



Electric car ownership: an affordable option for all consumers

BEUC (The European Consumer Organisation)

29th April 2021

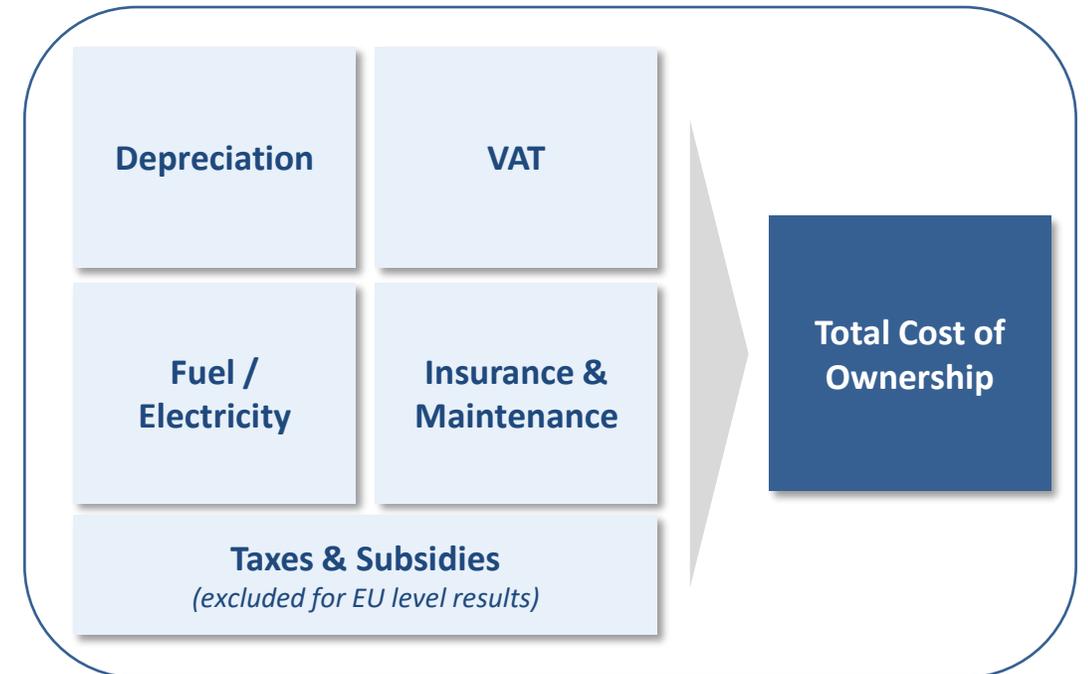
elementenergy

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Overview of Element Energy's (EE) Total Cost of Ownership (TCO) Analysis

- **Overall EU level & country specific TCO results** comparing different powertrains for a range of car sizes (small, medium & large) have been issued for the first, second and third ownerships of cars bought new between 2020-30
- Key inputs for each market have been **analysed based on “real world” data and reviewed by BEUC local experts in each country**, including: vehicle purchase prices (from a database of >9,000 models), electricity & fuel pricing, depreciation rates, routine maintenance costs⁽¹⁾, insurance and taxes & subsidies
- **Additional sensitivities** have been completed including: average annual mileage, off-peak vs. public charging (slow, fast & rapid), battery sizes, delayed Euro 7 entry, E-fuels & PHEV charging behaviour
- **Nine countries covered:** Belgium, Cyprus, France, Germany, Italy, Lithuania, Slovenia, Spain, Portugal

