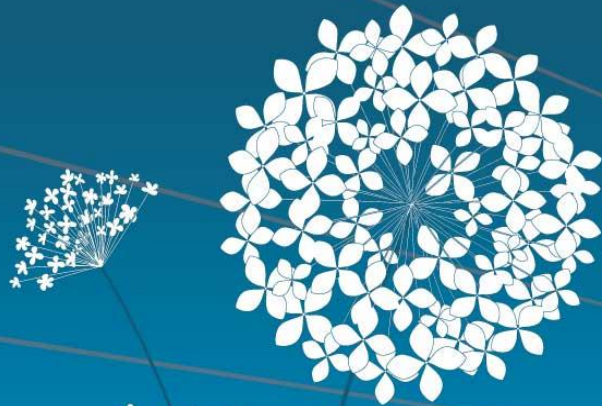


ANTWERPEN, 16 - 19 JUNE



*Energy Consumption and CO<sub>2</sub> emissions:  
a green growth opportunity for railways in the  
world*

Veronica Aneris,  
Senior Advisor Energy and Environment, UIC

*Energy Efficiency, the best fuel to move our trains!*

## BORN AT THE RIGHT TIME?

### Colonel Albert Pope & the Pope Manufacturing Company of Hartford



**In 1901:  
500 electric  
cars !**

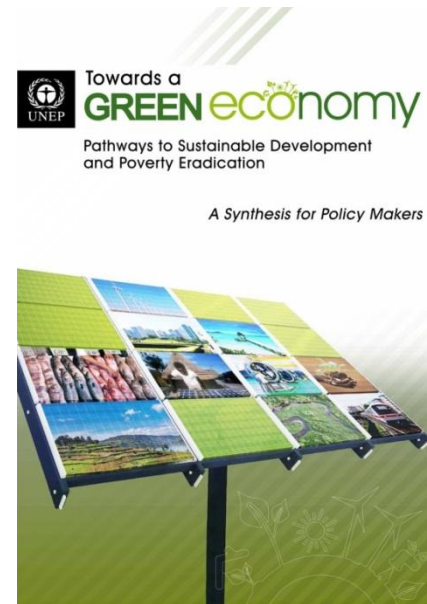


*“.....It’s cleaner and less noisy.  
Furthermore nobody will willingly sit atop  
an explosion”*

## OPPORTUNITY:

*A time or favourable set of circumstances that make possible to do something (oxforddictionaries .com)*

