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CO2 optimization needs strong actions on the existing fleet of cars

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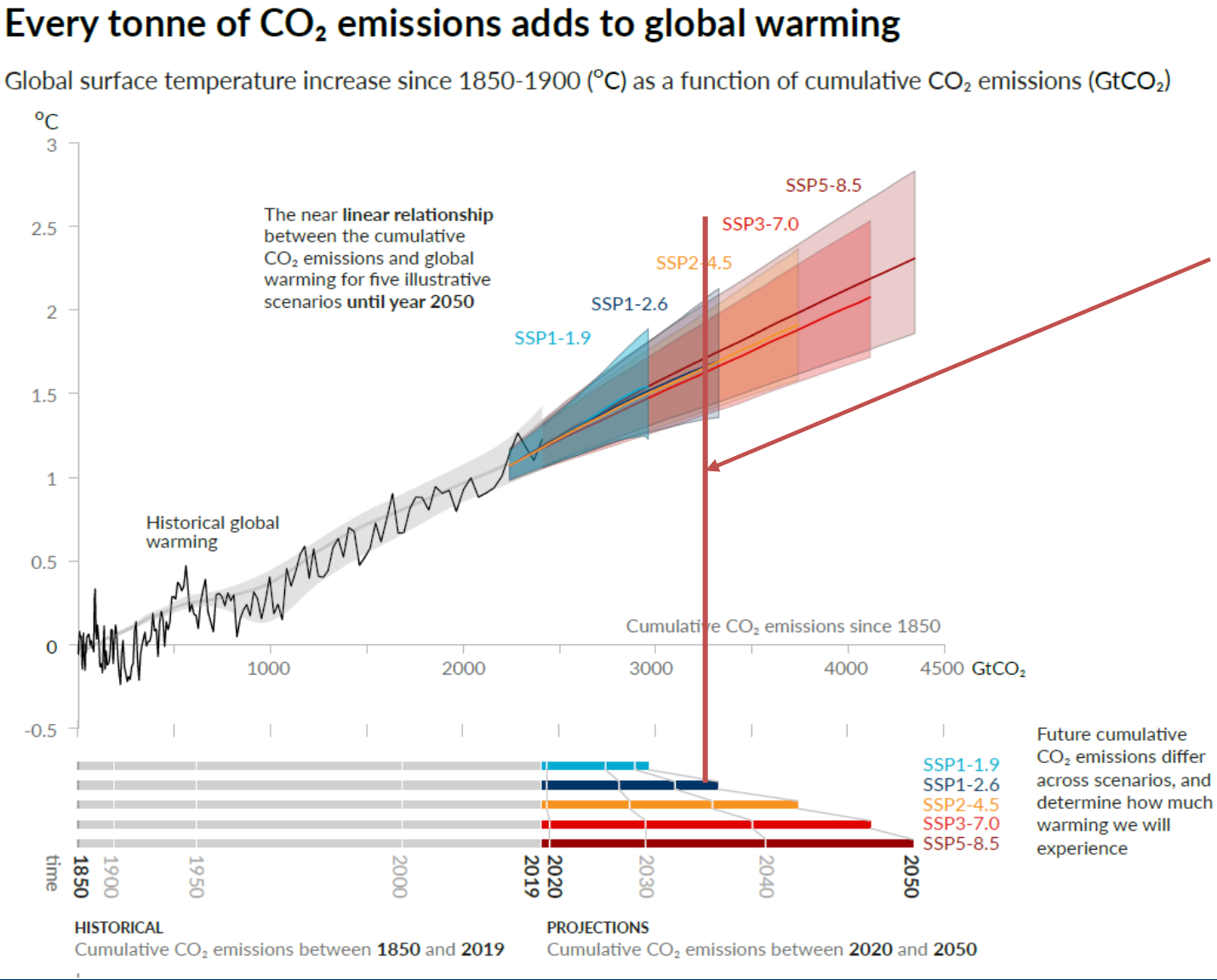
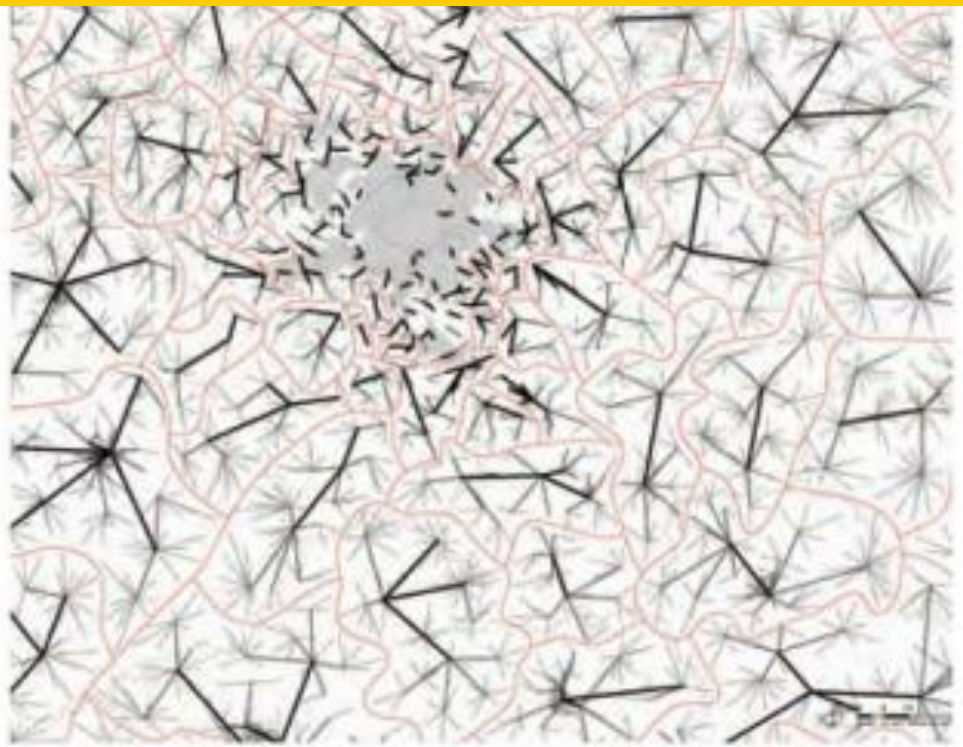
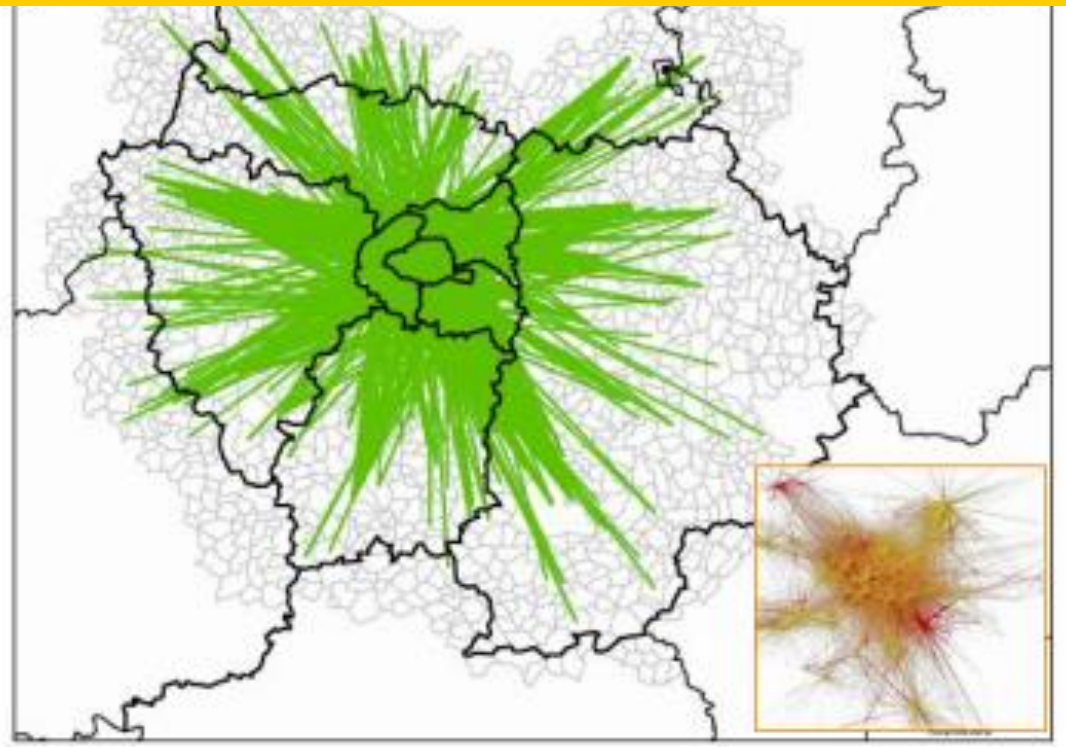
CO2 global budget till 2100 : 1/3 of what has been emitted since 1850



