



# E-fuels testing: criticisms debunked

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## Summary

Independent emissions testing commissioned by Transport & Environment (T&E) found that cars powered by e-petrol [pollute the air](#) as much as petrol. In response, fossil fuel industry lobby group FuelsEurope accused T&E of cherry-picking the results, but here we debunk each of their points.

FuelsEurope claims: *"Concawe's science-based analysis of the IFPEN report shows instead that the performance of synthetic fuels is in fact at least 50% below the current Euro 6d limits and already complies with the most stringent limits proposed by the CLOVE consortium for Euro 7."*

The facts:

- With these pollution levels, the car using e-petrol would NOT comply with the NO<sub>x</sub> limit of 20mg/km proposed by CLOVE (the consortium of emissions experts from across Europe contracted by the European Commission to help develop Euro 7).
- Furthermore, the purpose of this research was never to measure compliance with Euro standards. Indeed the fossil petrol results are also compliant with Euro 6 standards. The point is that there is no *improvement* when burning synthetic petrol compared to fossil petrol, while BEVs have zero tailpipe pollution.
- With the exception of particles, there is no significant difference or improvement between emissions of fossil petrol and synthetic petrol in cars, even though both comply with today's (inadequate) Euro pollution standards.
- Even if burning e-petrol is compliant with the current Euro 6d limits, only a very small part of the existing vehicle fleet is Euro 6. E-fuel will not address the air pollution impact of the existing fleet.
- E-petrol will not help alleviate Europe's chronic air pollution problems and it is not in line with the EU Green Deal's zero-emissions pathway – while electric cars achieve both.

FuelsEurope claims: *"Contrary to the conclusions made by T&E campaigners, the latest IFPEN study for T&E clearly shows that the use of synthetic fuels in cars results in a dramatic reduction in CO<sub>2</sub> emissions and no significant effect on pollutants emissions versus fossil fuels."*

The facts: T&E did not claim this. In our webinar we highlighted the *other* greenhouse gas (GHG) emissions released by e-fuels in the tests: methane and nitrous oxides. These have higher global warming

potential than CO<sub>2</sub> but so far have been ignored by the proponents of synthetic petrol and diesel. Even if the quantities are small, the presence of these GHG emissions puts into doubt the unequivocal claims of "climate neutrality" of such fuels.

FuelsEurope claims: *"The Euro 6d vehicle tested by T&E shows very low emissions, at least 50% below the current Euro 6d limits (and up to 500 times lower). On all the measurements revealed in T&E's presentation, the vehicle already complied with the most stringent limits proposed by the CLOVE consortium for Euro 7. All these results were obtained either with e-petrol or fossil gasoline."*

The facts:

- The car using e-petrol would NOT comply with the NO<sub>x</sub> limit of 20mg/km proposed by CLOVE, which is the 'best available technology' scenario put forward by the independent consortium for the development of a Euro 7 standard by 2025.
- Again, this is not about compliance with the current Euro 6d limit – with which the fossil petrol vehicle also complies.
- But the latest research tells us there is no safe level of air pollution. Making air across Europe safer for everyone to breathe, and cities more pleasant to live in, is a top priority of the EU Green Deal and that's why the plans for a Euro 7 standard chart a path to reaching zero-emissions vehicles. E-petrol is not zero-emissions and therefore should not become a distraction from the switch to ZEVs.

FuelsEurope claims: *"Concawe's review of the fuels used for the study highlighted that the so-called "e-petrol" evaluated by T&E are in fact out-of-specs petroleum fuels, and the tested "e-petrols" are out of specifications (EN228), a fact omitted by T&E."*

The facts:

- There are no "in-spec" e-petrol fuels available today. FuelsEurope's climate "solution" would require billions of litres of e-petrol to be produced to spec – when not even 100 litres can be found for testing today.
- E-fuels inherently have lower aromatics than fossil fuel, and therefore they are much less likely to be compatible with the EN228 specification in terms of volatility, ie the specification will not apply to them if they come to market.
- This is explained clearly in both the IFPEN and T&E reports.
- Lower aromatics, in particular heavy aromatics, in the e-fuels tested are responsible for the lower particle number emissions.

