

Module: Introduction**Page: Introduction**

CC0.1**Introduction**

Please give a general description and introduction to your organization.

At Microsoft, our mission is to empower every person and every organization on the planet to achieve more. Our strategy is to build best-in-class platforms and productivity services for a mobile-first, cloud-first world. We aim to reinvent productivity and business processes, build the intelligent cloud platform, and create more personal computing. Our unwavering commitment to responsible business practices and strong corporate governance is mission based and values driven.

We know that climate change is a serious challenge that requires a comprehensive and global response from all sectors of society. We have a long-standing commitment to sustainability. Our goal is to empower every person and organization on the planet to thrive in a resource-constrained world, and we live that in our own operations. We are committed to measuring, transparently reporting, and reducing the carbon footprint of our own operations. We are also searching for opportunities to minimize our environmental impact, reduce waste, and conserve water and other raw materials. In pursuing these goals, we follow strict policies to ensure that the company remains fully compliant with international environmental regulations and the specific environmental requirements of each country/region where we do business.

CC0.2**Reporting Year**

Please state the start and end date of the year for which you are reporting data.

The current reporting year is the latest/most recent 12-month period for which data is reported. Enter the dates of this year first.

We request data for more than one reporting period for some emission accounting questions. Please provide data for the three years prior to the current reporting year if you have not provided this information before, or if this is the first time you have answered a CDP information request. (This does not apply if you have been offered and selected the option of answering the shorter questionnaire). If you are going to provide additional years of data, please give the dates of those reporting periods here. Work backwards from the most recent reporting year.

Please enter dates in following format: day(DD)/month(MM)/year(YYYY) (i.e. 31/01/2001).

Enter Periods that will be disclosed

Wed 01 Jul 2015 - Thu 30 Jun 2016

CC0.3

Country list configuration

Please select the countries for which you will be supplying data. If you are responding to the Electric Utilities module, this selection will be carried forward to assist you in completing your response.

Select country

CC0.4

Currency selection

Please select the currency in which you would like to submit your response. All financial information contained in the response should be in this currency.

USD(\$)

CC0.6

Modules

As part of the request for information on behalf of investors, companies in the electric utility sector, companies in the automobile and auto component manufacturing sector, companies in the oil and gas sector, companies in the information and communications technology sector (ICT) and companies in the food, beverage and tobacco sector (FBT) should complete supplementary questions in addition to the core questionnaire.

If you are in these sector groupings, the corresponding sector modules will not appear among the options of question CC0.6 but will automatically appear in the ORS navigation bar when you save this page. If you want to query your classification, please email respond@cdp.net.

If you have not been presented with a sector module that you consider would be appropriate for your company to answer, please select the module below in CC0.6.

Further Information

Microsoft acquired LinkedIn on December 8, 2016 (after the close of the reporting period for this response). We are working to integrate LinkedIn environmental data and plan to include LinkedIn operations in our environmental reporting from our 2018 CDP response (which will report on FY17, the year in which the acquisition took place).

Module: Management

Page: CC1. Governance

CC1.1

Where is the highest level of direct responsibility for climate change within your organization?

Board or individual/sub-set of the Board or other committee appointed by the Board

CC1.1a

Please identify the position of the individual or name of the committee with this responsibility

(i) Regulatory and Public Policy Committee of the Board of Directors

(ii) The charter for the Regulatory and Public Policy Committee of our Board of Directors includes the responsibility to “review and provide guidance to the board and management about the company’s policies and programs that relate to corporate citizenship, including human rights, environmental sustainability, corporate social responsibility, supply chain management, charitable giving, and political activities and expenditures.” Each year, our President and Chief Legal Officer (CLO) presents to this committee on these topics (including climate change) as appropriate. In FY16 (the reporting period), the President and CLO was responsible for our Corporate, External, and Legal Affairs (CELA) group, into which our Chief Environmental Strategist reports. Our Chief Environmental Strategist leads the Environmental Sustainability team, the charter of which includes management of issues related to climate change. The team’s mission is to empower people and

organizations around the planet to thrive in a resource-constrained world. The Environmental Sustainability team assesses progress on our environmental sustainability programs and supports our overall commitment to environmental sustainability goals, including our target to become carbon neutral from fiscal year 2013 (FY13, which started July 1, 2012) onward.

CC1.2

Do you provide incentives for the management of climate change issues, including the attainment of targets?

Yes

CC1.2a

Please provide further details on the incentives provided for the management of climate change issues

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Environment/Sustainability managers	Monetary reward	Emissions reduction target	Annual commitments—Both the Chief Environmental Strategist and the Senior Director of Environmental Sustainability roles have commitments that are connected with our organizational carbon footprint and our target to be carbon neutral for FY16, the reporting period for this response. Annual bonuses and performance ratings are directly connected with performance against these commitments as part of the annual review process.
Business unit managers	Monetary reward	Energy reduction target	Annual commitments—The Microsoft Cloud Infrastructure and Operations (MCIO) organization, which in FY16 was responsible for the datacenters that support our cloud computing services, has set energy efficiency targets. Business unit managers for MCIO have commitments that are tied to individual energy efficiency targets for each new datacenter. Annual compensation is directly connected with performance against these commitments as part of the annual review process.
Facility managers	Monetary reward	Energy reduction project	Energy conservation measures—Within our Real Estate & Facilities (RE&F) group, our facility managers are encouraged to submit ideas for energy conservation measures (ECMs). Their ideas are vetted by engineering and implemented if viable. For implemented projects, facility managers receive a monetary incentive and team recognition.

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Other: Business groups	Monetary reward	Emissions reduction target	Carbon fee—The corporate-wide carbon fee provides a financial incentive for Microsoft business groups to reduce carbon by reducing the costs charged to compensate for carbon emissions associated with their operations. (The funds collected through the fee are used to attain our carbon neutral target.)
All employees	Monetary reward	Efficiency project	Climate Grant funding—In FY16, individuals in our local subsidiaries who identified opportunities for emissions or energy reduction projects could apply for funding for those projects through our Climate Grant program. Successful applications were highlighted at the corporate vice president level when the grants were awarded.
All employees	Recognition (non-monetary)	Other: using technology to address environmental challenges	Hackathon—Each year, employees have the opportunity to participate in the Microsoft hackathon, a company-wide, multiday, multilocation event that brings employees and interns from all over the organization together to create, innovate, and hack on ideas that inspire them. The hackathon includes a sponsored executive challenge to “Demonstrate new ways for technology to help solve the world’s greatest societal and environmental problems.” The first place project receives publicity and time with the sponsoring executive. In FY16, one hackathon idea related to climate change was the “Empowering employees to impact our planet” initiative, which proposed using gamification in the internal supplier portal to encourage employees to take supplier sustainability rankings into account in their business decisions and engagements.

Further Information

Page: CC2. Strategy

CC2.1

Please select the option that best describes your risk management procedures with regard to climate change risks and opportunities

A specific climate change risk management process

CC2.1a

Please provide further details on your risk management procedures with regard to climate change risks and opportunities

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
Six-monthly or more frequently	Board or individual/sub-set of the Board or committee appointed by the Board	Microsoft considers risk management procedures related to climate change in all geographies in which we have facilities (covering more than 100 countries in North America, Europe, Middle East, and Africa [EMEA], Asia Pacific [APAC], and Latin America [LATAM]). Microsoft has incorporated a cross-corporate governance model into our global business planning and risk mitigation processes to evaluate and help manage risks/opportunities related to carbon emissions.	> 6 years	We have historically surfaced and triaged climate risks as part of our governance model as described in this question, question CC2.1b, and question CC2.1c. In prior years, we responded affirmatively that we had already integrated climate risks formally into our centralized enterprise risk management program. However, at the time we did not fully understand what such a process entailed and have thus changed our response to question CC2.1 from “integrated into multi-disciplinary company-wide risk management processes” to “a specific climate change risk management process.” We are currently formalizing the integration of climate risks into our centralized enterprise risk management program.

CC2.1b

Please describe how your risk and opportunity identification processes are applied at both company and asset level

Company level: The Environmental Sustainability team brings leaders from across the corporation together to identify risks/opportunities and align on management measures, including renewable energy. For guidance on globally changing dynamics, this team engages on an ongoing basis with experts around the world, including internal finance, regulatory/policy, technology, and environmental professionals, as well as external subject matter experts. Where applicable, it transitions identified risks and opportunities to subsidiaries for further evaluation and mitigation. In addition, our cross-company Carbon Neutral Council (which supports our corporate-wide carbon neutral target and monitors the financial impacts, risks, and opportunities associated with climate change) includes members of our product groups and the Data Center Risk Assessment team.

Asset level: Individual divisions within Microsoft each have their own processes. For example, Microsoft Cloud Infrastructure and Operations (MCIO, responsible for Microsoft cloud service datacenters) has a defined process for how it identifies and mitigates risks in the design and siting of new datacenters, and our Windows and Devices Group (WDG) organization has a Safety, Compliance, and Sustainability team that evaluates risks and opportunities pursuant to the ISO 14001 framework

in the context of energy efficiency and other regulatory and voluntary environmental requirements at the global, regional, national, and local level for existing and planned Microsoft-branded hardware and related devices and packaging supply chain operations. Subsidiaries manage their processes based on regional and geographical factors that affect them individually (such as local regulations).

CC2.1c**How do you prioritize the risks and opportunities identified?**

Through ongoing risk analysis and evaluation, we identify a range of climate change risks and opportunities, including those related to emissions regulations and other factors such as changing customer behavior. We work with key stakeholders across the company to address identified potential risks and close gaps. Criteria for prioritizing identified risks and opportunities include the scope of impact (such as regulatory impact and cost impact), potential return on investment, and time/resources required to implement changes. The results of our risk analysis are shared across our Carbon Neutral Council, which supports our corporate-wide carbon neutral target and monitors the financial impacts, risks, and opportunities associated with climate change.

CC2.1d

Please explain why you do not have a process in place for assessing and managing risks and opportunities from climate change, and whether you plan to introduce such a process in future

Main reason for not having a process	Do you plan to introduce a process?	Comment

CC2.2**Is climate change integrated into your business strategy?**

Yes

CC2.2a

Please describe the process of how climate change is integrated into your business strategy and any outcomes of this process

i) Our Environmental Sustainability (ES) team leads cross-organizational integration of climate change/sustainability into our business strategy through cross-company communications and sustainability programs, principles and policies. The team:

- Works with our facilities, datacenter and travel groups to influence policy and track progress against goals.
- Shares operational best practices with customers and partners.

ii) Example of how our business strategy was influenced in FY16 (the reporting period): initiated a comprehensive company-wide assessment of vulnerabilities to the physical impacts of climate change.

iii) Our strategy, which supports our target to be carbon neutral, has been influenced by regulatory and physical risks/opportunities related to climate change and opportunities to demonstrate environmentally responsible operations. Energy efficiency is an important part of our strategy, and we are investing to improve the efficiency of our products, datacenters and operations plus developing efficiency solutions with partners.

iv) Examples of changes to our short-term strategy (<3 years) in response to climate change:

- Travel. We encourage employees to fly economy class on international flights and host online meetings for internal meetings. Our online booking tools highlight the CO2 emissions of each trip.

- Commuting. Local commuting programs give employees more efficient transportation alternatives (e.g. in Puget Sound, our Connector bus helped eliminate ~17.2M miles of travel in 2016). Campus electric vehicle charging stations include: 38 in Puget Sound, 34 in Silicon Valley, 6 in Las Colinas, 2 in Charlotte, 1 in Wilsonville, and 5 in Ireland.

- Company car fleet. The CO2 emissions average for our global fleet was 123 g/km (target 125 g/km) at the end of FY16; we have set lower targets for each year (next target 120 g/km at start of FY18).

- Shipping. We are moving away from air toward more ocean and rail transport for our device supply chain and are a “shipper” partner with SmartWay, a public/private collaboration between the US EPA and the freight transportation industry to improve fuel efficiency.

- Suppliers. We award extra points in the strategic RFP process to indirect suppliers that disclose climate strategies/data through CDP.

v) Climate change is influencing our long-term strategy (3–10 years) in both product planning and physical infrastructure investments.

Product planning examples:

- We’re incorporating efficiency and power management into our R&D practices and core products. Each new version of Windows enhances energy efficiency and power management tools, including a new Energy Saver mode in Windows 10. Surface 3, Surface Pro 3, Surface Pro 4 and Surface Book are ENERGY STAR and EPEAT registered (Surface Pro 4 and Surface Book added in FY16). Our ULE 110–certified mobile phones reached the highest scores (ULE 110 establishes multiple-attribute sustainability criteria for mobile phones). Since the launch of Xbox 360 in 2005, we have reduced standby power by a factor of 10, to less than three-tenths of a watt, resulting in a 60% reduction in energy use.

- As a carbon neutral cloud services provider, Microsoft offers organizations a carbon-efficient alternative to running their own private datacenters. Cloud computing is both an opportunity and a risk for Microsoft: it is driving demand for our services but also increasing the number and scale of our datacenters while reducing the energy and carbon impact for our customers. We’re working to improve the efficiency of our datacenters, such as through more efficient cooling (e.g. using outside air and air-side and water-side economizers, reducing water use, running servers at higher temperatures). Each new datacenter design works to improve our energy efficiency metrics. Our average PUE (power usage effectiveness) across our global portfolio is considerably lower than the industry average of 1.7–1.9.

- Microsoft CityNext partner solutions spanning energy, water, building energy management, transportation, resource efficiency and ecosystem services help improve city sustainability.

Physical infrastructure examples:

- Our new buildings and significant renovations are designed and built to LEED Silver standards or better, using more natural light and less energy and water.

- In FY16 we continued using our energy-smart building management program for our Puget Sound and Silicon Valley campuses, deployed to our Las Colinas campus and made plans for two additional campuses in FY17. This program drives higher levels of efficiency, saving ~10–11% on energy consumption.

- Wherever possible, we locate new datacenters near renewable energy sources. We also explore opportunities to secure contractual obligations from energy providers to provide our facilities with a high percentage of renewable energy.

We expect that these investments will help reduce our climate change impact for the life of the facilities.

vi) As energy efficiency becomes increasingly important to our customers, many are looking to cloud computing to help reach their efficiency targets. Our strategic advantage lies in the fact that we have made a significant investment in cloud computing while continuing to build energy-smart on-premises software, giving customers the option to run highly efficient infrastructures on-premises, from the cloud, or both.

vii) Examples of substantial climate-related business decisions in FY16:

- Publicly committing to having our datacenters rely directly on a larger percentage of wind, solar, and hydro electricity over time (to pass 50% by the end of 2018 and 60% early in the next decade).
- Joining RE100.
- Forming a public-private partnership with the Commonwealth of Virginia and Dominion Virginia Power to bring 20MW of new solar energy onto the grid in Virginia.
- Launching a pilot program with Primus Power to test storage technologies that use flow batteries to act as grid resources to improve the reliability, energy efficiency, and usability of renewable energy.

The aspects of climate change that influenced these decisions are the international negotiations agenda (COP21), increasing cost of electricity, and rising customer expectations for energy efficiency and the use of renewable energy from Microsoft as a supplier.

viii) The Paris Agreement has raised both awareness and action around climate, carbon, and energy use. As a result, our ability to partner with public and private sector customers on how they can take advantage of technologies such as Microsoft Azure cloud services and a wide range of other Microsoft technologies has increased and will continue to do so.

ix) In FY16, the ES team (with the Corporate Risk Analysis team) initiated a climate change vulnerability assessment, including conducting a forward-looking scenario analysis based on the IPCC's RCP 8.5 scenario (mean 2°C projected increase, 2046–2065 relative to 1986–2005); this will inform our business strategy and planning.

CC2.2b

Please explain why climate change is not integrated into your business strategy

CC2.2c

Does your company use an internal price on carbon?

Yes

CC2.2d

Please provide details and examples of how your company uses an internal price on carbon

Effective July 2012, the start of Microsoft FY13, Microsoft began charging an incremental fee based on the carbon emissions associated with our operations. The carbon fee applies a carbon price to Scope 1, Scope 2, and Scope 3 business air travel emissions across the company. The fee is charged to individual business groups based on the emissions that they incur through their use of offices, software development labs, datacenters, and manufacturing sites, as well as business air travel. The funds that we collect through the fee go into a central fund that is subsequently invested in four categories to ultimately enable Microsoft to reduce carbon emissions and achieve our carbon neutral goal: (1) renewable energy, helping to expand the renewable energy market worldwide; (2) carbon offset community projects, supporting sustainable development globally, in particular in the areas of our datacenter operations; (3) Climate Grants, driving climate-related energy and technology innovation, both for our own internal operations and to contribute to global climate action; and (4) track-and-report projects, helping to ensure transparency and accountability of the Microsoft global carbon program. By charging individual business groups based on the emissions that they generate, we help to drive efficiency initiatives and innovation across our business.

We reevaluate the carbon price annually. The carbon price reflects our total investment strategy to reduce and offset our carbon emissions and drive innovation. The same price is used companywide, including 12 divisions in more than 100 countries. It is set and administered through our Environmental Sustainability team in partnership with the corporate finance department. Carbon Neutral Council members provide support on an ongoing basis for how to reduce carbon emissions and best use the funds to meet organizational priorities.

The carbon fee affects investment decisions by providing an incentive, the financial justification, and in some cases the funds for climate-related energy and technology innovation and the development of carbon reduction projects. Together with our carbon neutral commitment, the fee also helps to drive culture change by raising internal awareness of the environmental implications of our business and establishing an expectation for environmental and climate responsibility in our company. In FY16, the carbon fee fund was used to support investments in:

- a. 33 internal efficiency initiatives that otherwise likely would not have taken place, for a project lifetime reduction of \$2.9 million and 24,200 mtCO₂e (net present value).
- b. 3,344,727 MWh in green power in the United States, earning Microsoft the US Environmental Protection Agency (EPA) Green Power Partnership as the number two purchaser in the United States.
- c. 18 carbon offset projects in 14 countries to reduce more than 430,000 mtCO₂e and support the development of a low-carbon economy in emerging nations.

CC2.3

Do you engage in activities that could either directly or indirectly influence public policy on climate change through any of the following? (tick all that apply)

Direct engagement with policy makers
Trade associations
Funding research organizations

CC2.3a

On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
Clean energy generation	Support	In April 2016, Microsoft—along with Amazon, Apple, and Google—filed an amicus brief with the Washington, D.C., Circuit Court in support of the US Environmental Protection Agency (EPA) Clean Power Plan (CPP). The CPP would empower the EPA to limit power companies' carbon emissions, reducing the US carbon footprint and driving investment in clean, renewable energy.	We believe that robust clean energy and climate policies, like the Clean Power Plan, can drive growth of renewable energy and address the serious threat of climate change while also supporting American competitiveness, innovation, and job growth.
Clean energy generation	Support	In June 2016, Microsoft participated in the 7th annual Clean Energy Ministerial, a gathering of national energy ministers from 23 countries and the European Commission, all committed to significant action on energy efficiency and renewable energy. We were proud to support the launch of the Corporate Sourcing of Renewables Campaign and are actively working through the Renewable Energy Buyers Alliance (REBA) to deliver on our new renewable energy goals.	We support the Corporate Sourcing of Renewables Campaign.
Energy efficiency	Support	In June 2016, Microsoft participated in the 7th annual Clean Energy Ministerial, a gathering of national energy ministers from 23 countries and the European Commission, all committed to significant action on energy efficiency and renewable energy. We were proud to support the launch of the Corporate Sourcing of Renewables Campaign and are actively working through the Renewable Energy Buyers Alliance (REBA) to deliver on our new renewable energy goals.	We support the Corporate Sourcing of Renewables Campaign.
Clean energy generation	Support	In October 2015, Microsoft, as part of a group of Dominion large energy buyers (including Adobe Systems, Autodesk, Equinix, Facebook, Hilton Worldwide, Intuit, Kaiser Permanente, LinkedIn Corporation, Symantec Corporation, and Wal-Mart Stores), sent a collective letter to the Virginia State Corporation Commission in support of Dominion Virginia Power's 2015 Integrated Resource Plan (IRP) submission. Dominion's IRP submission aims to provide its customers with affordable, reliable, and clean energy by increasing and diversifying the renewable energy supply in Virginia. In November 2015, Microsoft joined other corporations in an advocacy letter to Dominion on expanding renewable options in Virginia. In March 2016, Microsoft announced a unique public-private partnership with the Commonwealth of Virginia and Dominion Virginia Power to bring 20 megawatts (MW) of new solar energy onto the grid in Virginia.	We support Dominion Virginia Power's 2015 IRP, which in turn supports the Commonwealth of Virginia's goal to generate 15 percent of its energy from renewable sources by 2025.
Other: Climate action	Support	In July 2015, Microsoft signed the American Business Act on Climate Pledge in support of driving more progress toward climate change mitigation at the Conference of Parties (COP 21) in Paris. We pledged to (1) Maintain carbon neutral operations for our datacenters, offices, labs, manufacturing facilities, and business air travel. (2) Purchase 100 percent renewable energy for the operations of our datacenters, offices,	We support the Paris Agreement as it provides assurance and clear direction for not only national governments but also corporations around the world. It will help companies to move forward in accelerating their low-carbon investments and helping to build a low-carbon global economy.

