



Carbon Neutral Report for Apple Watch bands:

**Sport Loop, Alpine Loop, Trail Loop, Milanese Loop,
Titanium Milanese Loop, Braided Solo Loop, and
Pride Edition Braided Solo Loop (42mm and 46mm)**

Décret n° 2022-539 du 13 avril 2022 relatif à la compensation carbone et aux allégations de neutralité carbone dans la publicité.

September 2024



This report includes data current as of product launch. Product evaluations are based on U.S. configuration of Sport Loop, Alpine Loop, Trail Loop, Milanese Loop, Titanium Milanese Loop, Braided Solo Loop, and Pride Edition Braided Solo Loop (42mm and 46mm). Product carbon footprint calculations include in-box accessories as well as packaging.

Our carbon neutrality strategy for carbon neutral Apple Watch bands

Our goal is to achieve carbon neutrality for our entire carbon footprint by 2030, reducing our total carbon emissions to no more than 9.6 million metric tons—at least a 75 percent reduction against our 2015 baseline. To reach this ambitious goal, we must substantially decarbonize our products.

Our rigorous strategy to decarbonize products focuses on transitioning to low-carbon electricity, designing with recycled and renewable materials, and prioritizing lower-carbon ways of shipping products, like with ocean freight. Only after we've substantially reduced emissions will we apply carbon credits from high-quality projects to achieve carbon neutrality.

Here is our approach to drastically reduce carbon emissions from the design, production, and use of carbon neutral Apple Watch bands.

How we're reducing emissions

- **Using recycled and renewable materials:** To address emissions generated by using primary materials, we're increasing the recycled content in our products, maximizing material and manufacturing efficiencies, and improving yields. And where we've not yet fully transitioned to recycled content, we're prioritizing renewable and low-carbon materials, such as aluminum smelted with hydroelectricity. By 2025, we plan to use 100 percent recycled cobalt in all Apple-designed batteries,¹ 100 percent recycled tin soldering and 100 percent recycled gold plating in all Apple-designed rigid and flexible printed circuit boards, and 100 percent recycled rare earth elements in all magnets. All bands covered by this report have at least 30 percent total recycled content by weight.
- **Sourcing 100% renewable electricity for manufacturing:** To reduce emissions from the electricity used to make products, we're working to transition our entire supply chain to 100 percent renewable electricity and prioritizing energy efficiency in manufacturing. For carbon neutral bands, 100 percent of manufacturing electricity is sourced from renewable energy.
- **Increasing non-air transportation:** To reduce emissions from transporting products, we're shifting from air shipping to lower-carbon modes, like ocean or rail. Across the combined weight of all carbon neutral watches and bands, we're shipping 50 percent or more by non-air modes from our final assembly sites to their next destination, primarily regional distribution hubs.

How we reach carbon neutral for carbon neutral bands

To address remaining emissions, we deploy nature-based solutions that generate high-quality carbon credits. Nature-based solutions play an important role in addressing the climate crisis, contributing to the health of ecosystems and remove carbon from the atmosphere. We are aligned with the scientific consensus that carbon credits should only be applied after aggressive efforts to reduce emissions and increase efficiency have been implemented. We created the [Restore Fund](#) to scale up high-quality, nature-based carbon removal projects around the world and also often originate our own projects with reputable partners. Apple uses credits from projects that align with international standards such as Verra and the Climate, Community & Biodiversity (CCB) Standard, which ensure projects are real, additional, measurable, quantified, and have systems in place to avoid double-counting and ensure permanence. Carbon credits are retired after the end of each fiscal year, to correspond to the remaining emissions from the total number of products sold in the prior fiscal year. Apple uses an independent third party to confirm that the correct number of credits have been retired.²