**THE  
TIME IS  
NOW!**

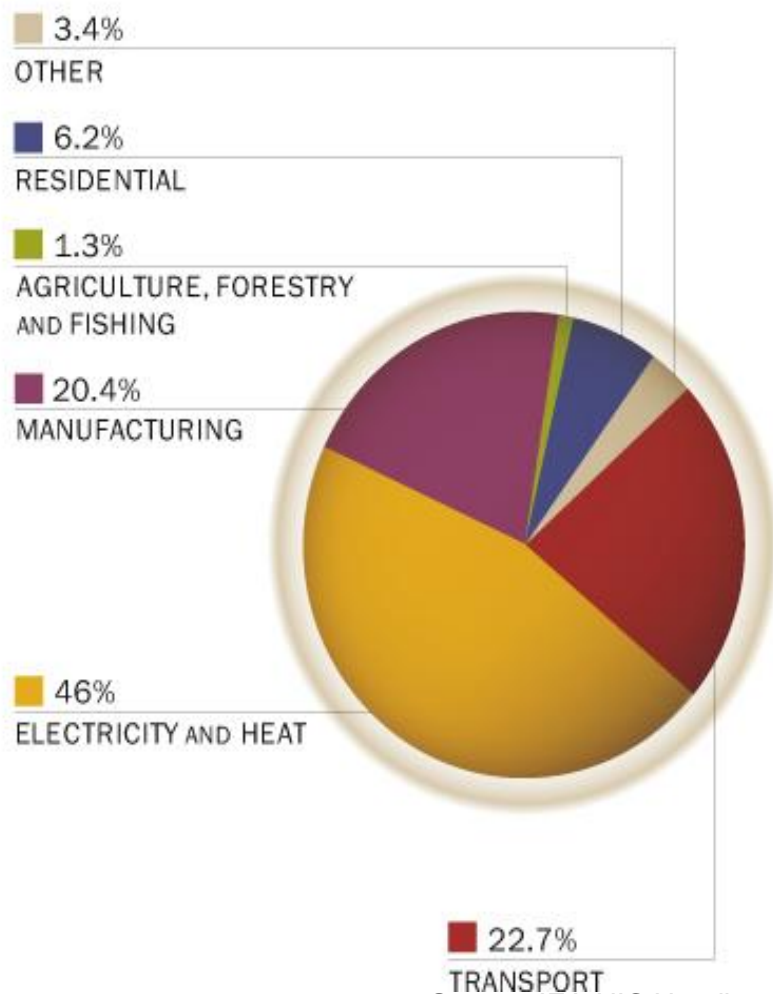




*At global level the demand for transport is growing  
incredibly fast*



# CO2 Emissions from fuel combustion by sector, 2010

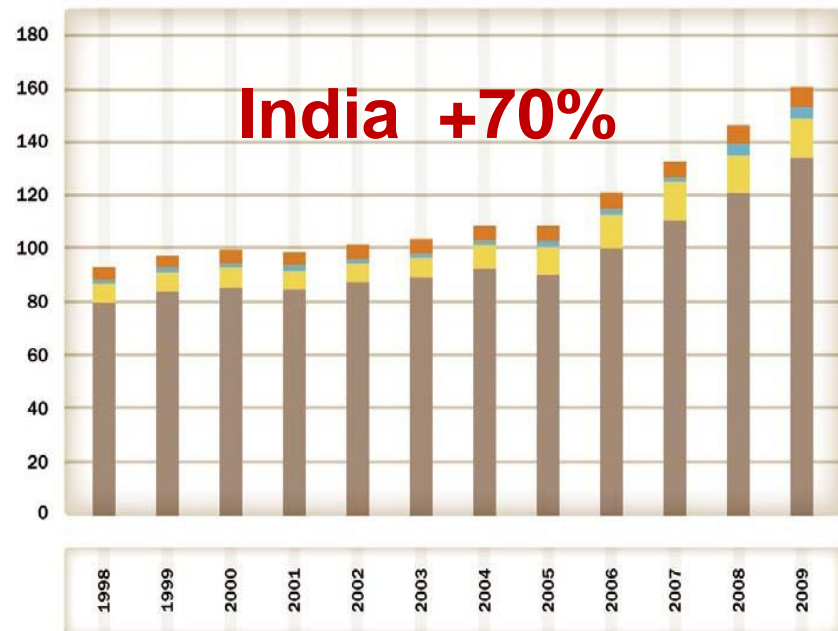
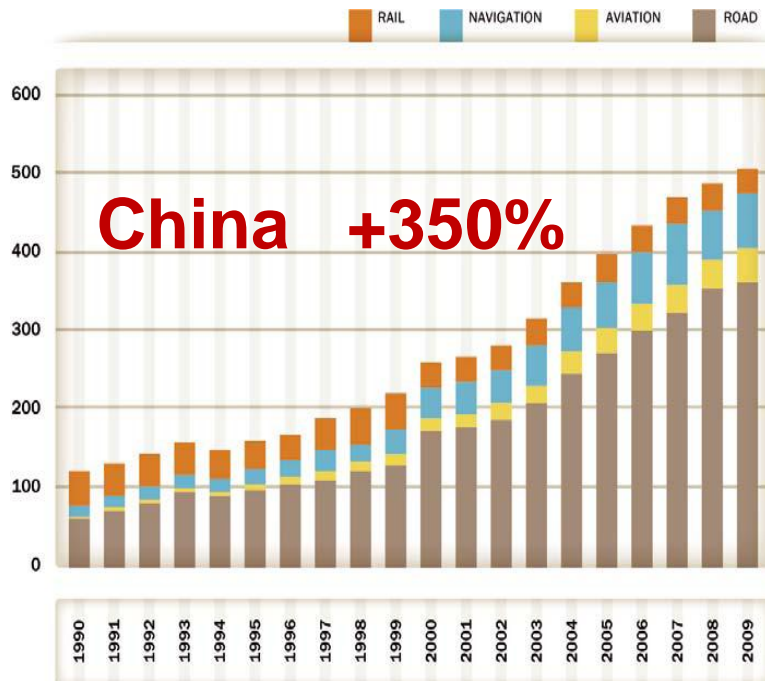


***The transport sector is responsible for 23% of the total energy - related CO<sub>2</sub> emissions***

Source: IEA-UIC Handbook 2013, Elaboration based on IEA and IPCC data



*Transport is the fastest growing sector in terms of emissions and depends mostly on oil*



Transport CO2 emissions by mode, (million tonnes)