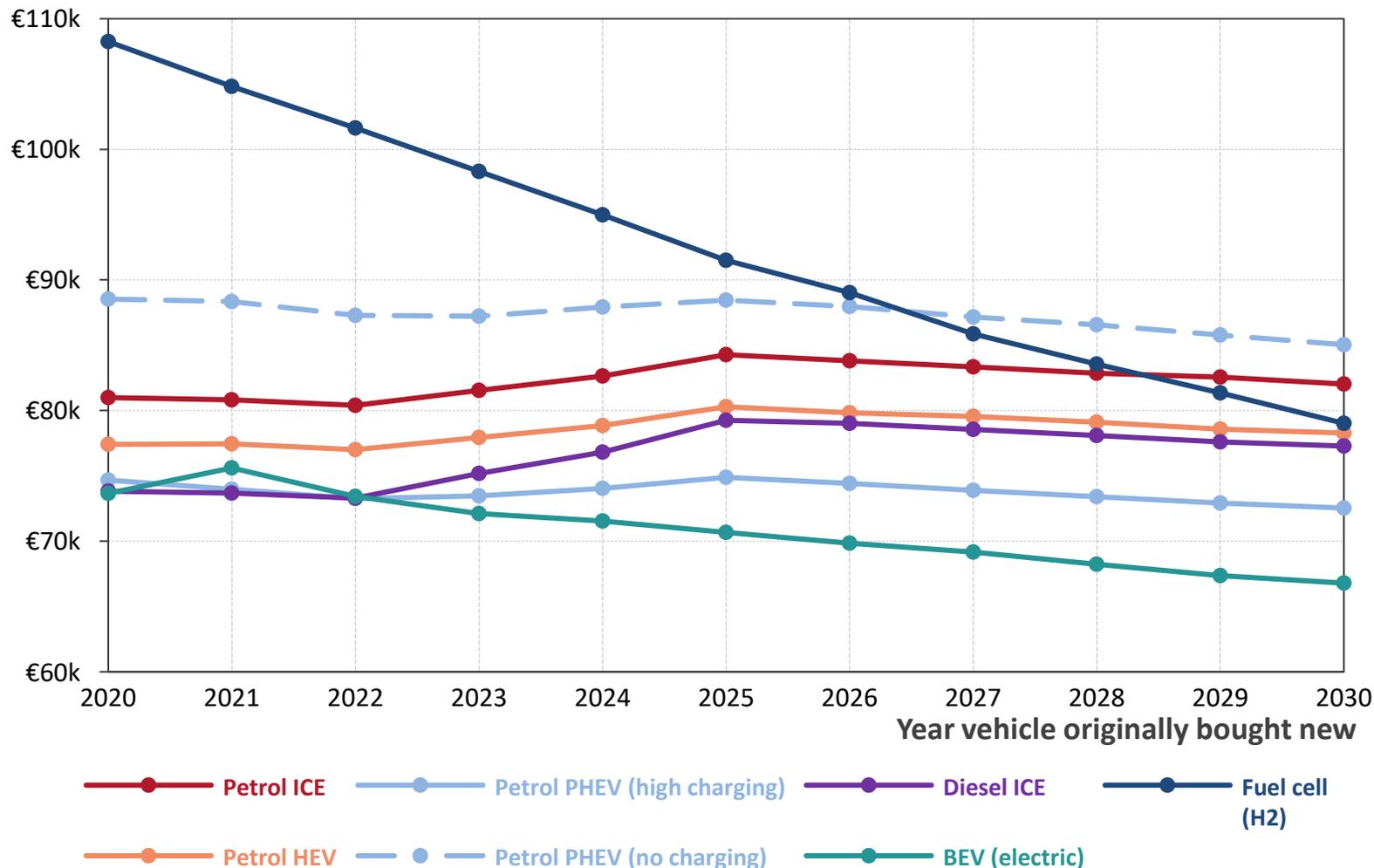
Breakdown of the TCO components



Today we will introduce the **EU level TCO study's 5 key themes** and present **several examples from the wider report**

Study Finding 1 → affordable BEVs are just around the corner in Europe

EU average level – Lifetime TCO: Medium Cars (excluding taxes and subsidies)

