On the road to 2030:

Microsoft - enabling environmental sustainability

In China and globally, expectations for environmental, social, and governance (ESG) practices and their impact on enterprises and society are constantly evolving.

As a result, businesses are increasingly putting ESG issues at the forefront of their business strategy, governance, and compliance frameworks.

Microsoft remains committed to working with its partners and suppliers globally, including those in China, to track ESG regulatory developments and take active steps to progress and share learnings on the journey to meet Microsoft's 2030 sustainability commitments. As part of its efforts to be a responsible global organization, Microsoft strives to help customers achieve their environmental sustainability strategies.

Evolution of China's environmental sustainability framework

Microsoft recognizes the importance of monitoring policy and regulatory updates relating to the global environmental sustainability framework, including in China. For Microsoft, understanding the rules applicable to its operations and the suppliers and customers in its value chain is key to achieving its own commitments and helping customers pursue their ESG goals. The EU has been particularly active in developing regulation with extensive sustainability disclosure requirements and new requirements for companies to consider and report on environmental and social risks beyond traditional boundaries. In particular, the EU's Corporate Sustainability Reporting Directive (or CSRD) will require certain companies operating within, or otherwise generating certain levels of revenues within, the EU to report on a wide range of ESG factors across their value chain and beyond traditional boundaries. To be able to report on this basis will require changes to the way both Microsoft and its customers currently operate and transact and how we interact with business partners.

Against this global landscape, green development has been one of the Chinese government's top priorities since the publication of its 13th Five-Year Plan in 2016[1]. Echoing policy developments seen in the 18th National Congress[2] and again in the 2021 iteration of the 14th Five-Year Plan[3], China has been seeking to implement a comprehensive legal framework to address live ESG issues that are increasingly considered important by civil society in China and globally. This legal system covers environmental protection, national resource protection, climate change and energy utilization, enhanced by the "Green Principle" adopted in the new Chinese Civil Code.[4]

Government departments including the Ministry of Ecology and Environment (MEE)[5], the China Securities Regulatory Commission (CSRC)[6], the People's Bank of China (PBoC)[7] and the National Development and Reform Commission (NDRC)[8] have formulated a series of environmental policies and measures. These share a variety of goals, such as establishing an environmental information disclosure system for in-scope businesses[9], reducing greenhouse gases[10], and taking environmental protection into consideration during the investment and financing process[11]. Standards, guidelines and reports have been issued by stock exchanges[12] and associations [13] to promote the development of environmental sustainability.

What is Microsoft doing for environmental sustainability?

Microsoft's approach to addressing the climate crisis starts with the sustainability of our own business. Some examples of this, in China or globally, include:

01 Microsoft is committed to being Carbon Negative[14] by 2030

Standardizing sustainability in our supply chain

Microsoft's Supplier Code of Conduct[15] seeks to standardize our own supply chain and requires suppliers in China to reduce the three types of carbon emissions (that is, the emission of greenhouse gases having to be disclosed under scope 1, 2, and 3 through CDP) with the goal of achieving at least a 55% reduction target by 2030[16]. We work with our supply chain partners to promote the use of renewable energy, improve production efficiency, reduce wastewater and waste, gradually introduce recycling of materials, and certify their use. Additionally, we require suppliers to provide regular data reports and conduct sustainable development KPI performance assessments, providing third-party verification of disclosed data when requested by Microsoft.

Energy-efficient building of our smart campus

Energy-efficient operations are a key part of achieving carbon negative. Our campus projects adhere to strict sustainability standards and follow a sustainability plan that includes energy efficiency initiatives each year to drive down energy usage[17]. For example, we rolled out a special project for our campuses in Beijing, Shanghai and Suzhou to align with the green-development goals for smart buildings in China. By facilitating effective environmental sustainability management in the workplace, Microsoft's Beijing Campus has passed an energy audit conducted by Haidian district,

and has achieved energy savings of 27.9% through continuous retrofitting and optimization. These efforts have led to a cumulative saving of 25,027 tons in the carbon emission allowance attributed to the building. We have accordingly received an energy saving endorsement and financial subsidy by the both Beijing Municipal and Haidian District Governments[18], alongside the LEED Gold or Platinum certification that we require all our major building projects to achieve as a mark of the high energy efficiency of their designs.

Microsoft is also determined to embrace renewable energies in our own facilities. An example is the photovoltaic (PV) solar panels installed in FY20 on empty roof space of our Beijing and Shanghai Zizhu campuses. These panels are expected to generate 15,450 MWh of electricity over the next 25 years to contribute to powering these campuses.

