Microsoft

ECOPROFILE

Surface Laptop for Business, 15-inch

8th Edition



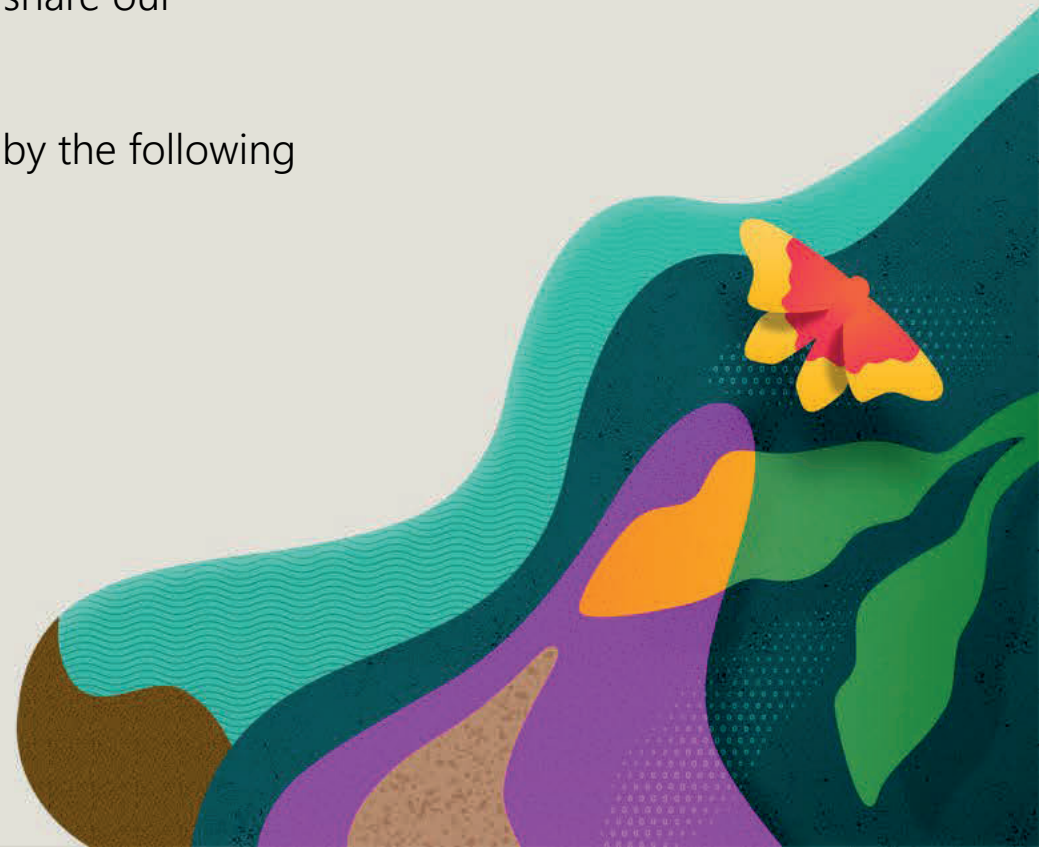
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Our goals

In 2020 Microsoft committed to becoming carbon negative, water positive, and zero waste by 2030[1]. Surface plays a key role in helping Microsoft achieve these goals, so we are working to reduce the environmental impacts of our Surface products. Our approach embeds sustainability into the design, manufacturing, distribution, use, and end-of-life management of our devices. We will continue to innovate to meet our targets and we will share our progress along the way.

We need to act quickly to meet our 2030 goals. That's why Surface is driven by the following priorities:

1. Reducing carbon emissions
2. Designing with circularity in mind
3. Building with integrity

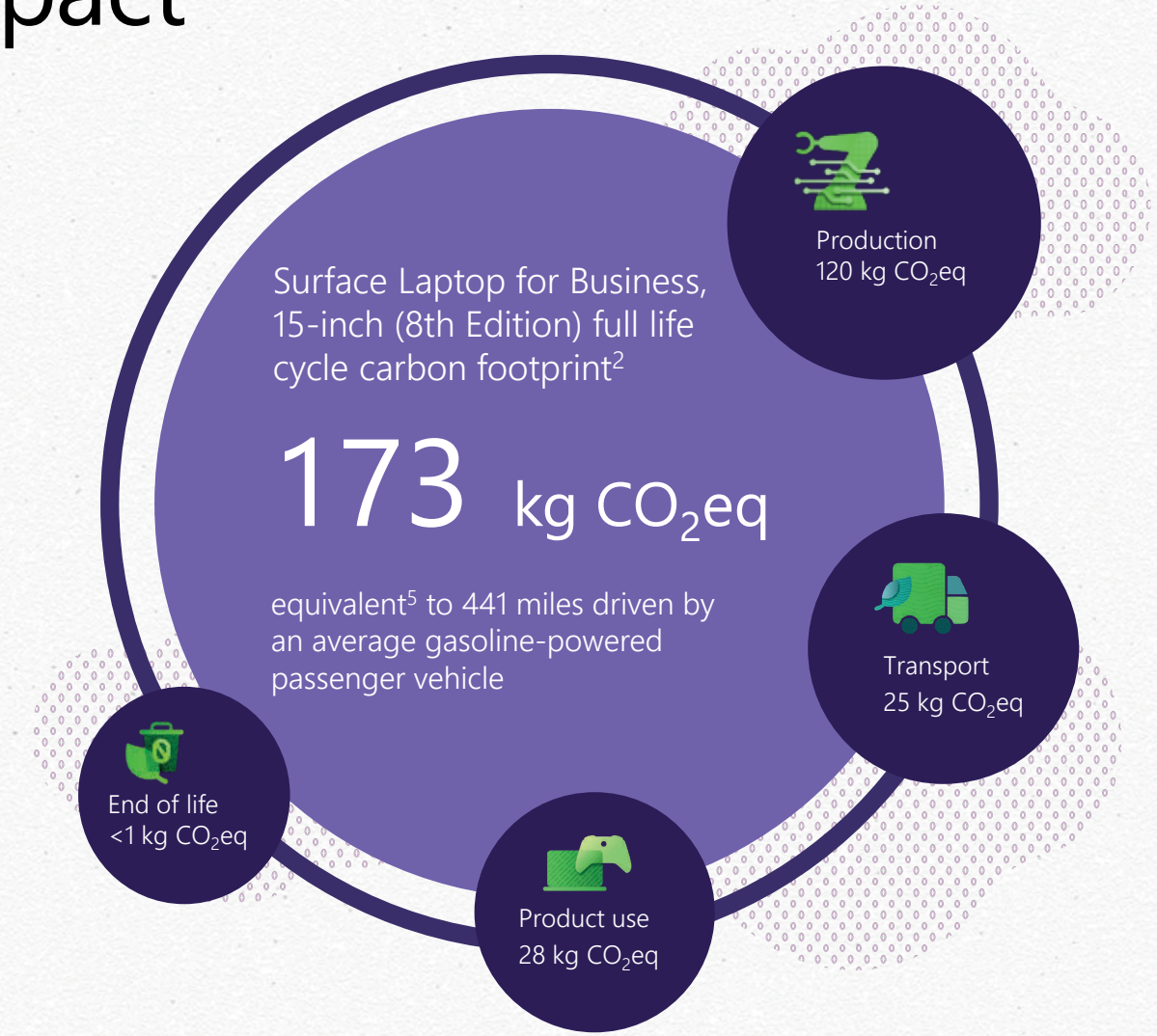


Transparency to carbon impact

We have made significant investments to improve our life cycle assessment (LCA) approach. That's because quantifying the environmental impacts of our products is critical to make and track progress toward our carbon reduction goal. We use LCA to identify and prioritize opportunities to minimize the carbon footprint across the full life cycle of our devices.

The life cycle assessment[2] of Surface Laptop for Business, 15-inch (8th Edition) includes production of one device, distribution to customer, 4.5 years of product use[3], and end-of-life management. The estimated annual electricity consumption[4] in use is 10.4 kWh per year.

The carbon footprint[2] of one year of computing using Surface Laptop for Business, 15-inch (8th Edition) is 38 kg CO_2eq, assuming a 4.5-year total use period[3].

