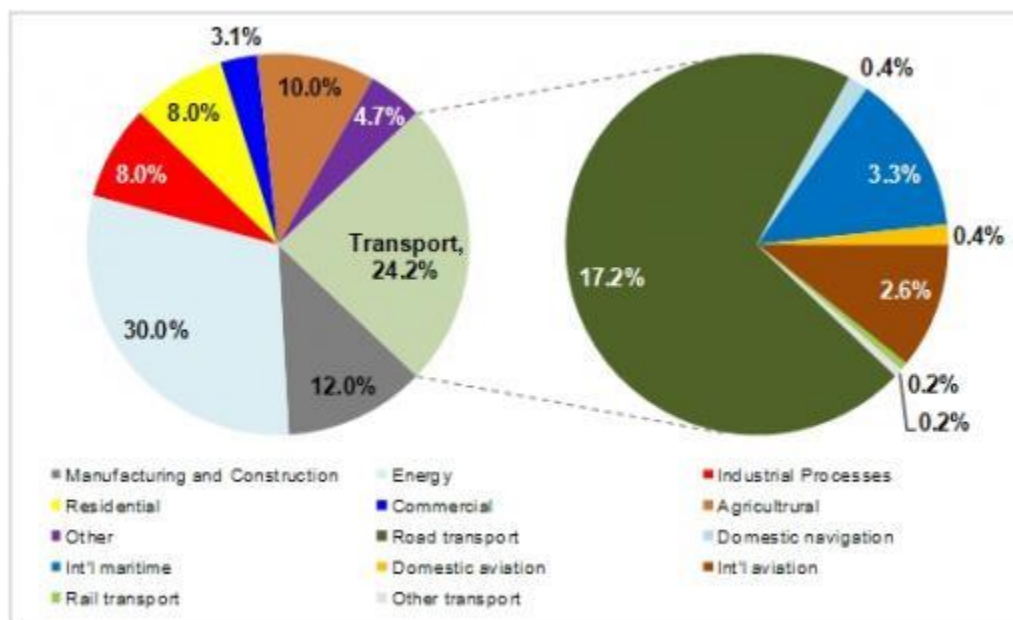


The contribution of transport to GHG emissions

Transport is responsible for around a quarter of EU greenhouse gas emissions making it the second biggest greenhouse gas emitting sector after energy (see Figure 1 below). Road transport accounts for more than two-thirds of EU transport-related greenhouse gas emissions and over one-fifth of the EU's total emissions of carbon dioxide (CO₂), the main greenhouse gas. However, there are also significant emissions from the aviation and maritime sectors and these sectors are experiencing the fastest growth in emissions, meaning that policies to reduce greenhouse gas emissions are required for a range of transport modes.

Figure 1: EU27 greenhouse gas emissions by sector and mode of transport, 2007



Notes: International aviation and maritime shipping only include emissions from bunker fuels

While greenhouse gas emissions from other sectors are generally falling, decreasing 15% between 1990 and 2007, those from transport have increased by 36% in the same period. This increase has happened despite improved vehicle efficiency because the amount of personal and freight transport has increased. In the run-up to the Conference of the Parties of the UN Framework Convention on Climate Change in December 2009, the leaders of the EU's Member States called for significant reductions in global greenhouse gas (GHG) emissions:

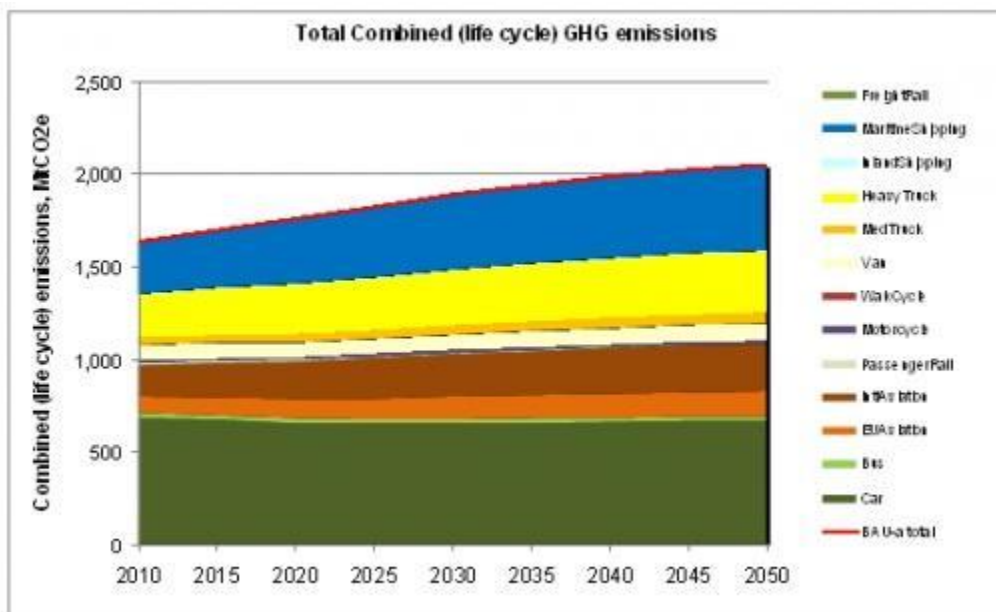
"The European Council calls upon all Parties ... to agree to global emission reductions of at least 50%, and aggregate developed country emission reductions of at least 80-95%... It supports an EU objective, in the context of necessary reductions according to the IPCC by developed countries as a group, to reduce emissions by 80-95% by 2050 compared to 1990 levels."

The key role that transport has to play in this long-term economy-wide aspiration was underlined by European Commission President Barroso in his *Political Guidelines for the next Commission* where he emphasized the need to maintain the momentum towards a low carbon economy and towards decarbonizing the transport sector in particular. In March 2010, the Commission, as part of its *Europe 2020* strategy, that it would make proposals to decarbonize transport, and in doing so linked the need to decarbonize transport with the wider sustainable growth agenda.

These high level political statements set the framework within which the original EU Transport GHG: Routes to 2050? Project was undertaken. One of the main aims of this project was to provide information and analysis to assist the Commission with its early thinking on a co-ordinated approach to reducing the GHG emissions of all modes of transport.

The increasing political importance that is being attached to decarbonising transport reflects the fact that, of all the economy's sectors, transport has proved to be one of the most problematic in terms of reducing its GHG emissions. As mentioned earlier, since 1990, GHG emissions from transport, of which 98% are carbon dioxide (CO₂), had the highest increase in percentage terms of all energy related sectors. Furthermore, transport's GHG emissions are predicted to continue to increase, without additional measures, to over 2,000 MtCO₂e by 2050. This increase is shown in Figure 2, with a split by mode of transport. The figure is an output from an Excel-based illustrative scenarios tool (IST) called SULTAN (SUstainable Le TRANsport), which was developed under the first project in order to identify the GHG reductions that transport could potentially deliver by 2050.

Figure 2: Business as usual projected growth in transport's GHG emissions by mode



Source: SULTAN Illustrative Scenarios Tool, developed for the EU Transport GHG: Routes to 2050 project

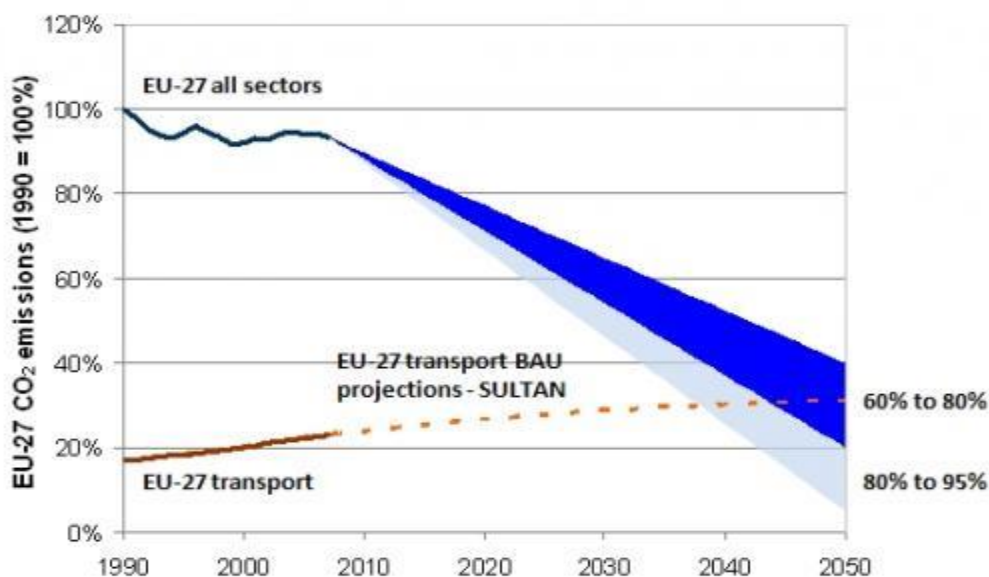
Notes: International aviation and maritime shipping include estimates for the full emissions resulting from journeys to EU countries, rather than current international reporting which only include emissions from bunker fuels supplied at a country level (which are lower).