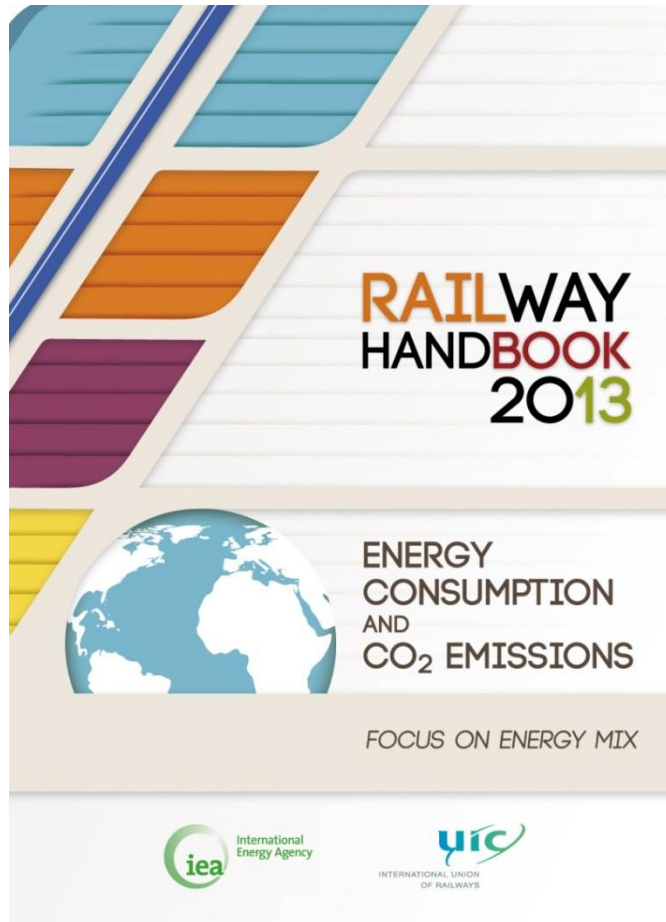
Source: IEA-UIC Handbook 2012



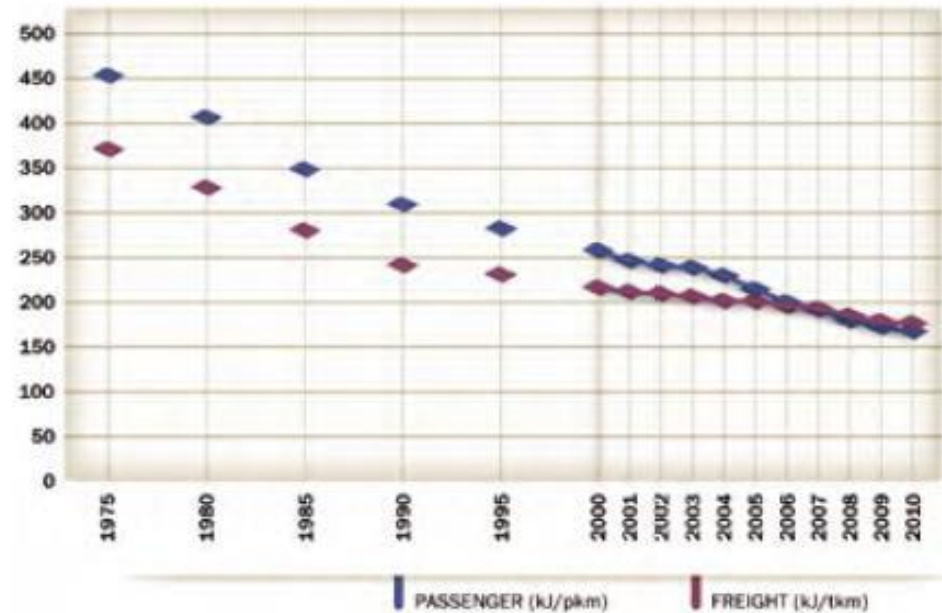
There is an urgent need to answer to this  
→ increasing demand in transport with a:  
*low carbon, resource efficient and low oil  
dependent solution*



