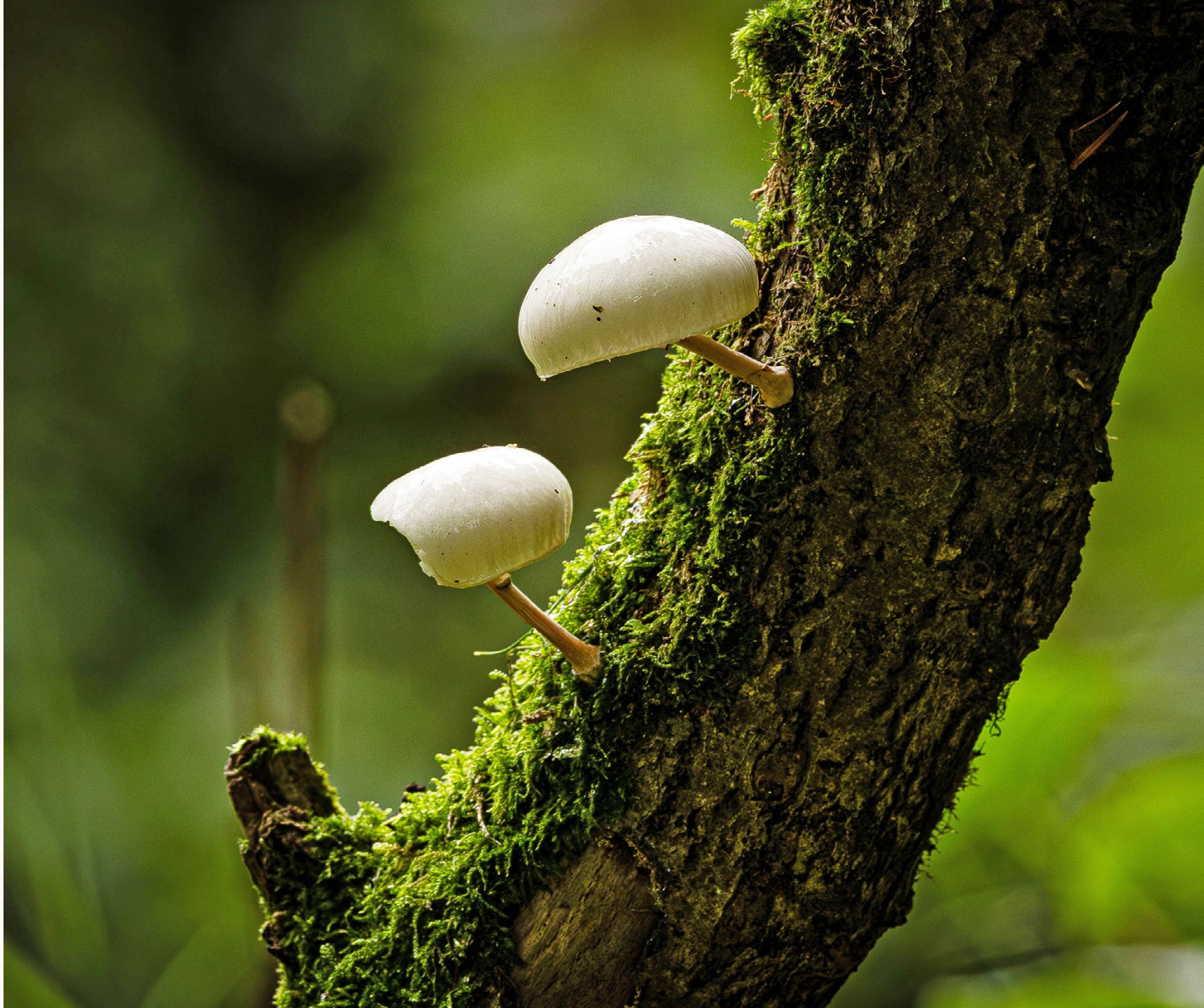
Microsoft

How can we advance sustainability?

2024 Environmental Sustainability Report

Data Fact Sheet

Reporting on our 2023 fiscal year



Our environmental data

As part of Microsoft's commitment to disclose information about our environmental footprint, the following sections are a compilation of environmental metrics across greenhouse gas (GHG) emissions, energy, water, waste and circularity, and land. Section 1 presents greenhouse gas emissions in accordance with the GHG Protocol and management's criteria, and select environmental metrics that both reference the Global Reporting Initiative (GRI) Standards and are reported in accordance with management's criteria. Deloitte & Touche LLP performed a review engagement on management's assertion related to the specified information presented in Section 1 of this Environmental Data Fact Sheet as of and for the fiscal year ended June 30, 2023 (FY23) and includes their review report. Information relating to i) periods prior to the year ended June 30, 2023 (FY23), and ii) forward-looking statements, goals, and progress against goals, were not subject to the review and, accordingly, Deloitte & Touche LLP does not express a conclusion or any form of assurance on such information. Section 2 presents additional environmental metrics that show detail and breakdowns and was not subject to Deloitte & Touche LLP's review.

All reported values represent best available data at the time of publication. Data is adjusted to incorporate updated methodology, structural changes, and/or accuracy improvements per our recalculation policy described herein. Microsoft's structural changes policy is to begin including data the year following a merger and/or acquisition. Divestments will be reflected on data associated to the year when they occurred. Additional detail on these changes is included as footnotes where applicable.

↗ **Read our 2024 Environmental Sustainability Report**

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Section 1: Our environmental data

1.1 Greenhouse gas (GHG) emissions

Table 1A – GHG emissions by scope ($mtCO_2e$)

	FY20	FY21	FY22	FY23
Scope 1	118,100	123,704	139,413	**144,960**
Scope 2				
Location-based	4,328,916	5,010,667	6,381,250	**8,077,403**
Market-based	456,119	429,405	288,029	**393,134**
Subtotal emissions (Scope 1 + 2 market-based)	574,219	553,109	427,442	**538,094**
Scope 3[1]				
Category 1 – Purchased Goods & Services[2]	4,415,000	4,930,000	5,780,000	**5,564,000**
Category 2 – Capital Goods	2,962,000	4,179,000	4,026,000	**5,872,000**
Category 3 – Fuel- and Energy-Related Activities	300,000	350,000	450,000	**521,000**
Category 4 – Upstream Transportation[3]	243,000	225,000	371,000	**318,000**
Category 5 – Waste	9,500	5,700	8,000	**8,000**
Category 6 – Business Travel	329,356	21,901	139,000	**133,000**
Category 7 – Employee Commuting	317,000	80,000	141,000	**187,000**
Category 9 – Downstream Transportation	65,000	69,000	69,000	**69,000**
Category 11 – Use of Sold Products	2,983,000	3,950,000	5,101,000	**3,941,000**
Category 12 – End-of-Life of Sold Products	17,000	19,000	18,000	**4,000**
Category 13 – Downstream Leased Assets	11,800	9,600	8,000	**7,000**
Subtotal emissions[4]	11,653,000	13,839,000	16,111,000	**16,624,000**
Total emissions (Scope 1 + 2 + 3)[4]	12,227,000	14,392,000	16,538,000	**17,162,000**

1. For FY20 and FY21, values have been rounded except for Business Travel. Starting in FY22, all reported Scope 3 values are rounded to the nearest thousand $mtCO_2e$.
2. Reported emissions for this category now incorporate emissions calculated using the life cycle assessment (LCA) coefficients for the portion associated with the manufacture of Microsoft devices as outlined in Section 1.9. Values for FY22 (previous year), and FY20 (base year) have been adjusted to reflect the following changes: incorporation of LCA methodology and estimation for the Nuance acquisition.
3. Reported emissions for this category now incorporate emissions calculated following the Global Logistics Emissions Council (GLEC) Framework for our Devices and Cloud business groups as outlined in Section 1.9. Values for FY22 (previous year), and FY20 (base year) have been adjusted to reflect this change.
4. These values reflect market-based emissions. Values rounded to nearest thousand $mtCO_2e$.

Table 1B – GHG emissions by scope ($mtCO_2e$) with management's criteria

	FY20	FY21	FY22	FY23
Scope 1 + 2[1]	574,219	553,109	427,442	**538,094**
Scope 3				
Management's criteria[2]				
Category 4 – Upstream Transportation with SAFc	243,000	225,000	371,000	**305,000**
Category 6 – Business Travel with SAFc	385,000	23,000	157,000	**124,000**
Category 11 – Use of Sold Products[3]	2,600,000	2,622,000	1,332,000	**2,158,000**
GHGP-aligned				
Rest of the categories[1,4]	8,097,000	9,642,000	10,500,000	**12,232,000**
Subtotal emissions	11,325,000	12,512,000	12,360,000	**14,819,000**
Total emissions (Scope 1 + 2 + 3)[1]	11,899,000	13,065,000	12,787,000	**15,357,000**

1. These values reflect market-based emissions.
2. Emissions for these categories are reported per the reporting criteria defined in Section 1.10 of this fact sheet and per the methodologies outlined in Section 1.9. All values have been rounded to the nearest thousand $mtCO_2e$.
3. Per the reporting criteria defined in Section 1.10 of this fact sheet, reported values are gross emissions net of renewable electricity. Gross emissions without the impact of renewable electricity are as follows: 2,158,000 $mtCO_2e$ (FY23), 2,207,000 $mtCO_2e$ (FY22), 2,622,000 $mtCO_2e$ (FY21), 2,600,000 $mtCO_2e$ (FY20).
4. Reported value represents a sum of Category 1 – Purchased Goods & Services, Category 2 – Capital Goods, Category 3 – Fuel- and Energy-Related Activities, Category 5 – Waste, Category 7 – Employee Commuting, Category 9 – Downstream Transportation, Category 12 – End-of-Life of Sold Products, and Category 13 – Downstream Leased Assets. All values have been rounded to the nearest thousand $mtCO_2e$.

