Microsoft

2022 Environmental Sustainability Report

Data Fact Sheet

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, 2022 (FY22) and includes their review report. Information relating to i) periods prior to the year-ended June 30, 2022 (FY22), 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. 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. As such, the FY22 data across metrics now incorporates the impact from the ZeniMax acquisition which was previously completed in March 2021. Additional detail on these changes is included as footnotes where applicable.

Read our 2022 Environmental Sustainability Report

Environmental data contents

Section 1: Our environmental data

1.1 Greenhouse Gas (GHG) emissions

Table 1

GHG emissions by scope ($mtCO_2e$)

	FY20	FY21	FY22
Scope 1	118,100	123,704	**139,413**
Scope 2			
Location-based[1, 5]	4,328,916	5,010,667	**6,381,250**
Market-based[1, 5]	456,119	429,405	**288,029**
Subtotal emissions (Scope 1+ 2 market-based)	*574,219*	*553,109*	***427,442***
Scope 3[7]			
Category 1 – Purchased Goods & Services[2]	4,156,000	4,930,000	**6,140,000**
Category 2 – Capital Goods[2]	2,962,000	4,179,000	**4,026,000**
Category 3 – Fuel- and Energy-Related Activities (location-based)[1, 2]	760,000	860,000	**1,191,000**
Category 3 – Fuel- and Energy-Related Activities (market-based)[1, 2]	300,000	350,000	**450,000**
Category 4 – Upstream Transportation[2]	102,000	225,000	**240,000**
Category 5 – Waste[2]	9,500	5,700	**8,000**
Category 6 – Business Travel	329,356	21,901	**139,000**
Category 7 – Employee Commuting[2]	317,000	80,000	**141,000**
Category 9 – Downstream Transportation[2, 3]	65,000	69,000	**69,000**
Category 11 – Use of Sold Products[2]	2,983,000	3,950,000	**5,101,000**
Category 11 – Use of Sold Products (management's criteria)[2, 4]	2,600,000	2,622,000	**1,332,000**
Category 12 – End-of-Life of Sold Products[2]	17,000	19,000	**18,000**
Category 13 – Downstream Leased Assets[2, 5]	11,800	9,600	**8,000**
Subtotal emissions (Scope 3 market-based)[6]	*11,253,000*	*13,839,000*	***16,340,000***
Subtotal emissions (Scope 3 market-based + management's criteria metrics)[6]	*10,870,000*	*12,511,000*	***12,571,000***
Total emissions (Scope 1 + 2 + 3)[6]	11,827,000	14,392,000	**16,767,000**
Total emissions (Scope 1 + 2 + 3, management's criteria)[6]	11,444,000	13,064,000	**12,998,000**

