

12th UIC Sustainability Conference



Moving Towards Sustainable Mobility *A STRATEGY FOR 2030 AND BEYOND* *FOR THE EUROPEAN RAILWAY SECTOR*

Joachim Kettner, Chairman of the UIC Environment, Energy and Sustainability Platform





‘Moving towards Sustainable Mobility: European Rail Sector Strategy 2030 and beyond’

- ☀️ Jointly agreed and endorsed by members of UIC and CER in **December 2010** to provide a unified approach to environmental and sustainability topics in the European rail sector.
- ☀️ It outlines how the rail sector should be performing in environmental terms in 2030 and 2050, and provides a framework that allows companies in the rail sector to make suitable long-term plans
- ☀️ It establish a long term vision and targets referred to the main environmental issues connected to rail transport

THE TARGETS

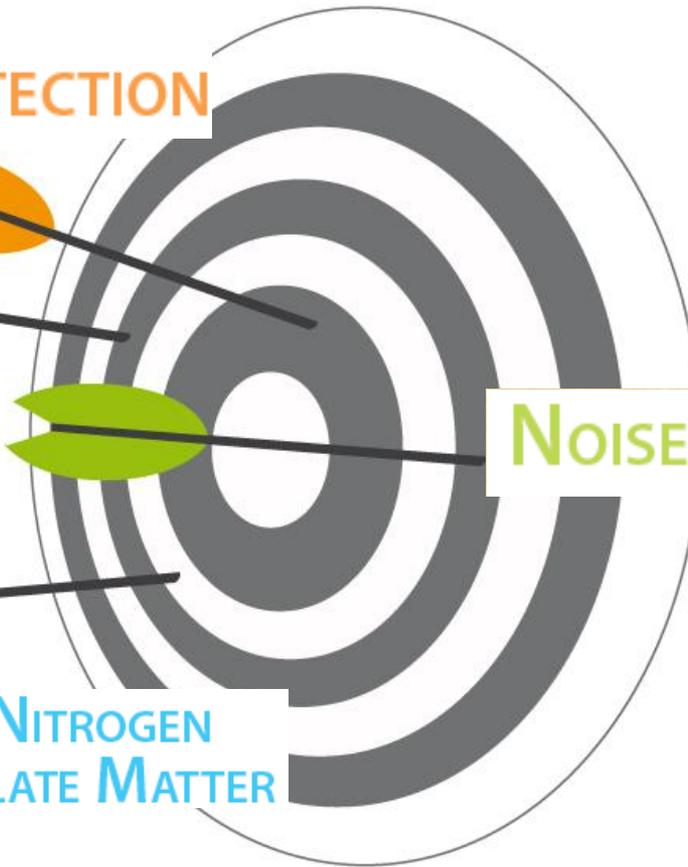


CLIMATE PROTECTION

ENERGY EFFICIENCY

NOISE AND VIBRATIONS

EXHAUST EMISSIONS: NITROGEN
OXIDES AND PARTICULATE MATTER



TARGET 1

CLIMATE PROTECTION



2020

European railways **will reduce their specific average CO2 emissions from train operation by 30% compared to the 1990 base year**, measured per passenger-km and ton-km.

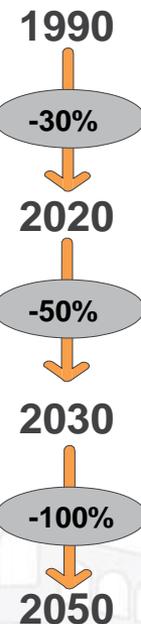
CO2 emissions per pkm and tkm

2030

By 2030 the European railways **will reduce their specific average CO2 emissions from train operation by 50%**. In addition, by 2030 the European railways will not exceed the total CO2 emission level from train operations in absolute terms even with projected traffic growth compared to the 1990 base year.

2050

The European railways will **strive towards carbon-free train operation by 2050 and provide society with a climate neutral transport alternative**.