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
		labs, and manufacturing facilities. (3) Offset 100 percent of emissions from business air travel through supporting carbon offset projects that also drive social benefits in emerging nations. In November 2015, we were part of a coalition of 79 countries representing 20 economic sectors that published an open letter from CEOs to world leaders urging climate action on the World Economic Forum website. In December 2015, Microsoft also participated in the UN Climate Change Conference (COP21) as a 2015 Lighthouse Activity winner in the UN Framework Convention on Climate Change's (UNFCCC) Momentum for Change initiative. In support of the Paris Agreement, we were also among more than 1,300 signatories to the Paris Pledge for Action, through which non-Party stakeholders promise to ensure that the ambition set out by the Paris Agreement is met or exceeded to limit global temperature rise to less than 2 degrees Celsius.	

CC2.3b

Are you on the Board of any trade associations or provide funding beyond membership?

Yes

CC2.3c

Please enter the details of those trade associations that are likely to take a position on climate change legislation

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
Information Technology Council (ITI)	Consistent	ITI believes and advocates that innovative technologies are at the heart of the world's ability to develop clean, renewable energy sources and to use less energy where we live and work. Whether through the development of next-generation batteries or high-end computers that rely on less power to operate, through new approaches to recycling e-waste or by creating more effective ways to reduce our energy footprint, technology holds the key to energy independence. Smart grids, smart logistics, intelligent transportation systems, telework, and other information communications technology (ICT)–based technologies can make a huge difference as we seek to broaden access to sustainable energy. ITI is committed to advancing policies that will strengthen energy security and global competitiveness while fostering long-term sustainable economic growth. It believes that ICT innovations will be essential to achieving the sustainability and growth targets that governments have established for themselves, and yet there remain barriers to realizing the full potential of ICT. ITI is determined to help governments identify and remove these barriers. For more information, see www.itic.org/public-policy/energy .	We engage with the White House, federal agencies, and Congress to ensure that together we can successfully tap the potential of ICT to contribute to future security, sustainability, and competitiveness. We also work proactively with the US Environmental Protection Agency (EPA) through ITI as an active partner in and advisor to the ENERGY STAR program (the ITI Energy Efficiency Working Group [EEWG] helps coordinate meetings between the computer industry and the Department of Energy, which runs the ENERGY STAR program).
Global e-Sustainability Initiative (GeSI)	Consistent	GeSI is committed to sustainability actions and outcomes. Its members and partners use their collective knowledge and experience to identify opportunities and develop solutions for improving energy and resource efficiency, reducing carbon emissions and footprints, ensuring sustainable practices in the supply chain, encouraging access to sustainable technologies, and supporting ICT-enabled transformation across all industries and sectors around the globe. With a diverse and global member base and partnerships, GeSI fosters collaborative and innovative approaches to sustainability. It supports member initiatives in both developed and developing nations to quickly and effectively respond to issues such as climate change, energy efficiency, e-waste management and resource efficiency, responsible supply	We engage with GeSI on industry-wide initiatives to enhance the integrity of our supply chain. Our collaborative efforts with GeSI help us partner with industry peers, governments, and NGOs to transparently address complex sustainability issues while improving the development of the ICT sector. Through these efforts, we believe ICT can be used to foster global sustainability. We have played a leadership role in the development of a GeSI series of reports on how ICT can address climate change (Smart 2020, Smarter 2020, and Smarter 2030). The latest Smarter 2030 GeSI report identifies ways that ICT can enable a 20 percent reduction of global CO2 emissions by 2030. The report also identifies how ICT can integrate renewables into the grid, boost agricultural crop

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
		chain practices, and human rights. For more information, see Gesi.org.	yields by 30 percent, save more than 300 trillion liters of water, and conserve 25 billion barrels of oil a year.
Consumer Technology Association (CTA)	Consistent	CTA, formerly the Consumer Electronics Association (CEA), represents the \$287 billion US consumer technology industry. More than 2,200 companies are CTA members. CTA benefits include policy advocacy, market research, technical education, industry promotion, standards development and the fostering of business and strategic relationships. CTA is also engaged in consumer education and collaborative partnerships to help meet the challenge of building a more sustainable economy. CTA's position is that "we all have a stake in finding solutions for climate change and diminishing natural resources. Our global economy is also a global eco-system, and it's never been more important to share the responsibility of preserving our planet." The CTA 2015 Sustainability Report illustrates the industry's progress in pushing green initiatives. The report also provides transparency on the consumer electronics industry's sustainability practices. For more information, see www.cta.tech/Government-Affairs/Issues-Pages/Furthering-Industry-Sustainability-and-Green-Initi.aspx .	Through the CTA we collaborate with the membership toward finding common ground on the progress of energy efficiency measures.
Center for Climate and Energy Solutions (C2ES)	Consistent	The C2ES mission is to advance strong policy and action to reduce greenhouse gas emissions, promote clean energy, and strengthen resilience to climate impacts. A key objective is a national market-based program to reduce emissions cost effectively. It believes a sound climate strategy is essential to ensure a strong, sustainable economy. C2ES is widely recognized as an influential and pragmatic voice on climate issues. It ranks regularly among the top environmental think tanks in the world, providing timely, impartial information and analysis on our pressing climate and energy challenges. It brings city, state, and national policymakers together with businesses and other stakeholders to achieve common understanding and consensus solutions. It develops market-based solutions and other practical policy approaches that deliver real and lasting climate progress. And it works with Fortune 500	Through C2ES, we collaborate with members to review and propose policy and corporate approaches to reduce carbon emissions, including voluntary carbon programs.

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
		companies to strengthen business action and business support for effective climate policy. For more information, see www.C2ES.org .	
Advanced Energy Economy (AEE)	Consistent	AEE is a national association of business leaders who are making the global energy system more secure, clean, and affordable. Its mission is to transform public policy to enable rapid growth of advanced energy companies. Its efforts in support of EPA regulation of electricity sector carbon emissions are an example of its stance on climate change: "EPA's regulation of carbon emissions from the electric power sector under Section 111(d) of the Clean Air Act represents an opportunity to modernize the electric power system, making it higher performing and more consumer-focused while reducing emissions. Advanced energy technologies and services make it possible to cut emissions while improving reliability, reducing costs, increasing competition, and creating new services for consumers." For more information, see www.aee.net/initiatives/epa-111d.html .	We regularly engage with AEE and its members on the creation of research reports and policy recommendations focused on advancing the adoption of alternative energy.
Renewable Energy Buyers Alliance (REBA)	Consistent	REBA is helping grow corporate demand for renewable power and helping utilities and others meet it. REBA exists to make the transition to renewable energy easier by helping companies understand the benefits of moving to renewables, connecting corporate demand to renewable energy supply, and helping utilities better understand and serve the needs of corporations. REBA is led by four nonprofit organizations that have brought together their deep expertise in transforming energy markets. Collectively they work with more than 60 iconic, multinational companies that represent enormous demand for renewable power and, as part of that, coordinate with the We Mean Business' RE100 campaign, supporting companies who have signed onto their 100 percent renewable energy commitment. Their goal is to help corporations purchase 60 gigawatts (GW) of additional renewable energy in the United States by 2025. For more information, see Rebuyers.org .	As a founding member, we collaborate with other REBA members to share best practices and formulate new approaches to corporate procurement of renewable energy.

Do you publicly disclose a list of all the research organizations that you fund?

No

CC2.3e

Please provide details of the other engagement activities that you undertake

CC2.3f

What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

We strive to ensure that our participation in the political process is open, transparent, and based on reasons that are clear and justifiable to our shareholders and the public. We are pleased that Microsoft gained the second highest rating given by the CPA-Zicklin Index of Corporate Political Accountability and Disclosure for our policies that ensure the accountability and transparency of our public policy engagement. (Full guidelines governing our policy engagement and details of campaign contributions and advocacy spending are available through the corporate social responsibility section of the Microsoft website.)

In FY16, we created a new Director of Sustainability Policy role at Microsoft, which leads the company's policy efforts on sustainability and energy issues and ensures that our advocacy work is consistent with our climate change and sustainability strategy.

The Regulatory and Public Policy Committee of the Microsoft Board of Directors is responsible for providing oversight of the company's public policy work and addresses environmental and social risks. The charter for the Regulatory and Public Policy Committee of our Board of Directors includes the responsibility to "review and provide guidance to the board and management about the company's policies and programs that relate to corporate citizenship, including human rights, environmental sustainability, corporate social responsibility, supply chain management, charitable giving, and political activities and expenditures."

We have articulated our public policy position on climate change both (1) by integrating it into our Global Public Policy Agenda and (2) in a direct statement:

1. The Global Public Policy Agenda calls on governments to "Address energy and environmental challenges.... Government policies should stimulate innovation in energy technology and provide market-based incentives for private investment in the transition to sustainable, low-carbon energy sources and technologies. Given Microsoft's carbon-neutral commitment and imposition of an internal fee on carbon associated with our energy use, we gain business value from cost-effective policies that increase the availability of low-carbon and renewable energy for use in our operations...and share these insights with our customers and government to help them with reducing their energy use."

2. Our Climate Change Policy Statement states: "Climate change is a serious challenge that requires a comprehensive and global response from all sectors of society. We see an important role for governments to provide the frameworks that spur the transition to a low-carbon economy, including:

- Direct funding for accelerating research into renewable and sustainable low-carbon energy sources;
- Market-based mechanisms that are stable and predictable over the long-term which incent the private sector to invest in the transition to sustainable low-carbon and carbon-free energy sources and technologies;
- Regulatory systems that support innovation and eliminate barriers to the adoption of sustainable low-carbon and carbon-free technologies;
- Policies that promote the accurate measurement and transparent reporting of energy use and carbon footprints; and
- Ensuring that smart grids and other energy and environmental IT applications promote security, privacy, and interoperability without mandating the use of specific technologies."

Microsoft's "Principles and Policies for Guiding Participation in the Public Policy Process" in the United States includes principles on oversight of trade association memberships. Those policies note, "Like all major corporations, Microsoft is a member of trade associations (organized under section 501(c)(6) of the Internal Revenue Code) in the United States to help advance our public policy agenda and related business goals. We review these memberships annually to assess their business value and alignment with Microsoft's overall public policy agenda. We work with many of these groups on narrowly-tailored technology policy issues relevant to specific business objectives and it is unrealistic to expect any group's agenda to align with ours in all policy areas. Therefore our engagement with a particular group does not and should not imply our endorsement of all the policy positions those groups have taken. However, we will not support groups that spend an abundance of their time working against our direct business interests and public policy agenda." In a few instances where we have felt clarification is needed about the public policy position taken by an industry association we belong to, we have issued statements that they are not representing Microsoft on that policy (for example, climate change and renewable energy).

CC2.3g

Please explain why you do not engage with policy makers

Further Information

Page: CC3. Targets and Initiatives

CC3.1

Did you have an emissions reduction or renewable energy consumption or production target that was active (ongoing or reached completion) in the reporting year?

Absolute target
Renewable energy consumption and/or production target

CC3.1a

Please provide details of your absolute target

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions covered by target (metric tonnes CO2e)	Target year	Is this a science-based target?	Comment
Abs1	Other: Scope 1 + Scope 2 (market-based) + Scope 3 (upstream business air travel only)	100%	100%	2013	0	2016	No, but we are reporting another target which is science-based	Microsoft has a target to be carbon neutral every year from fiscal year (FY) 2013 onward (beginning July 1, 2012). Microsoft achieved carbon neutrality in FY16 (the reporting period) through a combination of onsite renewable electricity generation, internal energy efficiency projects, and purchases of green power and carbon offsets. We understand that CDP guidance requests that companies not consider carbon offsets when reporting targets in CC3.1. However, we have elected to report offsets in order to communicate this achievement; we have also reported additional targets without offsets (see Abs2 and Abs3). Note that the base and target years reported are based on the Microsoft fiscal year. The FY13 base year emissions reported here are zero because we achieved our carbon neutral target in FY13.
Abs2	Scope 1+2 (market-based)	100%	25%	2013	875713	2020	Yes, but this target has not been approved as science-based by the Science Based Targets initiative	Abs2 is the outcome of two public targets and covers 100 percent of our Scope 1 + 2 (market-based) emissions. The two public targets include our carbon neutral (Abs1) and 100 percent renewable energy (RE1) commitments. As a result of these carbon neutral and renewable energy commitments, we will surpass a 25 percent decrease from our FY13 base year by FY20. Not only is this level of reduction more aggressive than the 2.1 percent annual reductions stipulated by CDP, but we have already surpassed this target and will continue to through the target year.
Abs3	Scope 1+2 (market-based)	100%	50%	2013	875713	2036	Yes, but this target has not been approved as science-based by	Abs3 is the outcome of two public targets and covers 100 percent of our Scope 1 + 2 (market-based) emissions. The two public targets include our carbon neutral (Abs1) and 100 percent

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions covered by target (metric tonnes CO2e)	Target year	Is this a science-based target?	Comment
							the Science Based Targets initiative	renewable energy (RE1) commitments. As a result of the carbon neutral and renewable energy commitments, we will surpass a 50 percent decrease from our FY13 base year by FY36. Not only is this level of reduction more aggressive than the 2.1 percent annual reductions stipulated by CDP, but we have already surpassed this target and will continue to through the target year.

CC3.1b

Please provide details of your intensity target

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions covered by target	Target year	Is this a science-based target?	Comment

CC3.1c

Please also indicate what change in absolute emissions this intensity target reflects

ID	Direction of change anticipated in absolute Scope 1+2 emissions at target completion?	% change anticipated in absolute Scope 1+2 emissions	Direction of change anticipated in absolute Scope 3 emissions at target completion?	% change anticipated in absolute Scope 3 emissions	Comment

CC3.1d

Please provide details of your renewable energy consumption and/or production target

ID	Energy types covered by target	Base year	Base year energy for energy type covered (MWh)	% renewable energy in base year	Target year	% renewable energy in target year	Comment
RE1	Electricity consumption	2015	3836649	100%	2025	100%	The scope of this target is electricity consumption, which represents 99.9 percent of our global Scope 2 (location-based) emissions and 95 percent of our global Scope 1 and Scope 2 (location-based) emissions. As part of our carbon neutral target and 100 percent renewable electricity commitment through the RE100 program, Microsoft achieved 100 percent renewable energy in FY16. We are setting goals to grow the percentage of wind, solar, and hydropower energy that we purchase directly and through the grid to 50 percent by 2018, 60 percent early in the next decade, and to an ongoing and higher percentage in future years beyond that.

CC3.1e

For all of your targets, please provide details on the progress made in the reporting year

ID	% complete (time)	% complete (emissions or renewable energy)	Comment
Abs1	100%	100%	Microsoft has set a target of being carbon neutral every year from FY13 onward. We achieved carbon neutrality in FY16 (the reporting period for this response) through a combination of renewable electricity generation, internal efficiency projects, and purchases of renewable energy certificates (RECs) and carbon offsets.
Abs2	43%	100%	As a result of our carbon neutral and renewable electricity commitments, we have already surpassed the 25 percent reduction outlined in Abs2 and will continue to do so through the target year.
Abs3	14%	100%	As a result of our carbon neutral and renewable electricity commitments, we have already surpassed the 50 percent reduction outlined in Abs3 and will continue to do so through the target year.
RE1	18%	100%	We have achieved our 100 percent renewable electricity target in FY16 through renewable electricity generation, internal efficiency projects, and purchases of renewable energy certificates (RECs).

CC3.1f

Please explain (i) why you do not have a target; and (ii) forecast how your emissions will change over the next five years

CC3.2

Do you classify any of your existing goods and/or services as low carbon products or do they enable a third party to avoid GHG emissions?

Yes

CC3.2a

Please provide details of your products and/or services that you classify as low carbon products or that enable a third party to avoid GHG emissions

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
Group of products	Cloud computing services: By outsourcing IT services to the Microsoft cloud instead of running those same services in their own datacenters, our customers can reduce their Scope 2 emissions, assuming that they currently have either 1) no in-house equipment and decide to use the Microsoft cloud instead of purchasing new equipment or 2) in-house equipment and decide to downsize equipment and outsource the services to the Microsoft cloud. With the massive scale and multitenancy of our datacenters, we can run these services at greater efficiencies than a typical enterprise, so the energy use and emissions are not merely transferred to another source but reduced as well. Furthermore, Microsoft purchases 100 percent renewable energy, and therefore emissions from our datacenters are far below industry averages and most customers' on-premises situations.	Avoided emissions	Evaluating the carbon reducing impacts of ICT			A study by Accenture and WSP USA, in collaboration with Microsoft, demonstrates that using Microsoft cloud services versus on-premises delivery of Microsoft Exchange, Microsoft SharePoint, and Microsoft Dynamics CRM can help businesses reduce their own energy use and carbon emissions for these functions by more than 90 percent per user for small deployments, 60–90 percent per user for medium deployments, and 30–60 percent per user for large deployments. The study quantified application fulfillment activities for both cloud and on-premises scenarios by dividing the total energy consumption and resulting carbon footprint against the number of provisioned users for a given application. The quantitative model was independently developed based on ISO 14044 guidelines for Life Cycle Assessment and BSI PAS 2050 Specifications for the Assessment of GHG Emissions of Goods and Services and is in alignment with the forthcoming WRI/WBCSD GHG Protocol ICT Sector Supplement for Data Center and Cloud Services. The approach aligns with the assessment methodology developed by the Global e-Sustainability Initiative

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
						(GeSI). Microsoft is committed to communicating the impact and benefits of cloud services to our customers. We plan to revisit this study in the near future and update it with the latest datacenter data, cloud services, and modeling techniques.
Group of products	Cloud-computing services: All Microsoft services hosted in Microsoft datacenters—including Microsoft Azure, Microsoft Office 365, and Skype for Business—are low-carbon options because of the efficiency of our datacenters and our use of green power. We work on constantly improving energy efficiency for our datacenters. We use different metrics to monitor our environmental footprint (such as power usage effectiveness [PUE] and water usage effectiveness [WUE]) and set targets that we revise periodically. In addition, Microsoft datacenters are powered with 100 percent renewable electricity through power purchase agreements (PPAs) and green power purchases.	Low carbon product	Climate Bonds Taxonomy			Included on the basis of the “datacenters using renewable energy” inclusion in the ICT section of the Climate Bonds Taxonomy. Note that Microsoft revenue is reported at the business group level and so the specific revenue attributable to cloud computing services is not available. Although the percentage of R&D is not available, through Microsoft Research we invest to drive innovation that supports environmental responsibility; the outputs of that research may be monetized in the future.
Product	Skype for Business: Skype for Business helps to reduce the need for travel by providing the means for individuals and companies to host online meetings for up	Avoided emissions	Climate Bonds Taxonomy			Included on the basis of the “technology substitution” inclusion in the ICT section of the Climate Bonds Taxonomy.