1. Reported emissions for FY20 and FY21 have been recalculated for improved accuracy in accordance with our internal recalculation policy. Within this fact sheet, we were able to disaggregate and identify previously unreported electricity for some of our leased datacenters due to improvements in our ability to capture such data. We have revised FY20 and FY21 Scope 2 and Scope 3 category 3 market and location values to include this additional information. In the 2021 Environmental Sustainability Report for location-based emissions for Scope 2, we reported 4,102,445 metric tons of carbon dioxide equivalents ($mtCO_2e$) (FY20) and 4,745,197 $mtCO_2e$ (FY21); and for Scope 3 Fuel-and-Energy-Related Activities, we reported 770,000 $mtCO_2e$ (FY20) and 810,000 mt CO_2e (FY21). Also in the 2021 Environmental Sustainability Report for market-based emissions for Scope 2, we reported 228,194 $mtCO_2e$ (FY20) and 163,935 $mtCO_2e$ (FY21); and for Scope 3 Fuel-and-Energy-Related Activities, we reported 310,000 $mtCO_2e$ (FY20) and 310,000 $mtCO_2e$ (FY21). This table presents the revised values for FY20 and FY21 for these categories. In FY22, we have included this activity in our results and procured unbundled renewable energy credits (RECs) to mitigate the increased emissions for FY22. Because we only procured RECs in FY22, our year-over-year figures show a 23 percent reduction in Scope 1 and 2 market-based emissions. Without this revision, our Scope 1 and 2 market-based emissions would have remained proportional with business growth.
2. Reported emissions for this category represent an estimate based on assumptions as outlined in Section 1.9 and have therefore been rounded.
3. As the product related emissions methodologies for Microsoft devices continue to be improved, the emissions calculations for this category have been updated to reflect a change in methodology made based on the availability of more refined sales activity data. Previous years have been updated according to our internal recalculation policy to reflect this change.
4. Per the reporting criteria defined in Section 1.10 of this fact sheet, Category 11 – Use of Sold Products (management's criteria) reported gross emissions net of renewable electricity. Gross emissions without the impact of renewable electricity are as follows: 2,207,000 $mtCO_2e$ (FY22), 2,622,000 $mtCO_2e$ (FY21), 2,600,000 $mtCO_2e$ (FY20).
5. Values have been adjusted to reflect an accuracy improvement in reported emissions from spaces that Microsoft leases to third parties.
6. These values include market-based emissions. Values rounded to nearest thousand $mtCO_2e$.
7. Starting in FY22, all reported Scope 3 values are rounded to the nearest thousand $mtCO_2e$.

Environmental Data Fact Sheet 2022 (Continued)

Table 2
GHG emissions by type

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

Table 3
GHG emissions by region ($mtCO_2e$)

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

Table 4

GHG emissions intensity ($mtCO_2e$/revenue $M)

	FY20	FY21	FY22
Revenue ($M)	143,015	168,088	**198,270**
Scope 1	0.8	0.7	**0.7**
Scope 2 (location-based)	30.3	29.8	**32.2**
Scope 2 (market-based)	3.2	2.6	**1.5**
Scope 3 (Business Travel)	2.3	0.1	**0.7**
Scope 3 (market-based)	78.7	82.3	**82.4**
Scope 1 + 2 (location-based)	31.1	30.5	**32.9**
Scope 1 + 2 (market-based)	4.0	3.3	**2.2**
Scope 1 + 2 + 3 (market-based)	82.7	85.6	**84.6**

Table 5

Carbon offsets ($mtCO_2e$)

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

1. Values reflect Microsoft's carbon neutrality at the time of reporting. Per our carbon negative commitment, we will remove remaining historic emissions back to 1975 starting in 2030.
2. This data supports Microsoft's ongoing target to be carbon neutral every year from fiscal year 2013 onward. The boundary for this carbon neutral commitment includes global Scope 1, Scope 2 market-based, and Scope 3 business air travel emissions. As progress is made towards the carbon negative commitment, which includes purchasing removal offsets, the commitment to carbon neutrality will also be maintained.
3. Values reported represent offsets contracted. 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
Total energy consumption[1,2]	11,283,502	14,133,987	**18,644,872**
Non-renewable fuel consumed	449,304	446,417	**473,137**
Natural gas	218,557	249,443	**273,964**
Crude oil/diesel	147,297	143,370	**117,195**
LPG/propane/jet fuel	40,450	4,245	**34,152**
Gasoline	43,000	49,359	**47,826**
Electricity, heating, cooling, and steam	10,834,198	13,687,570	**18,171,735**
Electricity[2]	10,770,714	13,621,517	**18,153,454**
Cooling (chilled water)	51,026	54,953	**7,393**
Hot water/steam	12,458	11,100	**10,888**
Total renewable electricity consumption[3]	10,244,377	12,969,393	**18,153,454**
Renewable energy credits and PPAs	10,244,059	12,969,246	**18,153,218**
On-site renewable energy	318	147	**236**

