Executive Summary

The Brief

To calculate the CO2e saving of reusing telecoms equipment through Shields MarketPlace compared to purchasing primary OEMs.

Methodology

Zevero used the Green House Gas Protocol, Product Standard as the framework for this study. SimaPro and the Ecoinvent database were used to calculate the emissions of each product.

Results

89%

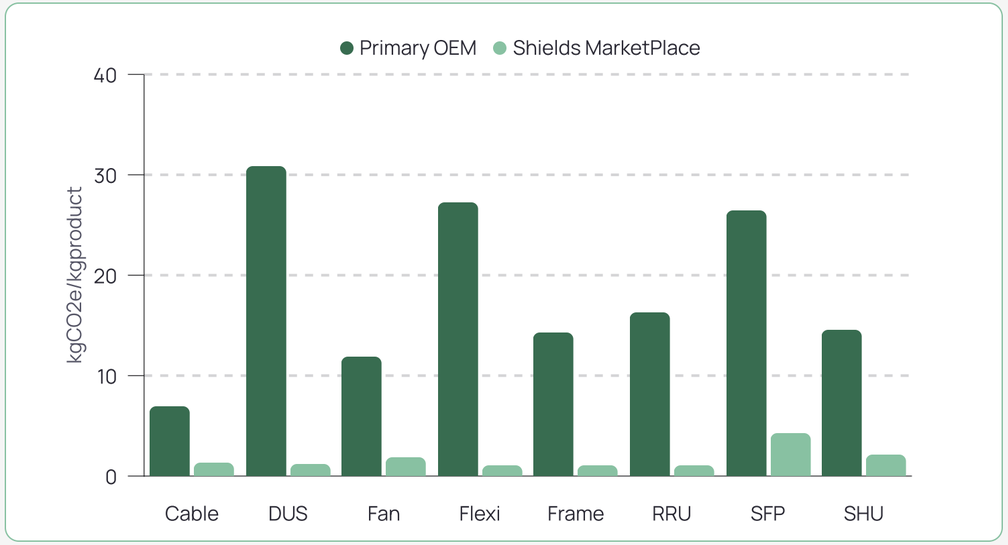
Zevero's research found that there was on average an 89% CO2e/kg saving for every product reused by Shields MarketPlace under the system boundary used.

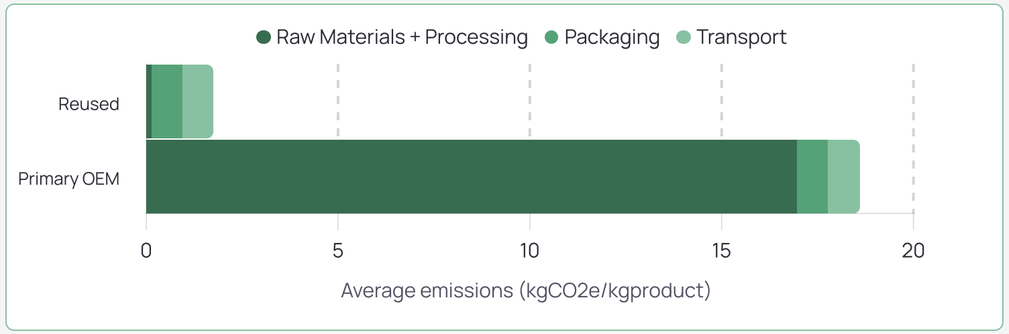
116.13kgCO2e

The average saving for each product reused by Shields MarketPlace was 116.13kgCO2e. This was based on an average product weight of 6.9kg.

96.2%

The product with the largest saving compared to purchasing Primary OEM was the Digital Unit Multi-Standard (DUS) with a 96.2% saving under the system boundary used.





