

Product Carbon Footprint Dashboard

for **sdlgyspgux** (IoT Sensor Device)

Total Cradle-to-Grave Footprint: **5.92** kg CO₂e

Total Product Footprint

5.92 kg CO2e

Cradle-to-grave for 1 unit of sdlgyspgux.

Primary Emission Hotspot

Use Phase

4.56 kg CO2e over 5 years.

Top Material Impact

PCB with Components

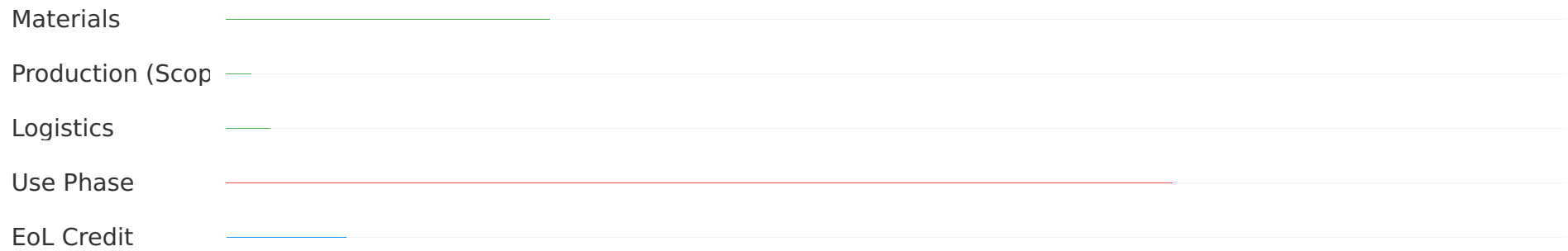
1.20 kg CO2e (76.9% of material impact).

Dominant Emission Scope

Scope 3

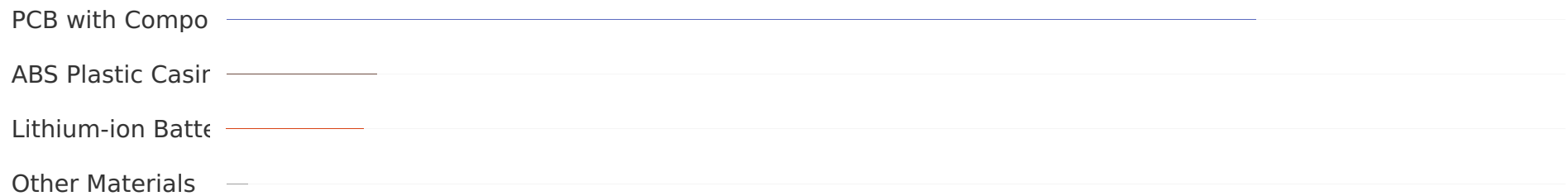
Accounts for 98% of total footprint.

Lifecycle Stage Breakdown (Excluding EoL Credit)



*Percentages are relative to the sum of positive emissions (6.45 kg CO₂e) for clear visualization. EoL credit is shown as a reduction.

Material Composition vs Carbon Impact



Key Insights & Highlights

The **Use Phase** dominates the product's carbon footprint, representing approximately 77% of total emissions. Optimizing energy consumption during operation is critical for reduction.

Material embodied emissions, primarily from the PCB with components and battery, are the second largest contributor (26% of positive emissions), emphasizing the importance of sustainable sourcing.

The established **circular economy take-back program** significantly mitigates end-of-life impacts, resulting in a net carbon credit (-0.53 kg CO₂e) for this stage.

Action Plan: How to Reduce Carbon Footprint

Enhance Energy Efficiency: Implement ultra-low power components and intelligent power management features in future product iterations to drastically cut use-phase emissions.

Optimize Material Sourcing: Collaborate with suppliers to procure lower-carbon PCBs and batteries, or explore alternative materials with reduced embodied emissions.

Strengthen Circularity: Expand the existing take-back program and increase the recyclability percentage beyond 70% to maximize avoided emissions and material reuse.

Streamline Logistics: Evaluate and optimize transportation routes and modes for inbound materials and outbound products to minimize fuel consumption and associated emissions.