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
	to 250 people. By using the audio, high-definition video, and web conferencing options to host meetings, people can avoid travel by car or even plane. (Online meetings have helped Microsoft keep travel levels essentially flat since fiscal year 2008 despite revenue increasing by 50 percent; if travel levels had increased at the same rate, we would spend an additional \$400 million and fly 700 million miles more each year.) Furthermore, people can use Skype for Business to broadcast meetings online to up to 10,000 people, for even greater travel avoidance.					
Group of products	Microsoft CityNext: The Microsoft CityNext initiative and our partners can help cities improve sustainability (including reducing carbon emissions) with solutions that span energy and water, building energy management, transportation, resource efficiency, and ecosystem services: • Smart grid solutions. To create smart grids, Microsoft and our partners work with civic leaders around the world to overlay their existing power distribution infrastructure with new digital sensor technologies that provide real-time data on network operations. • Energy management and analytics	Avoided emissions	Climate Bonds Taxonomy			Included on the basis of the “products and technologies that support smart grid applications” inclusion in the ICT section of the Climate Bonds Taxonomy.

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
	solutions. Microsoft and our partners create scalable energy management solutions that can involve cloud computing, big data, mobile, and social technologies. These solutions enable officials to collect and integrate data from virtually any data source, including renewable energy systems, sensors, and applications. Civic leaders can analyze real-time data to gain valuable insights on how to detect impending equipment failures and prevent them through timely maintenance. The data also points the way to balancing the supply and demand of power and to operating more cost efficiently. • Carbon management. CityNext carbon management solutions can help governments tap into data sources to better understand their energy consumption and emission patterns. To create an “Internet of Things,” we connect infrastructure such as sensors and video cameras as well as applications such as weather reporting sites, social media, and cloud services. This interconnected digital network can offer accurate insights into a city’s carbon footprint. For example, our solution can collect data in real time from air quality sensors in the city that measure emissions from cars, planes, trains,					

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
	buildings, and streetlights. Specialists can analyze this data to find and eliminate wasted energy.					

CC3.3

Did you have emissions reduction initiatives that were active within the reporting year (this can include those in the planning and/or implementation phases)

Yes

CC3.3a

Please identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings

Stage of development	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	
To be implemented*	0	0
Implementation commenced*	0	0

Stage of development	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Implemented*	3764	554810
Not to be implemented	11	

CC3.3b

For those initiatives implemented in the reporting year, please provide details in the table below

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Building services	FY16 carbon fund (33 projects). A global energy efficiency program is funded by the Microsoft carbon fund and supported by internal fees charged to Microsoft business groups. Projects from FY16 (the reporting period) ranged from lighting controls and upgrades to equipment upgrades to building management systems. This initiative includes 33 projects in Argentina, Brazil, Chile, China, Colombia, Finland, India, Mexico, Norway, Puerto Rico, Romania, Spain, Sweden, the United Kingdom, and the United States. This initiative	2430	Scope 1 Scope 2 (location-based) Scope 2 (market-based)	Voluntary	765000	2500000	1-3 years	6-10 years	

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
	affects the electricity use and Scope 1 and 2 emissions included in our targets detailed in CC3.1.								
Low carbon energy purchase	Green power (1 project). We continue to make a significant investment in low-carbon energy purchases through the market-based tracking instruments renewable energy certificates (RECs; USA and Canada), guarantees of origin (GOs; European Union [EU]), GreenPower (Australia), and international RECs (I-RECs; China and other markets). These low-carbon energy purchases were voluntary and not in relation to external regulation. The purchases resulted in the reduction of the Scope 2 market-based emissions included within our carbon neutral target. The expected lifetime of the purchases is one year and occurs in the year the green power was generated and accounted for by Microsoft (FY16, the reporting period for this response). Microsoft has only reported incremental REC purchases here per CDP guidance; however, this figure does not represent the full scale of the commitment that we have made to using green power, which for the reporting period avoided market-based Scope 2 emissions by 1,708,705	292710	Scope 2 (market-based)	Voluntary	0			<1 year	

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
	mtCO2e from our location-based emissions.								
Green project finance	Power purchase agreements (2 projects). Beginning in FY16, the Pilot Hill wind farm, for which Microsoft has entered into a 20-year virtual power purchase agreement with EDF Energy, began generating power. This agreement was a significant milestone in our commitment to carbon neutrality and showcases how our internal carbon fee is shifting how we are able to build environmental sustainability into our long-term business planning. Additionally, the Keechi wind farm, which came online at the end of FY15 and for which Microsoft also has a 20-year PPA, started operating at full capacity during FY16. These low-carbon energy purchases were voluntary and not in relation to external regulation. The purchases resulted in the reduction of Scope 2 market-based emissions included within our carbon neutral target. The expected lifetime of the power purchased in FY16 is one year and occurs in the year the green power was generated and accounted for by Microsoft (FY16, the reporting period for this response), though both agreements are 20-year agreements. Microsoft has	247080	Scope 2 (market-based)	Voluntary	0			16-20 years	

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
	only reported incremental REC purchases here per CDP guidance; however, this figure does not represent the full scale of the commitment that we have made to using green power derived from long-term commitments such as PPAs, which for the reporting period avoided market-based Scope 2 emissions by 314,742 mtCO2e from our location-based emissions.								
Energy efficiency: Building services	Modification of the operation of the primary HVAC (heating, ventilation, and air conditioning) components at our Shanghai campus to drive greater efficiency (3 projects). This included adjusting the air handler unit (AHU) economizer controls to make use of outside air for cooling and using a heat exchanger instead of relying on an energy-driven chiller. We also changed the setpoints on our chiller system and modified the cooling tower to enable greater efficiency. Lastly, this site uses an ice storage system to provide "off-grid" cooling during peak demand, and we adjusted the ice melt time period to better align with peak demand. This initiative affects the Scope 2 emissions included in our carbon neutral target.	340	Scope 2 (location-based) Scope 2 (market-based)	Voluntary	67000	0	<1 year	3-5 years	
Energy efficiency:	Modification of the operation of the primary HVAC (heating, ventilation, and	970	Scope 2 (location-	Voluntary	202000	39000	1-3 years	1-2 years	

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Building services	air conditioning) components at our Beijing campus to drive greater efficiency (4 projects). This included adjusting the air handler unit (AHU) economizer controls to make use of outside air for cooling and using a heat exchanger instead of relying on an energy-driven chiller. We also reduced the run time of the AHU and increased the frequency of equipment cleaning to keep the equipment in peak operating mode despite Beijing air quality. This initiative affects the Scope 2 emissions included in our carbon neutral target.		based) Scope 2 (market-based)						
Energy efficiency: Building services	Optimization of the use of secondary equipment based on occupied hours of the Beijing campus (2 projects). This included installing a timer for the TVs in the pantries of every floor, canteen, and reception area in both buildings, plus adjusting the run time of the canteen kitchen exhaust fans. This initiative affects the Scope 2 emissions included in our carbon neutral target.	200	Scope 2 (location-based) Scope 2 (market-based)	Voluntary	42000	0	<1 year	3-5 years	
Energy efficiency: Building services	Installation of variable frequency drives (VFDs) at our Hyderabad campus (1 project). The fresh air and exhaust units on our Hyderabad campus did not have VFDs. During the reporting period we initiated and executed the installation of VFDs, and all VFDs are now integrated	520	Scope 2 (location-based) Scope 2 (market-based)	Voluntary	62000	85000	1-3 years	3-5 years	

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
	into our building management system. This initiative affects the Scope 2 emissions included in our carbon neutral target.								
Energy efficiency: Building services	Installation of light-emitting diode (LED) fixtures at our Hyderabad campus (1 project). We replaced compact fluorescent lamp (CFL) fixtures with LED fixtures in multiple locations on our Hyderabad campus, including work spaces, staircases, and outdoor pathways. In total, this project involved 3,000 fixtures with 1×12-watt LED tubes (in place of the previous 1×18-watt CFL tubes) and 2,000 fixtures with 2×18-watt LED tubes (in place of the previous 2×36-watt CFL tubes). This initiative affects the Scope 2 emissions included in our carbon neutral target.	270	Scope 2 (location-based) Scope 2 (market-based)	Voluntary	33000	12000	4-10 years	6-10 years	
Energy efficiency: Building services	Energy Smart Building efficiency optimization software (3,670 projects). These projects were identified through our Energy Smart Buildings program by analyzing energy inefficiency due to malfunctioning equipment and/or suboptimal control strategies. The projects include repairs to equipment and updates to control strategies. This initiative affects the Scope 2 emissions included in our carbon neutral target.	8860	Scope 2 (location-based) Scope 2 (market-based)	Voluntary	2364000	5466000	1-3 years	Ongoing	

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Building services	Energy conservation measures suggested by our on-site staff (45 projects). We implemented energy conservation measures in three primary categories based on opportunities identified by staff: (1) system control sequence revisions (to optimize how equipment runs); (2) HVAC (heating, ventilation, and air conditioning) equipment retrofits to more efficient models; and (3) lighting changes to more efficient lamps or lighting schedules based on occupancy. This initiative affects the Scope 2 emissions included in our carbon neutral target.	1320	Scope 2 (location-based) Scope 2 (market-based)	Voluntary	349000	1992000	1-3 years	Ongoing	
Behavioral change	Reusable drink tumblers (1 project). Purchased 1,000 reusable drink tumblers to end the practice of distributing disposable plastic cups at lunch times.	10	Scope 3	Voluntary	1600	1500	<1 year	1-2 years	
Waste recovery	E-waste recycling program expansion (1 project). The Microsoft IT Asset Disposition Program was set up to support the recycling and reuse of our internal operational e-waste, helping reduce energy consumption, greenhouse gases, and hazardous waste. In FY16, we expanded this program to include collections in an additional 27 countries. The data provided here reflects the program expansion only and not the existing savings or costs of the program.	100	Scope 3	Voluntary	57000	185000	1-3 years	Ongoing	

CC3.3c

What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for energy efficiency	Our datacenter operations team has dedicated headcount and budget for designing more efficient modular datacenter designs, optimizing existing datacenters, and tracking energy use and efficiency. Our Real Estate & Facilities group also has dedicated budget for headcount and addressing energy efficiency in global office spaces and research labs.
Dedicated budget for other emissions reduction activities	A component of our carbon fee is a dedicated fund focused on investments that reduce Microsoft energy use and carbon emissions. We select the initiatives funded through the carbon fee using a formal grant application process. In addition, across Microsoft, various business units have dedicated budget for emissions reduction activities. The Real Estate & Facilities group continues to use an energy management program in our Puget Sound, Silicon Valley, and Las Colinas campuses and is fulfilling plans to expand to two other campuses in FY17 to gain better insight into and management of energy use. Our travel organization has dedicated headcount and budget for analyzing travel patterns and practices to identify trends and recommend new reduction initiatives.
Employee engagement	Microsoft has a number of green employee communities across the company that provide opportunities for employees who want to be more directly involved in the company's sustainability work. These green communities play a critical role in our engagement strategy because they allow us to create local relevance on the sustainability issues that matter most to people and groups within the company. One of our more popular green communities is MS Green, a grassroots community group that focuses on increasing the environmental awareness of employees and educating them about programs such as mass transit, energy conservation, organic farming, and other local resources. Another voluntary green community is the Worldwide Green IT Community (sponsored by Microsoft Services but with membership from across the company), which focuses on customer engagements calling for sustainability, energy savings, green IT, or an environmental focus. In addition, our travel tool shows the carbon emissions generated for each trip to help employees make more responsible travel choices.
Financial optimization calculations	Our Real Estate & Facilities organization leads the design of new buildings, including cost/benefit analysis of more efficient designs and equipment. Our Microsoft Cloud Infrastructure and Operations (MCIO) organization analyzes the cost/benefit of datacenter designs and hardware and is investing for greater efficiencies, reduced energy and water use, and more renewable energy to power its operations. With the Environmental Sustainability team, our travel organization analyzes flight miles and class to help stakeholders from across the company identify potential areas of additional efficiency that can result in budget reductions.
Internal finance mechanisms	Our travel organization sets employee policies around air travel, including class of travel, and is involved in annual budget setting. Furthermore, the team has deployed business intelligence (BI) tools that provide managers with much greater visibility into their teams' traveling patterns. Business unit managers have the authority to balance the level of travel/entertainment budget within their overall operational budget and, using the BI tools, they can now easily identify opportunities to reduce travel for internal meetings as well as the use of business class, the main drivers for travel-related emissions. Product groups in the Puget Sound region are charged directly for their actual energy usage in research and development labs.

Method	Comment
Internal price on carbon	From July 2012 (the start of Microsoft FY13), we introduced an internal carbon fee chargeback model, administered through the finance group: business groups responsible for carbon emissions associated with their use of Microsoft datacenters, software development labs, offices, manufacturing facilities, and business air travel are charged an internal fee to cover the cost to offset those emissions through investments in renewable energy, carbon offset community projects, Climate Grants (to drive climate-related energy and technology innovation), and track-and-report projects (to ensure transparency and accountability).
Marginal abatement cost curve	A component of our carbon fee is a dedicated fund focused on investments that reduce Microsoft energy use and carbon emissions. We select the initiatives funded through the carbon fee using a formal grant application process, which requires the calculation of the marginal abatement cost (MAC) for each project. The MAC is used as one of the decision criteria for selecting projects.

CC3.3d

If you do not have any emissions reduction initiatives, please explain why not

Further Information

Page: CC4. Communication

CC4.1

Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s)

Publication	Status	Page/Section reference	Attach the document	Comment
In mainstream reports (including an	Complete	Page 25	https://www.cdp.net/sites/2017/30/11930/Climate Change 2017/Shared Documents/Attachments/CC4.1/MSFT_FY16Q4_10K.docx	FY16 10K

Publication	Status	Page/Section reference	Attach the document	Comment
integrated report) but have not used the CDSB Framework				
In voluntary communications	Complete	Whole document	https://www.cdp.net/sites/2017/30/11930/Climate Change 2017/Shared Documents/Attachments/CC4.1/Microsoft_2017_CSR Report_Climate and energy.pdf	FY16 CSR report, Climate and Energy
In voluntary communications	Complete	Pages 9, 10, 13	https://www.cdp.net/sites/2017/30/11930/Climate Change 2017/Shared Documents/Attachments/CC4.1/Microsoft_2017_CSR Report_Responsible sourcing.pdf	FY16 CSR report, Responsible Sourcing
In voluntary communications	Complete	Whole document	https://www.cdp.net/sites/2017/30/11930/Climate Change 2017/Shared Documents/Attachments/CC4.1/Microsoft_2016_Data_Factsheet_Environmental_Indicators.pdf	2016 Data Factsheet: Environmental Indicators
In voluntary communications	Complete	Whole document	https://www.cdp.net/sites/2017/30/11930/Climate Change 2017/Shared Documents/Attachments/CC4.1/Microsoft_Beyond Carbon Neutral.pdf	Microsoft Beyond Carbon Neutral white paper
In voluntary communications	Complete	Whole document	https://www.cdp.net/sites/2017/30/11930/Climate Change 2017/Shared Documents/Attachments/CC4.1/Microsoft_Greener datacenters for a brighter future_ Microsoft's commitment to renewable energy - Microsoft on the Issues.pdf	Microsoft "Greener datacenters for a brighter future" blog post
In voluntary communications	Complete	Whole document	https://www.cdp.net/sites/2017/30/11930/Climate Change 2017/Shared Documents/Attachments/CC4.1/Microsoft Green Blog_FY16_Extracts.pdf	Microsoft Green blog extracts

Further Information

Module: Risks and Opportunities

Page: CC5. Climate Change Risks

CC5.1

Have you identified any inherent climate change risks that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

Risks driven by changes in regulation

Risks driven by changes in physical climate parameters

Risks driven by changes in other climate-related developments

CC5.1a

Please describe your inherent risks that are driven by changes in regulation

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Carbon taxes	Any regional carbon taxes imposed where we have facilities would have the potential to affect our operating costs by increasing the costs to which our energy suppliers are subject. If those suppliers were to pass on the increased costs to	Increased operational cost	Up to 1 year	Indirect (Supply chain)	Virtually certain	Low-medium	The carbon taxes in India could increase the energy costs to run our development labs there. Based on actual emissions and potential energy cost increases, we estimate an	We charge business groups an internal carbon fee for emissions from their use of datacenters, labs, offices, manufacturing sites, and air travel. The fee provides funds for energy innovation/efficiency initiatives and	The lab chargeback incurs minimal labor costs. We are investing more than \$100,000 in the Primus Power pilot program, expect to invest \$3.9

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	Microsoft, this would drive up the cost to power our facilities, in particular labs and datacenters (which consume a significant amount of energy). Exact regulations and notable geographic/regional examples: All of our research and development (R&D) lab and datacenter facilities globally have the potential to be affected by carbon taxes in the future. Several Microsoft development labs are or are likely to be affected by new regulations on carbon. For example, we have an R&D lab in India, and India has a tax on coal to support the development of the National Clean Environment Fund; although Microsoft does not directly produce nor import						annual cost increase on the order of \$200,000 for those labs. Proposed Washington state carbon taxes could raise Microsoft electricity costs by between \$5 million and \$10 million annually depending on the specifics of the legislation enacted.	investment in renewable energy/carbon offset projects. To drive more efficient use of labs, in Puget Sound we charge lab energy costs back to product groups based on usage; this model could help reduce lab energy use in areas with carbon taxes. We're working to maximize efficiency and minimize energy consumption in our datacenters. For example, in FY16 (the reporting period), we announced a pilot program with Primus Power in collaboration with NRG Energy to advance energy storage at our datacenters globally; continued researching fuel cell systems; and continued testing natural gas generators to replace diesel generators. In addition, we use	million in a fuel cell prototype facility, and are investing \$1.5 million in testing the use of natural gas generators in our datacenters. It is typically 20–25% cheaper to construct datacenters that use adiabatic cooling over traditional large chillers.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	coal, coal is a primary source for power generation in India, and so this tax affects energy prices. In the United States, there have been multiple bills introduced in Washington state to begin taxing carbon at anywhere from \$15 to \$25/mtCO2e beginning in 2018. If carbon taxes were introduced in areas where we have an even greater presence, the magnitude of impact associated with this risk would increase to high.							outside air and adiabatic cooling (which reduces our energy costs by ~30%) where possible, and each new datacenter design works to improve our energy efficiency metrics. These measures to improve energy efficiency and tap directly into low-carbon and zero-carbon energy do not reduce the likelihood of our facilities being affected by carbon taxes, but they reduce the magnitude of impact to low. This risk reduction is ongoing and should accelerate each year.	
Air pollution limits	Air pollution limits have the potential to affect our facilities around the world by driving up the cost of energy to power them (in particular our datacenters and development labs). Exact regulations	Increased operational cost	1 to 3 years	Indirect (Supply chain)	Very likely	Medium	A study by NERA Economic Consulting estimated the average annual cost of the US regulations through 2020 to be \$5.65/MWh	We charge business groups an internal carbon fee for emissions from their use of datacenters, labs, offices, manufacturing sites, and air travel. The fee provides funds for energy	We are investing more than \$100,000 in the Primus Power pilot program, expect to invest \$3.9 million in a fuel cell prototype