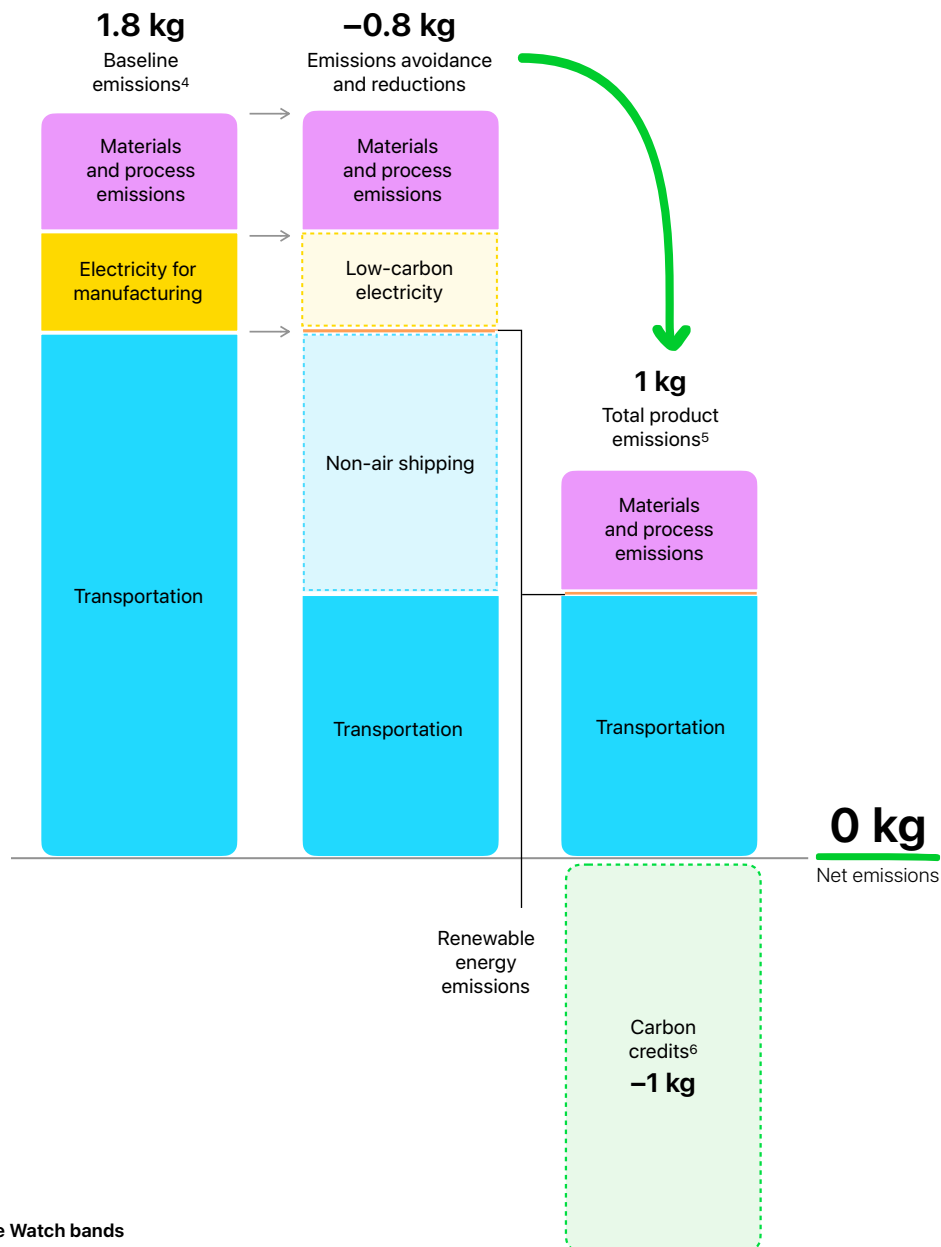
How we're demonstrating progress

We first calculate the carbon footprint of the product using a life cycle carbon analysis approach, in accordance with international standards. To help ensure our work is translating to real reductions, we consider what emissions would have been without our actions. We apply the following assumptions to create this product-specific business-as-usual scenario as modeled by Apple:

- No use of low-carbon electricity for manufacturing or product use, beyond what is already available on the latest modeled grid (based on regional emissions factors).
- Apple's carbon intensity of key materials as of 2015. Carbon intensity of materials reflects use of recycled content and production technology.
- Apple's average mix of transportation modes (air, rail, ocean, ground) by product line across three years (fiscal years 2017 to 2019) to best capture the baseline transportation emissions of our products.

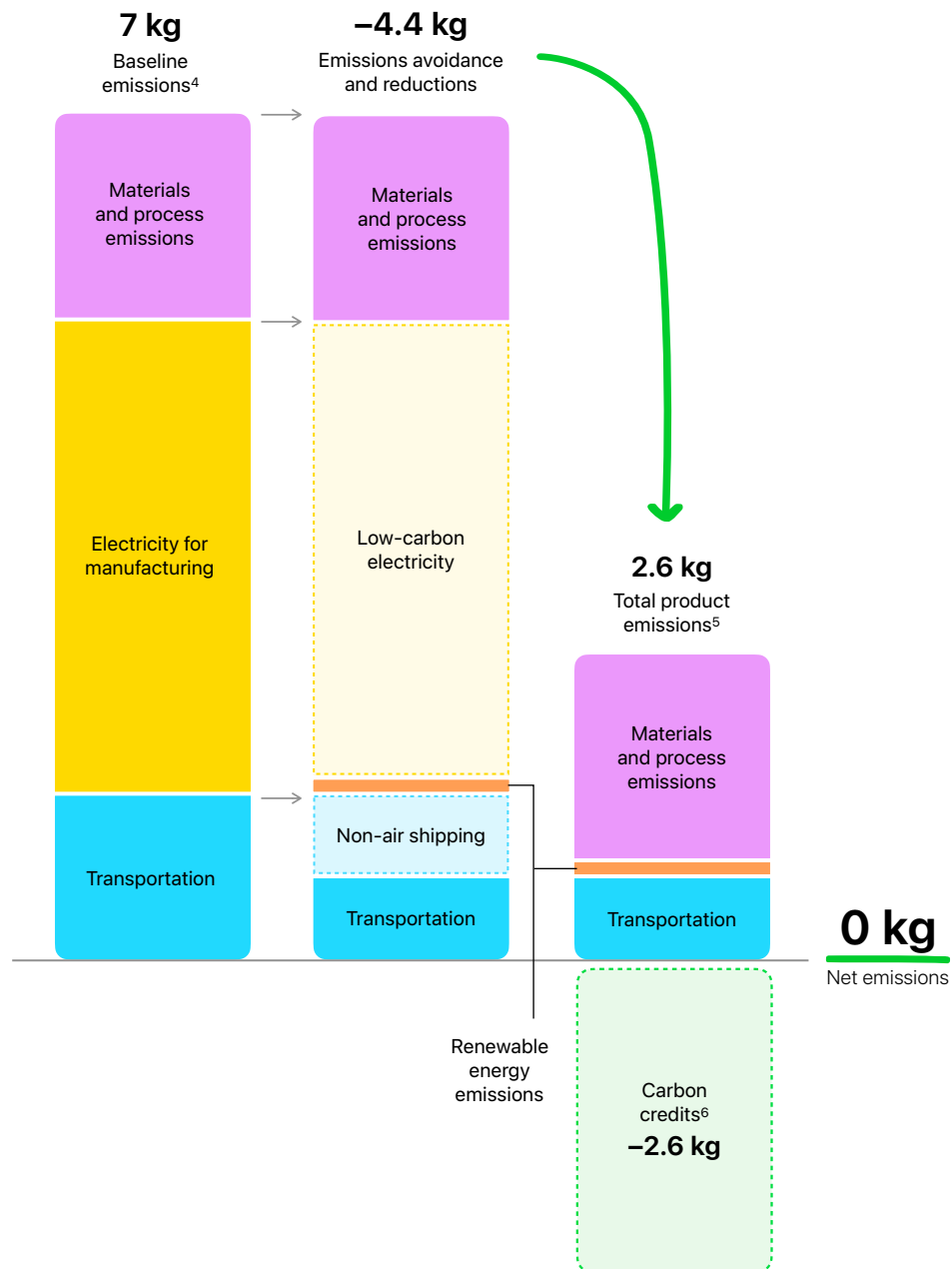
How we reached carbon neutral for Sport Loop, Braided Solo Loop, and Pride Edition Braided Solo Loop (42mm and 46mm)