With 8 billions inhabitants, we have only a CO2 budget of 1/3 of what has been emitted when we were 2 billions

Peri-urban daily trips : highest challenges for big cities



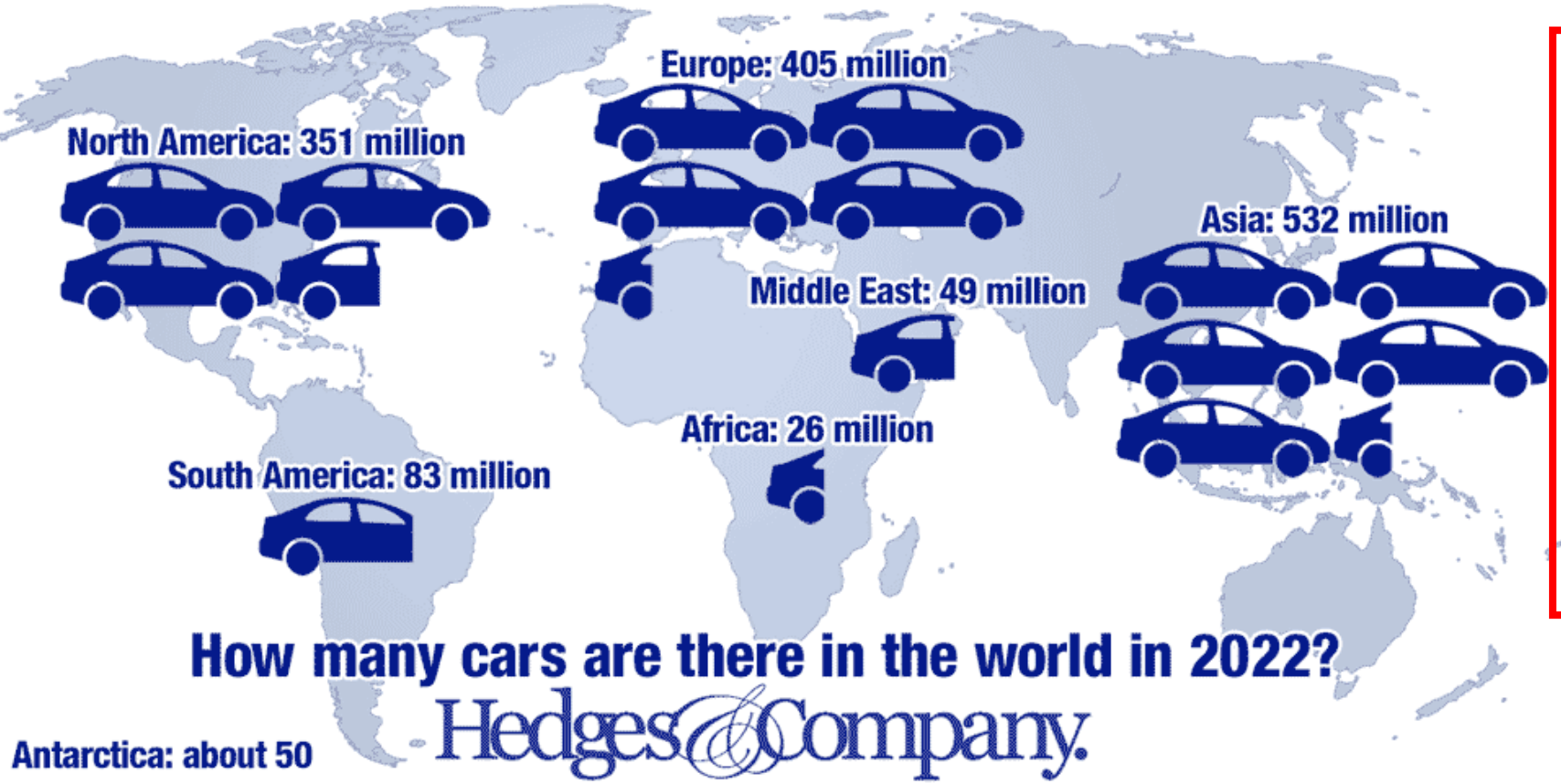


Trips of more than 10km : 13% in number but 60% in Veh*km and 60% in CO2 emissions

