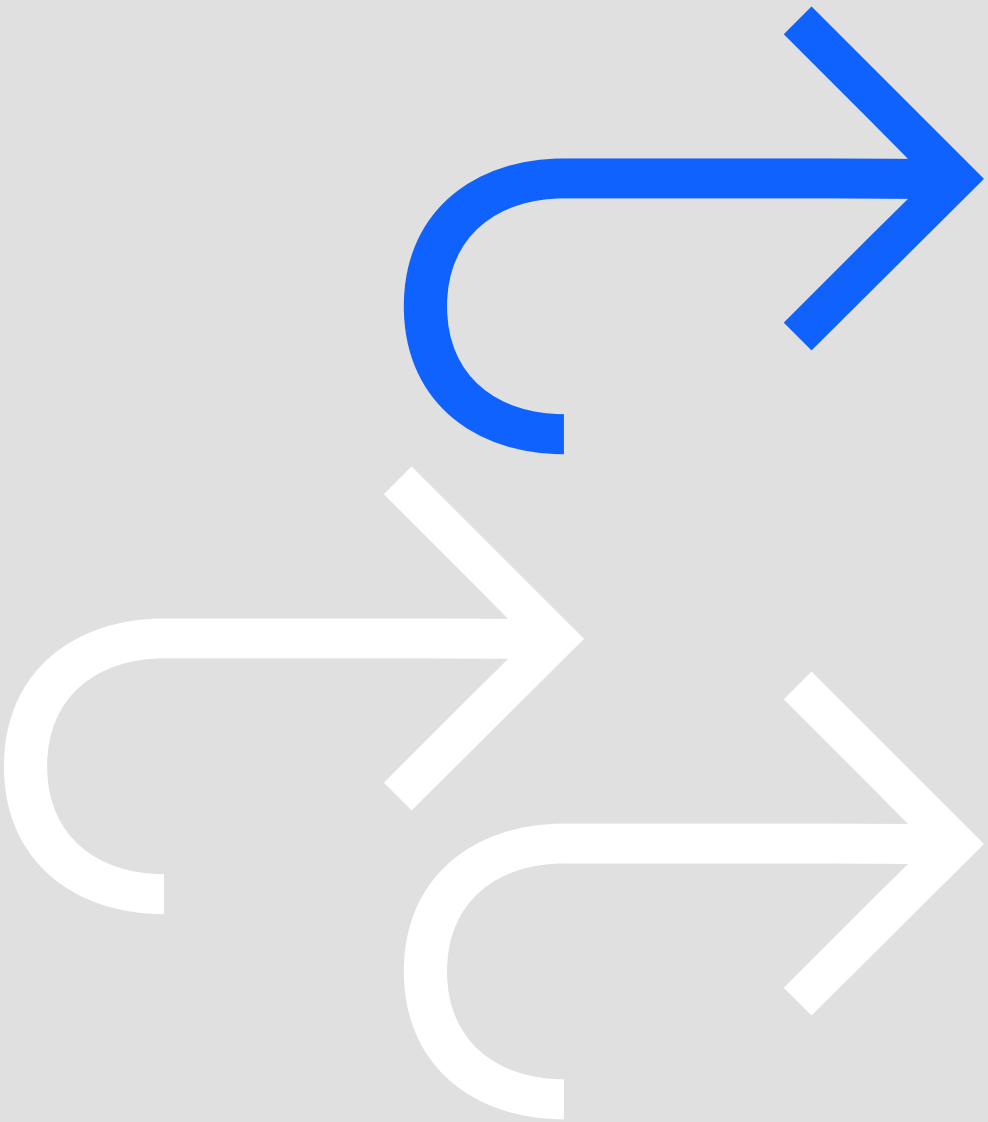
2021 ESG Report Addendum: Energy and Climate Change



IBM

Energy and climate change: Consumption, renewable electricity, and greenhouse gas emissions

This addendum to IBM's 2021 ESG Report provides information on IBM's global energy consumption and performance against our goals for renewable electricity procurement and greenhouse gas (GHG) emissions reduction, during calendar year 2021. As stated in our report, IBM is now publishing this information upon completion of an external limited assurance audit of our 2021 GHG emissions inventory and the underlying data and calculation processes. For additional information about IBM's work regarding energy conservation and the energy efficiency of products and data centers, see our report's Energy and Climate Change section (pages 40-43).

