International Transport Forum

Global dialogue for better transport

# Decarbonising Passenger Transport

## CCAC – Transition of Transport Workshop

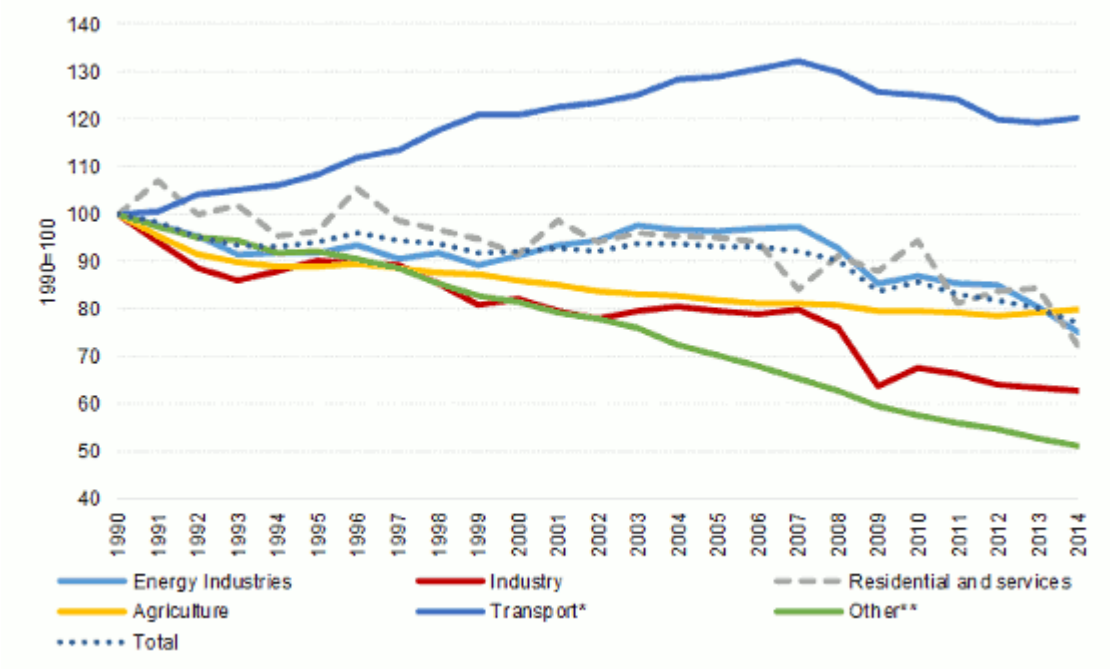
**Dublin, 19 September 2019**

**Elisabeth Windisch**

Decarbonising Transport Initiative

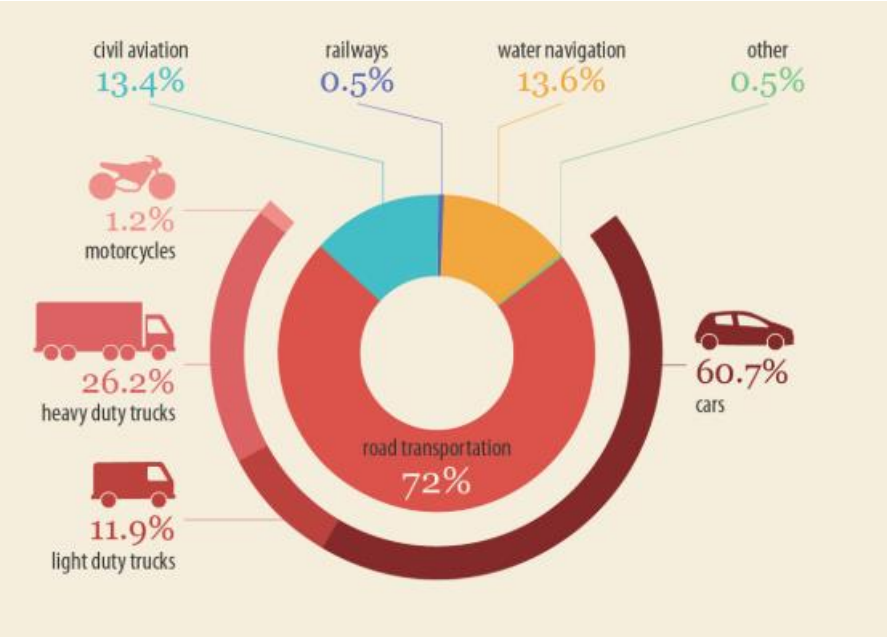
OECD

