



Introduction of LHVs in Europe-wide circulation:

Effects on safety, HG emissions, and the European economy

Brussels, 2 March 2012

Safety performance of road and rail transport



Safety category	Road	Rail
Fatalities in 2009 ¹	35 000	34
Accident occurrences: (i) road ¹ and (ii) rail ²	1 200 000	1152
Accident occurrences: (i) HGVs, (ii) freight trains	31 per 100M vkm ²	1,05 per 100M vkm ³
Accident externality cost of (i) HGVs on motorways, and (ii) trains	€68 667 per 100M tkm ⁴	€238 per 100M tkm ⁵

¹ *Source: EC EU transport in figures [2011]*

² *Source: Alan C McKinnon at 2nd IRU/EU Road Transport Conference: “31 per 100M vkm” [2012]*

³ *Source: ERA 2011 Rail Safety report figure (tkm) converted to (HGV) vkm @ 30t/vehicle rate [2011]*

⁴ *Source: CE Delft IMPACT Study (internalisation handbook) converted into tkm @ 30t/vehicle rate [2008]*

⁵ *Source: CE Delft IMPACT Study (internalisation handbook) converted into tkm @ 800t/train rate [2008]*

Road traffic – in general – **100-times more prone to accidents** than rail. HGVs on motorways travel more safely: the difference of accident propensity is thus lower making **road freight transport 30-times as dangerous**. Accident-related external costs of HGVs are 288 times higher than rail adequately reflecting the **major system difference** between road and rail.

The threat of reverse modal shift



Study by Fraunhofer and Kessel& Partner [2011]



found upon examining empirical data from five European freight corridors



that the introduction of cross border circulation of 44t/25,25m-long LHVs along the altogether **4700 km-long network** would result in a reverse modal-shift (from rail back to road) of altogether **10 billion tkm-s** (333 million vkm) of freight performance.

Safety category	Road (if shifted back)	Rail (presently)
Accident occurrences:	103 additional accidents	3,66
Accident fatalities:	3 additional deaths	0,102
Accident externality cost:	€70 million additional external costs	€238 000

Based on the EU's 66 700km of motorways (14.2 times more than the length examined in the study) **1462 additional road accidents, 43 additional road fatalities and €1 billion of additional road externality** will occur in the European Union.



Road: tolerated to assume risks against safety

Road hauliers are in the position to assume risks (for a higher profit) against safety:

- Breaching drivers' rest time / **driving hour regulations**
- Encouraging drivers to **exceed maximum allowed speed** (in hope of punctuality)
- **Overloading vehicles**
- Use of **worn tires** (until punctured in traffic)