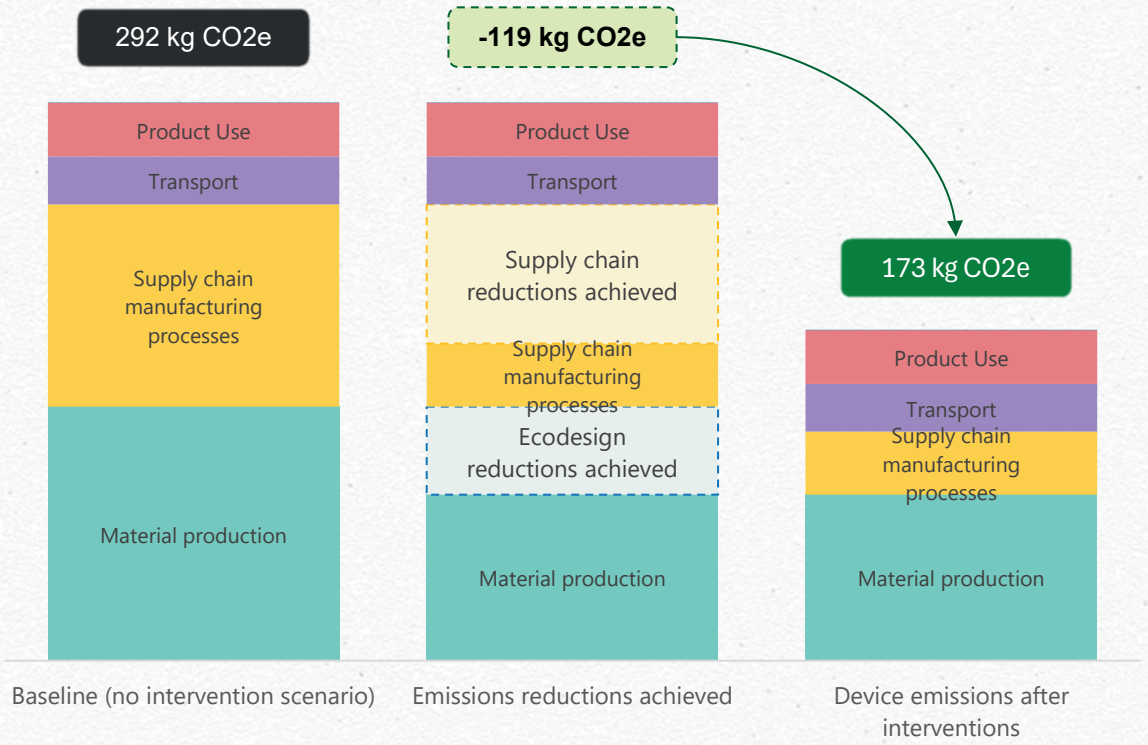


The production life cycle stage includes extraction of raw materials, upstream materials preparation, electronic component manufacturing, subassembly manufacturing and assembly, and final assembly.

Calculations are based on the US configuration of Surface Laptop for Business, 15-inch (8th Edition) CU5, 16GB DRAM, and 512GB SSD. Included in the assessment are the device, power supply unit, and packaging. Other accessories are not included.

LCA methodology details are included in the Resources and notes page of this document.

Reducing manufacturing carbon emissions



The lifecycle carbon footprint of Surface Laptop for Business, 15-inch (8th Edition) was reduced by 41% compared to a baseline* scenario through several ecodesign (material and design) and supply chain interventions.