# Transport sector $CO_2$ in Europe
## *So far, not so good*




Source: European Environment Agency

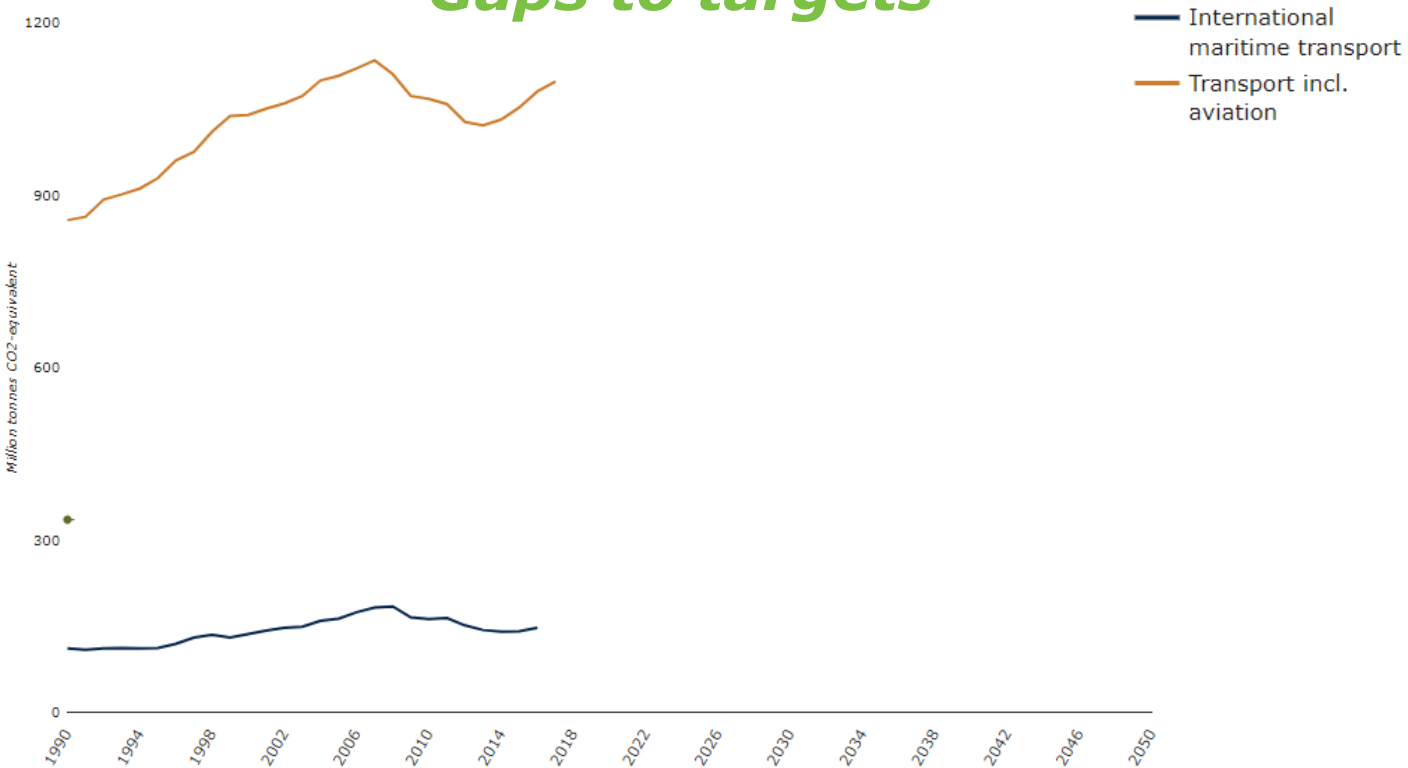
# Transport sector $CO_2$ in Europe
## *Breakdown by transport mode (2016)*




Source: European Environment Agency

# Transport sector $CO_2$ in Europe

## *Gaps to targets*

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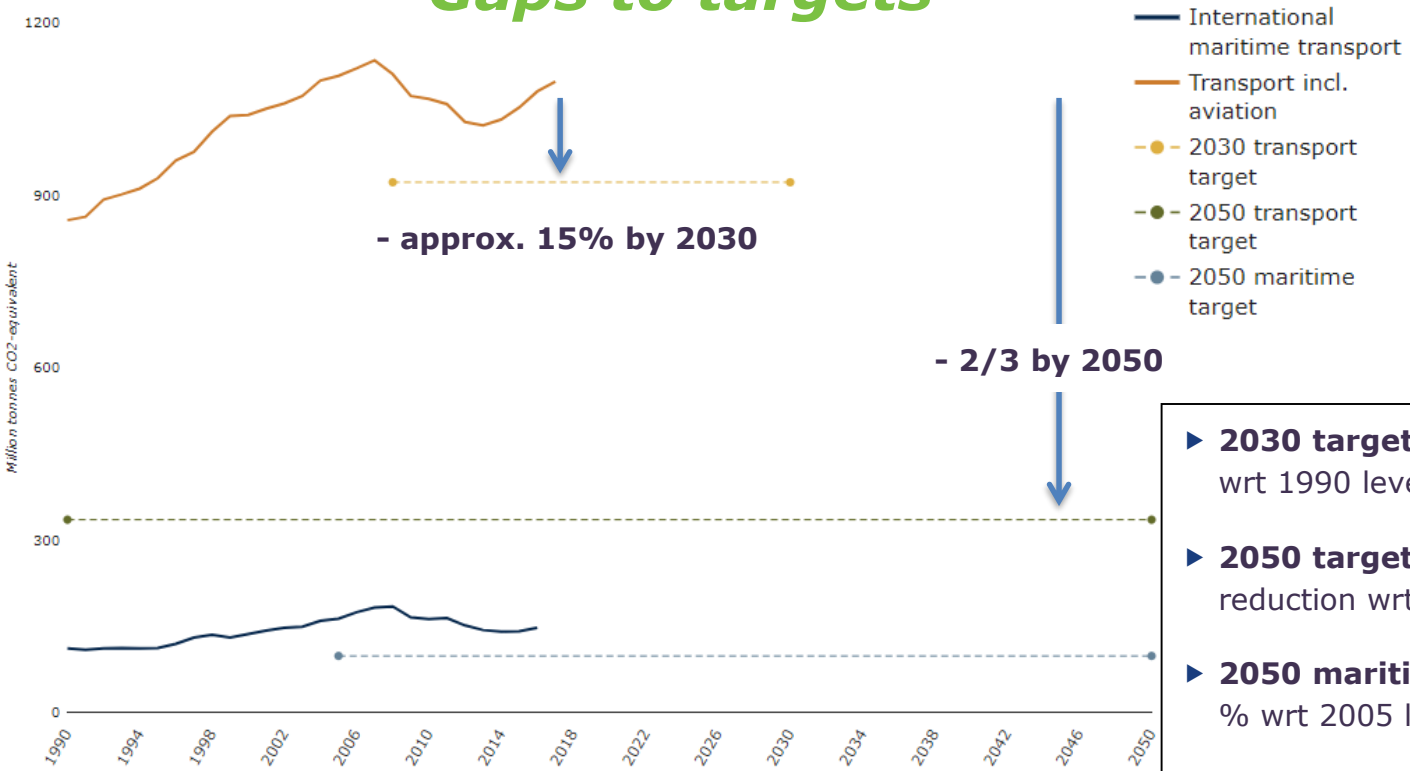



