

Risks of crediting alternative fuels in Europe's CO₂ standards for trucks and buses

Policymakers in the European Union (EU) have typically used complementary policies to decarbonize the road sector. For vehicles, CO₂ standards are used to reduce tailpipe emissions in absolute terms, whereas fuels policies are used to reduce the upstream life-cycle emissions of the fuel mix.

The European Parliament's Committee on the Environment, Public Health and Food Safety is now considering proposals to amend the CO₂ standards for heavy duty vehicles (HDVs), some of which would allow crediting of alternative fuels towards the standards. There are three options (illustrated in Figure 1), which would allow alternative fuels to be counted towards HDV CO₂ standards, even though fuels and vehicles have historically been regulated separately.

- 1. A carbon correction factor (CCF)**, which artificially reduces the certified emissions of a vehicle based on a specific blend of alternative fuels, as defined in the Renewable Energy Directive (RED), into the fossil mix. A CCF would be calculated using the European Commission's Short Assessment of Renewable Energy Sources (SHARES) database. The CCF is the percentage of alternative fuels in the fossil mix for that type of fuel. For example, diesel vehicles would be credited based on the share of alternative fuel in the diesel fuel mix.
- 2. A fuels crediting system**, whereby manufacturers would purchase credits representing a certain quantity of alternative fuels, which could then be applied to fleets or individual vehicles. A reduction in the certified CO₂ emissions would be based on the GHG savings of the fuel and the assumed lifetime of vehicles.
- 3. A type-approval process** whereby a vehicle running exclusively on alternative fuels is certified as emitting less CO₂ than the same kind of vehicle operating on fossil fuels.

ICCT recently analyzed the CCF proposal's impact on CO₂ savings under the HDV CO₂ standards. The study also assesses the type-approval and fuel crediting systems.

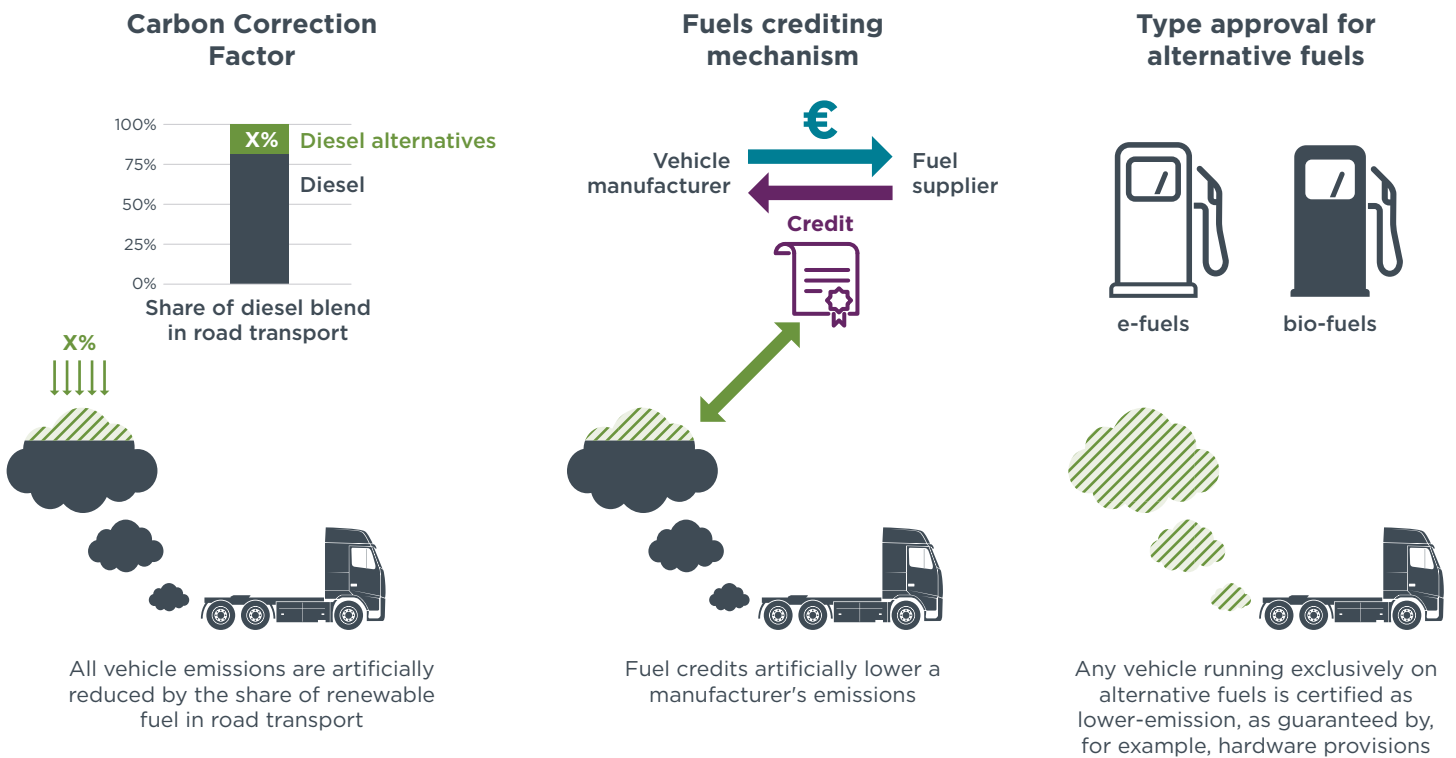


Figure 1. Alternative fuels crediting mechanisms.

