

2018 Data Factsheet: Environmental Indicators

As part of Microsoft's commitment to disclose information about our environmental footprint, below is a compilation of environmental indicators including our greenhouse gas emissions, energy consumption, water consumption and discharge, and waste.

Greenhouse Gas Emissions (mtCO₂e)

	FY18	FY17	FY16
Scope 1 ¹	90,723	97,639	94,651
Scope 2 - Location-Based	3,000,523	2,691,879	2,139,343
Scope 2 - Market-Based ¹	183,329	139,108	115,955
Scope 3 - Purchased Goods & Services / Capital Goods ²	11,000,000	13,000,000	9,000,000
Scope 3 - Fuel- and Energy-Related Activities	550,000	540,000	440,000
Scope 3 - Upstream Transportation ²	100,000	100,000	100,000
Scope 3 - Waste ²	700	700	800
Scope 3 - Business Travel ¹	378,230	337,122	327,483
Scope 3 - Employee Commuting ²	330,000	330,000	280,000
Scope 3 - Downstream Transportation ²	100,000	80,000	120,000
Scope 3 - Use of Sold Products ³	4,784,000	4,274,000	6,467,000
Scope 3 - End of Life of Sold Products	95,000	106,000	174,000
Scope 3 - Downstream Leased Assets	1,690	700	4,000
Total - Scope 1, Scope 2, and Scope 3 ⁴	17,614,000	19,005,000	17,124,000

¹ Included in Carbon Neutral boundary.

² The reported emissions for this category represent an estimate based on broad-based assumptions and have therefore been rounded. This category may be under- or over-reported by as much as 25 percent.

³ This calculations for this category have undergone a methodology change. We have adjusted all reported years for consistency.

⁴ Scope 2 Market-Based emissions included in this total. Total rounded to nearest thousand mtCO₂e.

Greenhouse Gas Emissions Normalized by Revenue (mtCO₂e/M\$)

	FY18	FY17	FY16
Scope 1	0.8	1.0	1.0
Scope 2 - Location-Based	27.2	27.9	23.5
Scope 2 - Market-Based	1.7	1.4	1.3
Scope 3 - Business Travel	3.4	3.5	3.6

Energy Use (MWh)

	FY18	FY17	FY16
Total Energy Use	7,955,318	6,718,944	5,414,197
Electricity	7,564,271	6,344,479	5,048,891
Other Fuels ⁵	391,047	374,465	365,306
Renewable Energy Usage ⁶	7,564,271	6,104,758	4,852,643
Renewable Energy Credits	5,767,570	5,119,876	4,055,299
Power Purchase Agreements	1,796,301	984,464	796,802
On-Site Renewable Energy	400	418	542
Percentage of Renewable Electricity ⁶	100%	96%	100%

⁵ Other fuels include natural gas, diesel, jet fuel, district heating, and chilled water.

⁶ Represents the value prior to historic benchmarking due to acquisitions and methodology changes.

Carbon Neutrality (mtCO₂e)

	FY18	FY17	FY16
GHG Emissions within Carbon Neutral Boundary ^{7,8}	652,282	573,871	431,251
Offsets Purchased	652,282	573,871	431,251
Net GHG Emissions within Carbon Neutral Boundary	0	0	0
Percent of Total GHG Emissions Balanced by Carbon Offsets ⁷	100%	100%	100%

⁷ Represents the value prior to historic benchmarking due to acquisitions and methodology changes.

⁸ Carbon Neutral Boundary includes global Scope 1, Scope 2 Market-Based, and Scope 3 business air travel.

Water Metrics (m³)⁹

	FY18	FY17	FY16
Water Withdrawals	7,202,446	5,129,715	4,757,387
Water Consumption	3,614,312	1,929,342	-
Water Discharge	3,588,134	3,200,373	4,757,387

⁹ In FY18 we adjusted our water data collection methodology to include more accurate data center withdrawal estimates. FY17 withdrawal estimates were not retroactively adjusted. 50% of the change from FY17 to FY18 is from the methodology adjustment, and the other 50% is from organizational growth. We also began estimating water consumption in FY18, backfilling FY17 using the same estimation methodology.

Waste Generation (metric tons)¹⁰

	FY18	FY17	FY16
Landfilled	1,602	2,047	2,243
Recycled	11,236	17,398	22,378
Incinerated	342	690	931
Composted	5,886	5,924	5,691
Hazardous Waste (included in the categories above)	1,405	2,188	1,923
Recycled Hazardous Waste (included in the categories above)	1,376	2,122	1,841

¹⁰ Data captured from our largest office campuses.

Through CDP (formerly the Carbon Disclosure Project) we have voluntarily reported our carbon footprint since 2004 and our water footprint since 2012. Please see our CDP submission for more detailed information. The greenhouse gas, energy, and water data in our CDP filings and this report represent 100 percent of Microsoft's global operations and revenue. The data in this factsheet includes the integration of LinkedIn following our acquisition of this group in 2016. To allow meaningful year-over-year comparisons, we have adjusted our data for previous years to reflect this integration.