We've reduced emissions for Sport Loop, Braided Solo Loop, Pride Edition Braided Solo Loop (42mm and 46mm) ³ by more than 40 percent against our business-as-usual scenario as modeled by Apple. ⁴ Sport Loop has more than 45 percent recycled content, including 100 percent recycled spandex, PET, and nylon, some of which contain discarded fishing nets. 100 percent of manufacturing electricity is covered by renewable electricity. In our carbon footprint calculations, we also account for the emissions necessary to generate renewable electricity, specifically to manufacture and maintain renewable energy infrastructure, like wind and solar farms. We've reduced transportation-related emissions with a logistics plan that uses more non-air shipping over the lifetime of carbon neutral watches and bands. Only after these efforts do we cover residual emissions through high-quality carbon credits that are real, additional, measurable, quantified, and have systems in place to avoid double-counting and ensure permanence. ²



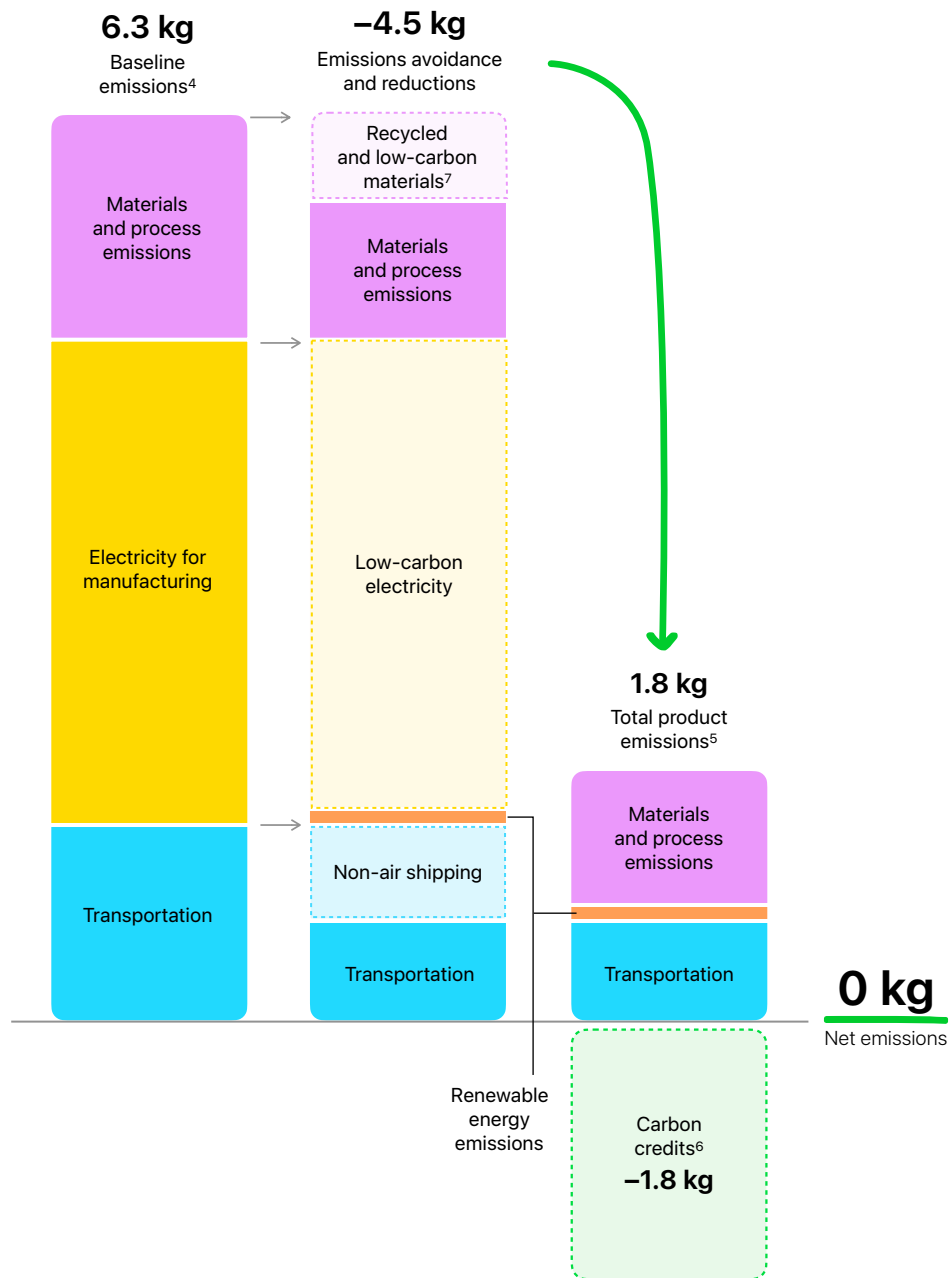
How we reached carbon neutral for Alpine Loop

We've reduced emissions for Alpine Loop by more than 60 percent against our business-as-usual scenario as modeled by Apple.⁴ This band contains more than 40 percent recycled content, including 100 percent recycled polyester, 100 percent recycled spandex, and 90 percent recycled titanium in the hook. 100 percent of manufacturing electricity is covered by renewable electricity. In our carbon footprint calculations, we also account for the emissions necessary to generate renewable electricity, specifically to manufacture and maintain renewable energy infrastructure, like wind and solar farms. We've reduced transportation-related emissions with a logistics plan that uses more non-air shipping over the lifetime of carbon neutral watches and bands. Only after these efforts do we cover residual emissions through high-quality carbon credits that are real, additional, measurable, quantified, and have systems in place to avoid double-counting and ensure permanence.²



