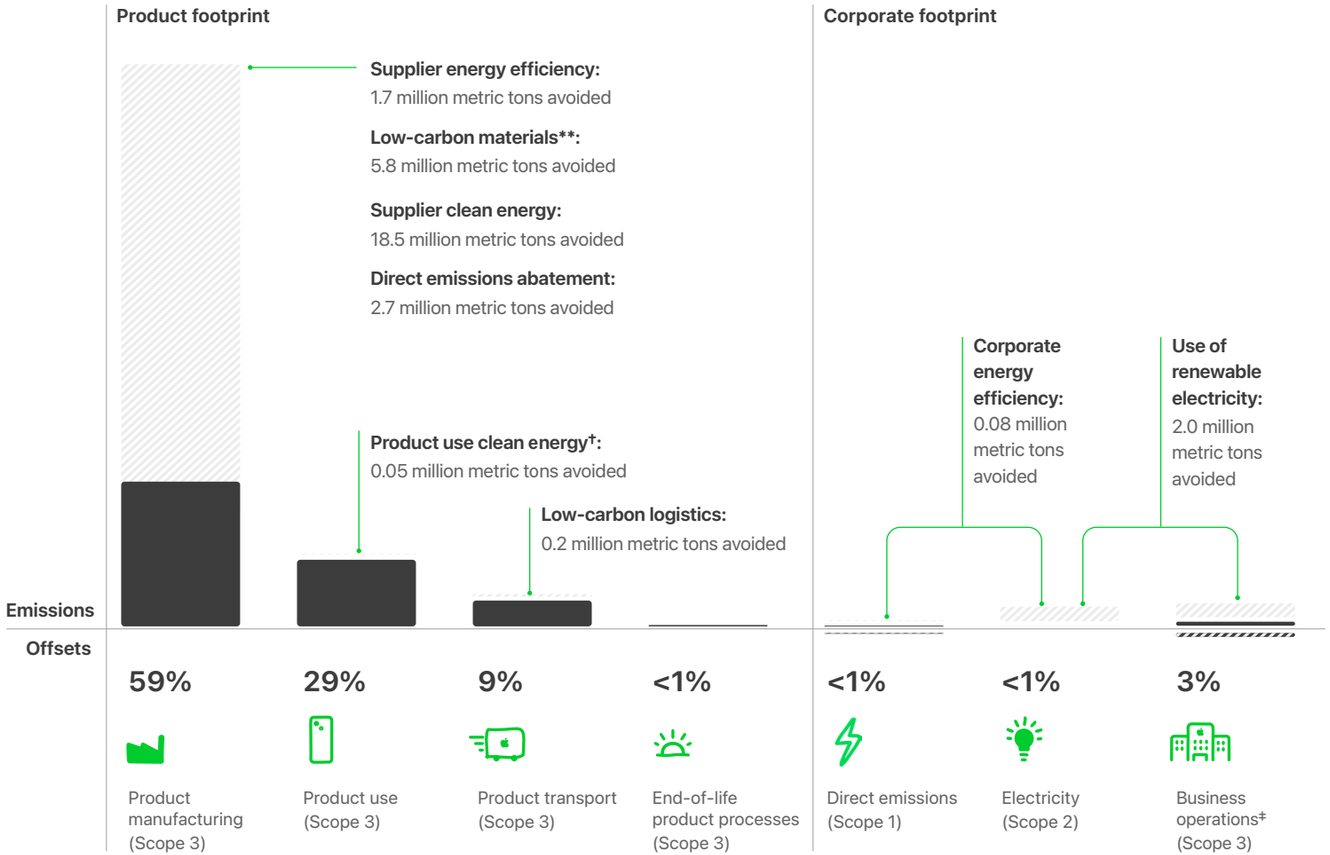
Apple's comprehensive carbon footprint

In 2023, we estimate that our environmental programs avoided 31 million metric tons of emissions across all scopes. Initiatives that we've been growing for years continue to yield clear results, including sourcing 100 percent renewable energy for our facilities, transitioning suppliers to renewable energy, and using low-carbon materials in products.[26] While our revenue has grown by more than 64 percent since 2015, our gross emissions have decreased by more than 55 percent.

TOTAL EMISSIONS

15.6 Million Metric Tons Net Greenhouse Gas Emissions*



Avoided emissions
Gross emissions
Emissions offset

* **Net greenhouse gas emissions** represents our total gross footprint minus carbon offsets. Percentages shown for each emissions category represent the share of Apple's gross footprint. Totals add up to more than 100 percent due to rounding.

