

ACEA Position Paper

Life Cycle Assessment in the automotive industry



EXECUTIVE SUMMARY

This position paper outlines the views of the European Automobile Manufacturers' Association (ACEA) on Life Cycle Assessment (LCA). Increasingly, LCA methodology is being used or mentioned in relation to various EU policy areas and the broader legislative framework.

The European auto industry has a long and solid experience in applying LCA and related methodologies to automotive products and processes. Based on their vast experience, Europe's automobile manufacturers would like to emphasise the following points:

1. LCAs are useful analyses to address environmental impacts and are applied as internal environmental systems for systematically managing environmental improvements in the automotive industry.
2. LCA studies shall be based on the ISO 14040/44 standard, which is a commonly used methodology both in the automotive sector as well as in political or regulatory-focused discussions, in order to ensure a level playing field and understanding. When the results of these studies are disclosed to the public, a critical review must be performed.
3. LCA should remain a voluntary tool and cannot be used as a regulatory instrument vis-à-vis automobile manufacturers, especially when taking into account the enormous complexity of vehicles and automotive supply chains.
4. Only globally accepted impact categories (indicators) should be included in public impact assessments and aggregated single scores should not be used in any LCA disclosure.
5. The complexity of motor vehicles and related supply chains makes it difficult to compare LCAs of vehicles from different manufacturers. More time is needed to develop methods and tools that are flexible enough to consider the environmental improvement.

GENERAL ASPECTS OF LCA

- Life Cycle Assessment (LCA) can be instrumental to support environmental policy orientation. However, choosing the right LCA methodology must be based on the background of the question and the investigative framework.
- When disclosed to the public and used for political and regulatory discussions, all LCA studies shall be based on ISO 14040/44 and be complemented by an independent critical review to ensure industry and public acceptance.
- ACEA stresses the importance of excluding single scores from any LCA disclosed to the public (ISO 14044). Any weighting of different impact category results to one single score is based on subjectivity and bias.
 - The complexity of different environmental impacts cannot be reduced to one single score in a meaningful way and would reduce the transparency of decision making.
- ACEA recommends that only globally accepted indicators are included in impact assessments (such as global warming potential, photochemical ozone generation potential, eutrophication potential).
 - Some indicators are not yet mature enough and / or not suitable for LCA.
 - For example, toxicity is heavily dependent on local background concentration levels and chemical interactions between pollutants, which cannot be adequately modelled in LCA approaches. However, these methods can be used for internal environmental management to identify possible risks.

LCA APPLICATION IN THE AUTO INDUSTRY

- The automotive industry has been using Life Cycle Assessment (LCA) and related tools since the early 1990s. Back then, European manufacturers agreed on guidelines for the application of LCAs in the automotive industry, which were presented at several international conferences. Manufacturers have since used the LCA methodology mainly internally, although some results have been published externally.
- There are currently three major areas of application for life cycle assessments in the automotive industry:

- Internal use of LCA as an instrument for environmentally-oriented product and process development, as well as for when preparing procurement decisions;
- Publication of life cycle assessments to document product or process-related environmental performance;
- Joint automotive industry studies and / or (funded) LCA projects about questions of general interest.
- For LCAs to determine the global warming potential (GWP) of vehicles – with an internal combustion engine (ICE) – the average use phase accounts for around 80% for passenger cars and even more for heavy-duty vehicles due to their range of applications. Within the production phase, a major share is determined by the materials of the supply chain. End-of-life emissions, including recycling, are only about 1% of the entire life cycle emissions.
- Battery electric vehicles (BEVs) or fuel cell electric vehicles (FCEVs) show a different picture in most cases, although it should be recognised that this may be different in small volume applications where vehicles are less likely to do long mileage.
 - For BEVs and FCEVs we see significant greenhouse gas reduction potential over the whole life cycle compared to ICE vehicles.
 - Today, around 50% of CO₂ emissions of BEVs are generated in the production phase, and significantly less for heavy-duty vehicles (HDVs). Current improvement measures focus on electric powertrain components, such as high-voltage traction batteries, which have significant potential for reducing the environmental impact.
 - When charging BEVs with the current European electricity mix, the use phase contributes to approximately 50% (light-duty vehicles) or even more (HDVs) of CO₂ emissions over their lifetime. Of course, these emissions are likely to decrease significantly as more and more renewable energy will be used in the electricity mix in the near future.

LCA IN A POLITICAL CONTEXT

- ACEA clearly points out that LCA for complex products such as motor vehicles bears high uncertainties with regard to completeness of considered parts, accuracy and geographical representativeness of data or allocation methods.

- The large-scale application of LCA for vehicles would require the simplification and generalisation of data, methods and tools to a large extent. This would only lead to reliable, but not to correct results, which would be needed for fair comparisons. Such a generalised system could lead to an active disincentive for certain types of action.
- Flexible methods and tools could trigger real ecological improvements such as the use of green energy or secondary materials.

CONCLUSIONS

ACEA welcomes the use of LCA methodology, as it provides important procedures that can help to reduce a motor vehicle's impact on the environment. We also believe that LCA-based studies should be scientifically sound and compare equivalent systems. Automobile manufacturers are considering LCA as a methodology supporting internal strategic decisions with regard to product development.

LCAs are applied as an internal environmental system for systematically managing environmental improvement over the entire life cycle of a motor vehicle. Publication of life cycle assessments can be useful to document product- or process-related environmental performance.

For these reasons and others explained in this position paper, ACEA would strongly recommend to keep LCA as a voluntary tool.



ABOUT THE EU AUTOMOBILE INDUSTRY

- 12.6 million Europeans work in the auto industry (directly and indirectly), accounting for 6.6% of all EU jobs
- 11.6% of EU manufacturing jobs – some 3.5 million – are in the automotive sector
- Motor vehicles are responsible for €398.4 billion of tax revenue for governments across key European markets
- The automobile industry generates a trade surplus of €76.3 billion for the European Union
- The turnover generated by the auto industry represents more than 8% of the EU's GDP
- Investing €62 billion in R&D per year, automotive is Europe's largest private contributor to innovation, accounting for 33% of the EU total

REPRESENTING EUROPE'S 15 MAJOR CAR, VAN, TRUCK AND BUS MANUFACTURERS

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