# FROM DIDIER'S PRESENTATION.....



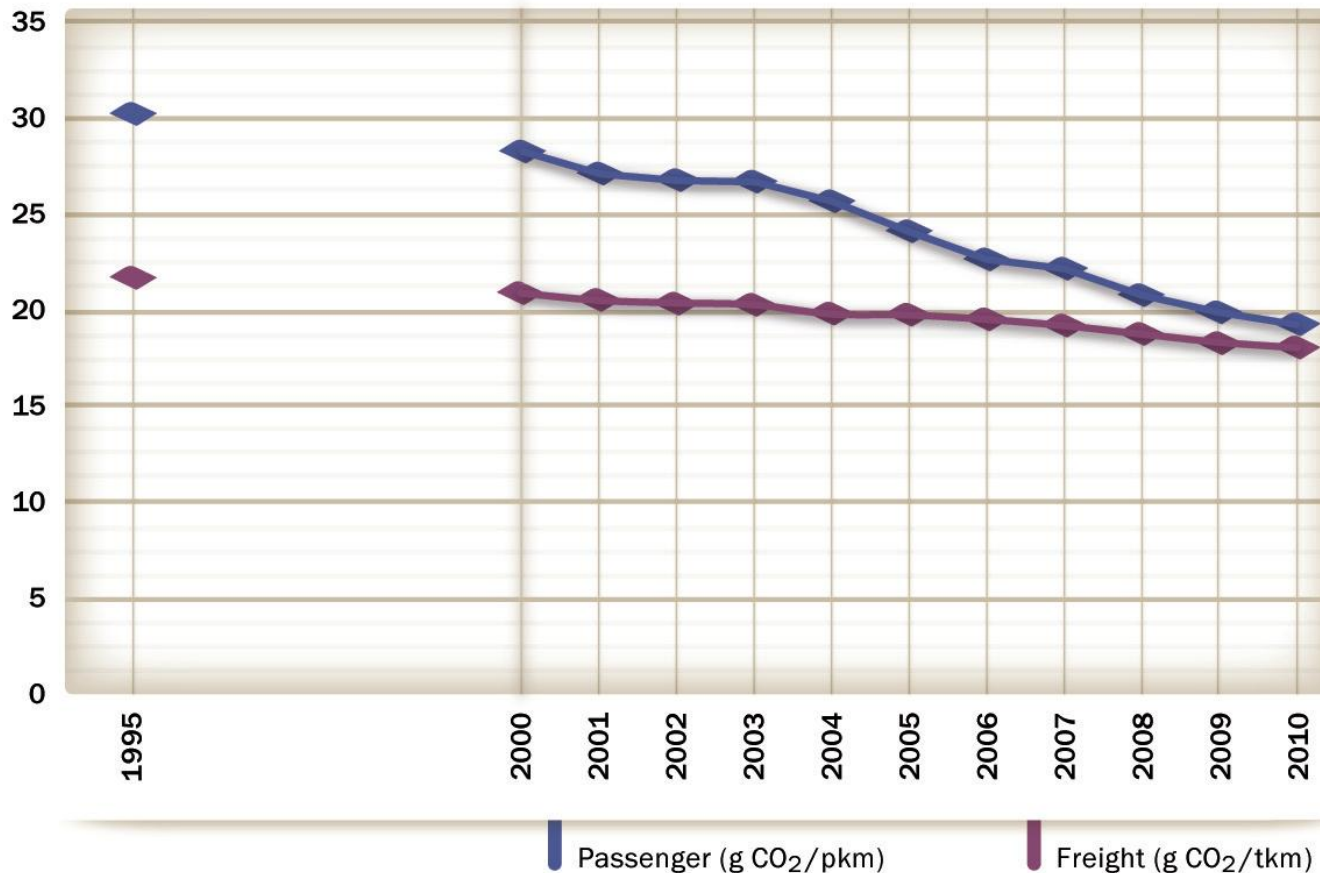
## RAILWAY ENERGY USE IN THE WORLD





CO<sub>2</sub> emissions per passenger-km went down by 32% in the period 2000-2010; CO<sub>2</sub> emissions per freight tonne-km shrunk by 18% in the same period.

## RAILWAY SPECIFIC CO<sub>2</sub> EMISSIONS, 1995-2010



Source: Elaboration by IEA and Susdef based on IEA Mobility Model and UIC Statistics



**RAILWAYS ARE NOT AFRAID OF IMPROVING.  
WHICH ARE THE NEXT CHALLENGES?**

# World Railways: the UIC new energy efficiency target

## Energy Consumption per pkm + tkm

**1990**

**-50%**

**2030**

**By 2030** the world railway sector will reduce its specific final energy consumption from train operation by 50% compared to the 1990 base year, measured per transport unit (passenger\*km + ton\*km)

**1990**

**-60%**

**2050**

**By 2050** the world railway sector will reduce its specific final energy consumption from train operation by 60% compared to the 1990 base year, measured per transport unit (passenger\*km + ton\*km)



# World Railways: The UIC new CO<sub>2</sub> emissions target

CO<sub>2</sub> emissions per pkm + tkm

**1990**

**-50%**

**2030**

**By 2030** the world railways will reduce their specific average CO<sub>2</sub> emissions from train operation by 50%, compared to baseline year 1990.

