

## International Council on Clean Transportation comments on the inclusion of alternative fuels in the European Union's CO<sub>2</sub> standards for trucks and buses

April 4, 2024

### Summary

- Several amendments have been tabled in advance of the European Parliament's plenary vote on the CO<sub>2</sub> standards for trucks and buses that would enable alternative fuels to count towards trucks and bus manufacturers' CO<sub>2</sub> emission reduction targets:
  - Amendments (142, 143, 145, 146) introduce a carbon correction factor, artificially reducing a manufacturer's emissions based on the volume of alternative fuels in circulation in the EU
  - Amendments (144, 148) would oblige the European Commission to develop a methodology for registering heavy-duty vehicles which operate exclusively on "CO<sub>2</sub> neutral" fuels for compliance purposes.
  - Amendment (141) would create a definition for "CO<sub>2</sub> neutral" fuels.
- The carbon correction factor dilutes the CO<sub>2</sub> standards by reducing manufacturer targets by the share of alternative fuels in circulation. It could reduce cumulative tailpipe CO<sub>2</sub> savings by up to 200 million tonnes from 2020 to 2050 compared to the Commission's proposal. The majority of Europe's manufacturers have spoken against its inclusion, and it has been voted down by legislators in the European Parliament and the Council of the EU during negotiations last year.
- The definition for CO<sub>2</sub> neutral fuels would include all fuels listed in the recast of the Renewable Energy Directive (RED II), including food and feed biofuels that

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would not be required to meet the RED II's greenhouse gas savings requirements. This definition would still include "high ILUC" palm oil biofuel.

- This ambiguous CO<sub>2</sub> neutral definition could possibly allow fossil fuels to be considered as CO<sub>2</sub> neutral, if the producer secures carbon offsets equivalent to the carbon content of the fuel.

In the following comments we provide greater detail on the proposed certification procedure for vehicles running exclusively on CO<sub>2</sub> neutral fuels and the proposed definition of a CO<sub>2</sub> neutral fuel, explaining what kinds of fuels would qualify under this definition. We **bold** key take-aways.

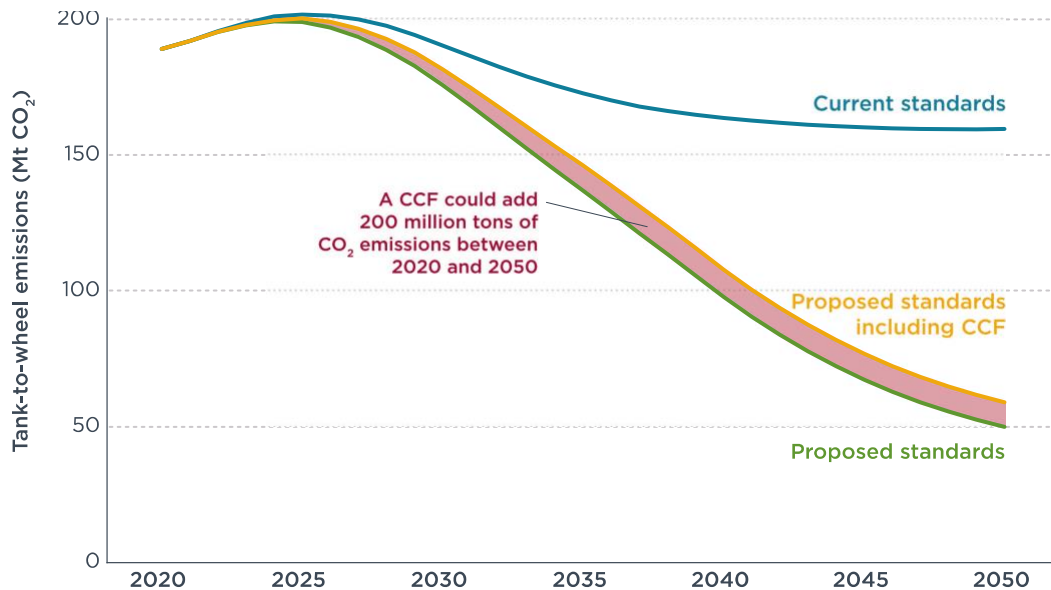
## The Carbon Correction Factor

Amendments (142, 143, 145, 146) would include a Carbon Correction Factor (CCF) in the CO<sub>2</sub> standards. A CCF could reduce the ambition of the trucks and bus CO<sub>2</sub> standards considerably.<sup>1</sup> The lost savings of up to 200 million tonnes of CO<sub>2</sub>, shown in Figure 1, is approximately equal to the total annual CO<sub>2</sub> emissions from the HDV sector in Europe today. **The loss in CO<sub>2</sub> savings would occur because the CCF would credit alternative fuels already on the market because of separate EU fuels policies such as the RED III**, towards the CO<sub>2</sub> standards. Five out of seven of Europe's major truck manufacturers have criticized the inclusion of the carbon correction factor, as it would impact their specific targets with them having no bearing over the share of alternative fuels.