TARGET 2 ENERGY EFFICIENCY



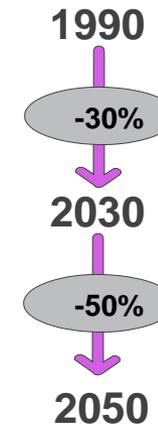
2030

By 2030 the European railways will **reduce their specific final energy consumption from train operation by 30% compared to the 1990 base year**, measured per passenger-km (passenger service) and ton-km (freight service).

2050

The European railways will **strive towards halving their specific final energy consumption from train operation by 2050 compared to the 1990 base year**, measured per passenger-km (passenger service) and tonne-km (freight service).

Energy Consumption per pkm and tkm



TARGET 3

EXHAUST EMISSIONS: NITROGEN OXIDES AND PARTICULATE MATTER



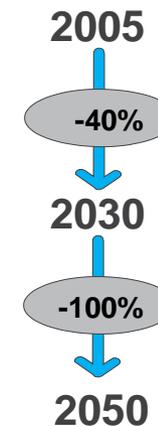
2030

By 2030 the European railways will **reduce their total exhaust emissions of NOx and PM10 by 40% in absolute terms**, even with projected traffic growth compared to the 2005 base year.

2050

The European railways will strive towards **zero emission of nitrogen oxides (NOx) and particulate matter (PM10) from non-electric trains by 2050**.

NOx and PM 10 Emissions

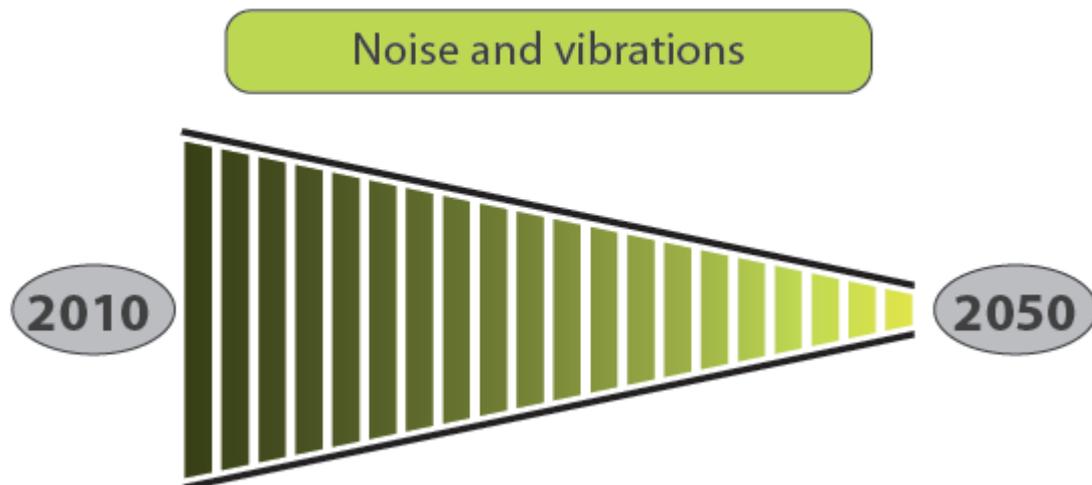


TARGET 4

NOISE AND VIBRATIONS

2050

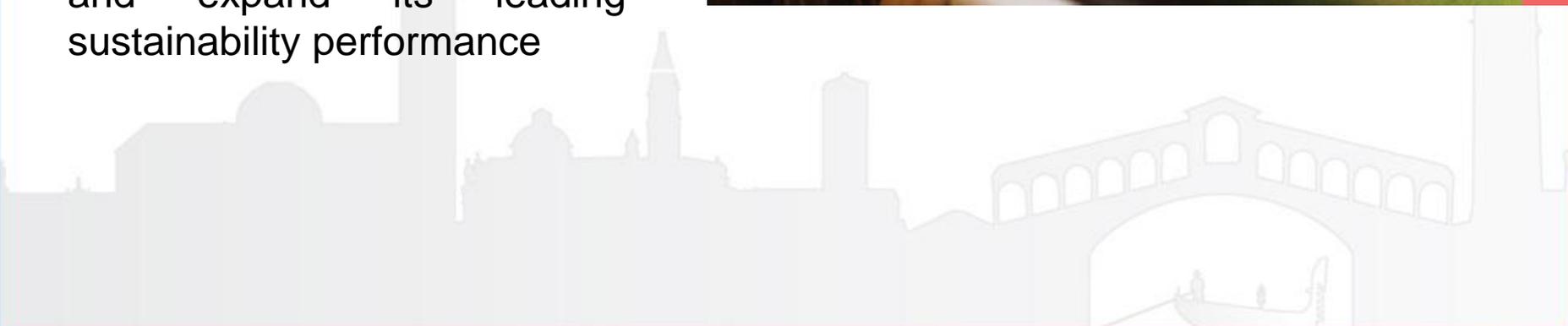
The European railways will **strive towards noise and vibrations no longer being considered a problem for the railways** – meaning that noise levels are socially and economically acceptable and allow for 24-hour passenger and goods operations in 2050.



