Rail transport has significant potential to lower CO2 emissions through modal shift, concludes new study

Up to 20 Mtonne (million tonnes) of CO2 emissions from freight - some 7% of the total emissions from road and rail freight - could be reduced through full use of main rail corridors and the primary rail network in 2020, a new study examining the potential modal shift from road to rail has concluded.

(Paris/Brussels, 4 July 2011). The study, “Potential of modal shift to rail transport - Study on the projected effects on GHG emissions and transport volumes” was commissioned by the Community of European Railway and Infrastructure Companies (CER) and the International Union of Railways (UIC) to consider the potential levels of modal shift to rail, and in particular the greenhouse gas (GHG) reduction savings that could result. It was undertaken by the consultancies CE Delft (Netherlands) and TRT (Italy).

The study gives important detail on how modal shift to rail can help reach the targets outlined in the European Commission’s recent Transport White Paper. An assessment of the available infrastructure capacity shows that through maximising use of existing infrastructure alone, a 30-40% growth in train-kilometres in 2020 could be accommodated. If this increased capacity was allocated equally to freight and passenger services, rail freight traffic could grow by 83% and passenger transport by 23% over the whole network.

The report says there is particular scope for rail freight to increase its market share in certain segments such as international containerised transport, with the feasibility of growth already clearly demonstrated in countries such as Switzerland, and at the port of Rotterdam where levels of modal split that include the doubling of rail traffic have been set for hinterland container traffic.

For passenger transport, the GHG reduction potential is less clear-cut, although the maximum modal shift calculated has been a reduction of 70 Mtonne CO2-eq. in the EU-27 (9% of passenger transport emissions).

The study also considered the implications of the ‘2050 vision’ of transport Commissioner Siim Kallas, outlined in Berlin in 2010. Under his proposals, rail would be the dominant mode for long-distance transport (corresponding to a 38% modal share for total freight transport and a 27% share in passenger transport).

If implemented, this would result in an annual GHG reduction of 238 Mtonne of CO2-eq., or 21% of total transport emissions. While this would require heavy investment in rail infrastructure (EUR 1,300-2,000 billion), full internalisation of external and infrastructure costs could contribute significantly to the funding of this, the report adds.

CER Executive Director Johannes Ludewig said: “The transport sector is responsible for around one-quarter of Europe's greenhouse gas emissions, and it is widely accepted that firm action is therefore essential to meet overall EU GHG reduction targets. The results of the study confirm our belief that modal shift to rail can play an important role in ensuring that the goals set by the Commission’s
Transport White Paper are achieved, and we now need to see the necessary tools and funding put in place to ensure that this can happen. We hope that EU decision makers will take these important points into account when re-starting the discussions on how to achieve a sustainable European transport system in September."

UIC Director General Jean-Pierre Loubinoux said: “This report provides clear evidence that attracting freight and passenger traffic onto rail can significantly reduce CO2 emissions from transport. Modal shift to rail has other benefits too, such as reduced traffic congestion, better air quality and fewer accidents. To make this happen there should also be a greater degree of complementarity between different transport modes, so that rail can become the backbone of a truly sustainable transport system.”

The graph demonstrates the possible CO2 reduction achievable in the EU through an increase in rail freight and a corresponding decrease in road freight in the EU by 2020, under different scenarios.

* The Transport White Paper outlined the need for a modal shift from road to rail and inland waterways, calling for 30% of road freight over 300km to shift to rail or inland waterways by 2030, rising to 50% by 2050. Moreover, the White Paper outlines the need to reduce emissions of greenhouse gases (GHG) from transport by at least 60% by 2050 compared to their 1990 levels.

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The Community of European Railway and Infrastructure Companies (CER) brings together more than 70 European railway undertakings and infrastructure companies. CER represents the interests of its members towards the European institutions as well as other policy makers and transport actors. CER’s main focus is promoting the strengthening of rail as essential to the creation of a sustainable transport system which is efficient, effective and environmentally sound. For more information, see www.cer.be

The International Union of Railways (UIC) is the worldwide organisation for promotion of rail transport and cooperation across the world and comprises 200 members on all 5 continents. UIC, as a technical platform, provides its members with technical know-how and expertise (regulations and specifications in order to enhance technical cooperation) and ensures the coherence of the rail system to help meet the challenges of mobility and sustainable development.