

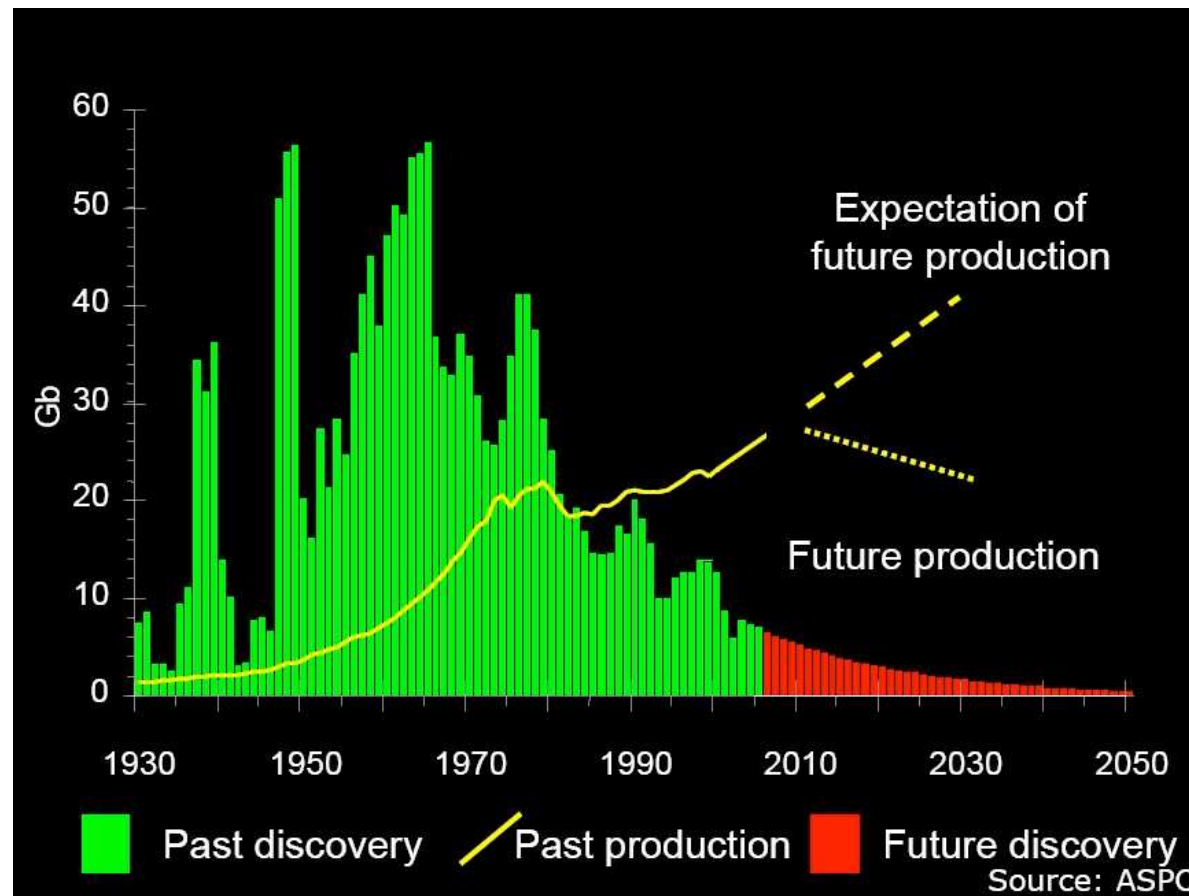
Introduction

Is Energy an Issue for the Rail Sector?