VISION 2050

The European railway sector will seek to supply its customers and society with attractive, **carbon-free** and **resource efficient** solutions for **sustainable mobility** and transport.

Through responsible business leadership the European railway sector aims to maintain and expand its leading sustainability performance



MONITORING THE PROGRESS TOWARDS THE TARGETS

guaranties transparency and accountability



To ensure that all objectives are met, an **UIC-CER Environmental Target Monitoring System** has been established guarantying transparency and accountability including

- ☀ The Policy for external communication of data
- ☀ The yearly UIC-CER reports
- ☀ The on-line tool for data collection
- ☀ The methodological rules for members

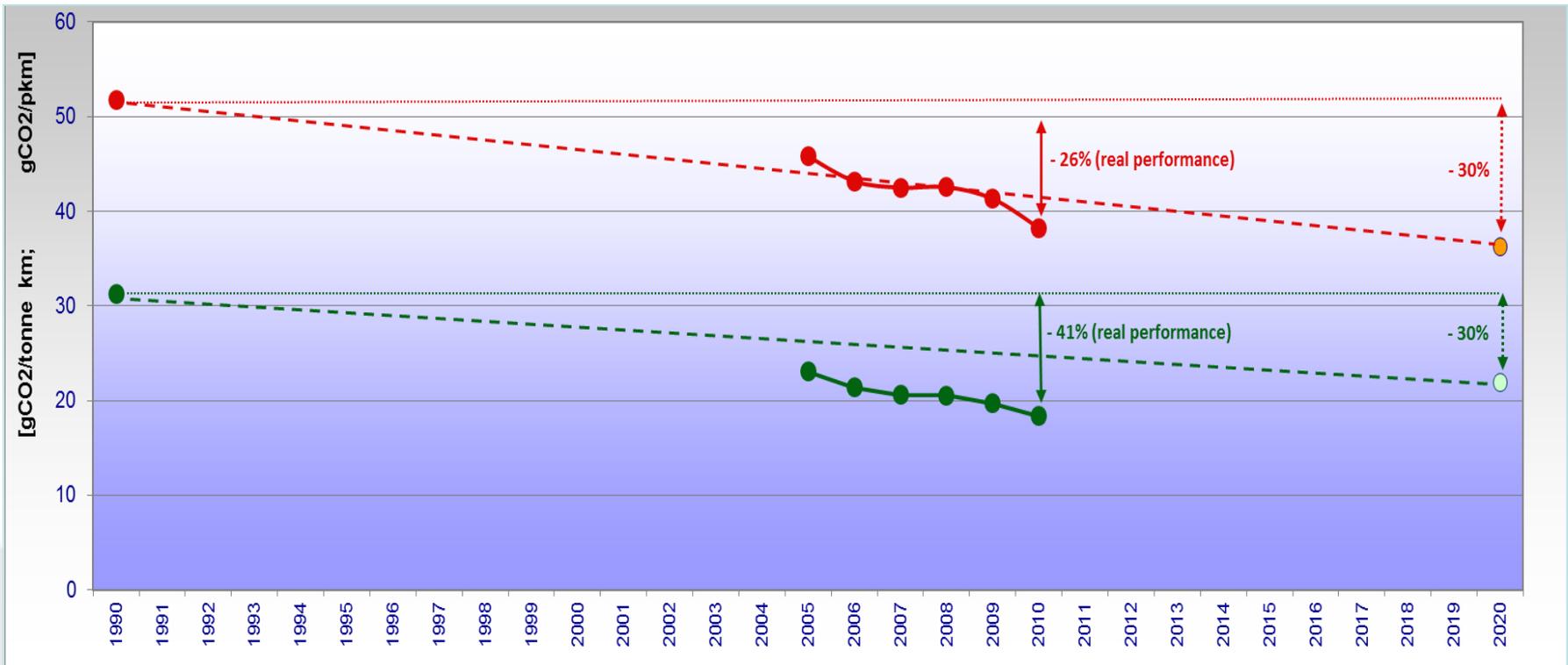


TARGET 1 – CLIMATE PROTECTION ...IS ON TRACK



Specific CO2 emissions trend 1990-2010:

Passengers: -26% Freight:- 41%





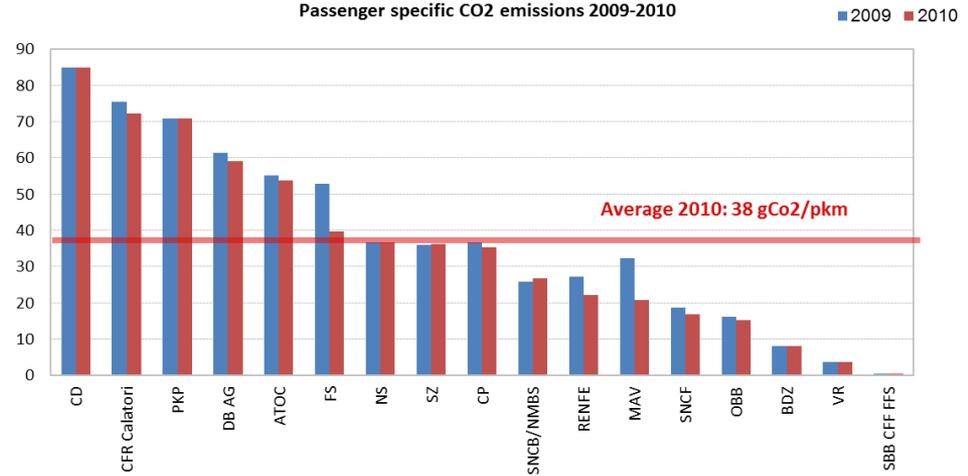
TARGET 1 – CLIMATE PROTECTION

FOR SOME COMPANIES IT IS STILL A LONG WAY TOWARDS ZERO EMISSIONS

Specific CO2 emissions in passenger transport, 2010

38 grCO₂/pkm (average)

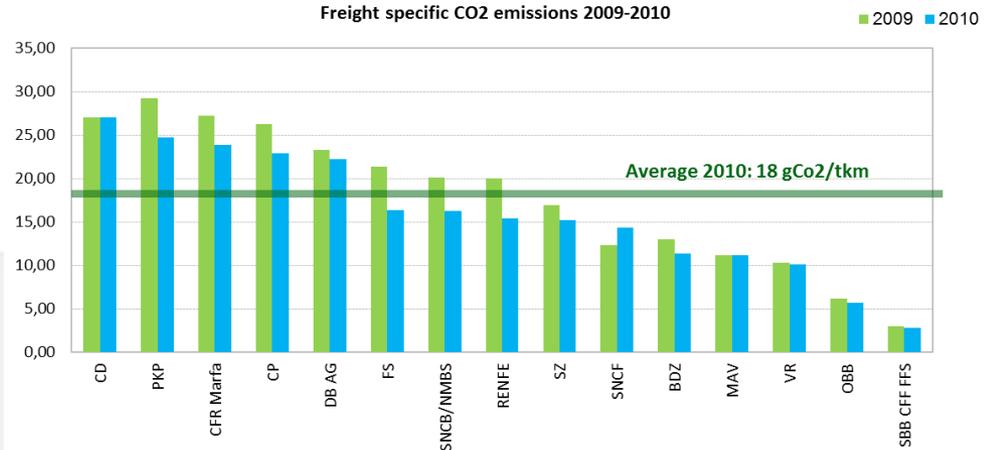
Passenger specific CO2 emissions 2009-2010



