Mobility and tourism

What levers for the energy transition?

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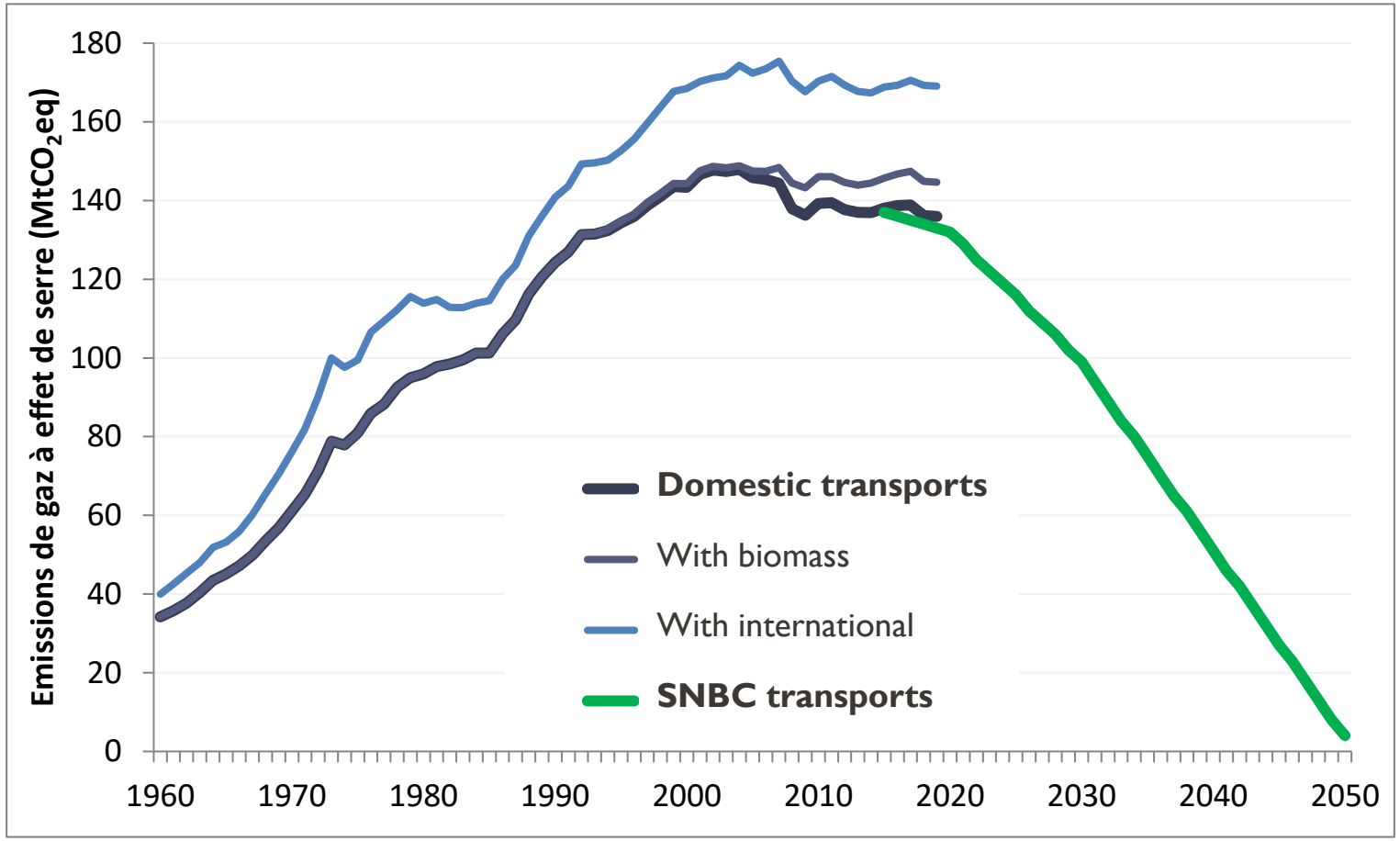
Introduction
Context on transport emissions in France