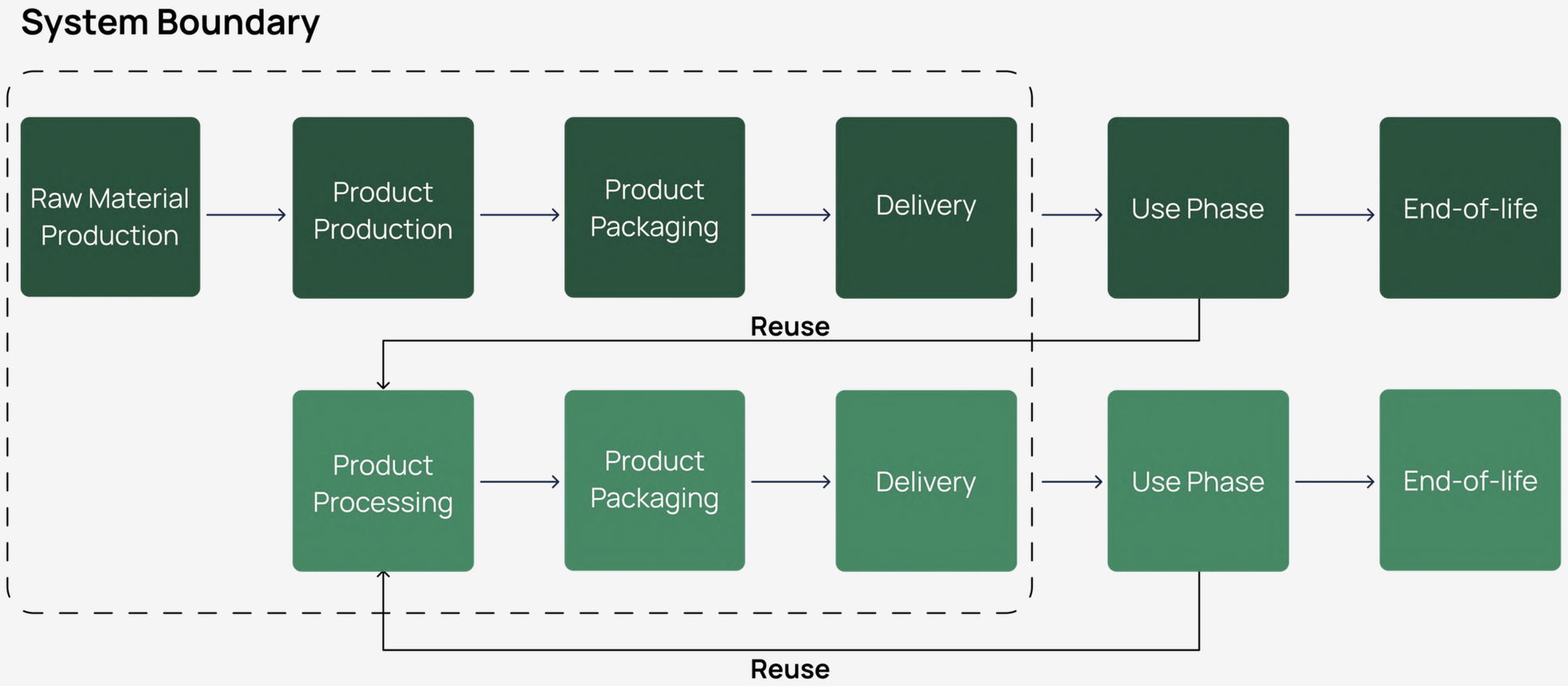
The Brief

Calculate the CO2e saving of reusing telecoms equipment through Shields MarketPlace compared to purchasing primary OEMs.

Zevero analysed 8 products sold by Shields MarketPlace:

1. Cable
2. DUS
3. Fan
4. Flexi
5. Frame
6. RRU
7. SFP
8. SHU

Methodology



Methodology

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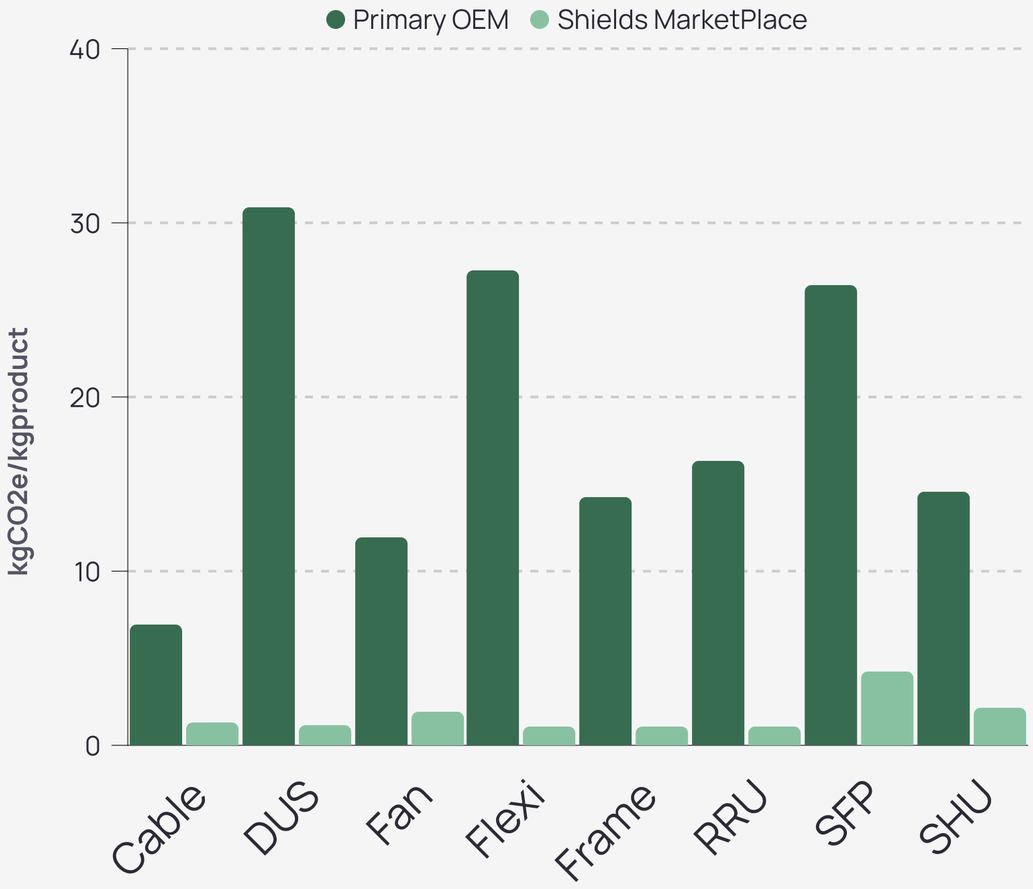
GREENHOUSE GAS PROTOCOL

RAW MATERIALS	TRANSPORT	PACKAGING	SHIELDS PROCESSING
Components were broken down into raw materials and sub-components.	Analysis of both upstream transport and downstream transport to the customers of Shields MarketPlace.	The mass and material of packaging for each component was recorded and associated emissions calculated.	The emissions from refurbishing facilities were calculated and averaged on a kg product basis.
GHG emissions from raw material extraction and processing for each product were calculated.	Transport data was assumed to be the same for primary OEM and Shields MarketPlace products.	Packaging was assumed equal for primary OEM and Shields MarketPlace Products	