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	and notable geographic/regional examples: Currently, the greatest risk is in the United States, where the Environmental Protection Agency (EPA) has implemented or is actively working on regulations that will have an impact on the cost to operate or even the viability of operating some coal-fired power plants including the Cross-State Air Pollution Rule (CSAPR), the Mercury and Air Toxics Standard (MATS), and the Coal Combustion Residuals Rule. These regulations have the potential to significantly increase the cost of power in areas reliant on high-carbon energy sources. Microsoft has datacenters located in Chicago (IL), San Antonio (TX), Boydton (VA),						(2011). This cost represents an average across the United States; we expect eastern states to experience greater increases due to higher reliance on coal-fired power. We estimate an increase of 5–10% in energy costs for our datacenters (the exact dollar amount is confidential).	innovation/efficiency initiatives and investment in renewable energy/carbon offset projects. We're working to maximize efficiency and minimize energy consumption in our datacenters. For example, in FY16 (the reporting period), we announced a pilot program with Primus Power in collaboration with NRG Energy to advance energy storage at our datacenters globally; continued researching fuel cell systems; and continued testing natural gas generators to replace diesel generators. In addition, we use outside air and adiabatic cooling (which reduces our energy costs by ~30%) where possible, and each new datacenter	facility, and are investing \$1.5 million in testing the use of natural gas generators in our datacenters. It is typically 20–25% cheaper to construct datacenters that use adiabatic cooling over traditional large chillers.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	and Des Moines (IA), all of which are regions likely to be affected by these regulations. Although these regulations are not targeted to date, the new US presidential administration and current Congress may roll back or diminish enforcement of them.							design works to improve our energy efficiency metrics. These measures to improve energy efficiency and tap directly into low-carbon and zero-carbon energy do not reduce the likelihood of our facilities being affected by air pollution limits, but they reduce the magnitude of impact to low. This risk reduction is ongoing and should accelerate each year.	
Fuel/energy taxes and regulations	As with air pollution limits, fuel and energy taxes and regulations have the potential to affect our facilities around the world by driving up the cost of energy to power them (in particular our datacenters and development labs). Exact regulations and notable geographic/regional examples: Ireland	Increased operational cost	1 to 3 years	Indirect (Supply chain)	Virtually certain	Medium	In Ireland, greater reliance on renewable power will result in higher energy costs if the cost of additional renewable resources exceeds the current grid cost of power. There may also be cost impacts from infrastructure	We charge business groups an internal carbon fee for emissions from their use of datacenters, labs, offices, manufacturing sites, and air travel. The fee provides funds for energy innovation/efficiency initiatives and investment in renewable energy/carbon offset projects. We're	We are investing more than \$100,000 in the Primus Power pilot program, expect to invest \$3.9 million in a fuel cell prototype facility, and are investing \$1.5 million in testing the use of natural gas generators in

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	has adopted a National Renewable Energy Action Plan (NREAP) that sets a target of 40 percent of electricity consumption from renewable resources by 2020. Microsoft has a datacenter located in Dublin, Ireland, that could potentially be impacted by this regulation through increased energy costs.						enhancements to integrate the additional resources into the grid. If this results in power cost increases of, for example, 10%, our all-in power costs would increase ~8% (the exact dollar amount is confidential).	working to maximize efficiency and minimize energy consumption in our datacenters. For example, in FY16 (the reporting period), we announced a pilot program with Primus Power in collaboration with NRG Energy to advance energy storage at our datacenters globally; continued researching fuel cell systems; and continued testing natural gas generators to replace diesel generators. In addition, we use outside air and adiabatic cooling (which reduces our energy costs by ~30%) where possible, and each new datacenter design works to improve our energy efficiency metrics. These measures to improve energy efficiency and tap	our datacenters. It is typically 20–25% cheaper to construct datacenters that use adiabatic cooling over traditional large chillers.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								directly into low-carbon and zero-carbon energy do not reduce the likelihood of our facilities being affected by fuel/energy taxes and regulations, but they reduce the magnitude of impact to low. This risk reduction is ongoing and should accelerate each year.	
Cap and trade schemes	As with fuel and energy taxes and regulations, cap and trade schemes have the potential to affect our facilities around the world by increasing the costs that our energy suppliers are subject to. If those suppliers were to pass on the increased costs to Microsoft, this would drive up the cost of energy to power our facilities (in particular our datacenters and development labs). Exact regulations and notable geographic/regional	Increased operational cost	Up to 1 year	Indirect (Supply chain)	Virtually certain	Medium	Rising energy costs that result from cap and trade schemes in locations where we have labs and datacenters will increase our operational costs. As one example, for every €1/mt cost incurred through the EU ETS emissions allowances, our facilities in Amsterdam and Ireland face an increase in energy cost of	We charge business groups an internal carbon fee for emissions from their use of datacenters, labs, offices, manufacturing sites, and air travel. The fee provides funds for energy innovation/efficiency initiatives and investment in renewable energy/carbon offset projects. We're working to maximize efficiency and minimize energy consumption in our datacenters. For example, in FY16	We are investing more than \$100,000 in the Primus Power pilot program, expect to invest \$3.9 million in a fuel cell prototype facility, and are investing \$1.5 million in testing the use of natural gas generators in our datacenters. It is typically 20–25% cheaper to construct datacenters

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	examples: Some of the most significant examples that affect Microsoft are the European Union (EU) Emissions Trading Scheme (ETS), EU Code of Conduct for Data Centres, EU Digital Agenda, California Cap-and-Trade program, Tokyo Mandatory Cap and Trade Scheme, and Washington Clean Air Rule (which may be displaced by pending carbon tax legislation). In addition, the pending cap and trade regulations in China (likely to establish the bureaucracy in 2017, with trading to begin in 2019 or 2020) could also impact Microsoft.						approximately €0.4/MWh. While the EU ETS emissions trading cap is expected to decline through 2020, sluggish economic growth in the EU has led to limited emissions growth and downward pressure on EU ETS prices. Existing regulations in California and the EU ETS together could be costing Microsoft up to an estimated \$3 million per year.	(the reporting period), we announced a pilot program with Primus Power in collaboration with NRG Energy to advance energy storage at our datacenters globally; continued researching fuel cell systems; and continued testing natural gas generators to replace diesel generators. In addition, we use outside air and adiabatic cooling (which reduces our energy costs by ~30%) where possible, and each new datacenter design works to improve our energy efficiency metrics. These measures to improve energy efficiency and tap directly into low-carbon and zero-carbon energy do not reduce the likelihood of our facilities being affected by cap and	that use adiabatic cooling over traditional large chillers.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								trade schemes, but they reduce the magnitude of impact to low. This risk reduction is ongoing and should accelerate each year.	

CC5.1b

Please describe your inherent risks that are driven by changes in physical climate parameters

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in mean (average) temperature	Nature of effect: If there were an increase in the average temperature where we operate datacenters and development labs, there would be a corresponding increase in the cost to cool our	Increased operational cost	>6 years	Direct	More likely than not	Low-medium	If the average temperature increases where our facilities are located, more electricity will be required to cool those facilities. The financial implications will be relative to the increase in outside mean air temperature.	In FY16, we initiated an assessment of Microsoft vulnerability to the physical impacts of climate change. We charge business groups an internal carbon fee for emissions from their use of datacenters, labs, manufacturing sites, offices, and air travel; the fee provides funds for energy	The initial vulnerability assessment will cost between \$100,000 and \$200,000; depending on the findings, more detailed engineering assessments may be required at additional expense. It is

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	facilities. Location of effect: Microsoft has datacenters, labs, and offices located throughout the world; examples of those at most risk for increases in mean temperature are those based in China and India.						Based on US Environmental Protection Agency (EPA) statistics and rough averages across many facilities, an increase of 1° Fahrenheit across our operations would represent a potential increase of \$8 million in energy costs for air conditioning (the exact dollar amount will vary based on location).	innovation/efficiency initiatives and investment in renewable energy/carbon offset projects. We are improving facility cooling efficiency, such as by using outside air and adiabatic cooling, which reduces energy costs by ~30%. In areas of high humidity, we're increasingly using water-side economizers. We're making our facilities more energy efficient. For example: • In FY16 we announced a pilot program with Primus Power to advance energy storage at our datacenters globally. • We continue researching fuel cell systems. • We continue testing natural gas generators to replace diesel generators. • Each new datacenter design works to improve our energy efficiency metrics. • An Energy Smart Buildings (ESB)	typically 20–25% cheaper to construct datacenters that use adiabatic cooling over traditional large chillers and reduces maintenance and energy costs in the long run. We are investing more than \$100,000 in the Primus Power pilot program, expect to invest \$3.9 million in a fuel cell prototype facility, and are investing \$1.5 million in testing the use of natural gas generators in our datacenters. The ESB program costs less than 5% of the annual energy costs at deployed locations.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								program drives energy efficiency in more than 15 million square feet in our Puget Sound, Silicon Valley, and Las Colinas facilities; we have plans to expand the program to two more locations in FY17. These measures do not reduce the likelihood of our facilities being affected by increases in mean temperature, but they reduce the magnitude of impact to low. They reduce the risk for new facilities immediately and for existing facilities over the next two years.	

CC5.1c

Please describe your inherent risks that are driven by changes in other climate-related developments

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Reputation	Nature of the effect: Energy use within the IT industry is drawing increased attention for its impact on the environment and climate change, and consumers, businesses, and institutional investors are increasingly making investment decisions based on how environmentally responsible companies are. Microsoft is one of the largest IT organizations in the world, and so the perceived impact of our products and services on the environment is heightened. If our approach is not commensurate with or is not recognized as being as strong or stronger than our	Reduced demand for goods/services	Up to 1 year	Direct	Likely	Low-medium	It is difficult to quantify the potential financial implications. However, theoretically if we were to lose—for example—3% of our business to competitors because of a perceived insufficient investment in climate change mitigation, the impact based on FY16 (the reporting period) revenue would have been a reduction of \$2.56 billion.	We are actively working to reduce the environmental impact of our operations and products/services. We are net carbon neutral for (and charge business groups a carbon fee for emissions from their use of) datacenters, labs, offices, manufacturing sites, and air travel. In FY16, we increased our purchase of renewable energy to 4,852,643 MWh. In addition, we: • Have an Energy Smart Buildings (ESB) program in our Puget Sound, Silicon Valley, and Las Colinas facilities, with plans to expand to two more locations in FY17. • Charge Puget Sound lab energy costs back to product groups based on actual usage to drive behavior change. • Are making our	The ESB program costs less than 5% of our annual energy costs at deployed locations. The lab chargeback incurs minimal labor costs. It is ~20–25% cheaper to construct datacenters that use adiabatic cooling over traditional chillers. Designing for energy efficiency is part of our standard development processes and incurs zero costs.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	competitors, we could potentially lose business. Location of the effect: Our reputation has implications globally because we operate throughout the world; in our experience, the area where businesses and consumers emphasize climate change the most in their buying decisions currently is in Europe, where environmental issues are gaining the greatest attention.							datacenters as energy efficient as possible; for example, we use outside air and adiabatic cooling where possible (reducing energy costs by ~30%) and design for improved energy efficiency metrics in new datacenters. • Are developing our products to have less impact on the environment and publish energy/emissions data through Eco profiles for our consumer devices. • Encourage indirect suppliers to report through the CDP Supply Chain Program. • Work with NGOs, governments, and environmental agencies on initiatives, education, and research related to climate change. • Publicly communicate about our efforts to reduce	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								our impact on the environment. With these actions, it is unlikely that our reputation will suffer from our approach to climate change, and the magnitude of any impact should be low.	

CC5.1d

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC5.1e

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC5.1f

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

Further Information

Page: CC6. Climate Change Opportunities

CC6.1

Have you identified any inherent climate change opportunities that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

Opportunities driven by changes in regulation

Opportunities driven by changes in physical climate parameters

Opportunities driven by changes in other climate-related developments

CC6.1a

Please describe your inherent opportunities that are driven by changes in regulation

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Carbon taxes	Carbon taxes have the potential to increase our customers' operating costs, either directly or through increased	Increased demand for existing products/services	Up to 1 year	Direct	Very likely	Low-medium	Our opportunity is to build energy efficiency and power management capabilities into our products/services, which could help us	To support our cloud services, we are designing our datacenters	We are investing more than \$100,000 in the Primus Power pilot program,

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	costs passed on through their energy suppliers. Wherever we have customers that are or will be affected by carbon taxes, they will be looking to reduce their carbon footprint and energy consumption. According to some estimates, ICT accounts for 2% of global carbon emissions. For Microsoft, the opportunity is to deliver cloud services (which enable enterprises to directly reduce their own carbon emissions and take advantage of the higher efficiency that large cloud service providers like Microsoft can achieve) as well as energy-saving software and IT						maintain or exceed growth levels for our business (which in FY16, the reporting period, represented \$85.32 billion in annual revenue).	to be up to 30–50% more efficient than other industry datacenters: • In FY16 (the reporting period), we announced a pilot program with Primus Power and NRG Energy to advance energy storage at our datacenters globally. • We continue researching fuel cell systems. • We continue testing natural gas generators to replace diesel generators. • We use outside air	expect to invest \$3.9 million in a fuel cell prototype facility, and are investing \$1.5 million in testing the use of natural gas generators in our datacenters. It is typically 20–25% cheaper to construct datacenters that use adiabatic cooling. Designing for energy efficiency is part of our standard development processes and incurs zero costs.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	management solutions that can help large enterprises reduce their IT-related energy consumption. Exact regulations and notable geographic/regional examples: Microsoft customers are global and therefore any area affected by carbon taxes represents an opportunity. A key example today is India. India has a tax on coal to support the development of the National Clean Environment Fund; coal is a primary source for power generation in India, and so this tax affects energy prices. In the United States, there have been multiple bills introduced in							and adiabatic cooling (which reduces energy costs by ~30%) where possible. • Each new datacenter design works to improve our energy efficiency metrics. Energy efficiency is a foundational principle in the design of Microsoft products. Examples of our commitment to energy-efficient products include: • Surface Book, Surface Pro 4, and	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	Washington state to begin taxing carbon at anywhere from \$15 to \$25/mtCO ₂ e beginning in 2018.							- Surface Pro 3 are ENERGY STAR and EPEAT certified (the first two in FY16), and our ULE 110—certified mobile phones reached the highest scores. - System Center Configuration Manager provides control over PC power management settings. - A new Energy Saver mode in Windows 10 enhances energy efficiency and power management. - Hyper-V virtualization	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								technology enables customers to gain higher rates of server utilization and reduce the number of physical machines. These investments do not change the likelihood, but they do help increase our opportunity for revenue.	
Air pollution limits	Air pollution limits have the potential to increase our customers' operating costs, either directly or through increased costs passed on through their energy suppliers. Wherever we have customers that are or will be affected by air pollution limits,	Increased demand for existing products/services	1 to 3 years	Direct	Very likely	Low-medium	A study by NERA Economic Consulting estimated the average annual cost of the US regulations through 2020 to be \$5.65/MWh (2011). Our opportunity is to build energy efficiency and power management capabilities into our products/services, which could help us maintain or exceed	To support our cloud services, we are designing our datacenters to be up to 30–50% more efficient than other industry datacenters: • In FY16	We are investing more than \$100,000 in the Primus Power pilot program, expect to invest \$3.9 million in a fuel cell prototype facility, and are investing \$1.5 million

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	they will be looking to reduce their carbon footprint and energy consumption. According to some estimates, ICT accounts for 2% of global carbon emissions. For Microsoft, the opportunity is to deliver cloud services (which enable enterprises to directly reduce their own carbon emissions and take advantage of the higher efficiency that large cloud service providers like Microsoft can achieve) as well as energy-saving software and IT management solutions that can help large enterprises reduce their IT-related energy consumption. Exact regulations						growth levels for our business (which in FY16, the reporting period, represented \$85.32 billion in annual revenue).	(the reporting period), we announced a pilot program with Primus Power and NRG Energy to advance energy storage at our datacenters globally. • We continue researching fuel cell systems. • We continue testing natural gas generators to replace diesel generators. • We use outside air and adiabatic cooling (which reduces energy costs by ~30%)	in testing the use of natural gas generators in our datacenters. It is typically 20–25% cheaper to construct datacenters that use adiabatic cooling. Designing for energy efficiency is part of our standard development processes and incurs zero costs.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	and notable geographic/regional examples: Microsoft customers are global and therefore any area affected by air pollution limits represents an opportunity. Currently, the greatest opportunity is in the United States, where the Environmental Protection Agency (EPA) has implemented or is actively working on regulations that will have an impact on the cost to operate or even the viability of operating some coal-fired power plants including the Cross-State Air Pollution Rule (CSAPR), the Mercury Air and Toxics Standard (MATS), and the Coal Combustion Residuals Rule.							where possible. • Each new datacenter design works to improve our energy efficiency metrics. Energy efficiency is a foundational principle in the design of Microsoft products. Examples of our commitment to energy-efficient products include: • Surface Book, Surface Pro 4, and Surface Pro 3 are ENERGY STAR and EPEAT certified (the first two in FY16), and	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	These regulations have the potential to significantly increase the cost of power in areas reliant on high-carbon energy sources. Although these regulations are not targeted to date, the new US presidential administration and current Congress may roll back or diminish enforcement of them.							- our ULE 110–certified mobile phones reached the highest scores. • System Center Configuration Manager provides control over PC power management settings. • A new Energy Saver mode in Windows 10 enhances energy efficiency and power management. • Hyper-V virtualization technology enables customers to gain higher rates of server utilization and reduce	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								the number of physical machines. These investments do not change the likelihood, but they do help increase our opportunity for revenue.	
Fuel/energy taxes and regulations	Fuel/energy taxes and regulations have the potential to increase our customers' operating costs, either directly or through increased costs passed on through their energy suppliers. Wherever we have customers that are or will be affected by fuel/energy taxes and regulations, they will be looking to reduce their carbon footprint and energy consumption.	Increased demand for existing products/services	1 to 3 years	Direct	Virtually certain	Low-medium	Our opportunity is to build energy efficiency and power management capabilities into our products/services, which could help us maintain or exceed growth levels for our business (which in FY16, the reporting period, represented \$85.32 billion in annual revenue).	To support our cloud services, we are designing our datacenters to be up to 30–50% more efficient than other industry datacenters: • In FY16 (the reporting period), we announced a pilot program with Primus Power and	We are investing more than \$100,000 in the Primus Power pilot program, expect to invest \$3.9 million in a fuel cell prototype facility, and are investing \$1.5 million in testing the use of natural gas generators in our datacenters. It is typically 20–25%

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	According to some estimates, ICT accounts for 2% of global carbon emissions. For Microsoft, the opportunity is to deliver cloud services (which enable enterprises to directly reduce their own carbon emissions and take advantage of the higher efficiency that large cloud service providers like Microsoft can achieve) as well as energy-saving software and IT management solutions that can help large enterprises reduce their IT-related energy consumption. Exact regulations and notable geographic/regional examples: Microsoft customers are global and							NRG Energy to advance energy storage at our datacenters globally. • We continue researching fuel cell systems. • We continue testing natural gas generators to replace diesel generators. • We use outside air and adiabatic cooling (which reduces energy costs by ~30%) where possible. • Each new datacenter design works to improve our energy	cheaper to construct datacenters that use adiabatic cooling. Designing for energy efficiency is part of our standard development processes and incurs zero costs.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	therefore any area affected by fuel/energy taxes and regulations represents an opportunity. A key example is Ireland, which has adopted a National Renewable Energy Action Plan (NREAP) that sets a target of 40 percent of electricity consumption from renewable resources by 2020.							efficiency metrics. Energy efficiency is a foundational principle in the design of Microsoft products. Examples of our commitment to energy-efficient products include: • Surface Book, Surface Pro 4, and Surface Pro 3 are ENERGY STAR and EPEAT certified (the first two in FY16), and our ULE 110—certified mobile phones reached the highest scores. •	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								System Center Configuration Manager provides control over PC power management settings. • A new Energy Saver mode in Windows 10 enhances energy efficiency and power management. • Hyper-V virtualization technology enables customers to gain higher rates of server utilization and reduce the number of physical machines. These investments do not change the likelihood,	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								but they do help increase our opportunity for revenue.	
Cap and trade schemes	Cap and trade schemes have the potential to increase our customers' operating costs, either directly or through increased costs passed on through their energy suppliers. Wherever we have customers that are or will be affected by cap and trade schemes, they will be looking to reduce their carbon footprint and energy consumption. According to some estimates, ICT accounts for 2% of global carbon emissions. For Microsoft, the opportunity is to deliver cloud services (which	Increased demand for existing products/services	Up to 1 year	Direct	Virtually certain	Low-medium	Our opportunity is to build energy efficiency and power management capabilities into our products/services, which could help us maintain or exceed growth levels for our business (which in FY16, the reporting period, represented \$85.32 billion in annual revenue).	To support our cloud services, we are designing our datacenters to be up to 30–50% more efficient than other industry datacenters: • In FY16 (the reporting period), we announced a pilot program with Primus Power and NRG Energy to advance energy storage at our datacenters globally. •	We are investing more than \$100,000 in the Primus Power pilot program, expect to invest \$3.9 million in a fuel cell prototype facility, and are investing \$1.5 million in testing the use of natural gas generators in our datacenters. It is typically 20–25% cheaper to construct datacenters that use adiabatic cooling. Designing for energy

