

Notes for Completion

Where an In-Scope Organisation has determined that the measure applies to the procurement, suppliers wishing to bid for that contract are required at the selection stage to submit a Carbon Reduction Plan which details their organisational carbon footprint and confirms their commitment to achieving Net Zero by 2050.

Carbon Reduction Plans are to be completed by the bidding supplier¹ and must meet the reporting requirements set out in supporting guidance, and include the supplier's current carbon footprint and its commitment to reducing emissions to achieve Net Zero emissions by 2050.

The CRP should be specific to the bidding entity, or, provided certain criteria are met, may cover the bidding entity and its parent organisation. In order to ensure the CRP remains relevant, a Carbon Reduction Plan covering the bidding entity and its parent organisation is only permissible where the detailed requirements of the CRP are met in full, as set out in the Technical Standard² and Guidance³, and all of the following criteria are met:

- The bidding entity is wholly owned by the parent;
- The commitment to achieving net zero by 2050 for UK operations is set out in the CRP for the parent and is supported and adopted by the bidding entity, demonstrated by the inclusion in the CRP of a statement that this will apply to the bidding entity;
- The environmental measures set out are stated to be able to be applied by the bidding entity when performing the relevant contract; and
- The CRP is published on the bidding entity's website.

Bidding entities must take steps to ensure they have their own CRP as soon as reasonably practicable and should note that the ability to rely on a parent organisation's Carbon Reduction Plan may only be a temporary measure under this selection criterion.

The Carbon Reduction Plan should be updated regularly (at least annually) and published and clearly signposted on the supplier's UK website. It should be approved by a director (or equivalent senior leadership) within the supplier's organisation to demonstrate a clear commitment to emissions reduction at the highest level. Suppliers may wish to adopt the key objectives of the Carbon Reduction Plan within their strategic plans.

A template for the Carbon Reduction Plan is set out below. Please complete and publish your Carbon Reduction Plan in accordance with the reporting standard published alongside this PPN.

¹ Bidding supplier or 'bidding entity' means the organisation with whom the contracting authority will enter into a contract if it is successful.

² Technical Standard can be found at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/991625/PPN_0621_Technic al_standard_for_the_Completion_of_Carbon_Reduction_Plans_2_.pdf

³ Guidance can be found at:

 $https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/991623/Guidance_on_adopting_and_applying_PPN_06_21__Selection_Criteria__3_.pdf$

Carbon Reduction Plan Template

Supplier name: Microsoft Limited

Publication date: 21/03/2024

Commitment to achieving Net Zero

Microsoft is committed to being carbon negative by 2030 and by 2050 remove from the atmosphere an equivalent amount of all the carbon dioxide our company has emitted either directly or by our electricity consumption since we were founded in 1975. The work under our existing commitments, supports our path towards achieving the Net Zero target per PPN 06/21.

Baseline Emissions Footprint

Baseline emissions are a record of the greenhouse gases that have been produced in the past and were produced prior to the introduction of any strategies to reduce emissions. Baseline emissions are the reference point against which emissions reduction can be measured.

Baseline Year: 2020

Additional Details relating to the Baseline Emissions calculations.

The emissions calculations below represent Microsoft globally reported numbers, inclusive of market-based calculations for Scope 2 and Scope 3. Scope 3 emissions represent all reported Microsoft Scope 3 categories, inclusive of management's criteria approach for categories 4, 6 and 11. To learn more about our methodologies used in our greenhouse gas accounting please see our Environmental Data Fact Sheet, Section 1.9 Methodology and emission factors on page 10.

Baseline year emissions:

EMISSIONS	TOTAL (tCO2e)
Scope 1	118,100
Scope 2	456,119
Scope 3 (Included Sources)	11,325,000

Reporting Year: 2023			
EMISSIONS	TOTAL (tCO ₂ e)		
Scope 1	144,960		
Scope 2	393,134		
Scope 3 (Included Sources)	14,819,000		
Total Emissions	15,357,000 MTC02e		

Emissions reduction targets

Reducing direct emissions: We will reduce our Scope 1 and 2 emissions to near zero by increasing energy efficiency, decarbonisation of our operations, and reaching 100% direct renewable energy by 2025.