The CCF mechanism would allow a manufacturer to receive a reduction in their vehicles' certified CO<sub>2</sub> 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 could generate 1.6 times higher GHG emissions than assumed in the RED III when accounting for all land use change emissions.

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<sup>1</sup> Chelsea Baldino, Eamonn Mulholland, and Nikita Pavlenko, "Risks of Crediting Alternative Fuels in Europe's CO<sub>2</sub> Standards for Trucks and Buses" (Washington, D.C.: International Council on Clean Transportation, October 2, 2023), <https://theicct.org/publication/factsheet-crediting-alternative-fuels-europe-co2-standards-trucks-buses-oct23/>.



**Figure 1: Tailpipe CO<sub>2</sub> emissions in the EU under the European Commission’s proposed revision of HDV CO<sub>2</sub> standards with and without a CCF.**

## A certification procedure for CO<sub>2</sub>-neutral fuels

Amendments (144, 148) would require the European Commission to develop a methodology for registering heavy-duty vehicles that operate exclusively on CO<sub>2</sub> neutral fuels for compliance purposes.<sup>2</sup> This amendment is similar to what was introduced in the finalized CO<sub>2</sub> standards for cars and vans which asks the Commission to make a proposal for cars and vans running exclusively on CO<sub>2</sub> neutral fuels to be registered after 2035.<sup>3</sup> In the cars and vans standards, the obligation is with the European Commission to define CO<sub>2</sub> neutral.

By contrast, an additional amendment (141) would create its own definition of CO<sub>2</sub> neutral fuels for trucks and buses which is significantly broader than that proposed by the European Commission for cars and vans. This proposed definition is described in the next section.

<sup>2</sup>Amendment 141, European Parliament. 2021. Strengthening the CO<sub>2</sub> emission performance targets for new heavy-duty vehicles. Amendments adopted by the European Parliament on 21 November 2023 on the proposal for a regulation of the European Parliament and of the Council amending Regulation (EU) 2019/1242 as regards strengthening the CO<sub>2</sub> emission performance standards for new heavy-duty vehicles and integrating reporting obligations, and repealing Regulation (EU) 2018/956. Retrieved from [https://www.europarl.europa.eu/doceo/document/A-9-2023-0313-AM-148-148\\_EN.pdf](https://www.europarl.europa.eu/doceo/document/A-9-2023-0313-AM-148-148_EN.pdf)

<sup>3</sup> European Commission, “Regulation (EU) 2023/851 of the European Parliament and of the Council of 19 April 2023 amending Regulation (EU) 2019/631 as regards strengthening the CO<sub>2</sub> emission performance standards for new passenger cars and new light commercial vehicles in line with the Union’s increased climate ambition (Text with EEA relevance),” (2023), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32023R0851>

## Definition of CO<sub>2</sub> neutral fuels

In Amendment (141), the European Parliament's proposed a definition of "CO<sub>2</sub> neutral" fuel for the CO<sub>2</sub> standards for trucks and buses:<sup>4</sup>

*'CO<sub>2</sub> neutral fuel' means all fuels defined by Directive (EU) 2018/2001 where the emissions of the fuel in use (eu) can be taken to be net zero, meaning for instance that the CO<sub>2</sub> equivalent of the carbon incorporated in the chemical composition of the fuel in use (eu) is of biogenic origin and/or has been captured, so avoiding being emitted as CO<sub>2</sub> into the atmosphere, or has been captured from ambient air. Those fuels shall include renewable and/or synthetic fuels, such as biofuel, biogas, biomass fuel, renewable liquid and gaseous transport fuel of non- biological origin (RFNBO) or a recycled carbon fuel (RCF). Other fuels not listed in Directive (EU) 2018/2001 may fall within the meaning of CO<sub>2</sub> neutral fuel provided that they meet those criteria and the sustainability criteria of that Directive and associated delegated acts. A mixture of two or more CO<sub>2</sub> neutral fuels shall be considered to be a CO<sub>2</sub> neutral fuel.*

