Microsoft

Accelerating global decarbonization efforts

Microsoft carbon policy brief

Executive summary

The global carbon policy landscape is intensifying as governments introduce new policies in a bid to meet their climate commitments and do their part to help the world transition to a net-zero economy. These policies will be critical to avoiding the worst impacts of climate change. At Microsoft, we have set our own ambitious climate commitments, including to be carbon negative by 2030 and to remove from the atmosphere all the carbon our company has emitted either directly or by electrical consumption since it

was founded in 1975. We will use our voice to advocate for carbon policies in the three areas that we believe are crucial both to achieving our commitments and to enabling the world to reach net-zero emissions by 2050: carbon reporting, carbon reductions, and carbon removal. This paper outlines the principles that guide our carbon policy advocacy work. These principles are grounded in our focus on achieving tangible results, enabling a flexible rather than one-size-fits-all approach, and recognizing the important role of digital technologies.

Introduction

To avoid the worst impacts of climate change, the world needs to keep increases in global temperatures well below 2°C and reach net-zero emissions by 2050. Public policies will play a critical role, both in creating signals to spur the economic and social transition required to address climate change and in supporting the markets to develop and deliver the goods, services, and skills to achieve that transition. However, there is a growing gap between the pace of desired policy outcomes and economic and scientific indicators that show accelerating climate impacts. To help close this gap and support local governments, companies, and communities in their efforts to achieve their climate pledges, governments around the world need to accelerate policy action.

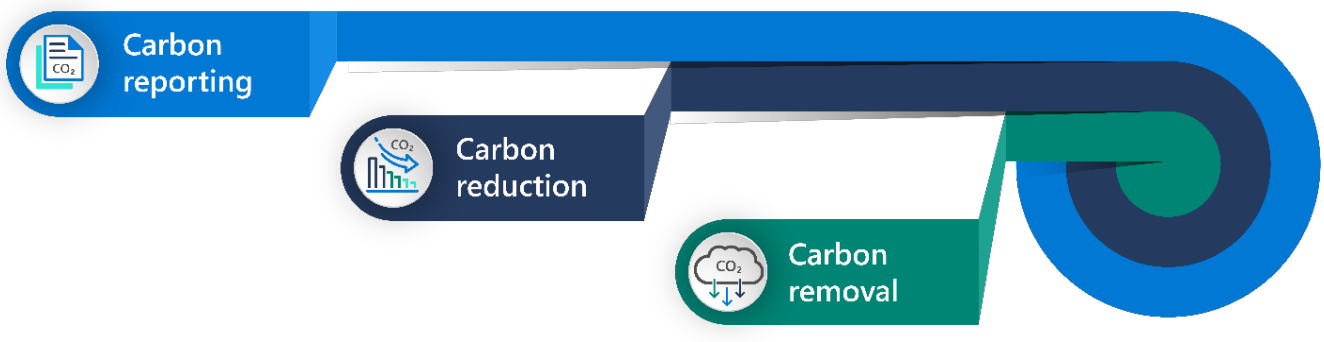
A rapidly changing global carbon policy landscape

Over the past decade, an average of at least 170 new climate-related bills have come into effect around the world each year.[1] Multiple overlapping factors are driving both the pace and direction of climate-related policies. Chief among them is pressure on policymakers from the public, nongovernmental organizations (NGOs), and corporations, as well as increasingly visible indications of a changing climate (including wildfires, droughts, heat waves, and severe storms and flooding), driving an elevated sense of urgency for near-term action. Furthermore, there is growing interest from investors and customers for companies to deliver more climate-friendly goods and services.

Policies to mitigate climate change by addressing greenhouse gas (GHG; often referred to in shorthand as carbon) emissions can be organized into three core areas:

1. **Report:** Policies to encourage and, increasingly, compel organizations to consistently measure and report their carbon emissions.
2. **Reduce:** Policies that provide incentives or mandates to reduce carbon emissions at the project, sector, or economy-wide level.
3. **Remove:** Policies that encourage and accelerate the development of technologies to remove carbon from the atmosphere, as well as supporting carbon removal measurement methodologies and markets.

[1] Based on Climate Change Laws of the World (filtered to 2012–2021) published by Grantham Research Institute on Climate Change and the Environment.