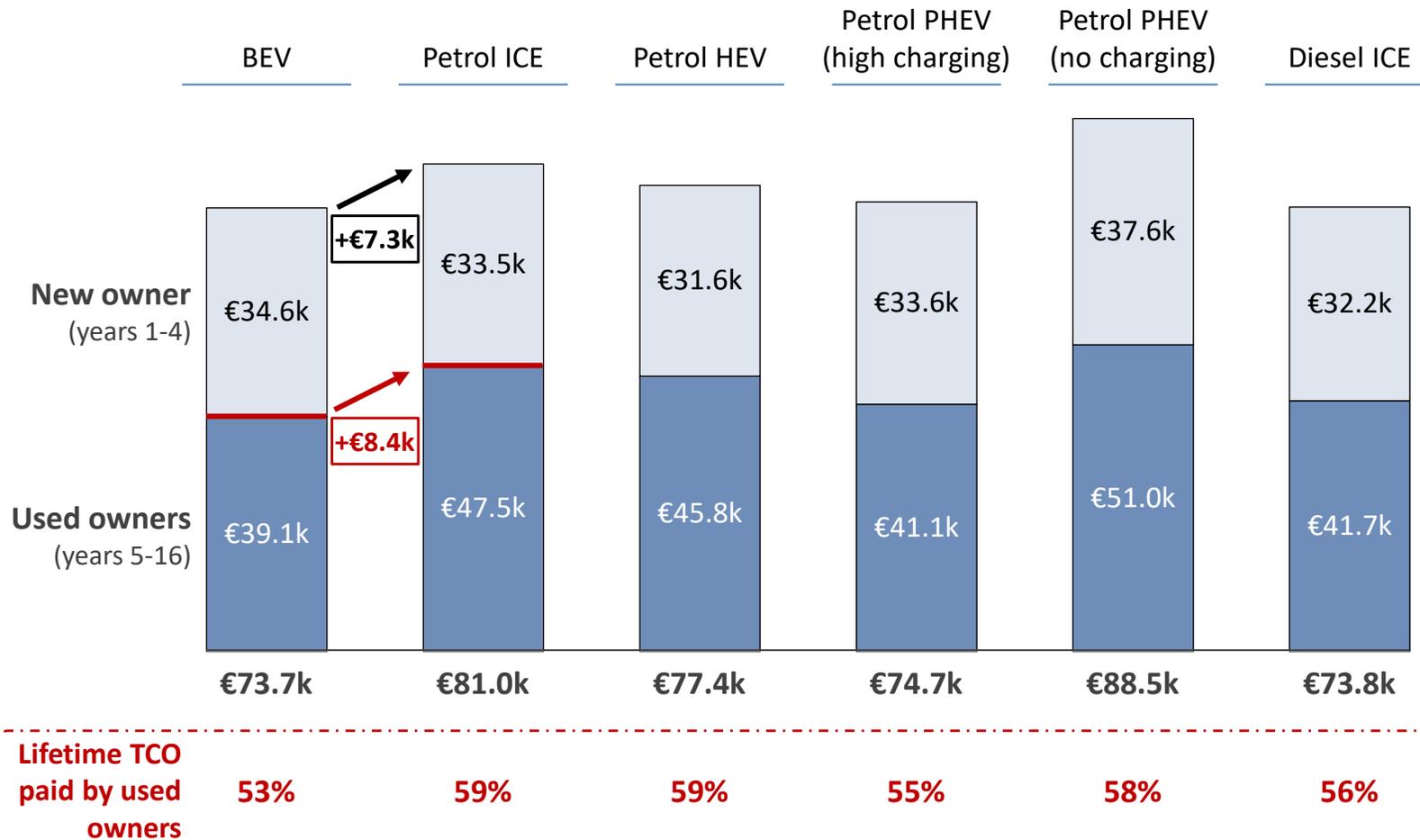


Finding 1: Results & Conclusions

- A** BEVs are already the cheapest powertrain on a lifetime TCO basis for medium cars bought in 2020, and will become cheapest for small and large cars in 2024 and 2026 respectively
- B** PHEVs without any charging provide worst value for consumers, and pose a significant risk to less affluent used car buyers who are less likely to have home charging
- C** TCOs for ICE vehicles is forecast to increase between 2022-24 due to Euro 7 requirements, with additional costs expected to be passed onto consumers

Study Finding 2 → BEVs bring most benefits to less affluent second and third owners

TCO breakdown by new and used owners (medium car, bought new in 2020)