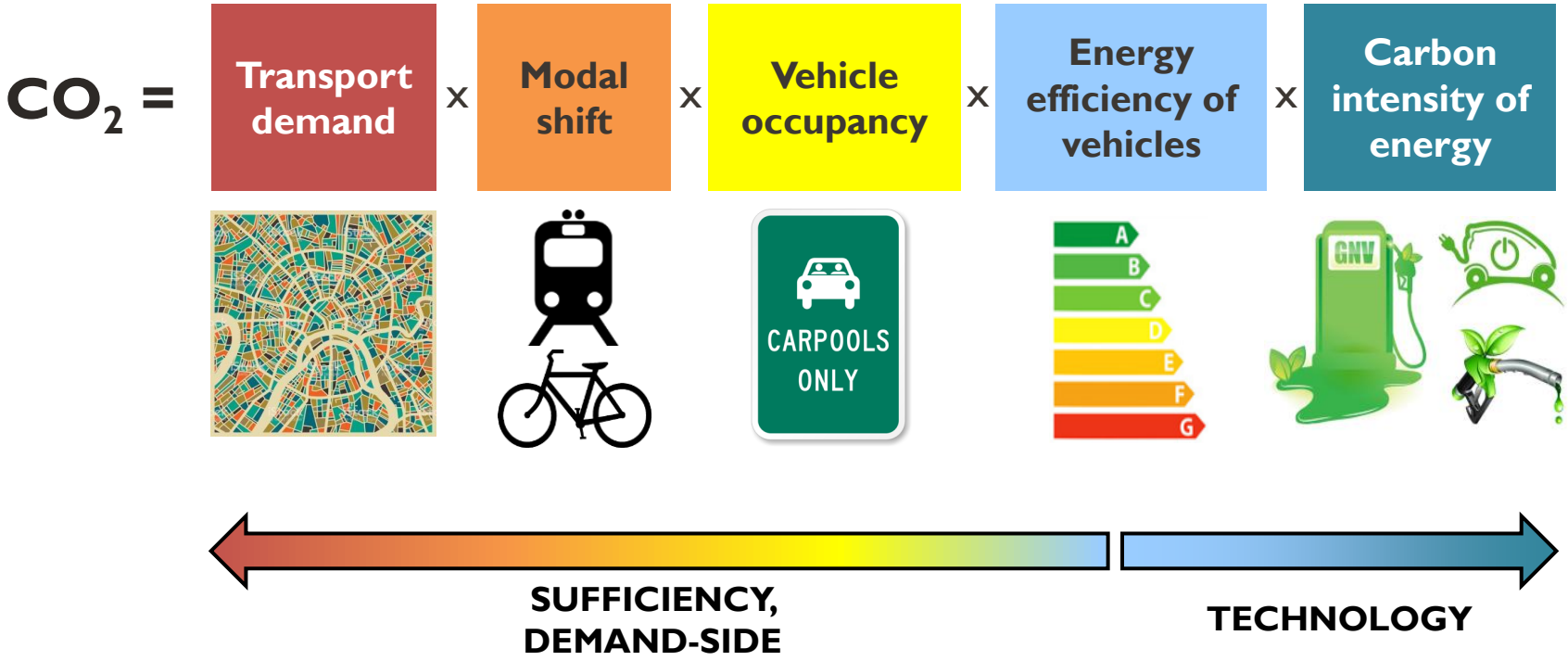
Transport emissions from 1960 to 2050



Transport emissions since 1960 and the target by 2050 for the French national low-carbon strategy (SNBC)

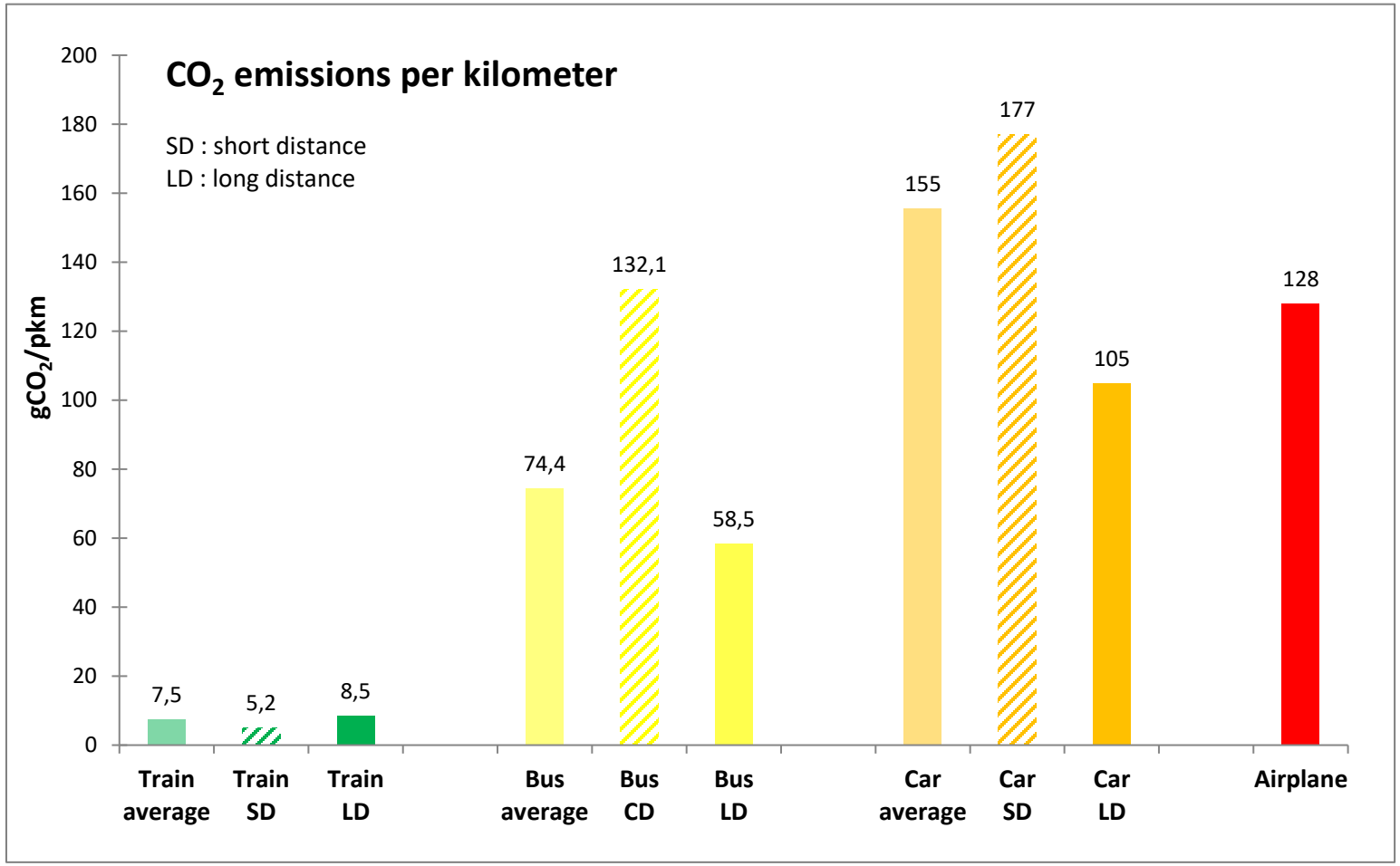
References: from data of CITEPA, MTES

5 drivers of transport emissions



Reference: thesis

Comparison of the different transport modes (1/2)

