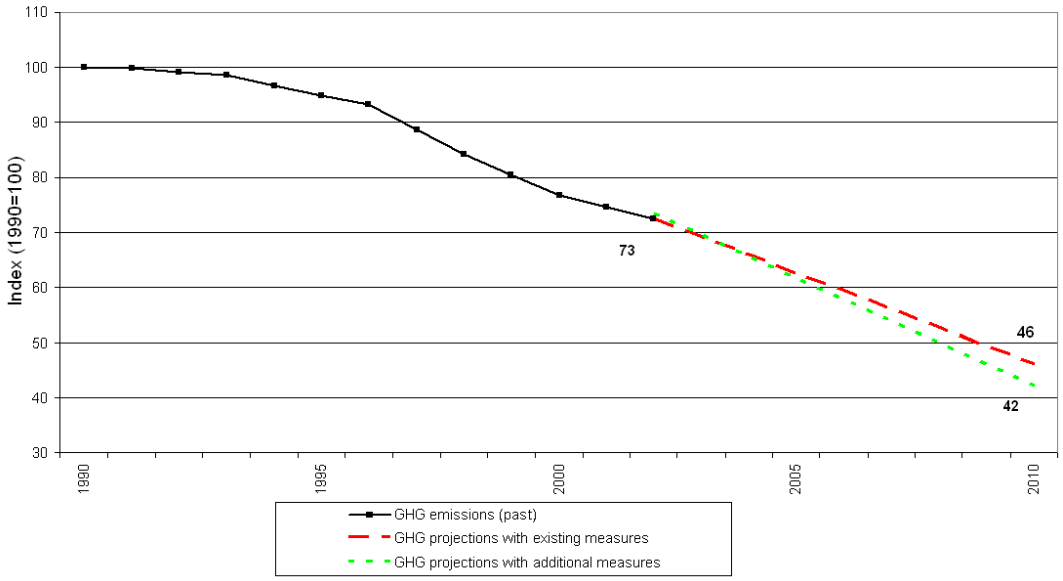
Data source: ETC/ACC 2004

Fig. 7: EU-15 greenhouse gas past emissions and emission projections (industral processes)



Data source: ETC/ACC 2004

Fig. 8: EU-15 greenhouse gas past emissions and emission projections (waste sector)



Data source: ETC/ACC 2004