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	enable enterprises to directly reduce their own carbon emissions and take advantage of the higher efficiency that large cloud service providers like Microsoft can achieve) as well as energy-saving software and IT management solutions that can help large enterprises reduce their IT-related energy consumption. Exact regulations and notable geographic/regional examples: Microsoft customers are global and therefore any area affected by a cap and trade scheme represents an opportunity. Some key examples include the European Union							We continue researching fuel cell systems. • We continue testing natural gas generators to replace diesel generators. • We use outside air and adiabatic cooling (which reduces energy costs by ~30%) where possible. • Each new datacenter design works to improve our energy efficiency metrics. Energy efficiency is a foundational principle in the design	efficiency is part of our standard development processes and incurs zero costs.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	(EU) Emissions Trading Scheme (ETS), EU Code of Conduct for Data Centres, EU Digital Agenda, California Cap-and-Trade program, Tokyo Mandatory Cap and Trade Scheme, and Washington Clean Air Rule (which may be displaced by pending carbon tax legislation). In addition, the pending cap and trade regulations in China (likely to establish the bureaucracy in 2017, with trading to begin in 2019 or 2020) could also play a significant role in this opportunity.							of Microsoft products. Examples of our commitment to energy-efficient products include: • Surface Book, Surface Pro 4, and Surface Pro 3 are ENERGY STAR and EPEAT certified (the first two in FY16), and our ULE 110—certified mobile phones reached the highest scores. • System Center Configuration Manager provides control over PC power management	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								t settings. • A new Energy Saver mode in Windows 10 enhances energy efficiency and power management. • Hyper-V virtualization technology enables customers to gain higher rates of server utilization and reduce the number of physical machines. These investments do not change the likelihood, but they do help increase our opportunity for revenue.	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Carbon taxes	While carbon taxes create an opportunity for Microsoft to meet increasing demand for products and solutions that reduce the energy consumption of ICT, they create an even greater opportunity for Microsoft partners. Companies that are affected by carbon taxes—directly or indirectly (for example, rising energy costs)—will be looking to reduce their carbon emissions and energy consumption. Independent software vendors (ISVs), cloud services vendors (CSVs), and systems integrators (SIs) can develop solutions and services based on	New products/business services	Up to 1 year	Indirect (Client)	Very likely	Medium	According to the US Department of Energy, energy efficiency technologies/techniques can reduce building energy bills by 20–50%. We estimate that by 2018, the global market for smart building, smart grid, manufacturing and operations, asset fleet management, connected vehicles, and environmental monitoring detection technologies could exceed \$300 billion. For Microsoft, this opportunity is not directly addressable by our products alone; our opportunity is to drive greater adoption of our platform by supporting ISVs, CSVs, and SIs to build their energy management and carbon-monitoring solutions on our platform.	We have developed an ecosystem of partners that are part of the CityNext program and work to connect them to customers and partners in need of sustainability solutions. One notable example of an energy management solution built on the Microsoft platform is from Iconics, which provides unified building automation solutions that can integrate multiple systems—	There are no costs associated with managing this opportunity.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	the Windows platform to help their customers monitor, manage, and reduce their company-wide energy and carbon footprint. These solutions could include grid management software and services, building management and automation systems, carbon data management, and industry-specific solutions such as those for manufacturing and transportation. For example, Microsoft partners such as Iconics and Switch Automation deliver solutions that help reduce the energy consumption and improve the performance of buildings. For Microsoft, the							HVAC (heating, ventilation, and air conditioning), lighting, energy, security, fire, and elevator—for energy-efficient management. Our partner strategy does not change the likelihood of this opportunity, but it does help us increase the impact of the opportunity.	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	opportunity is to drive greater adoption of our platform by supporting these partners in building their energy management and carbon-monitoring solutions on our platform. Exact regulations and notable geographic/regional examples: Microsoft partners serve customers globally, and so any commercial customers that own, manage, or occupy buildings that consume electricity in areas affected by carbon taxes represent an opportunity. Key examples include India (which has a tax on coal to support the National Clean Environment Fund) and Washington state								

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	(with multiple bills proposed that would implement a carbon tax in 2018).								
Air pollution limits	While air pollution limits create an opportunity for Microsoft to meet increasing demand for products and solutions that reduce the energy consumption of ICT, they create an even greater opportunity for Microsoft partners. Companies that are affected by air pollution limits—directly or indirectly (for example, rising energy costs)—will be looking to reduce their carbon emissions and energy consumption. Independent software vendors (ISVs), cloud services vendors	New products/business services	1 to 3 years	Indirect (Client)	Virtually certain	Medium	According to the US Department of Energy, energy efficiency technologies/techniques can reduce building energy bills by 20–50%. We estimate that by 2018, the global market for smart building, smart grid, manufacturing and operations, asset fleet management, connected vehicles, and environmental monitoring detection technologies could exceed \$300 billion. For Microsoft, this opportunity is not directly addressable by our products alone; our opportunity is to drive greater adoption of our platform by supporting ISVs, CSVs, and SIs to build their energy management and carbon-monitoring	We have developed an ecosystem of partners that are part of the CityNext program and work to connect them to customers and partners in need of sustainability solutions. One notable example of an energy management solution built on the Microsoft platform is from Iconics, which provides unified building	There are no costs associated with managing this opportunity.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	(CSVs), and systems integrators (SIs) can develop solutions and services based on the Windows platform to help their customers monitor, manage, and reduce their company-wide energy and carbon footprint. These solutions could include grid management software and services, building management and automation systems, carbon data management, and industry-specific solutions such as those for manufacturing and transportation. For example, Microsoft partners such as Iconics and Switch Automation deliver solutions that help reduce						solutions on our platform.	automation solutions that can integrate multiple systems—HVAC (heating, ventilation, and air conditioning), lighting, energy, security, fire, and elevator—for energy-efficient management. Our partner strategy does not change the likelihood of this opportunity, but it does help us increase the impact of the opportunity.	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	the energy consumption and improve the performance of buildings. For Microsoft, the opportunity is to drive greater adoption of our platform by supporting these partners in building their energy management and carbon-monitoring solutions on our platform. Exact regulations and notable geographic/regional examples: Microsoft partners serve customers globally, and so any commercial customers that own, manage, or occupy buildings that consume electricity in areas affected by air pollution limits represent an opportunity. Currently, the greatest								

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	opportunity is in the United States, where the Environmental Protection Agency (EPA) has implemented or is actively working on regulations that will have an impact on the cost to operate or even the viability of operating some coal-fired power plants including the Cross-State Air Pollution Rule (CSAPR), the Mercury Air and Toxics Standard (MATS), and the Coal Combustion Residuals Rule. These regulations have the potential to significantly increase the cost of power in areas reliant on high-carbon energy sources. Although these regulations are not targeted to date, the new US presidential administration								

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	and current Congress may roll back or diminish enforcement of them.								
Fuel/energy taxes and regulations	While fuel/energy taxes and regulations create an opportunity for Microsoft to meet increasing demand for products and solutions that reduce the energy consumption of ICT, they create an even greater opportunity for Microsoft partners. Companies that are affected by fuel/energy taxes and regulations—directly or indirectly (for example, rising energy costs)—will be looking to reduce their carbon emissions and energy consumption. Independent software vendors	New products/business services	1 to 3 years	Indirect (Client)	Virtually certain	Medium	According to the US Department of Energy, energy efficiency technologies/techniques can reduce building energy bills by 20–50%. We estimate that by 2018, the global market for smart building, smart grid, manufacturing and operations, asset fleet management, connected vehicles, and environmental monitoring detection technologies could exceed \$300 billion. For Microsoft, this opportunity is not directly addressable by our products alone; our opportunity is to drive greater adoption of our platform by supporting ISVs, CSVs, and SIs to build their energy management and carbon-monitoring	We have developed an ecosystem of partners that are part of the CityNext program and work to connect them to customers and partners in need of sustainability solutions. One notable example of an energy management solution built on the Microsoft platform is from Iconics, which provides unified building	There are no costs associated with managing this opportunity.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	(ISVs), cloud services vendors (CSVs), and systems integrators (SIs) can develop solutions and services based on the Windows platform to help their customers monitor, manage, and reduce their company-wide energy and carbon footprint. These solutions could include grid management software and services, building management and automation systems, carbon data management, and industry-specific solutions such as those for manufacturing and transportation. For example, Microsoft partners such as Iconics and Switch Automation						solutions on our platform.	automation solutions that can integrate multiple systems—HVAC (heating, ventilation, and air conditioning), lighting, energy, security, fire, and elevator—for energy-efficient management. Our partner strategy does not change the likelihood of this opportunity, but it does help us increase the impact of the opportunity.	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	deliver solutions that help reduce the energy consumption and improve the performance of buildings. For Microsoft, the opportunity is to drive greater adoption of our platform by supporting these partners in building their energy management and carbon-monitoring solutions on our platform. Exact regulations and notable geographic/regional examples: Microsoft partners serve customers globally, and so any commercial customers that own, manage, or occupy buildings that consume electricity in areas affected by fuel/energy taxes and regulations represent an								

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	opportunity. A key example is Ireland, which has adopted a National Renewable Energy Action Plan (NREAP) that sets a target of 40 percent of electricity consumption from renewable resources by 2020.								
Cap and trade schemes	While cap and trade schemes create an opportunity for Microsoft to meet increasing demand for products and solutions that reduce the energy consumption of ICT, they create an even greater opportunity for Microsoft partners. Companies that are affected by cap and trade schemes—directly or	New products/business services	Up to 1 year	Indirect (Client)	Virtually certain	Medium	According to the US Department of Energy, energy efficiency technologies/techniques can reduce building energy bills by 20–50%. We estimate that by 2018, the global market for smart building, smart grid, manufacturing and operations, asset fleet management, connected vehicles, and environmental monitoring detection technologies could exceed \$300 billion. For Microsoft, this opportunity is not	We have developed an ecosystem of partners that are part of the CityNext program and work to connect them to customers and partners in need of sustainability solutions. One notable example of an energy management	There are no costs associated with managing this opportunity.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	indirectly (for example, rising energy costs)—will be looking to reduce their carbon emissions and energy consumption. Independent software vendors (ISVs), cloud services vendors (CSVs), and systems integrators (SIs) can develop solutions and services based on the Windows platform to help their customers monitor, manage, and reduce their company-wide energy and carbon footprint. These solutions could include grid management software and services, building management and automation systems, carbon data management, and industry-specific						directly addressable by our products alone; our opportunity is to drive greater adoption of our platform by supporting ISVs, CSVs, and SIs to build their energy management and carbon-monitoring solutions on our platform.	t solution built on the Microsoft platform is from Iconics, which provides unified building automation solutions that can integrate multiple systems—HVAC (heating, ventilation, and air conditioning), lighting, energy, security, fire, and elevator—for energy-efficient management. Our partner strategy does not change the likelihood of this opportunity,	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	solutions such as those for manufacturing and transportation. For example, Microsoft partners such as Iconics and Switch Automation deliver solutions that help reduce the energy consumption and improve the performance of buildings. For Microsoft, the opportunity is to drive greater adoption of our platform by supporting these partners in building their energy management and carbon-monitoring solutions on our platform. Exact regulations and notable geographic/regional examples: Microsoft partners serve customers globally, and so							but it does help us increase the impact of the opportunity.	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	any commercial customers that own, manage, or occupy buildings that consume electricity in areas affected by cap and trade schemes represent an opportunity. Some key examples include the EU Emissions Trading Scheme (ETS), EU Code of Conduct for Data Centres, EU Digital Agenda, California Cap-and-Trade program, Tokyo Mandatory Cap and Trade Scheme, and Washington Clean Air Rule (which may be displaced by pending carbon tax legislation). In addition, the pending cap and trade regulations in China (likely to establish the bureaucracy in								

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	2017, with trading to begin in 2019 or 2020) could also play a significant role in this opportunity.								

CC6.1b

Please describe your inherent opportunities that are driven by changes in physical climate parameters

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in mean (average) temperature	As global mean air temperatures increase and glaciers and ice sheets melt, the corresponding rise in sea levels puts a significant number of coastal areas at risk of extreme flooding due to rising tides. Any disruption to business and government resulting from	Increased demand for existing products/services	Up to 1 year	Direct	Likely	Medium-high	Our opportunity is to deliver technology and cloud services with high reliability, availability, and efficiency throughout all regions of the world at risk for climate change–related flooding (in particular those that are serviced by	Microsoft is investing to deliver cloud solutions across our product lines; two of our most significant services for businesses are Office 365 and Microsoft Azure. Our global cloud service operations are supported by one of the largest physical	Microsoft has invested more than \$15 billion to build our global infrastructure in support of cloud computing as a fundamental part of our business strategy. We are investing more than \$100,000 in the Primus Power pilot program, expect to invest \$3.9

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	such flooding will be costly, particularly where technology infrastructure is damaged and/or operations cannot continue from an alternative site during a flood. Microsoft has an opportunity to provide businesses and governments with technology and IT services that are resilient to local disruptions from flooding. When an organization gets its technical infrastructure and software as a service through a cloud provider with georedundant datacenters, the likelihood of a significant weather-related disaster shutting down the						high-speed Internet access). This could help us maintain or exceed growth levels for our business (which in FY16, the reporting period, represented \$85.32 billion in annual revenue).	networks in the world, with several industry certifications including ISO/IEC 27001:2005 and SAS70 Type II. We use georeplicated customer workloads (keeping multiple copies of workloads in multiple locations) to improve reliability. We have more than 2,000 people working on cloud infrastructure and more than 30,000 software engineers involved in cloud-based activities. To support our cloud services, we are designing our datacenters to be up to 30–50% more	million in a fuel cell prototype facility, and are investing \$1.5 million in testing the use of natural gas generators in our datacenters. It is typically 20–25% cheaper to construct datacenters that use adiabatic cooling over traditional large chillers.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	services is low. Organizations in flood-affected areas can resume operations as soon as they are able to restore Internet access (or even continue operations without disruption from an alternative site with Internet access). Likewise, high-availability features such as replication and mirroring in on-premises technology enable organizations to design and implement reliable and resilient mission-critical solutions. Exact nature and location: Microsoft technology and cloud services are offered							efficient than other industry datacenters: • In FY16 (the reporting period), we announced a pilot program with Primus Power in collaboration with NRG Energy to advance energy storage at our datacenters globally. • We continue researching fuel cell systems. • We continue testing natural gas generators to replace diesel generators. • We use outside air and adiabatic cooling (which reduces energy costs by ~30%) where possible. • Each new datacenter design works to improve our energy efficiency	

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	globally. All coastal areas around the world are at risk of increased flooding from climate change–related sea level rises. Some of the most populated areas at highest risk for floods caused by rising sea levels include Japan, Vietnam, the Philippines, Thailand, the Netherlands, Indonesia, China, and the United Kingdom.							metrics. These actions won't change the likelihood, but they will help us maximize the impact.	
Change in precipitation extremes and droughts	As climate change leads to increasing extremes in precipitation around the world, there is a corresponding incidence of floods. Any disruption to business and government as a result of such	Increased demand for existing products/services	Up to 1 year	Direct	Likely	Medium-high	Our opportunity is to deliver technology and cloud services with high reliability, availability, and efficiency throughout all regions of the world at risk for climate change–related flooding (in	Microsoft is investing to deliver cloud solutions across our product lines; two of our most significant services for businesses are Office 365 and Microsoft Azure. Our global cloud service operations are	Microsoft has invested more than \$15 billion to build our global infrastructure in support of cloud computing as a fundamental part of our business strategy. We are investing more than \$100,000 in the Primus

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	flooding will be costly, particularly where technology infrastructure is damaged and/or operations cannot continue from an alternative site during a flood. Microsoft has an opportunity to provide businesses and governments with technology and IT services that are resilient to local disruptions from flooding. When an organization gets its technical infrastructure and software as a service through a cloud provider with georedundant datacenters, the likelihood of a significant weather-related disaster shutting down the						particular those that are serviced by high-speed Internet access). This could help us maintain or exceed growth levels for our business (which in FY16, the reporting period, represented \$85.32 billion in annual revenue).	supported by one of the largest physical networks in the world, with several industry certifications including ISO/IEC 27001:2005 and SAS70 Type II. We use georeplicated customer workloads (keeping multiple copies of workloads in multiple locations) to improve reliability. We have more than 2,000 people working on cloud infrastructure and more than 30,000 software engineers involved in cloud-based activities. To support our cloud services, we are designing our	Power pilot program, expect to invest \$3.9 million in a fuel cell prototype facility, and are investing \$1.5 million in testing the use of natural gas generators in our datacenters. It is typically 20–25% cheaper to construct datacenters that use adiabatic cooling over traditional large chillers.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	services is low. Organizations in flood-affected areas can resume operations as soon as they are able to restore Internet access (or even continue operations without disruption from an alternative site with Internet access). Likewise, high-availability features such as replication and mirroring in on-premises technology enable organizations to design and implement reliable and resilient mission-critical solutions. Exact nature and location: Microsoft technology and cloud services are offered							datacenters to be up to 30–50% more efficient than other industry datacenters: • In FY16 (the reporting period), we announced a pilot program with Primus Power in collaboration with NRG Energy to advance energy storage at our datacenters globally. • We continue researching fuel cell systems. • We continue testing natural gas generators to replace diesel generators. • We use outside air and adiabatic cooling (which reduces energy costs by ~30%) where possible. • Each new datacenter design works to	

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	globally. Some examples of areas affected by floods caused by extreme precipitation in recent years include Norway, India, Uruguay, Paraguay, Brazil, Argentina, Peru, Myanmar, the Philippines, the United States, the United Kingdom, and Australia.							improve our energy efficiency metrics. These actions won't change the likelihood, but they will help us maximize the impact.	