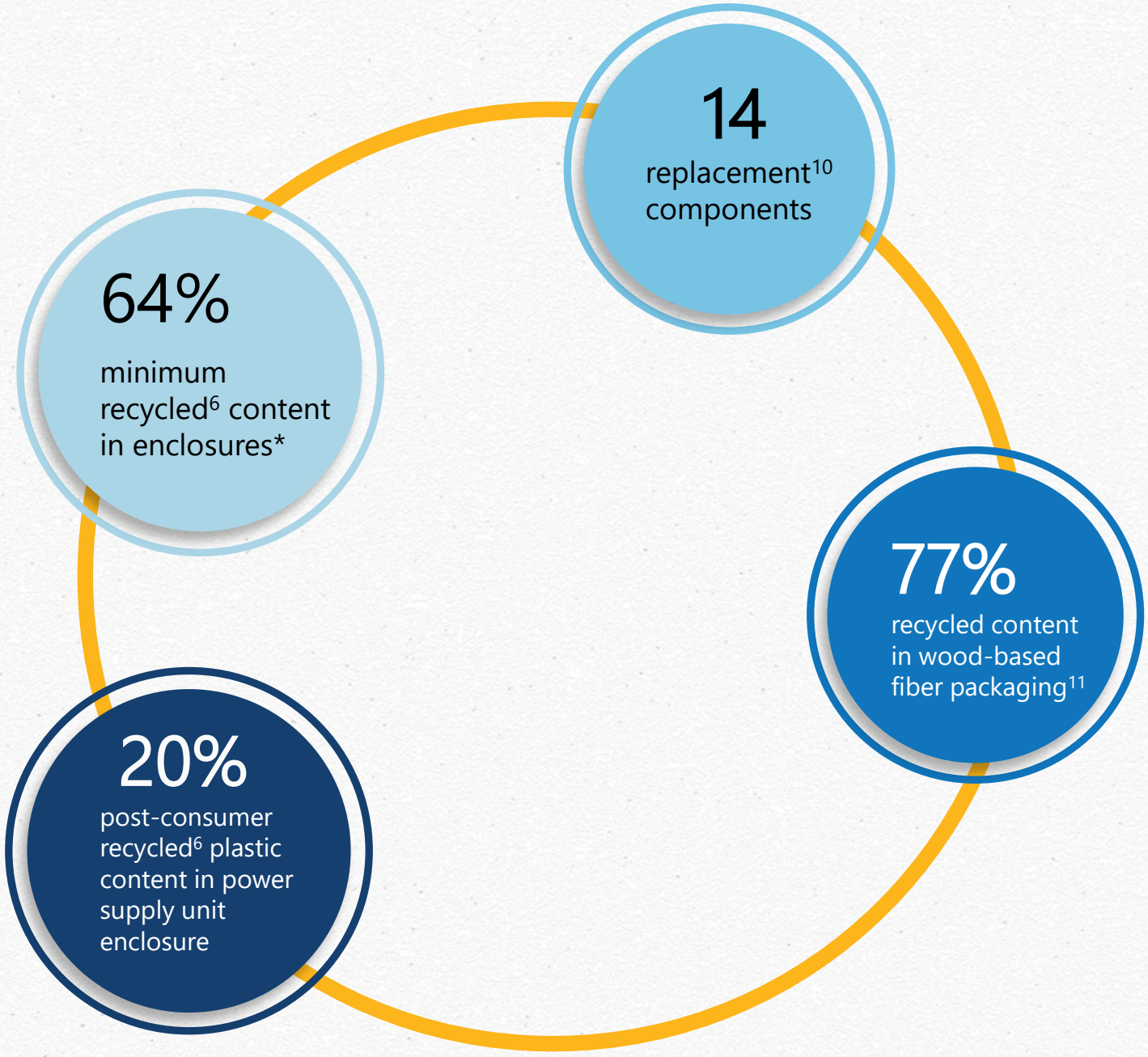
The enclosures are made with a minimum of 64% recycled[6] content, including 100% post-industrial[7] recycled aluminum in two key enclosure parts. The magnets in the enclosure assemblies are made with 100% recycled[6] rare earth metals. These material interventions drive a 46 kg CO_2eq carbon footprint reduction from baseline. We are working with our suppliers to transition key manufacturing processes to 100% carbon free electricity[8]. The carbon free electricity transition implemented so far drives another 73 kg CO_2eq carbon footprint reduction from baseline.

Calculations are based on the US configuration of Surface Laptop for Business, 15-inch (8th Edition) CU5, 16GB DRAM, and 512GB SSD. Chart includes Production, Distribution, Use, and End of Life of the device, power supply unit, and packaging.

*The baseline scenario models the same product without any sustainability interventions in the production phase of the device: (a) no additional renewable energy in the supply chain beyond what is already modeled in the regional grid mixes from Ecoinvent v3.9.1, (b) the carbon footprint of materials and manufacturing processes assuming no recycled content or additional ecodesign interventions as of the date of Ecoprofile, and (c) the default US distribution, use, and end of life modeling assumptions of Surface Laptop for Business, 15-inch (8th Edition).

