Rail is the backbone of sustainable transport

Environmentally sound, safe and affordable

Nick Craven, 21 June 2013
International Union of Railways (UIC)
200 members worldwide
UIC Mission

Promoting the development of rail transport at world level, in order to meet challenges of mobility and sustainable development
The UIC Declaration for Sustainable Mobility and Transport

- **Objectives**
  - Sets out UIC vision for sustainable development
  - Asks UIC members to make a public declaration and provide regular progress reports

- **The declaration has 18 commitments**
  - Reduce environmental impacts and improve service to customers and society

Signed by 50 UIC members, including Ministry of Railways, China; Russian Railways; Indian Railways; JR-East, KTZ, Kazakhstan; Taiwan HSR Corp; all major European railways.
Rail is the backbone of attractive and sustainable door-to-door mobility
**My journey - Paris to Berlin**

![Logo](https://www.ecopassenger.com)

**Carbon dioxide**

*greenhouse-gas, global warming*

<table>
<thead>
<tr>
<th>Start/Destination</th>
<th>Details</th>
<th>Duration</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARIS EST [FR]</td>
<td>from We, 19.06.13, 20:05 to Th, 20.06.13, 08:28</td>
<td>12:23</td>
<td>CNL 455</td>
</tr>
<tr>
<td>BERLIN HBF (TIEF) [DE]</td>
<td>→ Details → Map → Google Earth → sooner → later</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PARIS EST [FR]</td>
<td>Middle class; Diesel EURO 3;</td>
<td>9:07</td>
<td>Car</td>
</tr>
<tr>
<td>BERLIN HBF (TIEF) [DE]</td>
<td>→ Details → Map</td>
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<td>BERLIN HBF (TIEF) [DE]</td>
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</table>
EU27 - Change in CO2 total emissions from fuel combustion by mode, 1990-2009

Source: UIC-IEA Handbook 2012
Specific energy consumption by train, 1990-2009 (kJ/pkm, kJ/tkm)

<table>
<thead>
<tr>
<th>Year</th>
<th>Passenger (kJ/pkm)</th>
<th>Freight (kJ/TKM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>478.8</td>
<td>234.0</td>
</tr>
<tr>
<td>2005</td>
<td>437.8</td>
<td>214.8</td>
</tr>
<tr>
<td>2006</td>
<td>425.6</td>
<td>205.3</td>
</tr>
<tr>
<td>2007</td>
<td>418.7</td>
<td>195.4</td>
</tr>
<tr>
<td>2008</td>
<td>411.0</td>
<td>192.1</td>
</tr>
<tr>
<td>2009</td>
<td>418.7</td>
<td>190.5</td>
</tr>
</tbody>
</table>

-13% -19%
European rail electricity mix, 2005 inside - 2009 outside

Source: UIC-IEA Handbook 2012
Transport CO2 emissions by mode, 1998-2009 (million tonnes)

India

+70%

China

+350%

Source: UIC-IEA Handbook 2012
Railway activity 1990 – 2009, (billion transport units)

USA

Russia

Australia

India

China

Iran

Source: UIC-IEA Handbook 2012
Railway specific energy consumption, (kJ/transport unit)

USA

Russia

Australia

India

China

Iran

Source: UIC-IEA Handbook 2012
Railway passenger fatalities in Europe per billion PKm

Source: UIC Statistics
Affordability & external costs

Figure 4: Average external costs 2008 for EU-27: passenger transport (excluding congestion) without motorcycles and mopeds^4

Source: UIC External costs study
Thank you for your kind attention

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CRAVEN@uic.org

For further information please visit: www.railway-sustainability.org

EU27 evolution of the GHG intensity of motorised passenger transport modes, 2010-2050 (WTW gCO2/pkm)

Source: UIC-IEA Handbook 2012
Global CO₂ Emissions from fuel combustion by sector 2010

CROSS INDICATORS:
Plane vs highspeed, car vs regional, freight train vs HDVs
EU average

Source: UIC-IEA Handbook 2012