- **2030 target**: 8 % increase wrt 1990 levels.
- **2050 target**: 60 % reduction wrt 1990 levels.
- **2050 maritime target**: 40 % wrt 2005 levels.

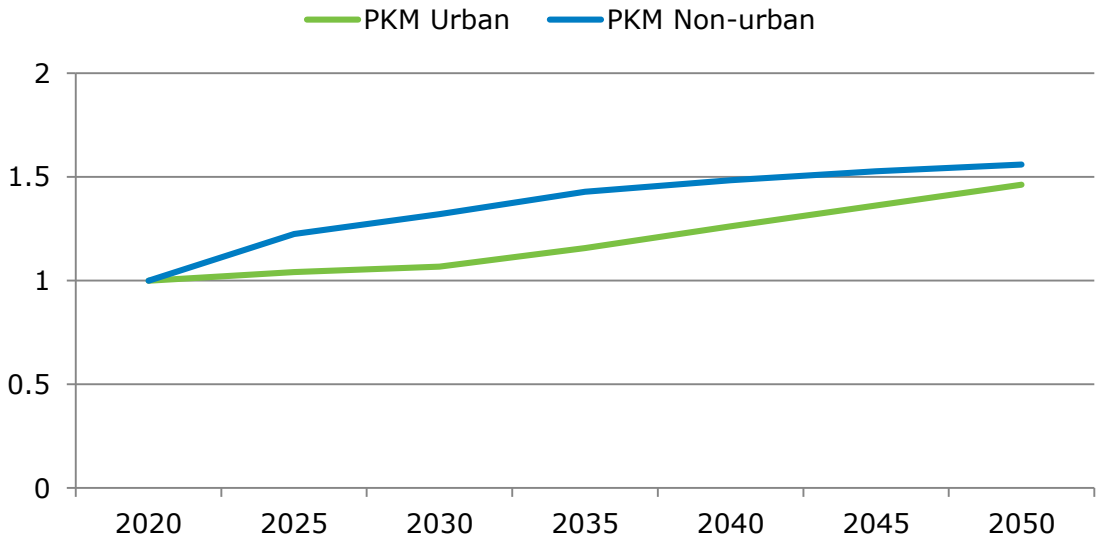
Source: European Environment Agency

# ITF Transport Outlook 2019
## *Highlights – Global*

- Passenger transport demand to triple by 2050
  - China and India to generate 1/3 of global pkm
  - OECD share of pkm falls from 43% to 24%
- Urban passenger transport to double by 2050
  - Shared mobility* is the fastest growing mode
  - Public transport ridership growth strong in non-OECD rail and metro
  - Car use still dominant but declining