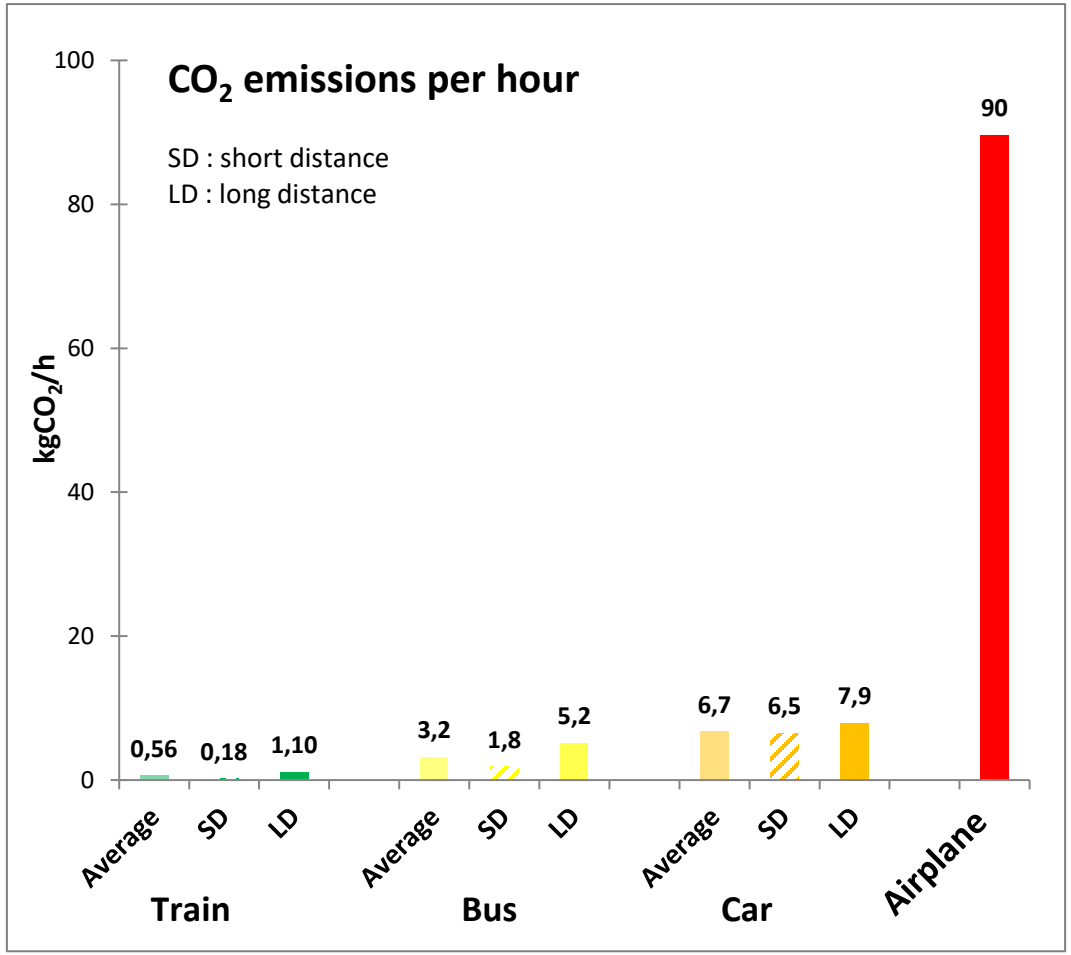


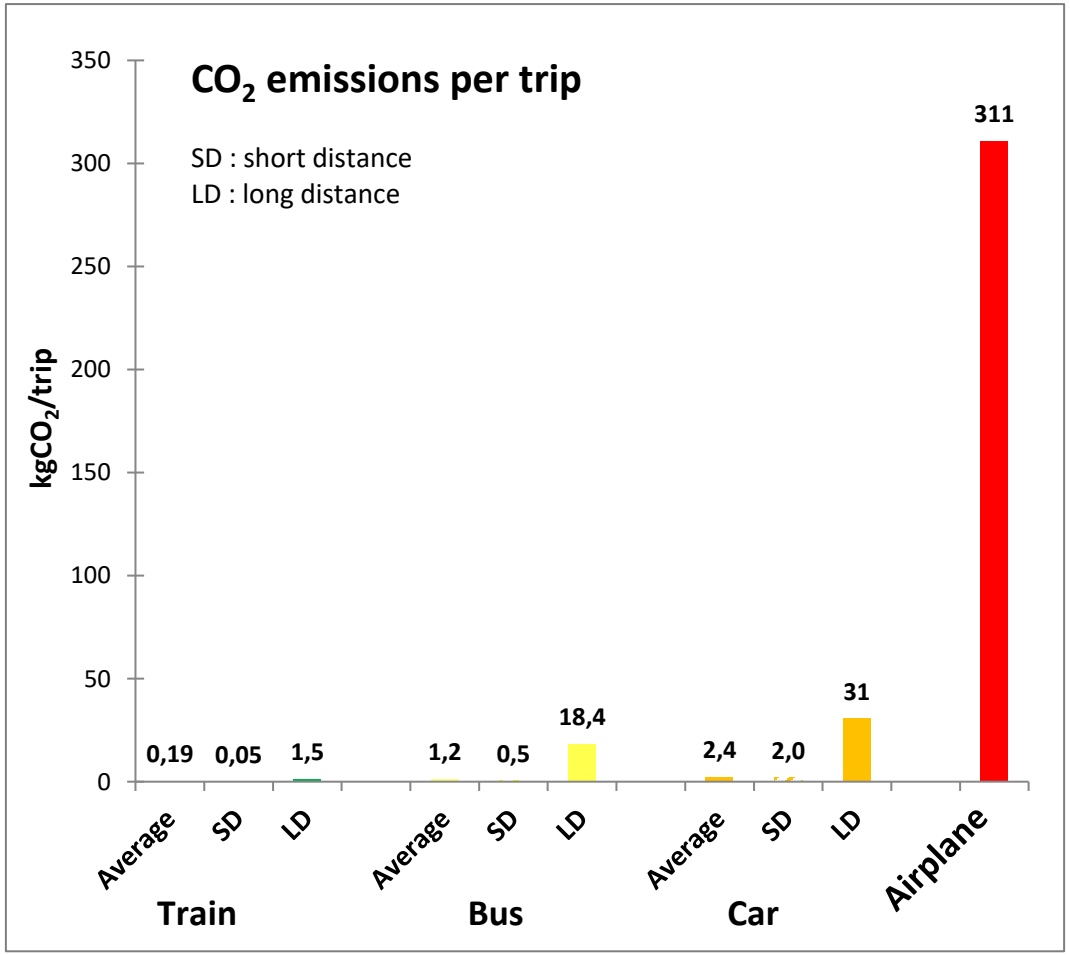
Transport emissions per kilometer, for the main transport modes in France

Reference : Impact du transport aérien sur le climat : pourquoi il faut refaire les calculs.

