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carboncalcpcf.com

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Product Carbon Footprint Analysis

TOTAL PCF (Cradle-to-Grave)

8.248 kgCO_2e

Factory-Gate PCF

5.411 kgCO_2e

Top Material Hotspot

Electronic Components

Primary Lifecycle Contributor

Use Phase

Manufacturing Renewable Energy

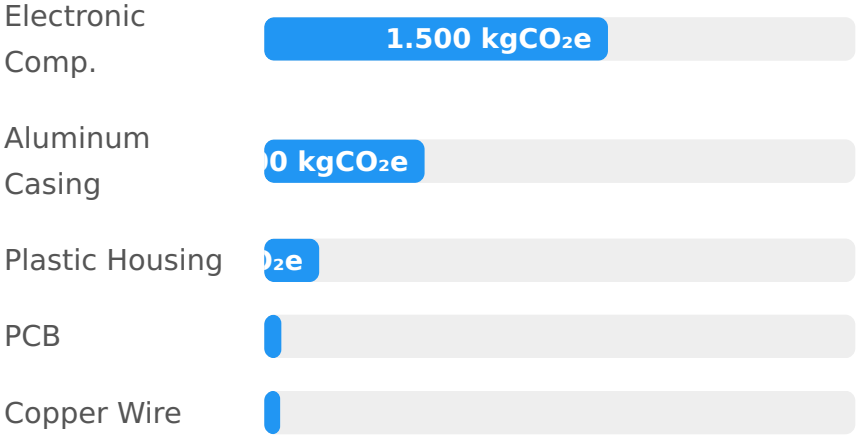
60%

Lifecycle Stage Breakdown

- Use Phase
- Manufacturing (Scope 2)
- Raw Materials
- Downstream Transport
- Upstream Transport
- Waste from Ops

Note: The End-of-Life (EoL) stage results in a net credit of -0.933 $kgCO_2e$ due to recycling, reducing the overall footprint but not shown in this positive emission breakdown.

Material Carbon Impact



Key Emission Hotspots

- **Use Phase:** Accounts for approximately 43% of positive emissions, highlighting product energy efficiency as critical.
- **Manufacturing (Scope 2):** Purchased electricity for manufacturing is a major contributor (around 34% of positive emissions), indicating potential for increased renewable energy.
- **Raw Material Acquisition & Processing (Scope 3, Cat 1):** Represents approximately 31% of positive emissions, emphasizing sustainable material sourcing.

Action Plan for Decarbonization

- **Primary Data Collection:** Implement robust supplier-specific data collection for key materials and processes.
- **Energy Efficiency:** Investigate and implement energy efficiency measures in the manufacturing facility and increase renewable energy beyond 60%.
- **Product Design:** Focus on designing for extended product lifespan and lower energy consumption during the use phase.
- **End-of-Life Optimization:** Expand circular economy initiatives, including take-back programs and advanced recycling technologies.