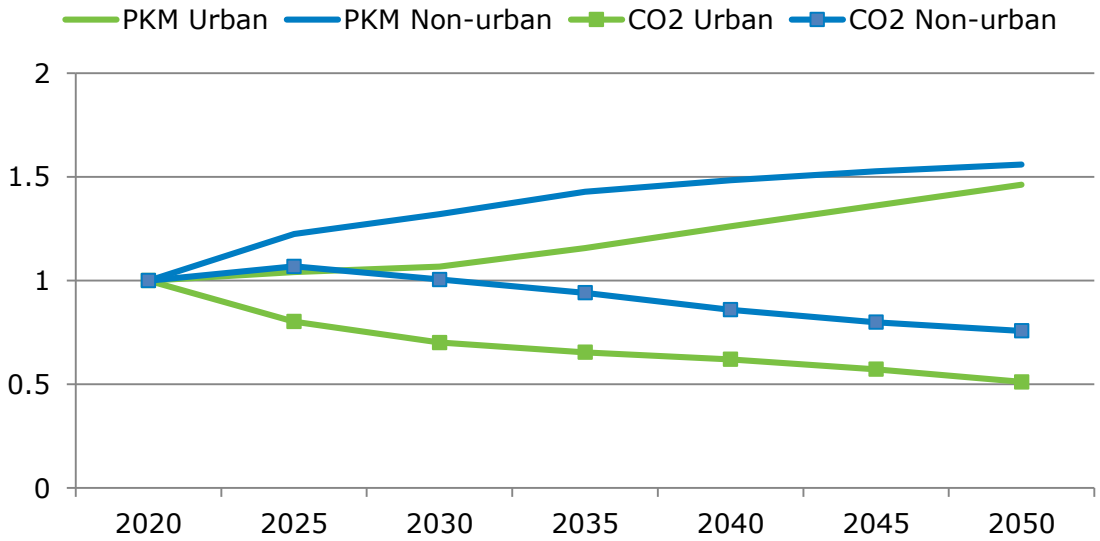
*Source*: ITF Transport Outlook 2019

# Passenger transport demand in Europe
## *+50% by 2050 compared to 2020*



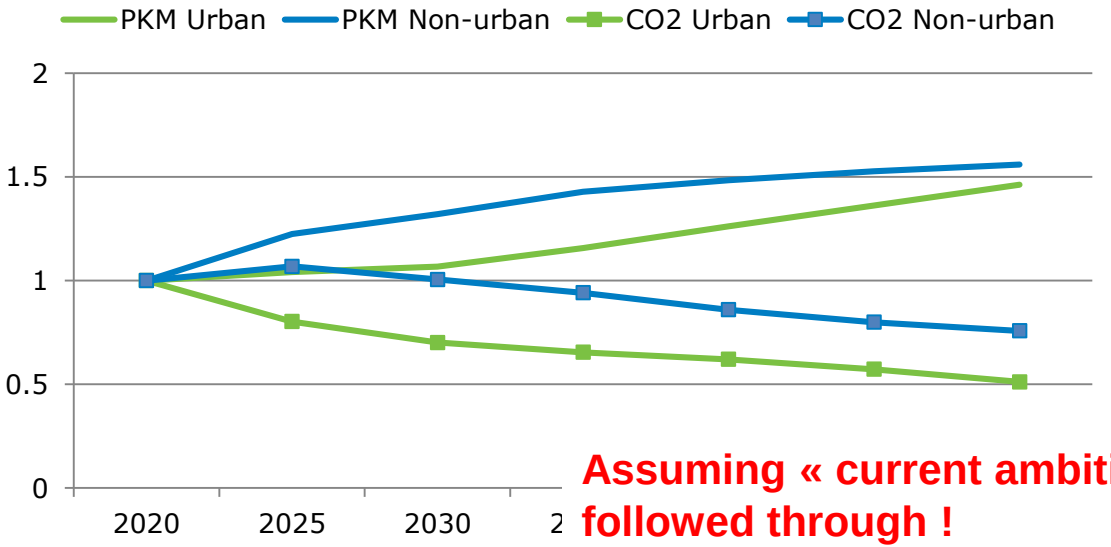

*Source*: ITF Transport Outlook 2019

# Passenger transport in Europe
## *…BUT decreases in related $CO_2$*




*Source*: ITF Transport Outlook 2019

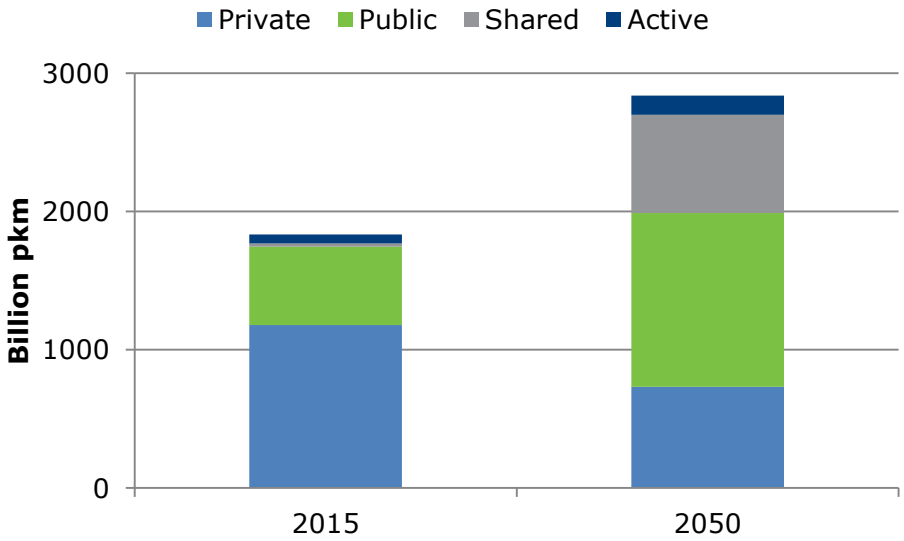
# Passenger transport in Europe
## *…BUT decreases in related $CO_2$*




**Assuming « current ambitions » are followed through !**
**… but still not enough.**

*Source*: ITF Transport Outlook 2019

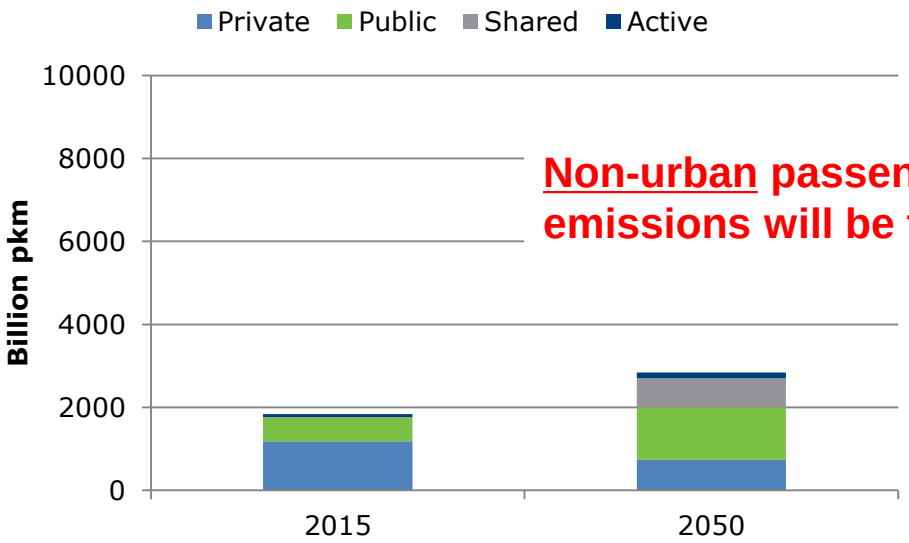
# Passenger transport in Europe – Current demand pathway
## *Urban transport*