This factsheet also reports both location- and market-based Scope 2 emissions, per the World Resources Institute Greenhouse Gas Protocol Scope 2 guidance. Location-based emissions represent the physical emissions from local energy production, while market-based emissions represent emissions from choices related to electricity supply and products. For Microsoft, market-based emissions take into account more than 7.5 billion kilowatt-hours (kWh) of renewable energy attributes that we purchased as part of our 100 percent renewable energy commitment.

2018 Data Factsheet: Additional Environmental Indicators

Greenhouse Gas Emissions (mtCO₂e)

	FY18	FY17	FY16
Scope 1 - CO ₂	73,151	73,113	75,794
Scope 1 - CH ₄	26	27	27
CH ₄ Emissions - Asia	2	3	3
CH ₄ Emissions - Europe, Middle East, Africa	9	9	10
CH ₄ Emissions - Latin America	3	3	3
CH ₄ Emissions - US	12	12	11
Scope 1 - N ₂ O	199	186	192
Scope 1 - HFCs	17,315	24,314	18,638
Scope 1 - PFC	-	-	-
Scope 1 - SF ₆ ¹¹	32	-	-
Scope 1 - Asia	4,885	8,454	8,264
Scope 1 - Europe, Middle East, Africa	41,842	43,196	44,206
Scope 1 - Latin America	3,553	3,632	3,726
Scope 1 - North America	40,443	42,356	38,454
Scope 2 - Location-Based - Asia	528,277	439,033	384,432
Scope 2 - Location-Based - Europe, Middle East, Africa	518,921	399,061	356,987
Scope 2 - Location-Based - Latin America	23,517	21,012	18,952
Scope 2 - Location-Based - North America	1,929,807	1,832,773	1,378,971
Scope 2, Market-based - ASIA	174,533	121,930	28,849
Scope 2, Market-based - EMEA	7,301	14,460	17,682
Scope 2, Market-based - LATAM	751	2,096	1,037
Scope 2, Market-based - NORAM	744	623	68,387
CO ₂ Intensity - Scope 1 + Scope 2, Location (mtCO ₂ e/MWh)	0.39	0.42	0.41

¹¹ In FY18 we began estimating SF₆ leakage at data centers.

Carbon Offsets

	FY18	FY17	FY16
Percent of Total Scope 3 GHG Emissions Balanced by Carbon Offsets	2%	2%	2%
Potential for Carbon Trade Based on Recent Performance	No	No	No

Other Emissions (metric tons)

	FY18	FY17	FY16
NO _x Emissions	29	27	26
NO _x Emissions - Asia	1	3	2
NO _x Emissions - Europe, Middle East, Africa	3	3	3
NO _x Emissions - Latin America	1	1	1
NO _x Emissions - North America	24	20	20
SO _x Emissions	2	3	2
SO _x Emissions - Asia	1	1	1
SO _x Emissions - Europe, Middle East, Africa	0	0	0
SO _x Emissions - Latin America	0	0	0
SO _x Emissions - North America	1	1	1
VOC Emissions	11	9	10
VOC Emissions - Asia	0	0	0
VOC Emissions - Europe, Middle East, Africa	0	0	0
VOC Emissions - Latin America	0	0	0
VOC Emissions - North America	10	8	10
PM Emissions	2	2	2
CO Emissions	38	35	35
Ozone Depleting Substances	1,116	1,330	996

Other Emissions Normalized by Revenue (metric tons/M\$)

	FY18	FY17	FY16
NO _x Emissions	0.0003	0.0003	0.0003
SO _x Emissions	0.00002	0.00003	0.00002
CH ₄ Emissions	0.0002	0.0003	0.0003

Electricity Consumption (MWh)

	FY18	FY17	FY16
Total Electricity Consumed	7,564,271	6,344,479	5,048,891
Electricity Consumed - Asia	804,024	682,710	585,799
Electricity Consumed - Europe, Middle East, Africa	1,265,584	970,755	859,029
Electricity Consumed - Latin America	107,089	91,029	63,025
Electricity Consumed - North America	5,387,574	4,599,985	3,541,038
Non-Renewable Electricity Purchased & Consumed - Asia	-	204,937	50,821
Non-Renewable Electricity Purchased & Consumed - Europe, Middle East, Africa	-	17,391	21,256
Non-Renewable Electricity Purchased & Consumed - Latin America	-	3,681	1,443
Non-Renewable Electricity Purchased & Consumed - North America	-	-	154,212
Non-Renewable Electricity by Source - Coal	-	42,757	61,403
Non-Renewable Electricity by Source - Petroleum	-	34,073	10,316
Non-Renewable Electricity by Source - Natural Gas	-	148,692	101,886
Non-Renewable Electricity by Source - Nuclear	-	487	54,127
Electricity Consumption Normalized by Revenue (MWh/M\$)	69	66	55