Table 2 – GHG emissions by type

(mt)	FY20	FY21	FY22	FY23
Scope 1				
Scope 1 – CO_2	96,700	94,292	99,123	**92,466**
Scope 1 – CH_4	2	3	2	**3**
Scope 1 – N_2O	1	1	1	**1**
Scope 1 – HFCs	19	27	37	**49**
Scope 1 – SF_6	0	0	0	**0**
Scope 2 (location-based)				
Scope 2 – CO_2	4,305,119	4,984,442	6,349,431	**8,034,943**
Scope 2 – CH_4	283	330	382	**515**
Scope 2 – N_2O	56	60	75	**99**
Scope 2 (market-based)				
Scope 2 – CO_2	454,034	427,606	286,992	**390,884**
Scope 2 – CH_4	19	18	10	**23**
Scope 2 – N_2O	5	5	3	**6**
($mtCO_2e$)				
Scope 1	**118,100**	**123,704**	**139,413**	**144,960**
Scope 1 – CO_2	96,700	94,292	99,123	**92,466**
Scope 1 – CH_4	53	63	62	**63**
Scope 1 – N_2O	236	150	209	**292**
Scope 1 – HFCs	21,070	29,177	39,993	**52,087**
Scope 1 – SF_6	41	22	26	**52**
Scope 2 (location-based)	**4,328,916**	**5,010,667**	**6,381,250**	**8,077,403**
Scope 2 – CO_2	4,305,119	4,984,442	6,349,431	**8,034,943**
Scope 2 – CH_4	7,063	8,248	9,543	**12,868**
Scope 2 – N_2O	16,734	17,977	22,276	**29,592**
Scope 2 (market-based)	**456,119**	**429,405**	**288,029**	**393,134**
Scope 2 – CO_2	454,034	427,606	286,992	**390,884**
Scope 2 – CH_4	483	456	243	**571**
Scope 2 – N_2O	1,602	1,343	794	**1,679**

Table 3 – GHG emissions by region ($mtCO_2e$)

	FY20	FY21	FY22	FY23
Scope 1				
Asia	8,650	9,664	13,532	**18,529**
Europe, Middle East, Africa	61,719	69,251	68,181	**51,866**
Latin America	3,871	4,403	4,522	**4,604**
North America	43,860	40,386	53,178	**69,961**
Subtotal	**118,100**	**123,704**	**139,413**	**144,960**
Scope 2 (location-based)				
Asia	905,585	1,082,697	1,660,153	**2,044,242**
Europe, Middle East, Africa	902,859	916,141	1,252,717	**1,547,728**
Latin America	16,022	16,479	51,328	**45,038**
North America	2,504,450	2,995,350	3,417,052	**4,440,395**
Subtotal	**4,328,916**	**5,010,667**	**6,381,250**	**8,077,403**
Scope 2 (market-based)				
Asia	320,449	297,646	274,585	**369,346**
Europe, Middle East, Africa	49,377	54,805	13,167	**22,775**
Latin America	594	708	247	**202**
North America	85,699	76,246	30	**811**
Subtotal	**456,119**	**429,405**	**288,029**	**393,134**

Table 4 – GHG emissions intensity ($mtCO_2e$/revenue $M)

	FY20	FY21	FY22	FY23
Revenue ($M)	143,015	168,088	198,270	**211,915**
Scope 1	0.8	0.7	0.7	**0.7**
Scope 2 (location-based)	30.3	29.8	32.2	**38.1**
Scope 2 (market-based)	3.2	2.6	1.5	**1.9**
Scope 3 (market-based)[1]	81.5	82.3	81.3	**78.4**
Scope 1 + 2 (location-based)	31.1	30.5	32.9	**38.8**
Scope 1 + 2 (market-based)	4.0	3.3	2.2	**2.6**
Scope 1 + 2 + 3 (market-based)[1]	85.5	85.6	83.5	**81.0**

1. Emission values (numerator) for FY22 (previous year) and FY20 (base year) have been adjusted to reflect the following changes: incorporation of LCA methodology, estimation for the Nuance acquisition, and emissions calculated following the Global Logistics Emissions Council (GLEC) Framework for our devices and Cloud business groups.

Table 5 – Carbon offsets ($mtCO_2e$)

	FY20	FY21	FY22	FY23
GHG emissions within carbon neutral boundary[1]	612,927	292,106	514,156	**605,354**
Offsets applied to reporting year	612,927	292,106	514,156	**605,354**
Net GHG emissions within carbon neutral boundary[1,2]	–	–	–	**–**
Total removal offsets contracted[3]	–	1,391,187	1,443,981	**5,015,019**

1. This data supports Microsoft's target to be carbon neutral every year since fiscal year 2013. Microsoft defines carbon neutrality as matching the emissions within the carbon neutrality boundary with an equivalent amount of carbon offsets as shown in this table. The boundary for this carbon neutral goal includes global Scope 1, Scope 2 market-based, and Scope 3 business air travel emissions. Starting in FY23, values for Scope 3 business air travel emissions follow management's criteria as reported under Category 6 – Business Travel with SAFc. For more detail on carbon credits we purchase and emissions methodology, please see Sections 1.8 and 1.9 of this Fact Sheet. As we made progress towards our carbon negative targets, which included purchasing removal offsets, we also maintained carbon neutrality.
2. Values reflect Microsoft's carbon neutrality at the time of reporting. Per our carbon negative target, by 2050 we expect to have removed from the environment all the carbon the company has emitted either directly or by electrical consumption since it was founded in 1975.
3. Values reported represent offsets contracted to be delivered in the current or future fiscal year. Contracted removal values only include removal credits that have been evaluated as consistent with Microsoft's quality removal criteria. This number might change based on actual versus projected outcomes related to contract fulfillment (delivery of offsets). Only removal offsets that are delivered get applied/retired against our carbon neutral boundary.

1.2 Energy

Table 6 – Energy consumption within the organization (MWh)

	FY20	FY21	FY22	FY23
Total energy consumption[1]	**11,283,502**	**14,133,987**	**18,644,872**	**24,007,868**
Non-renewable fuel consumed	**449,304**	**446,417**	**473,137**	**413,955**
Natural gas	218,557	249,443	273,964	**150,972**
Crude oil/diesel	147,297	143,370	117,195	**160,754**
LPG/propane/jet fuel	40,450	4,245	34,152	**54,239**
Gasoline	43,000	49,359	47,826	**47,990**
Electricity, heating, cooling, and steam	**10,834,198**	**13,687,570**	**18,171,735**	**23,593,913**
Electricity	10,770,714	13,621,517	18,153,454	**23,567,502**
Cooling (chilled water)	51,026	54,953	7,393	**12,090**
Hot water/steam	12,458	11,100	10,888	**14,321**
Total renewable electricity consumption[2]	**10,244,377**	**12,969,393**	**18,153,454**	**23,567,502**
Renewable energy credits and PPAs	10,244,059	12,969,246	18,153,218	**23,564,161**
Onsite renewable energy	318	147	236	**3,341**

1. Only reported categories and values are applicable to Microsoft's energy consumption. Renewable fuels, electricity sold, heating sold, cooling sold, and steam sold categories are currently not applicable. Reported values for FY23 expressed in gigajoules (GJ): total energy consumption equals 86,428,325 GJ, and total non-renewable fuel consumed equals 1,490,239 GJ.
2. Reported values represent Microsoft's total renewable energy consumption expressed in MWh from onsite, renewable energy credits, power purchase agreements (PPAs), and green power tariff programs. Values reflect Microsoft's renewable electricity consumption at the time of reporting.

Table 7 – Renewable energy metrics

	FY20	FY21	FY22	FY23
Percentage of renewable electricity[1]	100%	100%	100%	**100%**
Percentage of direct renewable electricity	–	–	62%	**59%**

1. Values reflect Microsoft's percentage of renewable electricity consumption at the time of reporting.

Table 8 – Energy intensity (MWh/revenue $M)

	FY20	FY21	FY22	FY23
Electricity consumed within the organization (MWh)	10,770,714	13,621,517	18,153,454	**23,567,502**
Revenue ($M)	143,015	168,088	198,270	**211,915**
Electricity consumption normalized by revenue (MWh/$M)	75	81	92	**111**

1.3 Water

Table 9 – Water and effluents (megaliters)[1]

	FY20	FY21	FY22	FY23
Total water withdrawals[2]	**7,936**	**8,068**	**10,706**	**12,951**
Third-party water	7,831	8,011	10,665	**12,926**
Surface water	89	41	39	**21**
Ground water	16	16	2	**4**
Total water discharges[2,3]	**3,740**	**3,295**	**4,307**	**5,107**
Third-party water	3,740	3,295	4,307	**5,107**
Total water consumption[2]	**4,196**	**4,773**	**6,399**	**7,844**

1. For FY23, total water withdrawal from areas with water stress was 5,326 megaliters (ML) (41%) and was primarily sourced from third-party water; total water discharge to areas with water stress was 2,045 ML (40%); and total water consumption from areas with water stress was 3,281 ML (42%). Water risk assessment was conducted using WRI's Aqueduct tool for areas in high or extremely high baseline water stress.
2. Brackish surface water/seawater and produced water categories are not relevant to Microsoft since there is no direct withdrawal or discharge of water from and to these sources. For withdrawals, data breakdown between "freshwater" and "other water" categories, and data for third-party withdrawal sources for areas with water stress is currently unavailable and will be part of data improvements going forward. For the periods presented we are not gathering data around water storage since it is not a significant portion of our water inventory.
3. Only discharges to third parties are relevant since water that is not consumed at Microsoft sites is discharged to local municipal treatment plants. Discharges to surface water, groundwater, and seawater, and volume sent for use to other organizations are not applicable. For discharges, data breakdown between "freshwater" and "other water" categories is currently unavailable and will be part of data improvements going forward. Primary treatment of water is not relevant because there are no onsite water treatment plants in Microsoft operations, as there is no requirement to conduct onsite primary treatment of discharge by any environmental regulation or standard.