** **Low-carbon materials** represents emissions savings from transitioning to recycled materials in our products and using low-carbon aluminum, as described on page 33.

† **Clean energy** represents savings from clean energy procured by Apple or its suppliers.

‡ **Business operations** includes business travel, commute, work from home, upstream impacts from scope 1 fuels, and third-party cloud services.

Data

Greenhouse gas emissions

We account for our carbon footprint by following internationally recognized standards, like the World Resources Institute (WRI) Greenhouse Gas (GHG) Protocol and ISO 14040/14044.[1] Improving the accuracy of our carbon footprint is an ongoing process — as we learn more, we refine our carbon models and adjust our climate roadmap. We also regularly revisit the boundary of our carbon footprint as our data sources improve and our business evolves.

		Fiscal year				
		2023	**2022**	**2021**	**2020**	**2019**
Corporate emissions (metric tons CO_2e)[2]	**Gross emissions**	**324,100**	**324,000**	**166,380**	**334,430**	**573,730**
	Scope 1	**55,200**	**55,200**	**55,200**	**47,430**	**52,730**
	Natural gas, diesel, propane	35,300	39,700	40,070	39,340	40,910
	Fleet vehicles	17,000	12,600	12,090	4,270	6,950
	Other emissions[3]	2,900	2,900	3,040	3,830	4,870
	Scope 2 (market-based)[4]	**3,400**	**3,000**	**2,780**	**0**	**0**
	Electricity	0	0	0	0	0
	Steam, heating, and cooling[5]	3,400	3,000	2,780	0	0
	Scope 3	**412,800**	**265,800**	**108,400**	**287,000**	**521,000**
	Business travel	225,700	113,500	22,850	153,000	326,000
	Employee commute[6]	164,100	134,200	85,570	134,000	195,000
	Upstream impacts (scope 1)	18,300	10,600	0	0	0
	Work from home (market-based)	4,700	7,500	0	0	0
	Transmission and distribution loss (market-based)	N/A	N/A	N/A	N/A	N/A
	Third-party cloud (market-based)	0	0	0	0	0
	Carbon removals					
	Corporate carbon offsets[7]	-471,400	-324,100[8]	-167,000[9]	-70,000[10]	0
Product life cycle emissions (metric tons CO_2e)[11]	**Gross emissions (Scope 3)**	**15,570,000**	**20,280,000**	**23,020,000**	**22,260,000**	**24,460,000**
	Manufacturing (purchased goods and services)	9,400,000	13,400,000	16,200,000	16,100,000	18,900,000
	Product transportation (upstream and downstream)	1,500,000	1,900,000	1,750,000	1,800,000	1,400,000
	Product use (use of sold products)	4,600,000	4,900,000	4,990,000	4,300,000	4,100,000
	End-of-life processing	70,000	80,000	80,000	60,000	60,000
	Carbon removals					
	Product carbon offsets	-13,500	0	-500,000[12]	0	0
Total gross scope 3 emissions (corporate and product) (metric tons CO_2e)		**15,980,000**	**20,545,800**	**23,128,400**	**22,550,000**	**24,980,000**
Total gross carbon footprint (without offsets) (metric tons CO_2e)[13]		**16,100,000**	**20,600,000**	**23,200,000**	**22,600,000**	**25,100,000**
Total net carbon footprint (after applying offsets) (metric tons CO_2e)[12]		**15,600,000**	**20,300,000**	**22,530,000**	**22,530,000**	**25,100,000**

Notes:

- For data on years prior to 2019, please reference past Environmental Progress Reports.
- Totals might not add up due to rounding.

1 Apple's carbon footprint boundary is aligned with the Greenhouse Gas (GHG) Protocol framework and includes emissions that are material and relevant to Apple, where data is available. Apple's carbon footprint includes direct scope 1 emissions; indirect scope 2 emissions from purchased electricity, steam, heating, and cooling; and indirect scope 3 emissions from purchased goods and services, transportation and distribution, business travel, employee commute, product use, and end of life.

2 Apple is carbon neutral for corporate emissions as of April 2020. Beginning in fiscal year 2022, we've expanded our footprint boundary to include scope 3 emissions associated with work from home, third-party cloud services, electricity transmission and distribution losses, and upstream impacts from scope 1 fuels.