FuelsEurope claims: *Concawe also analysed the emissions from a number of pollutants measured by T&E in its report, including NO<sub>x</sub>, CO, HC (unburnt hydrocarbons), PN (particulates number) and NH<sub>3</sub> (ammonia). John Cooper explained "the measured emission levels contained in the IFPEN report show that all the above*

*pollutants achieve dramatic reductions between 40 and 95% below the emission levels set by Euro 6d and even the stringent Euro 7 proposed limits.”*

The facts: The car using e-petrol would NOT comply with the NOx limit of 20mg/km proposed by CLOVE.

FuelsEurope claims: *“T&E made the statement that the emission control systems have their efficiency reduced over time, as the vehicle ages. Whilst this is true, critical context is missing: ISC (In-service conformity), MaS (Market Surveillance) and Periodic Technical Inspection (PTI), along with On-Board Diagnostic (OBD) ensure that vehicles maintain their low emission levels for their entire useful life. These are all mandatory features of Euro 6d standards.”*

The facts: The current Euro 6 standard for cars does not ensure lifetime emissions compliance – they only ensure that vehicles need to meet the on-road emission limits for the first five years or 100,000km (whichever comes first). This is the period over which in-service conformity testing requirements apply. This falls far short of the average lifetime of the EU vehicle which is 10.8 years. This has been recognised by CLOVE. They have proposed to increase the durability requirements for cars to 240,000km or 15 years.

FuelsEurope claims: *On the climate performance of synthetic fuels, T&E suggested in its presentation that BEVs are the only zero-emissions vehicles. However, according to them, an average gasoline car running on e-petrol emits 7-9 kg of CO<sub>2</sub>eq a year. John Cooper indicated “on average, annual distance travelled by cars driven by users living in urban areas in the EU is of 7,500km per year, which means that a gasoline car fuelled with e-petrol emits on average 3gCO<sub>2</sub>/km. We all agree that 100% climate neutral vehicles don't exist but this performance (3gCO<sub>2</sub>/km) compared to the current average European electricity carbon footprint shows how good synthetic fuels can be for contributing to climate neutrality. Moreover, according to the T&E report, if we compare the e-petrol emissions with those resulting from the current production of a 30kWh battery, approx. 3000 kg of CO<sub>2</sub>eq, i.e. 200 kg of CO<sub>2</sub> a year during a 15-year ownership, the e-petrol emits, on annual basis, 20 times less than the CO<sub>2</sub> emitted by the production of the battery.*

The facts:

- T&E's updated [lifecycle CO<sub>2</sub> analysis](#) shows that the average amount of CO<sub>2</sub> emitted by new BEVs powered by the EU electricity grid in 2030 is around 40% lower than for a petrol car running on the e-fuels which meet the RED II sustainability criteria.
- If electricity with the same carbon intensity is used to power the BEV and to produce the e-fuel (in line with RED II criteria), the battery car emits half as much as the comparable petrol car running on e-fuel.
- Conventional cars powered with e-fuels consistently emit more CO<sub>2</sub> than an equivalent BEV, including in Germany where such e-fuels are high on the agenda. Using e-fuels to power conventional cars will provide considerably less climate benefits, on top of requiring much more renewables.

- FuelsEurope misleadingly claims that EV battery production emits 20 times more than e-petrol, yet in the same press release it states that EVs “should be a major part” of the decarbonisation of road transport.

FuelsEurope claims: *In its report, T&E repeatedly refer to a Concawe study which would have demonstrated that using e-diesel results in increasing particles emissions. Concawe want to clarify that this is not correct: first, Concawe have never performed any study using e-diesel, and have never pretended to do so; second, with what is the closest representative of Fischer-Tropsch e-diesel, which was in fact a 100% renewable HVO, Concawe never concluded that the particles emissions could increase, and the collected experimental data certainly does not support such a statement. Concawe kindly ask T&E to stop referring to our studies in a misleading way.*

The facts: Concawe claims that T&E incorrectly used its findings regarding e-diesel. Yet Concawe's own SAE publication says paraffinic diesel fuel "was chosen to represent paraffinic fuels derived from natural gas (GTL), biological sources (such as HVO, BTL) and PTL fuels". It seems Concawe – a group setup and funded by the refining industry to support its lobbying -- was only happy to use paraffinic diesel fuel to represent power-to-liquid/e-diesel when it suited them.

## Further information

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