Climate Innovation Fund

We have set up a US$1 billion Climate Innovation Fund globally to support innovative technologies and business models that have the potential for meaningful, measurable climate impact by 2030. Since its inception, Microsoft has allocated $600 million of impact investment capital from our Climate Innovation Fund to a global portfolio of investments, featuring sustainable solutions in energy, industrial, and natural systems. In addition, we are also on our way to building carbon dioxide removal capacity, innovating using thermal energy and implementing all-electric kitchens.[19]

02 Microsoft is committed to being water positive by 2030

We contracted for global replenishment projects that are estimated to provide more than 15.6 million cubic meters in volumetric water benefits, increasing our running total of replenishment projects to 35 million cubic meters. Additionally, we provided more than 850,000 people with access to clean water and sanitation solutions, including 163,000 people in Brazil, India, Indonesia, and Mexico.

03 Microsoft is committed to being Zero Waste by 2030

We increased our global reuse and recycled rates of all cloud hardware to 82% and are making progress toward our 2030 reuse and recycle goal of 90%. We also reduced single-use plastics across all Microsoft packaging to 3.3% and are on track to eliminate their use by 2025. In total, we have diverted 12,159 metric tons of solid waste from landfills.

04 Microsoft is committed to being Ecosystems Protection by 2030

We maintain our commitment to protect more land than we use globally. In 2022, 12,000 of the over 17,000 acres of contracted land were officially designated as protected. The amount of land protected in 2022 exceeds the approximately 11,200 acres of land we currently use. We are using the Last Chance Ecosystems framework to prioritize our selection of land protection projects and partner with the UN Biodiversity Lab and the Group on Earth Observations Biodiversity to develop conservation management tools.

Amplifying our impact and helping customers pursue their environmental sustainability goals

Our second sphere of influence is customer sustainability.
As a technology company, we have a role to play with the thousands of corporate customers who put their trust in Microsoft's technology. The majority of our customers have already made a climate pledge and Microsoft is working to help them move from pledges to progress. It's important that our approach supports the sustainability needs of our customers. This includes the following:

Global data center decarbonization

Using data centers and services with lower carbon emissions is significant for achieving an organization's overall carbon reduction goals.

Professional data shows that using the international version of Microsoft's intelligent cloud services can improve energy efficiency by 22%-93% compared to traditional enterprise data centers. If Microsoft's zero-carbon electricity energy is considered, using the international version of Microsoft's intelligent cloud services can reduce carbon emissions by 72%-98%.

Globally, Microsoft has the following four underlying logics for the decarbonization of its intelligent cloud:

01 IT operation efficiency

Microsoft Azure cloud services can achieve dynamic provisioning and multi-tenant strategies. The former can optimize the matching of actual demand and cloud service computation usage, minimizing computing resource waste and avoiding over-configuring computing resources. The latter provides different types of service resources for different customer demands, achieving load diversity and dynamic balance of cloud computing resources: when the load increases **from 10% to 40%**, the server's power consumption only increases by **1.7 times.**

02 IT equipment efficiency

Microsoft has actively attempted to customize hardware components based on specific service requirements, allowing devices to be more streamlined and energy-efficient. Studies have shown that **Microsoft's intelligent cloud can reduce power consumption by more than 10%.**

03 Data center infrastructure efficiency

Compared to traditional enterprise data centers, Microsoft's ultra-large-scale data centers have advanced infrastructure technologies and can achieve higher power usage effectiveness (PUE) in lighting, cooling, and power regulation.

04 Use of renewable energy

Microsoft has pledged to convert all energy consumption at all self-operated data centers, buildings, and parks worldwide to zero-carbon renewable energy by 2025. The decarbonization of the intelligent cloud indirectly brings huge benefits to customers and partners. For example, a consumer goods industry customer can calculate that migrating data from CE2 computer rooms to CN3 computer rooms can achieve a carbon reduction **ratio of 1/4.**
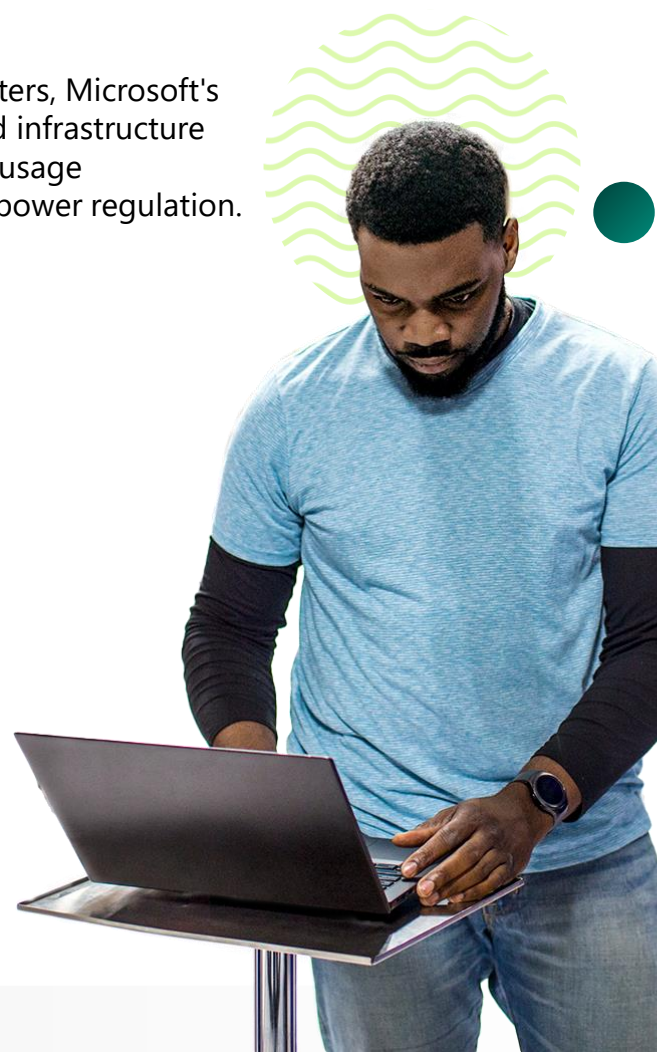
Microsoft Sustainability Cloud makes carbon emissions more "trackable"