Governments use a wide range of policy levers to achieve goals in each of these three areas depending on the economic, political, and policy landscape in a given country, including:

- Timebound targets.
- Direct public investments including in infrastructure, procurement, and research and development (R&D).
- Market mechanisms including carbon pricing, financial incentives, and trade measures.
- Regulations for sectors, products, and services to meet specific requirements or design criteria.
- Data, measurement, and reporting rules including labelling and certification programs.

GHG emissions reporting is a top policy focus of the moment for governments worldwide, though in varying degrees of maturity. While the pace and scope of these undertakings differ across geographies and sectors, governments need to accelerate action in each of these areas to meet the climate change goals set out in the Paris Agreement of 2015.

Using our voice for carbon policy advocacy

Companies have an important role to play in advocating for and supporting effective and innovative carbon policy. For Microsoft, when we announced our commitment in 2020 to become carbon negative by 2030 and to remove our historical emissions by 2050, we outlined our strategy to report, reduce, and remove Microsoft carbon emissions. We also pledged to use our voice on public policy issues that we think can help to advance global decarbonization efforts. Over the last two years, we have actively advocated for climate and energy investments as part of the recent US infrastructure and climate laws, climate disclosure requirements by the U.S. Securities and Exchange Commission (SEC), and a comprehensive European Union (EU) decarbonization plan, to name just a few. We plan to expand our advocacy efforts in the months and years ahead.

Three foundational elements inform all our sustainability policy advocacy work: (1) the need for tangible progress, (2) a flexible rather than one-size-fits-all approach, and (3) the importance of digital technology. As we look to expand our carbon policy engagement, these foundational elements underlie our advocacy strategy:

- **Tangible progress:** Regulations should drive tangible near-term progress on the pathway to global net-zero emissions by 2050.
- **Flexible rather than one-size-fits-all approach:** Every region and country will have a different path based on natural resource endowment, governmental roles and authorities, stage of development, and transition equities, requiring a robust yet flexible carbon policy toolkit.
- **Digital technologies:** Carbon reporting, reduction, and removal policies can and should take advantage of digital technologies to encourage innovation, promote data transparency, and enable comparability.

Global carbon policy spans a broad and variegated landscape. In this policy paper, we outline nine key principles—in the areas of carbon reporting, carbon reduction, and carbon removal—that will guide our carbon policy advocacy work. To maximize our impact, we use these principles to focus our policy efforts, prioritizing the areas that will have a direct impact on our business operations, opportunities, and sustainability commitments; where we have deep policy-relevant expertise and experience; and that can help accelerate the market for emerging solutions that we and our customers need to achieve our sustainability goals. By sharing our principles, we hope to give local and national governments, advocates, corporations, trade associations, and other key stakeholders a clear picture of how we use our voice in this area.

Carbon reporting: enabling an accurate measure of progress

While many different steps are required to reach global net-zero emissions, they all rely on a common foundation that ensures carbon emissions are measured in an accurate, consistent, and reliable manner globally. If governments, NGOs, and corporations around the world don't measure carbon emissions in the same way, they're likely to talk past each other, create confusion, and ultimately set unrealistic expectations about the pace of progress.

The world needs to couple common accounting standards with the public reporting of carbon emissions by companies, non-profits, and governments themselves. Carbon reporting is quickly becoming important to the stakeholders of all these groups, including investors, customers, employees, regulators, donors, and citizens. Climate-related issues are becoming more important to shareholders as they make investment and voting decisions. This includes the impact of our products, services, and operations on the environment, changes in worldwide markets driven by climate change, the risks and opportunities that those changes present, and concrete actions that we are taking in response.

Governments are increasingly focused on new rules regarding the disclosure of corporate carbon-related information. Regulators in diverse markets including the United States, India, Japan, the Republic of Korea, the United Kingdom, and the European Union have proposed or enacted initial measures that require or incentivize companies to report environmental and carbon-related information, often with varying,

fragmented degrees of complexity across Scopes 1, 2, and 3.[2] For example, the UK government now requires any company with more than 500 employees and more than £500 million in annual sales to disclose climate-related financial information, including Scope 1 and Scope 2 emissions. Japan requires companies listed on the newly defined "Prime" market of the Tokyo Stock Exchange to issue similar climate-related disclosures, and the US SEC is likely to finalize its disclosure rule by the end of 2022. These actions build on recommendations made by the Task Force on Climate-related Financial Disclosures (TCFD), which has emerged as the benchmark for corporate entities to publicly disclose data on Scope 1, 2, and 3 emissions, mitigation plans, and climate risks—but they do not yet go as far as the TCFD recommends.

