

# Product Carbon Footprint (PCF)

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**29.86 kg CO<sub>2</sub>e**

Total Cradle-to-Grave Footprint

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**29.86**

Total PCF (kg CO2e/unit)

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## **Cradle-to-Grave**

System Boundary

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## **Use Phase**

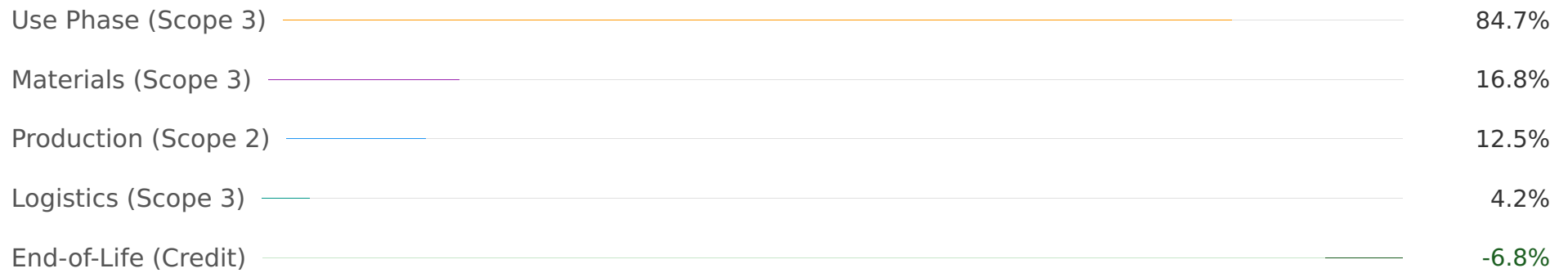
Primary Emission Hotspot

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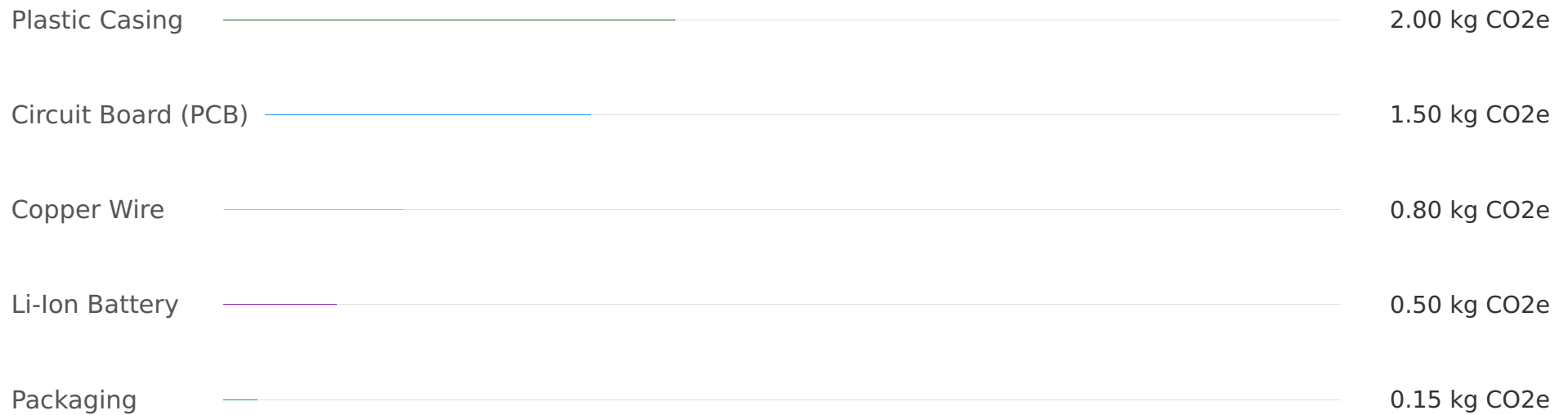
**84.7%**

Use Phase Contribution

## Lifecycle Carbon Breakdown



## Material Carbon Impact (of Total Materials)



## Key Insights & Hotspots

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- The **Use Phase (Scope 3, Category 11)** represents the most significant emission hotspot, contributing approximately 84.7% of the total product carbon footprint due to its energy consumption over its 5-year lifespan.
- **Purchased Goods and Services (Scope 3, Category 1)**, specifically material acquisition for components like plastics and electronics, accounts for a substantial 16.8% of emissions.
- Despite utilizing 60% renewable energy, **Production emissions (Scope 2)** from purchased electricity in China still contribute about 12.5% to the total footprint.
- Active circular economy programs and high recyclability (75%) lead to a **net negative emission of -6.8%** at the End-of-Life phase, significantly reducing the overall footprint by avoiding virgin material production.

# Recommendations for Emission Reduction

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1. **Optimize Use Phase Efficiency:** Prioritize product design for lower energy consumption modes, improving component efficiency, and integrating smart energy management features to address the largest emission source.
2. **Enhance Renewable Energy Procurement:** Further increase the percentage of renewable energy sourced for manufacturing facilities, particularly in regions with higher grid carbon intensity like China, through on-site generation or high-quality renewable energy certificates.
3. **Strengthen Material Circularity:** Continuously explore opportunities to increase recycled content in materials, especially for high-impact components, and engage suppliers to obtain primary data on lower-carbon alternatives.
4. **Optimize Logistics & Leverage Circular Programs:** Investigate opportunities for more efficient transportation modes, optimize load factors, and strengthen take-back and recycling initiatives to maximize the positive impact of End-of-Life scenarios.