In addition to investing in cloud infrastructure, in June 2022, Microsoft Cloud for Sustainability was launched. This is a comprehensive environmental sustainability management platform and allows corporate organizations to record, report, and reduce carbon emissions more effectively to achieve net-zero emissions. Microsoft Cloud for Sustainability also enables organizations to record, report, and reduce their environmental impact through numerous automated data connections. These connections will integrate data sources such as IoT data from devices using sensors and data from rich services in the edge or cloud.

Microsoft Sustainability Cloud offers assistance for companies and prepares them to execute their **expansion strategies**. Providing a common foundation for measuring carbon emissions accurately, consistently, and reliably worldwide, we help Chinese customers who are interested in going abroad calculate their relevant carbon emissions data. Now, Chinese companies can use this product on global Microsoft Azure to measure their sustainable development work.

Azure China and the "three-stream integration" principle

Microsoft Azure, operated by 21Vianet ("Azure China"), is the first internationally public cloud service launched in China. It began full commercial operations in March 2014. It is independently operated and transacted by Shanghai Blue Cloud Technology Co., Ltd. (21Vianet), an affiliate of Beijing 21Vianet Broadband Data Center Co., Ltd. The Azure China intelligent cloud green data center follows Microsoft's **"three-stream integration"** principle in the entire process of site selection, construction, and operation. "Three-stream" refers to "energy flow," "data flow," and "business flow," with "energy flow" taking priority. When selecting a data center site, it is necessary to prioritize locating projects in areas with abundant renewable energy and high proportions of "abandoned wind and electricity," thereby promoting the local consumption of renewable energy and activating local green economic development.
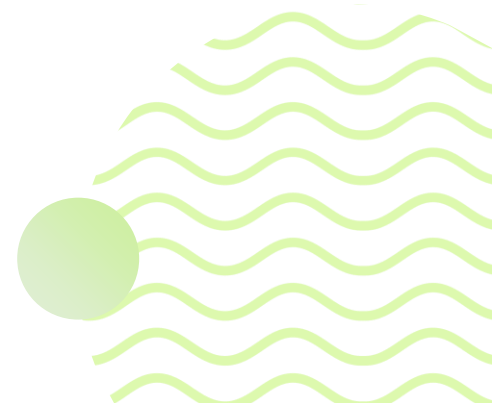
An indicative case study: supporting our Chinese customers to achieve their sustainability goals

We have established a partnership with Envision (远景能源), China's second largest smart wind turbine supplier and the largest player in sustainable technology solutions for offshore wind power since 2017. Envision has built its energy IoT platform (EnOS) on the Microsoft Azure Cloud globally. Leveraging the EnOS platform, Envision partnered with Keppel to deliver a smart IoT industrial park and urban demonstration zone for the government of Wuxi, China[20]. The project was considered a **landmark collaborative project for the first IoT-defined smart city demonstration community and smart IoT industrial park in China.**[21]

Other than its business success, Envision also managed to achieve its sustainability goals by using our technologies. The initial acceptance and trial time for new customers was **reduced to 2 days** in the deployment cycle, reducing the deployment and management costs. With our Azure IoT, data storage and other technologies, Envisions system can support the management of global wind farms, energy storage devices, charging piles and building power devices, ensuring the security of **106 GW of energy and power assets,** and the safe and efficient transmission of **over 2.2 billion messages** generated by **660,000 devices** and **over 60 million data measurement points.**[22]

Our vision for a sustainable future

Our third sphere of influence is to impact global sustainability. Microsoft strives to accelerate progress toward a more sustainable future by reducing our environmental footprint, accelerating research, helping our customers build sustainable solutions and advocating for policies that benefit the environment.