See Methodological annex for calculations

Comparison of the different transport modes (2/2)



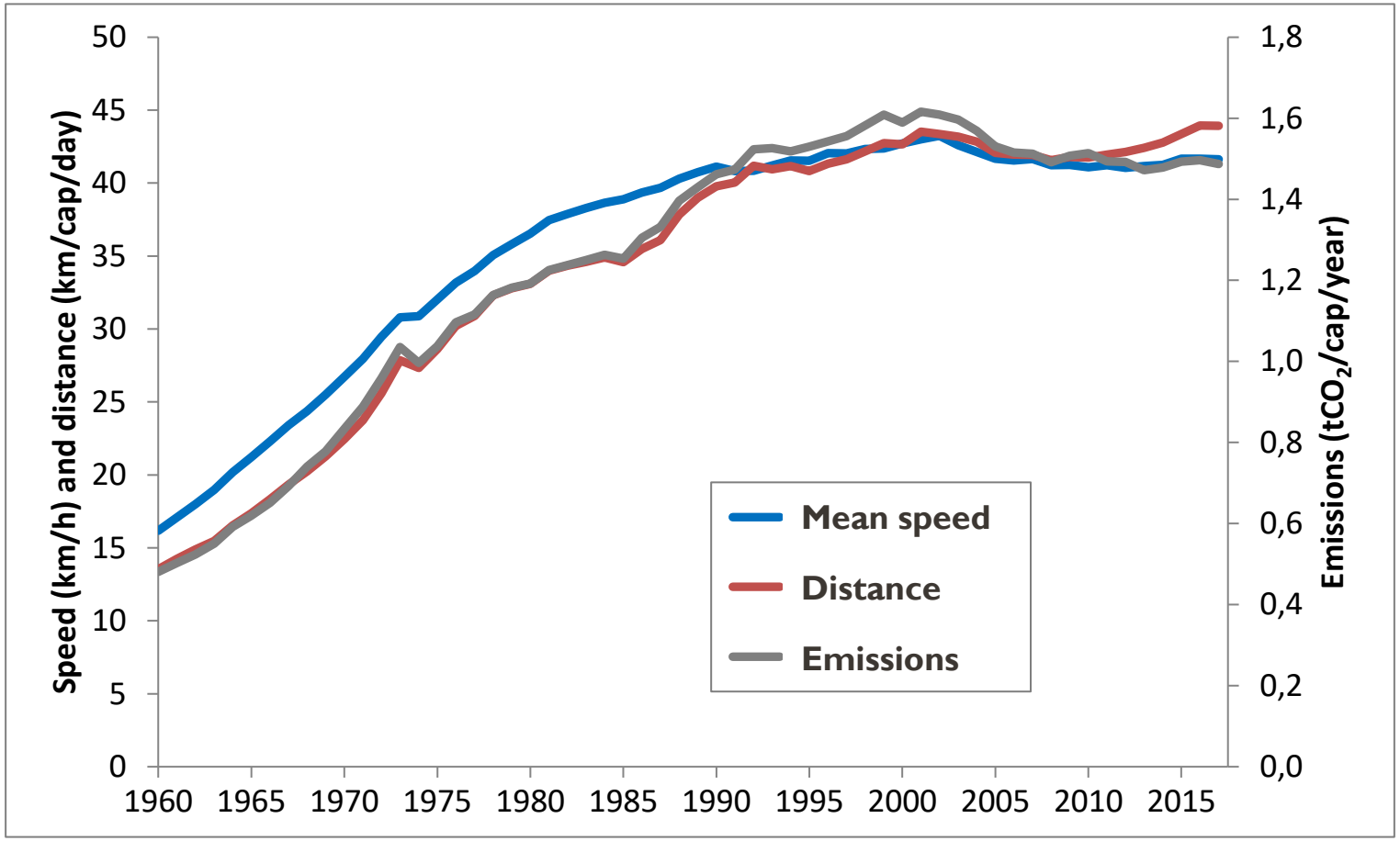


Transport emissions per hour and per trip, for the main transport modes in France

Reference : Impact du transport aérien sur le climat : pourquoi il faut refaire les calculs.

