IBM.

Environment   Energy and climate

GHG emissions inventory

IBM calculates its greenhouse gas (GHG) emissions according to The Greenhouse Gas Protocol Corporate Accounting and Reporting Standard and follows procedures aligned with the ISO 14064-1 standard. Please see our independent limited assurance verification statement.

With few exceptions, IBM does not estimate Scope 3 GHG emissions associated with our value chain because the necessary gross assumptions associated with such estimates simply do not enable credible, factual results. For more information, please see our Position on Scope 3 GHG emissions.

IBM's greenhouse gas emissions inventory, in metric tons of CO$_2$-equivalents	2017	2018	2019	2020	2021[1]
Scope 1 emissions	124,901	124,633	117,723	90,906	91,955
Use of fossil fuels for operations	84,061	82,314	80,159	73,941	69,634
Use of fossil fuels for transportation	27,746	29,146	25,579	7,896	8,199
Use of chemicals with a global warming potential	13,094	13,173	11,985	9,069	14,122
Scope 2 emissions (market-based)	1,076,882	963,304	827,639	530,365	411,211
Use of electricity in IBM managed locations	1,037,852	927,877	792,987	501,654	384,593
Use of purchased energy commodities	39,030	35,427	34,382	28,711	26,618
Scope 2 emissions (location-based)	1,371,616	1,133,030	987,066	828,794	668,612
Scope 3 emissions					
Purchased goods and services	257,042	329,409	315,095	275,882	194,800
Use of sold products[2]	380,000	397,000	287,000	291,000	272,000
Upstream leased assets[2]	40,000	39,000	40,000	13,000	13,000
Business travel[2]	459,000	458,000	393,000	85,000	37,000
Employee commuting[2]	127,000	123,000	119,000	42,000	15,000

Notes:

[1] Our reported emissions for calendar year 2021 include ten months of operation of IBM's managed infrastructure services business, which was spun off into a new company, Kyndryl, on November 3, 2021.

[2] Figures have been rounded to the nearest thousand.

Description of Scope 3 GHG emissions

Purchased goods and services

These are the emissions associated with IBM's use of electricity in data centers located in facilities managed by third parties where IBM does not procure the electricity (also referred to as co-location data centers).

Use of sold products

These are the emissions associated with the electricity consumption of our sold products when they are used by our clients. In estimating emissions from the use of our sold products, we only capture products sold during the reporting year and account for 12 months of estimated consumption. We use product specifications such as nameplate power, quantity of products sold every year, we make assumptions around typical client hardware utilization rates, and use industry average Power Usage Effectiveness and global electricity GHG emission factors to estimate these emissions. We do not extrapolate this data to estimate emissions around a hypothetical lifetime of our products because that would require gross assumptions based on lifetime and specific client applications.

Upstream leased assets

In some countries, IBM provides leased vehicles for employees that they may use for personal purposes. For these vehicles, we have set standard guidelines that require leasing of vehicles with lower emissions profiles. These guidelines enable reductions in average car emission levels as the car fleets are renewed.

Business travel

These emissions are associated to business air travel on commercial carriers and car rentals. Business travel is a necessary and important part of ensuring that IBM understands our clients' needs and delivers the best client experience possible. We have worked with rental car companies to require that they offer more fuel-efficient vehicles to our employees while traveling for business. IBMers can reduce the need for travel by taking advantage of strategic collaboration and meeting tools that allow them to easily engage with clients and their colleagues to have productive meetings, without the need for travel.

Employee commuting

Our reported figure for employee commuting emissions only includes estimations made for our U.S. employees since this is the population for which we can make credible assumptions around their commuting behavior and we have access to reliable third-party data to estimate emissions. IBM has been active for decades in promoting programs that reduce employees' work-related commutes and associated GHG emissions. For example, many locations promote biking to work by having bicycle lockers, racks and showers available on-site. At several larger locations, IBM sponsors shuttle services to transport employees to mass transit stations and also between IBM campuses and buildings Also, many IBM locations are within reach of the public transportation system, giving employees the choice to use more energy-efficient mass transit to commute to work. Globally, many of our locations partner with local public transit authorities to develop ride-sharing programs and negotiate subsidized transit passes for IBM employees. IBM is a member of the Best Workplaces for Commuters (BWC) program. Currently, seven of IBM's largest campuses in the United States are registered as BWC sites. Our BWC-registered locations actively work with their local transit commissions and offer other commuter benefits on-site to integrate IBM's programs with regional programs, increasing commuting options for our employees.