Our 2024 Environmental Sustainability Report

May 15, 2024 | Brad Smith – Vice Chair and President; Melanie Nakagawa – Chief Sustainability Officer

Today, Microsoft published the 2024 Environmental Sustainability Report. This report covers fiscal year 2023, and measures progress against our 2020 baseline. You can read the foreword below and explore the report in its entirety here.

Accelerating innovation and partnership for people and the planet

Four years ago, Microsoft committed that, by 2030, we would become carbon negative, water positive, zero waste, and protect more land than we use. Since that announcement, we have seen major changes both in the technology sector and in our understanding of what it will take to meet our climate goals. New technologies, including generative AI, hold promise

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for new innovations that can help address the climate crisis. At the same time, the infrastructure and electricity needed for these technologies create new challenges for meeting sustainability commitments across the tech sector. As we take stock as a company in 2024, we remain resolute in our commitment to meet our climate goals and to empower others with the technology needed to build a more sustainable future.

At the end of last year, the world met in Dubai at COP28 to assess global sustainability progress. The results were sobering. The world is not on track to meet critical climate goals, and we see many of the world's challenges reflected in our own situation. During the past four years, we have overcome multiple bottlenecks and have accelerated progress in meaningful ways. As we report here, we are on track in several areas. But not in every area. We therefore are mobilizing to accelerate progress in areas where we're not yet on track.

In four areas we are on track, and in each of these we see progress that has the potential to have global impact beyond our own sustainability work. These are:

- Reducing our direct operational emissions (Scope 1 and 2)
- Accelerating carbon removal
- Designing for circularity to minimize waste and reusing cloud hardware
- Improving biodiversity and protecting more land than we use

At the same time, there are two areas where we're not yet on track, and in each of these we are intensively engaged in work to identify and pursue additional breakthroughs. These are:

- Reducing our Scope 3, or indirect, emissions
- Reducing water use and replenishing more water than we consume in our datacenter operations

Even amid the challenges, we remain optimistic. We're encouraged by ongoing progress across our campuses and datacenters, and throughout our value chain. Even more, we're inspired by the scores of executives and employees across Microsoft who are rolling up their sleeves and identifying new and innovative steps that are helping us to close critical gaps.

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We all recognize the same thing: There is no issue today that connects everyone on the planet more than the issues around climate change. We all need to succeed together.

Carbon negative

Our carbon negative commitment includes three primary areas: reducing carbon emissions; increasing use of carbon-free electricity; and carbon removal. We made meaningful progress on carbon-free electricity and carbon removal in FY23. Microsoft has taken a first-mover approach to supporting **carbon-free electricity** infrastructure, making long-term investments to bring more carbon-free electricity onto the grids where we operate.

In 2023, we increased our contracted portfolio of renewable energy assets to more than 19.8 gigawatts (GW), including projects in 21 countries. In FY23, we also contracted 5,015,019 metric tons of **carbon removal** to be retired over the next 15 years. We are continuing to build a portfolio of projects, balanced across low, medium, and high durability solutions.

Carbon reduction continues to be an area of focus, especially as we work to address Scope 3 emissions. In 2023, we saw our Scope 1 and 2 emissions decrease by 6.3% from our 2020 baseline. This area remains on track to meet our goals. But our indirect emissions (Scope 3) increased by 30.9%. In aggregate, across all Scopes 1–3, Microsoft's emissions are up 29.1% from the 2020 baseline.

The rise in our Scope 3 emissions primarily comes from the construction of more datacenters and the associated embodied carbon in building materials, as well as hardware components such as semiconductors, servers, and racks. Our challenges are in part unique to our position as a leading cloud supplier that is expanding its datacenters. But, even more, we reflect the challenges the world must overcome to develop and use greener concrete, steel, fuels, and chips. These are the biggest drivers of our Scope 3 challenges.

We have launched a company-wide initiative to identify and develop the added measures we'll need to reduce our Scope 3 emissions.

Leaders in every area of the company have stepped up to sponsor and drive this work. This led to the development of

more than 80 discrete and significant measures that will help us reduce these emissions – including a new requirement for select scale, high-volume suppliers to use 100% carbon-free electricity for Microsoft delivered goods and services by 2030. As a whole, this work builds on our multi-prong strategy, this year focusing on the following:

1. **Improving measurement** by harnessing the power of digital technology to garner better insight and action
2. **Increasing efficiency** by applying datacenter innovations that improve efficiency as quickly as possible
3. **Forging partnerships** to accelerate technology breakthroughs through our investments and AI capabilities, including for greener steel, concrete, and fuels
4. **Building markets** by using our purchasing power to accelerate market demand for these types of breakthroughs
5. **Advocating for public policy** changes that will accelerate climate advances

Water positive

We take a holistic approach to becoming water positive, which includes **water access,** replenishment, innovation, reduction, and policy. In 2023, we achieved our water access target by providing more than 1.5 million people with access to clean water and sanitation solutions. We contracted **water replenishment** projects estimated to provide more than 25 million m^3 in volumetric water benefit over the lifetime of these projects – enough water to fill about 10,000 Olympic-sized swimming pools. Finally, we continue to drive **innovation in water**, through first-of-their kind replenishment projects like FIDO, which leverages AI-enabled acoustic analysis to reduce water loss from leakage.