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 FY22 expressed in gigajoules (GJ): total energy consumption equals 67,121,539 GJ, and total fuel consumed equals 1,703,292 GJ.
2. The reported electricity for FY20 and FY21 has been recalculated for improved accuracy. Within this fact sheet, we were able to disaggregate and identify previously unreported electricity for some of our leased datacenters due to improvements in our ability to capture such data. We have revised FY20 and FY21 electricity consumption values to include this additional information. In the 2021 Environmental Sustainability Report for electricity consumption, we reported 10,244,377 MWh (FY20) and 12,969,393 MWh (FY21). This table presents the revised values for FY20 and FY21 for these categories.
3. Reported values represent Microsoft's total renewable energy consumption expressed in MWh from on-site, 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
Percentage of renewable electricity[1]	100%	100%	**100%**
Percentage of direct renewable electricity			**62%**

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
Electricity consumed within the organization (MWh)[1]	10,770,714	13,621,517	**18,153,454**
Revenue ($M)	143,015	168,088	**198,270**
Electricity consumption normalized by revenue (MWh/$M)	75	81	**92**

1. The reported electricity for FY20 and FY21 has been recalculated for improved accuracy. Within this fact sheet, we were able to disaggregate and identify previously unreported electricity for some of our leased datacenters due to improvements in our ability to capture such data. We have revised FY20 and FY21 electricity consumption values to include this additional information. In the 2021 Environmental Sustainability Report for electricity consumption, we reported 10,244,377 MWh (FY20) and 12,969,393 MWh (FY21); and for electricity consumption normalized by revenue we reported 72 MWh/$M (FY20) and 77 MWh/$M (FY21). This table presents the revised values for FY20 and FY21 for these categories.

1.3 Water

Table 9

Water and effluents (megaliters)[1, 2]

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

1. For FY22, total water withdrawal from areas with water stress was 2,449 megaliters (ML) (23 percent) and was primarily sourced from third-party water; total water discharge to areas with water stress was 1,140 ML (26 percent); and total water consumption from areas with water stress was 1,310 ML (20 percent). Water risk assessment was conducted using WRI's Aqueduct tool for areas in high or extremely high baseline water stress.
2. The reported values for FY20 and FY21 have been recalculated for improved accuracy. Within this fact sheet, we were able to disaggregate and identify previously unreported electricity for some of our leased datacenters due to improvements in our ability to capture such data. We have revised FY20 and FY21 total water withdrawals, total water discharges, and total water consumption values to include this additional information. In the 2021 Environmental Sustainability Report for total water withdrawals, we reported 7,618 ML (FY20) and 7,657 ML (FY21); for total water discharges we reported 3,651 ML (FY20) and 3,179 ML (FY21); and for total water consumption we reported 3,967 ML (FY20) and 4,478 ML (FY21). This table presents the revised values for FY20 and FY21 for these categories.
3. 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.
4. 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 on-site water treatment plants in Microsoft operations, as there is no requirement to conduct on-site 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
Non-hazardous		31,102	20,768	**28,715**
Diverted	Reused	1,136	2,171	**2,931**
	Recycled	8,452	9,589	**10,233**
	Composted	10,104	1,776	**3,106**
	Subtotal	*19,692*	*13,536*	***16,270***
Directed to disposal	Landfilled	10,848	6,957	**12,204**
	Incinerated[2]	562	275	**241**
	Subtotal	*11,410*	*7,232*	***12,445***
Hazardous		9,469	1,750	**881**
Diverted	Recycled	7,581	1,742	**879**
	Reused	1,880	0	**0**
	Subtotal	*9,461*	*1,742*	***879***
Directed to disposal	Other[3]	8	8	**2**
Diverted subtotal		*29,153*	*15,278*	***17,149***
Directed to disposal subtotal		*11,418*	*7,240*	***12,447***
Total waste generated		40,571	22,518	**29,596**

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 off-site.
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. Reported data for FY22 includes GitHub which was previously excluded due to data collection constraints. Previous years were not restated as amounts did not exceed the significance threshold.