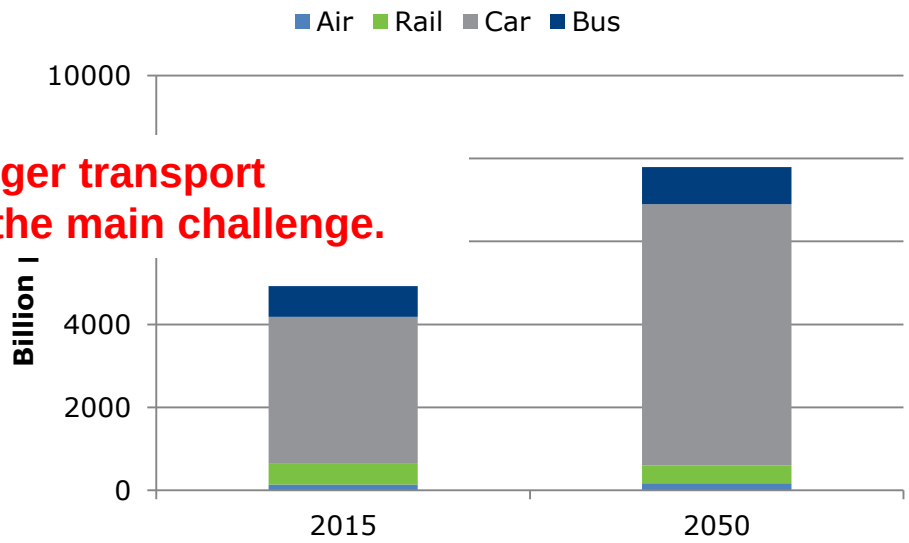

*Source*: ITF Transport Outlook 2019

# Passenger transport in Europe – Current demand pathway

## *Urban transport*



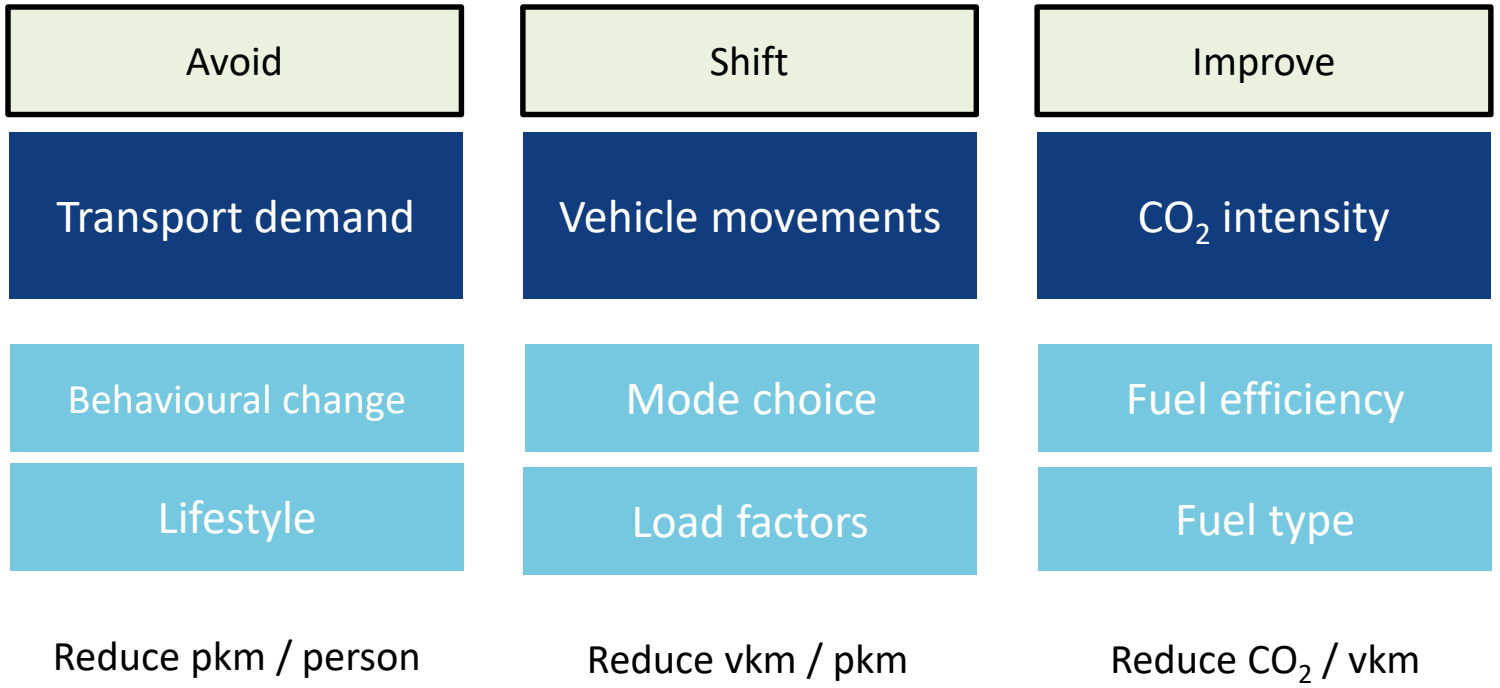

## *Non-urban transport*




**Non-urban passenger transport emissions will be the main challenge.**

*Source*: ITF Transport Outlook 2019

# Reducing $CO_2$ from passenger transport



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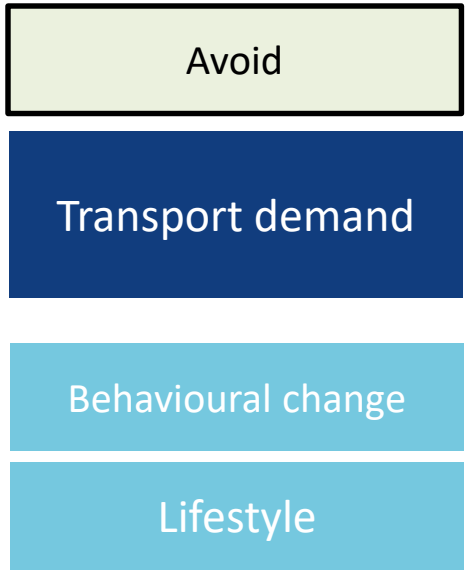
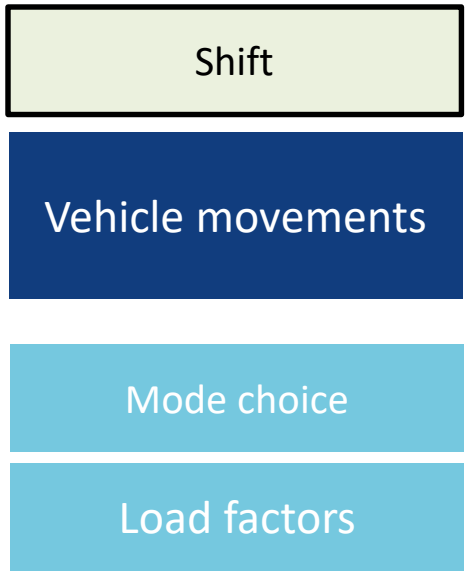


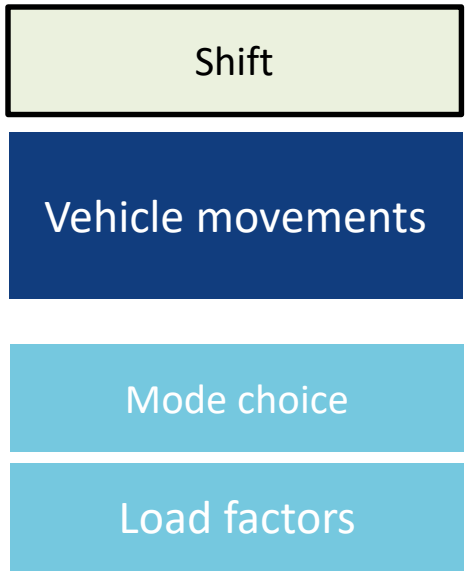

- Requires rethinking (e.g. EU White Paper) – "contain transport"
- Possible measures:
  - Land-use planning *[requires long-term planning]*
  - IT solutions (teleworking etc.) + flexibility of employers *[impacts limited]*