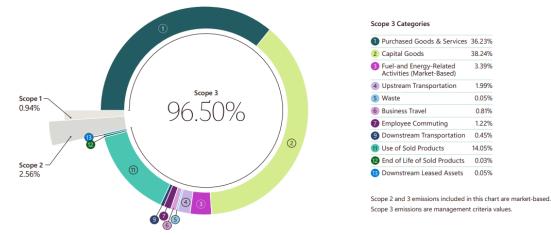
Reducing value chain emissions: By 2030, we will reduce our Scope 3 emissions by more than half from a 2020 baseline.

Replacing with 100/100/0 carbon-free energy: By 2030, 100% of our electricity consumption will be matched by zero carbon energy purchases 100% of the time.

Removing the rest of our emissions: By 2030, Microsoft will remove more carbon than it emits. By 2050, we will remove from the atmosphere an equivalent amount of all the carbon dioxide our company has emitted either directly or by our electricity consumption since we were founded in 1975.

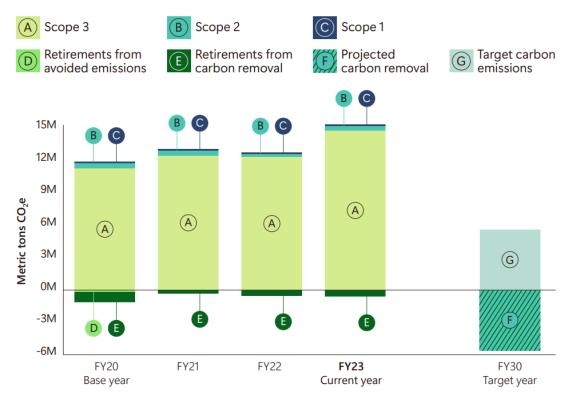
Carbon Table 1-Breaking down our FY23 Scope 3 emissions by source

Microsoft's Scope 3 emissions continue to account for more than 96% of our total emissions, with the vast majority of these emissions coming from two categories upstream, Purchased Goods and Services (Category 1) and Capital Goods (Category 2), and one downstream, Use of Sold Products (Category 11).



Carbon Table 2–Tracking progress toward carbon negative by 2030

Microsoft's overall emissions increased by 29.1% in FY23, in relation to our base year. Additionally, we retired 605,354 metrics tons of carbon removal as part of achieving our annual target to be carbon neutral.



Carbon Reduction Projects

Completed Carbon Reduction Initiatives

Improving the measurement and efficiency of our operations

Reducing the carbon intensity of our operations is the first pillar of our approach to carbon negative. From the construction of our datacenters and campuses to our daily operations, efficiency is built into our design and use. Since setting our targets in 2020, data has played an increasingly important role in our journey by allowing us to better measure and manage our resource consumption. At Microsoft, we strengthened our supply chain methodologies in 2023 to drive progress in major sectors like building materials, sustainable aviation fuel, and hardware.

Datacenter efficiency

Measuring efficiency

Power usage effectiveness (PUE) is a ratio that describes how efficiently a datacenter uses energy. The lower the number, the better the score. We design and build Microsoft datacenters as close to a PUE of 1.0 as possible. This year our datacenters delivered a design rating of 1.12 PUE and, with each new generation, we will strive to be even more efficient.

Transitioning servers to a low-power state

We continue to seek opportunities to reduce server energy consumption. Using lowpower server states, we observed a reduction in energy usage of up to 25% on unallocated servers, with a corresponding reduction in Scope 2 emissions. This year, we expanded our deployment of this technique from a few thousand servers in 2022 to around one million by the end of 2023. This initiative reduces energy usage by thousands of megawatt-hours per month across our global datacenters. A similar initiative targets servers that are awaiting maintenance, reducing energy usage by hundreds of megawatt-hours per month. We support carbon-free electricity infrastructure through procurement and investment.

Improving resource utilization

Datacenter resources are traditionally designed and built to accommodate peak power demands, often resulting in underutilisation and the necessity to construct new datacenters. Microsoft is focused on improving datacenter efficiency by minimising peak power consumption, effectively harnessing unused power, and maximising server density within existing datacenters. This is achieved through power harvesting driven by service level agreements (SLAs), intelligent power-aware workload allocation, and utilising the inherent redundancy in Microsoft internal services to tap into datacenter capacity that is conventionally reserved for use only during power grid or infrastructure failures. In 2023, these initiatives have directly contributed to a roughly 7% reduction in

datacenter power infrastructure and the associated embodied carbon. Microsoft is also increasing server utilisation by oversubscribing central processing unit (CPU) cores of internal workloads that have low CPU utilisation. The direct impact in 2023 was an approximately 1.5% reduction in datacenter hardware needs for the Microsoft Azure platform–an improvement of three times over 2022 with a proportional reduction in associated embodied carbon. Each of our campuses has a sustainability plan with energy efficiency projects planned each year to drive down our energy usage.

