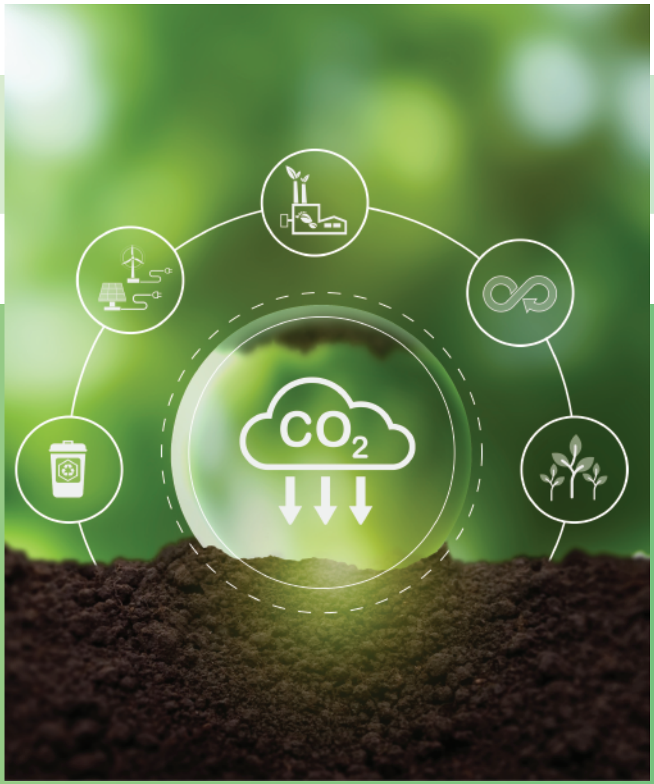
Volex

CASE STUDY

Verified Cradle-to-Gate Carbon Footprint of an EV Charging Cable



SCOPE AND APPROACH

The assessment focused on a cradle-to-gate boundary, covering all significant emissions from the point of raw material extraction through to the distribution of the finished product to the customer.

The verified life cycle stages included:

- **Embodied emissions from raw materials**
- **Transportation of raw materials to the manufacturing site**
- **Manufacturing and energy use at the production facility**
- **Distribution of the finished product to the customer**

Primary activity data was provided directly by the manufacturer, while internationally recognised emission factors were applied to ensure accuracy and consistency. Sources included UK government datasets and global energy statistics.

METHODOLOGY

The carbon footprint was calculated using a process-based LCA approach, combining:

- **Material composition and mass data for plastics and metals**
- **Transport distances and modes for inbound and outbound logistics**
- **Energy consumption data (electricity and thermal energy) from the manufacturing facility**
- **Allocation of manufacturing energy using a revenue-based method where direct product-level energy data was not available**

All assumptions, emission factors, and allocation methods were reviewed and tested as part of the independent verification process.

BACKGROUND

A global manufacturer of electric vehicle (EV) charging components sought to better understand and transparently communicate the carbon footprint of one of its charging cable products. As part of its wider sustainability strategy, the organisation conducted a product-level Life Cycle Assessment (LCA) to quantify greenhouse gas (GHG) emissions and validate its internal carbon calculations against international standards.

To ensure credibility and robustness, the product carbon footprint was independently verified by an external sustainability consultancy in accordance with ISO 14067:2018.

KEY FINDINGS

The assessment identified that the majority of the product's carbon footprint arose from raw material production, with manufacturing energy use representing the second-largest contributor.

Transport-related emissions were comparatively small, reflecting efficient logistics and shipping modes.

This breakdown enabled the manufacturer to clearly identify carbon hotspots within the product life cycle and provided a strong evidence base for future emissions reduction initiatives, such as:

- **Material optimisation and substitution**
- **Supplier engagement on lower-carbon materials**
- **Energy efficiency improvements within manufacturing operations**

VERIFICATION AND QUALITY ASSURANCE

The product carbon footprint was independently verified against the principles of:

- **Relevance**
- **Completeness**
- **Consistency**
- **Transparency**
- **Accuracy**

During verification, minor data and calculation improvements were identified and corrected, further strengthening the reliability of the final results. The completed assessment was confirmed to be compliant with ISO 14067:2018, demonstrating alignment with international best practice for product carbon footprinting.

OUTCOMES AND VALUE

Through this verified LCA, the manufacturer achieved:

- **A credible, third-party verified product carbon footprint**
- **Increased confidence in internal sustainability data and reporting**
- **A robust foundation for customer engagement and sustainability communications**
- **Eligibility to demonstrate compliance with recognised carbon footprint standards in marketing and tender documentation**

This case study highlights how a structured, independently verified LCA can support transparent climate reporting, informed decision-making and continuous improvement across product design and supply chains.