  - Pricing (make travelling more expensive) *[equity issues]*
- Environmental consciousness of people?

# Reducing $CO_2$ from passenger transport




- Many solutions available for **urban transport**
  - Improve 'soft mode' infrastructure
  - Urban car restrictions or charges (e.g. also for single occupancy vehicles)
  - Enhance public transit system (frequencies, quality, coverage, pricing…)
  - ICT / Mobility as a Service / Intermodality
  - Urban innovations (micro-modes; shared mobility → requires regulation to avoid negative effects)

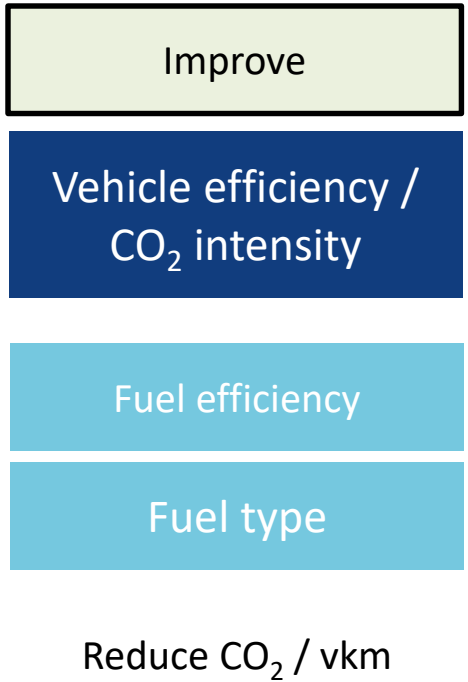
# Reducing $CO_2$ from passenger transport




- Solutions for **non-urban transport**?
  - Shared mobility
  - Public transport (rail/bus instead of car or air travel) → requires financial measures to increase attractiveness + infra investments