We will support corporate carbon disclosure and procurement reporting policies that (1) drive consistent, robust, and interoperable GHG reporting metrics, (2) promote comprehensive yet flexible corporate GHG disclosures, and (3) take advantage of new technologies to calculate and track emissions and climate impacts.

- ## Drive consistent, robust, and interoperable GHG reporting metrics

  Consistent reporting is essential to comparing, combining, and calculating emissions at the organization, country, and global level. It enables governments, organizations, and individuals to more accurately assess emissions, track progress, and identify key challenges to reaching global net zero. Reporting rules that are interoperable across geographies and harmonized with existing global reporting initiatives such as the TCFD and the International Financial Reporting Standards (IFRS) Foundation will help reduce fragmentation in sustainability disclosure standards. By supporting existing efforts to develop universally understood and calculated approaches for Scope 1, 2, and 3 emissions, public policies can help standardize GHG emission reporting methods. There is an equivalent need for consistency and interoperability in product emissions reporting. The principles that we introduce in the Carbon removal: supporting certified, long-lasting, equitable impact section underscore the need for consistent standards, which includes the need to build common approaches to measuring negative emissions that will enable customers and other stakeholders to make meaningful comparisons and informed decisions.

- ## Promote comprehensive yet flexible corporate GHG disclosures

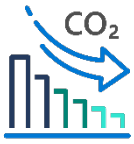
  Comprehensive, consistent, and comparable GHG emissions disclosures are an important piece of the mosaic of information that investors need to assess the performance, risks, and opportunities of public companies. Emissions disclosure requirements should strike a balance to provide investors with relevant information to inform investment decisions while limiting the reporting burden for smaller enterprises, given the resource-intensive process of compiling and reporting Scope 3 emissions. We support policies that require regular reporting of Scopes 1, 2, and 3 emissions by large companies and accommodate smaller companies' Scope 3 emissions reporting challenges. Furthermore, we recognize that carbon reporting standards are not as mature as

[2] The Greenhouse Gas Protocol defines the GHG "scopes": Scope 1 refers to direct GHG emissions from sources owned or controlled by the company, such as from combustion in boilers, furnaces, and vehicles. Scope 2 refers to indirect emissions related to the generation of purchased electricity. Scope 3 refers to all other indirect GHG emissions, such as those from purchased goods and services, transport-related activities, and waste disposal.

financial reporting standards. We will support policies that allow for—even expect—ongoing refinement of emissions calculation methodologies as they evolve, without such changes being considered errors.

- **Take advantage of new technologies to calculate and track emissions and climate impacts**

  Technology can play a key role in advancing carbon reporting by helping organizations track and report climate-related information, improving reliability and interoperability, enhancing auditing and verification processes, and reducing the operational costs of compliance. We believe that digital tools are ideal to support the dynamic nature of carbon accounting and reporting, by enabling metrics and methodologies to be regularly reviewed and updated as needed to reflect new approaches. Technology-focused policies will also enhance the ability to measure progress and identify challenges for reduction and removal, as well as track the impact of climate change on ecosystems, water, food supply, and other natural resources. Better understanding of these climate impacts is critical to developing and executing more impactful climate finance and adaptation strategies.



Carbon reduction: accelerating sector-specific approaches

To achieve net-zero emissions by mid-century, governments need to put in place additional policies to reduce carbon emissions. These policies will vary across geographies. Some policy approaches will focus on economy-wide solutions such as an emissions trading scheme (ETS)—or "cap and trade"—in which the government issues or auctions licenses to emit a fixed amount of GHG emissions for specific industries, and recipients with spare capacity can trade licenses to those expecting to exceed their allowance. The United Kingdom, European Union, and Republic of Korea have taken this approach. Other policies will target specific sectors like power generation, building, transportation, aviation, and agriculture, with governments using different policy levers to lower each sector's footprint. For example, to reduce emissions in the power sector, several US states, the European Union, India, and China, among others, have enacted clean energy standards, which require a certain amount of electricity to be sourced from carbon-free plants. Other countries such as the United States provide financial incentives to power plants with emissions below a certain threshold. There is a similar dynamic in the transportation sector, with some governments pursuing vehicle emission limits, others using financial incentives and adjusting government procurement rules, and others enacting future bans on the sale of internal combustion engines.