Circular by design

The linear ‘take, make, and waste’ approach is no longer viable. That’s why we design products with circularity in mind, meaning we follow a ‘reduce, reuse, and recover’ model to minimize waste and maximize the reuse of resources.



*Enclosure includes A cover, C cover, and D bucket. 64% recycled content consists of 100% recycled aluminum in A cover and C Cover and 100% recycled rare earth metals in magnets.

What we've done

Lower carbon, circular product design

Sustainability in design and manufacturing

We continue to develop opportunities to recycle and reuse aluminum manufacturing scrap in device production, allowing us to use lower-carbon 100% post-industrial[7] recycled[6] aluminum for Surface computer enclosures.

Two of the three key enclosure parts of Surface Laptop for Business, 15-inch (8th Edition) are made from 100% post-industrial[7] recycled[6] aluminum. In addition, the magnets used in the enclosures contain 100% recycled[6] rare earth metals.

The power supply unit that ships with Surface Laptop for Business, 15-inch (8th Edition) also includes 20% post-consumer recycled[6] content plastic in its enclosure.

Packaging for Surface Laptop for Business, 15-inch (8th Edition) contains a minimum[11] of 77% recycled content in wood-based fiber packaging.

Our goals for our packaging are to be 100% recyclable by 2030 and to contain zero single-use plastics by 2025.

Supply chain reductions

Transitioning to carbon free electricity[8] in the supply chain

We continue to work with our suppliers to build action plans of emission reduction activities leading up to 2030. We apply a carbon footprint-based prioritization approach to identify and engage on key supply chain activities and work with our priority suppliers to transition to 100% carbon free electricity[8] for Microsoft-specific activities.

The machining and finishing of metal enclosure parts and the final assembly of Surface Laptop for Business, 15-inch (8th Edition) now use 100% carbon free electricity[8].

Microsoft is also working to meet delivery demand without increasing our carbon footprint by:

- Powering key distribution centers with 100% renewable energy.
- Offering a lower carbon shipping option to Microsoft Stores customers by providing customers the option to avoid air freight (a higher carbon option) and select ground shipment when ordering from Microsoft.

Product Use

More energy efficient

All Microsoft Surface computers are ENERGY STAR® certified and designed to be energy efficient while delivering the performance customers expect.

Surface Laptop for Business, 15-inch (8th Edition) is estimated to use 57% less energy than the current ENERGY STAR® computer specification requirement[4], reflecting energy savings without sacrificing features or functionality.

New Windows Energy Saver is a built-in one toggle feature to help you extend your battery life.

Where available, Windows update can schedule installations at specific times of day when lower carbon electricity options are powering the grid, resulting in lower carbon emissions[12].

Repairability

Easier to service

Extending the life of products through repairability is a key part of our carbon reduction strategy.

A list of Surface Laptop for Business, 15-inch (8th Edition) replacement components[10] can be found under product tech specs. Microsoft offers customers service options for Surface devices.

Microsoft makes trade-in and recycling convenient and secure for customers with global programs. Learn more at Microsoft Trade In & Recycling Program. Commercial customers can trade in devices using the Microsoft Trade In Program.

Building with integrity

Responsibly made

Our values of integrity, accountability, and respect provide the foundation for responsible sourcing. Engaging with our suppliers around issues of human rights, sustainability, and ethics helps us understand and mitigate risk, increase transparency, build capacity, and create shared value for society. Visit Supply Chain Integrity to learn more.

We take a precautionary approach to substance management. We follow legislative developments and research regarding chemical impacts on health and environment and update our specifications with new product and manufacturing substance restrictions to address risks.

Labels and certifications

Surface Laptop for Business, 15-inch (8th Edition) is EPEAT registered in many countries at the Gold level, the highest available rating. EPEAT criteria cover topics including material selection, product design for repair and longevity, energy efficiency, chemicals of concern, distribution, packaging, responsible end-of-life management, responsible manufacturing, corporate performance, transparency, and reporting. For more information, visit the EPEAT registry.

Surface Laptop for Business, 15-inch (8th Edition) is ENERGY STAR® certified. Visit the ENERGY STAR website for more information.