Specific CO2 emissions in freight transport, 2010:

18 grCO₂/tkm (average)

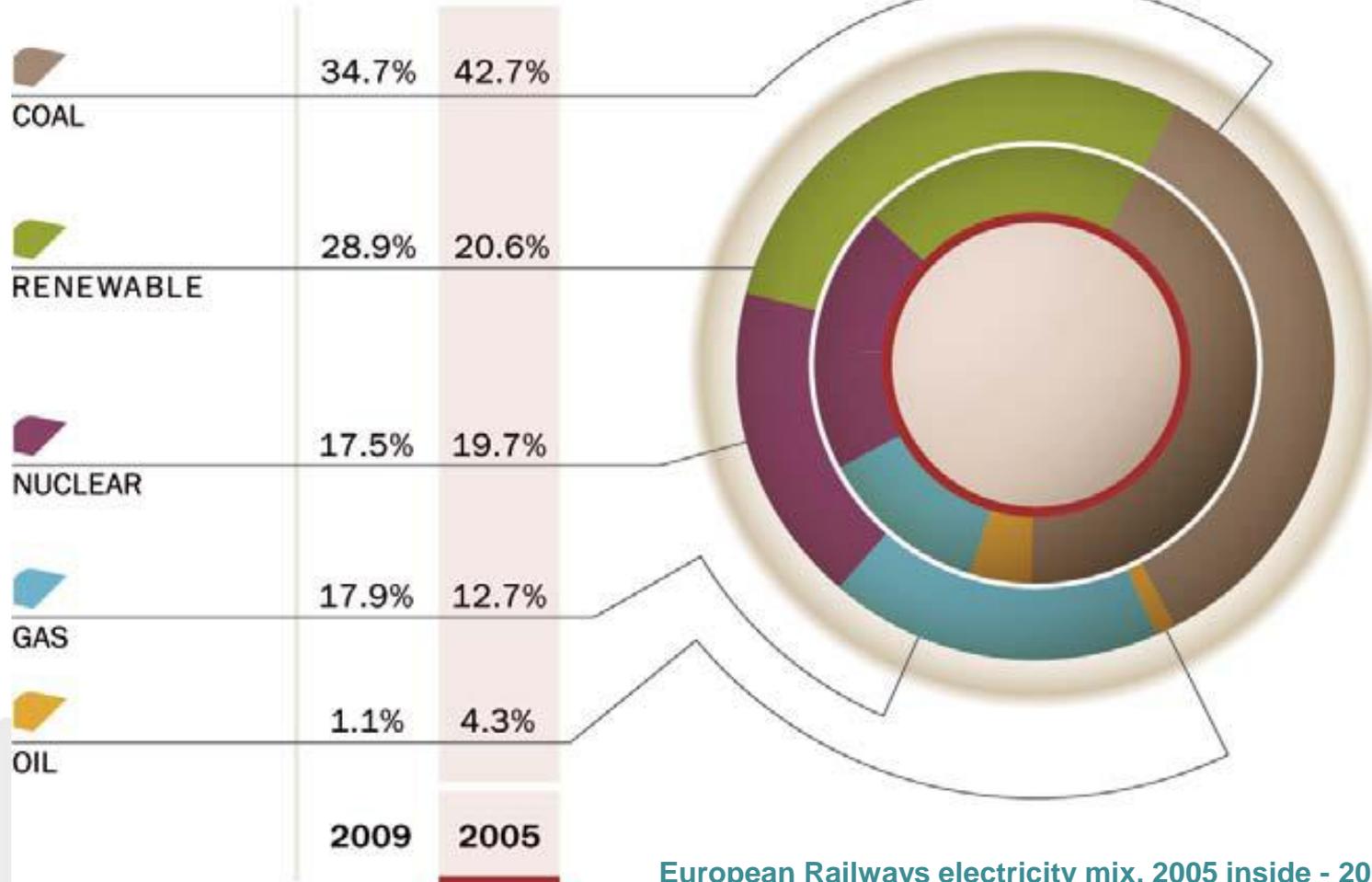
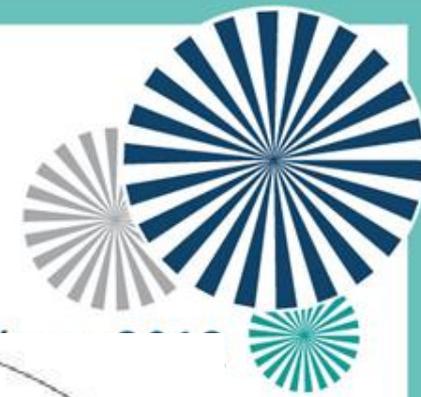
Freight specific CO2 emissions 2009-2010



