



Making PHEVs count

T&E Analysis of the Commission's proposal for the update of plug-in hybrid utility factors

June 2022

Plug-in hybrid (PHEV) sales accelerated by 71% in 2021 vs. 2020, with almost 900,000 sold. Sales are expected to further increase this year¹, but the ever increasing sales of PHEVs in Europe -pushed by carmaker's need to meet CO2 targets- are problematic both for the climate and the EU's need to rapidly reduce oil use due to the energy crisis brought about by Russia's invasion of Ukraine.

Unfortunately PHEVs do not deliver the expected CO2 savings on the road both due their poor design and lack of incentive to charge, undermining the car CO2 regulation and reducing the sales of truly zero emission cars². Unrealistic PHEV CO2 also hurt consumers with much higher fuel bills than expected and undermine EU efforts to wean the transport sector of Russian oil.

The latest data shows that, on average, privately owned PHEVs emit three times more CO2 (and therefore use 3 times more fuel) than determined on official tests. For company cars this rises to five times³. This means that the average PHEV sold last year emits between 114-190 g/km CO2 instead of the official 38g/km⁴. Most concerningly, fuel consumption of PHEVs is increasing by 6-8% per year⁵ meaning that without ambition action the gap between official and real world figures will only continue to increase.

T&E welcomes the European Commission latest draft on the update of PHEV utility factors (UFs), i.e. the currently overly optimistic assumptions on the share of electric kilometers driven by PHEVs which result in the unrealistically low PHEV CO2 emissions and fuel consumption. The proposal is an improvement of the previous draft published in February which failed to tackle the high gap in real world CO2 emissions/fuel consumption until the late 2020's/2030.

¹ T&E (2022) [Plugged-in: T&E's EV market watch](#).

² T&E (2021) [How to fix the PHEV loophole](#).

³ ICCT. (2022) [Real-world usage of plug-in hybrid vehicles in Europe](#).

⁴ Based on the real world UF for company and private cars published in ICCT. (2022) [Real-world usage of plug-in hybrid vehicles in Europe](#) and T&E's methodology for calculating PHEV CO2 emissions outlined in T&E. (2022) [Update- T&E'S analysis of electric car lifecycle CO2 emissions](#).

⁵ ICCT. (2022) [Real-world usage of plug-in hybrid vehicles in Europe](#).

However, while improved, the proposal results in a continuing gap of 25g/km between real world and official CO2 emissions until 2027. For the climate and for the EU's energy security it is imperative that the gap is closed as quickly as possible.

Therefore T&E recommends that the UF proposed by the Commission for implementation in 2027 is brought forward to 2025. This will close the gap between official and real world PHEV CO2 by 2025 and ensure that car makers cannot unfairly benefit from artificially low CO2 emissions.

This gives car makers more than two years to adjust their production plans which is more than sufficient to ensure that carmakers meet their CO2 standards. As the recent semiconductor crisis has shown carmakers can adjust their plans when required

In addition, T&E supports the planned review of UF based on data from on-board fuel consumption meters in 2024 and 2026. However, to ensure that official CO2 emissions continue to reflect real world values **T&E recommends a biannual review of PHEV utility factors is included within the legislation. This would ensure that carmakers can benefit from investing in better PHEV technology such as larger batteries, fast charging or from incentivising their customers to charge.**

1. New Utility Factors reduce the gap between type-approval and real world but not quickly enough

New research by the Fraunhofer Institute and the International Council on Clean Transportation (ICCT) which analysed the real world performance of the latest World Harmonised Light Vehicle Test Procedure (WLTP) approved plug-in hybrids (PHEVs) shows that real world CO₂ emissions of PHEVs driven in the EU are 3-5 times higher than official figures. The biggest gap exists for company cars with those vehicles driving electrically only 11-15% of the time compared to the 70-85% assumed at type-approval⁶. T&E's modeling of PHEV CO₂ emissions based on 2021 EU PHEV sales shows that the average official PHEV CO₂ emissions should be 101g/km instead of the official 37 g/km if realistic assumptions on the share of electric kilometers driven by PHEVs were applied⁷. This large gap means that carmakers currently unfairly benefit from PHEVs incredibly low CO₂ emissions as it makes it much easier for them to meet the car CO₂ standards.