More to come

Microsoft made commitments to be carbon negative, water positive, and zero waste by 2030. We will also continue to be transparent about our progress, our challenges, and our learnings to help others on their journey.

Our history 2009-2019

2009
First carbon emission reduction goal

2012
100% carbon neutral
(Scope 1 and 2) Internal carbon fee instituted

2016
Zero-waste campus certification

2017
AI for Earth launch
LEED Gold certification for new datacenters

2018
Supplier carbon engagement in China launched.
Net-zero portable water Silicon Valley Campus groundbreaking

2019
Carbon fee raised to $15
Water replenishment goal set

2020
2025-2050 sustainability commitments made

Our commitments 2020-2050

2025
Operate with 100% renewable energy
Protect more land than Microsoft uses
Eliminate single-use plastics in product packaging

2030
Become carbon negative (Scope 1, 2, 3), zero waste, water positive
100% recyclable product packaging

2050
Remove an amount of carbon equivalent to all our historical emissions (Scope 1 and 2)



Resources and notes

1 For more information on Microsoft's sustainability commitments, approach, and progress visit our corporate sustainability website and read our annual Sustainability Report.

2 The product carbon footprint and other environmental impacts are calculated in accordance with ISO 14040 and ISO 14044 using Microsoft Devices LCA Methodology v2.1 (available with our Ecoprofiles) and are not directly comparable to results calculated using Methodology v1.0-2.0 nor to results calculated by other companies. Our new methodology enables us to model complex electronic products with greater accuracy, transparency, and supply chain representativeness. The Life Cycle Inventory (LCI) data is based on our own measurements, collected from suppliers, and content supplied by Makersite and ecoinvent along with other internationally available LCI databases. Uncertainties are inherent in all LCA methodologies. We continually work to improve our data and models, and our results may be updated to reflect these improvements.

LCA results are reported for a representative configuration of the product. The production result may vary by hardware configuration. The transport, product use, and end of life management results may vary by region. The use phase carbon footprint for devices used in Europe sees a 27% reduction, while Asia sees a 104% increase, compared to the US reference scenario.

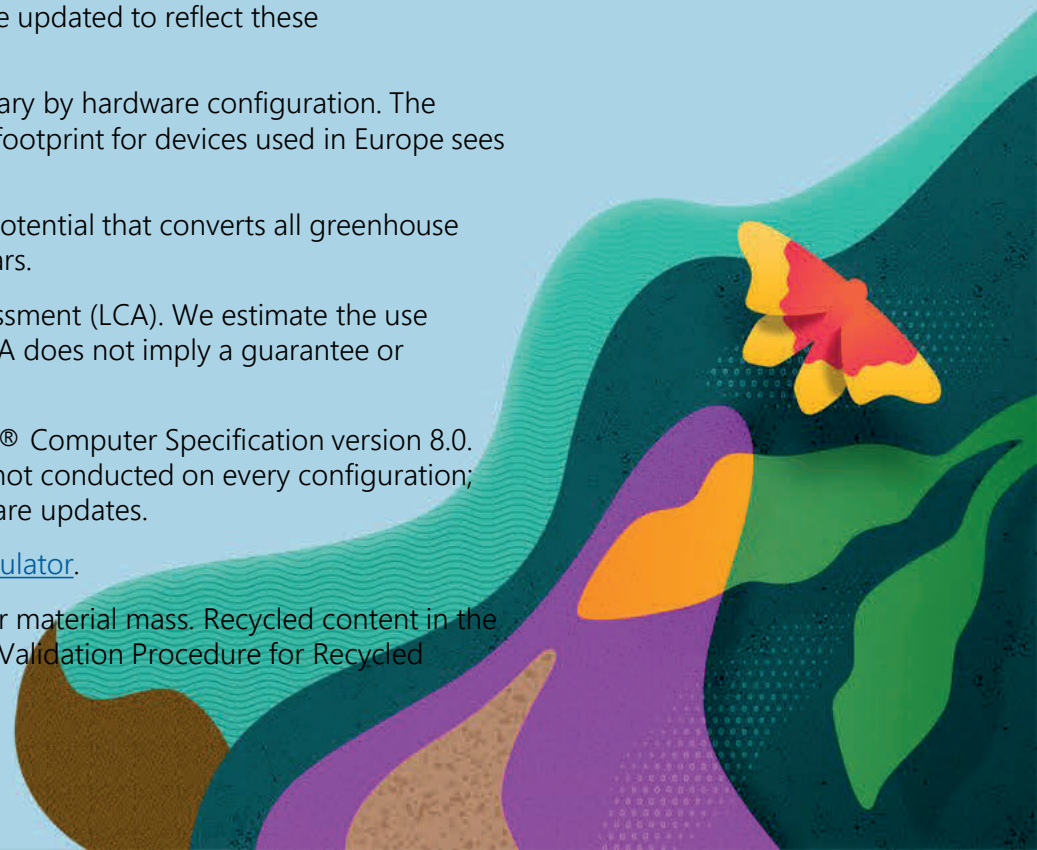
The carbon footprint is reported as carbon dioxide equivalent (CO_2eq), a measure of global warming potential that converts all greenhouse gases to the equivalent amount of carbon dioxide with the same global warming potential over 100 years.

