

Module: Introduction**Page: Introduction**

CC0.1**Introduction**

Please give a general description and introduction to your organization.

IBM's business model is built to support two principal goals: helping clients to become more innovative, efficient and competitive through the application of business insight and information technology (IT) solutions; and providing long-term value to shareholders. The business model has been developed over time through strategic investments in capabilities and technologies that have superior long-term growth and profitability prospects based on the value they deliver to clients. The company's strategy is to focus on the high-growth, high-value segments of the IT industry. The company's global capabilities include services, software, systems, fundamental research and financing. The broad mix of businesses and capabilities are combined to provide business insight and solutions for the company's clients. The business model is dynamic, adapting to the continuous changing market and economic environment. The company continues to divest certain businesses and strengthen its position through strategic organic investments and acquisitions in higher value areas. In addition, the company has transformed itself into a globally integrated enterprise which has improved overall productivity and participates in markets with significant long-term opportunity. The business model, supported by the company's financial model, has enabled the company to deliver strong earnings and returns to shareholders over the long term.

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 Jan 2014 - Wed 31 Dec 2014

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

Argentina
Australia
Austria
Belgium
Brazil
Bulgaria
Canada
Chile
China
Colombia
Costa Rica
Croatia
Czech Republic
Denmark
Ecuador
Egypt
Estonia

Select country
Finland
France
Germany
Greece
Hong Kong
Hungary
India
Indonesia
Ireland
Israel
Italy
Japan
Kenya
South Korea
Latvia
Lithuania
Luxembourg
Macau
Malaysia
Mexico
Morocco
Netherlands
New Zealand
Pakistan
Peru
Philippines
Poland
Portugal
Romania
Russia
Singapore
Slovakia
Slovenia

Select country
South Africa
Spain
Sri Lanka
Sweden
Switzerland
Taiwan
Thailand
Turkey
United Arab Emirates
United Kingdom
United States of America
Uruguay
Venezuela
Vietnam
Rest of world

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, electric utilities, companies with electric utility activities or assets, companies in the automobile or auto component manufacture sub-industries, companies in the oil and gas sub-industries, companies in the information technology and telecommunications sectors and companies in the food, beverage and tobacco industry group should complete supplementary questions in addition to the main questionnaire.

If you are in these sector groupings (according to the Global Industry Classification Standard (GICS)), the corresponding sector modules will not appear below but will automatically appear in the 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. If you wish to view the questions first, please see <https://www.cdp.net/en-US/Programmes/Pages/More-questionnaires.aspx>.

Further Information

Module: Management

Page: CC1. Governance

CC1.1

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

Other Manager/Officer

CC1.1a

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

IBM's VP of Corporate Environmental Affairs and Product Safety has overall responsibility for IBM Climate Protection programs and reviews IBM's environmental affairs including climate protection programs and performance with the Directors and Corporate Governance Committee of the Board of Directors. The Directors and Corporate Governance Committee of IBM's Board of Directors, formed in 1993 and consisting of a subset of Board Members, is responsible for reviewing and considering the company's positions and practices on significant areas of corporate responsibility, one of which is protection of the environment. This Committee reviews IBM's energy conservation and climate protection goals and performance annually as part of its review of the company's environmental strategy, programs and performance. The entire Board of Directors receives a report on the energy and climate goals and performance annually.

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
Other: Corporate Environmental Staff, Managers and Executives	Monetary reward	Emissions reduction project Emissions reduction target Energy reduction target	These IBM employees have responsibility for carrying out IBM's corporate policy on company's energy conservation and climate protection programs, which includes defining strategies and driving actions and projects to enable the attainment of IBM's energy and GHG emissions reduction goals. IBM has three goals in this area: a) an annual objective to implement energy conservation projects to reduce or avoid energy use equivalent to 3.5% of that year's energy use, b) Procure electricity from renewable sources for 20% of IBM's annual electricity consumption by 2020, c) Reduce CO2 emissions associated with IBM's energy consumption 35% by year-end 2020 against base year 2005 adjusted for acquisitions and divestitures. These responsibilities are part of what IBM calls employee "personal business commitments" which form a basis of employees' annual performance evaluations. These performance evaluations are used in IBM's employee compensation program to determine an employee's annual salary increases and bonus pay. There are also incentives for employees whose research and development in energy and climate related innovations result in patents, products and solutions.
Environment/Sustainability managers	Monetary reward	Emissions reduction project Emissions reduction target Energy reduction project Energy reduction target	These IBM employees have responsibility for carrying out IBM's corporate policy on company's energy conservation and climate protection programs, which includes defining and driving actions and projects to enable the attainment of IBM's energy and GHG emissions reduction goals. IBM has three goals in this area: a) an annual objective to implement energy conservation projects to reduce or avoid energy use equivalent to 3.5% of that year's energy use, b) Procure electricity from renewable sources for 20% of IBM's annual electricity consumption by 2020, c) Reduce CO2 emissions associated with IBM's energy consumption 35% by year-end 2020 against base year 2005 adjusted for acquisitions and divestitures. These responsibilities are part of what IBM calls employee "personal business commitments" which form a basis of employees' annual performance evaluations. These performance evaluations are used in IBM's employee compensation program to determine an employee's annual salary increases and bonus pay. There

