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|  | United Nations | ECE/TRANS/WP.29/GRPE/2025/17 | |
| _unlogo | **Economic and Social Council** | | Distr.: General  5 August 2025  Original: English |

**Economic Commission for Europe**

Inland Transport Committee

**World Forum for Harmonization of Vehicle Regulations**

**Working Party on Pollution and Energy**

**Ninety-third session**

Geneva, 14-17 October 2025

Item 14 of the provisional agenda

**Automotive Life Cycle Assessment (A-LCA)**

Proposal for a new [Mutual] Resolution [No. 5 (M.R.5)] concerning Automotive Life Cycle Assessment (A-LCA)

**Submitted by the Informal Working Group on Automotive Life Cycle Assessment** [[1]](#footnote-2)\*

The text reproduced below was prepared by the Informal Working Group on Automotive - Life Cycle Assessment (A-LCA). It is a proposal for a new [Mutual] Resolution [No. 5 (M.R.5)] concerning Automotive Life Cycle Assessment (A-LCA). It is submitted to the Working Party on Pollution and Energy consideration at its 93rd session.

1. Scope and application

This [Mutual] Resolution applies to light duty vehicles.

1. General methodology
   1. Functional Unit and reference flow

The primary function of a light duty vehicle is to transport passenger(s) and freight from one location to another. For the present application of this Resolution, the functional unit (FU) for light duty vehicles is defined as the transport of passenger(s) and/or freight over vehicle lifetime.

Considering the fact that the specified conditions (number of passengers and volume of goods per vehicle) is difficult to estimate, a more conservative approach which is already applied for homologation test condition for fuel/electric consumption in each region should be taken, with the presumption that vehicle technologies and energy sources will not change the light duty vehicle occupancy rate and the loading ratio. This will also ensure comparability between different vehicles.

The reference flow for a vehicle is defined as the measurable quantity of inputs and outputs necessary to meet the defined *functional unit* of the product over its lifecycle. The reference flow in automotive LCAs translates this functional unit into specific, quantifiable measures of resources consumed and emissions produced, covering aspects such as:

1. Vehicle components and materials (e.g., steel, aluminium, plastics required to manufacture the car),
2. Fuel and/or energy consumption over the vehicle’s lifetime,
3. Maintenance and replacement parts (such as tyres, fluids, SLI batteries[[2]](#footnote-3), etc.),
4. End-of-life treatment for disposal or recycling.

The standardised reference flow enables consistent and comparable assessments across different automotive products, focusing on the impacts associated with achieving the defined service.

1. \* In accordance with the programme of work of the Inland Transport Committee for 2025 as outlined in proposed programme budget for 2025 (A/79/6 (Sect. 20), table 20.6), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate. [↑](#footnote-ref-2)
2. Batteries for starting-lighting-ignition (SLI) and auxiliary applications only - does not apply to primary battery packs used for electric-drive powertrains [↑](#footnote-ref-3)