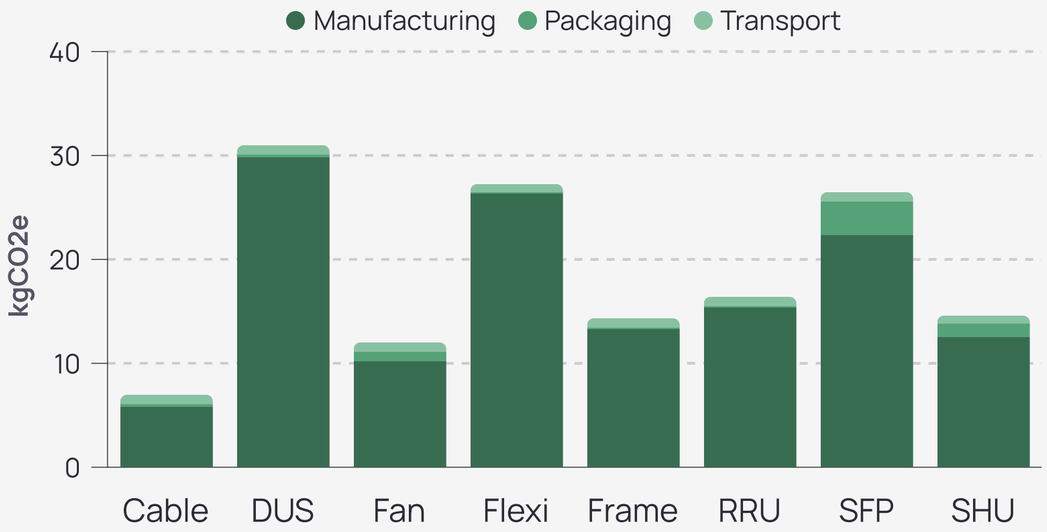
Results

Average CO2e saving: 89%



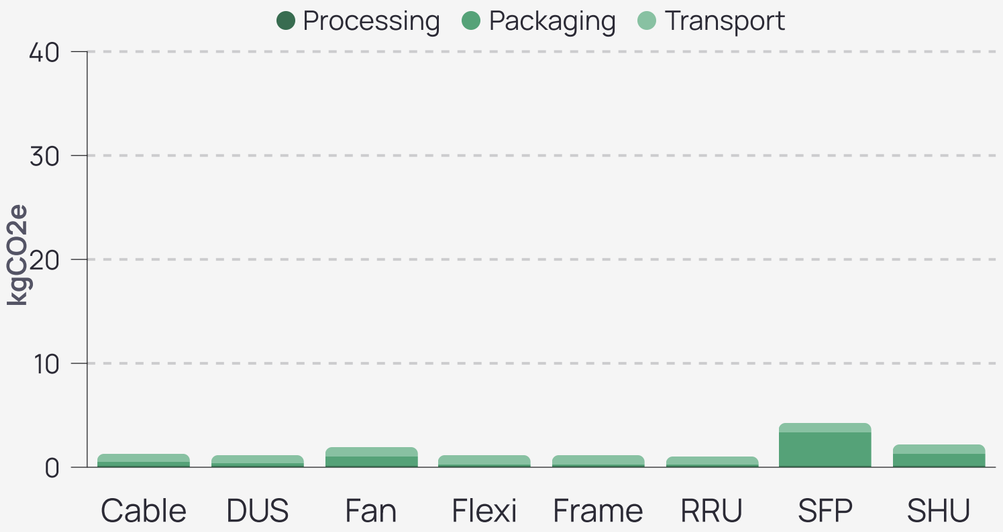
Item	Total per kg (Primary OEM)	Total per kg (Shields MarketPlace)	Emission saving (kgCO2e/ product)	Emission saving (%)
Cable	6.948	1.308	1.852	81.2
DUS	30.925	1.184	86.240	96.2
Fan	11.949	1.916	6.974	84.0
Flexi	27.238	1.101	302.513	96.0
Frame	14.289	1.106	38.060	92.3
RRU	16.346	1.058	292.765	93.5
SFP	26.434	4.237	0.376	84.0
SHU	14.593	2.171	1.830	85.1

Primary OEM



Item	Raw materials (kgCO2e/kg)	Packaging (kgCO2e/kg)	Transport (kgCO2e/kg)
Cable	5.780	0.348	0.820
DUS	29.881	0.224	0.820
Fan	10.173	0.957	0.820
Flexi	26.277	0.142	0.820
Frame	13.323	0.146	0.820
RRU	15.427	0.098	0.820
SFP	22.337	3.277	0.820
SHU	12.562	1.212	0.820