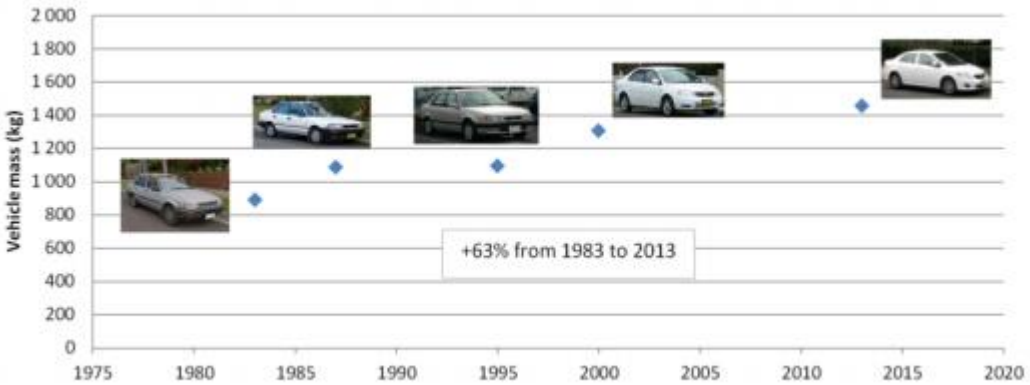
… difficult to achieve a major impact.

# Reducing $CO_2$ from passenger transport




- Biggest lever for decarbonisation (?!)
- Solutions
  - Reduce vehicle sizes /weights (!Not encouraged yet!)
  - More efficient vehicle design (EU $CO_2$ emissions standards)
  - Alternative fuels (EU $CO_2$ emissions standards)
    - many measures available to further encourage their uptake (subsidies, restrictions, infrastructure enhancement…)
    - **Public and company fleets** should be encouraged especially

# Re vehicle weight developments



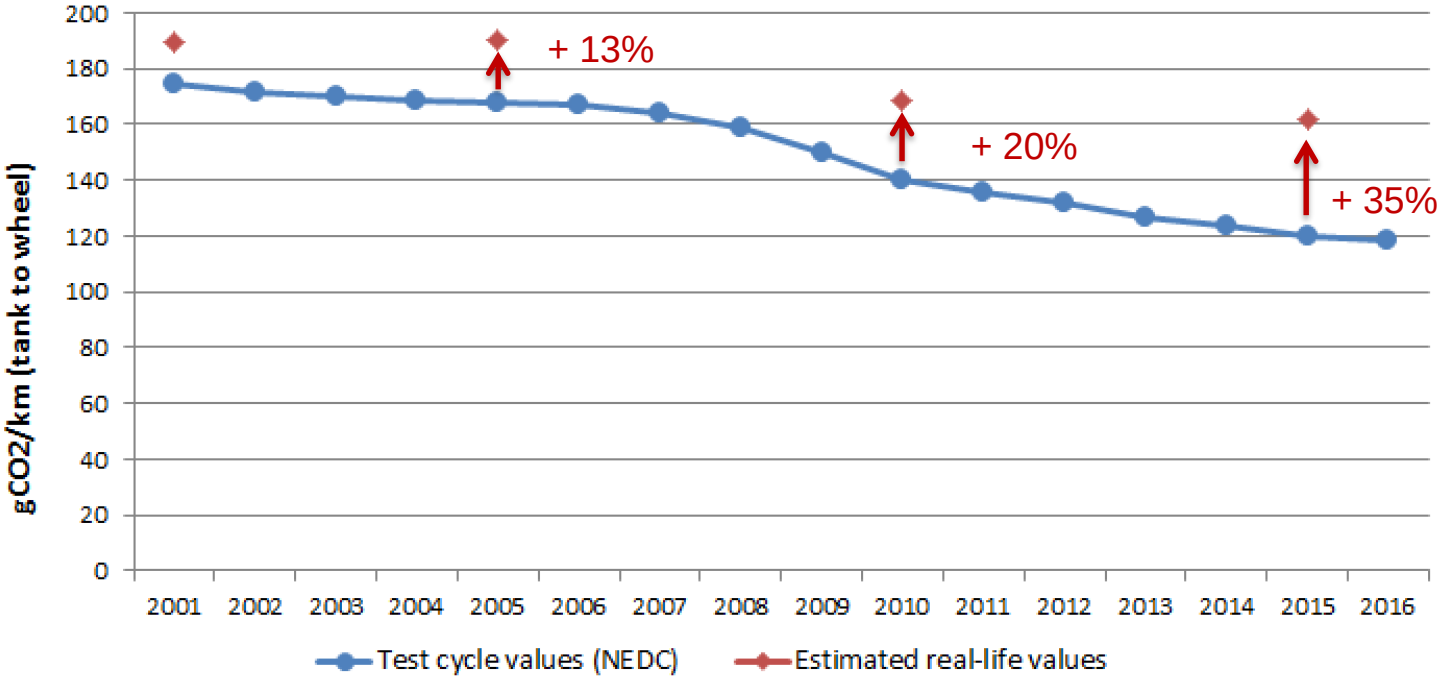

*Weight development of Toyota Corolla over 3 decades*

- If average car weights were brought back down to 1000kg (from around 1400kg), then
  - the $CO_2$ reduction potential of alternative fuel vehicle uptake to 2050* could be doubled
  - … while consumers would save EUR 215 / $tCO_2$ saved