3 The product use period is an estimate of average product lifetime for the purpose of the life cycle assessment (LCA). We estimate the use period based on reliability and repairability of the device. Disclosure of the use period estimated for LCA does not imply a guarantee or warranty.

4 The estimated annual electricity consumption and energy efficiency are calculated using ENERGY STAR® Computer Specification version 8.0. The sample used for the energy testing represents the most energy-intensive configuration. Testing is not conducted on every configuration; therefore, the results reflect a worst-case scenario. Energy efficiency may improve over time with software updates.

5 Equivalency to passenger vehicle miles is calculated using US EPA's Greenhouse Gas Equivalencies Calculator.

6 Recycled content calculated based on mass of recycled material as a percentage of total device, part, or material mass. Recycled content in the product is based on validation performed by Underwriter Laboratories, Inc. using Environmental Claim Validation Procedure for Recycled Content, UL 2809-2, either First Edition, April 6, 2023, or Second Edition, November 7, 2023.



Resources and notes

7 Post-industrial recycled content refers to materials that are recycled after the manufacturing process but before reaching consumers.

8 Microsoft defines carbon free electricity (CFE) technologies as including technologies with zero direct emissions and biogenic technologies with life-cycle emissions equivalent to renewables. CFE technologies include wind; solar; geothermal; sustainable biomass; hydropower; nuclear; fossil with complete carbon capture, utilization, and sequestration (CCUS); and storage charged with CFE generation. Microsoft acknowledges that CFE technologies have indirect carbon dioxide emissions and these are accounted for in our LCAs. CFE transition in the supply chain includes the onsite generation and purchase of verified Energy Attribute Certificates (EACs) by suppliers that are allocated to Microsoft-specific production volumes.

9 Recyclability percentages reported in this document are valid in Organization for Economic Cooperation and Development (OECD) countries.

10 For consumers: Replacement components available through online Microsoft Store and iFixIt for out-of-warranty repair. Components can be replaced by individuals with the knowledge and experience to repair electronic devices following Microsoft's Service Guide. Microsoft tools (sold separately) may also be required. Availability of replacement components and service options may vary by product, market and over time. See Self-repair information for your Surface device.

For commercial customers: Replacement components available through Surface Commercial authorized device resellers. Components can be replaced on-site by a skilled technician following Microsoft's Service Guide. Microsoft tools (sold separately) may also be required. Availability of replacement components and service options may vary by product, market and over time. See Surface service options.

Opening and/or repairing your device can present electric shock, fire and personal injury risks and other hazards. Use caution if undertaking do-it-yourself repairs. Unless required by law, device damage caused during repair will not be covered under Microsoft's Hardware Warranty or protection plans.

11 Packaging configurations may vary for consumer vs. commercial applications and by configuration of the device and power supply unit. We report the minimum percentage of recycled content in wood-based fiber packaging across all configurations. Some configurations may contain a higher percentage of recycled content in wood-based fiber packaging.

12 When devices are plugged in, turned on, connected to the Internet and where regional carbon intensity data is available from WattTime. See Windows Update is now carbon aware for details.