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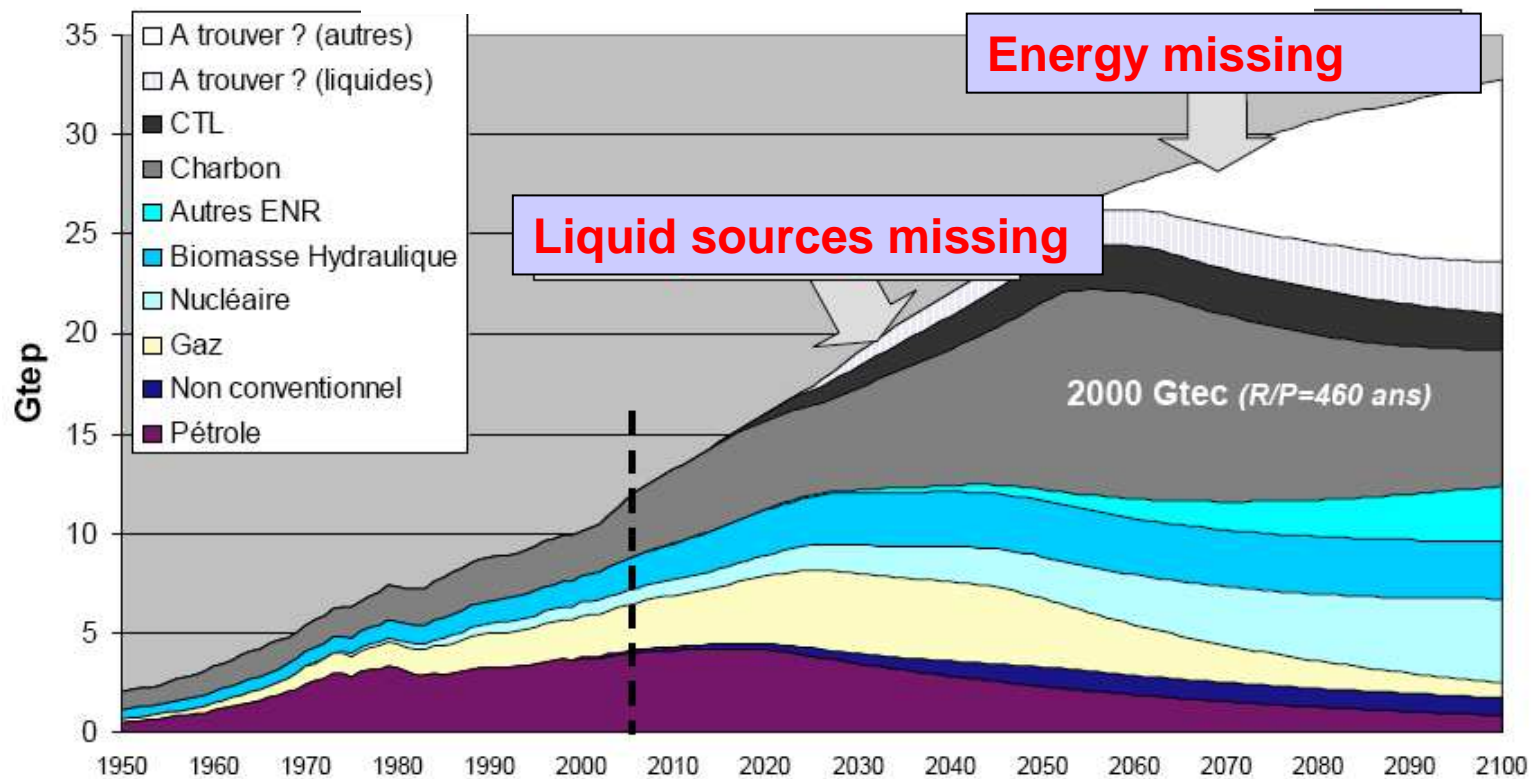
Decreasing trends for oil production



Railenergy



On which energy sources can we rely tomorrow?