See Methodological annex for calculations

Faster, further and… with more emissions

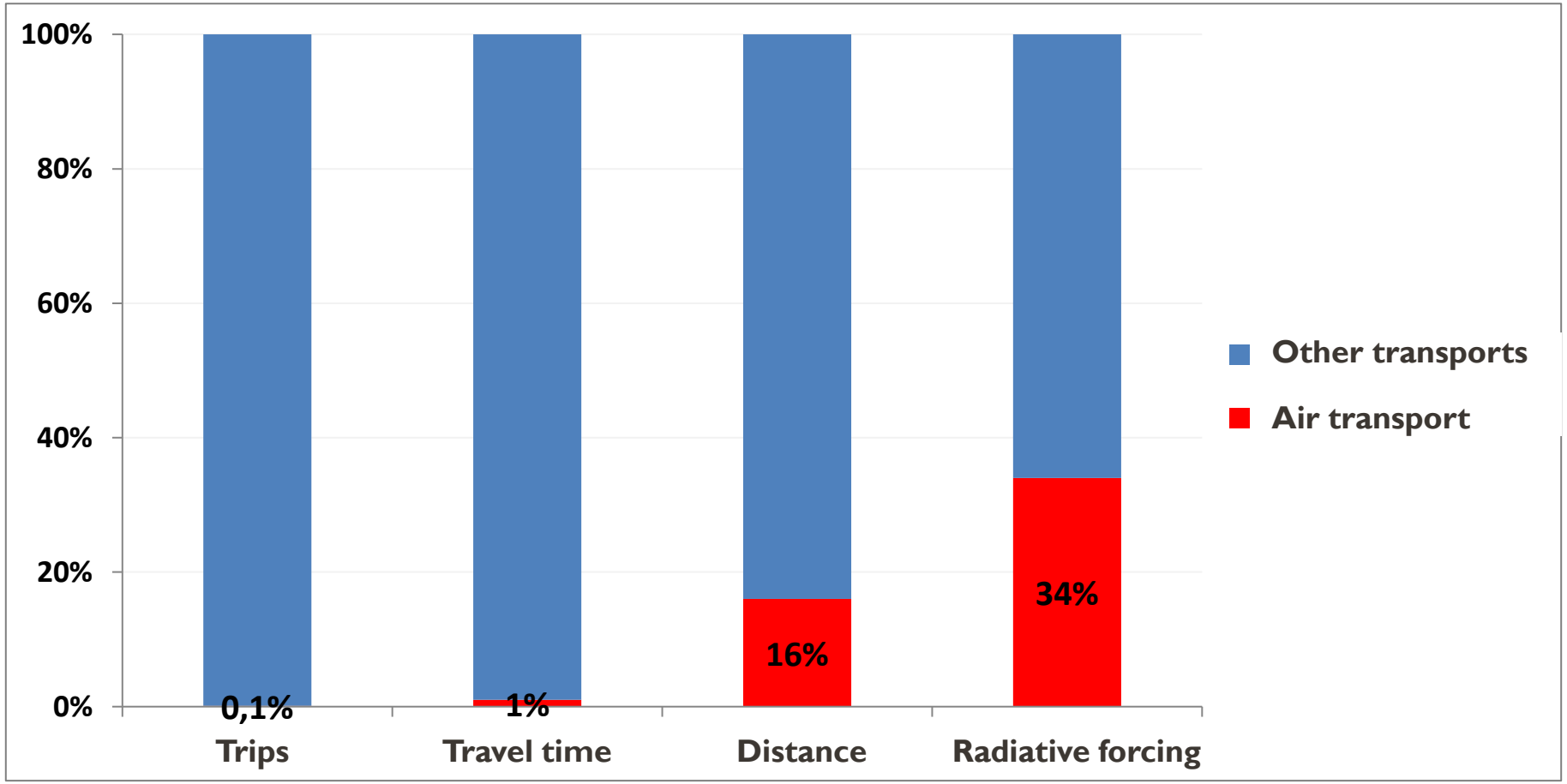


Evolution of the mean transport speed, distances and emissions per capita, from 1960 to 2017 in France

Reference: thesis

Special focus
The impact of aviation

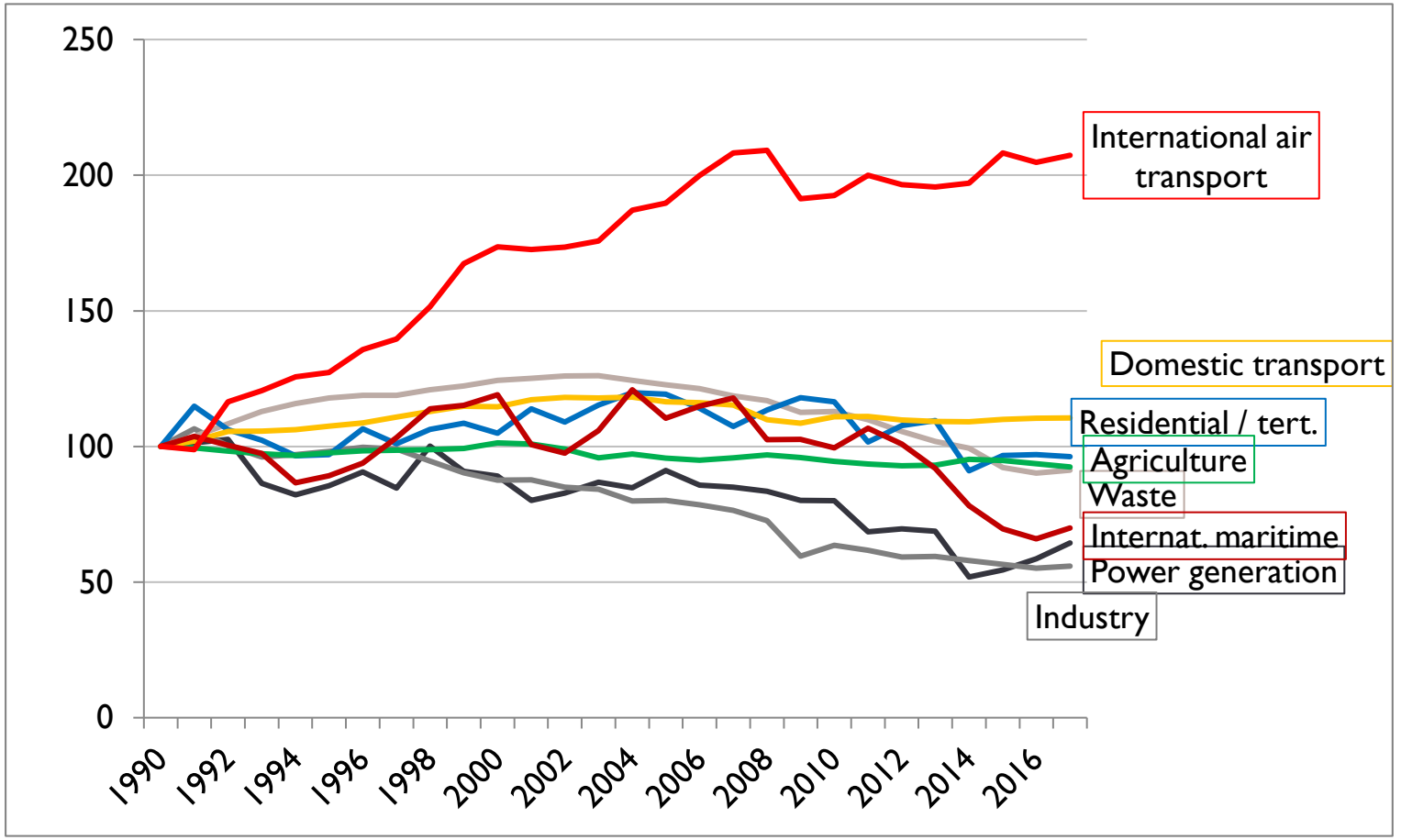
The importance of air transport within French mobility



