

Product Sustainability Fact Sheet



Echo Studio

Updated September 2025 - for US only

Know the Carbon Footprint

We measure and estimate this product's carbon footprint, and identify opportunities to reduce its carbon emissions.



Carbon Footprint

128 kg CO₂e total carbon emissions

Recycled Materials

This device is made from 18% recycled materials. The fabric parts are made from 94% post-consumer recycled fabric.

Packaging

All new 100% recyclable packaging (shipping packaging not included).

Trade-in and Recycle

Built to last. But when you're ready, you can trade-in or recycle your devices. Explore [Amazon Second Chance](#).



The product carbon footprint of this device has been certified by Carbon Trust¹. Figures apply to Echo Studio, not including any other versions or any bundled accessories or devices. We update the carbon footprint when we discover new information that increases the estimated carbon footprint of a device by more than 10%.

This device is a **Climate Pledge Friendly** product. We partner with trusted third-party certifiers and create our own certifications like **Compact by Design** and **Pre-owned Certified** to highlight products that meet sustainability standards.

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Life Cycle

We consider sustainability in every stage of a device's life cycle—from sourcing raw materials to end-of-life.

Echo Studio total life cycle carbon emissions: 128 kg CO₂e

Carbon emissions of each life cycle stage:

01 Materials and Manufacturing

30%

02 Transportation

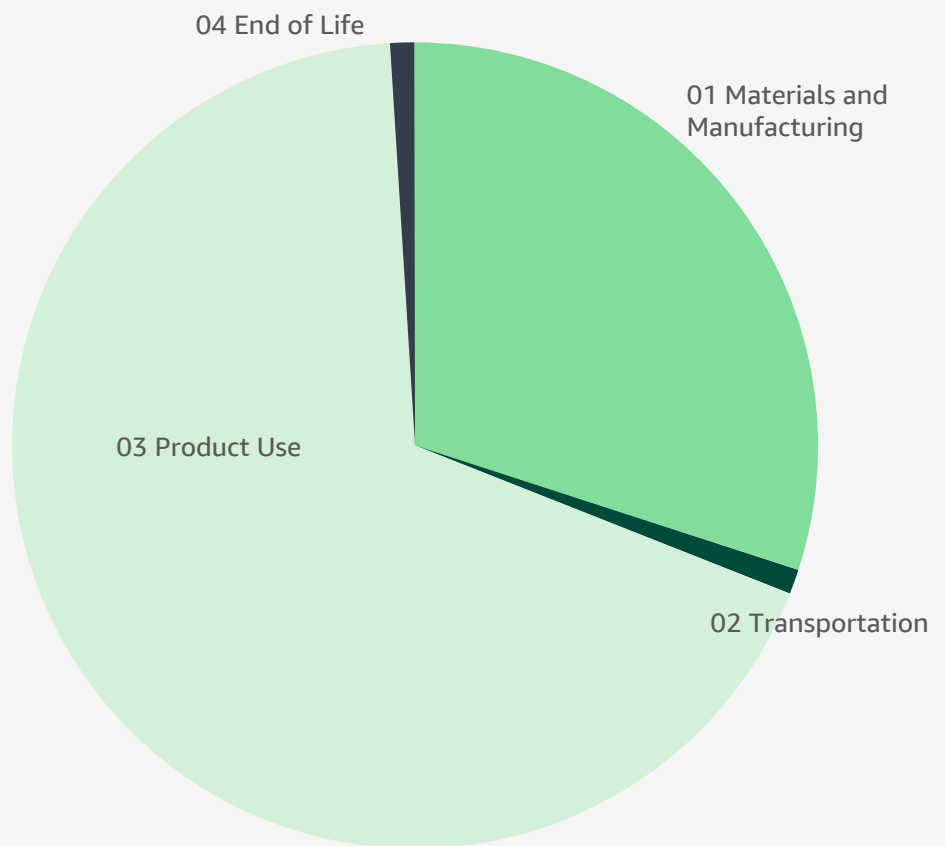
1%

03 Product Use

68%

04 End-of-Life

<1%



Life Cycle Assessment: A methodology to assess the environmental impact (e.g., carbon emissions) associated with life cycle stages of a product—from raw material extraction and processing, through production, use, and disposal.

This product's biogenic carbon emissions of -1.337 kg CO₂e are included in the total footprint calculation. The total biogenic carbon content in this product is 0.48 kg C. Percentage values may not add up to 100% due to rounding.