The cost of electricity on the European market

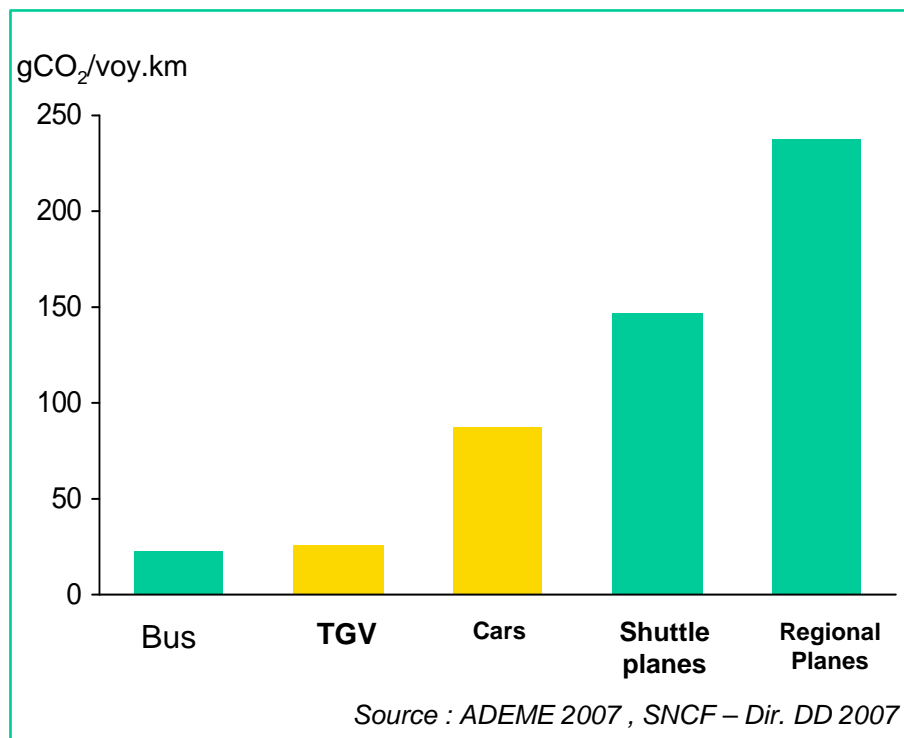
- An increase of 165% in five years



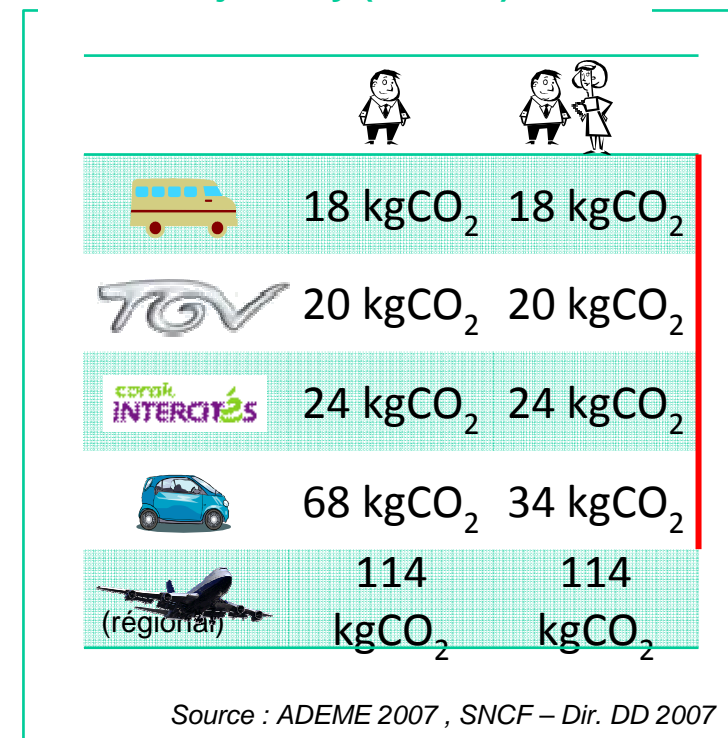


At interregional scale, rail is undoubtedly the less CO₂ emitting means of transportation, except for unfavourable occupation rate

