



Well-to-Wheel (WtW): the right approach for road transportation

WTW (WELL TO WHEEL) APPROACH IN TRANSPORTATION

The ART Fuels Forum Passenger Cars and Heavy-Duty Vehicles teams call for a Well-to-Wheel (WtW) approach in road transportation, as a necessary, more realistic and transparent method compared to the today used Tank-to-Wheel (TtW) approach.

We strongly believe that renewable and recycled carbon fuels represent sustainable, effective, technology neutral and pragmatic pathways towards passenger cars and heavy-duty vehicles decarbonization and climate goals.

Industry already developed several sustainable fuel routes which are already commercially available or which their production is close to achieve full market conditions. These fuel routes are at different level of maturity with respect to their use in Internal Combustion Engines (ICE); methane (bio or Power-to-Gas), (bio-) methanol, (bio-) ethanol, bio-diesel (FAME) and renewable hydrocarbons (as HVO), are directly used or are blended at different percentages with the corresponding fossil components. Among these, the most innovative renewable fuels are expected to reach a full market scale by 2020.

Further, in addition to contributing to the greenhouse gas mitigation effect, renewable fuels should be considered also under the point of view of other relevant parameters, such as, availability, total cost of ownership, compatibility with existing infrastructures, impact

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on local pollution and air quality, driving range, recharging/refueling timeframe, reliability and safety.

Looking at future transport system scenarios, where a complex mix of technical solutions (spanning from thermal engines to full electric vehicles, and considering all the various degrees and modes of hybridization in between) and fuels (including increasing amounts of renewable fuels and energy carriers) are readily available, the CO₂ tailpipe emissions approach is inadequate in measuring the net impact on climate mitigation.

The only transparent and holistic method to carry out an equitable comparison of propulsion alternatives for road transportation is to establish a WtW approach, supported by continuous monitoring and certification at EU/Member State level since the agro-forestry stage, i.e. where the feedstock is produced.

In November 2018, the [European Parliament Plenary](#) gave the mandate to the competent Rapporteur to start the negotiations with the Member State on the CO₂ emissions standards for passengers' cars and vans (see also [NGVA](#)).

The Parliament decided for a CO₂ 20% reduction target by 2025, reaching an impressive and unprecedented goal of 40% in 2030. Considering those targets under the light of the even optimistic [IEA forecast](#) of 30% penetration of full electric vehicles by 2030, the contribution of renewable fuels for use in ICEs will remain a fundamental and unavoidable component to drastically reduce transportation sector GHG emissions, as planned by EU Institutions.

We are fully convinced that by raising the emission reduction targets in 2025 and 2030 and maintaining the current 'Tank-to-Wheel' measurement system instead of adopting a balanced and holistic 'Well-to-Wheel' approach, the transport system will be forced in favor of one single solution, namely electric mobility, without achieving the desired and needed decarbonization targets, but only disadvantaging the cleaner and more sustainable novel ICEs technologies.

Therefore, it is fundamentally important to maintain an open legislative framework where technology neutrality is maintained.

Anticipating the implementation of a complete WtW methodology, tailpipe emissions information from vehicles can be implemented as follows:

1. Vehicle type approval is maintained on the basis of tailpipe emissions (needed for calculating the vehicle fuel economy)
2. A CO₂ Correction Factor is calculated, based on the share of advanced/renewable fuel traded at gas stations
3. Certification of the advanced/renewable fuels rate can be made at Member State level or, alternatively, from the vehicle manufacturer.

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This approach would be compliant also with the provisions set by the Renewable Energy Directive (RED II), where the contribution from the combustion (tailpipe emissions) of renewable fuels is set at zero, as the carbon eventually utilized is the result of CO₂ conversion occurred during the lifetime cycle of the raw material or from CO₂ capturing process.

ABOUT ART FUELS FORUM

The ART Fuels Forum brings together more than **100 high-profile experts** representing **leading Industries** in the area of ART Fuels, aiming at producing **evidence-based opinions** and conveying the collective interest of the ART Fuels industry towards the elaboration of common positions on policy and markets.

The Forum is established and financed by the European Commission under the project name “Support for alternative and renewable liquid and gaseous fuels forum (policy and market issues)”. The Forum focuses on sustainable advanced liquid and gaseous transportation fuels derived from a broad range of non-food feedstocks using specialized conversion technologies. These transportation fuels include, among others, fuels produced from thermochemical and biochemical conversion of lignocellulosic biomass, fuels from algae and microbial biomasses, power to gas/liquid fuels, solar fuels, fuels from industrial waste gases, fuels from municipal solid waste, plastic waste and refinery waste, and co-processing of biomass intermediates in existing refineries.

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DISCLAIMER - The above Position paper on the Well-to-Wheel approach in road transportation has been drafted by the Passenger Cars and Heavy-Duty Vehicles Working Groups of the Alternative & Renewable Transport Fuels Forum (ART Fuels Forum) after exchange of opinions and internal consultation among the Forum members. The content of the Position paper does not necessarily reflect the views of all members of the ART Fuels Forum, but is a synthesis of the main positions. The positions and recommendations listed above are those of the members of the ART Fuels Forum and do not necessarily reflect either the official position of the Commission or the complete position of the members of the ART Fuels Forum.

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