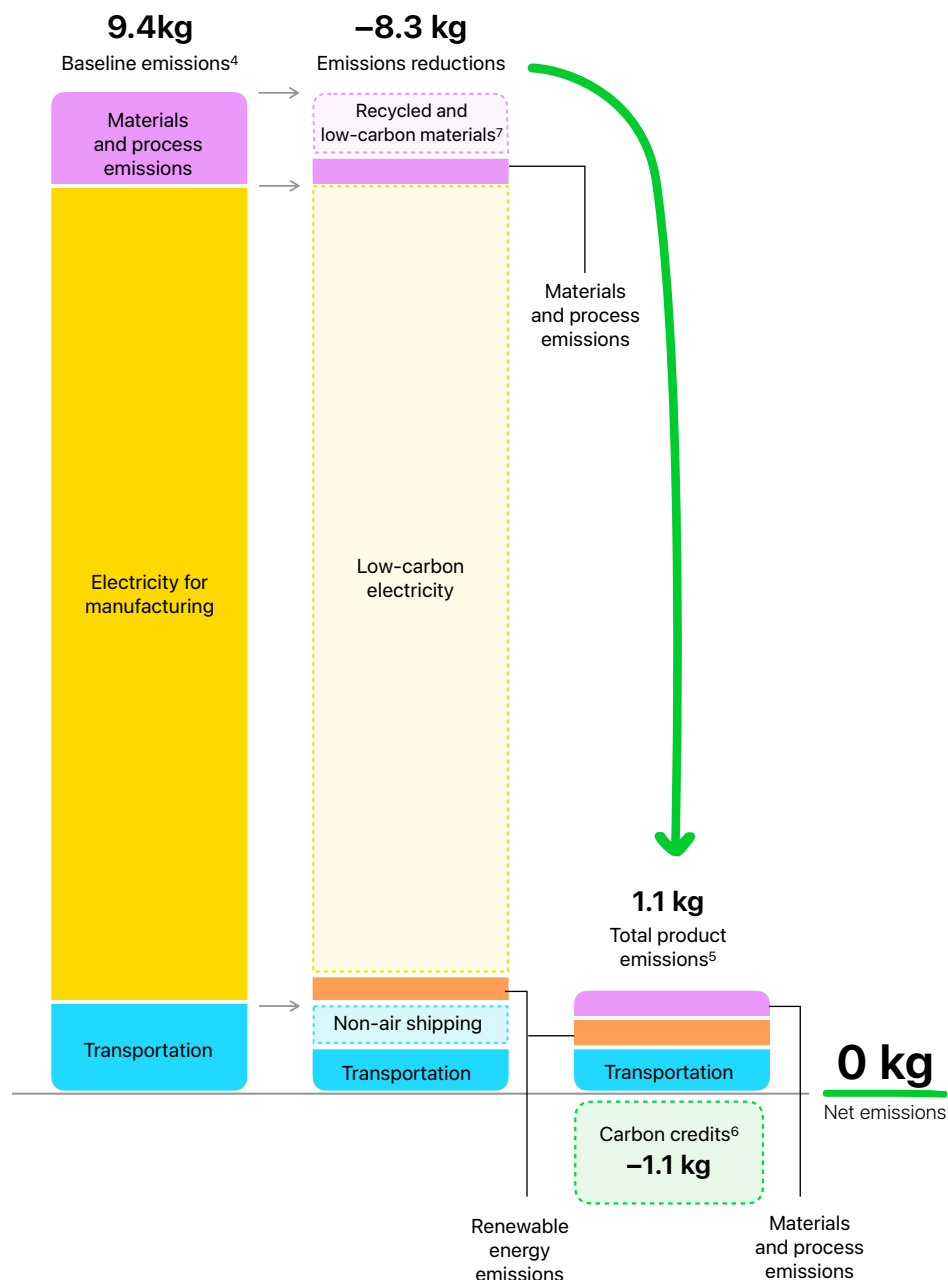
How we reached carbon neutral for Trail Loop

We've reduced emissions for Trail Loop by more than 70 percent against our business-as-usual scenario as modeled by Apple.⁴ This band contains more than 30 percent recycled content, including 100 percent recycled polyester, nylon, and spandex, and 90 percent recycled titanium in the hook. 100 percent of manufacturing electricity is covered by renewable electricity. In our carbon footprint calculations, we also account for the emissions necessary to generate renewable electricity, specifically to manufacture and maintain renewable energy infrastructure, like wind and solar farms. We've reduced transportation-related emissions with a logistics plan that uses more non-air shipping over the lifetime of carbon neutral watches and bands. Only after these efforts do we cover residual emissions through high-quality carbon credits that are real, additional, measurable, quantified, and have systems in place to avoid double-counting and ensure permanence.²



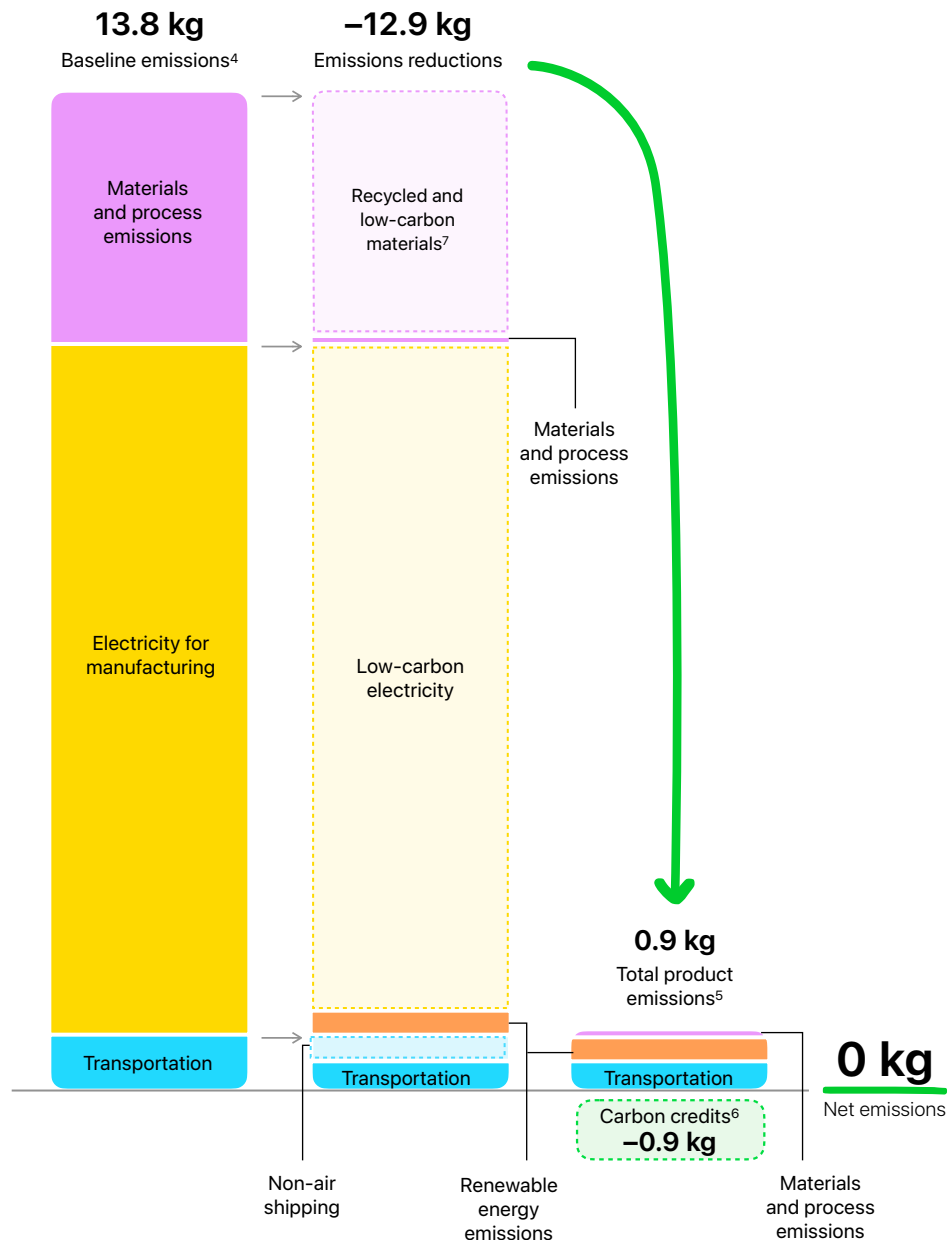
How we reached carbon neutral for Milanese Loop