Shields MarketPlace



Item	Processing (kgCO2e/kg)	Packaging (kgCO2e/kg)	Transport (kgC02e/kg)
Cable	0.140	0.348	0.820
DUS	0.140	0.224	0.820
Fan	0.140	0.957	0.820
Flexi	0.140	0.142	0.820
Frame	0.140	0.146	0.820
RRU	0.140	0.098	0.820
SFP	0.140	3.277	0.820
SHU	0.140	1.212	0.820

Primary OEM

Key Findings

89.9%

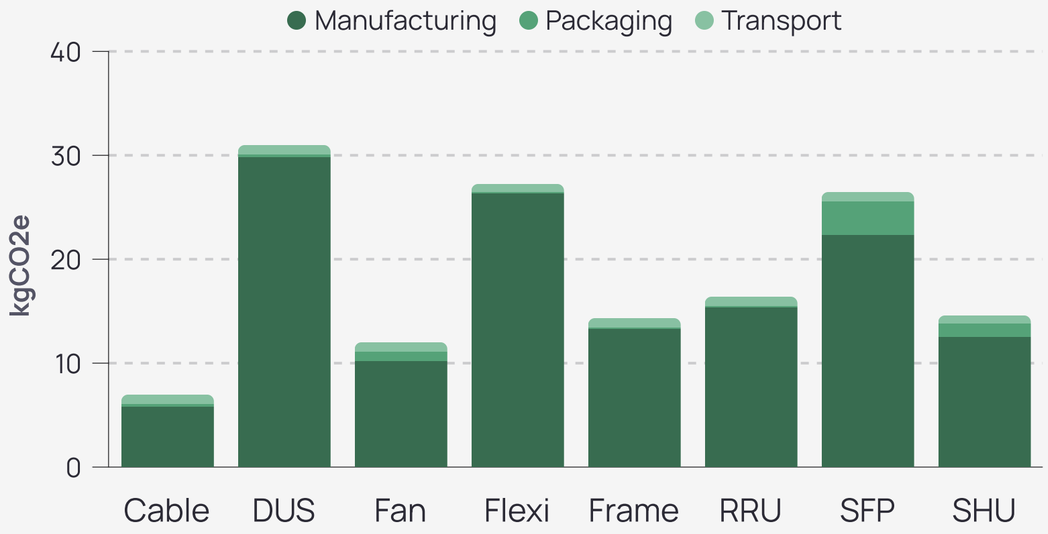
The average percentage of CO2e from the raw materials and production of Primary OEM products.

4.6%

The average percentage of CO2e from the packaging of products of Primary OEM products.

5.5%

The average percentage of CO2e from the transport of products of Primary OEM products.



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Shields MarketPlace Components

Key Findings

89%

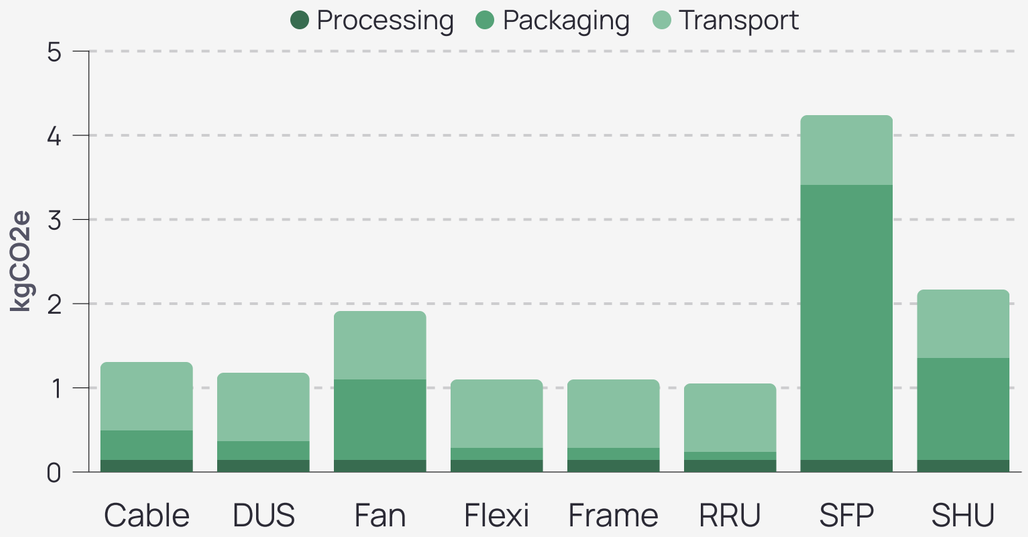
The average CO2e per kg saving for every product reused by Shields MarketPlace.

