Why technology neutrality is much wiser than Technology Exclusion

Brussels, 26 November 2018: In 2016 already, studies[1] published by Norwegian University of Trondheim, NTNU, showed that emissions resulting from the manufacturing and recycling of the electric car and its battery are such that the most efficient ICE could compete with EVs on a life cycle perspective. These conclusions were strongly criticized by NGOs at the time of their initial publication, considering them as unrealistic and unreliable.

It appears that 2 years later they are now substantiated by the European Environment Agency whose study[2] published on 22 November 2018, finds that electric cars "*emit **less greenhouse gases and air pollutants** over their entire life cycle than petrol and diesel cars*". The EEA specified that less is "***17 percent to 30 percent lower** than from internal combustion engines when they are used*". The gap is surprisingly small and the 2021 target for CO_2 in cars, almost 25% lower (95gr/km), is likely to already fill most of that gap with efficient ICEs.

Zero emission vehicles do not exist

T&E, a green transport NGO, came out on 22 November 2018 with a press release[3] calling for no ICEs in 2035 and a shift towards Battery Electric Vehicles because "*The heavy lifting in terms of emissions reductions requires a shift to zero-emission vehicles by 2035 at the very latest*." Based on the latest EEA conclusions, this call raises the question of which vehicles the NGO is talking about, and raises concerns about the misleading use of the terminology "zero-emission vehicles" as we all understand that these do, in reality, not exist.

Vision 2050[4] –why low-carbon fuels could be a viable and sustainable solution for decarbonizing transport.

This low-carbon liquid fuels strategy offers a **global solution for transport** including the very challenging segments, aviation, marine & heavy duty road transport. Findings from a study[5] by Ricardo show that such strategy could for example for light duty vehicles reduce net CO2 emissions from transport by up to 87% compared to 2015, similar to that achieved by an ambitious EV scenario.

This technology neutral approach would allow many technologies to compete and to contribute to the overall objective of reducing GHG emissions from transport. In the Ricardo LDV example, one can see in

[1] Elligsen et al., 2016 : http://iopscience.iop.org/article/10.1088/1748-9326/11/5/054010/meta
[2] EEA : https://www.eea.europa.eu/publications/electric-vehicles-from-life-cycle
[3] T&E : https://www.transportenvironment.org/press/europe%E2%80%99s-last-combustion-car-must-be-sold-within-15-years-%E2%80%93-analysis
[4] FuelsEurope: https://www.fuelseurope.eu/wp-content/uploads/DEF_2018_V2050_Narratives_EN_digital.pdf
[5] Ricardo : https://www.fuelseurope.eu/wp-content/uploads/Mass-EV-Adoption-and-Low-Carbon-Fuels-Scenarios.pdf - https://www.fuelseurope.eu/wp-content/uploads/Key-findings-Ricardo-Study.pdf

2050 an energy mix comprising 54% biofuels (sustainable and advanced biofuels), 14% e-fuels and 23% electricity. The remaining 9% are attributed to fossil fuels.

Availability of feedstock to produce the low-carbon liquid fuels

A critical questions is of course the availability of feedstock and the costs of the fuels.

The Commission published in November 2017 a study[6] on the availability of advanced biofuels which concluded that a significant quantity of advanced biofuels could be available for transport. These findings served as the basis for the Vision 2050 low-carbon liquid fuels scenario and the Ricardo study. Worth noting that from a recent IPCC report[7], the UNFCCC concluded that electricity and biofuels had to work in tandem to meet the climate objectives.

Costs were also assessed in the Vision 2050 scenarios. The study shows significantly higher upfront costs for charging network and infrastructure under a mass EV scenario (between €630 and €830 Billion) compared to the low-carbon liquid fuels scenario (between €326 and €390 Billion). The level of the costs raises the question of the financing: will it be the electricity sector who might in turn pass these costs through to the consumer? ; Or public funds likely to be recovered through taxes.

The societal costs appears to be similar (€2.254 Billion for mass EV versus €2.263Billion for low-carbon liquid fuels scenario).

Industrial opportunity versus import dependency

A low-carbon liquid fuels strategy appears to be a real industrial opportunity for the EU. The required low carbon technologies could enable the EU to gain leadership in these low-carbon technologies, all of which will be key for the strategy of the wider industrial base.

On the contrary the risk of an import dependency for raw materials (Lithium, cobalt, Nickel) or batteries for EVs is growing and has recently been stressed by Vice-President Maros Sefcovic[8]. The Vision 2050 also reports the uncertainty of access to raw materials and more importantly the volatility of the price which will have a direct impact of the costs of electric vehicles.

The progressive introduction of low-carbon fuels will enable reducing on a life cycle basis the carbon intensity of ICEs at the level of EVs

From the EEA study we understand that EVs have, on a life cycle basis, between 17 and 30% less emissions then the current ICE. If we introduce low-carbon fuels in road vehicles, coupled with further efficiency gains in ICE technology, then we would close the gap and have the latest ICE vehicles that would be just as low as EVs. This could already be achieved when the new CO_2 in cars standard (95gr CO_2/km) enters into force in 2021.

[6] DG Research and Innovation (European Commission), "Research and innovation perspective of the mid- and long-term potential for advanced biofuels in Europe," 2018;
[7] https://www.euractiv.com/section/agriculture-food/news/electricity-and-biofuels-needed-in-tandem-to-meet-climate-goals-un-report-says/
[8] https://www.euractiv.com/section/circular-economy/interview/eus-sefcovic-raw-materials-could-become-the-new-oil/

Can policies support us going further?

There is, today, no alternative to liquid fuels for a significant portion of aviation, marine and heavy-duty road transport, and also we shouldn't forget the need for sustainable feedstocks for petrochemicals.

To realise the full potential of this ambitious vision for fuels, transport and energy intensive industries, we will need an evolution of policies, and the political vision to integrate it in the industrial and technology strategies for Europe's future.

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FuelsEurope, the voice of the European petroleum refining industry

FuelsEurope represents with the EU institutions the interest of 41 companies operating refineries in the EU. Members account for almost 100% of EU petroleum refining capacity and more than 75% of EU motor fuel retail sales.
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