CC6.1c

Please describe your inherent opportunities that are driven by changes in other climate-related developments

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Reputation	Nature of the effect: The IT industry as a whole is drawing increased attention for its	Increased demand for existing products/services	Up to 1 year	Direct	Likely	Low-medium	It is difficult to quantify the potential financial implications. Theoretically if	We are actively working to reduce the environmental impact of our operations and products/services.	The ESB program costs less than 5% of our annual energy costs at deployed

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	impact on the environment and climate change, and consumers, businesses, and institutional investors are increasingly making investment decisions based on how environmentally responsible companies are. Microsoft is one of the largest IT organizations in the world, and so the perceived impact of our products and services on the environment is heightened. If Microsoft demonstrates environmental leadership, it could help improve our reputation and make it more likely for companies and consumers that prioritize						we were to win—for example—3% additional business from our competitors because we were perceived to be better environmental stewards and to actively contribute to climate change mitigation, the impact based on FY16 (the reporting period) revenue would have been an increase of \$2.56 billion.	We are net carbon neutral for (and charge business groups a carbon fee for emissions from their use of) datacenters, labs, offices, manufacturing sites, and air travel. In FY16, we increased our purchase of renewable energy to 4,852,643 MWh. In addition, we: • Have an Energy Smart Buildings (ESB) program in our Puget Sound, Silicon Valley, and Las Colinas facilities, with plans to expand to two more locations in FY17. • Charge Puget Sound lab energy costs back to product groups based on actual usage to drive behavior change. • Are making our datacenters as energy efficient as possible; for example, we use	locations. The lab chargeback incurs minimal labor costs. It is ~20–25% cheaper to construct datacenters that use adiabatic cooling over traditional chillers. Designing for energy efficiency is part of our standard development processes and incurs zero costs.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	environmental criteria to purchase and/or invest in our products and services. Location of the effect: Our reputation has implications globally because we operate throughout the world; in our experience, the area where businesses and consumers emphasize climate change the most in their buying decisions currently is in Europe, where environmental issues are gaining the greatest attention.							outside air and adiabatic cooling where possible (reducing energy costs by ~30%) and design for improved energy efficiency metrics in new datacenters. • Are developing our products to have less impact on the environment and publish energy/emissions data through Eco profiles for our consumer devices. • Encourage our indirect suppliers to report through the CDP Supply Chain Program. • Work with NGOs, governments, and environmental agencies on initiatives, education, and research related to climate change. • Publicly communicate about our efforts to reduce our impact on the	

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								environment. These actions help build our reputation for environmental leadership. They won't change the opportunity likelihood but will help maximize the impact.	
Changing consumer behavior	Nature of the effect: As businesses become more conscious of the environmental impact of their computing and as regulations and taxes related to climate change lead to rising energy costs, our customers are becoming increasingly interested in improving the efficiency of their IT infrastructures. Cloud computing enables companies to eliminate the	Increased demand for existing products/services	Up to 1 year	Direct	Very likely	Medium-high	We believe that a service provider's commitment to minimizing impact on the environment will be among the criteria that customers use when they select a cloud service. Demonstrating our commitment to energy efficiency in the construction and running of our datacenters will help us maintain or increase the level of growth	Microsoft is investing to deliver cloud solutions across our product lines; two of our most significant services for businesses are Office 365 and Microsoft Azure. Our global cloud service operations are supported by one of the largest physical networks in the world, with several industry certifications including ISO/IEC 27001:2005 and SAS70 Type II. We use georeplicated customer workloads (keeping multiple copies of workloads in	Microsoft has invested more than \$15 billion to build our global infrastructure in support of cloud computing as a fundamental part of our business strategy. We are investing more than \$100,000 in the Primus Power pilot program, expect to invest \$3.9 million in a fuel cell prototype facility, and are investing \$1.5 million in

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	greenhouse gas (GHG) emissions associated with running on-premises datacenters and take advantage of the efficiencies that public cloud service providers can achieve through the massive scale of their datacenters. All businesses have the potential to reduce their emissions and costs with the public cloud, though the greatest efficiency gains will be realized by smaller businesses. Since Microsoft has shifted the strategic focus of our business to the cloud, we are well positioned to benefit from this						for our cloud business.	multiple locations) to improve reliability. We have more than 2,000 people working on cloud infrastructure and more than 30,000 software engineers involved in cloud-based activities. To support our cloud services, we are designing our datacenters to be up to 30–50% more efficient than other industry datacenters: • In FY16 (the reporting period), we announced a pilot program with Primus Power in collaboration with NRG Energy to advance energy storage at our datacenters globally. • We continue researching fuel cell systems. • We continue testing natural gas generators to replace diesel	testing the use of natural gas generators in our datacenters. It is typically 20–25% cheaper to construct datacenters that use adiabatic cooling over traditional large chillers.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	change in customer preferences. Location of the effect: Interest in cloud computing is global, though business adoption will be predominantly in regions with reliable, high-speed access to the Internet, such as the United States and Europe.							generators. • We use outside air and adiabatic cooling (which reduces energy costs by ~30%) where possible. • Each new datacenter design works to improve our energy efficiency metrics. These actions will increase the likelihood of this opportunity to virtually certain and the magnitude of impact to high. We are already making these investments, and environmental considerations are already playing a role in customers' decisions to transition to the cloud.	

CC6.1d

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC6.1e

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC6.1f

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

Further Information

Module: GHG Emissions Accounting, Energy and Fuel Use, and Trading

Page: CC7. Emissions Methodology

CC7.1

Please provide your base year and base year emissions (Scopes 1 and 2)

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 1	Sun 01 Jul 2012 - Sun 30 Jun 2013	96947
Scope 2 (location-based)	Sun 01 Jul 2012 - Sun 30 Jun 2013	1388928
Scope 2 (market-based)	Sun 01 Jul 2012 - Sun 30 Jun 2013	778766

CC7.2

Please give the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

Please select the published methodologies that you use

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

CC7.2a

If you have selected "Other" in CC7.2 please provide details of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

CC7.3

Please give the source for the global warming potentials you have used

Gas	Reference
CO2	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	IPCC Fourth Assessment Report (AR4 - 100 year)
HFCs	IPCC Fourth Assessment Report (AR4 - 100 year)

CC7.4

Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data at the bottom of this page

Fuel/Material/Energy	Emission Factor	Unit	Reference
			Please see the attached spreadsheet for emissions factors.

Further Information

Please see the attached spreadsheet for emissions factors for CC7.4.

Attachments

[https://www.cdp.net/sites/2017/30/11930/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC7.EmissionsMethodology/Microsoft-worksheet-for-question-cc7.4.xlsx](https://www.cdp.net/sites/2017/30/11930/Climate%20Change%202017/Shared%20Documents/Attachments/ClimateChange2017/CC7.EmissionsMethodology/Microsoft-worksheet-for-question-cc7.4.xlsx)

CC8.1

Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory

Operational control

CC8.2

Please provide your gross global Scope 1 emissions figures in metric tonnes CO₂e

88486

CC8.3

Please describe your approach to reporting Scope 2 emissions

Scope 2, location-based	Scope 2, market-based	Comment
We are reporting a Scope 2, location-based figure	We are reporting a Scope 2, market-based figure	

CC8.3a

Please provide your gross global Scope 2 emissions figures in metric tonnes CO₂e

Scope 2, location- based	Scope 2, market- based (if applicable)	Comment
2060534	37087	In the United States, several of our large datacenters are supplied by renewable wind power procured through power purchase agreements (PPAs). For the remainder of our US and Canadian electricity, we purchase renewable green power via unbundled RECs. In the European Union, we are supplied with 100 percent renewable green power through the purchase of Guarantees of Origin. In Australia, we are supplied with renewable green power through the purchase of Australian GreenPower instruments. In India, Indonesia, Mexico, and Pakistan, we are supplied with renewable green power through the purchase of PowerPlus instruments. And in China, Taiwan, Turkey, Brazil, East Africa, the Philippines, Singapore, and Vietnam, we are supplied with 100 percent renewable green power through the purchase of I-REC instruments.

CC8.4

Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

Yes

CC8.4a

Please provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure

Source	Relevance of Scope 1 emissions from this source	Relevance of location-based Scope 2 emissions from this source	Relevance of market-based Scope 2 emissions from this source (if applicable)	Explain why the source is excluded
LinkedIn operations	Emissions excluded due to a recent acquisition	Emissions excluded due to a recent acquisition	Emissions excluded due to a recent acquisition	Microsoft acquired LinkedIn on December 8, 2016 (after the close of the reporting period for this response). We are working to integrate LinkedIn environmental data and plan to include LinkedIn operations in our environmental reporting from our 2018 CDP response (which will report on FY17, the year in which the acquisition took place).

CC8.5

Please estimate the level of uncertainty of the total gross global Scope 1 and 2 emissions figures that you have supplied and specify the sources of uncertainty in your data gathering, handling and calculations

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
Scope 1	More than 2% but less than or equal to 5%	Data Gaps Assumptions Extrapolation Metering/ Measurement Constraints	Uncertainty in the data gaps and metering/measurement constraints: Some facilities do not pay for their utilities directly; they are charged a prorated portion of the building's usage by their landlord, and the landlord does not provide utility data. These sites' data must be estimated. Some facilities receive natural gas through district heating and cannot provide their site's specific usage. Uncertainty in the assumptions and extrapolation methodology: To estimate natural gas usage for sites that were unable to provide primary data, 2016 natural gas intensities were used, which overestimates for sites that do not use natural gas or could underestimate for sites that do use natural gas. Of the Scope 1 emissions, 79 percent were calculated using invoice records. The remaining 21 percent were estimated. A 5 percent uncertainty was assigned to emissions calculated from reported data, and a 20 percent uncertainty was assigned to emissions calculated by extrapolation.

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
Scope 2 (location-based)	More than 2% but less than or equal to 5%	Data Gaps Assumptions Extrapolation Metering/ Measurement Constraints	Uncertainty in the data gaps and metering/measurement constraints: Some facilities do not pay for their utilities directly; they are charged a prorated portion of the building's usage by their landlord, but the landlord does not provide utility data. These sites' data must be estimated. Uncertainty in the assumptions and extrapolation methodology: To estimate electricity usage for sites that were unable to provide primary data, 2016 electricity intensities were used. Of the Scope 2 emissions, 94 percent were calculated using metered data. The remaining 6 percent were estimated. A 5 percent uncertainty was assigned to emissions calculated from reported data, and a 20 percent uncertainty was assigned to emissions calculated by extrapolation.
Scope 2 (market-based)	More than 2% but less than or equal to 5%	Data Gaps Assumptions Extrapolation Metering/ Measurement Constraints	Uncertainty in the data gaps and metering/measurement constraints: Some facilities do not pay for their utilities directly; they are charged a prorated portion of the building's usage by their landlord, but the landlord does not provide utility data. These sites' data must be estimated. Uncertainty in the assumptions and extrapolation methodology: To estimate electricity usage for sites that were unable to provide primary data, 2016 electricity intensities were used. Of the Scope 2 emissions, 94 percent were calculated using metered data. The remaining 6 percent were estimated. A 5 percent uncertainty was assigned to emissions calculated from reported data, and a 20 percent uncertainty was assigned to emissions calculated by extrapolation.

CC8.6

Please indicate the verification/assurance status that applies to your reported Scope 1 emissions

Third party verification or assurance process in place

CC8.6a

Please provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/30/11930/Climate Change 2017/Shared Documents/Attachments/CC8.6a/Microsoft 2016 CDP (GHG_Offsets) Verification Statement-Final.pdf	1	ISO14064-3	100

CC8.6b

Please provide further details of the regulatory regime to which you are complying that specifies the use of Continuous Emission Monitoring Systems (CEMS)

Regulation	% of emissions covered by the system	Compliance period	Evidence of submission
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CC8.7

Please indicate the verification/assurance status that applies to at least one of your reported Scope 2 emissions figures

Third party verification or assurance process in place

CC8.7a

Please provide further details of the verification/assurance undertaken for your location-based and/or market-based Scope 2 emissions, and attach the relevant statements

Location-based or market-based figure?	Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 2 emissions verified (%)
Location-based	Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/30/11930/Climate Change 2017/Shared Documents/Attachments/CC8.7a/Microsoft 2016 CDP (GHG_Offsets) Verification Statement-Final.pdf	1	ISO14064-3	100
Market-based	Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/30/11930/Climate Change 2017/Shared Documents/Attachments/CC8.7a/Microsoft 2016 CDP (GHG_Offsets) Verification Statement-Final.pdf	1	ISO14064-3	100

CC8.8

Please identify if any data points have been verified as part of the third party verification work undertaken, other than the verification of emissions figures reported in CC8.6, CC8.7 and CC14.2

Additional data points verified	Comment
Progress against emissions reduction target	Verification of carbon neutral commitment, which includes verification of emissions reductions from carbon offset purchases in the reporting year as outlined in question CC3.1a (Abs1).
Other: Progress against renewable energy target	Verification of global electricity consumption and renewable energy purchases equivalent to global electricity consumption, in support of the Microsoft 100 percent renewable electricity target, as outlined in question CC3.1d (RE1).
Other: CO2 emissions data from Microsoft-owned manufacturing sites and select manufacturing suppliers	ISO 14001 certification of all Microsoft-owned manufacturing sites. Microsoft Windows and Devices Group (WDG) verifies third-party supplier/factory certifications such as ISO 14001.

CC8.9

Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

No

CC8.9a

Please provide the emissions from biologically sequestered carbon relevant to your organization in metric tonnes CO2

Further Information

Page: CC9. Scope 1 Emissions Breakdown - (1 Jul 2015 - 30 Jun 2016)

CC9.1

Do you have Scope 1 emissions sources in more than one country?

Yes

CC9.1a

Please break down your total gross global Scope 1 emissions by country/region

Country/Region	Scope 1 metric tonnes CO2e
Asia Pacific (or JAPA)	7982
Canada	561

Country/Region	Scope 1 metric tonnes CO2e
Europe, Middle East and Africa (EMEA)	43224
Latin America and Caribbean (LAC)	3706
United States of America	33013

CC9.2

Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply)

By GHG type

CC9.2a

Please break down your total gross global Scope 1 emissions by business division

Business division	Scope 1 emissions (metric tonnes CO2e)

CC9.2b

Please break down your total gross global Scope 1 emissions by facility

Facility	Scope 1 emissions (metric tonnes CO2e)	Latitude	Longitude
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CC9.2c

Please break down your total gross global Scope 1 emissions by GHG type

GHG type	Scope 1 emissions (metric tonnes CO2e)
CO2	70399
CH4	23
N2O	186
HFCs	17878

CC9.2d

Please break down your total gross global Scope 1 emissions by activity

Activity	Scope 1 emissions (metric tonnes CO2e)
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Further Information

Page: CC10. Scope 2 Emissions Breakdown - (1 Jul 2015 - 30 Jun 2016)

CC10.1

Do you have Scope 2 emissions sources in more than one country?

Yes

CC10.1a

Please break down your total gross global Scope 2 emissions and energy consumption by country/region

Country/Region	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low carbon electricity, heat, steam or cooling accounted in market- based approach (MWh)
Asia Pacific (or JAPA)	375506	19923	576772	532119
Canada	2103	0	42169	42169
Europe, Middle East and Africa (EMEA)	353975	16510	869768	831420
Latin America and Caribbean (LAC)	18570	654	61796	59677
United States of America	1310380	0	3327847	3327847

CC10.2

Please indicate which other Scope 2 emissions breakdowns you are able to provide (tick all that apply)

CC10.2a

Please break down your total gross global Scope 2 emissions by business division

Business division	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)

CC10.2b

Please break down your total gross global Scope 2 emissions by facility

Facility	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)

CC10.2c

Please break down your total gross global Scope 2 emissions by activity

Activity	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)

Further Information

CC11.1

What percentage of your total operational spend in the reporting year was on energy?

More than 0% but less than or equal to 5%

CC11.2

Please state how much heat, steam, and cooling in MWh your organization has purchased and consumed during the reporting year

Energy type	MWh
Heat	0
Steam	17050
Cooling	8659

CC11.3

Please state how much fuel in MWh your organization has consumed (for energy purposes) during the reporting year

308826

CC11.3a

Please complete the table by breaking down the total "Fuel" figure entered above by fuel type

Fuels	MWh
Diesel/Gas oil	119877
Jet kerosene	36321
Distillate fuel oil No 2	14150
Distillate fuel oil No 6	220
Motor gasoline	37322
Natural gas	89404
Liquefied petroleum gas (LPG)	11532

CC11.4

Please provide details of the electricity, heat, steam or cooling amounts that were accounted at a low carbon emission factor in the market-based Scope 2 figure reported in CC8.3a

Basis for applying a low carbon emission factor	MWh consumed associated with low carbon electricity, heat, steam or cooling	Emissions factor (in units of metric tonnes CO2e per MWh)	Comment
Off-grid energy consumption from an on-site installation or through a direct line to an off-site generator owned by another company	542	0	Microsoft owns and operates a bank of solar panels at our Silicon Valley campus in Mountain View, CA. Our solar array helps us reduce energy demand, costs, and harmful emissions while we conserve natural resources.
Direct procurement contract with a grid-connected generator or Power Purchase Agreement (PPA), supported by energy attribute certificates	796802	0	Starting in FY15, Microsoft entered into a virtual PPA with Enbridge LLC to procure 100 percent wind energy in the state of Texas. In FY16, an additional PPA, signed with EDF Renewable Energy, came online to deliver 100 percent wind energy in the state of Illinois. Securing PPAs in this way is part of the comprehensive Microsoft strategy to procure 100 percent green power, and Microsoft is currently developing additional, similar PPAs. All RECs are Green-e certified.

Basis for applying a low carbon emission factor	MWh consumed associated with low carbon electricity, heat, steam or cooling	Emissions factor (in units of metric tonnes CO2e per MWh)	Comment
Energy attribute certificates, Guarantees of Origin	827912	0	In the European Union (EU), we are supplied with 100 percent renewable green power through the purchase of Guarantees of Origin.
Energy attribute certificates, Renewable Energy Certificates (RECs)	2589552	0	In the United States and Canada, we are supplied with 100 percent renewable green power through the purchase of RECs. All RECs are Green-e certified.
Other	29072	0	In Australia, we are supplied with renewable green power through the purchase of Australian GreenPower instruments.
Other	3247	0	In Taiwan and Thailand, we are supplied with 100 percent renewable green power through the purchase GoldPower instruments.
Energy attribute certificates, I-RECs	432241	0	In Brazil, China, East Africa, the Philippines, Singapore, Turkey, and Vietnam, we are supplied with 100 percent renewable green power through the purchase of I-RECs instruments.
Other	72435	0	In India, Indonesia, Mexico, and Pakistan, we are supplied with 100 percent renewable green power through the purchase of PowerPlus instruments.
Other	41429	0	In Japan, we are supplied with 100 percent renewable green power through the purchase of Japanese compliance instruments (GECs).

CC11.5

Please report how much electricity you produce in MWh, and how much electricity you consume in MWh

Total electricity consumed (MWh)	Consumed electricity that is purchased (MWh)	Total electricity produced (MWh)	Total renewable electricity produced (MWh)	Consumed renewable electricity that is produced by company (MWh)	Comment
4852643	4852101	542	542	542	

Further Information

Page: **CC12. Emissions Performance**

CC12.1

How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to the previous year?

Decreased

CC12.1a

Please identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined) and for each of them specify how your emissions compare to the previous year

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Emissions reduction activities	227	Decrease	We have decreased our Scope 2 emissions related to our operations—including offices, datacenters, and software development labs—through emissions reduction activities, including purchasing renewable energy certificates (RECs). In FY16, because of significant datacenter growth and as part of our 100 percent renewable electricity commitment, we made a substantial investment in RECs, resulting in the incremental avoidance of an additional 292,710 mtCO ₂ e in Scope 2 emissions over the previous year. This incremental emission avoidance is larger than last year's Scope 1 + Scope 2 market-based emissions, leading to a high reduction percentage.

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
			Examples of additional emissions reduction activities include: • Purchasing renewable energy through power purchase agreements (PPAs). • Funding global energy efficiency programs through our carbon fund (ranging from lighting controls and upgrades to equipment upgrades to building management systems). • Identifying and addressing thousands of equipment faults through our Energy Smart Buildings (ESB) program. • Running efficiency projects, such as modifying the operation of HVAC (heating, ventilation, and air conditioning) components, optimizing the use of secondary campus equipment (such as TVs and kitchen exhaust fans), and installing variable frequency drives (VFDs) and light-emitting diode (LED) fixtures. In addition, we are working to make our datacenters as lean as possible, to maximize efficiency and minimize energy consumption, for example by: launching a pilot program with Primus Power in collaboration with NRG Energy to advance energy storage at our datacenters globally; researching fuel cell systems; continuing to test natural gas generators to replace diesel generators; and improving datacenter cooling efficiency using outside air, adiabatic cooling, and water-side economizers for cooling. In FY16 we reduced our Scope 1 and 2 emissions by 554,700 mtCO ₂ e through a combination of internal energy efficiency projects and incremental renewable energy purchases. FY15 Scope 1 + Scope 2 market-based emissions were 244,341 mtCO ₂ e. We arrived at a 227 percent reduction by dividing the reductions by the FY15 gross emissions $[(554,700/244,341)*100=227\%]$.
Divestment			
Acquisitions			
Mergers			
Change in output			
Change in methodology			
Change in boundary			
Change in physical operating conditions			
Unidentified			
Other			

Is your emissions performance calculations in CC12.1 and CC12.1a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Market-based

CC12.2

Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per unit currency total revenue

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator: Unit total revenue	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.000001472	metric tonnes CO2e	85320000000	Market-based	44	Decrease	The decrease in emissions intensity per unit of revenue is driven by our emissions reduction initiatives and an increase in revenue. Specifically, our Scope 1 and Scope 2 market-based GHG emissions decreased by 49 percent while our revenue decreased by 9 percent. Examples of emissions reduction activities include: • Making a significant investment in renewable energy certificates (RECs) and purchasing renewable energy through power purchase agreements (PPAs). • Funding global energy efficiency programs through our carbon fund (ranging from lighting controls and upgrades to equipment upgrades to building management systems). • Identifying and addressing thousands of equipment faults through our Energy Smart Buildings (ESB) program. • Running efficiency projects, such as modifying the operation of HVAC (heating, ventilation, and air conditioning) components, optimizing the use of secondary campus equipment (such as TVs and kitchen exhaust fans), and installing variable frequency drives (VFDs) and light-emitting diode (LED) fixtures. In addition, we are working to make our datacenters as lean as possible, to maximize efficiency and minimize energy consumption, for example by: launching a pilot program with Primus Power in collaboration with NRG Energy to advance energy storage at our datacenters globally; researching fuel cell systems;

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator: Unit total revenue	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
						continuing to test natural gas generators to replace diesel generators; and improving datacenter cooling efficiency using outside air, adiabatic cooling, and water-side economizers for cooling.