3 Emissions from R&D processes and refrigerant leaks.

4 We estimate the life cycle emissions associated with our use of renewable electricity for our corporate facilities to be about 70,000 metric tons CO_2e. We do not currently account for these emissions in our carbon footprint, due to the poor quality of this data.

5 Beginning in fiscal year 2021, we're accounting for scope 2 emissions from the purchase of district heating, chilled water, and steam.

6 Beginning in fiscal year 2020, we updated our methodology for calculating emissions from employee commute to reflect employees working from home during COVID-19.

7 For a detailed breakdown of carbon offset purchases applied to our corporate footprint, see the carbon offsets table on the following page.

8 We retired 324,100 metric tons of carbon credits from the Alto Mayo project in Peru and Chyulu Hills project in Kenya to maintain carbon neutrality for our corporate emissions in fiscal year 2022. This project is certified to the VCS and CCB standards.

9 We retired 167,000 metric tons of carbon credits from the Chyulu Hills project in Kenya to maintain carbon neutrality for our corporate emissions in fiscal year 2021. This project is certified to the VCS and CCB standards.

10 We retired 70,000 metrics tons of carbon credits — 53,000 from the Chyulu Hills project in Kenya and 17,000 from the Cispatá Mangrove project in Colombia.

11 Because we're committed to accuracy and transparency, we regularly refine our product life cycle assessment model and sources of data. For example, last year we obtained more granular data summarizing in which countries our products are sold and used, resulting in more granularity possible for grid emission factors used in the carbon footprint of the product use phase. The net result was an increase in our fiscal year 2021 carbon footprint. When using the same level of data granularity and model as fiscal year 2021, our product use greenhouse gas emissions in fiscal year 2021 would have been about 2.5 percent lower.

12 For fiscal year 2021, we retired credits from the Chyulu Hills project in Kenya and purchased carbon credits from two additional projects to offset a total of 500,000 metric tons of direct emissions across our value chain. The first project, a REDD+ coastal conservation project in Guatemala, protects and conserves forests from deforestation and degradation. The second project aims to establish forests on about 46,000 hectares of barren land that isn't otherwise in use across seven counties in the Guizhou province of China. Both projects are certified to the same high standards that we require for projects in the Restore Fund, including VCS and CCB standards.

13 Due to rounding, our gross and net carbon footprints do not always equal the sum of the subtotals disclosed above.

Fiscal year 2023 energy and carbon footprint (corporate facilities)

The table below provides a detailed breakdown of 2023 energy use, which we used to calculate our greenhouse gas emissions.

	Scope 1			Scope 2		
Location	**Total gas (MMBtu)**	**Renewable biogas (MMBtu)**	**Scope 1 emissions (metric tons CO_2e)**	**Electricity (million kWh)**	**Renewable electricity (million kWh)**	**Scope 2 emissions (market-based, metric tons CO_2e)[1]**
Corporate	**1,007,071**	**746,506**	**42,746**	**940**	**940**	**0**
Cupertino, CA	805,271	202,306	32,027	427	427	0
Elk Grove, CA	10,175	0	540	14	14	0
Austin, TX	24,826	0	1,319	113	113	0
Other U.S.	104,718	544,200	5,562	143	143	0
Cork, Ireland	24,219	0	1,286	16	16	0
Singapore	518	0	28	18	18	0
China	960	0	51	41	41	0
Other international	36,384	0	1,933	168	168	0
Data center	**740**	**0**	**39**	**2,344**	**2,344**	**0**
Maiden, NC	0	0	0	453	453	0
Mesa, AZ	524	0	28	488	488	0
Newark, CA	0	0	0	0	0	0
Prineville, OR	216	0	11	269	269	0
Reno, NV	0	0	0	440	440	0
Viborg, Denmark	–	–	–	40	40	0
Colocation facilities (U.S.)	–	–	–	387	387	0
Colocation facilities (international)	–	–	–	96	96	0
China	–	–	–	171	171	0
Retail stores	**58,446**	**0**	**3,105**	**203**	**203**	**0**
Domestic (U.S.)	34,449	0	1,830	96	96	0
International	23,997	0	1,275	107	107	0
Total	**1,066,257**	**746,506**	**45,890**	**3,199**	**3,199**	**0**

Dash indicates unavailable data.

N/A = Gas use at colocation facilities is considered outside of Apple's operational control.