116.13kgCO2e

The average saving per product based on an average product weight of 6.9kg.

116 tCO2e

The average saving per 1000 products based on a weight of 6.9kg.



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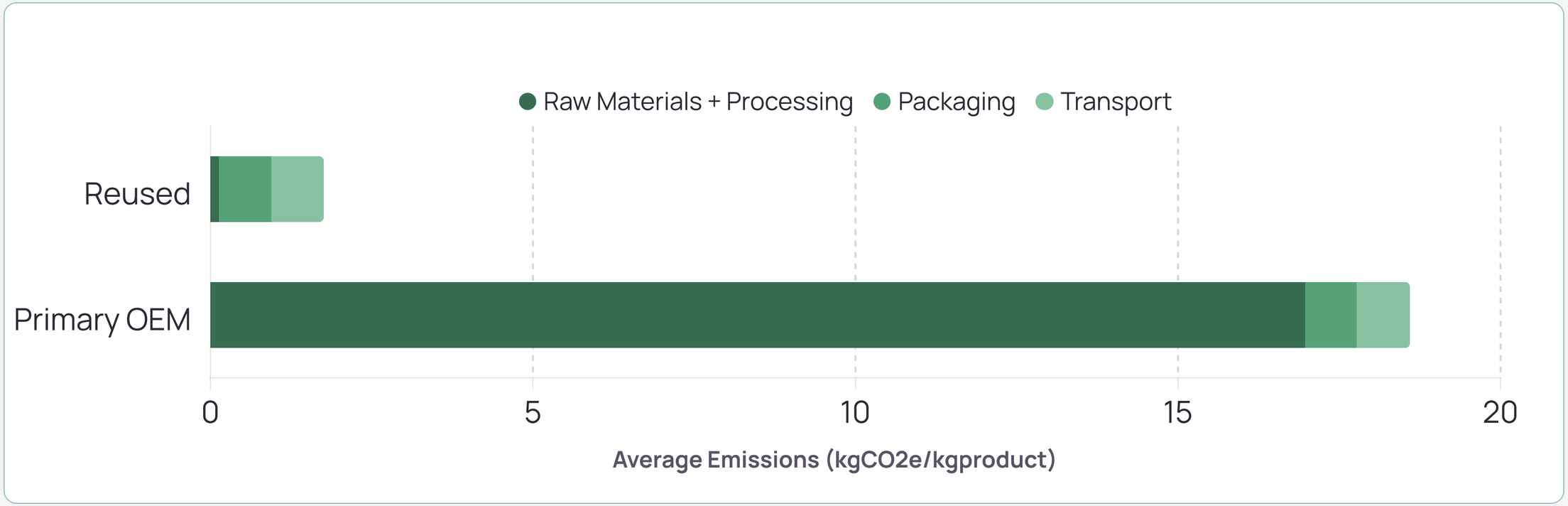
Saving Per Product

16.83 kgCO2e saved for every kg product reused by Shields MarketPlace



Sensitivity analysis

Completed to assess the significance of different factors on the results of the study.

- **Scenario 1:** Transportation distances were increased by 10% for Shields MarketPlace products to test the significance of the assumption that both systems are equal.

- **Scenario 2:** The emission factor of printed circuit boards (PCBs) was decreased by 10% to account for specific sub-component complexities in environmental analysis.

- **Scenario 3:** material packaging emissions were increased in the Shields MarketPlace products by 10% to test the significance of the assumption that both systems are equal.

Outcomes

- Scenarios 1, 2 and 3 produced percentage change results of no higher than 7.7% showing low significance.