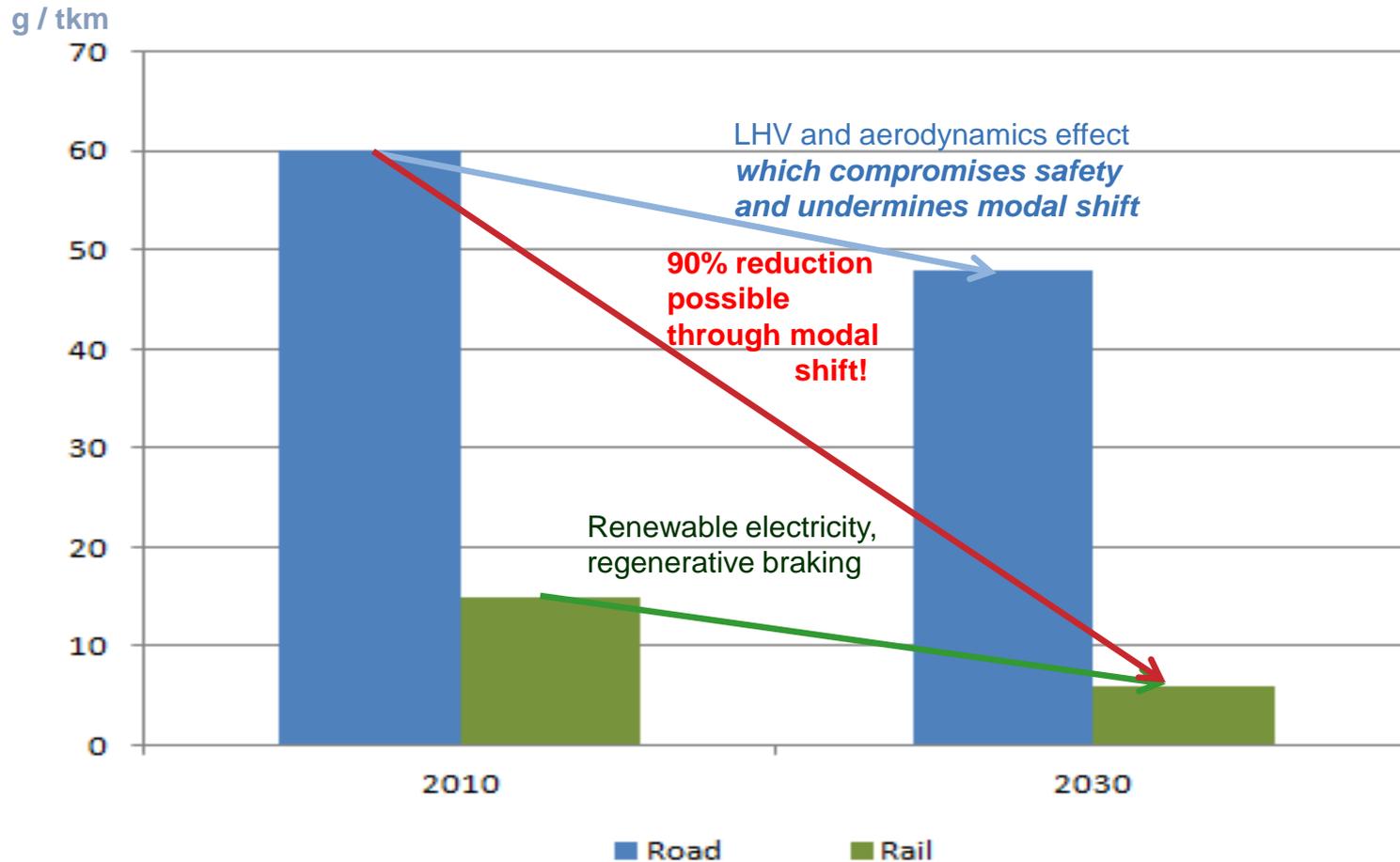
Possible only because of lack of controls and use of 'stone-age' enforcement techniques, whereas technologies already available would enable efficient conformity:

- Sound warning (beepers) to sound upon reaching the maximum allowed speed (alike the reminders for safety belt use – in place in Japan for many decades)
- Electronic speed-limiters
- Temper-resistant tachographs which can broadcast their data to the authorities
- Pre-installed load-sensing devices which can broadcast their data to the authorities
- Tyre conditions monitoring devices which prevent departure on worn tyres

Regulatory intervention could efficiently reduce safety concerns with road traffic!

Nevertheless, even with these improvements a major system difference in safety will remain between road and other modes.

CO₂ emission performance of road and rail transport



2010: Carbon footprint of electric rail traction is one-fourth of road transport

2030: Carbon footprint of electric rail traction is one-eighth of road transport

Additional CO₂ emission due to reverse modal-shift equals 6 million tons (worth €180-540M)

Economic impact of the rail sector in the EU: industry



European rail equipment manufacturers are global technology leaders

- Locomotives and wagons
- Electric Multiple Units: regular and high speed variants, light rail for urban use
- Component manufacturers
- Signalling, train control and communications systems
- Electrification components
- Infrastructure construction machinery

Millions of jobs and billions of euros worth of manufacturing and billions of export revenues for Europe!