TARGET 1 – CLIMATE PROTECTION

E-MOBILITY ALREADY HAPPENS ON RAIL ...

... WITH ALMOST 30% OF RENEWABLE ENERGY

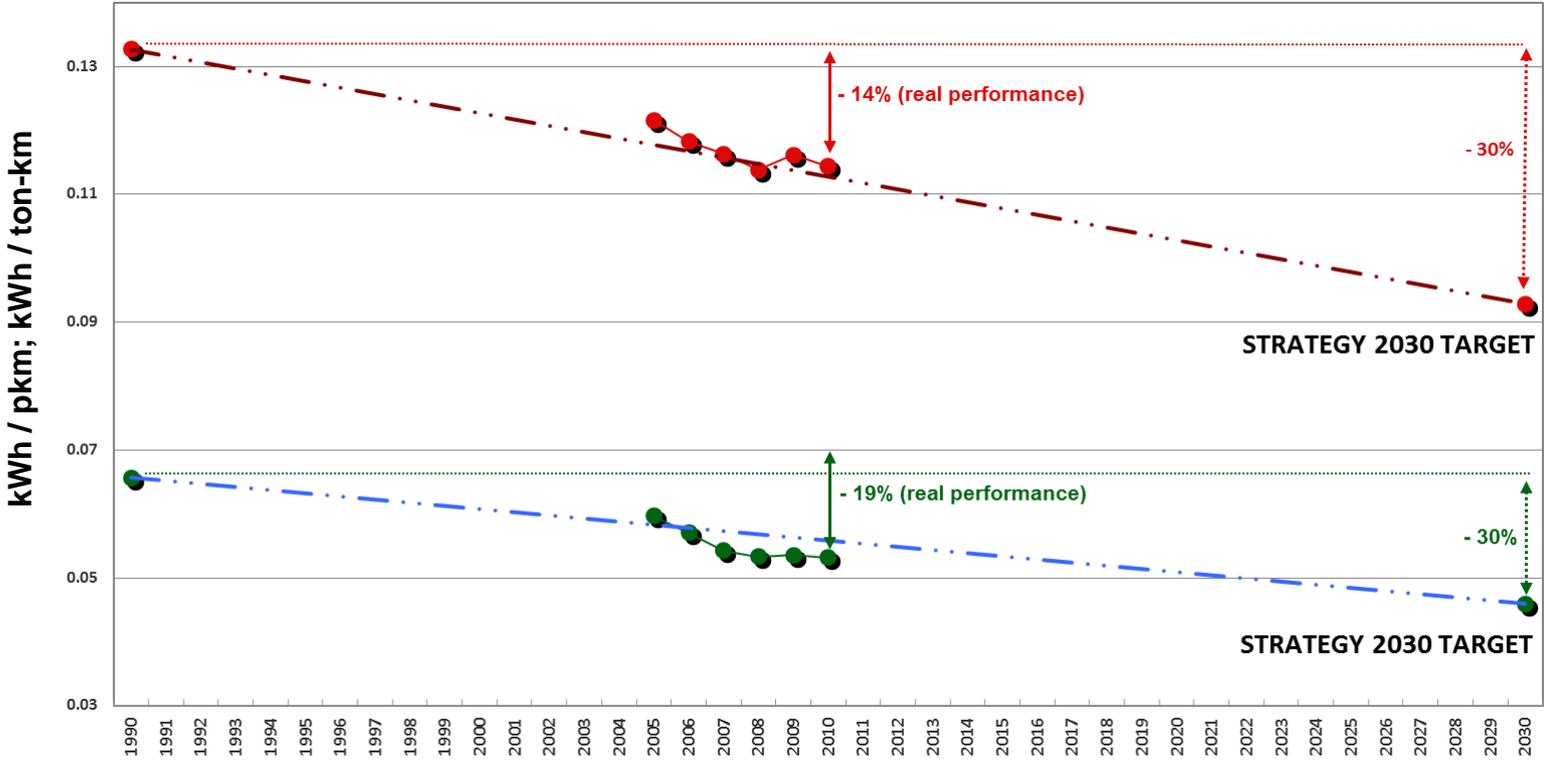
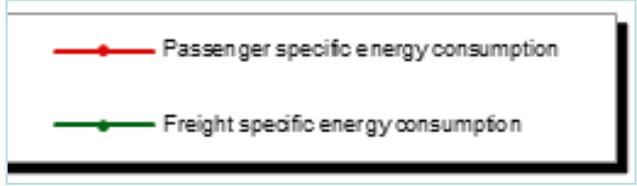