Looking ahead, as our datacenter business continues to grow, so does the need to minimize our water consumption and replenish more than we consume in these operations. In FY23, our progress on water accelerated, and we know we need to implement an even stronger plan to accelerate it further. We therefore are investing in our water positive commitment in four ways:

1. We are taking action to **reduce the intensity with which we withdraw resources** by continuing to design and

innovate in order to minimize water use and achieve our intensity target

2. Our new **datacenters are designed and optimized to support AI workloads** and will consume zero water for cooling. This initiative aims to further reduce our global reliance on freshwater resources as AI compute demands increase

3. We are **partnering to advance water policy**. In 2023, we joined the Coalition for Water Recycling. Over the coming year we will finalize a position and strategy for water policy

4. We are developing innovative scalable replenishment projects in high water stress locations where we operate datacenters. We recently announced Water United, a new initiative to unite public and private sectors in reducing water loss from leakage across the Colorado River Basin

Zero waste

Our journey to zero waste includes reducing waste at our campuses and datacenters, advancing circular cloud hardware and packaging, and improving device and packaging circularity. In FY23, we achieved a reuse and recycle rate of 89.4% for servers and components across all cloud hardware, a target that is increasingly important as needs for cloud services continue to grow. In 2023, we also diverted more than 18,537 metric tons of waste from landfills or incinerators across our owned datacenters and campuses, and we reduced single-use plastics in our Microsoft product packaging to 2.7%.

From expanding our Circular Centers to piloting programs that give a second life to used fiber optic cables through partnerships with local technical schools, we are working to keep materials in use longer and approach our work at every stage with circularity in mind. We are accelerating our work to reuse and recycle cloud hardware wherever possible, and launched two new Circular Centers in Quincy, Washington, and Chicago, Illinois in 2023.

Protecting ecosystems

We have committed to protecting more land than we use by 2025, while preserving and restoring ecosystems in the areas where we live and work. As of FY23, we exceeded our land

protection target by more than 40%. At this point, 15,849 acres of land have been legally designated as permanently protected compared to our goal of 11,000 acres.

We are incorporating green business practices that support the surrounding ecosystems near our campuses and datacenters. This includes regenerative design solutions around our datacenters that enhance local biodiversity, improved stormwater management, and contributing to climate resilience. We are also piloting AI-driven Microsoft technology to provide insights into the overall health of the ecosystem and inform future actions.

Customer and global sustainability

In last year's Environmental Sustainability Report, we announced that we were expanding our ambition to help advance sustainability for our customers and the world. In 2023, we continued this work to empower our customers and partners on their own sustainability journey by creating the technology needed to better manage resources and optimize systems. On a global scale, we focused on accelerating innovation, research, and policy, not only for ourselves but also to support a more sustainable world for all.

The shift from pledges to progress requires action, transparency, and accountability. Microsoft Cloud for Sustainability is helping customers unify data and garner richer insights into the sustainability of their business. In 2023, we expanded Microsoft Sustainability Manager to include Scopes 1, 2, and all 15 categories of Scope 3 carbon emissions to help track progress and inform action across an organization's operations and value chains.

As the world experiences worsening impacts of climate change, we are also helping to put planetary data into the hands of researchers, governments, companies, and individuals through the Planetary Computer. We are providing open access to petabytes of environmental monitoring data to help empower people with actionable information to protect their communities.

Microsoft's sustainability progress requires global engagement. We are investing in innovative solutions, advancing research, and advocating for policies that we believe can drive progress at scale. A hallmark of this effort has been our Climate Innovation Fund (CIF) – our $1 billion commitment set in 2020

to advance innovation beyond Microsoft's four walls. To date, the CIF has allocated $761 million toward innovative climate technologies including commercial direct air-capture technologies, sustainable aviation fuel (SAF), industrial decarbonization, and more.

Our science, research, and AI for Good teams are also working to accelerate solutions and develop climate resilience with AI. In November 2023, we published a whitepaper and playbook that expands on the incredible potential of AI for sustainability. Through our AI for Good team, we are collaborating with the United Nations to research the use of AI to advance the Early Warning for All Initiative, with a goal of better understanding the populations that may be at risk of extreme weather events and other threats.

Last year, Microsoft CEO Satya Nadella called climate change "the defining issue of our generation." To meet this generational challenge, we are putting sustainability at the center of our work. With each emerging technology, with each new opportunity, we ask ourselves an important question: How can we advance sustainability?

As we strive to answer that question, we are developing new approaches, experimenting with new partnerships, and learning as we go. We are optimistic about the role technology can continue to play in accelerating climate progress, and we look forward to working with others on this critical journey for all of us.

Tags: carbon emissions, carbon neutral, climate change, Climate Innovation Fund, COP28, Environmental Sustainability, Environmental Sustainability Report, net zero, water positive