**1990**

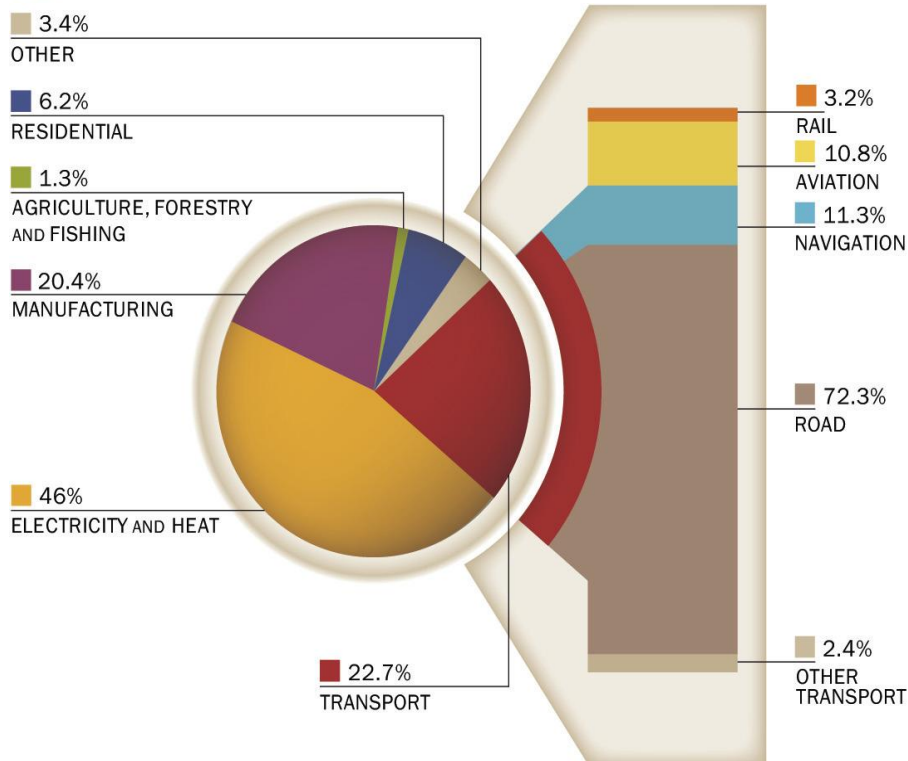
**-75%**

**2050**

**By 2050** the world railways will reduce their specific average CO<sub>2</sub> emissions from train operation by 75%, compared to baseline year 1990%.

***But we believe this is still not enough....***





**RAIL ACTIVITY IS RESPONSIBLE FOR JUST THE 3% OF TOTAL TRANSPORT CO<sub>2</sub> EMISSIONS, SO LESS THAN 1% OF TOTAL EMISSION AT WORLD LEVEL**

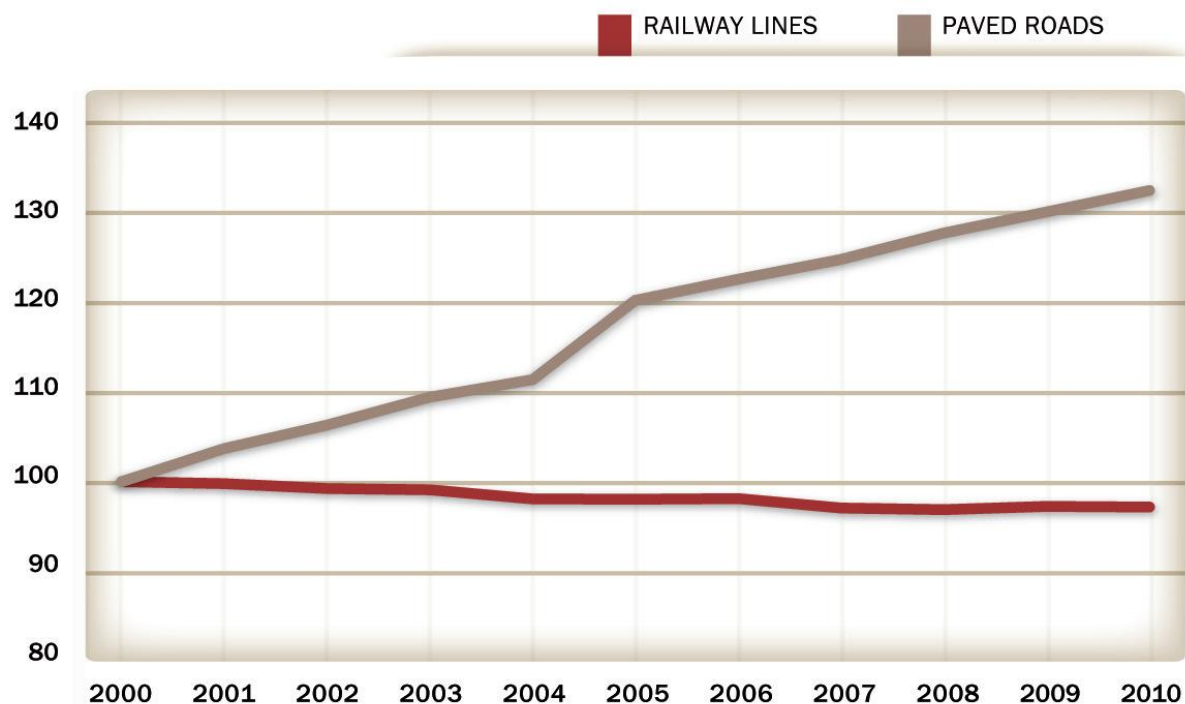
		Passenger PKM	Freight TKM	Total transport units
ROAD		83.1%	10.0%	33.7%
NAVIGATION		0.3%	79.3%	53.8%
RAIL		6.4%	10.4%	9.2%
AVIATION		10.1%	0.3%	3.3%

