

The trade association for energy infrastructure & systems

Comparing Forms of Embodied Carbon

Data



## The embodied carbon in products

To achieve a genuinely Net Zero built environment, navigating the various formats in which embodied carbon data can be presented by the supply chain, and understanding the differences between them, is key to Net Zero delivery - but this can be complex.

When reviewing why this is the case, it is important to recognize that there is currently **no legal obligation** in the UK to provide embodied carbon data for electrical products within the scope of the UK Electrical Equipment (Safety) Regulations 2016 as amended or the EU Low Voltage Directive 2014/35/EU.

This absence of regulatory guidance creates a lack of standardised processes for product embodied carbon data which inhibits comparability between suppliers.





Nevertheless, with growing demands for product embodied carbon information, the supply chain is actively working to put processes and practices in place to rectify this.

The initial step involves supporting the market in **understanding the common formats** for presenting product embodied carbon data used today and the distinctions between them.

This document aims to provide a basic overview of requirements when creating Environment Product Declarations (EPDs), Product Environmental Profiles (PEPs), and TM65 Assessments.

You can find further insight into each of these formats, including their advantages and limitations, within <u>BEAMA's Product Carbon Initiative</u>.





A table comparison of EPDs, PEPs and TM65 Assessments



	Environmental Product Declaration	Product Environmental Profile	TM65 Embodied carbon in building services
Commonly known as	EPD	PEP	TM65
Applicable Standard(s)	ISO 14025:2010 EN 15804:2012 + A2:2019	ISO 14025:2010 EN 15804:2012 + A2:2019	None
Type of declaration	Type III environmental declaration	Type III environmental declaration	Estimation of embodied carbon
Verification	3 <sup>rd</sup> party verified	3 <sup>rd</sup> party verified	Self-certified
Owned by	Non-specific	PEP Ecopassport	CIBSE
Product scope	Unlimited	Electrical, electronic & HVAC equipment	Building services equipment
When to request	First	First	If EPD/PEP not available
Coverage	By product or range	By product or range	By product (individual type)
LCA	Yes	Yes	Yes
Validity	5 years	5 years	NA



Comparing the process for creating EPDs, PEPs and TM65 Assessments

TTTTT.



## EPDs

The process for creating an EPD can be broken down into five general steps:

- 1. Define the relevant product by using the appropriate Product Category Rules (PCR).
- Conduct a Life Cycle Assessment (LCA) study LCA Stage A1 A3 are mandatory.
- 3. Report the gathered information in an EPD template.
- 4. Submit the information for **3rd party verification**.
- 5. Publish EPD.

**NOTE:** Each of the above steps will have their own set of sub-steps/actions to complete the task. The process of completing EPDs is both complex and time consuming. There is no set template or database which is used for the creation of an EPD. These will vary depending on route to market.



## PEPs

The process for creating a PEP can be broken down into five general steps:

- 1. Define the relevant product by using the appropriate Product Category Rules (PCR)
- Conduct a Life Cycle Assessment (LCA) study LCA Stages A1 A3, A4, A5, B1 – B7, C1 - C4 are mandatory.
- 3. Report the gathered information in the set PEP template.
- 4. Submit the information for 3rd party verification.
- 5. Publish PEP.

**NOTE**: Each of the above steps will have their own set of sub-steps/actions to complete the task. The process of completing PEPs is both complex and time consuming.



## TM65 Assessments

The process for creating a TM65 Assessment basic/mid-level calculation is as follows:

- 1. Download the TM65 documentation from the CIBSE website.
- 2. Input the relevant company, product and additional environmental data into the TM65 Manufacturer Form.

There are also additional optional processes, as follows:

- a) Download the DT65 calculator from the CIBSE website.
- b) Copy the basic/mid-level TM65 data into the DT65.
- c) Generate basic or mid-level report/chart as required.

Manufacturers must follow the CIBSE TM65 rules on data publication.

**NOTE:** CIBSE publications may have associated costs. Some publications may be free to CIBSE members.



## FAQs: EPDs, PEPs and TM65 Assessments



## Is there a common definition for the embodied carbon of products?

The determination of boundaries for assessing embodied carbon in products presents a significant challenge due to the absence of a universally accepted definition of product embodied carbon within the industry.