1.4 Waste and circularity

Table 10 – Operational waste generated, diverted, and directed to disposal (metric tons)[1,4]

		FY20	FY21	FY22	FY23
Non-hazardous		31,102	20,768	28,715	**36,197**
Diverted	Reused	1,136	2,171	2,931	**3,788**
	Recycled	8,452	9,589	10,233	**14,512**
	Composted	10,104	1,776	3,106	**6,170**
	Subtotal	**19,692**	**13,536**	**16,270**	**24,470**
Directed to disposal	Landfilled	10,848	6,957	12,204	**11,510**
	Incinerated[2]	562	275	241	**217**
	Subtotal	**11,410**	**7,232**	**12,445**	**11,727**
Hazardous		9,469	1,750	881	**195**
Diverted	Recycled	7,581	1,742	879	**193**
	Reused	1,880	0	0	**0**
	Subtotal	**9,461**	**1,742**	**879**	**193**
Directed to disposal	Other[3]	8	8	2	**2**
Diverted subtotal		**29,153**	**15,278**	**17,149**	**24,663**
Directed to disposal subtotal		**11,418**	**7,240**	**12,447**	**11,729**
Total waste generated		**40,571**	**22,518**	**29,596**	**36,392**

1. Data for reuse or other diversion methods besides recycling for hazardous waste, and other disposal operations besides landfilled and incineration for non-hazardous waste is currently not applicable. Reported waste data is mainly directed for disposal offsite.
2. Incinerated category under non-hazardous includes incineration with and without energy recovery.
3. The "other" category under hazardous includes landfilled and incinerated with and without energy recovery waste.
4. Starting in FY23, reported values incorporate an updated extrapolation approach, only for non-campus workplace locations not providing data, that more accurately reflects waste diversion practices as outlined in Section 1.9.

Table 11 – Product packaging circularity metrics

	FY22	FY23
Percentage of product packaging recyclability	94.4%	**93.9%**
Percentage of single-use plastics in product packaging	3.3%	**2.7%**

1.5 Ecosystems

Table 12 – Land protection

	Status	Country	FY21	FY22	FY23
Total acres categorized by the status at the close of the reporting period as either (i) funded or (ii) protected	Funded[1]	US	4,998	4,998	**5,169**
		Belize	12,270	12,270	**12,270**
		Subtotal	**17,268**	**17,268**	**17,439**
	Protected	US	–	–	**3,579**
		Belize	–	12,270	**12,270**
		Subtotal	–	12,270	**15,849**
A description of partnerships for which contributions were made that exist with third parties to protect habitat areas	Since making this commitment in April 2020, Microsoft identified two leading land protection organizations, the National Fish and Wildlife Foundation (NFWF) within the United States and The Nature Conservancy (TNC) globally, to partner with on our land protection journey. A data-informed approach to identify ecosystems most at risk was used, using TNC's last chance ecosystem framework and NFWF's national landscape conservation framework. Within each of the two partnerships the following organizations will hold the conservation easement/own the protected land: • The Nature Conservancy: Belize Maya Forest Trust • National Fish and Wildlife Foundation: Montana Department of Fish, Wildlife, and Parks; New Mexico Land Conservancy, Rocky Mountain Elk Foundation for the US				

1. Reported funded acres in FY23 have been updated to reflect Microsoft's final project funding distribution.

1.6 Management's assertion

Management of Microsoft Corporation is responsible for the completeness, accuracy, and validity of the disclosures included in this Section 1 of the Environmental Data Fact Sheet. Management is also responsible for the collection, quantification, and presentation of the specified information included in Section 1 of the Environmental Data Fact Sheet and for the selection or development of the criteria, which management believes provides an objective basis for measuring and reporting on the specified information. Management of Microsoft Corporation asserts that the specified information included in Section 1 of the Environmental Data Fact Sheet as of, and for the fiscal year ended June 30, 2023 (FY23) is presented in accordance with the criteria set forth in Section 1.10, Reporting criteria.

1.7 Description of the company and inventory boundary

Microsoft's environmental sustainability data, which includes GHG emissions, energy, waste, product packaging recyclability and single-use plastics, water, and ecosystem metrics, has been prepared following Microsoft's fiscal year basis as the reporting period covering the timeframe of July 1 to June 30. The Corporate, External and Legal Affairs (CELA) Sustainability team within Microsoft under the leadership of the Chief Sustainability Officer (CSO) holds the responsibility to monitor and report sustainability environmental data. For setting organizational boundaries and for corporate reporting of GHG emissions, energy, waste, product packaging recyclability and single-use plastics, and water metrics in the preceding Tables 1-12, Microsoft uses the operational control approach. This includes global wholly owned and partially owned subsidiaries over which Microsoft has management and operational control, including Microsoft owned and leased real estate facilities and datacenters.

1.8 Information on metrics

Microsoft announced in January 2020 that we will be carbon negative by 2030 and that by 2050 we will remove from the atmosphere an equivalent amount of all the carbon the company has emitted either directly or by our electricity consumption since being founded in 1975. Microsoft plans to achieve this goal by reducing Scope 3 emissions (market-based and management's criteria) by more than half; and by reducing Scope 1 and 2 (market-based) emissions to near zero by the middle of the decade through energy efficiency work and reaching 100% renewable energy by 2025. The baseline year is 2020, which was the year when the announcement was made. Microsoft has a metrics recalculation policy for historical data (including previous and base year) to ensure consistency whenever year-over-year structural changes, methodology changes, or other accuracy improvements are significant. Structural changes include mergers, acquisitions, and divestitures. Microsoft will begin to include data associated from any merger and/or acquisition the year following the close of such transaction. Divestments will be reflected in data the year when the transaction occurred. Methodology changes include changes in a calculation methodology or new activity types for greater data granularity. Accuracy improvements include the correction of significant errors or cumulative minor errors that together are significant and/or updates to available supplier reported data. Footnotes under each table will highlight when specific adjustments are made. Microsoft's GHG inventory includes five of the seven GHGs addressed by the Kyoto Protocol—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), and sulfur hexafluoride (SF_6). Microsoft does not currently use or emit perfluorocarbons (PFCs) and nitrogen trifluoride (NF_3).

This carbon inventory is what is in scope of our carbon negative commitment.

The following is a more detailed list of activities included in the GHG inventory:

- **Scope 1** direct GHG emissions from onsite fossil fuel combustion (including natural gas, propane, fuel oil, and diesel), executive air travel, ground transportation (Microsoft owned and directly leased), hydrofluorocarbon (HFC) refrigerants, and SF_6 used at some facilities.
- **Scope 2** indirect GHG emissions from purchased electricity, chilled water, and steam. The location-based method is based on average emission factors for the electricity grids that provide electricity to our datacenters, buildings, and campuses. The market-based method includes consideration of contractual arrangements under which Microsoft procures power from specific suppliers or sources, such as renewable energy. In the market-based method, we also capture the impact from onsite renewable energy generation, power purchase agreements (PPAs), the purchase of unbundled energy attribute certificates (EACs), and green power products.
- **Scope 3** indirect GHG emissions for the following categories identified as relevant for Microsoft:
  - **Category 1** – Purchased Goods & Services
  - **Category 2** – Capital Goods
  - **Category 3** – Fuel- and Energy-Related Activities (location-based and market-based)
  - **Category 4** – Upstream Transportation (reported both under the GHG Protocol and per management's criteria, see Section 1.10)
  - **Category 5** – Waste
  - **Category 6** – Business Travel (reported both under the GHG Protocol and per management's criteria, see Section 1.10)
  - **Category 7** – Employee Commuting
  - **Category 9** – Downstream Transportation
  - **Category 11** – Use of Sold Products (reported both under the GHG Protocol and per management's criteria, see Section 1.10)
  - **Category 12** – End-of-Life of Sold Products
  - **Category 13** – Downstream Leased Assets

For carbon removal, the following Microsoft criteria is used to select carbon removal offsets that we contract: Microsoft Criteria for High-Quality Carbon Dioxide Removal. Both third-party certified and uncertified tons are purchased in an effort to help develop the market, and only certified tons are applied to the carbon neutrality scope (Scope 1, Scope 2 market-based, and business air travel). For the certified portion, the following validation and verification bodies have provided the certification: Voluntary Carbon Standard (VCS), American Carbon Registry (ACR), Climate Action Reserve (CAR), and California Air Resources Board (CARB). The reported carbon removal contracted value total also includes future tons that are to be delivered in subsequent years.