1 Scope 2 market-based emissions from purchased electricity is zero. But, we also account for purchased steam, heating, and cooling, which resulted in 3,400 metric tons of emissions in fiscal year 2023.

Appendix C

Net comprehensive carbon footprint, facilities energy, carbon, waste, paper, and water data (Apex)

INDEPENDENT ASSURANCE STATEMENT

To: The Stakeholders of Apple Inc.

Introduction and objectives of work

Apex Companies, LLC (Apex) was engaged by Apple Inc. (Apple) to conduct an independent assurance of select environmental data reported in its 2023 environmental report (the Report). This assurance statement applies to the related information included within the scope of work described below. The intended users of the assurance statement are the stakeholders of Apple. The overall aim of this process is to provide assurance to Apple's stakeholders on the accuracy, reliability and objectivity of Subject Matter included in the Report.

This information and its presentation in the Report are the sole responsibility of the management of Apple. Apex was not involved in the collection of the information or the drafting of the Report.

Scope of Work

Apple requested Apex to include in its independent review the following (Subject Matter):

- Assurance of select environmental data and information included in the Report for the fiscal year 2023 reporting period (September 25, 2022 through September 30, 2023), specifically, in accordance with Apple's definitions and World Resources Institute (WRI)/World Business Council for Sustainable Development (WBCSD) Greenhouse Gas Protocol:
  - Energy: Direct (Million Therms) and Indirect (Million kilowatt hours (mkWh))
  - Renewable Energy (mkWh)
  - Water Withdrawal (Million Gallons)
  - Greenhouse Gas (GHG) Emissions: Direct Scope 1 emissions by weight, Indirect Scope 2 emissions by weight, Indirect Scope 3 emissions by weight (Purchased Goods and Services, Fuel and Energy Related Activities, Employee Commute and Business Travel) (Metric Tonnes of Carbon Dioxide equivalent)
  - Apple Comprehensive Carbon Footprint
  - Waste Quantities and Disposition (Metric Tonnes)
  - Paper Quantities (Metric Tonnes)

Excluded from the scope of our work is any assurance of information relating to:

- Text or other written statements associated with the Report
- Activities outside the defined assurance period

Assessment Standards

Our work was conducted against Apex's standard procedures and guidelines for external Verification of Sustainability Reports, based on current best practice in independent assurance. Apex procedures are based on principles and methods described in the International Standard on Assurance Engagements (ISAE) 3000 Revised, Assurance Engagements Other than Audits or Reviews of Historical Financial Information (effective for assurance reports dated on or after Dec. 15, 2015), issued by the International Auditing and Assurance Standards Board and ISO 14064-3: Greenhouse gases -- Part 3: Specification with guidance for the validation and verification of greenhouse gas statements.

Methodology

Apex undertook the following activities:

1. Site visits to Apple facilities in Rialto, California and Battersea, United Kingdom;
2. Interviews with relevant personnel of Apple;
3. Review of internal and external documentary evidence produced by Apple;
4. Audit of environmental performance data presented in the Report, including a detailed review of a sample of data against source data; and
5. Review of Apple information systems for collection, aggregation, analysis and internal verification and review of environmental data.

The work was planned and carried out to provide reasonable assurance for the following indicators, and we believe it provides an appropriate basis for our conclusions:

- Energy: Direct (Million Therms) and Indirect (Million kilowatt hours (mkWh))
- Renewable Energy (mkWh)
- Water Withdrawal (Million Gallons)
- Greenhouse Gas (GHG) Emissions: Direct Scope 1 emissions by weight, Indirect Scope 2 emissions by weight (Metric Tonnes of Carbon Dioxide equivalent)
- Paper Quantities (Metric Tonnes)

The work was planned and carried out to provide limited assurance for the following indicators, and we believe it provides an appropriate basis for our conclusions:

- Greenhouse Gas (GHG) Emissions: Indirect Scope 3 emissions by weight (Purchased Goods and Services, Fuel and Energy-Related Activities, Employee Commuting and Business Travel) (Metric Tonnes of Carbon Dioxide equivalent)
- Apple Comprehensive Carbon Footprint
- Waste Quantities and Disposition (Metric Tonnes)

Our Findings

Apex verified the following indicators for Apple's Fiscal Year 2022 reporting period (September 25, 2022 through September 30, 2023):

