

# How can PCFs be compared in the automotive industry? - Harmonization proposals for GHG accounting methods

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## Abstract

In the context of global decarbonization, the Product Carbon Footprint (PCF) is becoming increasingly important in the automotive industry. This can be explained, on the one hand, by corresponding developments with regard to the regulatory anchoring of the PCF. On the other hand, customer awareness of the need for economic transformation is also increasing, as is the demand for climate-friendly products.

Against this background, the ad hoc working group (AhG) “Decarbonization of Automotive Value Chains” of the expert group “Transformation of the Automotive Industry” (ETA) at the German Federal Ministry for Economic Affairs and Climate Protection (BMWi) is developing recommendations for overcoming existing obstacles in GHG accounting. As part of an accompanying research project conducted by the German Environment Agency (UBA), methodological harmonization needs in the electric automotive industry were analyzed, solutions identified and recommendations for action were derived.

A need for harmonization of methods for GHG accounting of products in the automotive industry is identified primarily in relation to energy accounting, allocation in multifunctional processes and recycling. In addition, the attribution of green properties to physically homogeneous material or energy inputs is considered.

## Introduction and Motivation

Standards and norms for PCF creation have so far been aimed primarily at a scientific comparison of alternatives. Therefore, they often offer methodological options and room for interpretation in their application. The effects of methodological decisions on the PCF result are usually not presented transparently. As the desire for cross-industry comparison of PCFs is becoming ever louder in the automotive industry, PCF accounting methods should be harmonized to create fair competitive GHG accounting conditions.

## **Applied Method**

Available PCF Standards have been analyzed and compared with the aim to identify the points that make the biggest difference in PCF outcomes and recommendations for harmonization have been developed.

## **Results**

- ▶ With regard to allocation in multifunctional processes, clearer guidelines are needed for the selection, application and transparent presentation of allocation methods in order to promote transparency and traceability of the PCF result. Economic allocation should be strengthened. In addition, sector-specific allocation rules and regulations for allocation at sector transitions are required. Further discussion and research are needed to consider allocation methods that can have a transformative effect on the overall system.
- ▶ Recycling processes should be modeled according to the cut-off approach. Accordingly, incentives to strengthen the recyclability of products must be provided outside of the accounting methodology. Impulses could be set, for example, by appropriate adjustments in the regulatory framework as part of the EU Circular Economy Action Plan. In addition, a definition and differentiation of secondary materials and co-products should be developed for the most important basic materials in automotive supply chains. To reward the continuous decarbonization of primary material production where necessary, the adaptation of a sliding scale approach for the automotive industry and relevant value chains could be discussed.
- ▶ Where possible, purchased energy should be accounted for along the entire automotive supply chain in a market-based way to avoid double counting of green attributes. In this context, contractual instruments in the respective energy market must meet the criteria for applicability in the context of a market-based approach. Within the EU, this means that only market-based accounting can be used; for non-EU markets, a corresponding review would have to be carried out. The quality assessment of the purchased green electricity should be located outside the accounting methodology. Incentives for the procurement of green electricity with additionality criteria should be set outside the accounting methodology via corresponding policy instruments. In addition, more specific guidelines should be developed for other energy carriers, such as heat/cold, gases or hydrogen.

## **Conclusions**

Harmonizing the methods for GHG accounting of products in the automotive industry in this way presents challenges and requires a cross-sectoral discussion between experts from science and industry. Since the industry's supply chain is both complex and international,

and includes various basic material industries, it can act as a catalyst for standardization. Supply chain can act as a catalyst here. It should be noted here:

- ▶ A clear goal for accounting is a prerequisite for harmonizing the accounting methods.
- ▶ To achieve harmonization, it is necessary to look beyond sector boundaries and to provide feedback to the corresponding processes at the regulatory level.
- ▶ GHG accounting should be used purely as a data collection method. Transformative incentives should be set outside of the accounting methodology.

## **References**

[https://expertenkreis-automobilwirtschaft.de/media/pages/home/7b60121c03-1713348676/expertenkreis-transformation-automobilwirtschaft\\_uba-hir\\_kurzpapiere\\_pcf\\_allokation\\_energie\\_recycling\\_januar\\_2024.pdf](https://expertenkreis-automobilwirtschaft.de/media/pages/home/7b60121c03-1713348676/expertenkreis-transformation-automobilwirtschaft_uba-hir_kurzpapiere_pcf_allokation_energie_recycling_januar_2024.pdf)