Materials and Manufacturing

We account for the extraction, production, and transportation of raw materials, as well as the manufacturing, transporting, and assembling of all parts.

Recycled Materials

This device is made from 18% recycled materials. The fabric parts are made from 94% post-consumer recycled fabric. The plastic in this device is made from 43% post consumer recycled plastic. We incorporate recycled fabrics, plastics, and metals into many new Amazon devices, giving new life to materials.

Recyclable Packaging

This device has 100% recyclable packaging. 99% of this device's packaging is made of wood fiber-based materials from responsibly managed forests or recycled sources.

Chemical Safety

Through our partnership with ChemFORWARD, we're collaborating with industry peers to proactively identify chemicals of concern and safer alternatives ahead of regulations.

Suppliers

We engage suppliers who manufacture our devices or their components—particularly final assembly sites, semiconductors, printed circuit boards, displays, batteries, and accessories—and encourage them to increase renewable energy use and reduce manufacturing emissions. To date, we have received commitments from 93 key suppliers to work with us on decarbonization, and helped 38 of them develop renewable energy implementation plans for Amazon Devices production. We are continuing to expand this program in 2025 and beyond.



Transportation

We account for an average inbound and outbound trip that is representative of an average device or accessory. Inbound trip includes transporting the product from final assembly to Amazon warehouses while outbound trip includes transporting the product from warehouses to the customer.

Amazon Commitment

Delivering for our global customers requires Amazon to rely on a variety of transportation solutions for long and short distances. Over the lifetime of the device, Amazon will ship **at least 70%*** of the global inbound volume of the Echo Studio via non-air modes of transportation.

*Estimated based on last 5 years average of a similar product; includes transportation from manufacturers and suppliers into Amazon warehouse only.

Diversifying Transportation Modes

Decarbonizing our transportation network is a key part of meeting The Climate Pledge by 2040. According to our science model, on average, ocean shipping emissions are approximately 95% lower than air transport emissions.

Since 2020, we've reduced carbon emissions from transportation of our devices by 77%. We've done this by prioritizing transportation via ocean and modes that are less carbon intensive than air like rail and road.



Product Use

We determine the expected energy consumption of a device over its lifetime and calculate the carbon emissions associated with the use of our devices.

Low Power Mode

Low Power Mode reduces energy consumption when idle, except in certain situations.

Renewable Energy

In 2020, Amazon became the first consumer electronics company to commit to addressing the electricity used by our devices through renewable energy development, starting with Echo devices. We invest in renewable energy that matches the electricity usage of this device.

Alexa

With the Alexa Energy Dashboard, customers can view estimated energy usage for their compatible thermostats and water heaters; plus, they can see a forecast of when cleaner energy is available, so customers can plan ahead for energy-intensive activities like running the dishwasher or dryer.

Customers can also manage the energy use of their compatible connected devices using Routines and Hunches. Routines are short cuts for Alexa, saving you time by grouping together a bunch of actions so you don't have to ask for each one individually. For example, you can set the "Alexa, good night" Routine to turn off all your porch lights at once. Hunches is a feature that can help you save energy without even thinking about it. Now, if Alexa has a hunch that you forgot to turn off a light and no one is home or everyone went to bed, Alexa can automatically turn it off for you.



End-of-Life

To model end-of-life emissions, we estimate the ratio of end products that are sent to each disposal pathway including recycling, combustion, and landfill. We also account for any emissions required to transport and/or treat the materials.

Durability

We ensure that our devices are built to last by putting them through dozens of reliability tests to replicate everyday situations such as drops, tumbles, spills, power cycles and other wear and tear. We also release over-the-air software updates for our customers' devices so they don't need to replace them as often.

Trade-in & Recycling

We make it easy for you to retire your devices. Using Amazon Trade-In, you can trade-in your old devices for a gift card. Your retired devices will then be either refurbished and re-sold, or recycled.



Methodology

Our approach to measuring a product's carbon footprint?

To meet [The Climate Pledge](#) goal to be net-zero carbon by 2040, we measure and estimate this product's carbon footprint, and identify opportunities to reduce its carbon emissions. Our life cycle assessment ("LCA") models align with internationally recognized standards, like the Greenhouse Gas ("GHG") Protocol Product Life Cycle Accounting and Reporting Standard² and International Standards Organization ("ISO") 14067³. Our methodology and product carbon footprint results are reviewed by the Carbon Trust with reasonable assurance. All carbon footprint numbers are estimates and we continuously improve our methodology as the science and data available to us evolve.