Parameter	Quantity	Units	Boundary / Protocol
Natural Gas Consumption	1,066,300	Metric million British thermal unit	Worldwide occupied properties / Apple Internal Protocol
Electricity Consumption	3,500	Million kilowatt hours (mkWh)	Worldwide occupied properties / Apple Internal Protocol
Renewable Energy	3,500	Million kilowatt hours (mkWh)	Worldwide / Invoiced quantities & self-generated
Scope 1 GHG Emissions	55,200	Metric tonnes of carbon dioxide equivalent (tCO_2e)	Worldwide occupied properties / WRI/WBCSD GHG Protocol
Scope 2 GHG Emissions (Location-Based)	1,206,700	tCO_2e	Worldwide occupied properties / WRI/WBCSD GHG Protocol
Scope 2 GHG Emissions (Market-Based)	3,400	tCO_2e	Worldwide occupied properties / WRI/WBCSD GHG Protocol
Scope 3 Transmission and Distribution Loses (Market-Based)	0	tCO_2e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain (Scope 3)
Scope 3 GHG Emissions – Upstream Fuel-Related Activities	18,300	tCO_2e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain (Scope 3)
Scope 3 GHG Emissions – Business Travel	225,700	tCO_2e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain (Scope 3)

Scope 3 GHG Emissions – Employee Commute	164,100	tCO_2e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain (Scope 3)
Scope 3 GHG Emissions - Work From Home Emissions (Employee Commute) (Location-Based)	20,600	tCO_2e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain (Scope 3)
Scope 3 GHG Emissions – Work From Home Emissions (Employee Commute) (Market-Based)	4,700	tCO_2e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain (Scope 3)
Scope 3 GHG Emissions - Other Cloud Services (Purchased Goods and Services) (Market-Based)	0	tCO_2e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain (Scope 3)
Water Withdrawal	1600	Million gallons	Worldwide occupied properties / Apple Internal Protocol
Water Discharge	900	Million gallons	Worldwide occupied properties / Apple Internal Protocol
Trash Disposed in Landfill	17,400	Metric tonnes	Worldwide occupied properties / Apple Internal Protocol
Hazardous Waste (Regulated waste)	3,300	Metric tonnes	Worldwide occupied properties / Apple Internal Protocol
Recycled Material (Removal by recycling contractor)	37,000	Metric tonnes	Worldwide occupied properties / Apple Internal Protocol
Composted Material	6,700	Metric tonnes	Worldwide occupied properties / Apple Internal Protocol
Waste to Energy	2,600	Metric tonnes	Worldwide occupied properties / Apple Internal Protocol
C&D Landfilled	3,200	Metric tonnes	Worldwide occupied properties / Apple Internal Protocol
C&D Recycled	23,600	Metric tonnes	Worldwide occupied properties / Apple Internal Protocol
Paper Used	1,100	Metric tonnes	Worldwide occupied properties / Apple Internal Protocol
Product end use avoided emissions	48,800	tCO_2e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain (Scope 3)

Comprehensive Carbon Footprint (Market Based)			
Corporate GHG Emissions (Market-Based)[1]	471,400	tCO_2e	Worldwide occupied properties / WRI/WBCSD GHG Protocol
Product Use[2]	4,600,000	tCO_2e	Worldwide occupied properties / WRI/WBCSD GHG Protocol
Manufacturing[3]	9,400,000	tCO_2e	Worldwide occupied properties / WRI/WBCSD GHG Protocol
Transportation[4]	1,500,000	tCO_2e	Worldwide occupied properties / WRI/WBCSD GHG Protocol
Recycling[4]	70,000	tCO_2e	Worldwide occupied properties / WRI/WBCSD GHG Protocol
Comprehensive Carbon Footprint[5]	16,100,000	tCO_2e	Worldwide occupied properties / WRI/WBCSD GHG Protocol

Parameter	**Quantity**	**Units**	**Boundary / Protocol**
Carbon Removals	485,000	tCO_2e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain
Net Footprint[6]	15,600,000	tCO_2e	Worldwide occupied properties / WRI/WBCSD GHG Protocol Value Chain

1. Corporate GHG Emissions = Scope 1 GHG Emissions + Scope 2 (Market-Based) GHG Emissions + Scope 3 GHG Emissions
2. Product Use emissions (4.65 million metric tonnes) reportedly verified by another third-party provider. Apex verified 0.05 million metric tonnes reduction.
3. Manufacturing emissions (27.92 million metric tonnes) not verified by Apex - reportedly verified by another third-party provider - CEP emissions reductions (18.51 million metric tonnes).
4. Not Verified by Apex. Reportedly verified by another third-party provider.
5. Comprehensive Carbon Footprint = Corporate GHG Emissions + Product Use + Manufacturing + Transportation + Recycling
6. Net Footprint= Gross Carbon Footprint – Carbon Removals