We will support new carbon reduction policies that (1) support a broad, outcome-based, multisector toolkit, (2) double down on grid decarbonization while incentivizing reduction in hard-to-abate sectors, and (3) design for empowered advancement.

- ## Support a broad, outcome-based, multisector toolkit

  There is no single "silver bullet" policy to reduce carbon emissions. For each country, the ideal approach should start with a robust national target that commits to net-zero emissions by 2050 and then designs nationally determined contributions to reduce emissions every five years at a pace aligned with that target. Not every country will follow the same timeline, and the least developed countries may need more time to achieve these goals. Implementing these targets will require policies that address the unique carbon dynamics of each sector. Policy design should focus on reducing carbon without a design or technology bias and, where possible, prioritize levers that directly accelerate carbon reduction, such as emissions regulations and carbon pricing. As part of a broader policy toolkit, carbon pricing can help drive less carbon-intensive behavior. At Microsoft, we have applied our own internal carbon fee since 2012. We support carbon pricing policies that are designed effectively to significantly reduce carbon, provide consideration for trade-exposed industries, help mitigate negative impacts on low-income communities, and establish clear performance standards and metrics to guide investments.

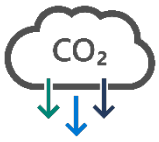
- ## Double down on grid decarbonization while incentivizing reduction in hard-to-abate sectors

  Decarbonization of the electricity sector offers the most significant and cost-effective near-term opportunity to reduce carbon. Much of the required grid technology is already commercially available, and electricity markets are more mature than other carbon-related markets. However, we believe that new policies are needed to accelerate the transition to clean electricity generation (including through energy efficiency), to modernize and improve the grid infrastructure (including transmission systems), and to enable an equitable energy future for affected communities. (Our *Expanding carbon-free electricity globally: Microsoft electricity policy brief* provides more detail.) Policy design may vary greatly between countries—from regulatory caps to clean energy standards to financial incentives to public procurement. We will support cost-effective energy policies that provide long-term market certainty and drive innovation. Beyond the electricity sector, we will also support policies that boost the market for solutions in hard-to-abate sectors (such as building, aviation, and manufacturing) to enable goods and services related to carbon reduction to scale quickly with reduced deployment costs. Reaching global net-zero emissions by mid-century will require enabling policy and market constructs for deploying private sector capital, particularly in new and unproven technologies. Facilitating corporate investment in and offtake from environmental goods and services markets is crucial. Alongside these policies, we believe that government procurement can play a vital role in promoting the development and use of these products and driving GHG emissions reductions of purchased goods and services. We will support policies that help ensure that the cost to fund all of these policies and investments is allocated equitably.

- ## Design for empowered advancement

  The path to net-zero emissions is heavily influenced by a country's stage of economic development and natural resource mix. Innovations in financing mechanisms, technology design, deployment approaches, and participation models can help countries in the Global South, which are often at the beginning stages of climate mitigation and adaptation journeys, to advance

immediately beyond traditional carbon-intensive infrastructure, eliminating potential sunk costs that many in the Global North will have to address. The Global North should partner with countries to support these mechanisms through well-designed climate finance aid, alongside international financial institutions and corporate investment vehicles. Partnerships can also include opportunities to advance sustainability education, expand climate data and science capabilities, and develop skilled workforces across the globe to help build the markets and infrastructure to address the global climate crisis.



Carbon removal: supporting certified, long-lasting, equitable impact

The urgency of scaling the carbon removal market continues to increase. An August 2021 report from the Intergovernmental Panel on Climate Change (IPCC) paints a stark picture and has been called a "code red for humanity" by the United Nations Secretary-General. The IPCC report reinforces the need for the world to remove on the order of 10 gigatons of carbon dioxide (or its equivalent) annually in the second half of this century—and to make rapid progress immediately. Crucially, this must be in tandem with, and not as a replacement for, unprecedented carbon emissions reductions.