*Source*: ITF (2017) - Lightening Up: How Less Heavy Vehicles Can Help Cut CO2 Emissions
* assuming a “moderate uptake scenario”, in line with IEA 2 degree scenario

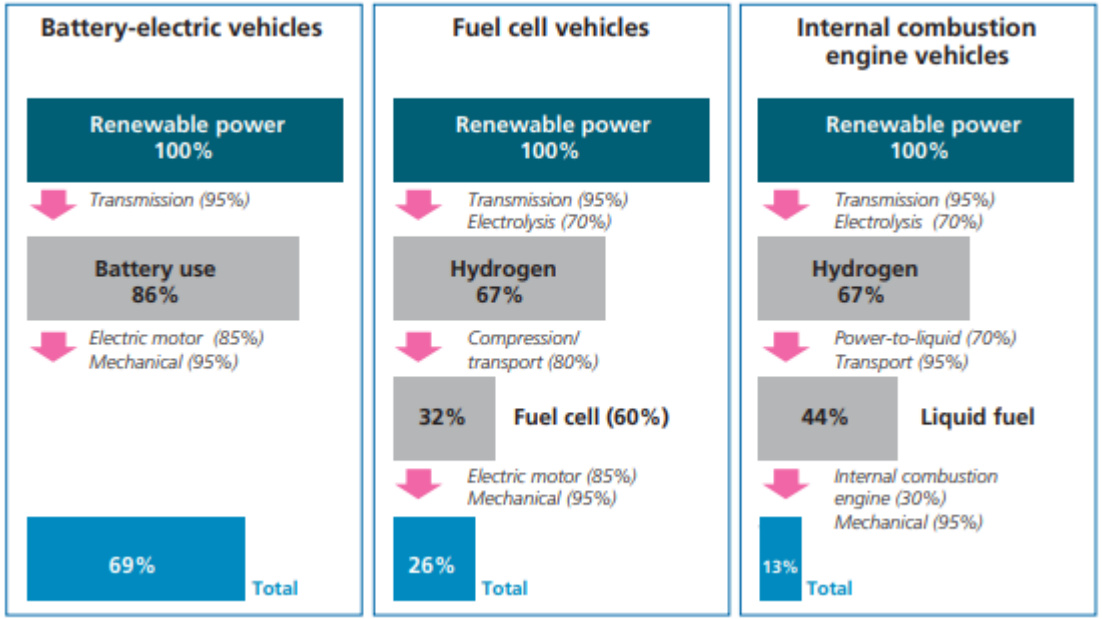
# Re fuel efficiency of conventional vehicles

## *Development over the past decade*




*Source*: EEA (test cycle values), ICCT (real-life estimates)

# Re alternative fuels for passenger cars…

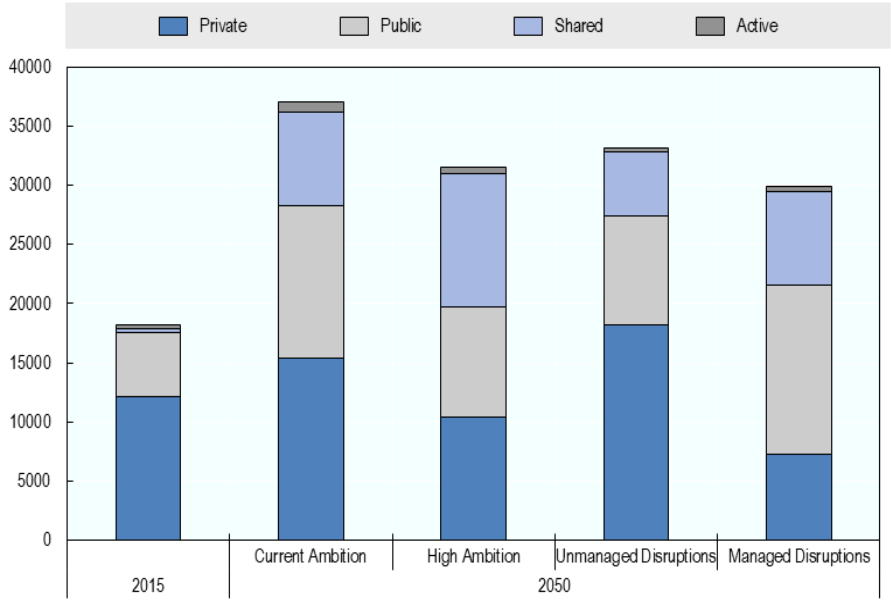



But also battery electric vehicles come with their problems (‘standard’ consumer concerns; but also material security concerns, recycing of batteries…)

# Re transport innovations / disruptions

- Transport innovations (automation / shared mobility) need to be well managed to
  - Be electric
  - Serve as feeder services to public transport
  - Do not lower vehicle occupancy rates and incite 'empty cruising'
- Require combination with smart parking pricing, car restrictions, high-quality public transit, Mobility as a Service solutions

Urban mobility, million passenger-kilometres, global




*Source*: ITF Transport Outlook 2019

- Ambitious increase of fuel efficiency / alternative fuels is crucial (incl. quotas?), but not all that should be done, nor enough to get to a **sustainable** transport system
- Looking beyond fuel efficiency improvements is necessary:
  - increase vehicle load factors
  - enhance mode shift
  - tackle transport demand
- This will be easier for urban than the non-urban transport market
- New innovations and disruptions need to be well managed to avoid negative effects

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# Thank you

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