Our Conclusion

Based on the assurance process and procedures conducted regarding the Subject Matter, we conclude that:

- The Energy, Water, Paper, and Scope 1, Scope 2, Scope 3 (Business Travel & Employee Commute) GHG Emissions assertions shown above are materially correct and are a fair representation of the data and information;
- There is no evidence that the Scope 3 (Business Travel, Employee Commute Work From Home, Other Cloud Services, and Fuel and Energy Related Activities) GHG emissions, Waste, and Comprehensive Carbon Footprint assertions shown above are not materially correct and are not a fair representation of the data and information;
- Apple has established appropriate systems for the collection, aggregation and analysis of relevant environmental information, and has implemented underlying internal assurance practices that provide a reasonable degree of confidence that such information is complete and accurate.

End notes

Introduction

1 Apple follows the GHG Protocol Corporate Accounting and Reporting Standard (GHG Protocol) to calculate value chain emissions. The GHG Protocol currently defines scope 1 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 (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6), Nitrogen trifluoride (NF_3).

2 Carbon reductions are calculated against a baseline scenario: 1) No use of clean electricity for manufacturing or product use, beyond what is already available on the 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.

3 As of product launch, 50 percent of all low-carbon watch products by weight are planned to be shipped via non-air modes of transportation over the lifetime of the products from our final assembly sites to their next destination — primarily regional distribution hubs.

4 Apple reports data about the recycled content of its products at different levels of fidelity, based on the level of independent data verification. The bulk of Apple's recycled content data is certified and thus verified by a third party. Less than 3 percent of the total mass shipped in Apple products in fiscal year 2023 contained recycled content that is either supplier verified, meaning it has been reported by the supplier and cross-checked by Apple, or supplier reported, meaning it has been reported by the supplier based on production and allocation values. In all cases, Apple defines recycled content in alignment with ISO 14021. We do not currently include industry-average recycled content, which may result in underreporting actual recycled content. Total recycled material shipped in products is driven by product material composition and total sales — as a result, this overall recycled or renewable content percentage may fluctuate based on the number and type of products sold each year.

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

6 We plan to reach carbon neutrality beginning with our fiscal year 2030 carbon footprint.

7 In addition to working toward transitioning our entire product value chain to using 100 percent clean electricity by 2030, we're prioritizing energy efficiency and emissions reductions within supplier facilities and operations.

8 The Supplier Clean Energy Program has since been codified in the Supplier Code of Conduct, scaling the program to our entire direct manufacturing supply chain.

9 Refer to footnote 4.

10 By 2025, we plan to use 100 percent recycled cobalt in all Apple-designed batteries (using mass balance allocation), 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. We calculate our use of recycled cobalt using mass balance allocation at the end of each fiscal year.

11 Refer to footnote 5.

12 By 2025, we plan to remove plastic from packaging by transitioning to 100 percent fiber-based packaging. Apple's goal to remove plastic from packaging includes retail bags, all finished goods boxes (including plastic content in labels and in-box documentation), packaging sent to our customers as part of Apple Trade In, AppleCare packaging for whole units and service modules (with the exception of plastics needed to protect items from electrostatic discharge), and secondary packaging of Apple products and accessories sold by Apple. Our goal does not include the inks, coatings, or adhesives used in our packaging. We plan to remove plastic from the packaging of refurbished products by 2027, once old product packaging designs are phased out. We will continue selling existing inventory of AppleCare packaging for whole units and service modules that contain plastics for vintage and products at end of life until it is consumed. This change will enable us to avoid waste generated by re-packaging goods in new 100 percent fiber-based packaging.

13 In 2022, we expanded our packaging goal boundary to better reflect our impact, resulting in an increase of about 36 percent of our total packaging mass, relative to fiscal year 2021. We include retail bags, all finished goods boxes (including plastic content in labels and in-box documentation), packaging sent to our customers as part of Apple Trade In, AppleCare packaging for whole units and service modules (with the exception of plastics needed to protect items from electrostatic discharge), and secondary packaging of Apple products and accessories sold by Apple. Our goal boundary does not include the inks, coatings, or adhesives used in our packaging. In addition to our packaging footprint, we also calculate the fiber used at our corporate facilities. In fiscal year 2023, this number was 1,100 metric tons.