We've reduced emissions for Milanese Loop by more than 85 percent against our business-as-usual scenario as modeled by Apple.⁴ This band contains more than 65 percent recycled content, including 80 percent recycled stainless steel in the mesh. 100 percent of manufacturing electricity is covered by renewable electricity. In our carbon footprint calculations, we also account for the emissions necessary to generate renewable electricity, specifically to manufacture and maintain renewable energy infrastructure, like wind and solar farms. We've reduced transportation-related emissions with a logistics plan that uses more non-air shipping over the lifetime of carbon neutral watches and bands. Only after these efforts do we cover residual emissions through high-quality carbon credits that are real, additional, measurable, quantified, and have systems in place to avoid double-counting and ensure permanence.²



How we reached carbon neutral for Titanium Milanese Loop

We've reduced emissions for Titanium Milanese Loop by more than 90 percent against our business-as-usual scenario as modeled by Apple.⁴ This band contains 85 percent recycled content, including 95 percent recycled titanium in the band. 100 percent of manufacturing electricity is covered by renewable electricity. In our carbon footprint calculations, we also account for the emissions necessary to generate renewable electricity, specifically to manufacture and maintain renewable energy infrastructure, like wind and solar farms. We've reduced transportation-related emissions with a logistics plan that uses more non-air shipping over the lifetime of carbon neutral watches and bands. Only after these efforts do we cover residual emissions through high-quality carbon credits that are real, additional, measurable, quantified, and have systems in place to avoid double-counting and ensure permanence.²



Annex 1

Results of the assessment and methodology

Greenhouse gas (GHG) emissions	Sport Loop, Braided Solo Loop, Pride Edition Braided Solo Loop (42mm and 46mm) ³
Apple emissions from utility-purchased electricity (scope 2)	0 kg CO ₂ e
Life cycle product emissions (scope 3)	1 kg CO ₂ e
· Production	25%
· Generation of renewable electricity - production	1%
· Transportation	68%
· Product use	N/A
· End-of-life processing	8%
GHG reductions achieved ⁴	↓44%
Product footprint before carbon credits	1 kg CO₂e
Carbon credits applied (per product)	1 kg CO ₂ e
Total product footprint after carbon credits	0 kg CO₂e

Note: Percentages may not total 100 due to rounding.

Greenhouse gas emissions	Alpine Loop
Apple emissions from utility-purchased electricity (scope 2)	0 kg CO ₂ e
Life cycle product emissions (scope 3)	2.6 kg CO ₂ e
· Production	70%
· Generation of renewable electricity - production	5%
· Transportation	28%
· Product use	N/A
· End-of-life processing	2%
GHG reductions achieved ⁴	↓62%
Product footprint before carbon credits	2.6 kg CO₂e
Carbon credits applied (per product)	2.6 kg CO ₂ e
Total product footprint after carbon credits	0 kg CO₂e

Note: Percentages may not total 100 due to rounding.

Greenhouse gas emissions	Trail Loop
Apple emissions from utility-purchased electricity (scope 2)	0 kg CO ₂ e
Life cycle product emissions (scope 3)	1.8 kg CO ₂ e
· Production	57%
· Generation of renewable electricity - production	6%
· Transportation	40%
· Product use	N/A
· End-of-life processing	4%
GHG reductions achieved ⁴	↓71%
Product footprint before carbon credits	1.8 kg CO₂e
Carbon credits applied (per product)	1.8 kg CO ₂ e
Total product footprint after carbon credits	0 kg CO₂e

Note: Percentages may not total 100 due to rounding.

Annex 1

Results of the assessment and methodology (continued)

Greenhouse gas emissions	Milanese Loop
Apple emissions from utility-purchased electricity (scope 2)	0 kg CO ₂ e
Life cycle product emissions (scope 3)	1 kg CO ₂ e
· Production	54%
· Generation of renewable electricity - production	27%
· Transportation	43%
· Product use	N/A
· End-of-life processing	3%
GHG reductions achieved ⁴	↓>85%
Product footprint before carbon credits	1 kg CO₂e
Carbon credits applied (per product)	1 kg CO ₂ e
Total product footprint after carbon credits	0 kg CO₂e

Note: Percentages may not total 100 due to rounding.