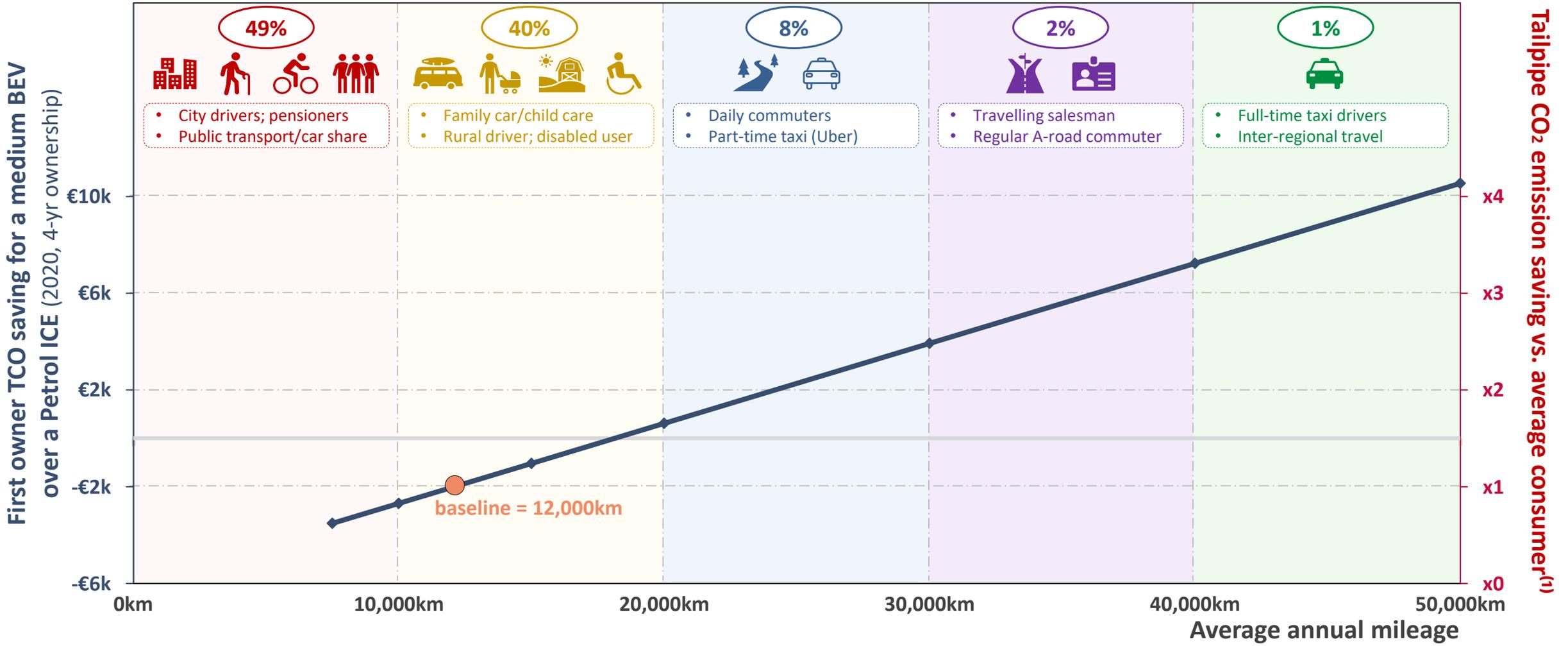


Finding 2: Results & Conclusions

- A** A medium BEV bought in 2020 will save a **total of €8,400** for its second and third owners combined over a Petrol ICE
- B** Tightening EU emission targets and encouraging OEMs to sell more BEVs, **will increase the available stock of used BEVs more quickly**
- C** An “equity index” can be defined as the proportion of Lifetime TCO that is paid by the used car owners, which is much smaller for BEVs

Study Finding 3 → opportunities to maximise the benefits from BEVs include educating high mileage users to become early adopters

