

Assessment of Differences between Catena-X and EU Battery Regulation PCF Calculation Methodology

Introduction

In May 2024 the European Commission has published a draft of the *ANNEX to the Commission Delegated Regulation supplementing Regulation (EU) 2023/1542 of the European Parliament and of the Council by establishing the methodology for the calculation and verification of the carbon footprint of electric vehicle batteries* (referred to as Draft PCF Annex), which will become - once the final delegated regulation is published - the mandated methodology for electric vehicle batteries in the European Union to be used for PCFs reported in Battery Passport. In the current version 3 of the Catena-X PCF rulebook no specific guidance on electric vehicle batteries are referenced due to the still draft status of the delegated regulation and due to the short time period between the draft's publication and Catena-X deadlines for version 3.

This document serves as an interim evaluation of the Draft PCF Annex for actors in the vehicle supply chain that deliver batteries or battery components or battery materials. After analyzing the Draft PCF Annex several requirements are so much differing from the CX PCF rules, that a parallel reporting is the selected approach to reach a full vehicle PCF on the one side and fulfil the battery regulation's requirement for the PCF calculation on the other side.

The major divergences that lead to this approach have been identified in the following methodological aspects:

- EU prescribed location-based electricity modelling vs CX prescription of market-based electricity modelling.
- EU Circular Footprint Formular (CFF) vs CX Cut-off for accounting for recycling, also referred to as 'cut-off end of life allocation'.
- EU-COM does not priorities the use of primary data (referred to as company-specific data) in principle, but requires company-specific data for selected most relevant processes in main production and distribution life cycle stage. For raw material acquisition and pre-processing the use of secondary data is prioritized. The ambition of CX is to get primary data from the supply chain as fast and as much as possible to enable the monitoring of the decarbonization progress.

Next to these methodological divergences the required disaggregated reporting of the PCF split into several Life Cycle Stages cannot be harmonized with the approach agreed among the Catena-X community for reporting PCF values for a system boundary cradle-to-gate in an aggregated manner. This approach is reflected in the CX-PCF Data Exchange Format.

For mandatory company-specific processes the draft PCF Annex allows in chapter 2.3.1 the following options:

- (a) *suppliers provide to the manufacturer the complete LCI of the process, including elementary flows, energy consumption, input material, and the recycled content 'R1' referred to in section 2.6, and the information required for the carbon footprint study as specified in section 3.1;*
- (b) *suppliers provide the manufacturer with a company-specific dataset;*
- (c) *suppliers provide the complete LCI of the process, including elementary flows, energy consumption, input material, and the recycled content 'R1' referred to in section 2.6, and the information required for the carbon footprint study as specified in section 3.1 to a third-party, such as a data management company, who combines the inputs from different suppliers and provides the manufacturer a company-specific dataset for different processes.*

The Catena-X PCF Rulebook and the Catena-X PCF Exchange format do enable sharing a PCF according to the prescribed data model, but do not support sharing of Life Cycle Inventories between supplier and customer.

In reference to the definition of "data set" found in chapter 1 of the Draft PCF Annex and cited in the following paragraph

"(5) 'dataset' means a document or file with life cycle information of a specified product or other reference such as a process, covering its descriptive metadata and either its quantitative life cycle inventory in case of a life cycle inventory ('LCI') result dataset or its carbon footprint in case of a life cycle impact assessment ('LCIA') result dataset;"

the above option (b) of a company-specific dataset interpreted as a carbon footprint (LCIA) result dataset, can be considered to a certain extent in line with the Catena-X PCF Data sharing approach following the general principle of sharing a fully aggregated PCF dataset. No sharing of inventory data in the format of elementary flow lists are considered in the Catena-X PCF Use Case.

The above divergences are clarified further in the following chapters. Once the final version of the EU delegated act is published this interim document will also be updated.

Electricity Modelling

According to chapter 2.4. of the Draft PCF Annex the carbon footprint of the consumption of electricity shall be the national average electricity consumption mix. Only directly connected renewable electricity generation capacities are exempted from this specification. In recital 5 the EU-COM argues that in jurisdictions outside the Union the claim of contractual instruments cannot be substantiated and therefore the use of contractual instruments is inappropriate. The EU-COM therein contradicts its own recommendation that was adopted with [C\(2021\)9332](#) 'where in Annex I 4.4.2. "Electricity use" the supplier-specific electricity product is recommended as first priority.

The Catena-X PCF rulebook follows very closely the recommendations of [C\(2021\)9332](#) and requires in case no trusted tracking system for contractual instruments is in place and no residual grid mix is available the use of the grid specific fossil production mix. Thereby avoiding double counting of renewable energy with a conservative substitute for a not-existing residual grid mix. At the same time it incentivizes the use of renewable energy and expansion of generation capacities.

As electricity is a crucial flow in virtually all industrial production processes there is no simple conversion of a PCF dataset calculated following a market-based reporting approach into a PCF dataset for a location-based electricity accounting. The consequence is that double reporting obligations cannot be avoided. Two PCF data sets on the same product will be required if a Catena-X compliant reporting and a PCF-reporting compliant with the Battery Regulation is necessary.

Accounting for Recycling

According to chapter 2.2.1. of the Draft PCF Annex the battery carbon footprint system boundaries include end of life and recycling. In contrast to this definition Catena-X limits the reporting to a cradle-to-gate scope.

Adding CO₂e-emissions for an end of life and recycling stage on top of the cradle-to-gate emissions could be handled in line with the Catena-X PCF rulebook. According to the Draft PCF Annex however for materials these additional CO₂e-emissions shall be calculated applying the circular footprint formula (see 2.3.4.(f) on company specific data sets).

The Catena-X PCF rulebook mandates the cut-off approach for recycled material. Even if the delegated act in 2.3.5. on company specific data requires the 'bill of material or inventory data per kg main output product, before applying the circular footprint formula ('CFF')' to be recorded, a parallel calculation of the battery PCF with and without CFF application is necessary to comply with Catena-X on the one and battery regulation on the other hand.

Use of Secondary Datasets and Company-Specific Datasets

According to chapter 2.2.1. of the draft annex delegated act document (referred to as Draft PCF Annex) the system boundary for a battery PCF includes

- (a) Raw material acquisition and pre-processing
- (b) Main product production
- (c) Distribution
- (d) End of Life and Recycling

For the stages (a), (b) and (d) specific details on which activities shall be considered are prescribed in the Draft PCF Annex.

Based on referenced activities for the respective life cycle stage the Draft PCF Annex distinguishes between "mandatory-company-specific processes", "non-mandatory most relevant processes" and "other processes".

All processes of the main production and the distribution phase shall be treated as "mandatory company specific processes" and require primary data.

Chapter 2.3 of the Draft PCF Annex defines a list of materials, whose production shall be treated as "non-mandatory most relevant processes". For these processes EF-compliant secondary datasets with certain

¹[C\(2021\)9332](#)

minimum quality requirements are demanded. Only if EF-compliant secondary data of not sufficient quality are available, company-specific data with certain data quality requirements shall be used.

All other processes from (a) chapter 2.3.3. of the Draft PCF Annex fall under “Other processes” and shall be modelled with the most representative secondary data set.

The Catena-X PCF rulebook prioritizes the use of primary data. A transparent reporting of a Data Quality Rating for the reported PCF value is foreseen to become mandatory by end of 2025.

For “non-mandatory most relevant” processes in chapter 2.3.2. the options (b) should be considered the first priority for Catena-X members.

Impressum

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