IBM's global energy consumption, renewable electricity procurement, and GHG emissions reduction goals and reporting cover all activities taking place in locations owned or leased by IBM, inclusive of Red Hat. These locations include IBM data centers located in facilities managed by third parties where IBM does not procure the energy or control the operations of the buildings — also known as co-location data centers. All 2021 metrics discussed in this addendum include 10 months of operations of IBM's managed infrastructure services business, which was spun off into a new company, Kyndryl, on November 3, 2021. The following table updates the one on page 42 of IBM's 2021 ESG Report:

	2017	2018	2019	2020	2021
Energy and climate change					
Total energy consumption in megawatt-hours	4,845,695	4,666,514	4,455,805	4,118,636	3,804,164
Renewable electricity procurement as % of total electricity consumption (goal 75% by 2025, and 90% by 2030)[1]	39.0	37.9	47.5	59.3	64.2
GHG emissions reduction as % of 2010 base year (goal 65% by 2025)[2]	25.1	27.2	35.3	53.9	61.6[3]
Total GHG emissions covered by our goal in metric tons of CO_2-equivalent	1,458,825	1,417,346	1,260,187	897,153	697,966

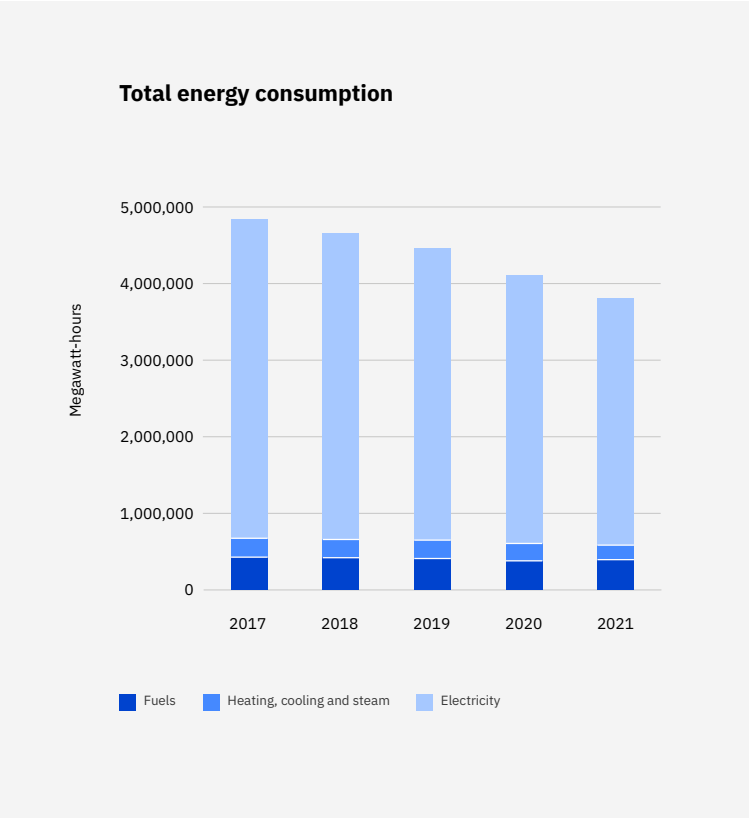
[1] Renewable electricity procurement includes contracted purchases and renewable electricity that automatically comes to IBM via routine grid power.
[2] GHG emissions reduction data is adjusted for acquisitions and divestitures. During 2021, IBM increased its GHG emissions reduction goal and changed its base year from 2005 to 2010 to better align our reporting with the work of the UN Intergovernmental Panel on Climate Change (IPCC). While our 2021 ESG Report provided emissions results from 2020 (and before) compared to base year 2005, the results for 2017 through 2021 in this table are compared to the updated base year of 2010.
[3] For our reporting of 2021 GHG emissions reduction results, we adjusted our 2010 base year emissions so that it only reflects 10 months of operations for our former managed infrastructure services business. In this way, we do not take credit for reductions due to that business's separation from IBM.

Energy consumption and conservation

The most effective way to reduce IBM's GHG emissions is to make our operations more efficient, thereby reducing our actual consumption of energy, which is IBM's most significant source of GHG emissions.

IBM's energy use decreased by 7.6% in 2021 from 2020. Our global operations consumed approximately 3,804,000 megawatt-hours (MWh) of energy across all commodities, of which 85% was electricity. Lower average building occupancy due to the COVID-19 pandemic contributed to the reduction, as did the spinoff of our managed infrastructure services business and our continued focus on operational efficiency and energy conservation.