Share of air transport within the total passenger mobility

Reference: thesis; CITEPA

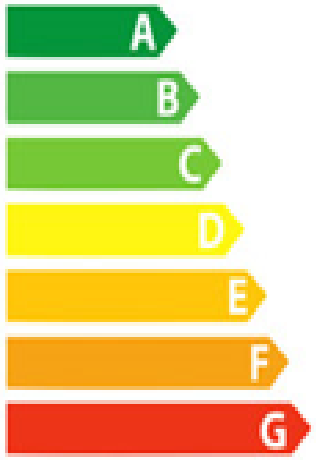
Air transport emissions are increasing…



Evolution of French emissions by sector for1990-2017 (factor 100 in 1990)

Reference : Citepa SECTEN 2019

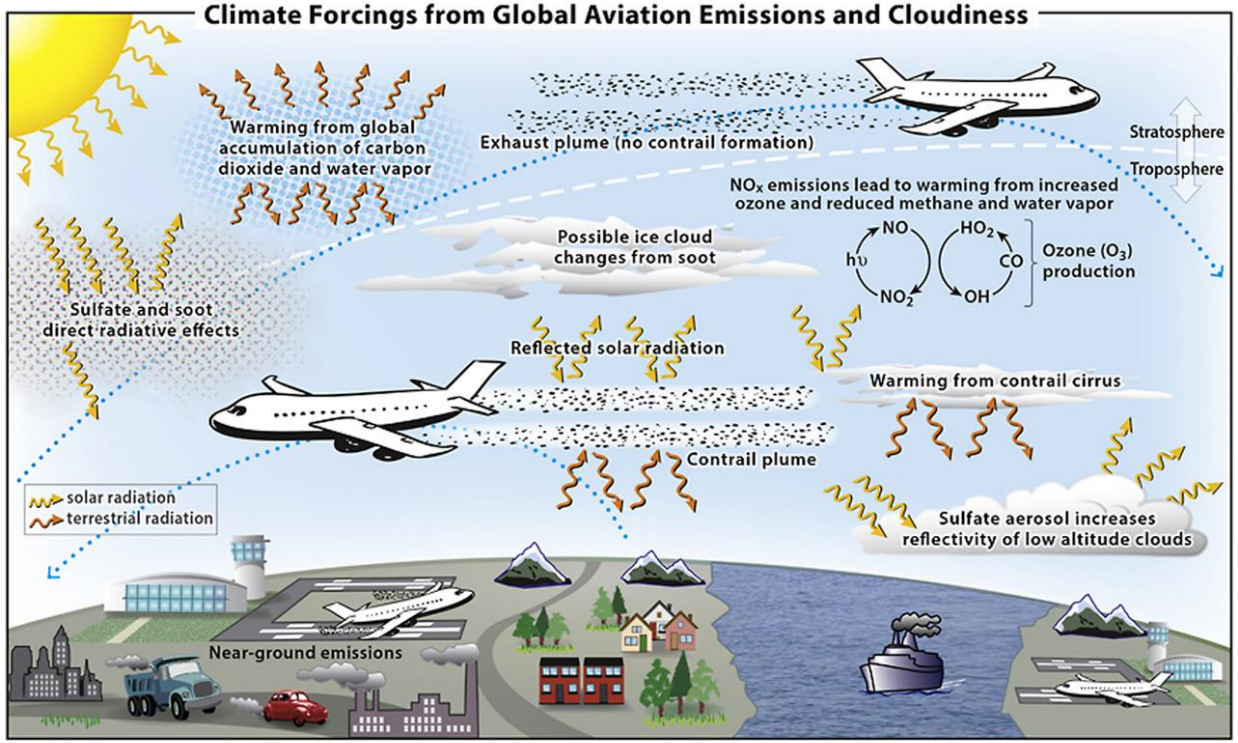
Limited technology options for aviation

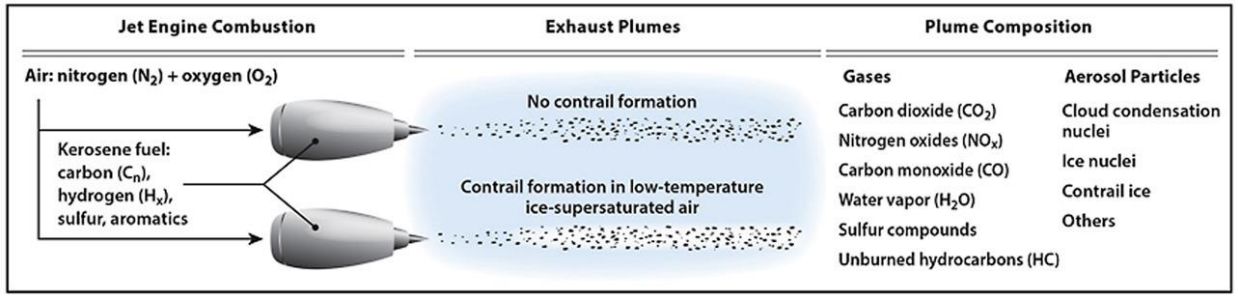


Possible technologies to reduce aviation emissions: energy efficiency and traffic management; biofuels; electric, hydrogen, electrofuels ?