Greenhouse gas emissions	Titanium Milanese Loop
Apple emissions from utility-purchased electricity (scope 2)	0 kg CO ₂ e
Life cycle product emissions (scope 3)	0.9 kg CO ₂ e
· Production	48%
· Generation of renewable electricity - production	36%
· Transportation	48%
· Product use	N/A
· End-of-life processing	3%
GHG reductions achieved ⁴	↓>90%
Product footprint before carbon credits	0.9 kg CO₂e
Carbon credits applied (per product)	0.9 kg CO ₂ e
Total product footprint after carbon credits	0 kg CO₂e

Note: Percentages may not total 100 due to rounding.

There is inherent uncertainty in modeling carbon emissions due primarily to data limitations. For the top component contributors to Apple's carbon emissions, Apple addresses this uncertainty by developing detailed process-based environmental models with Apple-specific parameters. For the remaining elements of Apple's carbon footprint, we rely on industry-average data and assumptions.

For more information on our product carbon footprint methodology, visit apple.com/environment/answers.

Annex 1

Results of the assessment and methodology (continued)

Methodology for carbon neutral Apple Watch bands

Greenhouse gas emissions were calculated using a life cycle assessment methodology in accordance with ISO 14040, 14044, and 14067 standards and based on carbon neutral Apple Watch bands.

For the life cycle assessment of these products, we used as:

- **Scope:** the entire life cycle, including material refining, manufacturing, transportation, use, and end-of-life disposal and recycling.
- **Functional unit:** one unit of the configuration indicated.
- **Boundary:** the physical product and all of its components, as well as all in-box accessories and packaging.

When conducting a product life cycle assessment (LCA), we calculate carbon emissions using the 100-year time horizon global warming potentials from the IPCC Sixth Assessment Report, 2023 (AR6) GWP100, including biogenic carbon. The following details the five steps we use to conduct our LCA:

1. To model the manufacturing phase, we include the extraction, production, and transportation of raw materials, as well as the manufacture, transport, and assembly of all parts and product packaging. We use part-by-part measurements of the entire product along with data on part production. In some cases where part-by-part data is not readily available, we also use design-level data for size and weight detail. The measurements help us accurately determine the size and weight of the components and materials in the product, while data on manufacturing processes and yield loss during production allows us to account for the impact of manufacturing. The LCA includes accessories and packaging, as well as decreased emissions through Apple's Supplier Clean Energy Program.
2. To model customer use, we measure the power consumed by a product while it is running in a simulated scenario. Daily usage patterns are specific to each product and are a mixture of actual and modeled customer use data. For the purposes of our assessment, years of use, which are based on first owners, are modeled to be four years for macOS and tvOS devices and three years for iOS, iPadOS, and watchOS devices. Most Apple products last longer and are often passed along, resold, or returned to Apple by the first owner for others to use. Product use scenarios are based on historical customer use data for similar products. Energy use is simulated in various ways; for example, by modeling daily battery drain or through performing activities like movie and music playback. Geographic differences in the power grid mix have been accounted for at a regional level.
3. To model transportation, we use data collected on shipments of single products and multipack units by land, sea, and air. We account for transporting materials between manufacturing sites; transporting products from manufacturing sites to regional distribution hubs; transporting products from regional distribution hubs to individual customers; and transporting products from final customers to recycling facilities. Transport of products from distribution hubs to end customers is modeled using average distances based on regional geography.
4. To model end of life, we include transportation from collection hubs to recycling centers and the energy used in mechanical separation and shredding of parts. We use material composition data on our products and estimate the ratio of products that are sent to recycling or disposal. For products sent to recycling, we capture the initial processing by the recycler to prepare the product for recovery of electronic, metal, plastic, and glass material streams. Subsequent downstream recycling processes are not included, as these are considered stages of production and not end-of-life processing. For products sent to

Annex 1

Results of the assessment and methodology (continued)

disposal, we capture the emissions associated with landfilling or incineration of each type of material.

5. After we collect data about manufacturing, use, transportation, and end of life, we combine it with detailed greenhouse gas emissions data. This emissions data is based on a combination of Apple-specific and industry-average datasets for material production, manufacturing processes, electricity generation, and transportation. Renewable energy used in the supply chain, initiated by suppliers independently or through the Apple Supplier Clean Energy Program, is also accounted for within the LCA model. Combining product-specific information with emissions data in our LCA allows us to compile detailed results for greenhouse gas emissions as they relate to each product. The data and modeling approaches are checked for quality and accuracy by the Fraunhofer Institute in Germany.

There is inherent uncertainty in modeling carbon emissions due primarily to data limitations. For the top component contributors to Apple's carbon emissions, Apple addresses this uncertainty by developing detailed process-based environmental models with Apple-specific parameters. For the remaining elements of Apple's carbon footprint, we rely on industry-average data and assumptions.