Please read our 2021 ESG Report (pages 41-42) for details of energy conservation projects implemented during 2021 and their results.



Renewable electricity consumption

IBM increased its consumption of renewable electricity to approximately 2,068,000 MWh in 2021, representing 64.2% of its total electricity consumption, up from 59.3% in 2020. That includes 49.3% contracted directly from power suppliers and 14.9% already in the electricity mix we received from the grid. The increase was due to additional contracted purchases of renewable electricity in the United States, India, and multiple European countries — and keeps IBM on track to meet our current goal of 75% by 2025.

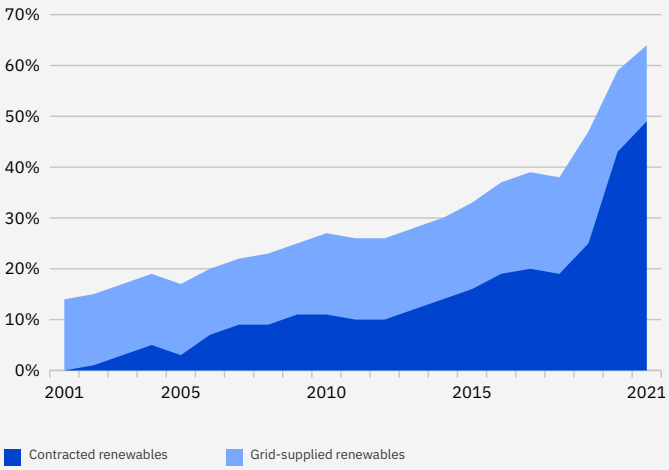
Our reporting of renewable electricity consumption counts only what is generated in the grid regions where our consumption actually occurs. We do not rely upon the purchase of unbundled renewable energy certificates to comprise any "percent renewable" if we cannot credibly consume the electricity those certificates represent. Our definition of "grid region" aligns with how the US Energy Information Administration defines power balancing authorities' territories. We apply the same concept for other jurisdictions.

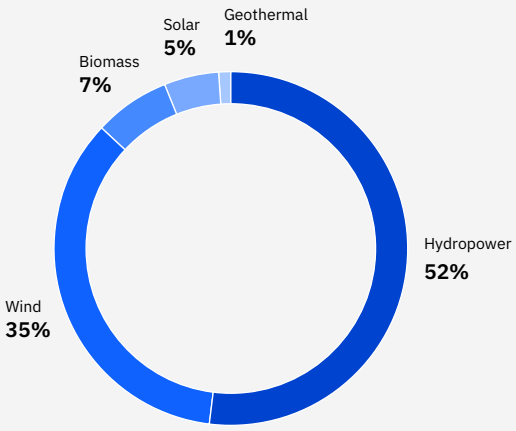
For more information about IBM's approach to renewable electricity procurement and reporting, please visit our website.

Data center renewable electricity consumption

Data centers continued to account for most of IBM's global electricity consumption. In 2021, 67% of the electricity consumed in our data centers came from renewable sources, including both contracted and grid-supplied, up from 61% in 2020. IBM's data centers include 72 that were supplied with 100% renewable electricity during 2021, although they still depend on backup power from fossil fuels when renewable sources become interrupted. These 2021 results include data centers that were part of IBM's managed infrastructure services business for 10 months before that business was spun off, and many of those were in IBM-owned or managed locations. Going forward, most of IBM's data centers are expected to be housed in co-location spaces managed by third parties.

Use of renewable electricity as percent of global electricity consumption, and by source (2021)





Greenhouse gas emissions

IBM's current, fifth-generation GHG emissions goal is a 65% reduction by 2025 against base year 2010, adjusted for acquisitions and divestitures. It covers all of IBM's Scope 1 and Scope 2 emissions, as well as Scope 3 emissions associated with IBM's electricity use at co-location data centers (see table below). Our goal is aligned with the scientific recommendations from the United Nations Intergovernmental Panel on Climate Change (IPCC) and exceeds the rate of reduction it indicates is necessary to limit Earth's warming to 1.5 degrees Celsius above pre-industrial levels.

In 2021, we reduced emissions 61.6% against base year 2010, placing IBM on track to meet its goal. These reductions occurred primarily due to our increase in renewable electricity purchases, reduced energy consumption influenced by lower building occupancy due to the COVID-19 pandemic, and our continued focus on operational efficiency and energy conservation.

Our reported 2021 GHG emissions included those associated with 10 months of operations of our former managed infrastructure services business. In assessing our progress against our goal, we adjusted our 2010 GHG emissions baseline to reflect only 10 months of 2010 operations of that business.