Table 11

Product packaging circularity metrics

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

1.5 Ecosystems

Table 12

Land protection

		FY21	FY22
Total acres categorized by the status at the close of the reporting period as either (i) funded or (ii) protected			
Funded	US	4,998	**4,998**
	Belize	12,270	**12,270**
	Subtotal	*17,268*	***17,268***
Protected	US	–	**–**
	Belize	–	**12,270**
	Subtotal	–	***12,270***

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

1.6 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, 2022 (FY22) 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, reported for FY22 has been prepared following Microsoft's fiscal year basis as the reporting period covering the timeframe of July 1, 2021 to June 30, 2022.
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 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 percent 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 base year) to ensure consistency whenever year-over-year structural changes, methodological changes, or other accuracy improvements are significant. Structural changes include acquisitions and divestitures. 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 on-site 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 direct renewable energy, 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
  - Category 5 – Waste
  - Category 6 – Business Travel
  - 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 have not yet been delivered.

Microsoft procures and uses renewable energy from on-site 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, large scale energy certificates (LGC), 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 percent 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 percent renewable electricity commitment, enough renewable electricity from nearby markets is purchased. Finally, Microsoft captures the impact from on-site generation, PPAs, and green power products to support our progress against our commitment to have 100 percent 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 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 percent of operational waste at datacenters and campuses.

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 FY22.

According to Microsoft's structural changes policy previously described in the introduction section, FY22 data across metrics now incorporates impact from the ZeniMax acquisition which was previously completed in March 2021. Operational waste data reported for FY22 includes GitHub which was previously excluded due to data collection constraints. Previous years were not restated due to these adjustments not exceeding the significance threshold. Currently the waste inventory does not include waste from construction and deconstruction activities. 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 Factor Hub. March 2018.
Scope 2 Electricity (US)	Year 2020 eGRID Subregion Emission Factors: eGRID 2020, January 2022.
Scope 2 Electricity (international unless otherwise sourced)	IEA (2021), Emission Factors
Scope 2 Electricity (Australia)	Year 2020 factors from "Table 46: Scope 2 and 3 emissions factors - consumption of purchased electricity by end users", emission factors for Scope 2. National Greenhouse Gas Accounts (NGA) Factors, August, 2021.
Scope 2 Electricity (Brazil)	Year 2021 factors from the Brazilian Ministry of Science, Technology, Innovation and Communication: Fator médio - Inventários corporativos.
Scope 2 Electricity (Canada)	National inventory report 1990-2020. Annex 13. Year 2020 factors. From 2022 release.
Scope 2 Electricity (India)	CO_2: Baseline Carbon Dioxide Emission Database, Version 16.0. India Central Electricity Authority. March 2021. CH_4/N_2O: "CO_2 Emissions from Fuel Combustion (2021 Edition)." IEA. Paris.
Scope 2 Electricity (UK)	2022 Government GHG Conversion Factors for Company Reporting: Methodology Paper for Emission Factors. Year 2020 factors from June 2022 release.

Emission factors presented in the preceding table 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.

Environmental Data Fact Sheet 2022 (Continued)

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	Supplier data percentage
Purchased Goods and Services	This category includes emissions from upstream purchasing of goods and services, including direct and indirect goods. Microsoft uses its suppliers' CDP Supply Chain 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 2022 submissions (that is, 2021 data). Microsoft estimates emissions from CDP Supply Chain respondents by multiplying the CDP 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 CDP Supply Chain-based responses and Defra data sources.	70
Capital Goods	This category includes emissions from upstream purchasing of capital goods, including server equipment and other long-term assets. Microsoft uses its suppliers' CDP Supply Chain responses to determine Scope 1, Scope 2, upstream Scope 3 emission factors (tCO_2e/$ revenue). The latest available responses are used, so this report's inventory considers 2022 submissions (that is, 2021 data). Microsoft estimates emissions from CDP Supply Chain respondents by multiplying the CDP-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 CDP Supply Chain-based responses and Defra data sources.	37
Fuel- and Energy-Related Activities (not included in Scope 1 or 2)	Since 2019, Microsoft has been reporting this category using both location and market-based approaches, using the latter 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 lifecycle 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 lifecycle analysis tools. And third, transmission and distribution (T&D) losses (by energy use type) were multiplied by loss percentages from the EPA's eGRID2019 database for the United States and emission factors from IEA (2021) emission factors for other countries. GWPs are from the IPCC Fourth Assessment Report (AR4), 100-year average.	98
Upstream Transportation and Distribution	This category includes emissions from upstream transportation of goods, including all transportation of goods that Microsoft finances. Microsoft uses its suppliers' CDP Supply Chain responses to determine Scope 1, Scope 2, upstream Scope 3 emission factors ($mtCO_2e$/$ revenue). The latest available responses are used, so this report's inventory considers 2022 submissions (that is, 2021 data). Microsoft estimates emissions from CDP Supply Chain respondents by multiplying the CDP-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 CDP Supply Chain-based responses and Defra data sources.	79
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 lifecycle 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.	48