14 By 2030, we plan to replenish 100 percent of our corporate freshwater withdrawals in high-stress locations, as determined by a World Resources Institute (WRI) Aqueduct Baseline Water Stress Indicator and further refined through local context and analysis.

15 By the end of fiscal year 2025, we plan to have certified all Apple-owned data centers to the Alliance for Water Stewardship Standard.

16 By 2030, we plan to identify priority suppliers and drive their enrollment in our Supplier Clean Water Program. Apple prioritizes supplier facilities by overall basin stress indicator, on-site activity type, and annual water volume usage.

Environmental Initiatives

17 Renewable electricity refers to fossil fuel–free sources of energy from renewable sources, like wind, solar, and low-impact hydroelectricity projects. Clean electricity refers to both renewable electricity as well as other projects that Apple considers "low carbon" but not "renewable," like nuclear and large-impact hydroelectricity projects. Apple currently only allows for clean electricity sources to address electricity for product use when part of a residual grid factor, in markets where there is sufficient data to ensure that the clean electricity is not already claimed. For Apple's corporate footprint, supply chain manufacturing, and the portion of our product use impact that is not already clean electricity, Apple is investing in only new renewable electricity sources.

18 Refer to footnote 10.

19 Refer to footnote 4.

20 Refer to footnote 12.

21 Apple's commitment is to use 100 percent recycled cobalt, using mass balance allocation, in all Apple-designed batteries by 2025. We calculate our use of recycled cobalt using mass balance allocation at the end of each fiscal year.

22 Apple's commitment is to use 100 percent recycled tin soldering and gold plating in all Apple-designed rigid and flexible printed circuit boards by 2025.

23 Apple's commitment is to use 100 percent recycled rare earth elements in all magnets by 2025.

24 Intergovernmental Panel on Climate Change (IPCC), "Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C approved by governments," press release, www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments.

25 Corporate emissions include scope 1 and 2 emissions from Apple retail stores, corporate offices, Apple-owned and colocated data centers, and Apple-produced digital content for Apple One services, as well as scope 3 emissions associated with business travel, employee commute, work from home, upstream impacts from scope 1 fuels, and use of third-party cloud services.

26 Apple defines *low-carbon materials* as materials created using production techniques with reduced carbon impact, such as Elysis (a patented technology that eliminates direct greenhouse gas emissions from the traditional aluminum smelting process) or aluminum smelted using hydroelectricity instead of coal.

27 Refer to footnote 5.

28 Refer to footnote 4.

29 Refer to footnote 21.

30 Refer to footnote 22.

31 Refer to footnote 23.

32 Since publishing the "Material Impact Profiles" white paper, we've expanded our analysis to include biodiversity factors.

33 To account for recycled aluminum, we use third-party certified recycled aluminum data, as well as supplier-verified data, meaning it has been reported by the supplier and cross-checked by Apple.

34 This statistic compares the carbon footprint of aluminum from recycled sources with primary aluminum smelted with electricity generated from coal.

35 Refer to footnote 21.

36 Refer to footnote 22.

37 Including iPhone 15 Plus and iPhone 15 Pro models. Excludes trace amount of rare earth elements found outside of the magnets.

38 Refer to footnote 23.

39 Refer to footnote 22.

40 Excludes trace amount of tungsten found outside of the Taptic Engine and accounting for less than 0.1 percent of the total found in the device.

41 Refer to footnote 5.

42 Refer to footnote 4.

43 Testing was done under the condition of streaming 4K movies played on Apple TV 4K (3rd generation) with the Siri Remote from the Apple TV app.

44 Based on sales-weighted averages of Mac, iPad, iPhone, Apple Watch, Apple TV, HomePod, AirPods, and Beats.

45 Eligible products are those in a product category for which ENERGY STAR certification exists. For more information, visit www.energystar.gov. ENERGY STAR and the ENERGY STAR mark are registered trademarks owned by the U.S. Environmental Protection Agency.

46 Apple lists eligible products sold in the United States and Canada on the Electronic Product Environmental Assessment Tool (EPEAT) Registry. Eligible products are those in a product category for which EPEAT registration exists, including workstations, desktops, laptops, displays, mobile phones, and tablets. For more information, visit www.epeat.net.

47 Refer to footnote 44.