Building operations and construction

Infrastructure decarbonization

Our sustainability standards for new construction continue to expand to meet our climate goals. New campus projects require the procurement of high-efficiency refrigeration systems, all-electric kitchens and mechanical systems, and non-fossil fuel-powered backup power systems. Combustion is no longer permitted for daily use in any new office construction project in our standard. We have also expanded our requirements to reduce embodied carbon in interior materials.

In the UK Microsoft's newest own-design and build datacentre is being built in West London and is reusing an existing brownfield site that was previously used as an industrial park site, to prevent further loss of the countryside to development. The new five-storey, 725,000 square feet, West London datacentre is an example of the next generation datacentres we are developing across the UK, running on entirely renewable energy. The West London datacentre saved 11,439 tonnes of carbon to date during construction, and 98.3% of the concrete and steel used is responsibly sourced. To reduce water usage the datacentre is designed to use an 'Evaporative Cooling System', so that in ambient conditions the facility can 'run dry' using only a fraction of the water during operation. To save more water during the commissioning of the project, a 'sidestream' system is being used to avoid dynamic flushing.

Innovations in low-carbon concrete

To minimise our carbon impact in constructing datacenters, we build our datacenters to meet LEED Gold certification, with 37 datacenters already meeting this goal globally. LEED buildings also use less water, utilise renewable energy and fewer resources, create less waste, and preserve land and habitat. One example of innovation in this area is a series of pilots completed this year using a net-negative embodied carbon limestone alternative to traditional concrete. Derived from algae cultivation in concert with other alternative cementitious materials, the combination yielded a concrete mix that met our performance requirements and achieved an estimated 65% embodied carbon reduction from conventional concrete of a similar strength.

As an example of LEED Gold Certification in the UK. Rare (an Xbox game studio) has recently opened Barn X. The 1,200 m sq building is located on our Leicestershire campus. The building is LEED GOLD certified and uses locally sourced timber and New Zealand Accoya for its structure, reducing its carbon footprint. From and energy efficiency perspective it repurposes condensation from chillers and has advanced cooling and

ventilation systems. The space includes quiet areas, customizable lighting, and sounddeadening features to support a creative and modern work environment including large windows allow natural light to flood in, and the building is surrounded by greenery, creating a refreshing atmosphere.

Improve measurements across our supply chain

While we know that the majority of our emissions are from Scope 3, over 96% in 2023, we also needed greater precision on the drivers contributing to these emissions. What we found is that these emissions have three primary, interrelated drivers:

1. Electricity use in both upstream embodied in what we purchase, and downstream from the usage of our products.

2. Key material procurement including semiconductors, steel, cement, aluminium, and plastics.

3. Fuel use from direct travel, commuting, logistics, and embodied in what we purchase.

Achieving net zero is not something we can do alone. As 76.5% of our total emissions originate from our suppliers, we have a role to play in bringing the global supply chain with us on our journey to net zero. By leaning into education and investing in meaningful tools for carbon reduction, we can move these efforts up the supply chain tier.

Partnering with our suppliers

Access to granular emissions data from our supply chain is essential to identifying where our largest Scope 3 reduction opportunities exist and how these can be actioned. To understand the full extent of our Scope 3 carbon footprint, we piloted a new feature in Microsoft Sustainability Manager called the environmental, social, and governance (ESG) value chain solution. In 2023, Microsoft Procurement acted as customer zero, as we used our own technology and utilised the ESG value chain solution as its disclosure platform to successfully collect emissions from top in-scope suppliers. Additionally, due to the flexibility the ESG value chain solution offers, the Procurement Sustainability team was able to customise the platform to collect more advanced, granular emissions data from suppliers. In the future, the ESG value chain solution will enable customers to customise and collect detailed emissions data directly from suppliers.

Advancing procurement of carbon-free electricity

When we identified a near-term need to support suppliers in decarbonising their electricity consumption, especially our smaller- to medium-sized suppliers who traditionally lack the expertise and resources to navigate this process on their own, we partnered with climate solutions expert 3Degrees to launch Supplier REach, a renewable electricity portal. The portal assists with Microsoft supplier evaluation and procurement of high-quality carbon-free electricity options based on factors such as their geography and energy load.