See on this topic: TSP-SupAéro Décarbo, 2020 ; T&E 2019 ; BL évolution, 2020 ; outil CAST

The contribution of aviation to climate change





2.4%

of anthropogenic CO_2 emissions in 2018

3.5%

of effective radiative forcing (ERF) in 2011

66%

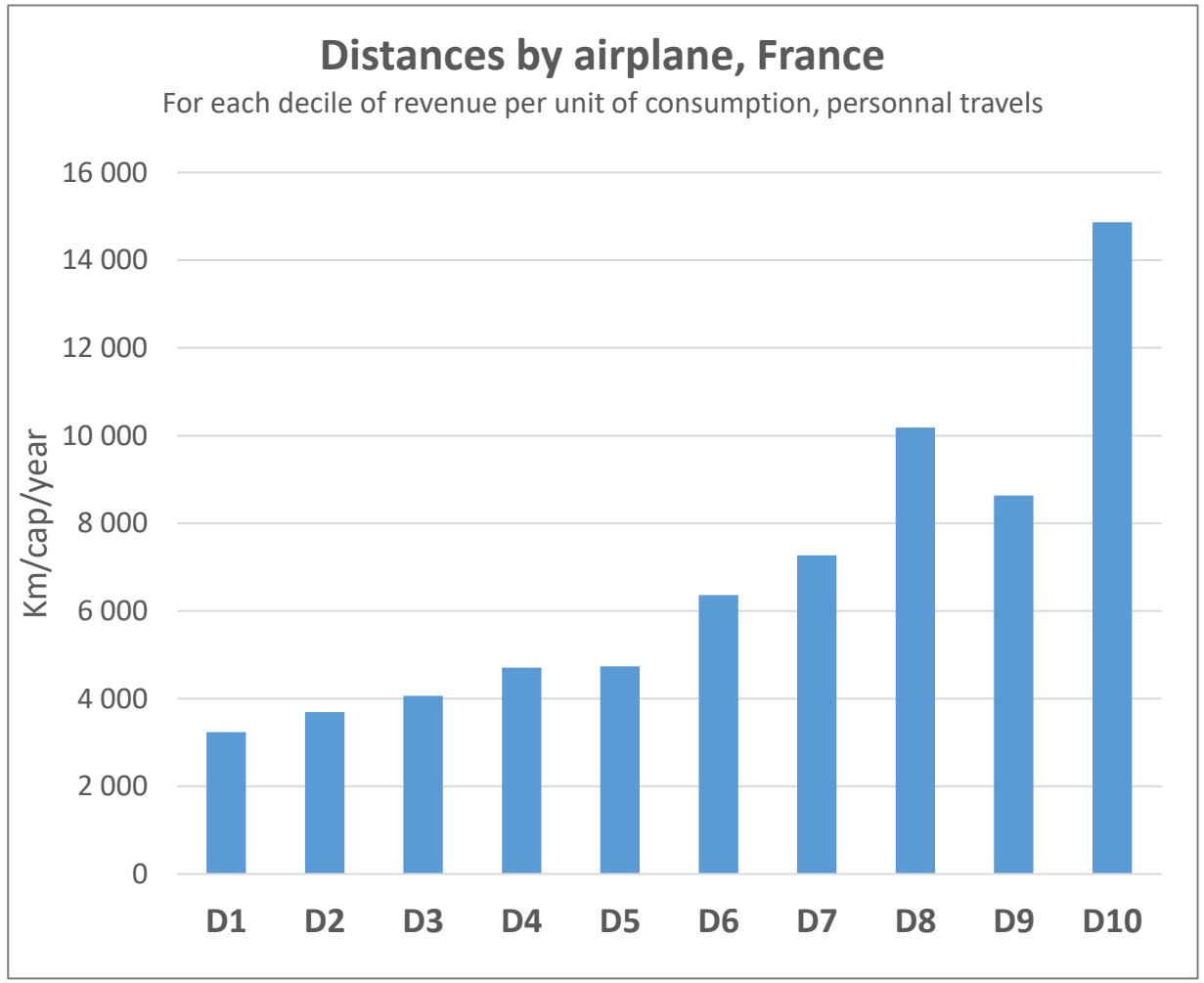
of ERF in 2018 from non-CO_2 effects

5 to 6%

of additional radiative forcing in 2018

Sources : Lee et al, 2020; StayGrounded

Distribution of aviation emissions : some figures



In the world

More than 50%

of emissions by the 1% most frequent fliers

11%

of the population travelled by air in 2018

For the top 1% EU households (carbon footprints)