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
			are also incentives for employees whose research and development in energy and climate related innovations result in patents, products and solutions.
Energy managers	Monetary reward	Emissions reduction target Energy reduction project Energy reduction target	These IBM employees have responsibility for carrying out IBM's corporate policy on company's energy conservation and climate protection programs, which includes defining and driving actions and projects to enable the attainment of IBM's energy and GHG emissions reduction goals. IBM has three goals in this area: a) an annual objective to implement energy conservation projects to reduce or avoid energy use equivalent to 3.5% of that year's energy use, b) Procure electricity from renewable sources for 20% of IBM's annual electricity consumption by 2020, c) Reduce CO2 emissions associated with IBM's energy consumption 35% by year-end 2020 against base year 2005 adjusted for acquisitions and divestitures. These responsibilities are part of what IBM calls employee "personal business commitments" which form a basis of employees' annual performance evaluations. These performance evaluations are used in IBM's employee compensation program to determine an employee's annual salary increases and bonus pay. There are also incentives for employees whose research and development in energy and climate related innovations result in patents, products and solutions.
Process operation managers	Monetary reward	Emissions reduction project Emissions reduction target Energy reduction project Energy reduction target	These IBM employees have responsibility for carrying out IBM's corporate policy on company's energy conservation and climate protection programs, which includes defining and driving actions and projects to enable the attainment of IBM's energy and GHG emissions reduction goals. IBM has three goals in this area: a) an annual objective to implement energy conservation projects to reduce or avoid energy use equivalent to 3.5% of that year's energy use, b) Procure electricity from renewable sources for 20% of IBM's annual electricity consumption by 2020, c) Reduce CO2 emissions associated with IBM's energy consumption 35% by year-end 2020 against base year 2005 adjusted for acquisitions and divestitures. These responsibilities are part of what IBM calls employee "personal business commitments" which form a basis of employees' annual performance evaluations. These performance evaluations are used in IBM's employee compensation program to determine an employee's annual salary increases and bonus pay. There are also incentives for employees whose research and development in

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
			energy and climate related innovations result in patents, products and solutions.
Facility managers	Monetary reward	Emissions reduction target Energy reduction project Energy reduction target	These IBM employees have responsibility for carrying out IBM's corporate policy on company's energy conservation and climate protection programs, which includes defining and driving actions and projects to enable the attainment of IBM's energy and GHG emissions reduction goals. IBM has three goals in this area: a) an annual objective to implement energy conservation projects to reduce or avoid energy use equivalent to 3.5% of that year's energy use, b) Procure electricity from renewable sources for 20% of IBM's annual electricity consumption by 2020, c) Reduce CO2 emissions associated with IBM's energy consumption 35% by year-end 2020 against base year 2005 adjusted for acquisitions and divestitures. These responsibilities are part of what IBM calls employee "personal business commitments" which form a basis of employees' annual performance evaluations. These performance evaluations are used in IBM's employee compensation program to determine an employee's annual salary increases and bonus pay. There are also incentives for employees whose research and development in energy and climate related innovations result in patents, products and solutions.
Business unit managers	Monetary reward	Emissions reduction target Energy reduction target	These IBM employees have responsibility for carrying out IBM's corporate policy on company's energy conservation and climate protection programs, which includes defining and driving actions and projects to enable the attainment of IBM's energy and GHG emissions reduction goals. IBM has three goals in this area: a) an annual objective to implement energy conservation projects to reduce or avoid energy use equivalent to 3.5% of that year's energy use, b) Procure electricity from renewable sources for 20% of IBM's annual electricity consumption by 2020, c) Reduce CO2 emissions associated with IBM's energy consumption 35% by year-end 2020 against base year 2005 adjusted for acquisitions and divestitures. These responsibilities are part of what IBM calls employee "personal business commitments" which form a basis of employees' annual performance evaluations. These performance evaluations are used in IBM's employee compensation program to determine an employee's annual salary increases and bonus pay. There are also incentives for employees whose research and development in energy and climate related innovations result in patents, products and solutions.