**This definition would cover a wide variety of alternative fuels, including food- and feed biofuels and, possibly, fossil fuels with carbon offsets.**

### Fossil fuels with carbon offsets

This CO<sub>2</sub> neutral definition may possibly create an opportunity for fossil diesel or natural gas to be eligible. The second to last sentence in the definition stipulates that fuels not listed in the recast of the Renewable Energy Directive (RED II) could count as CO<sub>2</sub> neutral, as long as an amount of carbon equivalent to the carbon content of the fuels is captured. However, the definition does not specify that this capture must occur within a given fuel's direct supply chain. A fossil fuel refinery could therefore possibly offset the equivalent GHG emissions associated with the carbon content of their fuels with carbon offsets and claim that their fuels have "net zero" combustion emissions. This could include carbon capture and storage at the same facility or at another facility operating in the same sector. Alternatively, an offset could occur outside the immediate supply chain of that fuel, or in another sector entirely.

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<sup>4</sup> Amendment 141, European Parliament. 2021. Strengthening the CO<sub>2</sub> emission performance targets for new heavy-duty vehicles. Amendments adopted by the European Parliament on 21 November 2023 on the proposal for a regulation of the European Parliament and of the Council amending Regulation (EU) 2019/1242 as regards strengthening the CO<sub>2</sub> emission performance standards for new heavy-duty vehicles and integrating reporting obligations, and repealing Regulation (EU) 2018/956. Retrieved from [https://www.europarl.europa.eu/doceo/document/A-9-2023-0313-AM-141-144\\_EN.pdf](https://www.europarl.europa.eu/doceo/document/A-9-2023-0313-AM-141-144_EN.pdf)

Further, besides the fact that multiple studies have found quality issues with offsets,<sup>5</sup> these fossil fuels would not be fully carbon neutral on a life-cycle basis. “Fuel in use” emissions refer to the carbon content of the fuel, which is equivalent to the combustion emissions of the fuel (as long as the fuel is fully oxidized). However, the CO<sub>2</sub> released from the combustion of diesel, for example, represents only around 77% of its total life-cycle greenhouse gas (GHG) emissions; the rest of the emissions are released during extraction, transport, and refining of petroleum.<sup>6</sup>

In the CO<sub>2</sub> neutral definition, fuels not defined in the RED II must meet the sustainability criteria found in Article 29 of the RED II. These sustainability criteria are mainly about where raw material extraction can occur. For example, extraction may not take place in a highly biodiverse forest. As these criteria are aimed primarily at feedstock production for biofuels, it would be possible for a fossil fuel supplier to easily meet these criteria.

**Including fossil fuels with carbon capture and storage in the CO<sub>2</sub> neutral definition would make it legally possible for manufacturers to meet their CO<sub>2</sub> standards through continuing to produce diesel and gas vehicles fueled with fossil fuel.** Including fossil fuels would also be a significant administrative burden, requiring a system that validates that the carbon content from the fossil fuel was fully offset in order to quantify it as a CO<sub>2</sub> neutral fuel.

## **Food- and feed- based biofuels**

**The vague language in the definition of CO<sub>2</sub> neutral fuels would undermine important safeguards for biofuels established in the RED II.** The CO<sub>2</sub> neutral definition includes all fuels defined in the RED II if their fuel in use emissions are zero. Fuels are defined in Article 2 in the RED II; this list of definitions including “biofuels,” which are simply “liquid fuel for transport produced from biomass.” The fuel in use emissions of all biofuels is zero because the biogenic carbon accumulated in the plant is captured from the air and is then later released during combustion of the fuel in a vehicle’s engine. Thus, **all food and feed biofuels would qualify towards the CO<sub>2</sub> neutral definition, regardless of their life-cycle emissions.**

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<sup>5</sup> Barbara Haya, Emily Clayton, “Repository of Articles on Offset Quality,” (Berkeley Public Policy: The Goldman School, 2022), <https://gspp.berkeley.edu/research-and-impact/centers/cepp/projects/berkeley-carbon-trading-project/repository-of-articles>

<sup>6</sup> The CO<sub>2</sub> emission factor, i.e. carbon content, of diesel is 73.2 g CO<sub>2</sub>/MJ, which we retrieve from M. Prussi, M. Yugo, L. De Prada, M. Padella, and R. Edwards, “JEC Well-to-Wheels report v5,” (Luxembourg: Publications Office of the European Union, 2020), <https://publications.jrc.ec.europa.eu/repository/handle/JRC121213>. The total life-cycle emissions of diesel are 95.1g CO<sub>2</sub>e/MJ, which we retrieve from European Commission, “Directive (EU) 2015/1513 of the European Parliament and of the Council of 9 September 2015 amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources (Text with EEA relevance),” (2015), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32015L1513>.