**WORLD TRANSPORT MODAL SHARE, 2010**

Source: IEA-UIC Handbook 2013, Elaboration based on IEA and IPCC data



## FROM 2000 TO 2010, PAVED ROADS GREW IN LENGTH BY 32% WHILE RAILWAY LINES DECREASED BY 3% GLOBALLY



Evolution of paved roads and railway lines, 2000-2010 (km)

Source: Elaboration by Susdef from IEA Global Land Transport Infrastructure Requirements and UIC Statistics



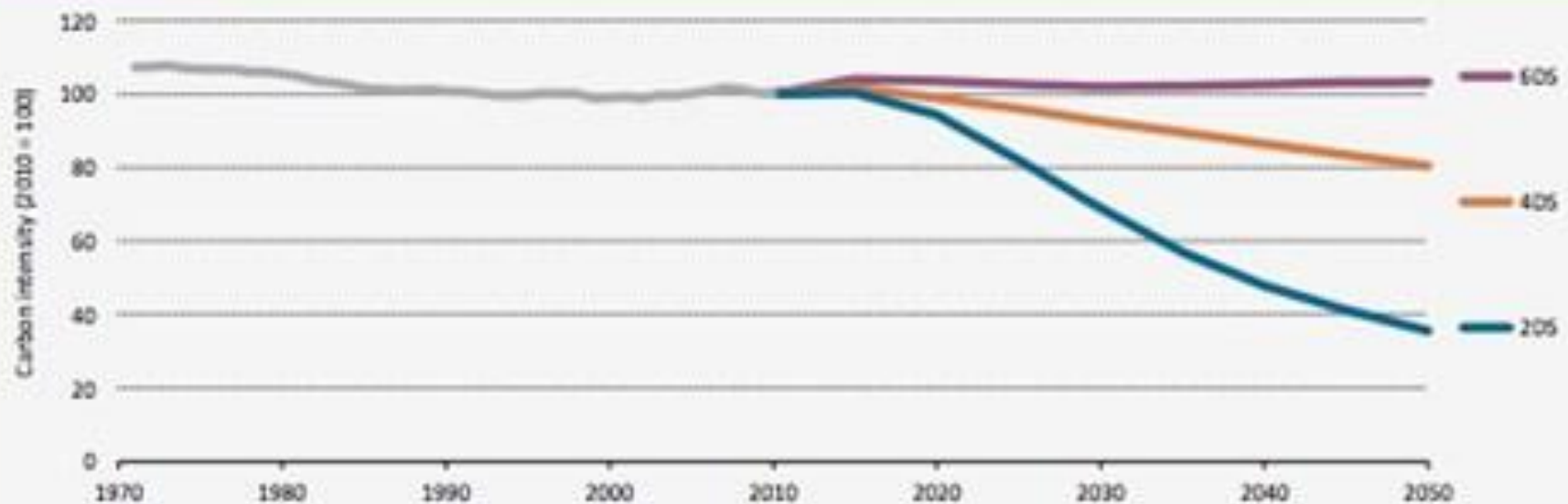
CO2 emissions from railways in the world are **less than 1% of total emissions.**

Railways will do their part to reduce them, but the real challenge to reduce GHG from transport is to realize a serious **modal shift from road to rail**, both in passenger and freight business!!!



