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The International Union of Railways and the International Energy Agency publish the first common railway handbook on “Energy Consumption and CO₂ Emissions of the World Railway Sector”

- *A key publication showing the environmental advantage of rail with sound scientific evidence*
- *An important source of energy and CO₂ data for understanding environmental issues related to the transport sector*

(Paris, 18 July 2012). The International Energy Agency (IEA), recognised as the world’s most authoritative source for energy statistics since the seventies, and the International Union of Railways (UIC), representing over 200 railway companies and associations across the world, have published the first railway handbook on “Energy Consumption and CO₂ Emissions of the World Railway Sector”.

Tracking the progress of energy use and CO₂ emissions is at the core of both institutions and synergies have emerged in order to improve data quality and collection for the rail sector.

The aim of the handbook is to support the overall framework constructed by the International Energy Agency on energy-related transport trends. This publication complements the IEA data with direct railway data, collected and quality-checked yearly by UIC since 2008.

The transport sector is responsible for nearly 23% of energy-based CO₂ emissions worldwide, mainly due to road traffic. Total transport CO₂ emissions have constantly increased since 1990 and all transport modes – except railways – have increased their GHG emissions from fuel combustion. *Railway companies operating worldwide produce less than 1% of the total CO₂ emissions caused by the transport sector.*

Due to their low-carbon performance, railways are an important means to achieve sustainable mobility. Trains, especially in Europe, rely mostly on electricity, and the electricity markets are already subjected to mechanisms to lower the carbon content of electricity through the EU ETS (European Union Emission Trading Scheme).

With electro-mobility being a key objective for many European countries, one of the most cost-effective actions should be to promote railway mobility.

In this handbook you will find the result of the harmonisation of the UIC Energy/CO₂ railway database with the IEA world energy balances and CO₂ emissions from the fuel combustion database.

This publication aims to be updated regularly in order to provide institutions, associations and decision-makers with robust data as the foundation on which to build the greening of our future transport choices.

You can find the “Railway Handbook 2012 – Energy Consumption and CO₂ Emissions” on the UIC website at the following link:

http://www.uic.org/IMG/pdf/iea-uic_energy_consumption_and_co2_emission_of_world_railway_sector.pdf

Key facts & figures on railways in the European Union (EU27)

General information:

- The total length of railway lines in Europe has remained stable since 1990 (around 210,000 km)
- In 1990, only 30% of railway lines were electrified. In 2009, this percentage reached 53%. Around 80% of rail traffic is performed nowadays with electrified trains
- Railways have improved their energy efficiency from 1990 to 2009: 13% less energy is needed now to move a passenger km and 19% less energy to move a tonne km
- Electricity used by railways in Europe is produced with an average of 30% from renewable sources. This percentage has significantly increased in the last four years
- High-speed and intercity trains – as expected – consume more energy per train km, but due to the higher load factor they consume less energy per passenger km
- European railways have committed to reduce their specific emissions by 30% in 2020, calculated from 1990
- From 1990 to 2009 European railways reduced their total CO₂ emissions by 32%, passenger specific emissions (per passenger km) by 20% and freight specific emissions (per tonne km) by 38%. The freight sector has already reached its 2020 target for specific emissions

Transport Trends and Modal Split

- Total transport demand grew by 7% between 2000 and 2009
- The financial and economic crisis substantially decreased transport demand between 2008 and 2009, in particular for the freight sector (-12% from 2008 to 2009)

- In 10 years (2000-2009), no significant change in modal split for the passenger sector was recorded. For the freight sector there have been small changes towards road freight
- Railways' modal share was 6% for passenger and 7% for freight transport activities

Energy Consumption and CO₂ Emissions of the Transport Sector

- The transport sector in 2009 was responsible for about 31% of total CO₂ emissions from fuel combustion in Europe
- In 2009, road was responsible for 71% of total CO₂ emissions caused by the transport sector. Navigation was responsible for 14.3% and aviation for 12.3% Railways produced 1.8% of total CO₂ emissions caused by the transport sector, corresponding to 0.6% of total CO₂ emissions in EU27
- Total transport CO₂ emissions grew by nearly 28% from 1990 to 2009 and by 5% from 2000 to 2009: all transport modes – except railways – have increased their total emissions

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