fairphone

The Fairphone (Gen. 6+) LCA Summary

Snapdragon® 7s Gen 4 | 12GB RAM

Life Cycle Assessment

Our comprehensive cradle-to-grave life cycle assessment of the Fairphone (Gen. 6+) covers production, transport, use, and end-of-life phases of the smartphone and its accessories. The goals of the study include assessing environmental impacts, analyzing the use of recycled materials, and exploring the benefits of renewable energy in production.

The study was carried out by Fraunhofer IZM, and meets ISO standards 14040, 14044, and 14067. The report uses primary data from Fairphone and its suppliers, supplemented with secondary data from the Sphera and Ecoinvent databases. Multiple impact categories were analyzed, including climate change, resource depletion, ecotoxicity, eutrophication, land use change, and water use.

The Fairphone (Gen. 6+)

12GB RAM

The total product carbon footprint for the Fairphone (Gen. 6+) 12GB RAM/256GB storage variant over a 3-year use period is **42.8 kg CO_2e**. By integrating renewable energy into battery cell manufacturing through a market-based approach, the production phase contribution is significantly reduced to **25.5 kg CO_2e**. This integration of renewable electricity, combined with the use of recycled materials, lowers the total product carbon footprint to **29.6 kg CO_2e**.

The production phase remains a primary contributor to environmental impacts, with memory alone contributing **4.3 kg CO_2e** in standard scenarios, which can be reduced to **2.3 kg CO_2e** through the use of recycled materials and renewable electricity. Analysis of use-phase scenarios in the US shows that extending the device's lifespan can further manage environmental impact; while a three-year lifespan results in **3.52 kg CO_2e** of emissions, a 10-year lifespan increases these total use-phase emissions to **11.75 kg CO_2e**. The modular design continues to support easy repairs, which significantly reduces environmental impacts compared to replacing the entire device.



Total Product Carbon Footprint - The Fairphone (Gen. 6+) - 12GB RAM | 256GB Storage



43 kg CO2e

Based on 3 years of use - the industry average

Footprint per life cycle phase in kg CO_2e

Production	Transport	Use phase	End of Life*
38.9 kg CO2e (one time)	**1.9** kg CO2e (one time)	**2.2** kg CO2e for 3 years use	**0.04** kg CO2e (one time)

*Emissions associated with collecting and sorting of the device at the end of its useful life.

LCA Results with renewable energy integration

Scenario 1: Total Product Carbon Footprint - The Fairphone (Gen. 6+) - 12GB RAM | 256GB Storage - With renewable energy and recycled materials integrations



29.6 kg CO2e

Based on 3 years of use - the industry average

Footprint per life cycle phase in kg CO_2e

Production	Transport	Use phase	End of Life*
25.5 kg CO2e (one time)	**1.9** kg CO2e (one time)	**2.2** kg CO2e for 3 years use	**0.04** kg CO2e (one time)

*Emissions associated with collecting and sorting of the device at the end of its useful life.