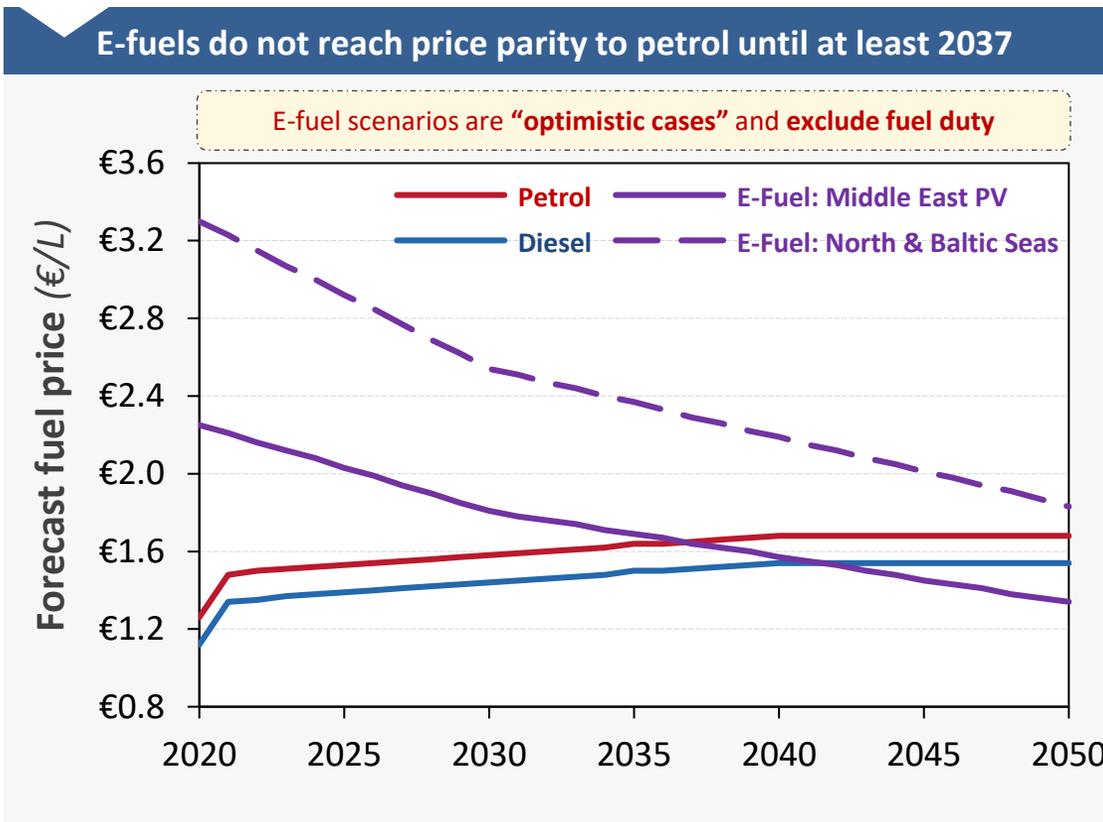
BEVs provide the largest TCO savings for high mileage users, who have the highest CO₂ tailpipe emissions