Consequently, views on which stages of a life cycle assessment (LCA) constitute product embodied carbon can vary considerably.

BEAMA, the trade association representing a diverse range of manufacturers in the energy-related products and services sector for the built environment, has undertaken a **comprehensive review** of existing standards and policies. Through collective agreement among members, BEAMA has adopted a **common definition** for the embodied carbon of products. You can review this definition <u>here</u>



# What embodied carbon information are suppliers obligated to provide to the market?

There is **currently no legal mandate** in the UK for product suppliers to provide embodied carbon data for products falling within the scope of the UK Electrical Equipment (Safety) Regulations 2016, and subsequent amendments, or the EU Low Voltage Directive 2014/35/EU.

Nonetheless, many manufacturers are undertaking the **commercial process** of **data collection and verification** to offer embodied carbon information for some or all their products.

This is in anticipation of **potential future regulatory mandates**, but primarily to fulfil the **commercial requirements of the market**, particularly with supplier procurement policies increasingly focussed on supply chain sustainability.





Why is there a distinction between product and project embodied carbon in the life cycle assessment of MEP products?

**Product embodied carbon**, also known as upfront carbon, is categorised by BEAMA members as **stages A1** – **A3 within a life cycle assessment**. These are the stages where product information can be uniformly provided by manufacturers, unaffected by project-specific details.

However, the carbon emissions resulting from subsequent LCA stages are not fixed and can vary depending on project-specific factors such as delivery to site, maintenance schedule, and frequency of use.





### What makes comparing embodied carbon information challenging?

The complexity of supply chains for products often requires collaborative effort to estimate embodied carbon accurately. This has led to the creation of various standards, programs, documents, accreditations, and commercial entities within the market.

However, each approach can lead to **significant differences affecting comparability**, including variations in calculation methodologies and embodied carbon databases for data assumptions and industry averages.

Selecting the **optimal commercial route** for gathering product embodied carbon data poses a considerable challenge for manufacturers, involving substantial resource and financial costs. There is widespread recognition that the **current fragmented approach needs to evolve**, and the industry is taking proactive steps in this direction.

Learn more about the challenges of product embodied carbon data as part of <u>BEAMA's Product Carbon Initiative</u>.



## When should you ask for an EPD, PEP or TM65 Assessment?

Calculating embodied carbon for MEP products is a complex process. Some manufactures may have independent or verified embodied carbon data which is not an EPD, PEP or TM65 Assessment.

EPDs have broad applicability, but there are limited options available for electro-technical products. PEPs are tailored specifically to electrical, electronic, and HVAC equipment, but are primarily known within the EU.

TM65 Assessments were created by CIBSE to support the built environment for instances where a manufacturer does not already have embodied carbon data available, as clearly outlined in the TM65 guidance.

There are varying formats in which manufactures can provide embodied carbon data for products. Each manufacturer reviews which process is best for their companies and product ranges. When asking for embodied carbon data, markets should ask for information based on LCA stages rather than dictating a specific format.



## Key recommendations to the market



## Moving forward with product embodied carbon

Being aware of the realities of the current landscape for product embodied carbon is a necessity in being able to move forward with accurate, up to date, reliable and comparable data which is freely available.

There are **four key recommendations** to the market which will enable us to do this.





What can I do to support the effective use of embodied carbon in my project?

# KEY POINTS

#### WHEN SPEAKING

with the supply chain and the wider market, always be clear on your definition and scoped boundaries of product-related embodied carbon.

### **ASK FOR**

specific stages or boundaries of embodied carbon information rather than mandating particular formats. Be aware of assessments that exist for use only when the manufacturer does not have alternative information.

#### **ASK YOUR**

supplier for details of product data collection, including the adhered to standards and details of databases used, to gather a full picture of comparability.

### **COLLABORATE WITH**

the supply chain and share collective understanding on product embodied carbon initiatives to help make data processes more accurate, up to date, reliable and comparable.



### Find out more

BEAMA and our members have joined forces to increase awareness of the complexities of embodied carbon data for MEP (mechanical, electrical, and plumbing) products.

For more information about our Product Carbon Initiative.