CC12.3

Please provide any additional intensity (normalized) metrics that are appropriate to your business operations

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
1.101523266	metric tonnes CO2e	full time equivalent (FTE) employee	114000	Market-based	47	Decrease	The decrease in emissions intensity per FTE is driven by our emissions reduction initiatives. Specifically, our Scope 1 and Scope 2 market-based GHG emissions decreased by 49 percent while the number of FTE employees only decreased by 3 percent. Examples of emissions reduction activities include: • Making a significant investment in renewable energy certificates (RECs) and purchasing renewable energy through a power purchase agreement (PPA). • Funding global energy efficiency programs through our carbon fund (ranging from lighting controls and upgrades to equipment upgrades to building management

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
							systems). • Identifying and addressing thousands of equipment faults through our Energy Smart Buildings (ESB) program. • Running efficiency projects, such as modifying the operation of HVAC (heating, ventilation, and air conditioning) components, optimizing the use of secondary campus equipment (such as TVs and kitchen exhaust fans), and installing variable frequency drives (VFDs) and light-emitting diode (LED) fixtures. In addition, we are working to make our datacenters as lean as possible, to maximize efficiency and minimize energy consumption, for example by: launching a pilot program with Primus Power in collaboration with NRG Energy to advance energy storage at our datacenters globally; researching fuel cell systems; continuing to test natural gas generators to replace diesel generators; and improving datacenter cooling efficiency using outside air, adiabatic cooling, and water-side economizers for cooling. Per CDP guidance, we calculated the percent difference using Scope 1 + Scope 2 market-based emissions for both years.

Further Information

Page: CC13. Emissions Trading

CC13.1

Do you participate in any emissions trading schemes?

No, and we do not currently anticipate doing so in the next 2 years

CC13.1a

Please complete the following table for each of the emission trading schemes in which you participate

Scheme name	Period for which data is supplied	Allowances allocated	Allowances purchased	Verified emissions in metric tonnes CO ₂ e	Details of ownership

CC13.1b

What is your strategy for complying with the schemes in which you participate or anticipate participating?

CC13.2

Has your organization originated any project-based carbon credits or purchased any within the reporting period?

Yes

CC13.2a

Please provide details on the project-based carbon credits originated or purchased by your organization in the reporting period

Credit origination or credit purchase	Project type	Project identification	Verified to which standard	Number of credits (metric tonnes CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits canceled	Purpose, e.g. compliance
Credit purchase	Forests	Acre Amazonian Rainforest Conservation REDD+	Other: VCS+CCBA	21666	21666	Yes	Voluntary Offsetting
Credit purchase	Other: Efficient stoves/forestry	Community Biodigester– Karnataka, India	Other: Gold Standard + CDM	3500	3500	Yes	Voluntary Offsetting
Credit purchase	Other: Efficient stoves/forestry	Improved Cookstoves for Ethiopian Coffee Farmers	Other: ACR	4500	4500	Yes	Voluntary Offsetting
Credit purchase	Other: Efficient stoves/forestry	Improved Cookstoves in Bangladesh	Other: ACR	47353	47353	Yes	Voluntary Offsetting
Credit purchase	Solar	India Solar Water Heating	Other: Gold Standard + CDM	20000	20000	Yes	Voluntary Offsetting
Credit purchase	Forests	Kulera Landscape REDD+	Other: VCS+CCBA	21000	21000	Yes	Voluntary Offsetting
Credit purchase	Forests	Lower Zambezi Community Conservation	Other: VCS+CCBA	21271	21271	Yes	Voluntary Offsetting
Credit purchase	Forests	Madre de Dios Protected Area REDD+, Peru – Tambopata and Bahuaja-Sonene	Other: VCS+CCBA	35000	35000	Yes	Voluntary Offsetting
Credit purchase	Forests	Makira REDD+	Other: VCS+CCBA	45000	45000	Yes	Voluntary Offsetting
Credit purchase	Forests	Meru & Nanyuki Community Reforestation	Other: VCS+CCBA	20000	20000	Yes	Voluntary Offsetting
Credit purchase	Forests	Mississippi Valley Restored Ecosystem	Other: ACR	45000	45000	Yes	Voluntary Offsetting
Credit purchase	Forests	Nisqually Improved Forest Management	Other: CARB	2000	2000	Yes	Voluntary Offsetting
Credit purchase	Forests	Pacific Coast Community Rainforest Conservation – Cajambre	Other: VCS+CCBA	45000	45000	Yes	Voluntary Offsetting
Credit purchase	Other: Borehole wells	Restored Water Infrastructure	Other: ACR	20000	20000	Yes	Voluntary Offsetting
Credit purchase	Other: Improved kitchen regimes	Restored Water Infrastructure	Other: ACR	20000	20000	Yes	Voluntary Offsetting

Credit origination or credit purchase	Project type	Project identification	Verified to which standard	Number of credits (metric tonnes CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits canceled	Purpose, e.g. compliance
Credit purchase	Forests	Rice Management Systems ALM	Other: ACR	1315	1315	Yes	Voluntary Offsetting
Credit purchase	Biomass energy	Sichuan Household Biodigester	Other: Gold Standard + CDM	26666	26666	Yes	Voluntary Offsetting
Credit purchase	Other: Efficient stoves/forestry	Water filtration and stoves	Other: ACR	31980	31980	Yes	Voluntary Offsetting

Further Information

Page: CC14. Scope 3 Emissions

CC14.1

Please account for your organization's Scope 3 emissions, disclosing and explaining any exclusions

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Purchased goods and services	Relevant, calculated	10000000	Corporate-wide expense data for all company divisions was obtained from finance. The spend was mapped to corresponding industry sectors and then multiplied by cradle-to-gate emission factors by sector from UK Defra's "2012 Guidelines to Defra/DECC's GHG Conversion Factors for Company Reporting," Annex 13—updated per the latest inflation and currency conversion rates. Sectors already included in Scope 1 and Scope 2 (such as electricity purchases) and other Scope 3 categories (such as capital goods) were removed to prevent double counting. Global warming potentials (GWPs) are from the IPCC Second Assessment Report, 100-year average.	0.00%	The reported emissions for this category represent an estimate based on broad-based assumptions and have therefore been rounded. This category may be under-reported or over-reported by as much as 50 percent.
Capital goods	Relevant, calculated	200000	Corporate-wide expense data for all company divisions was obtained from finance. The spend for capital goods was mapped to corresponding industry sectors and then multiplied by cradle-to-gate emission factors by sector from UK Defra's "2012 Guidelines to Defra/DECC's GHG Conversion Factors for Company Reporting," Annex 13—updated per the latest inflation and currency conversion rates. Global warming potentials (GWPs) are from the IPCC Second Assessment Report, 100-year average.	0.00%	The reported emissions for this category represent an estimate based on broad-based assumptions and have therefore been rounded. This category may be under-reported or over-reported by as much as 50 percent.
Fuel-and-energy-related activities	Relevant, calculated	412039	Fuel- and energy-related activities (not included in Scope 1 or 2) include three emission sources. First, upstream emissions of purchased	0.00%	

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
(not included in Scope 1 or 2)			electricity were calculated by multiplying electricity use by emission factors from lifecycle analysis tools for the US and UK Defra 2015 Guidelines for non-US countries. Second, fuel consumption was multiplied by emission factors from lifecycle analysis tools. And third, transmission and distribution (T&D) losses (by energy use type) were multiplied by emission factors from EPA's eGRID2012 database for the United States and from UK Defra 2015 Guidelines for other countries. Global warming potentials (GWPs) are from the IPCC Fourth Assessment Report, 100-year average.		
Upstream transportation and distribution	Relevant, calculated	100000	Upstream transportation and distribution emissions are derived from corporate-wide expense data for all company divisions obtained from finance. The spend for transportation was mapped to corresponding industry sectors (for example, road transport, ancillary transport services) and then multiplied by cradle-to-gate emission factors by sector from UK Defra's "2012 Guidelines to Defra/DECC's GHG Conversion Factors for Company Reporting," Annex 13—updated per the latest inflation and currency conversion rates. Global warming potentials (GWPs) are from the IPCC Second Assessment Report, 100-year average.	0.00%	The reported emissions for this category represent an estimate based on broad-based assumptions and have therefore been rounded. This category may be under-reported or over-reported by as much as 50 percent.
Waste generated in operations	Relevant, calculated	838	The waste figure represents emissions from waste disposed via landfilling or incineration and	0.00%	

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
			does not include waste from recycling or compost. This data includes the Microsoft Puget Sound headquarters campus, US field campuses, and many other sites, representing more than 50 percent of the Microsoft global real estate portfolio. Emissions from waste are calculated using methodologies and emission factors from the EPA's Waste Reduction Model (WARM), version 14, 2016. This model bases its emissions calculations on a lifecycle analysis, including emissions from the long-term decomposition of waste in a landfill or from upstream sources/sinks. Global warming potentials (GWPs) are from the IPCC Fourth Assessment Report, 100-year average.		
Business travel	Relevant, calculated	305678	Included in this category are emissions from commercial air travel. Microsoft Corporate Travel provides flight-level airport codes and cabin class data. The airport codes are used to calculate distances to determine whether the flights were short, medium, or long haul. The distance thresholds and cabin class are used with appropriate emission factors to calculate CO2e (CO2, CH4, and N2O emission factors source: 2016 Guidelines to Defra/DECC's GHG Conversion Factors for Company Reporting). Global warming potentials (GWPs) are from the IPCC Fourth Assessment Report, 100-year average.	100.00%	

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Employee commuting	Relevant, calculated	200000	This category captures emissions from commuting by all employees and contractors that work in Microsoft buildings. It does not include commuting in shuttles and buses owned or operated by Microsoft because these emissions are already included in the Microsoft Scope 1 inventory. A survey was conducted in May 2016 to capture detailed commuting habits from workers at the Microsoft Puget Sound campus, representing roughly 30 percent of global Microsoft headcount. The results of this survey were scaled to estimate global commuting emissions for Microsoft. CO2 emission rates for passenger vehicles (single occupancy vehicle [SOV] and carpool) are based on fuel consumption and miles travelled. A weighted average fuel economy was derived using the 2012 EPA Fuel Economy Trends Report 1975–2012, which provides combined fuel economy for cars and trucks by year, and a set of car and truck age fractions provided by the Puget Sound Regional Council. This data was used to develop a weighted average fuel economy for the Puget Sound area. Emission factors are derived from the Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2010, Annex 2 (Methodology for estimating CO2 emissions from fossil fuel combustion). CO2 rates per passenger mile are based on Federal Transit Administration, 2010 (Public	0.00%	The reported emissions for this category represent an estimate based on broad-based assumptions and have therefore been rounded.

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
			Transportation's Role in Responding to Climate Change, US DOT, Federal Transit Administration, January, 2010). Global warming potentials (GWPs) are from the IPCC Fourth Assessment Report, 100-year average.		
Upstream leased assets	Not relevant, explanation provided				Microsoft includes leased assets in its Scope 1 and Scope 2 emissions reporting boundary.
Downstream transportation and distribution	Relevant, calculated	900000	Included in this category are the emissions from transporting Microsoft devices sold in FY16 (including phones, Xbox devices, Microsoft Surface devices, keyboards, mice, and other peripherals) from Microsoft manufacturing sites to retailers and customers. Calculations are based on standard assumptions of distance between Microsoft sites and retailers. Emission factors for shipping come from the Ecoinvent 3 database. Global warming potentials (GWPs) are from the IPCC Fourth Assessment Report, 100-year average.	0.00%	The reported emissions for this category represent an estimate based on broad-based assumptions and have therefore been rounded.
Processing of sold products	Not relevant, explanation provided				Microsoft did not have any physical intermediate products in the reporting year.
Use of sold products	Relevant, calculated	11000000	Included in this category is the lifetime electricity use of Microsoft devices sold in FY16 including phones, Xbox devices, Surface devices, keyboards, mice, and other peripherals. Lifetime energy use per device is calculated based on standard product-use assumptions as included	0.00%	The reported emissions for this category represent an estimate based on broad-based assumptions and have therefore been rounded.

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
			in our ISO 14040 and ISO 14044 compliant lifecycle analyses. Sales geography is used to determine the electricity emission factor used to calculate emissions. Global warming potentials (GWPs) are from the IPCC Fourth Assessment Report, 100-year average.		
End of life treatment of sold products	Relevant, calculated	200000	Included in this category is the end-of-life treatment of Microsoft devices sold in FY16 including phones, Xbox devices, Surface devices, keyboards, mice, and other peripherals. End-of-life emissions for each product are based on modeling within our ISO 14040 and ISO 14044 compliant lifecycle analyses. To generate a conservative estimate for this category, it is assumed that all devices are sent to landfills at the end of their useful life. Global warming potentials (GWPs) are from the IPCC Fourth Assessment Report, 100-year average.	0.00%	The reported emissions for this category represent an estimate based on broad-based assumptions and have therefore been rounded.
Downstream leased assets	Relevant, calculated	3749	Emissions associated with sublets are calculated using the intensities derived from data collected for the primary leased space (for example, kWh/SF) and prorated for the square footage of the sublet space. In this way, it is assumed that the emissions intensities of the leased spaces are the same as the overall buildings in which they reside. Estimated refrigerants are calculated using the same methodology and intensity as used to calculate refrigerant intensities for assets occupied by Microsoft.	0.00%	

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
			Electricity emission factors used are those appropriate to each location, as listed in the Emission Factors attachment for question CC7.4. Global warming potentials (GWPs) are from the IPCC Fourth Assessment Report, 100-year average.		
Franchises	Not relevant, explanation provided				Microsoft did not operate franchises in the reporting year.
Investments	Not relevant, explanation provided				Joint ventures, actively managed investments, and direct equity investments totaled less than 2 percent of Microsoft market capitalization at the end of the reporting period. The remainder of our equity portfolio is passively managed based on the MSCI All Country World Index. Microsoft has not engaged in the long-term financing of projects and the proceeds for each debt issuance have been for general corporate purposes.
Other (upstream)					
Other (downstream)					

Please indicate the verification/assurance status that applies to your reported Scope 3 emissions

Third party verification or assurance process in place

CC14.2a

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 3 emissions verified (%)
Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/30/11930/Climate Change 2017/Shared Documents/Attachments/CC14.2a/Microsoft 2016 CDP (GHG_Offsets) Verification Statement-Final.pdf	1	ISO14064-3	1

CC14.3

Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources?

Yes

CC14.3a

Please identify the reasons for any change in your Scope 3 emissions and for each of them specify how your emissions compare to the previous year

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Purchased goods & services	Change in output	25	Increase	Our Scope 3 emissions associated with purchased goods and services increased because our overall spend on goods and services increased from FY15 to FY16.
Capital goods	Change in output	50	Decrease	Our Scope 3 emissions associated with capital goods decreased from FY15 to FY16 primarily because of a spike in spending on capital goods in FY15.
Fuel- and energy-related activities (not included in Scopes 1 or 2)	Emissions reduction activities	0.5	Decrease	Through energy efficiency actions to reduce our energy consumption, we have decreased the upstream emissions associated with our fuel- and energy-related activities.
Fuel- and energy-related activities (not included in Scopes 1 or 2)	Change in output	29	Increase	Our emissions from upstream fuel- and energy-related activities increased because of a corresponding increase in operational energy consumption.
Upstream transportation & distribution	Other: No change	0	No change	Our emissions from upstream transportation and distribution have not changed over the reporting period because our spend on logistics has been relatively constant.
Waste generated in operations	Change in output	37	Decrease	Our Scope 3 emissions associated with waste decreased in FY16 due to site consolidations coupled with recycling initiatives.

CC14.4

Do you engage with any of the elements of your value chain on GHG emissions and climate change strategies? (Tick all that apply)

Yes, our suppliers

Yes, our customers

Yes, other partners in the value chain

CC14.4a

Please give details of methods of engagement, your strategy for prioritizing engagements and measures of success

Methods of engagement

We collaborate with technology partners to engage with customers on sustainability solutions in energy/water, buildings, infrastructure/planning, and transportation. We also host 1:1 meetings with customers at our Executive Briefing Centers, where we discuss GHG reduction strategies and best practices learned from our own operations and from other customers and partners. And we engage with customers and other partners in our value chain, including technology partners, NGOs, governments, scientists, and universities, through one-on-one meetings, consortiums, events, and industry associations. During these engagements, we collaborate on best practices to solve energy/environmental issues and work to advance energy-related and climate-related issues.

Strategy for prioritizing engagements

Our strategy for prioritizing engagements with our customers and other members of our value chain is to evaluate the impact we are able to deliver and the resources required to deliver effectively. Guiding our engagement process is our overarching Environmental Strategy, which focuses on:

- Demonstrating responsible environmental leadership by meeting our commitment to carbon neutrality and reducing our use of natural resources.
- Enabling energy efficiency with and through technology that enables a transition to a cleaner, more energy-efficient economy.
- Accelerating research breakthroughs by working with leading scientists to expand the boundaries of our knowledge of the planet.

Measures of success

With customers and other members of our value chain, we communicate our progress externally through third-party organizations like CDP and DJSI. Our relative transparency and performance is evaluated by those organizations and the public, influencing customer perceptions and the company's overall brand value. To measure the success of direct engagements focused on driving sustainability through technology, we look at customer satisfaction surveys, revenue, and whether we have enough technology partners offering sustainability solutions to meet demand (for example, through CityNext we have 300+ partners delivering 1,000+ solutions across 40 industry scenarios globally). For the work we do with accelerating research breakthroughs, we evaluate the number of papers published in top ecology journals, as well as progress on a number of predictive models.

CC14.4b

To give a sense of scale of this engagement, please give the number of suppliers with whom you are engaging and the proportion of your total spend that they represent

Type of engagement	Number of suppliers	% of total spend (direct and indirect)	Impact of engagement
Active engagement	143	46%	Type of engagement includes both active engagement and compliance. Microsoft requires suppliers to uphold the ethical environmental practices outlined in our Supplier Code of Conduct. Manufacturing (direct) suppliers: We embed sustainability requirements directly into the roles, responsibilities, and business practices of the Windows and Devices Group (WDG) Device Supply Chain (DSC) organization and partners, and we help ensure our teams/suppliers meet these requirements by actively engaging with them through capability-building training, consultations, systematic program implementation and improvement, and monitoring. We systematically and proactively engage with our WDG

Type of engagement	Number of suppliers	% of total spend (direct and indirect)	Impact of engagement
			direct suppliers to communicate sustainability requirements. Our four-step process includes: (1) onboarding requirements (each hardware and packaging supplier contract incorporates the Microsoft Supplier Code of Conduct, Supplier Social and Environmental Accountability [SEA] specifications, and other requirements); (2) assessments, audits, and scorecards; (3) corrective action and validation (to resolve issues identified during the audits and assessments; and (4) continuous improvement (by routinely sharing experiences and best practices to help suppliers enhance their longer term sustainability capabilities). In calendar year 2015 (the most recent year for which we have data), 48 upstream electronic hardware and packaging suppliers representing 60 percent of our manufacturing spend responded to our GHG supplier survey. Nonmanufacturing (indirect) suppliers: In FY16 (the reporting period for this response), 95 of our top indirect spend suppliers (including 100 percent of those contractually required to) participated in the CDP Supply Chain program, where they collectively reported \$538 million in investments in emissions reduction activities, reducing their footprints by 7.5 million mtCO2e and saving \$1.4 billion. In FY16, we also included climate change performance on the quarterly performance scorecard for our top 15 indirect suppliers. Suppliers had to disclose emissions and set emissions reduction targets to maintain a compliant scorecard. At the end of FY16, we achieved our target of 90 percent compliance. In addition, we have an annual Climate Performance supplier award for performance, service, and innovation.