Environmental Data Fact Sheet 2022 (Continued)

Scope 3 category	Emissions calculation methodology	Supplier data percentage
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 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.	93
Employee Commuting	This category captures emissions from commuting by all employees and contractors that work in Microsoft buildings. Microsoft conducted a survey in May 2022 to capture detailed commuting habits from employees and vendors at our Puget Sound campus, representing about 36 percent 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 travelled. 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.	20
Upstream Leased Assets	Not relevant. Microsoft includes leased assets in our Scope 1 and Scope 2 emissions reporting boundary.	

Environmental Data Fact Sheet 2022 (Continued)

Scope 3 category	Emissions calculation methodology	Supplier data percentage
Downstream Transportation and Distribution	Included in this category are the emissions from transporting and warehousing of devices Microsoft sold (including Xbox devices, Microsoft 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 lifecycle 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
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, 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, 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. End-of-life emissions for each product are based on modeling within our ISO 14040– and ISO 14044–compliant lifecycle analyses. 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 according to average collection and disposition rates for electronic devices worldwide. 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.	62
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 percent 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.	

Environmental Data Fact Sheet 2022 (Continued)

Energy

As part of our carbon negative commitment, Microsoft set a target to procure enough direct renewable electricity to cover 100 percent 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 percent 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 target, Microsoft plans to achieve 100 percent 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 percent 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.

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.

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 percent recyclable in OECD (Organization for Economic Cooperation and Development) countries by 2030; and contain zero percent 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 percent recyclable (not generally accepted) and a score of 5 is 100 percent 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 GRI content index information cited in this table for the period ended June 31, 2022, with reference to the GRI Standards. The GRI 1 used is 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").	1,2,3,4,5
	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.	1
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	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 renewable energy certificates (RECs) 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.	7

Environmental Data Fact Sheet 2022 (Continued)

Area	Specified Information	Criteria	Tables
Energy (continued)	2. Direct renewable electricity	2. Percentage of direct renewable electricity a) 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. • 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 on-site, 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 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. Microsoft shall report a description of the methodologies and assumptions used to calculate grid mix of renewable electricity.	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 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 percent recyclability acceptance and 5 is 100 percent recyclability acceptance. Microsoft shall report a description of data sources and assumptions used to calculate the metric.	11

Environmental Data Fact Sheet 2022 (Continued)

Area	Specified Information	Criteria	Tables
Waste & Circularity (continued)	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
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

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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 2022 Environmental Data Fact Sheet ("fact sheet") as of and for the fiscal year ended June 30, 2022 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 the Code of Professional Conduct issued by the AICPA. 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 and inquiries. 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 resulting, for example, from 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 or specified information being reported.