Microsoft procures and uses renewable energy from onsite generation, unbundled EACs, power purchase agreements (PPAs), and green power products. The purchases of EACs include renewable energy certificates (RECs) (Green-e certified), guarantees of origin (GO), renewable energy guarantees of origin (REGO), I-RECs, tradable instrument for global renewables (TIGR), J-Credits, Non-Fossil Fuel Certificates (NFCs), large-scale energy certificates (LGC), Green Electricity Certificates (GECs), and PowerPlus. In some cases for unbundled EAC purchases, Microsoft receives the certificates after our inventory has been compiled and assured, due to the timing certificate registry processes follow. Microsoft procures enough renewable electricity to match 100% of our global electricity consumption. To calculate Scope 2 emissions from a market-based approach, Microsoft captures the impact across all renewable electricity purchases and matches that with the market where we operate, aligned with the GHG Protocol. In the case that renewable electricity is not procured in the markets where we operate and to ensure we maintain the 100% renewable electricity commitment, enough renewable electricity from nearby markets is purchased. Finally, Microsoft captures the impact from onsite generation, PPAs, and green power products to support our progress against our commitment to have 100% direct renewable electricity by 2025.

Microsoft's water inventory includes the withdrawal, consumption, and discharge associated with assets under our operational control. These volumes represent global enterprise-wide operations including owned and leased offices, datacenters, labs, and retail. This data supports progress tracking against current water positive program commitments.

For waste and circularity, operational waste and product packaging recyclability and single-use plastics are included. The operational waste inventory includes the mass of waste generated from operations within Microsoft's operational control that are landfilled, incinerated, recycled, reused, and composted for both non-hazardous and hazardous categories, for both owned and leased facilities. This waste inventory supports progress tracking against the commitment of diverting 90% of operational waste at datacenters and campuses. Currently the waste inventory does not include waste from construction and deconstruction activities.

For product packaging, both packaging recyclability and single-use plastics metrics consider all hardware packaging (retail and commercial) and consumer software packaging of the products produced and sold during the reporting year. Similarly, these metrics support our product packaging-related commitments to make fully recyclable product packaging by 2030, and to eliminate single-use plastic in packaging by 2025. The calculations exclude impact from inks, glues, coatings, and label liner material that is removed before a label is applied.

Reported data for ecosystems includes the total area of land that has been funded and protected based on the presented definition in Table 1.10 for reporting criteria. Microsoft's land protection commitment was established in FY20. Reported data represents progress through the end of FY23.

According to Microsoft's structural changes policy previously described in the introduction section, FY23 data across metrics now incorporates impact from the Nuance acquisition which was previously completed in March 2022. Additional details are included as needed in the table footnotes to highlight any prior year adjustments. Structural changes items are part of Microsoft's continuous data improvement activities and will be included and highlighted accordingly in the relevant reporting cycle.

1.9 Methodology and emission factors

Carbon - Scope 1 and 2

Primary data is used to calculate emissions for both Scope 1 and 2 emissions. Estimates are used where primary data is not available. Depending on the type of site, the estimation methodology uses capacity (MW) or floorspace based coefficients to extrapolate emissions for those locations where primary data is unavailable. Activity data is collected internally and stored in an internally developed data platform which then applies the corresponding emission factors to calculate emissions. Microsoft uses the 100-year IPCC Fourth Assessment when it comes to applying global warming potential values.

Scope and source	Emission factors source
Scope 1 (all fuels)	EPA Emission Factors Hub. March 2018.
Scope 2 Electricity (US)	Year 2021 eGRID Subregion Emission Factors: eGRID 2021, January 2023.
Scope 2 Electricity (international unless otherwise sourced)	IEA (2022), Emission Factors
Scope 2 Electricity (Australia)	Year 2022 factors from "Table 1: Indirect (Scope 2 and Scope 3) emission factors from consumption of purchased or acquired electricity: Location based approach", Australian National Greenhouse Accounts Factors, August 2023.
Scope 2 Electricity (Brazil)	Year 2022 factors from the Brazilian Ministry of Science, Technology, Innovation and Communication: Fator médio - Inventários corporativos.
Scope 2 Electricity (Canada)	National inventory report 1990-2021. Annex 13. Year 2021 factors. From April 2023 release.
Scope 2 Electricity (UK)	2023 Government Greenhouse Gas Conversion Factors for Company Reporting: Methodology Paper for Conversion Factors. Year 2021 factors from June 2023 release.

Emission factors presented in the preceding table apply to current reporting year and are used for location-based accounting. For market-based accounting, Microsoft uses a zero-emission factor for procured renewable electricity. In the locations where Microsoft did not procure renewable electricity, utility-based and residual emission factors were unavailable; therefore we used the average grid factors presented previously.

Carbon - Scope 3

Microsoft calculates and reports Scope 3 emissions for all relevant categories. The following table summarizes which categories are relevant and a description of the methodologies and emission factors used.

Scope 3 category	Emissions calculation methodology	Percentage of emissions calculated using supplier data
Purchased Goods and Services	This category includes emissions from upstream purchasing of goods and services, including direct and indirect goods. Microsoft has been using an ISO 14040/ISO 14044 compliant life cycle assessment (LCA) approach for many years to track the emissions associated with its devices. In FY23, Microsoft started using its LCAs to calculate the portion of emissions associated with the manufacture of devices Microsoft sold during the reporting year including Xbox devices, Surface devices, HoloLens, keyboards, mice, and other peripherals. Microsoft utilized Makersite and internal software engineering teams in order to automate and scale the modeling of complex electronic products. To ensure a more supply chain specific accounting process, the system analyzes the bill of materials and material composition from full material declarations collected from suppliers, resulting in LCA-based emissions that have increased accuracy, transparency, and representativeness. GWPs are from the IPCC Fourth Assessment Report (AR4), 100-year average. For the rest of the emissions, Microsoft requests carbon emissions data from its suppliers and uses their responses to determine Scope 1, Scope 2, and upstream Scope 3 emission factors ($mtCO_2e$/$ revenue). The latest available responses are used, so this report's inventory considers 2023 submissions (that is, 2022 data). Microsoft estimates emissions for suppliers who submitted data by multiplying their response-derived factor by the annual spend with the supplier. All other spend is mapped to corresponding industry sectors and then multiplied by cradle-to-gate emission factors by sector from UK Defra's "UK Defra, Table 13 — Indirect emissions from the supply chain. March 2014"—updated per the latest inflation and currency conversion rates. Corporate-wide expense data for all company divisions is obtained from the finance department. Activities already included in Scope 1 and Scope 2 (such as electricity purchases) and other Scope 3 categories (such as capital goods) were removed to prevent double counting. Global warming potentials (GWP) values are derived from the underlying supplier responses and Defra data sources.	51%

Scope 3 category	Emissions calculation methodology	Percentage of emissions calculated using supplier data
Capital Goods	This category includes emissions from upstream purchasing of capital goods, including server equipment and other long-term assets. Microsoft requests carbon emissions data from its suppliers and uses their responses to determine Scope 1, Scope 2, and upstream Scope 3 emission factors (tCO_2e/$ revenue). The latest available responses are used, so this report's inventory considers 2023 submissions (that is, 2022 data). Microsoft estimates emissions for suppliers who submitted data by multiplying their response-derived factor by the annual spend with the supplier. All other spend is mapped to corresponding industry sectors and then multiplied by cradle-to-gate emission factors by sector from UK Defra's "UK Defra, Table 13 – Indirect emissions from the supply chain. March 2014"—updated per the latest inflation and currency conversion rates. Corporate-wide expense data for all company divisions is obtained from the finance department. Activities already included in Scope 1 and Scope 2 (such as electricity purchases) and other Scope 3 categories (such as purchased goods and services) were removed to prevent double counting. GWP values are derived from the underlying supplier responses and Defra data sources.	70%
Fuel- and Energy-Related Activities (not included in Scope 1 or 2)	Starting in FY23, Microsoft reports this category using a market-based approach only, which has been the approach used to track progress against our carbon negative commitment. Fuel- and energy-related activities (not included in Scope 1 or 2) include three emission sources. First, upstream emissions of purchased electricity were calculated by multiplying electricity use by emission factors from life cycle analysis tools for the United States and UK Defra 2015 Guidelines for non-US countries. When calculating the market-based approach and including the impact from purchased renewable electricity, the upstream emissions associated with fuel are zero. Second, fuel consumption was multiplied by emission factors from the GREET and Ecoinvent life cycle analysis tools. And third, transmission and distribution (T&D) losses (by energy use type) were multiplied by loss percentages from the EPA's eGRID2020 database for the United States and emission factors from IEA (2022) emission factors for other countries. GWPs are from the IPCC Fourth Assessment Report (AR4), 100-year average.	96%
Upstream Transportation and Distribution	This category includes emissions from upstream transportation of goods, including all transportation of goods that Microsoft finances. In FY23, Microsoft started calculating emissions for this category following the Global Logistics Emissions Council (GLEC) Framework using data inputs from Microsoft's fourth-party logistics service provider, TMC. Our Devices business group applies this calculation considering the shipment weight, distance traveled, and the corresponding well-to-wheel (WTW) fuel emission factor appropriate for each mode or vehicle type. In addition to these inputs, our Cloud business group uses the EcoTransIT tool which identifies the mode of transportation on each leg by breaking down the route through milestones, and incorporates more granular location data, equipment data, and WTW emissions factors. For the rest of the emissions, Microsoft requests carbon emissions data from its suppliers and uses their responses to determine Scope 1, Scope 2, and upstream Scope 3 emission factors ($mtCO_2e$/$ revenue). The latest available responses are used, so this report's inventory considers 2023 submissions (that is, 2022 data). Microsoft estimates emissions for suppliers who submitted data by multiplying their response-derived factor by the annual spend with the supplier. All other spend is mapped to corresponding industry sectors and then multiplied by cradle-to-gate emission factors by sector from UK Defra's "UK Defra, Table 13 — Indirect emissions from the supply chain. March 2014"—updated per the latest inflation and currency conversion rates. Corporate-wide expense data for all company divisions is obtained from the finance department. Spend data associated with our upstream transportation and distribution activities is then isolated within the corporate spend report. GWP values are derived from the underlying supplier responses and Defra data sources.	97%
Waste Generated in Operations	The waste figure represents emissions from waste disposed via landfilling, incineration, recycling, and compost. Emissions from waste are calculated using methodologies and emission factors from the EPA's Waste Reduction Model (WARM), version 15. This model uses waste mass as the data input and bases its emissions calculations on a life cycle analysis, including emissions from the long-term decomposition of waste in a landfill or from upstream sources/sinks. GWPs are from the IPCC Fourth Assessment Report (AR4), 100-year average.	64%