Reduce the increasing gap between people living in large cities, and people living in their hinterland

Long daily trips : 60% of CO2 emissions of cars

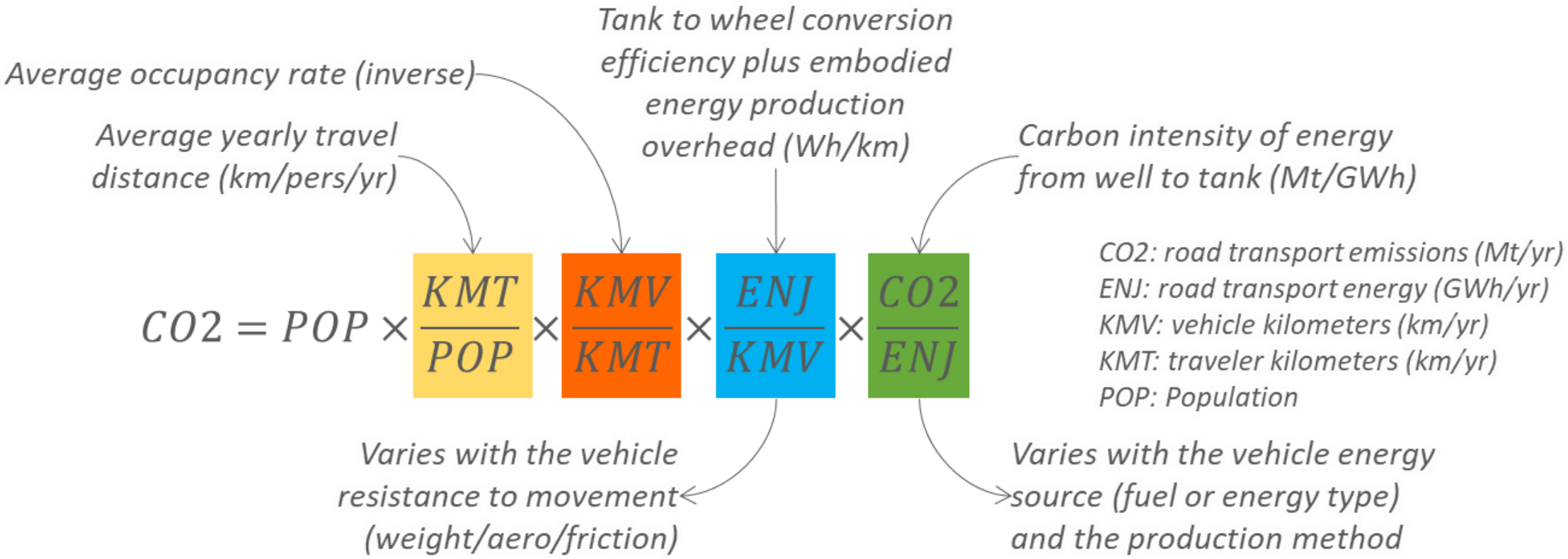
The existing fleet worldwide is 1450 billion cars : more than 20 times the annual market



In France, the fleet is 38 millions (EU27 is 250), when the market is only 1.8 millions

Driving actions on the existing fleet is mandatory

To fix the GHG anthropogenic emissions, Kaya equation gives the right factors



How to turn into action these factors?