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Other: Employees responsible for executing energy conservation and climate protection programs	Monetary reward	Emissions reduction project Energy reduction project	<p>solutions.</p> <p>These IBM employees have responsibility for carrying out IBM's corporate policy on company's energy conservation and climate protection programs, which includes defining and driving actions and projects to enable the attainment of IBM's energy and GHG emissions reduction goals. IBM has three goals in this area: a) an annual objective to implement energy conservation projects to reduce or avoid energy use equivalent to 3.5% of that year's energy use, b) Procure electricity from renewable sources for 20% of IBM's annual electricity consumption by 2020, c) Reduce CO2 emissions associated with IBM's energy consumption 35% by year-end 2020 against base year 2005 adjusted for acquisitions and divestitures. These responsibilities are part of what IBM calls employee "personal business commitments" which form a basis of employees' annual performance evaluations. These performance evaluations are used in IBM's employee compensation program to determine an employee's annual salary increases and bonus pay. There are also incentives for employees whose research and development in energy and climate related innovations result in patents, products and solutions.</p>
Executive officer	Recognition (non-monetary)	Emissions reduction project Emissions reduction target Energy reduction project Energy reduction target Efficiency project Other: IBM products, services and solutions related to environmental sustainability and energy efficiency.	<p>The IBM Chairman's Environmental Award recognition program was established in 1991, and has continued to this day. The purpose of this annual award is to encourage environmental leadership, strengthen integration of environmental affairs throughout IBM's business and to recognize environmental leadership, innovation, progress and results on the part of IBM's organizations. The program currently alternates criteria every other year. One year the award focuses on internal operational environmental excellence. This recognition considers all environmental programs and results, including attainment of the company's energy conservation and GHG emissions reduction goals. The criteria for the alternating year covers products, services and solutions IBM develops and provides to its clients in helping them achieve environmental protection and efficiency results, again inclusive of energy and climate. Each year IBM's Chairman personally presents this annual award to the top executive of the organization receiving the award. IBM's Global Asset Recovery Services organization received the 2014 IBM Chairman's Environmental Award.</p>

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

Integrated into multi-disciplinary company wide risk management processes

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
Annually	Board or individual/sub-set of the Board or committee appointed by the Board	Global	> 6 years	IBM executes integrated corporate and business unit (BU) risk management processes for assessing business risks comprehensively including those related to climate change. These assessments include potential physical, operational, and reputational impacts as well as trends and opportunities in the marketplace. In addition, we follow the process for identifying significant environmental aspects as part of our global Environmental Management System (EMS) to assess the company's business intersections with the environment considering the full range of risks and opportunities. We have identified energy use & GHG emissions as significant aspects. Based on the assessment, Corporate Environmental Affairs staff sets or updates corporate requirements, objectives & targets, with input from BUs responsible for execution. The BUs are responsible for developing & executing plans to reduce energy use & GHG emissions, and mitigate potential environmental impacts or risks.

CC2.1b**Please describe how your risk and opportunity identification processes are applied at both company and asset level**

Various sections below further detail client facing aspects. Regarding operational matters, our EMS assessment process begins at the corporate level, assessing significant environmental aspects across the corporation and globally including energy use and GHG emissions. Based on this assessment, corporate goals covering energy conservation and GHG emissions reduction are set to mitigate or address climate risk. Considering corporate level assessments, our business units, countries organizations and locations further assess their impacts and develop and execute plans to mitigate them and meet the corporate goals. Similar assessments are done for products, services and solutions as relevant. The IBM product stewardship program requires that hardware (e.g., server and storage systems) products be assessed for a range of material, safety, and energy use attributes and designed to reduce their environmental impacts taking approaches such as innovative uses of materials and enhanced energy efficiency through better power management and greater utilization attributes of products. IBM's efforts with regards to IT equipment, software, data center energy efficiency, and the Smarter Planet Strategy and its broad set of offerings from energy efficiency and supply to transportation, water management and more, are examples of activities initiated, in part, due to the recognition of the importance of achieving energy efficiency, conservation, and GHG emissions reduction across the economy to combat climate change. Our comprehensive risk management processes risk across the corporation, including operations and assess supply chain risk that may potentially affect IBM hardware products, data center locations and manufacturing and hardware development and assembly locations. These processes assess the potential for disruptive events and continuity and reliability of operational services such as energy supply, and potential effects on IBM owned critical operating assets.