Scope 3 category	Emissions calculation methodology	Percentage of emissions calculated using supplier data
Business Travel	This category includes emissions from commercial air travel, hotel night stays, rail travel, reimbursed mileage, rental cars, and taxi/rideshares. For commercial air and rail travel, Microsoft Corporate Travel provides flight/ride-level airport codes and cabin class data. The airport/rail station codes are used to calculate distances to determine whether the flights/rides were short, medium, or long haul. Using the distance-based method, flight distances and cabin class are used to calculate CO_2e emissions, using the appropriate tank-to-wake emission factors from 2022 Government GHG Conversion Factors for Company Reporting. For hotel night stays, Microsoft's preferred hotel vendors provided emissions per hotel night stay coefficients. For other hotel chains, emissions were estimated based on nights stayed and the emission factors from the EPA's Greenhouse Gas Inventory Guidance: Indirect Emissions from Events and Conferences (Dec 2018). For rental cars, mileage, fuel, and emission data was provided from each rental car company. For taxi/rideshare and reimbursed mileage, emissions were estimated based on spend using emission factors from EPA Emission Factor Hub. March 2018. GWPs are from the IPCC Fourth Assessment Report (AR4), 100-year average.	91%

Scope 3 category	Emissions calculation methodology	Percentage of emissions calculated using supplier data
Sustainable Aviation Fuel (SAF) (management's criteria)	This category includes the emissions associated with Category 4 – Upstream Transportation and Distribution with SAFc and Category 6 – Business Travel with SAFc. For Scope 3 Category 4 emissions with SAFc, the emissions reductions from the volume of SAF associated with SAFc purchased for the reporting year is applied against air cargo emissions calculated using the previously stated methodology for Category 4 – Upstream Transportation and Distribution to derive the reported annual emissions figure. For Scope 3 Category 6 emissions with SAFc, the emissions reductions from the volume of SAF associated with SAFc purchased for the reporting year is applied against air travel emissions calculated using the previously stated methodology for Category 6 – Business Travel, inclusive of well-to-tank and tank-to-wake emissions, using the appropriate factors from Defra's 2022 Government GHG Conversion Factors for Company Reporting to derive the reported annual emissions figure. The total emissions reductions from the volume of SAF associated with SAFc purchased for the reporting year are allocated between Category 4 and Category 6 based on an internal determination by management on where the SAFc should be applied. Management's methodology for reporting SAFc in these categories was informed by the approach outlined in the World Economic Forum Sustainable Aviation Fuel Certificate Emissions Accounting and Reporting Guidelines (WEF Accounting and Reporting Guidelines). This guideline informed both the approach for calculating and reporting the well-to-wake emissions as well as how to attribute the benefits associated with SAFc for corporate travel and air freight shipments. The SAF certificates we purchase are required to include details about the SAF characteristics, origin and chain-of-custody, and third-party certification. SAF certificates, which are certified prior to delivery to Microsoft, must be certified by an independent third party that they align with the requirements of an internationally recognized sustainability certification scheme such as the International Sustainability & Carbon Certification scheme or the Roundtable on Sustainable Biomaterials including batch number and fuel/material type. These SAFc requirements were also informed by the WEF Accounting and Reporting Guidelines.	100%

Scope 3 category	Emissions calculation methodology	Percentage of emissions calculated using supplier data
Employee Commuting	This category captures emissions from commuting by all employees and contractors that work in Microsoft buildings. Microsoft conducted a survey in 2023 to capture detailed commuting habits from employees and vendors at our Puget Sound campus, representing about 38% of global Microsoft headcount. The survey is typically conducted annually, and the results were scaled considering employee attendance records to estimate global commuting emissions for Microsoft. Carbon dioxide emission rates for passenger vehicles (single occupancy vehicle (SOV) and carpool) are based on fuel consumption and miles traveled. A weighted average fuel economy using the 2012 EPA Fuel Economy Trends Report 1975–2012 was derived, which provides combined fuel economy for cars and trucks by year, and a set of car and truck age fractions provided by the Puget Sound Regional Council. This data was used to develop a weighted average fuel economy for the Puget Sound area. Emission factors are derived from the Inventory of US. Greenhouse Gas Emissions and Sinks: 1990–2010, Annex 2 (Methodology for estimating CO_2 emissions from fossil fuel combustion). Carbon dioxide rates per passenger mile are based on Federal Transit Administration, 2010 (Public Transportation's Role in Responding to Climate Change, US DOT, Federal Transit Administration, January 2010). GWPs are from the IPCC Fourth Assessment Report (AR4), 100-year average. As nearly all Microsoft employees worked from home during the COVID-19 pandemic, FY20 was the first year to include emission impacts from telework, and we have continued to include them in the subsequent years. Telework energy consumption is assumed to include workstation/plug-load energy usage, additional lighting, and household cooling/heating consumption. One laptop, two monitors, and three lightbulbs are assumed for each employee; other assumptions include 8 work hours/day and 250 days/year using the devices. Office/workspace floor area and cooling/heating intensity are assumed based on EIA's 2015 Residential Energy Consumption Survey (RECS) data. From these assumptions, a carbon emission intensity per employee is calculated, and total emissions are calculated by multiplying the intensity by number of employees working from home.	**17%**

Scope 3 category	Emissions calculation methodology	Percentage of emissions calculated using supplier data
Upstream Leased Assets	Not relevant. Microsoft includes leased assets in our Scope 1 and Scope 2 emissions reporting boundary.	–
Downstream Transportation and Distribution	Included in this category are the emissions from transporting and warehousing of devices Microsoft sold (including Xbox devices, Surface devices, HoloLens, keyboards, mice, and other peripherals) from retail distribution centers to retailers and between retail outlets and customers. Calculations are based on internal Microsoft sales data and use standard assumptions of distance between retailers and their distribution centers and warehouse floorspace from an MWPVL International analysis of Walmart's distribution center network. Assumptions about the energy intensity of warehouses come from the US Energy Information Administration (EIA)'s Commercial Buildings Energy Consumption Survey (2012). All transportation data is kept consistent with the Global Logistics Emissions Council Framework for Logistics Emissions Accounting and Reporting, Version 2.0. GWPs are from the IPCC Fourth Assessment Report (AR4), 100-year average.	**0%**
Processing of Sold Products	Not relevant. Microsoft did not have any physical intermediate products in the years reported.	–
Use of Sold Products	Included in this category is the lifetime electricity use of devices Microsoft sold including Xbox devices, Surface devices, HoloLens, keyboards, mice, and other peripherals. Lifetime electricity use per device is calculated based on standard product-use assumptions as included in our ISO 14040– and ISO 14044–compliant life cycle analyses. Calculations include energy use assumptions that are derived from various guidance documents, studies, or telemetry data. Assumptions on total lifetime expected use (years) are used. Sales geography for the products sold is used to determine the electricity emission factor used to calculate emissions. Emissions from third-party devices running Microsoft software are currently outside of the scope of our carbon commitments and therefore not included. GWPs are from the IPCC Fourth Assessment Report (AR4), 100-year average.	**0%**