41 %

of their emissions from air transport

22 tCO_2e

per capita for aviation, target of 2 t/capita

In France

4.6

more distance by air for people from D10 compared to D1

References: Gössling, Humpe, 2020; Ivanova, Wood, 2020; SDES, EMP 2019

Food for thought
What the ways forward could be

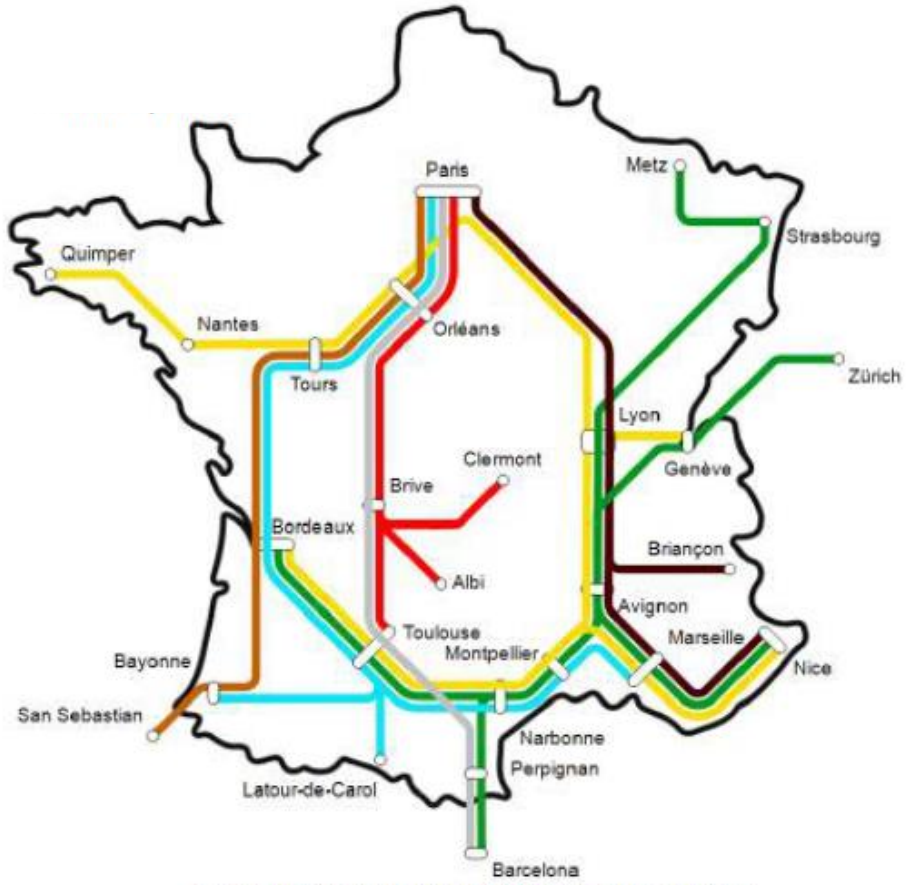


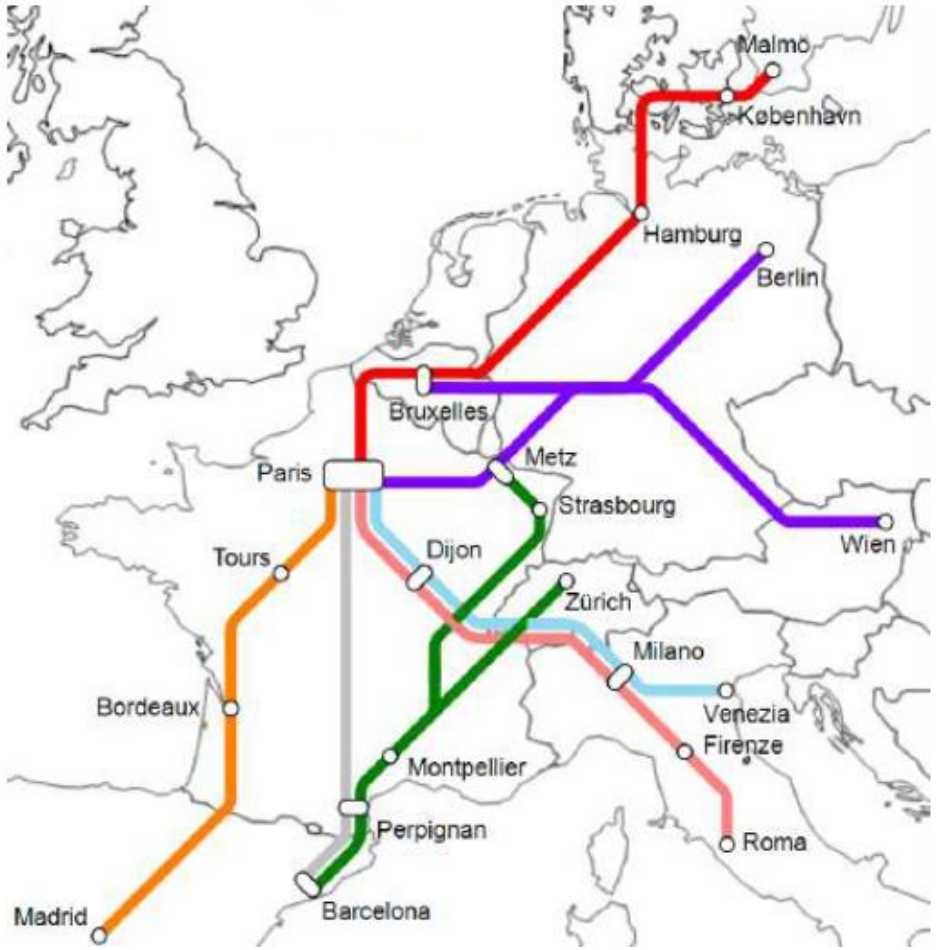






Modal shift: the revival of night trains





French and European night trains intended

Reference : MTE-DGITM, 2020

Other ways of travelling: the potential of cyclotourism

French and European cycle route networks

Reference : Velo&Territoires 2020 ; Eurovélo

Key points of the presentation

1) Context

- Target of **carbon neutrality** in France by 2050; **-5%/year** globally for staying below 1.5°C
- High importance of **demand-side measures** to reduce emissions, especially in the short-term
- Transportation **speed** influences **distances** (and destinations), which influence **CO_2** emissions

2) The unsustainable path of aviation

- **High emissions** per trip, and total emissions **rising** due to traffic increases
- **Few technological options**, at least for the short- and medium-terms
- The traffic is **unequally distributed**, rising questions of social and climate justice

3) Some ways forward

- Change for **slower tourism** and more European / domestic / local travel **destinations**
- Shift from plane and car to **public transport** to reach these destinations
- Explore new **ways of travelling** and discover our landscapes or cultural destinations

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Link to the thesis