Reducing emissions in Cloud Logistics

In 2023, the Cloud Logistics team implemented a three-pillar strategy for emissions reduction:

1. Apply industry-leading data models, based on the Global Logistics Emissions Council (GLEC) Framework, to obtain detailed emissions data for each shipment. This "digital twin" of our operations data earned us a finalist spot in Gartner's 2024 "Power of the Profession" award.

2. Utilise data to optimise our supply chain, identifying efficiency gains that helped us avoid over 90,000 mtCO2e emissions. These savings were achieved by shifting cargo to more carbon efficient transportation modes, consolidation, and network design.

3. Drive transformational solutions in trucking, shipping, and aviation. In partnership with our largest transportation service providers, we have enabled them to source low-carbon or carbon-free logistics services. This led to the successful deployment of electric vehicles and sustainable fuels.

To further our goal of sustainable transportation, we joined collaborations like the Sustainable Aviation Buyers Alliance (SABA) and we have launched a new initiative with cargo-owning peers and suppliers that plans to build the first electric interstate trucking corridor in the United States.

Measuring semiconductor emissions

Driving targeted Scope 3 emission reductions requires more precise measurement. For semiconductors, this means measuring emissions drivers down to the square centimetre of silicon–a unit of measure required for life cycle assessment (LCA)-based methodologies– and applying product-specific emissions factors. We modelled this for all high-impact components installed and sold by Microsoft. This advancement, which reflects Microsoft's application of leading-edge research findings from imec's Sustainable Semiconductor Technologies and Systems (SSTS) program, enables us to quantify which specific products, manufacturers, geographic locations, and production stages are driving emissions. This specificity deepens our supplier engagement efforts and focuses our policy and advocacy discussions.

Mitigating carbon impacts of travel

We have also implemented an employee-facing travel solution called Tripkicks which supports our corporate sustainability initiatives. In partnership with BCD and Advito, Tripkicks allows employees to better understand their carbon impact before they travel. As employees plan their trips, they are able to see accurate and ISO-Certified carbon dioxide figures, powered by Advito's GATE4 carbon emissions methodology, for each flight option, identifying the most sustainable options.

In the UK Microsoft's Electric Vehicle scheme encourages employees to choose EVs, with support not available for hybrid, petrol, or diesel cars.

Reducing the impact of our supply chain

Building transparency

Collaboration across Microsoft has led us to adapt an effective approach to shift from spendto process-based methodologies for measuring embodied carbon impact of construction materials. This methodology is based on a framework using today's best available third-party verified data via Building Transparency's EC3 tool. This new methodology aims to appropriately incorporate actual global warming potential of the materials we buy, where data is available, with existing spend-based methodologies, as we work to improve our Scope 3 measurement and emissions.

Greenhouse Gas Protocol

In 2023, we submitted responses to four Greenhouse Gas Protocol (GHGP) surveys that kicked off GHGP's comprehensive review of its corporate carbon accounting guidance. Microsoft's survey responses articulated a vision for more accurate, consistent, impact-relevant carbon accounting. We also published a white paper laying out Microsoft's approach, challenges, and innovations with respect to carbon accounting.

Cognitive visual learning

To improve data quality and reduce manual entry errors, we have been developing a cognitive visual learning (CVL) tool in partnership with the Microsoft Finance team. The CVL AI tool will be capable of automatically reading utility invoices (such as PDFs, Excel files, or image files) in any language and extracting the required data. Ultimately, this innovative tool will streamline reporting on our utility consumption and replace a time-consuming third-party application that is subject to manual error.

Building markets and driving progress

The ability of Microsoft and the technology sector to meet net zero targets is dependent on our collective ability to procure carbon-free electricity and decarbonise our supply chains. Microsoft continues to build and scale carbon-free electricity through our procurement of renewable energy and investing to bring more carbon-free electricity onto the grids where we operate. As one of the largest corporate purchasers of renewable energy, we continue to seek ways to diversify and scale-up supply of impactful renewable energy and mechanisms enabling access for all.