Global CO₂ emissions of different transport modes at interregional scale



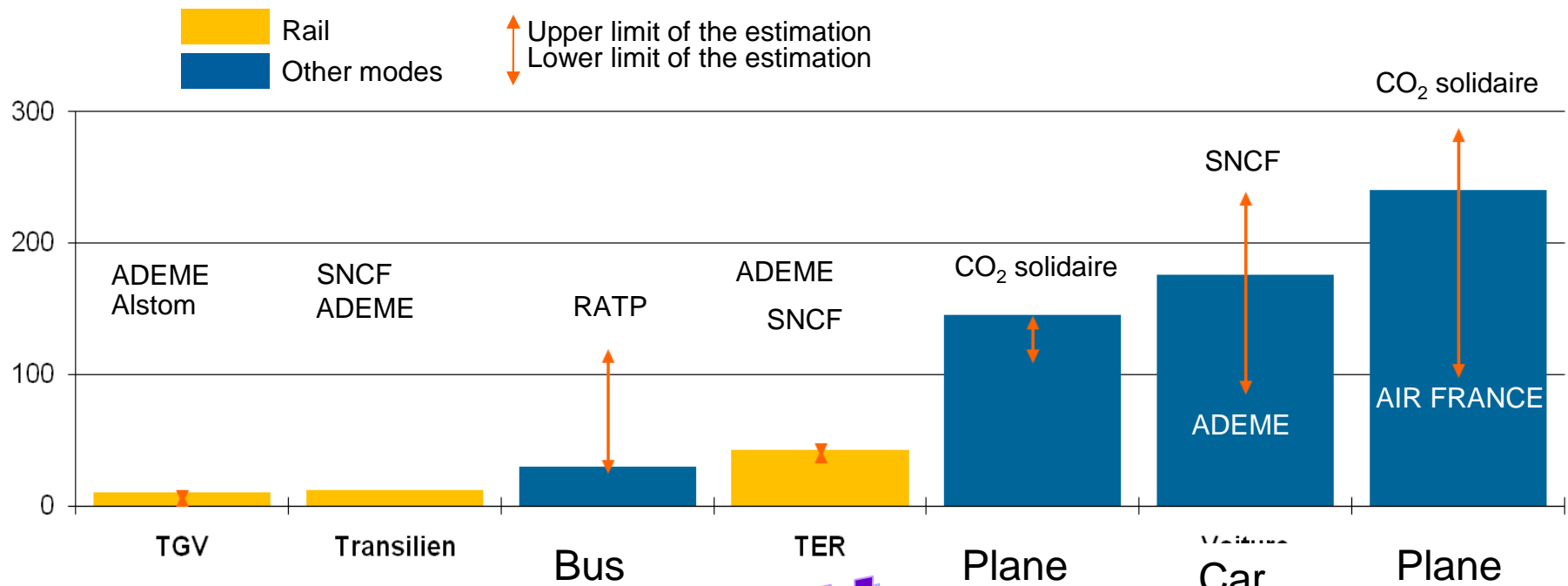
CO₂ emissions generated per traveller for a Paris– Marseille journey (776 km)





Rail is today unquestioned as THE champion in terms of low CO2 emission, amongst means of transportation... for PASSENGERS....

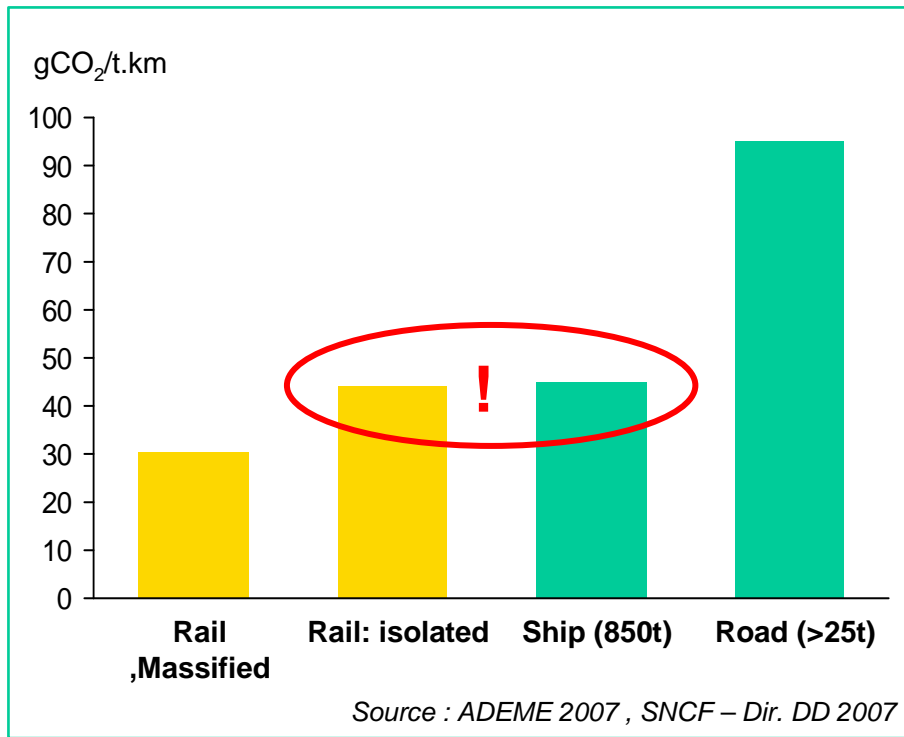
CO₂ Emissions of different modes of transportation for passengers in France in 2007-2008







mix 2005!