IBM will continue to prioritize energy conservation and the use of renewable electricity to reduce GHG emissions as we pursue our goal to reach net-zero GHG emissions by 2030, using feasible technologies to remove emissions in an amount that equals or exceeds IBM's residual emissions. We aim for IBM's residual emissions to be 350,000 metric tons or less of CO_2 equivalent, including Scope 1 and Scope 2 emissions, as well as Scope 3 emissions associated with IBM's electricity consumption at co-location data centers. IBM included these specific Scope 3 emissions in our energy and climate goals because we know the actual quantity of electricity that we consume in co-location data centers and we control consumption. To further support our climate and energy ambition, scientists from IBM Research are working to accelerate the discovery of materials for carbon capture and removal. You can learn more about this work here.

GHG emissions subject to IBM's GHG emissions reduction goal

		2017	2018	2019	2020	2021
Emissions covered by IBM's fifth-generation goal (metric tons of CO_2-equivalent)						
Scope 1 (direct emissions)	Emissions associated with IBM's use of fuels for building operations and transportation, as well as from the use of refrigerants and chemicals with a global warming potential	124,901	124,633	117,723	90,906	91,955
Scope 2 market-based (indirect emissions)	Emissions from IBM's use of electricity, cooling, heat and steam at IBM-managed locations, accounting for our purchases of renewable electricity	1,076,882	963,304	827,369	530,365	411,211
Scope 3 (indirect emissions)	Emissions associated with the generation of electricity consumed by IBM's data centers located in third-party managed facilities, reported under "Purchased goods and services"	257,042	329,409	315,095	275,882	194,800
Total emissions covered by IBM's current, fifth-generation goal		**1,458,825**	**1,417,346**	**1,260,187**	**897,153**	**697,966**
Reduction of GHG emissions against base year 2010		**25.1%**	**27.2%**	**35.3%**	**53.9%**	**61.6%**

For more details about our GHG emissions inventory, please see our website.

Determining indirect, Scope 3 GHG emissions across an organization's value chain in a factual, reliable and contemporaneous manner is challenging, if not infeasible, due to the lack of actual primary data that can be credibly attributed to the many organizations involved. Nonetheless, recognizing the interest in Scope 3 emissions, IBM attempts broad approximations of some indirect emissions in four other Scope 3 categories. These approximations do not necessarily represent all indirect emissions in these categories, but rather pertain to aspects for which we make some assumptions upon which to suggest very rough estimates. IBM does not estimate other Scope 3 emissions because the required assumptions lack credibility. For more information on IBM's reported Scope 3 emissions, please visit our website.

Since 2010, IBM has required all first-tier suppliers to establish their own environmental management systems and to set quantifiable goals, and publicly disclose progress toward those goals, in the areas of energy management, GHG emissions reduction, and waste management. This encourages suppliers to take ownership and build their capabilities across a broad range of sustainability topics, regardless of whether IBM continues to do business with them or not.

In 2021, IBM established an additional goal to help accelerate GHG emissions reductions in its supply chain. It requires IBM's key suppliers in certain emissions-intensive business sectors to set their own emissions reduction goals that are aligned with scientific recommendations from the UN IPCC. To learn more about IBM's goals around supply chain engagement and our progress, please see page 47 of our 2021 ESG Report.

Environmental reporting for 2022

IBM's environmental metrics for calendar year 2022, including those in the areas of energy and climate, will no longer include any part of its former managed infrastructure services business. As a result, there will be a notable decrease in our global energy consumption with the removal from IBM's reporting of the data centers operated by that business, as well as changes in our real estate profile. IBM today operates fewer data centers, although they continue to account for a significant portion of our electricity consumption.

Recognizing the energy intensity of data centers, IBM has historically prioritized them in our renewable electricity procurement. Through 2021, the percentage of renewable electricity consumption in data centers that were part of our former managed infrastructure services business was proportionally higher than in those which remain with IBM. That is primarily because IBM owned or managed those data centers and could directly make decisions about the electricity serving them. Today, the vast majority of our remaining data centers are in third-party managed co-location spaces where a landlord controls the source of electricity. We are accelerating our efforts with landlords to get renewable electricity at these co-location spaces.

Next year's reporting of our 2022 performance will reflect the first complete year without any part of IBM's former managed infrastructure services business. Accordingly, when comparing 2022 to prior years, we will adjust prior years' energy and climate data by removing what was attributable to that business.

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