KEY FINDINGS

A carbon correction factor could reduce cumulative tailpipe CO₂ savings by up to 200 million tonnes from 2020 to 2050 compared to the Commission's current proposal.

- » A CCF system could reduce the effectiveness of the HDV CO₂ standards considerably, as illustrated in Figure 2. The lost savings of 200 million tonnes of CO₂ is approximately equal to the total annual CO₂ emissions from the HDV sector in Europe today. The loss in CO₂ savings would occur because a CCF would credit alternative fuels already incentivized by other EU fuels policies such as the RED III and any biomethane target, such as the one proposed in the Gas Regulation, towards the CO₂ standards. A CCF would not incentivize any additional CO₂ savings for the HDV sector but would dilute the impacts of the standards. The loss in CO₂ savings is equivalent to reducing the Commission's proposed targets for 2030, 2035, and 2040 by 8 percentage points, each.

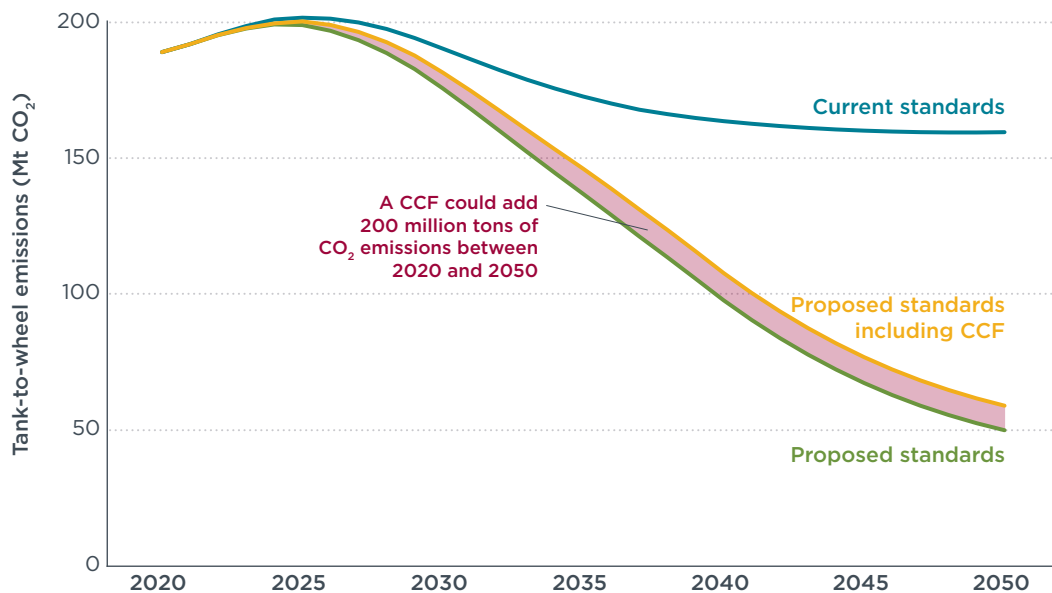


Figure 2. Tailpipe CO₂ emissions in the EU under the European Commission's proposed revision of HDV CO₂ standards with and without a CCF.

- » A CCF mechanism would allow a manufacturer to receive a reduction in their vehicles' certified CO₂ emissions for food and feed-based biofuels, which pose sustainability risks and may generate land use change emissions that undermine their intended GHG savings. For example, soy oil-derived biofuels can generate 1.6 times higher GHG emissions than assumed in the RED III when accounting for all land use change emissions.
- » A CCF mechanism would overstate the GHG emission savings provided by most alternative fuels, over-crediting them towards vehicles' certified CO₂ emissions. This is because the combustion emissions associated with alternative fuels are assumed to be zero. In accordance with the RED II methodology, this implies they provide nearly an 80% reduction in GHG emissions compared to fossil fuels. However, some biofuel producers are only required to provide 50% GHG savings compared to fossil fuels.
- » The SHARES database, which would be used to calculate the CCF, is presently not suitable to accurately determine the CCF for trucks and buses, since it does not delineate by fuel type and transport sector. Therefore, alternative fuels used in other sectors such as maritime could be credited towards the HDV CO₂ standards.

The efficacy of type-approval or fuels crediting mechanisms depends on limiting eligibility only to fuels that offer substantial GHG reductions and demonstrating that credited fuels are additional to volumes already mandated by RED III.

- » Currently, many types of risky biofuels qualify under the RED II and RED III sustainability criteria. These include palm and soy oil, which are associated with substantial land use change emissions, as well as biofuels from waste oils, which pose a risk for fraud. While the contribution of these biofuels to RED III targets are either capped or in the process of being phased out, under a type-approval or fuels crediting system, they could be credited in excess of these limits. Since biofuels from some vegetable oils such as soy may have even higher GHG emissions than fossil fuels, vehicles operating on these fuels would emit more GHG emissions than were they to operate on fossil diesel.
- » Under a type-approval system, alternative fuel would require a blending agent to signal fuel type, but this blending agent could be fraudulently mixed into fossil diesel. There is also a risk that customers could tamper with fuel type sensors to avoid paying high prices for alternative fuel.

- » Under a fuels crediting system, it would be difficult to ensure the fuels credited would be additional to those credited under the RED III, because the RED III is implemented by each of the 27 Member States individually. The European Commission would need to implement its own system to track each liter of alternative fuel in the EU to determine whether it is already counted towards any of the 27 national RED III implementation schemes.

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