**Rail is today the less CO2 emissive mode for freight...
...except maybe....**

Global CO₂ emission of different modes for freight



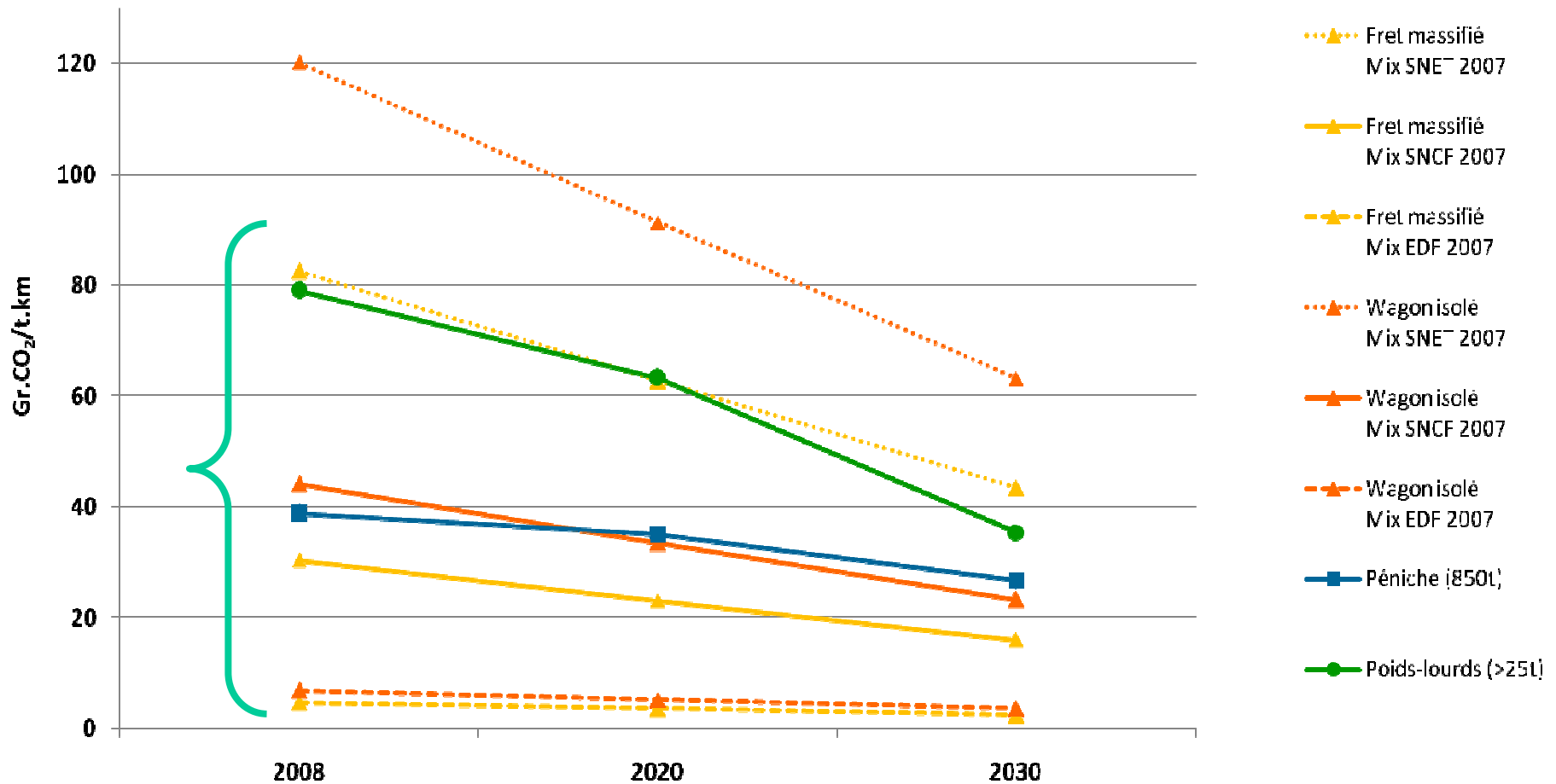
CO₂ generated for Paris– Le Havre (200 km)

	25 t	400 t	850 t
 kgCO ₂	151	2424	5151
 kgCO ₂	220	3528	7497
 kgCO ₂	225	3600	7650
 kgCO ₂	475	7600	16150

Source : ADEME 2007, Accenture



Carbon intensity as a function of the energy mix for freight in France: The choice of the mix completely drives the position of rail freight in terms of carbon intensity