Government policy can play an important role in building markets for high-quality and durable carbon removal. While there are no comprehensive, codified national regulations or rules for the carbon removal market at this time, many governments are starting to work on regulations that will (1) boost supply through incentives and tax credits (like Section 45Q of the US tax code, which provides a performance-based credit for eligible carbon capture projects) and (2) drive quality standards for carbon removal (like initiatives recently launched by the European Commission to develop certification and verification rules for carbon removal). This evolving regulatory landscape presents an opportunity to develop the carbon reduction and removal markets and ensure high-quality carbon removals.

We will support new carbon removal policies that focus on (1) driving clear accounting and high-quality standards, (2) prioritizing highly durable solutions, and (3) engaging local and affected communities.

- ## Drive clear accounting and high-quality standards

  There is no consistent set of standards for measuring, verifying, and reporting carbon removal. Removals are not consistently distinguished from offsets that cover avoided or reduced emissions, particularly in the most widely used standards. Moreover, different credit systems make very different assumptions about the durability (the time that carbon dioxide will remain sequestered from the atmosphere—critical to net climate value) of different solution types, the risk of premature reversal to the atmosphere, and the recourse required if that carbon is lost. Without clear standards, companies develop their own criteria and track outcomes in different ways that cannot be easily compared. This is inherently inefficient and introduces the risk of inconsistent claims. Policies and government procurement requirements can help drive the development of clear accounting rules and set benchmarks for high-quality carbon standards as a way to enhance public trust in these markets.

- ## Prioritize highly durable solutions

  To date, removal policies have concentrated on source carbon capture solutions or natural solutions that store carbon for less than 100 years. High-durability carbon removal technologies and solutions—such as carbon mineralization and direct air capture (DAC)—are those that sequester carbon dioxide for millennia, making them effectively permanent. These high-durability, technology-based solutions generally do not present as high a risk of reversal as natural solutions (such as the risk of a wildfire destroying a forestry project). But these solutions are also currently in very short supply and unaffordable for many companies, costing hundreds to thousands of dollars per ton. We will support policies that boost the market for highly durable engineered solutions such as DAC, biomass-based pathways, and carbon mineralization. These policy mechanisms include financial incentives, public procurement, R&D, and guidance that ties the use of these highly durable solutions to compliance with last-mile reduction requirements.

- ## Engage local and affected communities

  Climate change has and will continue to affect communities differently. We believe that public carbon removal policies should incorporate climate equity considerations. Mechanisms for this could include (but are not limited to) listening sessions with affected communities to set specific program goals that address local environmental justice priorities; development of performance indicators to ensure continuity of focus on climate equity; and incubation of carbon removal projects designed and implemented across community and private sector stakeholders that make a meaningful contribution to climate equity goals. Government policies can also play a valuable role in communicating the benefits of carbon removal (for instance, to farmers, for whom soil carbon sequestration can lead to larger, more resilient yields) and supporting sustainability skills development within affected communities.

Conclusion

Public policy will play a critical role in the global net-zero transition. Microsoft has a longstanding history of environmental sustainability action and advocacy, and we view it as both our responsibility and an opportunity to use our voice to support the policies that we believe will have the greatest impact. Effective public policies will enable an accurate view into the current state of carbon emissions (at organizational, national, regional, sector, and global levels), support the markets and innovation required to replace carbon-intensive activities with carbon-free alternatives, and create the market for long-lasting carbon removal, which will be essential to reaching net-zero targets—all while ensuring an equitable transition that protects those most affected by climate change.

Appendix: Carbon policy principles at a glance

Carbon reporting

- Drive consistent, robust, and interoperable GHG reporting metrics
- Promote comprehensive yet flexible corporate GHG disclosures
- Take advantage of new technologies to calculate and track emissions and climate impacts

Carbon reduction

- Support a broad, outcome-based, multisector toolkit
- Double down on grid decarbonization while incentivizing reduction in hard-to-abate sectors
- Design for empowered advancement

Carbon removal

- Drive clear accounting and high-quality standards
- Prioritize highly durable solutions
- Engage local and affected communities