The European Commission latest proposal to update so called utility factors (UF) i.e. the assumed share of electric driving done by PHEVs used to calculate their CO₂ emissions, includes a two step approach to updating PHEV CO₂ emissions:

1. Firstly, in 2025 the UF curve will be reduced from the current WLTP UF to the Fraunhofer UF calculated for private cars. This assumes that around 50% of PHEV kilometers are driven electrically.
2. Secondly, in 2027 the UF curve will be updated to include company cars, assuming a 50:50 split between private and company vehicles.

⁶ ICCT. (2022) [Real-world usage of plug-in hybrid vehicles in Europe](#).

⁷ Based on the real world UF for company and private cars published in ICCT. (2022) [Real-world usage of plug-in hybrid vehicles in Europe](#) and T&E's methodology for calculating PHEV CO₂ emissions outlined in T&E. (2022) [Update- T&E'S analysis of electric car lifecycle CO₂ emissions](#).

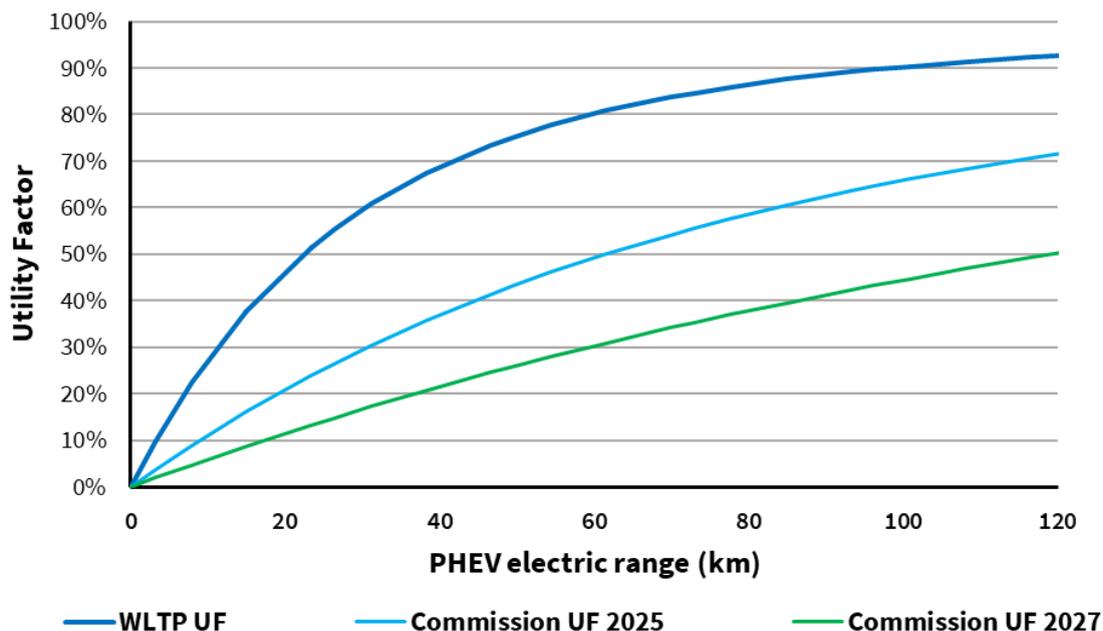
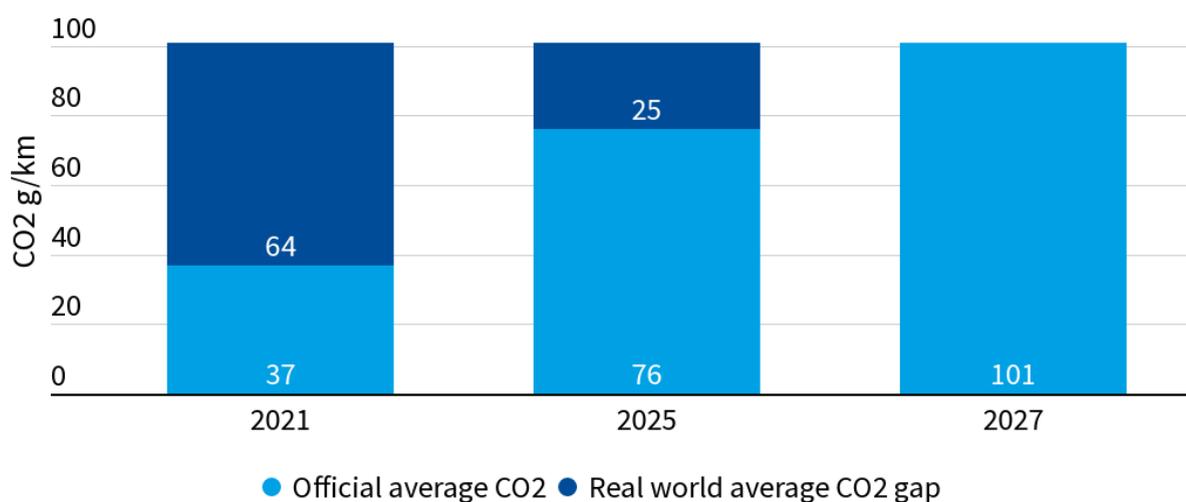