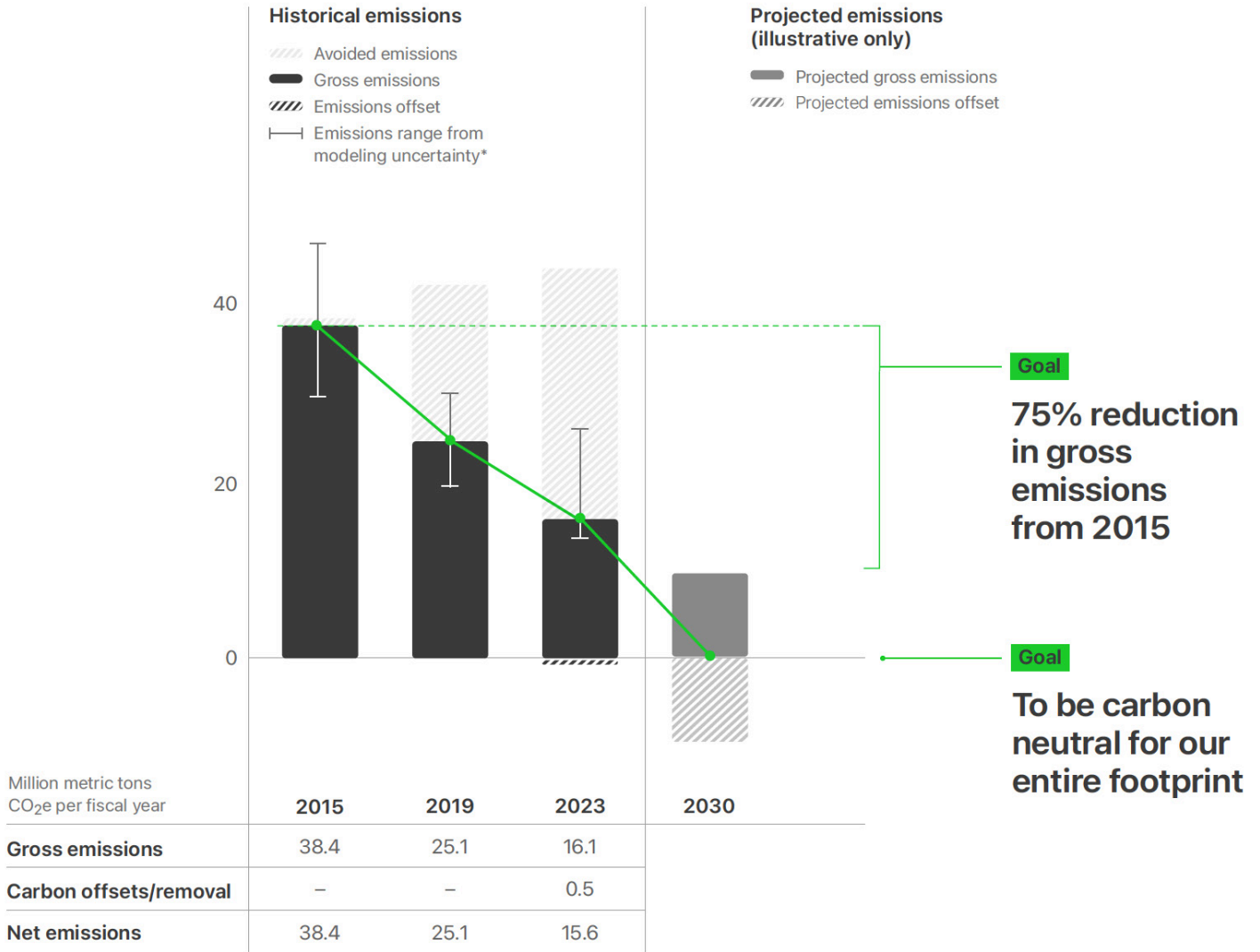
For more information on our product carbon footprint methodology, visit apple.com/environment/answers.

Annex 2

Our plan to become carbon neutral by 2030 centers around a 75 percent emissions reduction target compared with our 2015 footprint. We've already reduced our gross carbon footprint by over 55 percent since 2015.⁸ And for the residual emissions that remain in 2030, we plan to balance them with high-quality carbon removals.

Targeted GHG emissions trajectory

APPLE'S PROGRESS TOWARD CARBON NEUTRALITY



* Error bars: We're continuously refining our methodology to improve our carbon footprint estimate. But there's uncertainty inherent to modeling product-related carbon emissions, which we've illustrated through error bars in this graphic.

Each carbon neutral product represents the achievement of significant emissions reductions, including 100 percent low-carbon electricity for both manufacturing and product use and low-carbon design innovations such as recycled and renewable content and material efficiency improvements. Apple prioritizes the achievement of all these reductions prior to the sale of the first carbon neutral unit in order to reduce our total emissions as quickly as possible. And we will maintain high levels of recycled content, non-air shipment, and 100 percent low-carbon electricity for manufacturing and use of the product, in order to maintain low emissions levels over time and for future generations of the product.

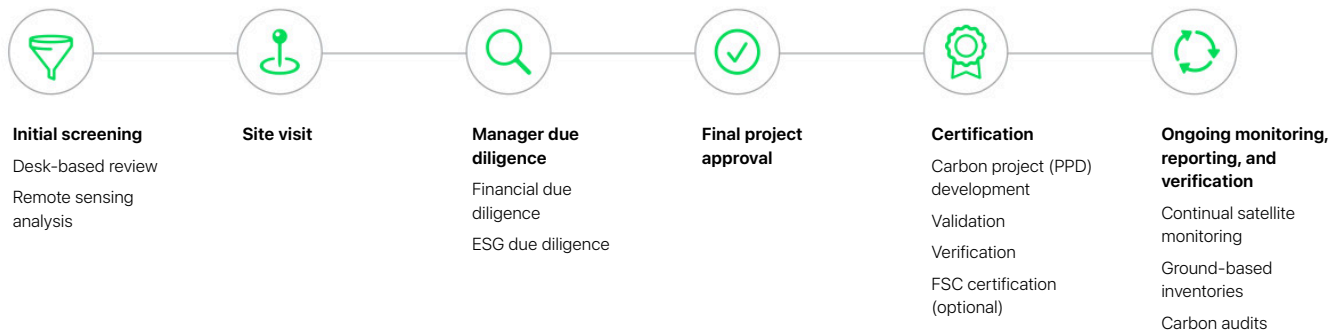
For more information, see https://www.apple.com/environment/pdf/Apple_Environmental_Progress_Report_2024.pdf.

High-quality carbon removal

We plan to reach our goal of becoming carbon neutral across our entire value chain by 2030, using a wide range of solutions at our disposal.

We are unequivocal in our priority: Emissions reductions take precedence over carbon removal. Achieving this requires urgent action within our own operations and partnership across our entire value chain. We are reducing direct greenhouse gas emissions in our facilities and supporting emissions reductions in our supply chain through process innovation, direct emissions abatement, and transitioning to renewable energy.⁹

In 2021, we partnered with Conservation International and Goldman Sachs to launch the Restore Fund—an innovative nature-based carbon removal investment strategy. In 2023, we doubled our commitment to nature-based restoration with a second fund in partnership with Climate Asset Management. Each of these funds aim to remove 1 million tonnes of carbon dioxide from the atmosphere at peak as well as provide important benefits for local communities and protect and enhance biodiversity. To ensure that every project that we invest in is high quality, the Restore Fund implements rigorous diligence processes including project and manager-level diligence, site visits, and remote sensing analysis. Read more about our approach to drive scale and quality in our [Carbon Removal Strategy white paper](#).