# The 6DS, 4DS and 2DS scenarios of the ETP 2014...

**Figure L1** The Energy Sector Carbon Intensity Index (ESCI)



Sources: IEA 2012a, IEA 2012b. Note: the ETP scenarios (2DS, 4DS and 6DS) are defined in Box 1.2. Figures and data that appear in this report can be downloaded from [www.iea.org/etp/tracking](http://www.iea.org/etp/tracking).





The image shows a window with a metal frame. The upper part of the window is divided into two panes. The lower pane shows a reflection of a woman with blonde hair, wearing a light-colored top, looking out. The background visible through the window is a flooded industrial area with several large, low-rise buildings and bare trees in the distance. The water is dark and reflects the buildings and trees.

**+6DS**

If we want to limit to «**2 degrees**» global warming, prevent the environmental, social and economical damages from climate changes, and re-orient the world growth with «green transport» policies



**THE CHALLENGE IS TO  
REALISE/ENABLE A MODAL SHIFT  
FROM ROAD TO RAIL!!**



## **THE MODAL SHIFT CHALLENGE «CAMPAIGN»**

UIC is working with IEA and NGOs to deliver the  
a technical/political campaign based on International Energy Agency data,  
International Panel on Climate change findings and «Green growth forecasts»  
for transport investments for promoting a Modal shift from road to rail among  
Decision Makers, Institutions, Governments, civil society



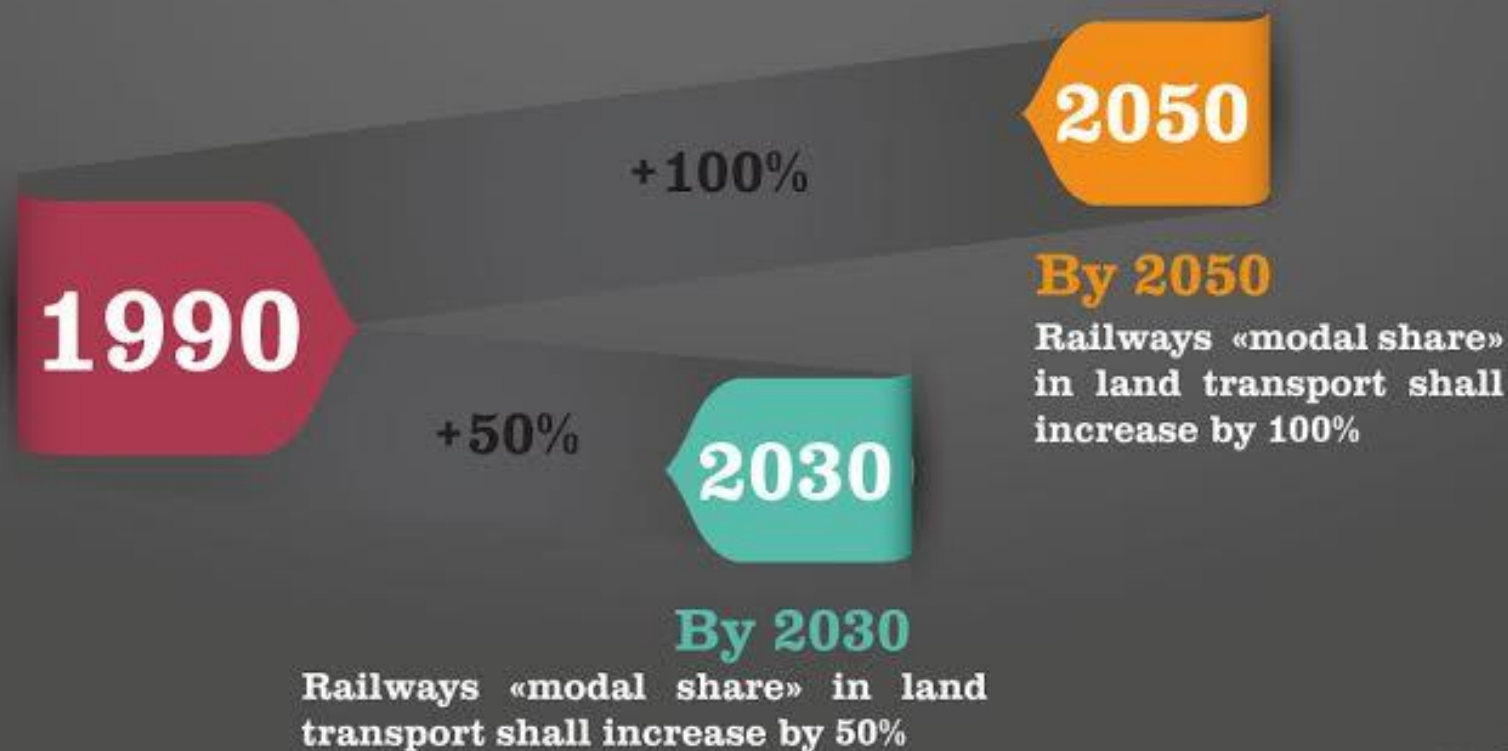
**THE MODAL SHIFT CHALLENGE «CAMPAIGN»  
WILL BE OFFICIALLY LAUNCHED IN NEW YORK,  
AT THE CLIMATE SUMMIT IN SEPTEMBER 2014**





