Elements of EU legislation of relevance for determining the carbon footprint of vehicles

11th Session of the Informal Working Group on Automotive Life Cycle Assessment

17-18 October 2023, Brussels.

Overview

- Commission Recommendation on Environmental Footprint methods
- Regulations setting out CO_2 emission standards for vehicles
- Regulation on type-approval of motor vehicles (WLTP)
- Batteries Regulation
- Renewable Energy Directive
- Circularity and End of Life Vehicle Regulation (Commission proposal)
- Critical Raw Materials Regulation (Commission proposal)

Subgroups A-LCA IWG

SG1	Overarching Aspects
SG2	Material & Material Recycling
SG3	Productions
SG4	Use
SG5	End of Life
SG6	Fuel and Energy Cycle
SG7	Drafting

The Environmental Footprint (EF) method

- Builds on LCA standard methodology (ISO) and contains detailed rules to **guide** the implementation.
- Allows to **measure** and **communicate** the life cycle environmental performance of products and organisations.
- Aims to ensure **reproducibility**, **comparability**, and **reliability** of environmental information.
- Establishes a **level playing field** in the market.
- The Commission Recommendation (EU) 2021/2279 is proposing to use the EF method also in **EU legislation**. Several legislations already foresee the use of EF**,** including:
    - Battery Regulation
    - Critical Raw Materials Regulation (proposal)


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II

(Non-legislative acts)

RECOMMENDATIONS

COMMISSION RECOMMENDATION (EU) 2021/2279

of 15 December 2021

on the use of the Environmental Footprint methods to measure and communicate the life cycle environmental performance of products and organisations

Features of the Environmental Footprint Method

- Provides a framework for general modelling requirements (potentially applicable to any product).
- Data quality requirements and recommended use of a common database.
- Guidance on the impact assessment stage (with 16 impact categories, including climate change), and follows developments from the scientific community.
- Based on consensus building across extensive testing (pilot/transition) phases.

CO_2 emission performance standards for light-duty vehicles

- CO_2 performance standards for new passenger cars and vans are set out in Regulation (EU) 2019/631, last amended by Regulation (EU) 2023/851 (April 2023)
  - European Commission to develop a **methodology** for the assessment and the consistent data reporting of the **full life-cycle CO_2 emissions** of light-duty vehicles by 31 Dec 2025 (to be set out in a Delegated Act)
  - As of 1 June 2026, vehicle manufacturers **may voluntarily** report the life-cycle CO_2 emissions data for new passenger cars and vans to the Commission, using the methodology

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Monitoring of CO_2 emissions during the use phase