While the fuel in use emissions of biofuels are considered zero under the RED II methodology, there are multiple sources of fuels' life-cycle emissions throughout their supply chain that result in biofuels having non-zero life-cycle GHG emissions within the RED II GHG accounting, meaning these fuels are not "carbon-neutral." For example, the extraction or cultivation of raw materials, land use change emissions, processing emissions, and transportation and distribution of the fuel all generate GHG emissions.

The RED II's Article 29 includes sustainability criteria and GHG-saving criteria. However, the definition of CO<sub>2</sub> neutral fuels would not require these biofuels to adhere to the criteria in Article 29- the fuels only need be defined in the RED's Article 2 to qualify as a CO<sub>2</sub> neutral fuel, regardless of their sustainability criteria. **Without stipulating that fuels defined in the RED II must adhere to the criteria in Article 29, alternative fuels qualifying towards the proposed CO<sub>2</sub>-neutral definition could have GHG emissions almost as high, or higher, than petroleum fuel.** Biofuel production can generate high GHG emissions if the production process is inefficient and relies on fossil fuels. For example, the RED II's typical value for palm oil biodiesel produced with an open effluent pond is only 19% GHG savings relative to petroleum fuel, and that value does not include all land use change emissions associated with the feedstock.

Food and feed biofuels, particularly palm oil- and soybean oil-based fuels, can be associated with substantial land use change emissions.<sup>7</sup> **Several measures have been taken to limit the supply of soybean oil and palm oil in the EU-27 and their environmental impacts in the supply chain. Yet none of these measures would prevent these feedstocks from counting under the CO<sub>2</sub> neutral definition.**

First, under the RED II (and RED III by reference), palm oil biofuel, which was labelled as having "high ILUC" GHG emissions, will be phased out from the qualifying towards the renewable energy target for transport by 2030. This means palm oil biofuel will no longer receive incentives in the EU starting in 2030, but it could still legally be sold within the EU. Due to the lack of incentives, it is possible that operators fueling their CO<sub>2</sub> neutral vehicle would not purchase palm biofuel to comply with the CO<sub>2</sub> standards, which means palm could pose less of a risk than other food and feed biofuels. However, with the proposed CO<sub>2</sub> neutral definition including palm biofuel, the CO<sub>2</sub> standard could encourage the use of this biofuel even when it is unsubsidized. While palm oil biofuel could not count towards Member States' RED III targets, it could still be used to fuel trucks and buses for compliance with the CO<sub>2</sub> standards, failing to phase out the use of

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<sup>7</sup> Chelsea Baldino, Eamonn Mulholland, Nikita Pavlenko, "Assessing the risks of crediting alternative fuels in Europe's CO<sub>2</sub> standards for trucks and buses," (Berlin: International Council on Clean Transportation, 2023), <https://theicct.org/publication/crediting-alternative-fuels-europe-co2-standards-trucks-buses-oct23/>

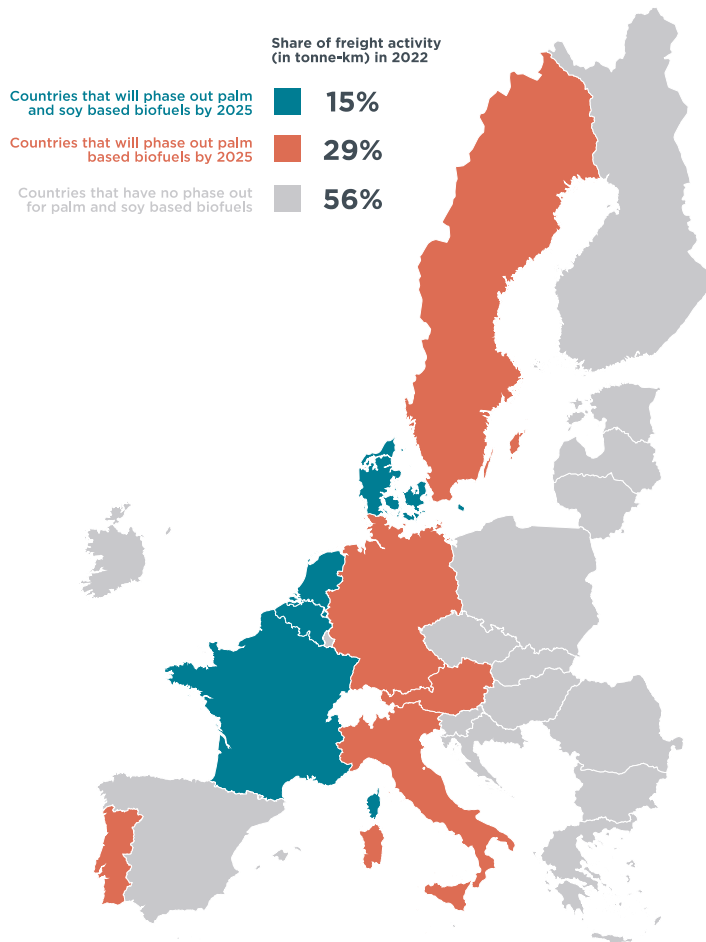
this biofuel in Europe. At present, palm oil is the second most common feedstock for hydroprocessed vegetable oil production in the EU.<sup>8</sup>