Scope 3 category	Emissions calculation methodology	Percentage of emissions calculated using supplier data
Use of Sold Products (management's criteria)	This category includes the emissions of all Surface and Xbox devices active during the reporting year, using telemetry-based methodology to account for their electricity usage. Telemetry-based measurements are used in addition to telemetry informed extrapolations to produce regional electricity and emissions associated to the use of devices in scope. For Xbox devices, telemetry data is gathered for all units still in use in relation to console mode, which is then multiplied by average power coefficients to calculate electricity use. For Surface devices, energy telemetry data is gathered from a representative sample of devices that are grouped based on the device model and location and then the average energy per device sampled is extrapolated to the respective full daily active device population group based on a rolling seven-day average. Emissions values from HoloLens, keyboards, mice, and other peripherals currently fall under our significance threshold and are not included. Emissions from third-party devices running Microsoft software are currently outside of the scope of our carbon commitments and therefore not included. Electricity usage is estimated by country and country average emission factors from the same sources highlighted for Scope 2 are used to estimate emissions. GWPs are from the IPCC Fourth Assessment Report (AR4), 100-year average.	0%
End of Life Treatment of Sold Products	Included in this category is the end-of-life treatment of devices Microsoft sold during the reporting year including Xbox devices, Surface devices, HoloLens, keyboards, mice, and other peripherals. Microsoft has been using an ISO 14040/ISO 14044 compliant life cycle assessment (LCA) approach for many years to track the end-of-life emissions for its devices. To generate an estimate for this category, the model assumes materials from devices are recycled, landfilled, or incinerated at the end of their useful life using material specific European collection and disposition rates for electronic devices. In FY23, Microsoft revised its LCA process to use Makersite and internal software engineering teams in order to automate and scale the modeling of complex electronic products. GWPs are from the IPCC Fourth Assessment Report (AR4), 100-year average.	0%
Downstream Leased Assets	Emissions associated with sublets are calculated using the intensities derived from data collected for the primary leased space (for example, kilowatt-hours/square foot (kWh/sf)) and prorated for the square footage of the sublet space. In this way, it is assumed that the emissions intensities of the leased spaces are the same as the overall buildings in which they reside. Estimated refrigerants are calculated using the same methodology and intensity as used to calculate refrigerant intensities for assets occupied by Microsoft. Electricity emission factors used are those appropriate to each location, as utilized in our Scope 1 and Scope 2 location-based inventory. GWPs are from the IPCC Fourth Assessment Report (AR4), 100-year average.	85%
Franchises	Not relevant. Microsoft did not operate franchises in the years reported.	–
Investments	Not relevant for reported years. Joint ventures, actively managed investments, and direct equity investments totaled less than 2% of Microsoft's market capitalization at the end of the reporting period. Microsoft has not engaged in the long-term financing of projects and the proceeds for each debt issuance have been for general corporate purposes.	–

Energy

As part of our carbon negative goal, Microsoft set a target to procure enough direct renewable electricity to cover 100% of our electricity usage by 2025, meaning that we will have power purchase agreements (PPAs) or other long-term contracts for green power products for 100% of carbon-emitting electricity consumed by all our datacenters, buildings, and campuses. To calculate this percentage of direct renewable electricity, Microsoft developed a methodology which considers the total direct renewable electricity consumption divided by the total electricity consumption. The total direct renewable electricity consumption is the sum of renewable electricity the entity directly produced, renewable electricity purchased via renewable PPAs and/or green power products, and the renewable portion of the electricity grid mix. Primary data is used to represent the contracted renewable electricity based on reports produced and submitted by the contracted assets in our portfolio. The renewable portion of the electricity grid mix is the amount of renewable electricity that is on the power grid in the region of the Microsoft facility that can be claimed as going into the electricity that our operations consume. The renewable portion of the electricity grid mix used in the calculation is based on publicly available data for regions in which we have determined the region's grid mix has defensible claims, which is defined as regions where either (1) EACs are retired by a utility or government entity on behalf of all utility/grid ratepayers, or (2) no EAC or customer-specific claims exist. For geographies where publicly available data is incomplete or nonexistent, we apply assumptions based on historical data or trends, and/or assume zero renewable electricity by default in their grid mix. Microsoft uses an internally developed renewable grid mix policy to support and govern the process for determining the renewable energy grid mix that can be counted toward our commitment. To calculate our percentage of direct renewable electricity, we take the total direct renewable electricity consumption, divide it by our total electricity consumption, and multiply by 100.

Additionally, as part of our carbon neutral (as defined in Table 5) target, Microsoft plans to achieve 100% renewable electricity each year through a combination of considering not only direct renewable energy but also the purchase of unbundled EACs. For this metric, the renewable portion of the electricity grid mix is excluded from the calculation. The unbundled EACs included are listed in Section 1.8 of this fact sheet. To calculate the percent of renewable electricity, we add up the various forms of renewable electricity and then divide it by Microsoft's total electricity consumption, and multiply by 100. Standard conversion factors are used for all energy metrics.

Water

Primary data is used to calculate water withdrawal, discharge, and consumption where Microsoft operates. Estimates are used where primary data is not available. Water withdrawals are based on data from utility bills from our largest sites and, in some cases, estimations. A water withdrawal estimation methodology was internally developed for sites where primary data is unavailable that considers square footage, electricity consumption, and datacenter cooling technology type. Where discharges and consumption are not metered, amounts are estimated annually as part of the global water inventory aggregation process. Most of our sites do not currently have discharge meters. For office buildings without discharge meters, water consumption is assumed to be 10% of withdrawals unless they have landscaping that requires irrigation. For datacenters, the cooling technology type is used to drive the estimation. It is estimated that discharge equals the difference between withdrawals and consumption.

Microsoft continues to work on improvements for water data collection, including data on the sources of our water withdrawals. This will allow us to know if water is coming directly from freshwater sources (groundwater and surface water), or from alternative water sources (reclaimed water procured from a water utility or harvested rainwater). Knowing the source of water withdrawals helps us incentivize the use of alternative water sources through our replenishment and reduction targets.

Waste and circularity

Primary data is used to calculate waste generation where Microsoft operates. Operational waste mass (including e-waste) is based on data from invoices and/or vendor and third-party reports. In the absence of actual data, there is an extrapolation methodology. Depending on the type of site, the methodology uses capacity (MW) based coefficients by region or attendance to extrapolate waste for those locations where primary data is unavailable. The extrapolation excludes e-waste, and all extrapolated waste is assumed to be landfilled in cases where the disposal or diversion method is unknown. Starting in FY23, we have updated the extrapolation approach only for non-campus workplace locations not providing data in our portfolio. Under this approach we apply an attendance-based global operational waste mass coefficient, as well as recycling and compost diversion rates from applicable reported workplace data (derived from actuals). Since most of the non-campus workplace sites are leased spaces within a larger building, obtaining actual waste data can be challenging. This updated approach represents an improvement that more accurately reflects waste diversion practices that are in place at non-campus workplace sites.

Product packaging recyclability and the single-use plastics metrics are used to track our progress against our zero waste program commitments. The design of all Microsoft product packaging are to be 100% recyclable in OECD (Organization for Economic Cooperation and Development) countries by 2030; and contain 0% single-use plastic by 2025. In both cases, primary data is used from the bill of materials associated to the product packaging units in scope. For product packaging recyclability, at the product packaging unit level, an end of life (EOL) scoring is assigned to each packaging component based on publicly available information regarding the existing recovery infrastructure in the OECD markets. Currently our methodology is primarily based on publicly available information from the United States which is one of our biggest markets. Scores indicate relative acceptance of materials to recycling, and range from 1 to 5, where a score of 1 means up to 20% recyclable (not generally accepted) and a score of 5 is 100% recyclable (widely accepted to be recycled). A recyclability percentage is computed for each packaging unit by adding the product of each component's weight and EOL scores and dividing by the maximum score value of 5. The reported enterprise-wide level metric is the simple average of all product packaging recyclability percentages in scope. For the single-use plastics metric, the percentage by weight of single-use plastics is calculated for each packaging unit. The enterprise-wide level metric is the simple average of all single-use plastics percentages for each product packaging in scope.

1.10 Reporting criteria

The following summary table defines the criteria for each specified metric included in Section 1 of the Environmental Data Fact Sheet. Management is responsible for the selection of the criteria or the development of the criteria ("management's criteria"), which management believes provide an objective basis for measuring and reporting on the specified information referenced in this table.

Microsoft has reported the information cited in this GRI content index for the fiscal year ended June 30, 2023 (FY23) with reference to the GRI Standards using GRI 1: Foundation 2021.

Area	Specified Information	Criteria	Tables
Carbon	**The statement of GHG emissions**	Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition) and The Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard published by the World Resources Institute/World Business Council for Sustainable Development (collectively the "GHG Protocol").	1A, 1B, 2, 3, 4, 5
	Scope 3 Category 11 — Use of Sold Products (management's criteria)	**Management's criteria:** Use of sold products' emissions in the reporting year in metric tons of CO_2e reported as: a. Gross emissions. b. Gross emissions, net of renewable electricity. Gross emissions is calculated by multiplying a) the direct use-phase energy, which is derived from emissions gathered by the Company using telemetry data and calculations used to measure energy usage from Xbox consoles and Surface devices sold by Microsoft at any point in time since product launch and which are still in use by end users during the fiscal year being reported on and b) location-based emissions factors. For purposes of this metric, renewable electricity is defined as the purchase of contractual instruments that meet the "quality criteria" according to table 7.1 in the GHG Protocol Scope 2 Guidance. **Microsoft shall disclose:** a. A description of the types and sources of data, including telemetry activity data, emission factors, and GWP (global warming potentials) values, used to calculate emissions, and a description of the data quality of reported emissions data. b. A description of the methodologies, allocation methods, and assumptions used to calculate Scope 3 emissions and any exclusions.	1B