Information outside of the specified information included in Section 1 of the 2022 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, 2022 and ii) information relating to forward looking statements, 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 2022 Environmental Data Fact Sheet as of and for the fiscal year ended June 30, 2022 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 10, 2023

Section 2: Additional environmental metrics

Table 13

Other emissions (metric tons)

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

Table 14

Electricity consumption by region (MWh)

	FY20	FY21	FY22
Total electricity consumed[1]	10,770,714	13,621,517	**18,153,454**
Asia	1,376,247	1,686,032	**2,629,500**
Europe, Middle East, Africa	2,236,689	2,999,880	**4,226,715**
Latin America	114,199	179,197	**330,254**
North America	7,043,579	8,756,408	**10,966,985**

1. The reported electricity for FY20 and FY21 has been recalculated for improved accuracy. Within this fact sheet, we were able to disaggregate and identify previously unreported electricity for some of our leased datacenters due to improvements in our ability to capture such data. We have revised FY20 and FY21 electricity consumption values to include this additional information. In the 2021 Environmental Sustainability Report for electricity consumption, we reported 10,244,377 MWh (FY20) and 12,969,393 MWh (FY21). This table presents the revised values for FY20 and FY21 for these categories.

Table 15

Renewable electricity consumption by region and technology type (MWh)[1]

	FY20	FY21	FY22
Total renewable energy purchased	10,244,377	12,969,393	**18,153,454**
By region			
Asia	1,225,534	1,473,254	**2,629,500**
Europe, Middle East, Africa	2,102,486	2,801,332	**4,226,715**
Latin America	113,456	174,762	**330,254**
North America	6,802,901	8,520,045	**10,966,985**
By technology type			
Wind	8,588,040	10,761,620	**8,159,482**
Biomass	–	22	**–**
Hydro	440,834	289,996	**319,320**
Geothermal	409,511	1,069	**8,894**
Solar	805,992	1,916,686	**9,665,758**

1. Reported values represent Microsoft's total renewable energy consumption expressed in MWh from on-site, renewable energy credits, power purchase agreements (PPAs), and green power tariff programs. Values reflect Microsoft's renewable electricity at the time of reporting.

Table 16

Non-renewable energy by region (MWh)

	FY20	FY21	FY22
Total non-renewable energy purchased & consumed	1,039,125	1,164,594	**491,417**
Asia	175,589	239,490	**29,351**
Europe, Middle East, Africa	422,093	522,878	**311,751**
Latin America	14,651	19,586	**13,823**
North America	426,792	382,640	**136,492**

Table 17

Water withdrawal, consumption, and discharge detail (megaliters)[1]

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

1. The reported values for FY20 and FY21 have been recalculated for improved accuracy. Within this fact sheet, we were able to disaggregate and identify previously unreported electricity for some of our leased datacenters due to improvements in our ability to capture such data. We have revised FY20 and FY21 total water withdrawals, total water discharges, and total water consumption values to include this additional information. In the 2021 Environmental Sustainability Report for total water withdrawals, we reported 7,618 megaliters (FY20) and 7,657 megaliters (FY21); for total water discharges we reported 3,651 megaliters (FY20) and 3,179 megaliters (FY21); and for total water consumption we reported 3,967 megaliters (FY20) and 4,478 megaliters (FY21). This table presents the revised values for FY20 and FY21 for these categories.

Table 18

Verification/assurance

FY20	FY21-FY22
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 FY19 and 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 restatements 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 (FY22) prior to the issuance of the Environmental Data Fact Sheet. The limited assurance reviews performed by APEX in FY20 and Deloitte & Touche LLP in FY21 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.

This fact sheet is for informational purposes only and includes estimates, projections, and other "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933, and Section 21E of the Securities Exchange Act of 1934. These forward-looking statements generally are identified by the words "believe," "project," "expect," "anticipate," "estimate," "intend," "strategy," "future," "opportunity," "plan," "may," "should," "will," "would," "will be," "will continue," "will likely result," and similar expressions. Forward-looking statements are based on current expectations and assumptions that are subject to risks and uncertainties that may cause actual results to differ materially. Microsoft describes risks and uncertainties that could cause actual results and events to differ materially in our reports filed with the Securities and Exchange Commission. We undertake no obligation to update or revise publicly any forward-looking statements, whether because of new information, future events, or otherwise.


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