Renewable Energy Consumption (MWh)

	FY18	FY17	FY16
Renewable Energy Purchased & Consumed - Asia	804,024	466,243	538,714
Renewable Energy Purchased & Consumed - Europe, Middle East, Africa	1,265,584	941,343	841,725
Renewable Energy Purchased & Consumed - Latin America	107,089	85,935	60,417
Renewable Energy Purchased & Consumed - North America	5,387,574	4,611,239	3,411,786
Renewable Energy Purchased & Consumed - Wind	7,126,236	6,004,378	4,066,230
Renewable Energy Purchased & Consumed - Landfill Gas	-	-	-
Renewable Energy Purchased & Consumed - Biomass	47,129	61,029	121,000
Renewable Energy Purchased & Consumed - Hydro	186,434	33,174	408,734
Renewable Energy Purchased & Consumed - Geothermal	72,000	-	150,000
Renewable Energy Purchased & Consumed - Solar	132,472	6,177	106,679

Other Energy Consumption (MWh)¹²

	FY18	FY17	FY16
Total Non-Renewable Energy Purchased & Consumed	391,047	374,465	365,306
Non-Renewable Energy Purchased & Consumed - Asia	14,079	29,107	30,970
Non-Renewable Energy Purchased & Consumed - Europe, Middle East, Africa	180,811	182,086	189,362
Non-Renewable Energy Purchased & Consumed - Latin America	12,579	13,202	13,717
Non-Renewable Energy Purchased & Consumed - NorAm	183,577	150,069	131,256
Non-Renewable Energy Purchased & Consumed - Coal	-	-	-
Non-Renewable Energy Purchased & Consumed - Natural Gas	110,863	107,687	111,283
Non-Renewable Energy Purchased & Consumed - Crude Oil/Diesel	131,149	139,027	139,631
Non-Renewable Energy Purchased & Consumed - LPG/Propane/Jet Fuel	50,378	43,402	47,853
Non-Renewable Energy Purchased & Consumed - Gasoline	33,669	34,679	37,638
Non-Renewable Energy Purchased & Consumed - Chilled Water	52,775	30,121	8,659
Non-Renewable Energy Purchased & Consumed - Hot Water/Steam	12,213	19,549	20,242
Scope 3 - Category 3 (Transmission and Distribution Losses)	620,000	510,000	410,000
Scope 3 - Category 13 (Downstream Leased Assets)	-	-	-

¹² Non-electricity

Water (m³)¹³

	FY18	FY17	FY16
Total Water Withdrawals	7,202,446	5,129,715	4,757,387
Water Withdrawals - Municipal Supply	6,839,293	4,977,049	4,698,116
Water Withdrawals - Surface Water	-	-	-
Water Withdrawals - Ground Water	29,140	16,517	45,663
Water Withdrawals - Salt/Brackish water	-	-	-
Water Withdrawals - Rain water	39,424	26,496	937
Water Withdrawals - Process Water	294,589	109,653	12,672
Water Withdrawals - Asia	1,180,130	908,540	1,021,132
Water Withdrawals - Europe, Middle East, Africa	850,909	710,744	760,582
Water Withdrawals - Latin America	114,575	93,291	115,667
Water Withdrawals - North America	5,056,832	3,417,140	2,860,006
Total Water Consumption	3,614,312	1,929,342	-
Water Consumption - Municipal supply	3,439,010	1,813,899	-
Water Consumption - Surface Water	-	-	-
Water Consumption - Ground Water	4,020	2,927	-
Water Consumption - Salt/Brackish water	-	-	-
Water Consumption - Rain Water	7,389	2,864	-
Water Consumption - Process Water	163,893	109,653	-
Water Consumption - ASIA	594,846	399,080	-
Water Consumption - EMEA	383,178	189,636	-
Water Consumption - LATAM	66,374	26,577	-
Water Consumption - NorAm	2,569,914	1,314,048	-
Total Water Discharges - Municipal Treatment	3,588,134	3,200,373	4,757,387
Water Discharges - Asia	585,283	509,460	1,021,132
Water Discharges - Europe, Middle East, Africa	467,731	521,107	760,582
Water Discharges - Latin America	48,201	66,714	115,667
Water Discharges - North America	2,486,918	2,103,092	2,860,006

¹³ For more information on our water data, please see our CDP Water response at www.cdp.net.

Verification

	FY18	FY17	FY16
Scope 1 GHG Emissions	Yes	Yes	Yes
Scope 2 - Location-Based GHG Emissions	Yes	Yes	Yes
Scope 2 - Market-Based GHG Emissions	Yes	Yes	Yes
Scope 3 - Business Air Travel Emissions	Yes	Yes	Yes
Total Energy Consumed	Yes	Yes	Yes
Total Electricity Consumed	Yes	Yes	Yes
Total Renewable Electricity Consumed	Yes	Yes	Yes
Total Offsets Purchased	Yes	Yes	Yes
Total Water Withdrawals	Yes	Yes	Yes