Building markets

Accelerating carbon-free electricity circularity

Microsoft's unique position as one of the world's largest corporate renewable energy purchasers provides the opportunity and responsibility to help facilitate a circular economy in the renewable energy sector. Our leadership is enabling and supporting the market due to the scale of our procurement, laying the foundations for renewable energy infrastructure reuse and recycling, concurrently addressing environmental, community, and supply chain challenges. In advancing a circular economy for all, we follow three principles:

- 1. Requiring recycling of renewable energy infrastructure.
- 2. Requiring recycled materials in renewable energy infrastructure manufacturing.
- 3. Using our voice on circular economy for renewable energy public policy.

Advancing carbon dioxide removal (CDR)

At Microsoft, we continue to support the development of carbon removal. In FY23 we accelerated procurement of various pathways, building on our long-term agreement framework. We worked through the details in each of those agreements to make sure we are building this first generation of large-scale carbon dioxide removal projects to be as impactful as possible. These multi-year agreements draw on our renewable energy procurement experience and are structured to help projects obtain external financing. Our carbon removal contracts reflect general industry risks along with the specifics of individual projects to ensure we are buying additional, durable, measurable, and net negative carbon credits. As we fill our balanced portfolio of greater than 5 million metric tons a year starting in 2030, we are also buying novel solutions, for example enhanced rock weathering, to test what else will be ready for scale by 2030.

Progressing towards 2030

In FY23, we contracted 5,015,019 metric tons of carbon removal to be retired over the next 15 years. Many of these projects entail multi-year commitments to carbon removal. Altogether we expect our contracts signed as of December 2023 to provide 875,000 metric tons toward our 2030 goal of greater than 5 million metric tons. Projects signed in 2023 include the following:

Reforestation in the Amazon: In November 2023, we signed a long-term offtake with Mombak for carbon removal from reforestation in the Brazilian Amazon. We believe Mombak's best-in-class project design and work to bolster a crucial carbon sink and biome represent an extraordinary win for the climate and local communities.

Landmark BECCS in Europe: Our recent agreement with Orsted shows the near-term potential of bioenergy with carbon capture and storage (BECCS). This project will add carbon capture to an existing heat and power plant and then store the carbon dioxide geologically to provide significant carbon removals and anchor the high durability category this decade. Securing the sustainability of biomass for the Orsted project and future biomass-based pathways was a major focus and drove us to support Carbon Direct's cross-sector work on this topic alongside Frontier Climate. We believe that the time for responsibly scaling BECCS is here and look forward to the coming wave of project developments.

Scaling up carbon removal

Heirloom direct air capture: Heirloom's next direct air capture (DAC) projects will prove their potential to scale towards the megatons per year that society needs this decade to stay on track for the goals of the Paris Agreement. Heirloom's technology of making and breaking limestone to take carbon dioxide out of air is simplicity itself.

Enhanced rock weathering: Our deals this year with UNDO and Lithos explore the novel carbon removal pathways that will reduce outstanding market uncertainties, and which could feasibly scale in the next several years. In addition to the science of enhanced rock weathering (ERW), we note that innovative business models will be important to expand projects with such front-loaded costs.

Project	Description	Focus	Partners	Goals
Reforestation in the Amazon	Long-term offtake for carbon removal	Carbon sink and biome	Mombak	Climate and local communities

	from reforestation in the Brazilian Amazon			
Landmark BECCS in Europe	Bioenergy with carbon capture and storage	Sustainability of biomass	Orsted, Carbon Direct, Frontier Climate	Significant carbon removals
Heirloom direct air capture	Direct air capture projects to scale towards megatons per year	Carbon dioxide removal	Heirloom	Goals of the Paris Agreement
Enhanced rock weathering	Novel carbon removal pathways	Market uncertainties	UNDO, Lithos	Feasible scaling in the next several years

In the UK, Microsoft had developed the Caboodle platform on its Power Platform technology, enabling a seamless connection between food retailers and community groups to redistribute surplus food. Microsoft partnered with Co-op, BJSS, and Team ITG to develop Caboodle, showcasing a collaborative effort to tackle food waste. The platform was created through low code development, allowing rapid and agile delivery, turning ideas into real solutions quickly. Microsoft UK's CEO highlighted that Caboodle originated from a conversation between a Microsoft employee and a Co-op store manager, emphasising the platform's potential to reduce food waste and support communities.

Supporting global progress

Meeting our carbon negative goals is tightly linked with global decarbonisation. Supporting carbon-free electricity infrastructure through procurement and investment is critical to making this happen. It's a challenge that is bigger than any one company, but Microsoft has taken a first-mover approach, making long-term investments to bring more carbon-free electricity onto the grids where we operate. We continue to seek ways to diversify and scale-up supply of impactful renewable energy and mechanisms enabling access for all.