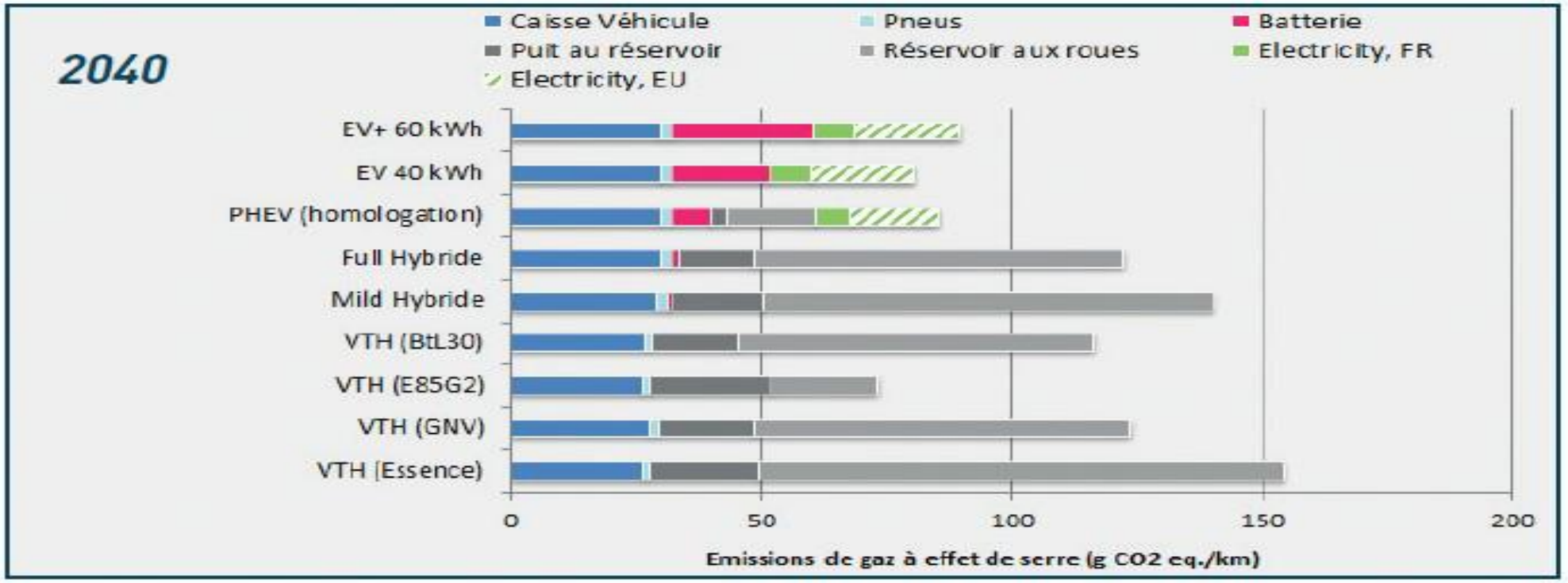
- $\frac{KMT}{POP}$: diverse actions as telework can play
- $\frac{KMV}{KMT}$: the rate of occupancy is key and carpooling are good ways
- $\frac{ENJ}{KMV}$: the resistance of cars can decrease by different ways
- $\frac{CO2}{ENJ}$: the type of fuels are the main way for this factor

Actions developped by Bruno LEVILLY – Actions developped by Remi BASTIEN

$\frac{ENJ}{KMV}$: the resistance of cars can decrease by different ways

- Eco-driving can save up to 20% compared to standard driving. 10% looks achievable by most of the drivers
- Low resistance tyres (class B instead of class F) can save 6%
- Low friction oil ACEA C5 (5W20) can save 3%