Area	Specified Information	Criteria	Tables
Carbon	**Sustainable Aviation Fuel** (management's criteria)	**Management's criteria:** 1. Scope 3 Category 4 – Upstream Transportation & Distribution with SAFc in the reporting year in metric tons of CO_2e reported as: Category 4 with emissions reduction from SAFc is calculated as total Category 4 life cycle emissions as disclosed under "The Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard" less the emissions reduction benefit from purchased SAF certificates applied only to air cargo emissions. 2. Scope 3 Category 6 – Business Travel with SAFc in the reporting year in metric tons of CO_2e reported as: Category 6 with emissions reduction from SAFc is calculated as the sum of the total Category 6 emissions as disclosed under "The Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard" and the well-to-tank emissions associated only to air travel, less the emission reduction benefit impact from purchased SAF certificates applied only to air travel emissions. SAF certificates are required to include details about the SAF characteristics, origin and chain-of-custody, and third-party certification. SAF certificates, which are certified by an independent third party prior to delivery to Microsoft, must align with the requirements of an internationally recognized sustainability certification scheme such as the International Sustainability & Carbon Certification scheme or the Roundtable on Sustainable Biomaterials including batch number and fuel/material type. **Microsoft shall disclose:** A description of the methodologies, allocation methods, and assumptions used to calculate Scope 3 Category 4 with SAFc emissions and Scope 3 Category 6 with SAFc emissions and any exclusions.	1B

Area	Specified Information	Criteria	Tables
Energy	**Energy consumption within the organization**	"Disclosure 302-1: Energy consumption within the organization" from GRI 302: Energy 2016	6,7
	Energy intensity	"Disclosure 302-3: Energy intensity" from GRI 302: Energy 2016	8
	1. Renewable electricity **2. Direct renewable electricity**	**Management's criteria:** The Company shall disclose: 1. Percentage of renewable electricity a. Total renewable electricity consumption. Total renewable electricity consumption is the sum of renewable electricity the entity directly produced, renewable electricity purchased via renewable power purchase agreement (PPAs) or green power products, and renewable electricity purchased for which energy attribute certificates (EACs) are paired with grid electricity; but excludes the renewable portion of the electricity grid mix. b. Percentage of renewable electricity. The percentage of renewable electricity shall be calculated as total renewable electricity consumption divided by total electricity consumption. 2. Percentage of direct renewable electricity The percentage of direct renewable electricity shall be calculated as total direct renewable electricity consumption, defined as the sum of renewable electricity the entity directly produced, renewable electricity purchased via renewable PPAs or green power products, and the renewable portion of the electricity grid mix, divided by total electricity consumption. ◦ Total electricity consumption is the same as disclosed in "Disclosure 302-1(c)(i) Electricity consumption" from the GRI Standard: 302 Energy 2016.	6,7

Area	Specified Information	Criteria	Tables
Energy	**2. Direct renewable electricity** (continued)	◦ Renewable electricity is defined as electricity that comes from sources that are replenished at a rate greater than or equal to their rate of depletion, such as geothermal, wind, solar, hydro, and biomass. ◦ Renewable PPAs are renewable electricity Microsoft purchased, if purchased through a renewable PPA that explicitly includes EACs (RECs and GOs). ◦ Green power products are Green-e Energy Certified utility or supplier programs, or other green power products that explicitly include EACs. ◦ For any renewable electricity directly produced and generated onsite, any EACs must be retained (that is, not sold) and retired or cancelled on behalf of Microsoft in order for Microsoft to claim them as renewable energy. ◦ For renewable PPAs and green power products, the agreement must explicitly include and convey that EACs be retained or replaced and retired or cancelled on behalf of Microsoft in order for Microsoft to claim them as renewable electricity. ◦ The renewable portion of the electricity grid mix is the portion that is outside of the control or influence of Microsoft. ◦ The renewable portion of the electricity grid mix used in the calculation is based on publicly available data in regions in which we have determined the region's grid mix has defensible claims which is defined as regions where either (1) EACs are retired by a utility or government entity on behalf of all utility/grid ratepayers, or (2) no EAC or customer-specific claims exist. Microsoft shall report a description of the methodologies and assumptions used to calculate grid mix of renewable electricity.	6.7

Area	Specified Information	Criteria	Tables
Water	**Water withdrawal**	"Disclosure 303-3: Water withdrawal" from GRI 303: Water and Effluents 2018	9
	Water discharge	"Disclosure 303-4: Water discharge" from GRI 303: Water and Effluents 2018	9
	Water consumption	"Disclosure 303-5: Water consumption" from GRI 303: Water and Effluents 2018	9
Waste & Circularity	**Waste generated**	"Disclosure 306-3: Waste generated" from the GRI 306: Waste 2020	10
	Waste diverted from disposal	"Disclosure 306-4: Waste diverted from disposal" from the GRI 306: Waste 2020	10
	Waste directed to disposal	"Disclosure 306-5: Waste directed to disposal" from the GRI 306: Waste 2020	10
	Percentage of product packaging recyclability	**Management's criteria:** The Company shall disclose a percentage of product packaging recyclability for the packaging of products available to be sold during the fiscal year. The percentage of product packaging recyclability is an enterprise-wide average, where each product packaging unit's percent recyclability is weighted equally. Each product type sold by the Company has a product packaging unit percent recyclability. Each product packaging unit's percent recyclability is calculated by dividing a) the sum of the product of each individual component's weight and EOL scores, by b) the maximum EOL score of 5. EOL scores are assigned to each component of a packaging unit based on publicly available information regarding the relative acceptance of materials to recycling based on existing recovery infrastructure data. Scores range from 1 to 5, where 1 means up to 20% recyclability acceptance and 5 is 100% recyclability acceptance. Microsoft shall report a description of data sources and assumptions used to calculate the metric.	11

Area	Specified Information	Criteria	Tables
Waste & Circularity	**Percentage of single-use plastics (SUP) in product packaging**	**Management's criteria:** The Company shall disclose a percentage of SUP in product packaging by weight used in the packaging of products available to be sold during the fiscal year. Each product type sold by the Company has a packaging unit SUP percentage. Each packaging unit's SUP percentage is calculated by dividing its weight of SUP by its total weight. The percentage of SUP in product packaging reported is an enterprise-wide average, where each packaging unit's SUP percentage is weighted equally. SUP is defined as plastic items designed to be used once by the consumer before they are disposed. Microsoft shall report a description of data sources used to calculate the metric.	11

Area	Specified Information	Criteria	Tables
Ecosystems	**Land protection**	**Management's criteria:** The Company shall disclose: a. The total size in acres, as well as by country location of all funded land as of the fiscal year ended. b. The total size in acres, as well as by country location of all protected land as of the fiscal year ended. c. A description of the agreements with the third parties related to funded land. Funded land is defined as land for which the Company has entered into agreements and made monetary contributions to third parties to begin the process of designating the land as protected land (that is, the legal status as protected land is not obtained yet). Protected land is defined as funded land that has become legally designated as being permanently protected by government regulation. Total size in acres is calculated as the sum of Microsoft's total monetary contribution amount for each executed agreement divided by the cost per acre as determined by the third-party organization within each executed agreement. These amounts are net of overhead costs.	12

1.11 Independent accountant's review report

Deloitte & Touche LLP
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Seattle, WA 98104-1126
USA

Deloitte.

To the Board of Directors of Microsoft Corporation

We have reviewed management of Microsoft Corporation's (the "Company") assertion that the specified information included in Section 1 of the 2023 Environmental Data Fact Sheet ("Fact Sheet") as of and for the fiscal year ended June 30, 2023 is presented in accordance with the criteria set forth in Section 1.10, Reporting criteria in the Fact Sheet. The Company's management is responsible for its assertion. Our responsibility is to express a conclusion on management's assertion based on our review.

Our review was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants (AICPA) in AT-C Section 105, Concepts Common to All Attestation Engagements, and AT-C Section 210, Review Engagements. Those standards require that we plan and perform the review to obtain limited assurance about whether any material modifications should be made to management's assertion in order for it to be fairly stated. The procedures performed in a review vary in nature and timing from and are substantially less in extent than, an examination, the objective of which is to obtain reasonable assurance about whether management's assertion is fairly stated, in all material respects, in order to express an opinion. Accordingly, we do not express such an opinion. Because of the limited nature of the engagement, the level of assurance obtained in a review is substantially lower than the assurance that would have been obtained had an examination been performed. We believe that the review evidence obtained is sufficient and appropriate to provide a reasonable basis for our conclusion.

We are required to be independent and to meet our other ethical responsibilities in accordance with relevant ethical requirements in accordance with the AICPA Code of Professional Conduct. We applied the Statements on Quality Control Standards established by the AICPA and, accordingly, maintain a comprehensive system of quality control.

The procedures we performed were based on our professional judgment. In performing our review, we performed analytical procedures, inquiries, and other procedures as we considered necessary in the circumstances. For a selection of the specified information included in the Fact Sheet, we performed tests of mathematical accuracy of computations, compared the specified information to underlying records, or observed the data collection process.

The preparation of the specified information included in the Fact Sheet requires management to establish and interpret the criteria, make determinations as to the relevancy of information to be included, and make estimates and assumptions that affect the reported information. Measurement of certain amounts includes estimates and assumptions that are subject to substantial inherent measurement uncertainty, including for example, the accuracy and precision of conversion factors or estimation methodologies used by management. Obtaining sufficient appropriate review evidence to support our conclusion does not reduce the inherent uncertainty in the specified information included in the Fact Sheet. The selection by management of different but acceptable measurement methods, input data, or assumptions, may have resulted in materially different amounts for the specified information being reported.