An increase of the order projected in Figure 2 would leave transport's GHG emissions 74% higher in 2050 than they were in 1990 (when the sector's emissions were nearly 1,200 MtCO₂e) and around 25% above 2010 levels. Significant emissions increases between 2010 and 2050 are projected for road freight (for which an increase of more than 45% is projected), aviation (more than 50%) and maritime (more than 65%) without additional policy instruments. Whilst GHG emissions from cars are still projected to contribute the most to the sector's GHG emissions in absolute terms in 2050, their emissions are projected to have declined slightly from 2010 levels, as anticipated improvements in the energy efficiency of vehicles negate projected increases in demand.

Figure 2 shows the baseline, as projected by SULTAN. This is consistent with the range of results from other models and tools, although many of these only project to 2030. Clearly, the predicted continued growth in the EU-27's GHG emissions from transport has the potential to prevent the EU meeting the long-term GHG emission reduction targets that the European Council supports, if no action is taken to reduce these emissions.

Figure 3 demonstrates that on current trends, transport emissions could be around 30% of economy-wide 1990 GHG emissions by 2050. Whilst simplistic, in that it assumes linear reductions, the figure demonstrates that there is clearly a need for additional policy instruments to stimulate the take up of technical and non-technical options that could potentially reduce transport's GHG emissions. The EEA believes that all available policy instruments need to be used to achieve the ambitious GHG reduction targets.

Figure 3: EU overall emissions trajectories against transport emissions (indexed)



Source: EC DG Energy (2010) and SULTAN Illustrative Scenarios Tool

References

1. EC DG Climate Action (2010): http://ec.europa.eu/clima/policies/transport/index_en.htm
2. *Presidency Conclusions*, Brussels European Council, 29/30 October 2009; see <http://register.consilium.europa.eu/pdf/en/09/st15/st15265.en09.pdf>
3. Barroso, J (2009) *Political Guidelines for the next Commission*, September 2009, Brussels
4. European Commission (2010) *Europe 2020: A strategy for smart, sustainable and inclusive growth* COM(2010)2020, Brussels 3.3.2020.
5. DG TREN (2000) *Energy and transport in figures 2008-2009*
6. See Appendix 19 SULTAN: Development of an Illustrative Scenarios Tool for Assessing Potential Impacts of Measures on EU transport GHG for details of the assumptions used and approach taken in the SULTAN Illustrative Scenarios Tool to projecting business as usual GHG emissions; also see <http://www.eutransportghg2050.eu>
7. The emissions included in this figure - for both the economy-wide emissions and those of the transport sector - include emissions from international aviation and maritime transport, in addition to emissions from "domestic" EU transport.
8. EEA (2009) *Towards a resource-efficient transport system - TERM 2009: indicators tracking transport and environment in the European Union*, EEA Report No2/2010, Copenhagen.
9. Projections based on data from the SULTAN Illustrative Scenarios Tool (BAU-a scenario) and historic data from DG Energy (2010) *EU energy and transport in figures Statistical Pocketbook 2010* Luxembourg, Publications Office of the European Union, 2010.