$\frac{CO2}{ENJ}$: the type of fuel is the main factor, considering the full LCA

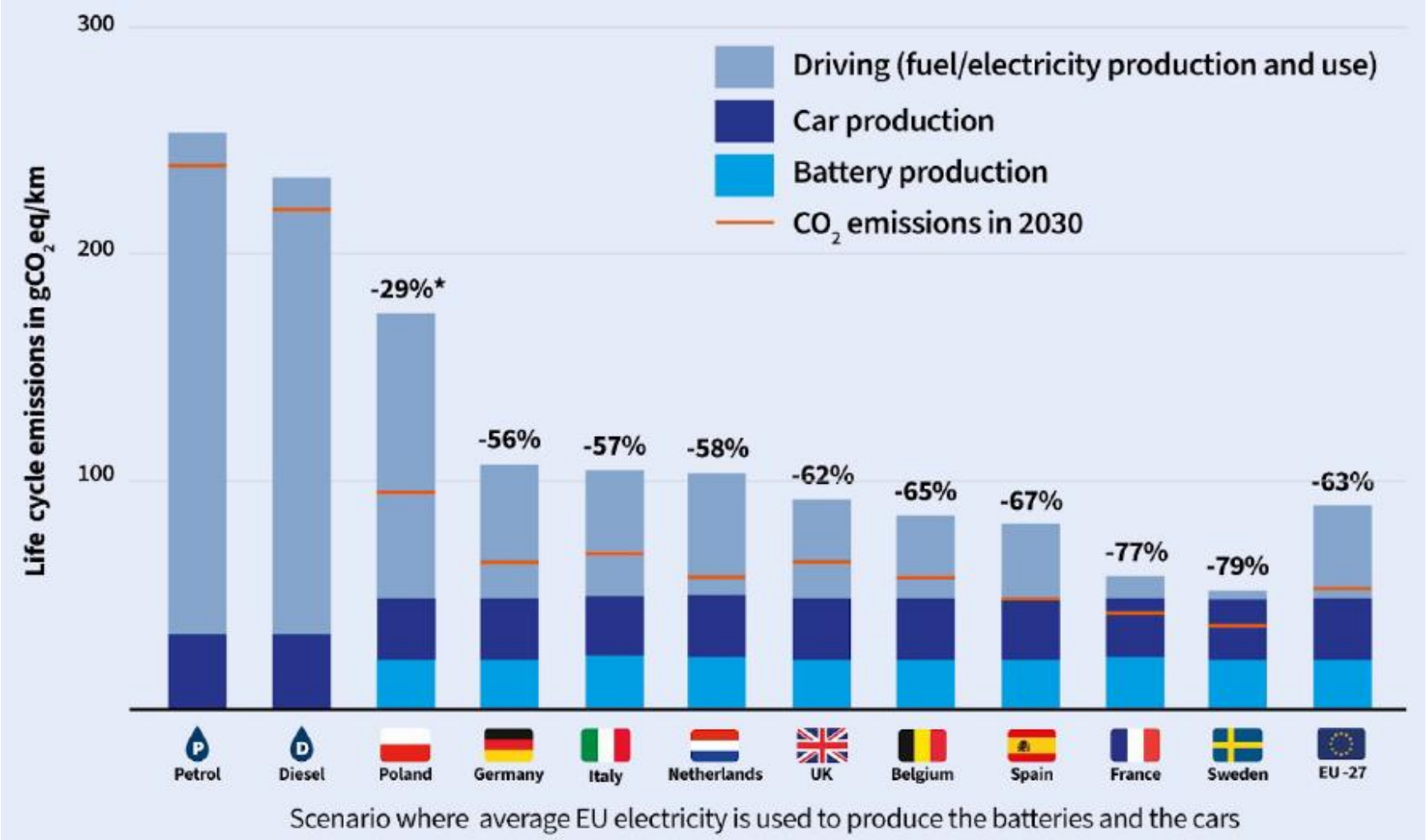


Impacts potentiels sur le changement climatique pour les véhicules du segment C.
Cycles de conduite WLTC.
Horizons temporels 2020 et 2040 (12 500 km/an)