What's in an Amazon device's product carbon footprint?

We calculate this product's carbon footprint throughout its life cycle stages, including materials and manufacturing, transportation, use, and end-of-life. The life-cycle impacts are estimated based on the Intergovernmental Panel on Climate Change ("IPCC") 2021 Global Warming Potential for a 100-year timeframe ("GWP100") in CO₂ equivalency factors ("CO₂e")⁴. Two carbon footprint metrics are considered: 1) the total carbon emissions across all life cycle stages of one device or accessory (in kilograms of carbon dioxide equivalent, or kg CO₂e), and 2) the average carbon emissions per year used of the estimated device lifetime, in kg CO₂e/use-year.

Materials and Manufacturing: We calculate the carbon emissions from material and manufacturing based on the list of raw materials and components to manufacture a product, namely the bill of materials. We account for the emissions from the extraction, production, and transportation of raw materials, as well as the manufacturing, transporting, and assembling of all parts. For certain components and materials, we may collect primary data from our suppliers to supplement our industry average data, collected from a mix of commercially and publicly available LCA databases.

Transportation: We estimate the emissions of transporting the product from final assembly to our end customer using actual or best estimated average transportation distances and transportation modes for each device or accessory.

Use: We calculate the emissions associated with the use (i.e., electricity consumption) of this product by multiplying the total electricity consumption over a device's estimated lifetime with the carbon emissions from the generation of 1 kWh electricity (the grid emission factor). The total energy consumption of a device is based on the average customer's power consumption and estimated time spent in various modes of operation like playing music, playing video, idle, and low power mode. A specific customer may have a higher or lower use phase footprint associated with their device depending on their specific usage patterns.

We use country-specific grid emission factors to account for the regional variations in electricity grid mix. [Learn more](#) about how Amazon plans to decarbonize and neutralize the use phase of our connected devices by 2040.

End-of-Life: For end-of-life emissions, we account for any emissions required to transport and/or treat the materials destined to each disposal pathway (e.g., recycling, combustion, landfill).

How do we use the product carbon footprint?

The footprint helps us identify carbon reduction opportunities across this product's various life cycle stages. In addition, we use it to communicate our carbon reduction progress over time—this is included in the calculation of Amazon's corporate carbon footprint. [Learn more](#) about Amazon corporate carbon footprint methodology.

How often do we update a product's carbon footprint?

After we launch a new product, we track and audit the carbon emissions of all life cycle phases of our devices. We update our product sustainability fact sheets when the estimated carbon footprint of a device increases by more than 10% or due to new information that changes our model inputs. These changes that are within Amazon's control include adjustments to the product design, changes in product energy usage, and updates to transportation data. To make sure that we compare our new products fairly, we recalculate the footprint of their comparison products, incorporating updates in our methodology and emission factors. This report serves as an informational guide and should not be relied upon for product comparisons.

[Learn more](#) about our product carbon footprint methodology and limitations in our full methodology document.

Definitions:

Biogenic carbon emissions: Carbon released as carbon dioxide or methane from combustion or decomposition of biomass or bio-based products.

Life Cycle Assessment: A methodology to assess the environmental impact (e.g., carbon emissions) associated with life cycle stages of a product—from raw material extraction and processing, through production, use, and disposal.

Endnotes

¹**Carbon Trust Certification:** The carbon footprint has been verified in accordance with ISO 14067, CERT-13844. The verification is valid for two years, expiring August 12, 2027.

²**Greenhouse Gas ("GHG") Protocol Product Life Cycle Accounting and Reporting Standard:** <https://ghgprotocol.org/product-standard> published by the Greenhouse Gas Protocol

³**International Standards Organization ("ISO") 14067:2018 Greenhouse gases—Carbon footprint of products—Requirements and guidelines for quantification:** <https://www.iso.org/standard/71206.html> published by International Standards Organization

⁴**Intergovernmental Panel on Climate Change ("IPCC") AR6:** Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change: https://report.ipcc.ch/ar6/wg1/IPCC_AR6_WGI_FullReport.pdf published by the Intergovernmental Panel on Climate Change

