TE Connectivity Supplier Requirements, Product Carbon Footprint (PCF) Calculation Specification of Materials

1. SCOPE

This Policy defines product carbon footprint (PCF)[1] modeling requirements for TE Suppliers and/or their subcontractors (collectively "Supplier(s)" hereunder). The document describes the specifications of the method, modelling parameters, assumptions, data quality thresholds, in PCF calculation of direct commodities. TE request its suppliers to submit a PCF for direct materials they supply, incl. raw materials and finished products.

2. GENERAL REQUIREMENTS FOR LIFE CYCLE ASSESSMENT (LCA) FOR PCF OF MATERIALS

TE supplier must follow an industry standard LCA method in calculating the PCF of materials supplied to TE. ISO 14040, ISO 14044, ISO 14067, PAS 2050, GHG Protocol Product Standard[2] are acceptable methods. TE prefer suppliers to meet the requirements of ISO 14067 standard. Supplier must give the modeling parameters in their calculations, along with the PCF of the supplied material, as given below.

Supplier shall use primary data for its own operations and collect data from its suppliers for the emissions associated with its value chain. Supplier may use specific and industry average estimates[3] for the components, materials, ingredients, and processes involved in the operations and supply chain. These estimates are subject to change as new updated data and improved methods become available from life cycle databases and improvements in manufacturing process and supporting operations.

Supplier should keep its own audit trail records regarding the data sources. TE do not oblige that such information is reported to, except on an as needed basis.

3. MODELLING SELECTIONS

Product description

Supplier must submit recycled content / virgin material ratio, part number per TE Connectivity part number system (TCPN), specifications, along with supplier product name, model, and material description.

Data Type

Supplier shall use primary data in its own operations and value chain. Supplier is allowed to calculate the model with secondary data, when primary data is missing. Use of secondary data must be indicated in the model. Primary / secondary data ratio shall be reported.

Declared functional unit

The functional unit must give the defined weight, e.g., 1 kg (weight) and/or 1 piece (quantity) of product name, number and departure point at the supplier. Additional units; e.g. dimensions, volume, etc. shall be given.

[1] A PCF calculates the total greenhouse gas (GHG) emissions generated by a product over the various stages of its life cycle including material acquisition, manufacturing, distribution and transportation, usage and end-of-life. The term is interchangeably used with carbon footprint of products (CFP).
[2] ISO 14040: Environmental management — Life cycle assessment — Principles and framework, ISO 14044: Environmental management — Life cycle assessment — Requirements and guidelines, ISO 14067: Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification, PAS 2050: Specification for the assessment of the life cycle greenhouse gas emissions of goods and services, GHG Protocol Product Standard.
[3] Supplier may use country and industry averages if primary data is missing. Information sources must be given and validated.

| Indicates Change

System boundaries

TE prefer the supplier to use ‘cradle-to-gate’ system boundary by default of the life cycle of the products. Additional details on system components, i.e., raw materials, manufacturing, and transport, end-of-life are preferred, but not necessary.

Time-related scope

The primary data from supplier operations refers to average production conditions in the recent three years. If historical primary data is missing, figures can be extrapolated and modeled. Background data should not be older than 5 years.

Regional scope

Country or regional average, e.g., Germany, USA, China, or Europe, North America, Asia Pacific, to which the data belongs to, must be given. Global averages are acceptable, but not preferred. Data granularity must be chosen as high as practically possible.

Software and database

The software used to model PCF; e.g., GaBi, SimaPro, Umberto, OpenLCA, etc.; the database, e.g., EcoInvent, etc. and their model number must be given.

Certification and Use

Supplier is encouraged to submit, If available, third-party verified certification of the PCF. The product must be certified for its LCA calculation methodology, life-cycle inventory, and emission factors[4]. TE encourages such certification but does not oblige the suppliers to conduct assurance of their calculations. If the calculations are not verified, supplier must provide the calculation formulas, life-cycle model, assumptions and evidence of bespoke emission factors.

Verification of LCA studies and PCF calculations are mandatory for preferred and strategic suppliers per TE policy TEC-407-712: Business Classification of Suppliers. In addition, supplier in a specific industry value chain are required to follow the best practice in their respective industry. For example, TE recommends suppliers to follow sector-specific together for sustainability (TfS) platform, and Catena-X, respectively, for the chemical industry, and the automotive industry. For all other industries, TE recommended to follow the principles of WBSCD The Partnership for Carbon Transparency (PACT)’s Pathfinder Framework.

A summary of requirements are given in Table 1.

[4] LCA calculation methodology, life-cycle inventory, and emission factors must be verified according to respective standards.

Table 1: List of required disclosures

Parameter	Data type	Requirement
Material properties	Product model and description	Mandatory
	Weight	Mandatory
	Dimensions	Preferred
	Bill of materials	Mandatory
LCA Model elements	Data Type	Primary data or third-party data[i]
	Time-related scope	Mandatory, annual update preferred
	functional unit	Mandatory
	System boundaries	Mandatory
	Regional scope	Preferred
Certification	Validation of LCA model	Not mandatory, but encouraged
	Validation of bespoke emission factors	Preferred
	Validation of life cycle inventory	Preferred unless it is up-to-date commercial database

4. TRANSITION PERIOD

TE recognizes a transition period in carrying out activities to complete PCF calculations. Suppliers shall complete their PCF studies and verify their data and methodology to the best of their knowledge and ability. Incomplete, and inconsistent data, and non-standardized calculation methodology shall be justified. TE supports an open data and knowledge sharing platform across its value chain. Supplier sustainability can only be achieved through a collaborative effort across the value chain. TE expects that guidance materials will be developed and cooperation with stakeholders representing small-to-medium-sized enterprises will be strengthened in the near to mid-term future.

5. DATA QUALITY, ASSUMPTIONS, AND LIMITATIONS

Data quality from suppliers' operation must be given, such as, data used to model the PCF; e.g. direct emissions (scope 1), energy-related indirect (scope 2), upstream raw materials emissions, if applicable (Scope 3), must be evaluated. All assumptions must be documented and, if necessary justified, and given in the PCF. Limitations of the model must be given and, if necessary justified.

6. VALIDITY

PCF must be updated on an annual or bi-annual basis to include the most recent three five completed calendar years. The submitted PCF should not be used after two years past its modeling date. Furthermore, supplier PCF must submit a revision on a regular basis, ideally annually.

[i] Source of data must be given in PCF documentation