Carbon Negative

We're committed to being **carbon negative by 2030** and **by 2050 removing 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. Our existing commitment to execute power purchase agreements equivalent to 100% of our energy needs by 2025 has positioned Microsoft as one of the largest purchasers of renewable energy in the world. By 2030, we will have 100 percent of electricity consumption, 100 percent of the time, matched by zero carbon energy purchases. This is also in line with the **Chinese government's own 2030/2060 decarbonization goal**.

Water Positive

We're committed to being **water positive by 2030**. We're strengthening how we manage water within Microsoft, while working to improve the way the world evaluates and manages water today and for future generations.

Zero Waste

We're committed to reaching **zero waste in Microsoft's direct operations, products and packaging by 2030**. As a company that manufactures devices, builds campuses and data centers, and uses manufactured goods in our operations, we're committed to responsibly designing and sourcing materials and building a more circular approach into our work and the world. This also means that all Microsoft-owned data centers will be **zero waste certified by 2030**.

Ecosystems Protection

We're committed to permanently protecting more land than we use, that is, **more than 11,000 acres of land by 2025**. We're also committed to being good stewards of the land we use – as well as going beyond our own operations and actively working to protect the environmental health of the communities that host our data center operations and where our employees live and work.

We believe that Microsoft has an important role to play in developing and advancing new solutions to support the goal of global sustainability, but also recognize that the climate and other environmental crises can't be solved by any single company, organization, or government. The global community needs partnerships, new innovations, policies, and global commitment to ensure a healthy future for all.

[1] *Outline of the 13th Five-Year Plan (2016-2020) for National Economic and Social Development* (《国民经济和社会发展第十三个五年规划纲要》).

[2] *Reform of the System for Developing an Ecological Civilization* (《生态文明体制改革总体方案》).

[3] *Outline of the 14th Five-Year Plan (2021-2025) for National Economic and Social Development* (《国民经济和社会发展第十四个五年规划纲要》).

[4] Article 9, the *Chinese Civil Code* (《民法典》).

[5] e.g., *Administrative Measures for the Mandatory Disclosure of Environmental Information by Enterprises* (《企业环境信息依法披露管理办法》).

[6] e.g., *Chapter 2 Section 5, the Standards for the Contents and Formats of Information Disclosure by Companies Making Public Offering of Securities No.2 - Contents and Formats of Annual Reports (Revised in 2021)* (《公开发行证券的公司信息披露内容与格式准则第2号—年度报告的内容与格式（2021修订）》).

[7] e.g., *Catalogue of Green Bonds Support Projects (Revised in 2021)* (《绿色债券支持项目目录（2021年版）》).

[8] e.g., *Interim Measures for the Administration of Voluntary Emission Reduction Trading for Greenhouse Gases* (《温室气体自愿减排交易管理暂行办法》).

[9] *Notice on Promulgation of the Reform Program for the System of Mandatory Disclosure of Environmental Information* (《环境信息依法披露制度改革方案》).

[10] *Pollution and Carbon Emission Reduction and Synergy Implementation Plan* (《减污降碳协同增效实施方案》).

[11] *Guiding Opinions on Promoting Investment and Financing for Addressing Climate Change* (《关于促进应对气候变化投融资的指导意见》).

[12] e.g., *Listing Rules of the Shanghai Stock Exchange Science and Technology Innovation Board* (《上海证券交易所科创板股票上市规则》); and *Guideline No. 3 on Self-regulation of Listed Companies on Shenzhen Stock Exchange - Disclosure of Industry Information (Revised in 2023)* (《深圳证券交易所上市公司自律监管指引第3号——行业信息披露》).

[13] e.g., *Green Investment Guidelines (Trial)* (《绿色投资指引（试行）》) issued by the Asset Management Association of China; and *Guidance for Enterprise ESG Disclosure* (《企业ESG披露指南》) issued by the China Enterprise Reform and Development Society.

[14] A company is carbon negative when it removes more carbon than it emits each year.

[15] Available at https://www.microsoft.com/en-us/procurement/supplier-conduct.aspx.

[16] Available at https://china.cdp.net/.

[17] Available at https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RW14sJN.

[18] Available at https://www.prnewswire.com/news-releases/johnson-controls-ai-enhanced-openblue-platform-cuts-microsofts-beijing-campus-energy-footprint-301604320.html.

[19] Available at https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RW14sJN#page=26.

[20] See https://www.geekpark.net/news/235983.

[21] See http://intl.ce.cn/specials/zxgjzh/201812/10/t20181210_30996238.shtml.

[22] See our news at 微软数字技术为能源行业打造低碳、高效、可持续的未来 – 新闻中心 (microsoft.com).