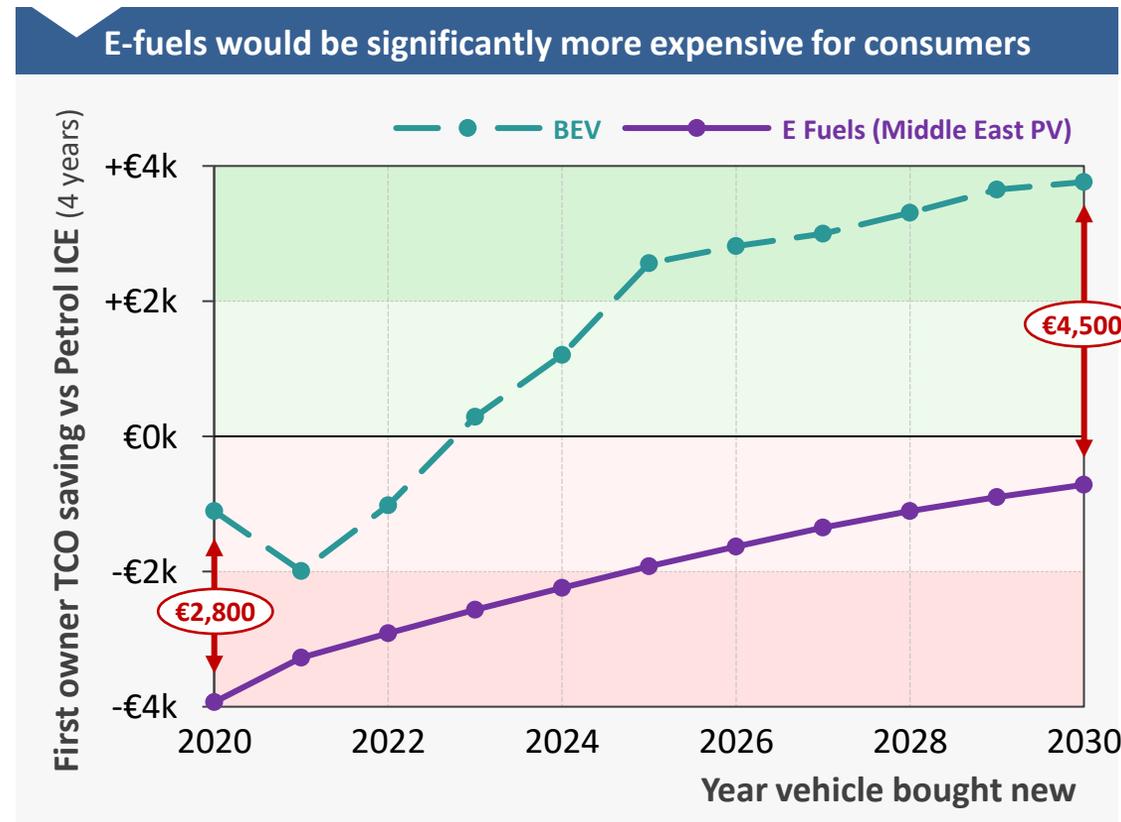
Tailpipe CO₂ emission saving vs. average consumer⁽¹⁾

1 - Tailpipe CO₂ emissions multiple based on the baseline user having an average annual mileage of 12,000km; percentage of consumers in each mileage bracket based on "Ricardo-AEA (2014): Improvements to the definition of lifetime mileage of light duty vehicles"; first owner TCO savings excludes taxes and subsidies; TCO = Total Cost of Ownership, BEV = Battery Electric Vehicle

Study Finding 4 → policymakers must mitigate risks to consumers in the decarbonisation transition, including diverting investment needed for charging infrastructure into E-fuels