Similarly, the RED III caps the contribution of food and feed biofuels to Member States' renewable energy target for transport. Thus, any volume of food and feed biofuels exceeding the cap are not be subsidized, meaning operators of a CO<sub>2</sub> neutral vehicle may chose not to fuel with them. However, as noted the CO<sub>2</sub> standard may still encourage the use of unsubsidized biofuels, in which case the use of food and feed biofuels in Europe may exceed the cap.

In addition, several member states have phased out incentives for palm oil and soybean oil earlier than 2030, as shown in Figure 1. In these Member States, palm oil- or soybean oil-based biofuel would not be as attractive for compliance with the CO<sub>2</sub> standard as subsidized fuels. However, as we show in Figure 1, half of the freight activity in the EU occurs in Member States have no plans to phase out soybean oil or palm oil from their transport targets before 2030. Therefore, in these Member States, palm or soy biofuel would be available at a price competitive with fossil fuel before 2030, **allowing operators of a CO<sub>2</sub> neutral vehicle to fuel up and comply with CO<sub>2</sub> standard targets with biofuel that provides little to no GHG savings.**

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<sup>8</sup> Bob Flach, Sabine Lieberz, Sophie Bolla, „Biofuels Annual,“ (United States Department of Agriculture Foreign Agricultural Service: The Hague, 2022)



**Figure 2: European Union Member States that have phased out palm only, or both palm and soy oil, from their national RED II implementation transportation targets.<sup>9</sup> The legend indicates the share of freight activity (in tonne-km)<sup>10</sup> in member states phasing out one or both feedstocks, or neither.**

<sup>9</sup> Spain indicated plans to phase out palm oil by 2025, but since the ruling has not gone into force, we do not include it in this figure. Sources for the MS phase outs: Amandeep Parmar, "Belgium to ban palm- and soy-based biofuels from 2022," (Argus Media, April 14, 2021), <https://www.argusmedia.com/en/news/2205046-belgium-to-ban-palm-and-soybased-biofuels-from-2022>; Sabine Lieberz and Antonia Rudolf, "Biofuels Mandates in the EU by Member State- 2023," (United States Department of Agriculture Foreign Agricultural Service, July 6, 2023), [https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Biofuel%20Mandates%20in%20the%20EU%20by%20Member%20State%20-%202023\\_Berlin\\_European%20Union\\_E42023-0023](https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Biofuel%20Mandates%20in%20the%20EU%20by%20Member%20State%20-%202023_Berlin_European%20Union_E42023-0023); Ministero dell'Ambiente e della Sicurezza Energetica, "Piano Nazionale Integrato Per L'Energia E Il Clima," (2023), [https://www.mase.gov.it/sites/default/files/PNIEC\\_2023.pdf](https://www.mase.gov.it/sites/default/files/PNIEC_2023.pdf); Ministry of Climate and Business, "Promemoria: Sänkning av reduktionsplikten för bensin och diesel," (2023), <https://www.regeringen.se/contentassets/3b9f78b48d4144ca85b7e76ea89f8d7c/sankning-av-reduktionsplikten-for-bensin-och-diesel/>

<sup>10</sup> Eurostat. (2023). Road freight transport by type of operation and type of transport (t, tkm, vehicle-km) - annual data. Retrieved December 8, 2023, from [https://ec.europa.eu/eurostat/databrowser/view/road\\_go\\_ta\\_tott/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/road_go_ta_tott/default/table?lang=en)