

fairphone

Supplement – Life Cycle Assessment (LCA) Results for the Fairphone (Gen. 6) with **New Gen. 6+ Configuration** Scenarios: Renewable Energy in Battery Cell Production, Updated Memory Configuration, and US Use-Phase Sensitivity Analysis

This document is produced by Fairphone B.V as a **supplement to The Fairphone (Gen. 6) LCA Report published in December 2025.** It represent additional Product Carbon Footprint (PCF) results analyzed by our knowledge partner Fraunhofer, based on the following scenarios:

- 1) New Configuration - 12GB RAM/256GB Storage
- 2) Renewable Energy in Production: Integrate renewables electricity into battery cell manufacturing using market based approach.
- 3) US Use-Phase Scenarios: Assessment of device use in the United States over 3, 5, and 10 year lifetimes using US grid emission factors.

Summary of life cycle assessment (LCA) results of carbon footprint analysis of The Fairphone (Gen. 6) with the following scenarios:

1. Renewable Energy in Production: Integrate renewables into battery cell manufacturing and new memory configuration (12 GB RAM / 256 GB Storage).

Scenario	Battery (kg CO ₂ eq)	Memory (kg CO ₂ eq)
Footprint RM	1.9	4.3
Footprint RM + RE	1.2	2.3
Footprint w/o RM	1.9	4.3

RM = Recycled Materials; RE = Renewable Electricity

2. Total Product Carbon Footprint of The Fairphone (Gen. 6+) 12 GB RAM / 256 GB Storage.

Product Life Cycle Emissions (kg CO ₂ eq)			
Life cycle stages	Footprint RM	Footprint RM + RE*	Footprint w/o RM
Production	38.9	25.5	38.9
Transportation	1.9	1.9	1.9
Use phase	2.2	2.2	2.2
End of Life	0.04	0.04	0.04
Total Product Footprint	42.8	29.6	42.8

RM = Recycled Materials; RE = Renewable Electricity; w/o RM = Without Raw Material

3. **US Use-Phase Scenarios:** Assessment over 3, 5, and 10 year lifetime use.

Lifetime	Use-Phase Emissions in kgCO ₂ eq
3 years	3.52
5 years	5.87
10 years	11.75

*The preferred scenario for both direct customers and B2B customers is: recycled materials (RM) and renewable electricity (RE), resulting in a total product carbon footprint of **29.6 kg CO₂eq**.

Detailed LCA calculations and assumptions are provided in the accompanying one-page document prepared by Fraunhofer.

Berlin, 12/06/2026

Addition to 'Life Cycle Assessment of the Fairphone:6 Product and production changes

Life Cycle Assessment is a data sensitive and highly iterative process. During the reporting period of the Life Cycle Assessment of The Fairphone (Gen. 6), new data points were retrieved by Fairphone B.V. from their suppliers and due to time constraints they could not be included in the modelling and final report of said LCA. In this document we aim to briefly present the latest changes and the new related LCA results.

New memory configuration - The Fairphone (Gen. 6+)

The new model includes updated processor and memory chips, compared to the previously released version of The Fairphone (Gen. 6). The processor has been updated to the newest generation but since the technical parameters of the chip remain similar enough, no update was needed for the model. The memory however increases the DRAM capacity from 8GB to 12GB and the model has been accordingly updated.

Battery produced with renewable energy

In the original LCA, the electricity required for battery cell production was not included in the manufacturing stage of the battery. In this updated assessment, it has been possible to model this aspect by incorporating data from the Chinese national electricity grid, as well as the share of renewable energy used by the supplier. This refined modelling approach provides a more accurate representation of the battery's manufacturing impacts

US Use-Phase Scenarios: Assessment over 3, 5, and 10 years.

As an extension of the use phase analysis, a carbon footprint assessment over 3-, 5- and 10-year use scenarios has been carried out for the US market. The calculation is based on the energy consumed by the phone during its operational lifetime, combined with the US-specific electricity emission factor. This approach makes it possible to estimate the greenhouse gas emissions associated with long-term use of the device in the US and to compare the impact of different use durations.

Results

The updated GHG manufacturing totals for the previously assessed The Fairphone (Gen. 6) with the new memory cell configuration and renewable energy on the production of the battery cell are as follows:

- Renewable Energy in Production: Integrate renewables into battery cell manufacturing.
- New memory configuration.
- US Use-Phase Scenarios: Assessment over 3, 5, and 10 years.

In the following tables, the newly calculated scenarios are shown.

Table A: Global warming indicator for different lifespans for the US market scenario.

US market use phase	3 year use	5 year use	10 year use
GW100 [kg CO2 eq.]	3,5	5,9	11,8

Table B: Full life cycle (3 years lifespan) for the new FP6 model - The Fairphone (Gen. 6+), including the new battery and memory models.

	Footprint (RM)	Footprint (RM + RE)	Footprint (w/o reduction measures)
ADP elements [kg Sb eq.]	1,35E-03	1,40E-03	1,41E-03
ADP fossil [MJ]	5,05E+02	3,98E+02	5,10E+02
Eutrophication P [kg Phosphate eq.]	1,69E-02	1,64E-02	1,71E-02
GWP100 [kg CO2 eq.]	4,28E+01	2,96E+01	4,33E+01
Land Use [Pt]	1,32E+02	3,02E+02	1,33E+02
Ecotoxicity [kg DCB eq.]	5,79E-01	3,04E+00	6,07E-01
Blue water consumption [kg]	1,39E+03	3,04E+02	3,55E+02
Blue water use [kg]	6,70E+04	8,01E+04	6,84E+04

About Fraunhofer IZM

Fraunhofer IZM specializes in industry-oriented applied research on electronic packaging and environmental optimization of electronics. The institute has conducted LCAs for many renowned OEMs and is a firm authority on critical reviews of LCA studies for electronics. Fraunhofer IZM is regularly involved in EU Ecodesign studies and LCA related research projects in the ICT field.

Contact:

David Sánchez
david.sanchez@izm.fraunhofer.de

Lara Eguren
lara.eguren@izm.fraunhofer.de