Partnering to scale clean energy

Microsoft partnership goals are threefold: achieve our own operational needs, accelerate the development of technologies that will help our customers and partners, and rapidly increase the scale of the global sustainability market. In 2023, Microsoft increased its contracted portfolio of renewable energy assets to over 19.8 gigawatts (GW) across 21 countries.

Investing in sustainable aviation fuel

In 2023, Microsoft entered a 10-year contract with World Energy for sustainable aviation fuel (SAF) certificates, aiming to replace 43.7 million gallons of fossil jet fuel, and jointly funded a large-scale global SAF purchase with International Airlines Group (IAG). Additionally, Microsoft joined the Roundtable on Sustainable Biomaterials (RSB), contributing to RSB's sustainability framework and participating in programs supporting SAF development. Together with RSB and Alaska Airlines, Microsoft launched SAF-now.org, an educational resource designed to empower key decision makers with information on topics most relevant to choosing SAF.

To learn more detail about our greenhouse gas reduction initiatives, please read our latest CDP Climate Change response, section C4.3b <u>here</u>.

To learn more about our reported data please refer to our Environmental Data Fact Sheet <u>here</u>.

Visit our Environmental Sustainability Report here.

Learnings and what's next

Growing the supply for clean energy will require policy advocacy

Microsoft decarbonisation policy advocacy is expected to contribute to reducing our upstream emissions in two ways:

- 1. Helping to create more direct corporate renewable procurement options in markets that are currently difficult to access, as in much of Asia-Pacific, thus increasing opportunities for reducing operational emissions in the near term.
- 2. Contributing to the enactment of policies that decarbonise the grids on which our suppliers operate.

These efforts can help to reduce the amount of baseline emissions to be addressed through renewable procurement.

Partnership and investment remains critical for Scope 3 emissions reduction

Collaboration remains critical to success, for Microsoft and our suppliers. While many of our suppliers are willing and want to reduce their footprints, they may still face considerable barriers like access to capital or market knowledge. As we work to achieve our own operational needs, we are also working to accelerate the development of solutions that will help our customers and partners, and rapidly increase the scale of global sustainability markets.

Scaling markets for lower-carbon materials requires investment

While lower-carbon building construction materials are on the market today, they do not exist at the volume, in the geographies, nor at the scale needed to decarbonise the sector. We continue to pursue key mitigations to embodied carbon risk through extensive collaboration across Microsoft datacenters. Our actions are focused on accelerating the uptake of lowembodied carbon solutions and driving innovation through new building materials with the potential to drastically reduce embodied carbon from those materials. Building on our experience with other industrial sectors, we will use forward contracting mechanisms to spur the market supply of lower-carbon materials.

Measurement plays an important role in Scope 3 reduction

Driving Scope 3 reductions requires developing better data visibility and more accurate and actionable methodologies than are generally available today. With improved life cycle

assessment (LCA) methodologies and detailed analysis of specific products, manufacturers, geographic locations, and emissions life cycle stages, we are better able to understand the complexity of our supply chain and which tangible levers we can pull both with our suppliers and through policy. Additionally, we are exploring how technology, like AI and blockchain, can further increase accountability and traceability for our Scope 3 carbon emissions.

Declaration and Sign Off

This Carbon Reduction Plan has been completed in accordance with PPN 06/21 and associated guidance and reporting standard for Carbon Reduction Plans.

Emissions have been reported and recorded in accordance with the published reporting standard for Carbon Reduction Plans and the GHG Reporting Protocol corporate standard⁴ and uses the appropriate Government emission conversion factors for greenhouse gas company reporting⁵.

Scope 1 and Scope 2 emissions have been reported in accordance with SECR requirements, and the required subset of Scope 3 emissions have been reported in accordance with the published reporting standard for Carbon Reduction Plans and the Corporate Value Chain (Scope 3) Standard⁶.

This Carbon Reduction Plan has been reviewed and signed off by the board of directors (or equivalent management body).

Signed on behalf of the Supplier:

L'Richard

Lewis Richards, Chief Sustainability Officer, Microsoft UK

Date: 30/08/2024

⁴ https://ghgprotocol.org/corporate-standard

⁵ https://www.gov.uk/government/collections/government-conversion-factors-for-companyreporting

⁶ https://ghgprotocol.org/standards/scope-3-standard