CC14.4c

Please explain why you do not engage with any elements of your value chain on GHG emissions and climate change strategies, and any plans you have to develop an engagement strategy in the future

Further Information

Note that information provided on the Microsoft hardware and packaging supply chain reflects a different reporting period than for Microsoft direct operations. The hardware and manufacturing supply chain information is based on an annual survey that is conducted on a calendar year basis, rather than the fiscal year reporting used for direct operations. For this response, the supply chain information reflects calendar year 2015, as the 2016 data was not yet available at the time of response submission.

Module: Sign Off

CC15.1

Please provide the following information for the person that has signed off (approved) your CDP climate change response

Name	Job title	Corresponding job category
Brad Smith	President, Chief Legal Officer	President

Further Information

Module: ICT

Page: ICT1. Data center activities

ICT0.1a

Please identify whether "data centers" comprise a significant component of your business within your reporting boundary

Yes

ICT1.1

Please provide a description of the parts of your business that fall under “data centers”

- i. The datacenter activities that our company carries out include hosting online services and applications; we host more than 200 services across all of our datacenters. Included within the scope of the data reported for this section are all physical locations used for this purpose. These locations range in total capacity and can host a small amount of IT equipment for the purpose of network connectivity or large installed IT equipment footprints (datacenters with global reach) with a massive number of servers as well as network and associated equipment. Out of scope for this section are lab environments, because these are included in the footprint for our Real Estate & Facilities (RE&F) division, which is covered in the “business services” section of this response (ICT5).
- ii. Our datacenters serve customers in more than 100 countries globally. The exact number of datacenters that we operate is confidential.

ICT1.2

Please provide your absolute Scope 1 and 2 emissions and electricity consumption for the data centers component of your business

Business activity	Scope 1 emissions (metric tonnes CO2e)	Scope 2 emissions (metric tonnes CO2e)	Annual electricity consumption (MWh)	Electricity data collection method	Comment
Data centers	11407	18877	3612542	Meter or submeter reading	Scope 2 market-based emissions are provided here.

ICT1.3

What percentage of your ICT population sits in data centers where Power Usage Effectiveness (PUE) is measured on a regular basis?

Percentage	Comment

ICT1.4

Please provide a Power Usage Effectiveness (PUE) value for your data center(s). You can provide this information as (a) an average, (b) a range or (c) by individual data center - please tick the data you wish to provide (tick all that apply)

ICT1.4a

Please provide your average PUE across your data centers

Number of data centers	Average PUE	% change from previous year	Direction of change	Comment

ICT1.4b

Please provide the range of PUE values across your data centers

Number of data centers	PUE Minimum Value	% change of PUE Minimum Value from previous year	PUE Maximum Value	% change of PUE Maximum Value from previous year	Direction of change	Comment

ICT1.4c

Please provide your PUE values of all your data centers

Data center reference	PUE value	% change from previous year	Direction of change	Comment

ICT1.5

Please provide details of how you have calculated your PUE value

Other: Our PUE is calculated using a daily snapshot of total utility peak load and IT equipment peak load for each site in the portfolio at which utility metering is available. PUE includes, therefore, the entire site including any office space or other physical space at the site.

ICT1.6

Do you use any alternative intensity metrics to assess the energy or emissions performance of your data center(s)?

No

ICT1.6a

Please provide details on the alternative intensity metrics you use to assess the energy or the emissions performance of your data center(s)

ICT1.7

Please identify the measures you are planning or have undertaken in the reporting year to increase the energy efficiency of your data center(s)

Status in reporting year	Energy efficiency measure	Comment
Implemented	Cooling Efficiencies	We are continuing to deploy hot aisle containment and temperature-humidity monitoring in our existing and all new datacenters.
Implemented	Cooling Efficiencies	We have installed temperature-humidity monitoring as a pilot at some existing legacy datacenter sites. Readings are used to improve the energy efficiency at the site, reducing total kilowatt-hour usage. Plans are in development to extend this measure to additional legacy/older datacenter sites.
Planned	Other	We plan to continue with our optimization efforts through datacenter consolidation by analyzing existing sites and determining required consolidations.

ICT1.8

Do you participate in any other data center efficiency schemes or have buildings that are sustainably certified or rated?

Yes

ICT1.8a

Please provide details on the data center efficiency schemes you participate in or the buildings that are sustainably certified or rated

Scheme name	Level/certification (or equivalent) achieved in the reporting year	Percentage of your overall facilities to which the scheme applies
Other:	Members of the Environmental Sustainability team are active participants in the ENERGY STAR program and the EU Code of Conduct. In addition, a member of the leadership team took ownership to draft the datacenter chapter of the GHG Guidance document for ICT.	

ICT1.9

Do you measure the utilization rate of your data center(s)?

Yes

ICT1.9a

What methodology do you use to calculate the utilization rate of your data center(s)?

At each site, power load is measured in real time and tracked on a daily basis against useable capacity for IT equipment, providing detailed power consumption utilization data. In addition, capacity allocated to IT equipment, based upon device ratings for each piece of physical equipment, is tracked in terms of capacity utilization.

ICT1.10

Do you provide carbon emissions data to your clients regarding the data center services they procure?

No

ICT1.10a

How do you provide carbon emissions data to your clients regarding the data center services they procure?

ICT1.11

Please describe any efforts you have made to incorporate renewable energy into the electricity supply to your data center(s) or to re-use waste heat

Wherever possible, we locate new datacenters near renewable energy sources. We also explore opportunities to secure contractual obligations from energy providers to provide our facilities with a high percentage of renewable energy. Microsoft has a power purchase agreement (PPA) to purchase 110 megawatts (MW) of wind energy from the Keechi Wind farm located in Texas, as well as 175 MW from the Pilot Hill Wind Farm located in Illinois (which went operational in FY16, the reporting period). We are researching alternatives to reuse datacenter waste heat.

Further Information

Page: ICT2. Provision of network/connectivity services

ICT0.1b

Please identify whether "provision of network/connectivity services" comprises a significant component of your business within your reporting boundary

No

ICT2.1

Please provide a description of the parts of your business that fall under "provision of network/connectivity services"

ICT2.2

Please provide your absolute Scope 1 and 2 emissions and electricity consumption for the provision of network/connectivity services component of your business

Business activity	Scope 1 emissions (metric tonnes CO2e)	Scope 2 emissions (metric tonnes CO2e)	Annual electricity consumption (MWh)	Electricity data collection method	Comment
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ICT2.3

Please describe your gross combined Scope 1 and 2 emissions or electricity use for the provision of network/connectivity services component of your business as an intensity metric

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change	Comment
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ICT2.4

Please explain how you calculated the intensity figures given in response to Question ICT2.3

ICT2.5

Do you provide carbon emissions data to your clients regarding the network/connectivity services they procure?

ICT2.5a

How do you provide carbon emissions data to your clients regarding the network/connectivity services they procure?

Further Information

Network/connectivity services did not represent a significant component of our business in the reporting period (July 1, 2015, to June 30, 2016) because most of the emissions associated with our Skype and Skype for Business (formerly Lync) services are considered part of our datacenter activities (ICT1). Note that the development activities associated with our network/connectivity services are captured within the business services section of this response (ICT5).

Page: ICT3. Manufacture or assembly of hardware/components

ICT0.1c

Please identify whether "manufacture or assembly of hardware/components" comprises a significant part of your business within your reporting boundary

Yes

ICT3.1

Please provide a description of the parts of your business that fall under "manufacture or assembly of hardware/components"

For FY16 (the reporting period), Microsoft operated two in-house manufacturing facilities that produced phones and large-screen devices. The facilities assemble third party-supplied components into packaged finished goods.

ICT3.2

Please provide your absolute Scope 1 and 2 emissions and electricity consumption for the manufacture or assembly of hardware/components part of your business

Business activity	Scope 1 emissions (metric tonnes CO2e)	Scope 2 emissions (metric tonnes CO2e)	Annual electricity consumption (MWh)	Electricity data collection method	Comment
Manufacture or assembly of hardware/components	3524	230	154589	Meter or submeter reading	Scope 2 market-based emissions are provided here.

ICT3.3

Please identify the percentage of your products meeting recognized energy efficiency standards/specifications by sales weighted volume (full product range)

Product type	Standard (sleep mode)	Percentage of products meeting the standard by sales volume (sleep mode)	Standard (standby mode)	Percentage of products meeting the standard by sales volume (standby mode)	Standard (in use mode)	Percentage of products meeting the standard by sales volume (in use mode)	Comment
Tablets	Energy Star	100%	Energy Star	100%	Energy Star	100%	This reflects the energy efficiency standards met by Microsoft Surface Book, Microsoft Surface Pro 4,

Product type	Standard (sleep mode)	Percentage of products meeting the standard by sales volume (sleep mode)	Standard (standby mode)	Percentage of products meeting the standard by sales volume (standby mode)	Standard (in use mode)	Percentage of products meeting the standard by sales volume (in use mode)	Comment
							Microsoft Surface Pro 3, and Microsoft Surface 3.
Tablets	EPEAT	100%	EPEAT	100%	EPEAT	100%	This reflects the environmental leadership standards met by Surface Book, Surface Pro 4, Surface Pro 3, and Surface 3.
Tablets	Other: COMMISSION REGULATION (EU) No 617/2013 implementing Directive 2009/125/EC with regard to ecodesign requirements for computers and computer servers	100%	Other: COMMISSION REGULATION (EU) No 617/2013 implementing Directive 2009/125/EC with regard to ecodesign requirements for computers and computer servers	100%	Other: COMMISSION REGULATION (EU) No 617/2013 implementing Directive 2009/125/EC with regard to ecodesign requirements for computers and computer servers	100%	This reflects the energy efficiency standards met by Surface Book, Surface Pro 4, Surface Pro 3, and Surface 3.
Gaming systems			Other: Ecodesign Requirements for Standby and Off-Mode: Power 1275/2008	100%	Other: Self-Regulatory Initiative to further improve the energy efficiency of games consoles in accordance with the voluntary agreement scheme of the European Commission's Energy-Related Product Directive	100%	This reflects the energy efficiency standards met by Xbox 360 and Xbox One.

Of the new products released in the reporting year, please identify the percentage (as a percentage of all new products in that product type category) that meet recognized energy efficiency standards/specifications

Product type	Standard (sleep mode)	Percentage of new products meeting the standard (sleep mode)	Standard (standby mode)	Percentage of new products meeting the standard (standby mode)	Standard (in use mode)	Percentage of new products meeting the standard (in use mode)	Comment
Tablets	Energy Star	100%	Energy Star	100%	Energy Star	100%	This reflects the energy efficiency standards met by Surface Book and Surface Pro 4.
Tablets	EPEAT	100%	EPEAT	100%	EPEAT	100%	This reflects the environmental leadership standards met by Surface Book and Surface Pro 4.
Tablets	Other: COMMISSION REGULATION (EU) No 617/2013 implementing Directive 2009/125/EC with regard to ecodesign requirements for computers and computer servers	100%	Other: COMMISSION REGULATION (EU) No 617/2013 implementing Directive 2009/125/EC with regard to ecodesign requirements for computers and computer servers	100%	Other: COMMISSION REGULATION (EU) No 617/2013 implementing Directive 2009/125/EC with regard to ecodesign requirements for computers and computer servers	100%	This reflects the energy efficiency standards met by Surface Book and Surface Pro 4.

ICT3.5

Please describe the efforts your organization has made to improve the energy efficiency of your products

We continuously strive to make energy-efficient products. For example, in FY15 Microsoft certified its first ENERGY STAR and EPEAT registered product, Surface Pro 3, when standards were revised and also brought tablets into scope. All subsequent Surface tablets have followed. FY15 was also the year for the first ULE 110 certifications of mobile phones. This certification has become a requirement with some of our customers, and the first certified Microsoft models reached their highest scores, the platinum level. The requirements establish multiple-attribute sustainability criteria for mobile phones, assessing factors including energy

efficiency of the external power supply. Also, since the launch of Xbox 360 in 2005, the engineering teams have successfully reduced standby power by a factor of 10, to less than three-tenths of a watt, resulting in a 60 percent reduction in energy use. Our products meet regulatory requirements, such as the European Union (EU)'s Energy-Related Product Directive. Additionally, in April 2015 the European Commission formally approved the Games Console Manufacturers Self-Regulatory Initiative to further improve the energy efficiency of games consoles in accordance with the voluntary agreement scheme of the European Commission's Energy-Related Product Directive, confirming that the agreement would achieve the policy objectives set out by the EU's Eco-design Directive more quickly and cost effectively than mandatory requirements. Microsoft coauthored the agreement and chairs the steering committee. Microsoft game consoles meet or exceed the requirements of the agreement. In FY16, we began using a digital technology-enabled lifecycle assessment approach for all Microsoft consumer device lines and packaging. Our lifecycle and other analyses of our devices indicate that we have been successful in significantly reducing emissions associated with the use phase of our devices through increased energy efficiency. Most emissions associated with the Surface and mobile lines of devices are now associated with energy use during the manufacturing phase; our Device Supply Chain group is working toward reducing greenhouse gas emissions associated with the manufacture of our products.

ICT3.6

Please describe the GHG emissions abatement measures you have employed specifically in your ICT manufacturing operations

In FY16, Microsoft manufacturing facilities assembled electronic components into finished goods, and so related GHG emissions were minimal and primarily associated with electricity consumption for heating, cooling, lighting, and equipment operation. Additionally, backup diesel or natural gas fired generators are available for power reliability. Therefore, the GHGs emitted are limited to carbon dioxide. Reduction strategies include measuring and monitoring energy consumption per unit output and solar hot water heating in one factory.

ICT3.7

Do you provide carbon emissions data to your clients regarding the hardware/component products they procure?

Yes

ICT3.7a

How do you provide carbon emissions data to your clients regarding the hardware/component products they procure?

We provide carbon emissions data on some of our hardware/component products through Eco profiles published on the Microsoft website at https://www.microsoft.com/about/csr/environment/sustainable_devices/compliance-and-sustainability-in-product-design.

Further Information

ICT0.1d

Please identify whether "manufacture of software" comprises a significant component of your business within your reporting boundary

No

ICT4.1

Please provide a description of the parts of your business that fall under "manufacture of software"

ICT4.2

Please provide your absolute Scope 1 and 2 emissions and electricity consumption for the software manufacture component of your business

Business activity	Scope 1 emissions (metric tonnes CO2e)	Scope 2 emissions (metric tonnes CO2e)	Annual electricity consumption (MWh)	Electricity data collection method	Comment

ICT4.3

Please describe your gross combined Scope 1 and 2 emissions for the software manufacture component of your business in metric tonnes CO2e per unit of production

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change	Comment

ICT4.4

What percentage of your software sales (by volume) is in an electronic format?

ICT4.5

Do you provide carbon emissions data to your clients regarding the software products they procure?

ICT4.5a

How do you provide carbon emissions data to your clients regarding the software products they procure?

Further Information

Software manufacturing did not represent a significant component of our business in the reporting period (July 1, 2015, to June 30, 2016) because most of the emissions associated with the software that we manufacture are Scope 3 emissions. In addition, with growing use by customers of electronic software distribution and our cloud computing services, physical software distribution is becoming less prevalent. Note that the development activities associated with our software are captured within the business services section of this response (ICT5).

Page: ICT5. Business services (office based activities)

ICT0.1e

Please identify whether "business services (office based activities)" comprise a significant component of your business within your reporting boundary

Yes

ICT5.1

Please provide a description of the parts of your business that fall under "business services (office based activities)"

I. The types of activities that fall under business services (office-based activities) at Microsoft include:

- Product design and development of software and hardware products, including energy-intensive software and hardware R&D labs

- Product support activities: sales and marketing, customer service call centers
- Corporate services: finance, human resources (HR), legal, cafeterias

II. Product design/development and product support activities (the first two bullets in (I) above) are revenue-generating activities. Corporate services (the third bullet in (I) above) are operational support activities.

III. Our business services facilities, which include energy-intensive software and hardware R&D labs, are located around the world in more than 100 countries.

IV. We have excluded Microsoft datacenters, manufacturing sites, and retail facilities from the data collected for the purposes of reporting on our office-based activities. Data on our datacenters is captured in the datacenter section of this response, and data from our hardware manufacturing is captured in the manufacture or assembly of hardware/components section of this response. Retail activities do not fall within the scope of office-based activities and are captured in our overall reporting.

ICT5.2

Please provide your absolute Scope 1 and 2 emissions and electricity consumption for the business services (office based activities) component of your business

Business activity	Scope 1 emissions (metric tonnes CO2e)	Scope 2 emissions (metric tonnes CO2e)	Annual electricity consumption (MWh)	Electricity data collection method	Comment
Business services (office based activities)	22784	24825	1085444	Other: Electricity data is from invoices through Microsoft employees/vendors responsible for paying the invoices, third-party bill pay providers, landlords, and estimations based on square foot intensities.	Scope 2 market-based emissions are provided here.

ICT5.3

Please describe your gross combined Scope 1 and 2 emissions for the business services (office based activities) component of your business in metric tonnes per square meter

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change	Comment
0.016674886	metric tonnes CO2e	Square meter	50	Decrease	The decrease in emissions intensity per square meter is driven by a decrease in emissions from Microsoft business services in FY16 (July 1, 2015, to June 30, 2016—the reporting period for this response) relative to FY15 due to emissions reduction activities, including the purchase of green power. The emissions associated with our business services decreased by 49 percent; in addition, the square meters associated with business services increased by 2 percent, which enhanced the decrease on an intensity basis. Examples of emissions reduction activities from FY16 include: • Making a significant investment in renewable energy certificates (RECs) and purchasing renewable energy through power purchase agreements (PPAs). • Funding global energy efficiency programs through our carbon fund (ranging from lighting controls and upgrades to equipment upgrades to building management systems). • Identifying and addressing thousands of equipment faults through our Energy Smart Buildings (ESB) program. • Running efficiency projects, such as modifying the operation of HVAC (heating, ventilation, and air conditioning) components, optimizing the use of secondary campus equipment (such as TVs and kitchen exhaust fans), and installing variable frequency drives (VFDs) and light-emitting diode (LED) fixtures. Note: We have used Scope 1 + market-based Scope 2 emissions to calculate this intensity figure.	

ICT5.4

Please describe your electricity use for the provision of business services (office based activities) component of your business in MWh per square meter

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change	Comment
0.380176212	MWh	Square meter	11	Decrease	The decrease in electricity intensity per square meter is driven by a decrease in electricity used for Microsoft business services in FY16 (July 1, 2015, to June 30, 2016—the reporting period for this response) relative to FY15 (July	

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change	Comment
					1, 2014, to June 30, 2015) and enhanced by an increase in square meters during the same time period. The square meters used for our business services increased from FY15 to FY16 by 2 percent, and our electricity usage related to our business services decreased by 9 percent as a result of energy reduction activities. Examples of energy reduction activities from FY16 include: • Making a significant investment in renewable energy certificates (RECs) and purchasing renewable energy through power purchase agreements (PPAs). • Funding global energy efficiency programs through our carbon fund (ranging from lighting controls and upgrades to equipment upgrades to building management systems). • Identifying and addressing thousands of equipment faults through our Energy Smart Buildings (ESB) program. • Running efficiency projects, such as modifying the operation of HVAC (heating, ventilation, and air conditioning) components, optimizing the use of secondary campus equipment (such as TVs and kitchen exhaust fans), and installing variable frequency drives (VFDs) and light-emitting diode (LED) fixtures.	

Further Information

Page: ICT6. Other activities

ICT0.1f

Please identify whether "other activities" comprise a significant component of your business within your reporting boundary

No

ICT6.1

Please provide a description of the parts of your business that fall under "other"

ICT6.2

Please provide your absolute Scope 1 and 2 emissions and electricity consumption for the identified other activity component of your business

Activity	Scope 1 emissions (metric tonnes CO2e)	Scope 2 emissions (metric tonnes CO2e)	Annual electricity consumption (MWh)	Electricity data collection method	Comment
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ICT6.3

Please describe your gross combined Scope 1 and 2 emissions for your defined additional activity using an appropriate activity based intensity metric

Activity	Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change	Comment
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ICT6.4

If appropriate, please describe your electricity use for your defined additional activity using an appropriate activity based intensity metric

Activity	Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change	Comment
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Further Information

CDP 2017 Climate Change 2017 Information Request