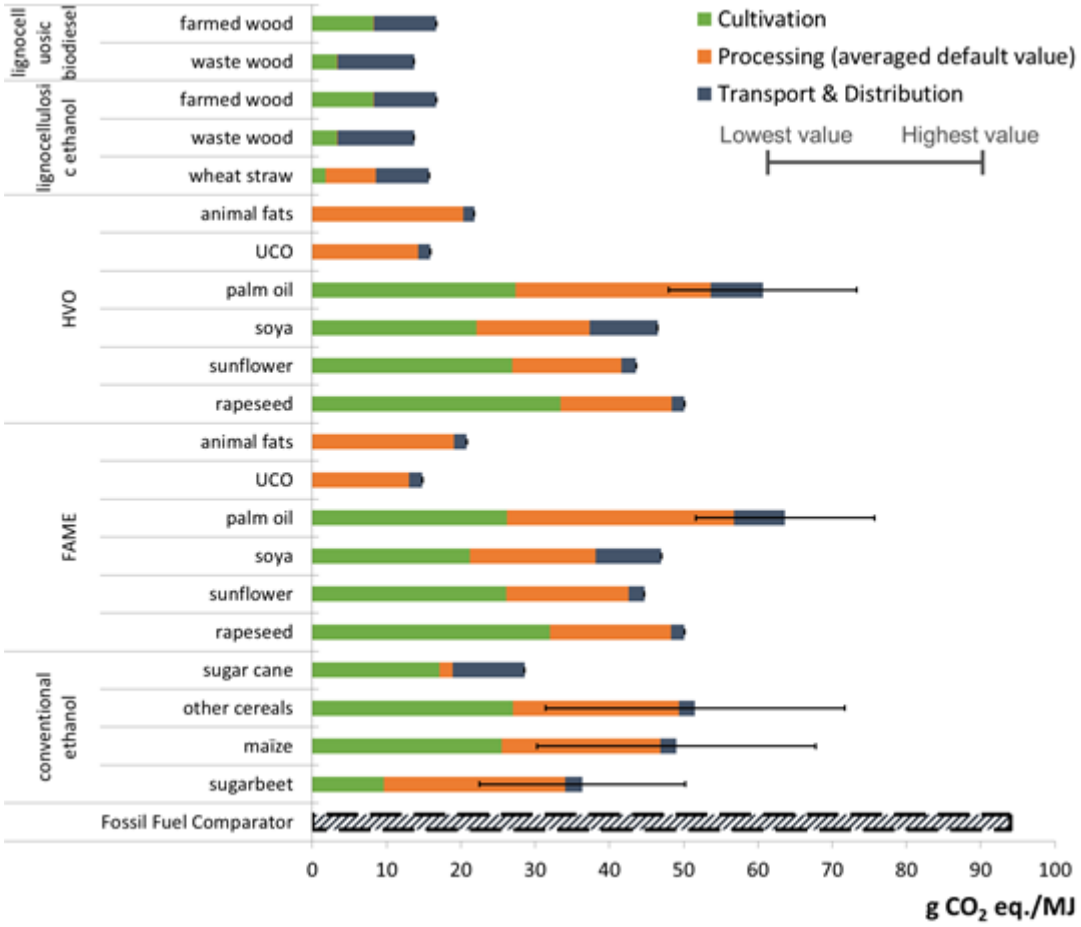
- **Worldwide Harmonised Light Vehicles Test Procedure (WLTP)** is used for determining CO_2 emissions and fuel consumption of new cars and vans at type-approval – Regulation (EU) 2017/1151 and UN Regulation No 154.
- Additionally, on-board fuel consumption monitoring (OBFCM) devices are being used to measure real-world fuel consumption of cars and vans on the road.
    - Data on real-world fuel consumption have to be reported annually to the Commission and are compared with the WLTP data (monitoring of the real-world “gap”)

Batteries Regulation - EV battery carbon footprint

- Regulates the **entire life cycle of batteries** – from production to reuse and recycling.
- Applies to all batteries, including **electric vehicle batteries.**
- **Staged approach**: (i) declaration of the carbon footprint (CF); (ii) performance classes; (iii) maximum thresholds
- CF is calculated as kg CO_2 equivalent per kWh of total energy provided by the battery over its expected service life, per battery model, per manufacturing plant.
- **CF calculation methodology** shall be in compliance with the Commission Product Environmental Footprint (PEF) method and relevant Product Environmental Footprint Category Rules (PEFCRs) and reflect the international agreements and technical/scientific progress in the area of life cycle assessment.
- **Methodology for calculation of the CF** to be set out in separate delegated legislation (under development).
- The Commission's Joint Research Centre has published its recommendation for the CF methodology for electric vehicle batteries: https://eplca.jrc.ec.europa.eu/EU_BatteryRegulation_Art7.html.

Renewable Energy Directive (RED): a specific methodology for determining the life-cycle GHG emissions of energetic pathways

- The methodology has been in place since 2009 and was updated in 2018.
- Rules for calculating the GHG impact of biofuels, bioliquids, solids and gaseous fuels (Annex V & VI).
- Default GHG emission intensity values for different fuels and their production pathways:
  - 60 values for liquid biofuels pathways
  - 102 values for solid biomass pathways
  - 30 values for biogas pathways
- Rules for certification of low ILUC-risk criteria for biofuels (Implementing Regulation 2022/996)
- Since 2023, two delegated acts complement the RED for Renewable Fuels of Non-Biological Origin (RFNBO).



Inspired from: https://doi.org/10.1016/j.trd.2021.102897

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Circularity requirements on the design of vehicles and the management of end-of-life vehicles – 2023 Regulation proposal

- Merges the End-of-life vehicles and the 3R (recyclability, reusability and recoverability) type approval of motor vehicles Directives.
- Covers circularity potential in:
  - Design
  - Production (incl. recycled content)
  - Collection
  - Reuse and recycling
- Contains recycled content targets.

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Critical Raw Materials Act – 2023 Regulation proposal

- Sustainable and diversified supply of critical raw materials in the context of green transition.
- Improve the refining, processing and recycling of critical raw materials.
- Methodology for calculation of the **environmental footprint** for critical raw materials to be set out in separate delegated legislation: this will be based on the EF method and rely on scientifically sound assessment methods and relevant international LCA standards.

Thank you!

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