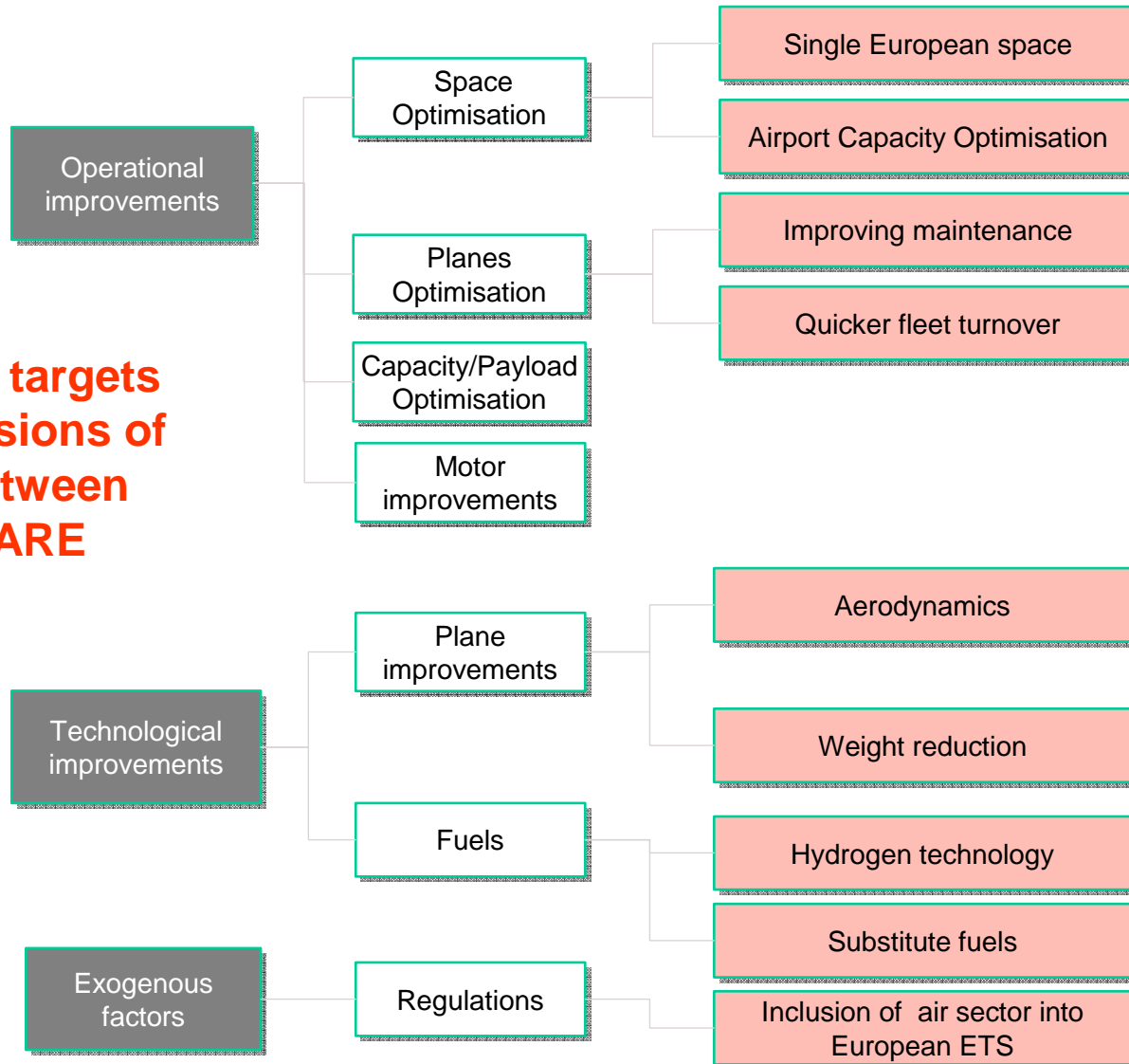




Meanwhile...
.....The other sectors do not remain inactive...



European Commission targets a reduction in CO2 emissions of new planes by 50% between 2001 and 2020 (ACARE program)





The necessity to have a global approach from the sector to meet the energy challenges for rail: Railenergy as a **first step**

- A system approach for **coordinated/ integrated** progress
- At technological level: **Understanding losses for deriving improved subsystems/ components** (vehicles and catenaries/power supply)
- Getting the best from **operation** (spec of energy saving time tabling and driving)
- Enabling global and agreed LCC calculations

And now: what will be the next steps?

- How may Rail Energy concepts be implemented?
- Further Technological developments ?
- Implementation in operation?
- Impact to standardization?
- What will be the global strategy of the sector?



Thank you for your attention!