European Railways electricity mix, 2005 inside - 2009 outside
 Source: IEA/UIC: Railway Handbook 2012



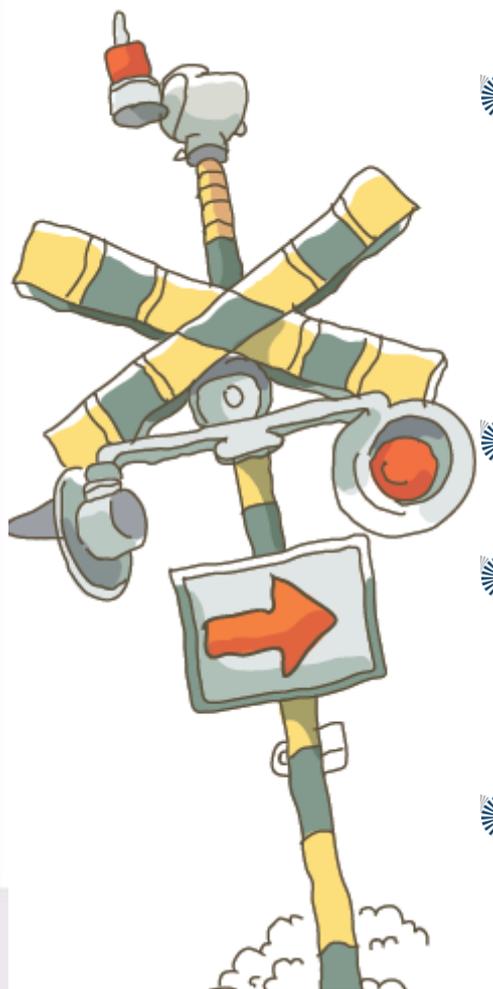
TARGET 2 – ENERGY EFFICIENCY ...IS ON TRACK, BUT STILL CHALLENGING

Specific energy consumption trend 1990-2010:
Passengers: -14% **Freight:- 19%**



HOW WILL THE OBJECTIVES BE REACHED?

Major Challenge: INNOVATION



- ☀ More railway operators will actively demand **green energy** and shift to CO₂-free energy sources. Due to European and national regulation more renewable and carbon-free electricity will come onto the market. **Need for closer cooperation with energy suppliers, facilities to store and clear definitions of 'renewable energy' (physical supply, certificates etc.)**
- ☀ **Energy efficiency** will continue to increase through improved technology, **more efficient rolling stock and service efficiency**
- ☀ New low carbon propulsion technologies will **replace diesel traction**. **Joint innovation efforts of industry and operators needed to develop alternative propulsion systems for carbon-free train operation (fuel cells, batteries etc.)**
- ☀ High political support across national boundaries needed due to huge cost implications of **low noise solutions**. Quieter brake blocks to retrofit the freight wagon fleet will be the first step. **Innovative low noise technologies for rolling stock and Infrastructure needed**

Conclusion



- The strategy is a strong commitment of the sector towards society and policy
- It supports railways' **business** and the **political goals** of sustainable mobility
- On-going power is needed to fill the strategy with life and implement it
- The **innovation** process needs all players of the sector involved
- Let's keep on track!





Thank you for your kind attention!