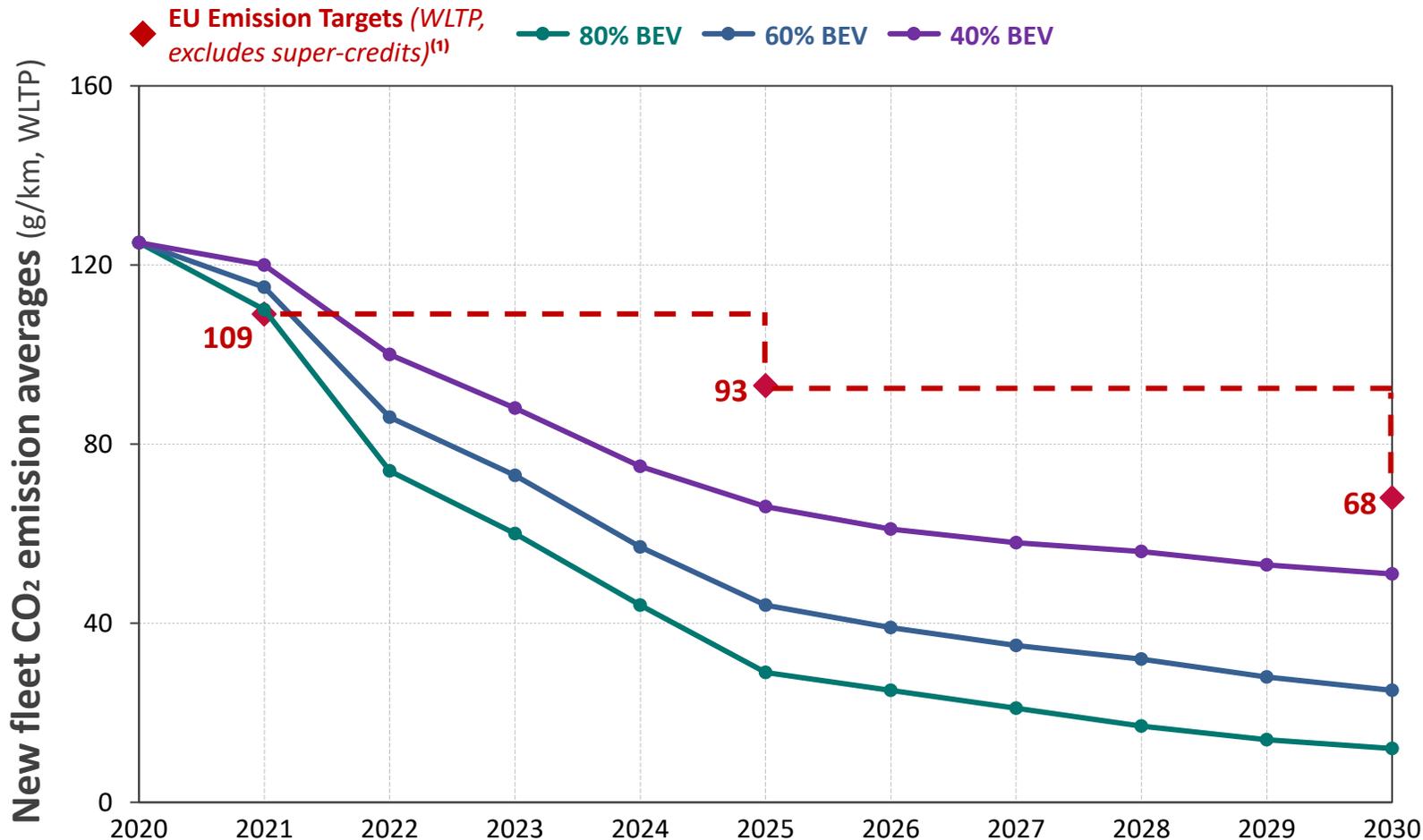
- Even under the **most optimistic projections** (relying on Middle East solar PV for cheap production & no fuel duty), **E-fuels do not reach price parity to petrol until 2037** and **currently consumers would need to pay additional premiums of over 80%**



- E-fuels risk diverting investment** (with significant subsidies required to bring E-fuels to mass market) **away from improving charging infrastructure & accelerating BEV uptake**, with no clear long-term benefits to consumers

Study Finding 5 → tightening European manufacturer CO₂ emission targets is essential to achieve Europe's decarbonisation ambitions

Forecast tailpipe CO₂ emissions (WLTP) for modelled BEV uptake scenarios



Finding 5: Results & Conclusions

- A** Current targets are not stringent enough to drive sufficient growth of BEV sales and are achievable with less than 40% BEV uptake by 2030. Higher BEV uptake is achievable, for example, VW Group forecasts 60% share of all-electric vehicles in Europe by 2030
- B** Tightening targets is essential to provide the lowest cost and emission transport option to as many consumers as possible
- C** Emission targets should reflect a continual decrease over the next decade, to avoid the risk of OEMs peaking sales to meet 2025 & 2030 emission targets

(1) Manufacturer average emission targets NEDC 95g/km in 2021, with 15% and 37.5% reduction in 2025 and 2030 respectively (converted with 1.15 multiplier to WLTP figures based on ICCT (2016) report: 2020–2030 CO₂ standards for new cars and light-commercial vehicles in the European Union); BEV = Battery Electric Vehicle, OEM = Original Equipment Manufacturer