## Passenger transport (at global level)

### Modal shift road/rail



# Freight transport (at global level)

## Modal shift road/rail

**1990**

**RAIL+50%**

**2050**

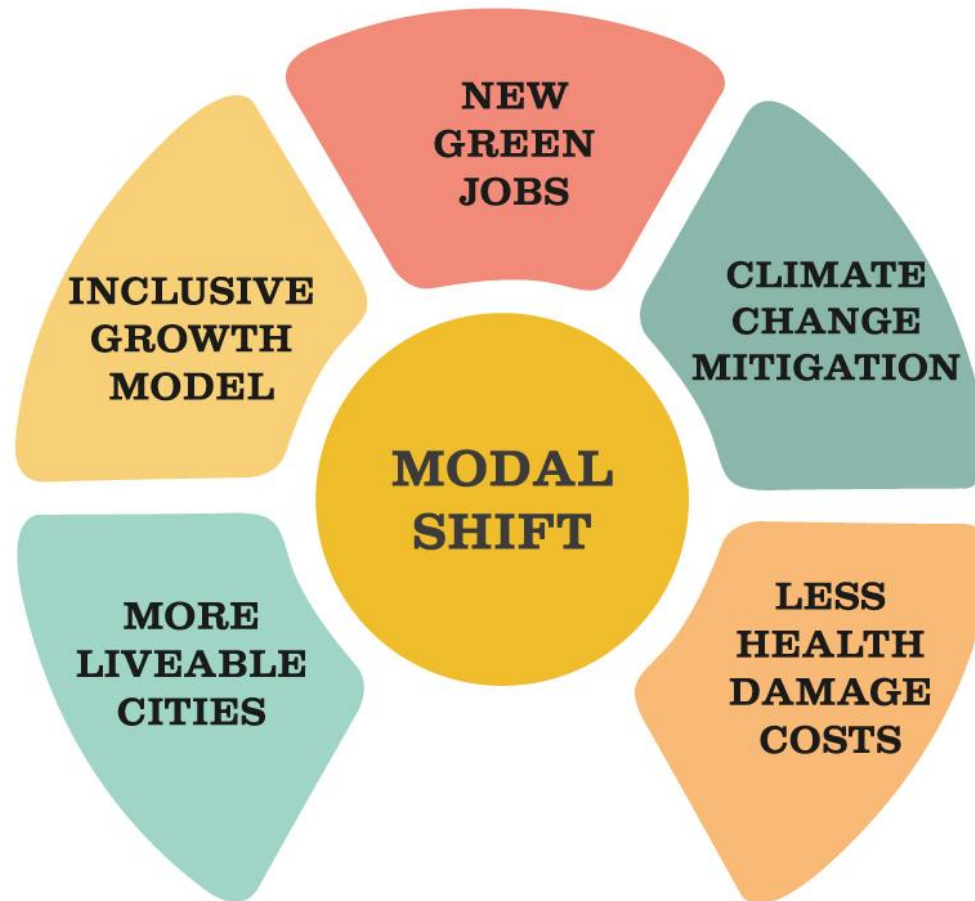
**2030**

**2030**  
Railways shall transport the same amount of goods transported globally on roads, (measured in t\*km)

**2050**

Railways shall transport 50% more goods than the amount transported globally on roads, (measured in t\*km)

# THE BENEFITS TO GREEN GROWTH OF INVESTING IN RAIL





WE WANT TO SIT AT THE FRONT OF THE TRAIN ! 😊



**Thanks for your kind attention ! ☺**

*aneris@uic.org*