The first phase of our innovative fund has focused on blending responsible forestry practices with carbon removal. We’re working with forestry managers to create new, responsibly managed forests that are optimized for both carbon and wood production to create revenue from timber and generate high-quality carbon credits. The projects also seek to maximize positive environmental impact, including carbon, hydrology, and habitat restoration.

As the projects in the Restore Fund are deployed, we’re also working to address difficult-to-avoid emissions in the short term. We’re intentional about identifying projects that are of the highest standard and that achieve meaningful impact. We often originate our own projects working with a reputable partner, like Conservation International, or we carefully select projects from third-party certified registries. Apple uses credits from projects that align with international standards such as Verra and the Climate, Community & Biodiversity (CCB) Standard. These standards ensure that the projects generating credits are real, additional, measurable, quantified, and have systems in place to avoid double-counting and ensure permanence.²

Carbon credits applied are retired after the end of each fiscal year, to correspond to the remaining emissions from the total number of products sold in the prior fiscal year. Apple uses an independent third party to confirm that the correct number of credits have been retired.

High-quality carbon removal and carbon offsets

The high-quality carbon credit projects used to compensate the remaining emissions may include the following:

Project name	Project description	Accounting methodology used	Registry link	Average cost of carbon credits
Forestal Apepu Carbon Project <i>(Part of the Restore Fund)</i>	Forestal Apepu S.A. is a company established in 2019 by an international forestry fund to conduct sustainable reforestation in Eastern Paraguay. The aim of the company is the sequestration of carbon and the production of quality timber in a highly deforested landscape. Forestal Apepu purchased two contiguous properties of 2,658 ha in the Department of San Pedro. As most private properties in the region, the land was deforested decades ago and then used for agriculture and beef production. Currently, the property maintains around 20 percent of its area with natural forest cover, albeit heavily degraded due to the informal extraction of biomass and other forest resources. Through fast-growing eucalypt plantations, trials of plantations with native species, and the strict protection of the remaining natural forest, Forestal Apepu aims at restoring forest cover. A target production area of 1,850 ha of forest plantations is planned to be established until 2021, of which 1,126 ha were already planted in 2019 and 2020 (first instance). The company may expand even further in the future, upon identification of potential expansion areas in the region.	AR-ACM0003 Afforestation and reforestation of lands except wetlands	https://registry.terra.org/app/projectDetail/VCS/2369	<\$10/ton CO ₂
Guinan	The Guinan Afforestation Project is located in the Guizhou Province of China and contributes to carbon removal and local sustainable development by planting trees on barren lands. The project is planting across 46,000 ha on barren hills and degraded lands. The project activity aims to enhance biodiversity conservation by increasing the connectivity of forests, improving soil and water conservation, and generating income and job opportunities for local communities.	AR-ACM0003 Afforestation and reforestation of lands except wetlands	https://registry.terra.org/app/projectDetail/VCS/2070	<\$10/ton CO ₂

Endnotes

¹ All cobalt in the battery claims or references use mass balance allocation.

² Read more about our approach in [Apple's Carbon Removal Strategy white paper](#).

³ To model Braided Solo Loop and Pride Edition Braided Solo Loop (42mm and 46mm), our analysis shows we can conservatively assume Sport Loop sufficiently represents the modeled carbon emissions of these select carbon neutral bands.

⁴ Carbon reductions are calculated against a product-specific business-as-usual scenario modeled by Apple: 1) No use of clean electricity for manufacturing or product use, beyond what is already available on the latest modeled grid (based on regional emissions factors). 2) Apple's carbon intensity of key materials as of 2015 (our baseline year for our 2030 product carbon neutrality goal). Carbon intensity of materials reflects use of recycled content and production technology. 3) Apple's average mix of transportation modes (air, rail, ocean, ground) by product line across three years (fiscal years 2017 to 2019) to best capture the baseline transportation emissions of our products.

⁵ Greenhouse gas emissions were calculated using a life cycle assessment methodology in accordance with ISO 14040, 14044, and 14067 standards and based on Sport Loop, Alpine Loop, Trail Loop, Milanese Loop, Titanium Milanese Loop, Braided Solo Loop, and Pride Edition Braided Solo Loop (42mm and 46mm). The life cycle assessment boundary for this product includes the physical product and all of its components and packaging, as well as all in-box accessories.

⁶ Apple uses credits from projects that align with international standards such as Verra and the Climate, Community & Biodiversity (CCB) Standard. These standards ensure that the projects generating credits are real, additional, measurable, quantified, and have measures in place to avoid double-counting and ensure permanence.

⁷ We calculate emissions savings from the use of recycled or low-carbon materials in our products by comparing the carbon intensity of key materials today with their 2015 baseline for Apple products or using industry average data. We currently only quantify the carbon savings from the use of recycled aluminum, titanium, and stainless steel in the enclosure, as well as recycled lithium, cobalt, tungsten, and gold in select parts for select products. This means the actual emissions avoided from recycled materials are likely larger. We plan to improve our accounting of recycled content over time.

⁸ Apple follows the GHG Protocol Corporate Accounting and Reporting Standard (GHG Protocol) to calculate value chain emissions. The GHG Protocol currently defines scope emissions as direct greenhouse gas emissions that occur from sources that are owned or controlled by the company; scope 2 emissions as the indirect greenhouse gas emissions from the generation of purchased electricity, steam, heat, and cooling consumed by the company; and scope 3 emissions as all "other indirect emissions" that occur in the value chain of the reporting company, including both upstream and downstream emissions. Apple currently sets an operational boundary for its emissions and excludes the following scope 3 categories, as defined by the GHG Protocol, which collectively make up less than 10 percent of our 2015 base year scope 3 emissions currently: "capital goods" due to limited data availability, which limits our ability to influence these emissions, and "waste generated in operations," as these emissions are negligible. The following subset of greenhouse gas categories recognized in the Kyoto Protocol are included: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆), and nitrogen trifluoride (NF₃).

⁹ For more information on Apple 2030, visit apple.com/2030.