Source : étude E4T 2040 IFPEN - Ademe

BEV is the most efficient, but won't be enough for carbon neutrality

T&E expressed their view of the potential of BEV compared to ICE



Argon Lab made a prospective study for different technologies and fuels

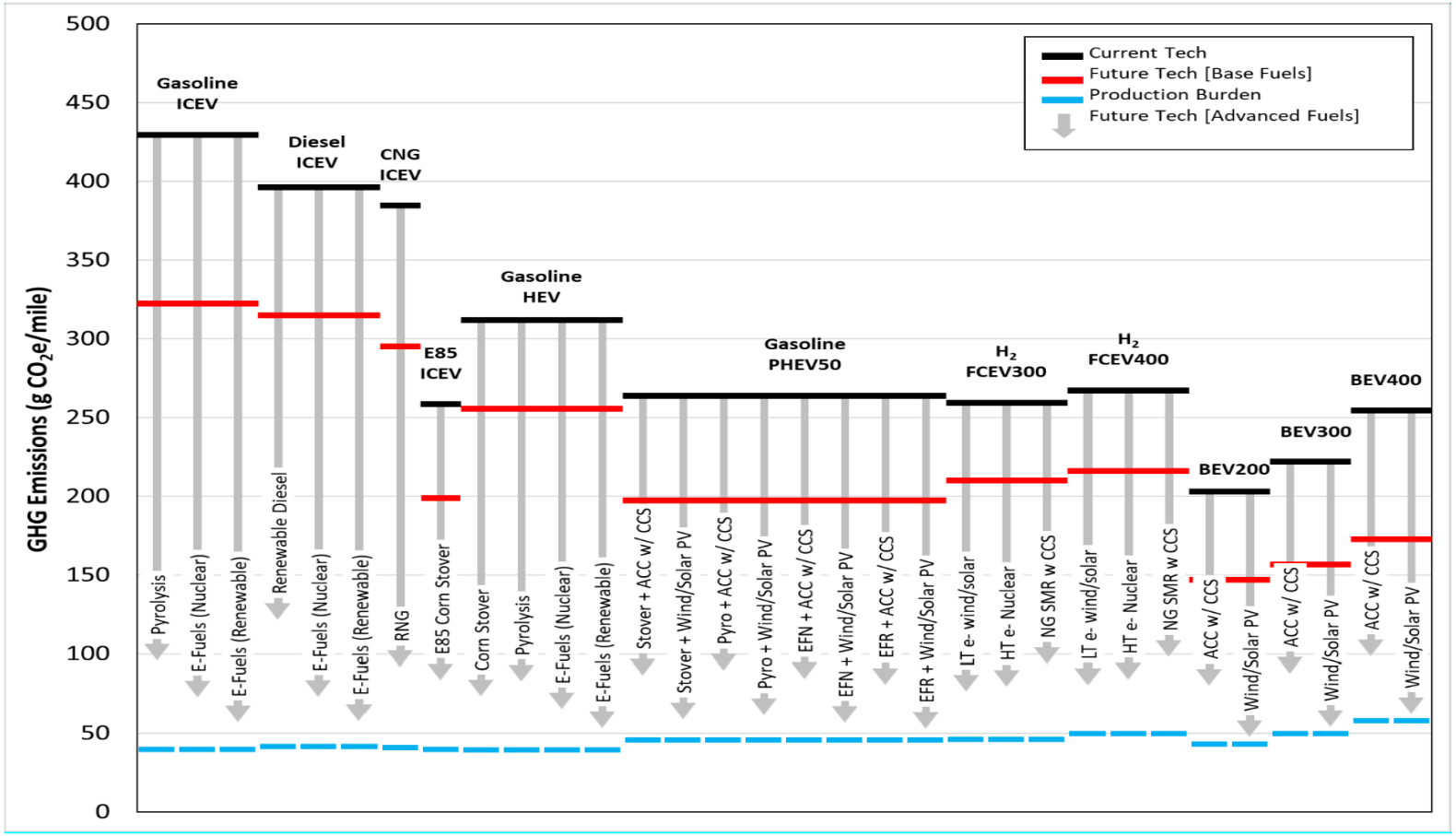


Figure ES-1. C2G GHG emissions of various vehicle-fuel pathways for small SUVs assuming high technology progress. Analysis was performed using GREET2020.

Bio-fuels or e-fuels could save up to 80%... But their availability is limited

The potential of improvement of existing fleet without changing fuels is up to 28%

28% CO2 reduction is possible, if we generalize to the full existing fleet all the measures of Kaya equation :

- Telework up to 25% of the jobs two days per week
- Car-pooling increased by 20% (rate of occupancy from 1.3 to 1.5)
- Eco-driving with 10% better fuel consumption
- Low resistance tyres class B instead of F (6% savings)
- Low friction oil, ACEA C5 (5W20) instead of standard (3% savings)

A study of FISITA shows that this will be equivalent to switch 90 millions of cars from ICE to BEV in EU

Conclusion

The challenge of the climate change requires two complementary actions :

- To initiate now the switch from ICE to EV for mid-term horizon
- To implement immediately efficient measures on the existing fleet

Merci de votre attention

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