Information outside of the specified information included in Section 1 of the 2023 Environmental Data Fact Sheet was not subject to our review and, accordingly, we do not express a conclusion or any form of assurance on such information. Further, any information relating to: i) periods prior to the year-ended June 30, 2023 or ii) information relating to forward looking statements, targets, goals, and progress against goals, was not subject to our review and, accordingly, we do not express a conclusion or any form of assurance on such information.

Based on our review, we are not aware of any material modifications that should be made to management of Microsoft Corporation's assertion that the specified information included in Section 1 of the 2023 Environmental Data Fact Sheet as of and for the fiscal year ended June 30, 2023 is presented in accordance with the criteria set forth in Section 1.10, Reporting criteria in the Fact Sheet, in order for it to be fairly stated.

Deloitte & Touche LLP

May 15, 2024

Section 2: Additional environmental metrics

Table 13 – Other emissions (metric tons)

	FY20	FY21	FY22	FY23
NO_x emissions	202	284	259	**273**
SO_x emissions	12	18	16	**20**
VOC emissions	170	248	221	**232**
PM emissions	8	11	10	**10**
CO emissions	1,584	2,392	2,074	**2,148**
Ozone depleting substances	0	0	0	**0**

Table 14 – Electricity consumption by region (MWh)

	FY20	FY21	FY22	FY23
Total electricity consumed	**10,770,714**	**13,621,517**	**18,153,454**	**23,567,502**
Asia	1,376,247	1,686,032	2,629,500	**3,580,261**
Europe, Middle East, Africa	2,236,689	2,999,880	4,226,715	**5,730,263**
Latin America	114,199	179,197	330,254	**481,758**
North America	7,043,579	8,756,408	10,966,985	**13,775,220**

Table 15 – Renewable electricity consumption by region (MWh)[1,2]

	FY20	FY21	FY22	FY23
Total renewable electricity purchased	10,244,377	12,969,393	18,153,454	**23,567,502**
Asia	1,225,534	1,473,254	2,629,500	**3,580,261**
Europe, Middle East, Africa	2,102,486	2,801,332	4,226,715	**5,730,263**
Latin America	113,456	174,762	330,254	**481,758**
North America	6,802,901	8,520,045	10,966,985	**13,775,220**

Table 16 – Non-renewable energy by region (MWh)

	FY20	FY21	FY22	FY23
Total non-renewable energy purchased and consumed	**1,039,125**	**1,164,594**	**491,417**	**440,366**
Asia	175,589	239,490	29,351	**39,756**
Europe, Middle East, Africa	422,093	522,878	311,751	**205,932**
Latin America	14,651	19,586	13,823	**12,457**
North America	426,792	382,640	136,492	**182,221**

1. Reported values represent Microsoft's total renewable electricity consumption expressed in MWh from onsite, renewable energy credits, power purchase agreements (PPAs), and green power tariff programs. Values reflect Microsoft's renewable electricity at the time of reporting.
2. For a breakdown on renewable electricity by technology type, see our latest CDP Climate Change response.

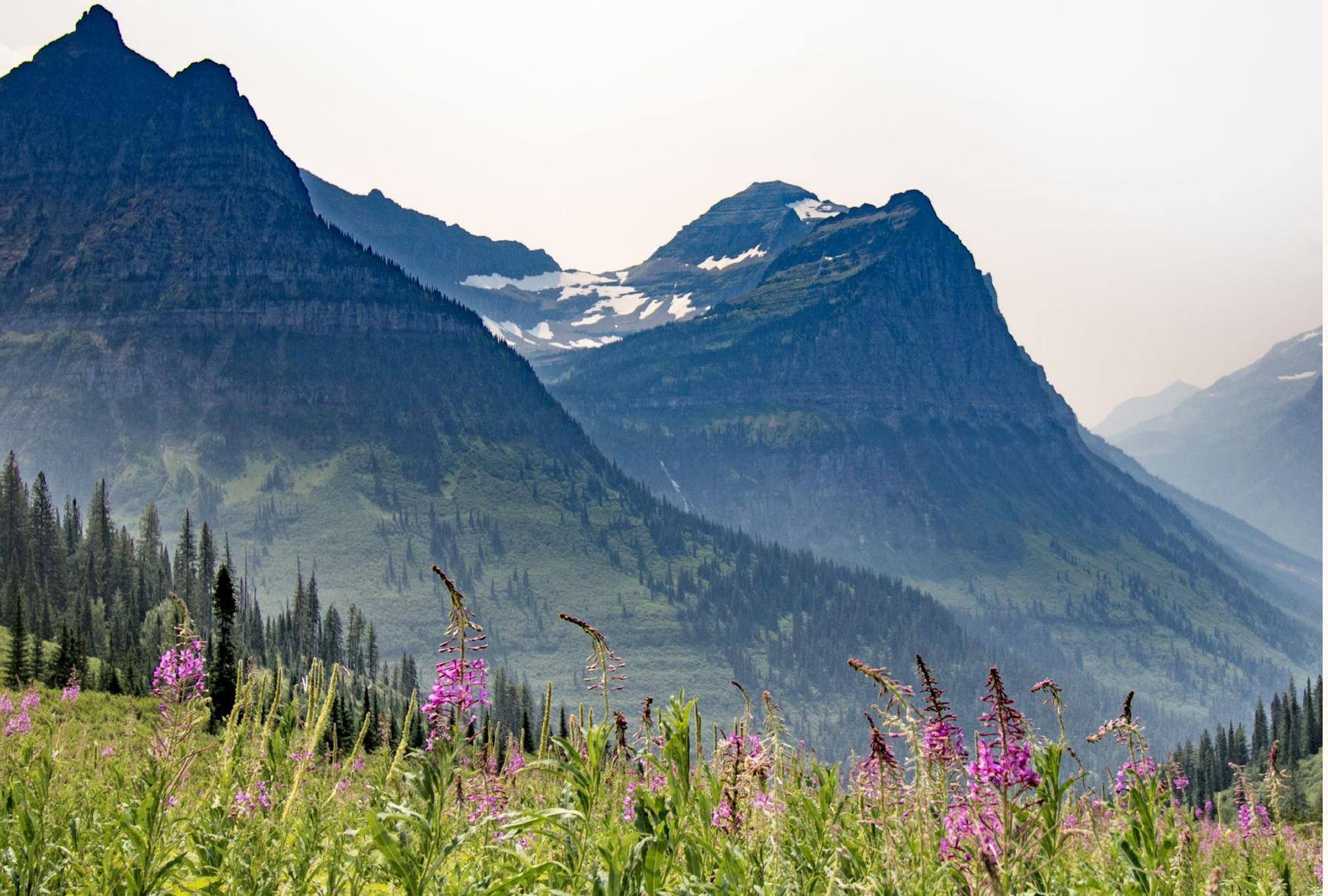
Table 17 – Water withdrawal, consumption, and discharge detail (megaliters)

		FY20	FY21	FY22	FY23
Total water withdrawal		**7,936**	**8,068**	**10,706**	**12,951**
By region	Asia	1,681	2,051	2,858	**3,616**
	Europe, Middle East, Africa	1,514	1,294	2,264	**2,971**
	Latin America	110	183	325	**484**
	North America	4,631	4,540	5,259	**5,880**
Total water consumption		**4,196**	**4,773**	**6,399**	**7,844**
By region	Asia	1,042	1,285	1,872	**2,463**
	Europe, Middle East, Africa	752	697	1,227	**1,700**
	Latin America	74	128	231	**351**
	North America	2,328	2,663	3,069	**3,330**
By source	Third party	4,169	4,764	6,394	**7,841**
	Surface water	25	4	4	**2**
	Ground water	2	5	1	**1**
Total water discharges		**3,740**	**3,295**	**4,307**	**5,107**
By region	Asia	639	766	985	**1,153**
	Europe, Middle East, Africa	762	598	1,037	**1,217**
	Latin America	36	55	94	**133**
	North America	2,303	1,876	2,191	**2,550**

Table 18 – Verification/assurance

FY20	FY21-FY23
Data for this period of time was third-party verified by APEX using a limited level of assurance. Following please find the criteria used to measure the carbon, energy, and water information: **For carbon and energy** World Resources Institute (WRI)/World Business Council for Sustainable Development (WBCSD) Greenhouse Gas Protocol, Corporate Accounting and Reporting Standard, revised edition, including Scope 2 Guidance amendment (Scope 1 & 2); WRI/WBCSD Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (Scope 3). **For water** CDP Water Security Reporting Guidance The scope of the verification included GHG emissions for Scope 1, Scope 2, Scope 3 business air travel, total energy consumption, total electricity consumption, total renewable electricity consumption, total offsets purchased, total water withdrawals, total water consumption, and total water discharges. For FY20, the rest of Scope 3 category emissions identified as relevant were also included. Latest data adjustments highlighted in this report made to historic data were outside of the scope of these previous years' review. Any revisions made to FY20 reported values on this report were outside of the limited assurance review done by APEX.	Microsoft obtains limited third-party assurance for the most recent year (FY23) prior to the issuance of the Environmental Data Fact Sheet. The limited assurance reviews performed by Deloitte & Touche LLP in FY21 and FY22 do not contemplate the revisions to the prior year metrics and therefore Deloitte & Touche LLP provides no assurance related to the revisions consistent with our policies disclosed in Section 1.8

Microsoft



Stay up to date on our progress

Learn more about our sustainability journey and sign up for news and updates here.

Data Fact Sheet
Microsoft Environmental Sustainability Report 2024