Figure 1. Current WLTP and European Commission proposed 2025 and 2027 utility factors.

While the UFs proposed by the Commission are a significant improvement to the current WLTP UF, the two step approach means that until 2027 there will continue to be a gap between real world and official PHEV CO₂. Based on an analysis of 2021 PHEV sales, at present there is a 64g/km gap between official and real world PHEV CO₂ emissions. The 2025 UF proposed by the Commission will reduce the gap by 39g/km, yet a gap of 25g/km will remain due to the omission of company car data from the 2025 UF. This is particularly problematic as company cars make up 71% of new PHEV sales, failing to account for their low electric driving share until 2027 continues to allow carmakers to benefit from lower PHEV CO₂ emissions unnecessarily for an additional two years. The CO₂ benefit for carmakers on a per PHEV basis is larger than the fleet average CO₂ reduction of 17g/km required for carmakers to meet their 2025 CO₂ targets⁸.

⁸ T&E estimate of required reduction based on 2021 EU car sales.



Source: T&E analysis of the impact of the European Commission proposal on CO2 emissions of EU PHEV 2021 sales covering 85% of EU 2021 new PHEV sales

Figure 2. The gap between official and real word CO2 emissions based on the Commission’s proposed update of PHEV utility factors. Between 2025 and 2027 there will continue to be a gap of around 25g/km.

Closing the gap fully and implementing the 2027 UF proposed by the Commission in 2025 is technically feasible as unlike other vehicle related regulations such as pollutant emission standards, an update of UFs does not require carmakers to make any changes to the PHEVs themselves. It is simply an update to the method used for the calculation of car CO2 emissions. As evidenced by the quick shift of carmaker sales within the last year towards premium models and in turn higher EV sales to compensate for the larger CO2 emissions of premium models, car makers can quickly adjust production volumes. Implementing the 2027 UF in 2025 would give car makers two and a half years to prepare for the implementation of fully realistic UFs in 2025 which is sufficient time for carmakers to ensure that they meet their CO2 targets.

T&E recommends that the UF proposed by the Commission for implementation in 2027 is brought forward to 2025 to fully close the gap between official and real world PHEV CO2 emissions as soon as possible.

2. A Biannual review of UFs should be included in the proposal to ensure that CO2 emissions continue to reflect real world values

T&E welcomes the Commission’s proposal to include a review by the end of 2024 and 2026 of the proposed UFs based on real world data collected from on-board fuel consumption meters (OBFCM) which are fitted to all new cars sold since 2021. However, to ensure that UFs continue to reflect real world values thus allowing carmakers to benefit from improving their PHEVs- such as fitting fast charging and larger

batteries- or encouraging their customers to charge a regular review of PHEV UF should be undertaken post 2026.

T&E recommends that after the last planned review of UFs in 2026, a biannual review of PHEV utility factors is included within the legislation. This will ensure that official PHEV CO2 emissions continue to reflect real world values while striking a balance with the associated administrative burden on type-approval authorities.

Further information

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