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

Under our EMS evaluation process, environmental aspects are assessed for their significance. The opportunities to mitigate or reduce the significant impacts are identified & evaluated as part of the assessment work. Ongoing risks or concerns are addressed in accordance with corporate policy & requirements. Strategic & tactical initiative and as appropriate, objectives & goals are established to address identified impacts. Specific to climate change, IBM has had an energy conservation goal since 1996, 3 generations of CO2 emissions reduction goals (the first two completed in 1995 & 2012) with the 3rd generation goal announced in February 2015 & multiple generations of a PFC reduction goal through 2010. The PFC goal is no longer relevant due to the impending divestiture of our semiconductor manufacturing operations. PRODUCTS (INCLUDE SYSTEMS, SOFTWARE AND SOLUTIONS) & SERVICES: IBM's climate protection strategy & programs directly inform & support its business strategy & offerings. IBM prioritizes these opportunities based on the capabilities enabled by our broad research and industry expertise, the maturity of available technologies, the impact of the product or solution & the needs of our clients. IBM leverage our expertise across the board to help solve environmental & business challenges faced by companies, governments & society at large. Our expertise include energy efficient IT equipment, intelligent energy grid, smart transportation systems, biofuel & solar photovoltaics, energy & material use optimization, logistics planning, "dematerialization" efforts (delivering a physical good through the IT network) & other applications in assisting clients, & the world, tackle climate change. Similarly risks identified by our corporate & business unit risk management processes are prioritized and addressed based on their impact on our facilities, assets, operations & on continuity of service to IBM's clients.

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
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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

Our global EMS drives internal operational excellence, & informs &/or influences our business strategy, products & services with regards to environmental issues placing a focus on energy use, efficiency & GHG emissions reductions. The Corporate Environmental Affairs staff leads IBM's environmental requirements & goal setting process with input from business units responsible for execution. IBM has enterprise wide database systems that collect data on energy use, GHG emissions, water use, waste generation & other key performance indicators (KPIs) to enable the analysis of performance. We use the data to enhance our corporate objectives, continually improve our programs, identify & use innovative new technologies such as monitoring & analytics based applications to minimize energy use & improve our operations & those of our clients. We have identified regulatory operational & reporting requirements & financial & operational risks through our regulation management process. These risks occur from changing energy & infrastructure costs resulting from external policies & requirements to mitigate CO2 emissions. They represent the main risks with regards to our operations & the solutions we provide to clients. IBM is promoting the use of big data & analytics, as exemplified by our suite of Smarter Planet solutions, in support of the IBM strategy to address climate change. This is both a tactical & strategic imperative. For IBM's operations, both our short term & long term goals continue to focus on energy conservation, shifting to using renewable electricity & emissions reduction, particularly for our data center operations. We continue to implement IT based monitoring & management systems to minimize our energy use & continually maintain our operations at that optimal level. We have also established a goal to increase our procurement of renewable electricity to 20% of our consumption, over & above that supplied by our utilities as part of the grid purchase. This goal signals to our utility suppliers our view that they need to increase renewable generation assets in their portfolio. To assist this transition, IBM Energy & Utility Solutions group offers a suite of monitoring & management systems for electricity generation & distribution systems that enable detailed monitoring & forecasting of demand output, & integrate intermittent renewable generation sources into the grid. Overall, our SOLUTIONS strategy for our clients is to offer IT based tools, data analytics & IT platforms to make their operations more efficient & to assist them to address their climate change impacts. We have invested significant resources in our research & solutions groups to expand existing offerings & introduce new capabilities developed from our continuous learning from both our own & client operations as well as our ongoing research work. These offerings & our focus on continually enhancing the efficiency & performance of our operations, products & solutions generate benefits ranging from reductions in our own energy use & expenditures &

recognition of IBM as a leader in the marketplace in helping our clients to do the same for their operations.

IBM'S OWN OPERATIONS: IBM's climate protection strategy aligns with its business strategies & begins with making its own operations energy efficient to reduce the energy use & associated GHG emissions. IBM's energy conservation policy & formal programs date back to 1974. IBM's key corporate objectives in this area include: a) Energy conservation: Achieve annual energy conservation savings equal to 3.5% of IBM's total operational energy consumption. In 2014 through conservation actions we reduced or avoided 325,500 MWH of electricity & 267,200 MMBTU of fuel, equalling 6.7% of our 2014 energy consumption. From 2010 & 2014 our energy conservation actions reduce or avoid over 500,000 MWH/year through virtualization & consolidation of IT assets in our data centers & improved cooling efficiency b) Procure electricity from renewable sources for 20% of IBM's annual electricity consumption by 2020. During 2014, IBM directly contracted for the purchase of 683,000 MWH of renewable electricity (14.2% of our 2014 global electricity consumption, up 17.7% from 2013). Including the renewable electricity supplied to IBM as part of our grid purchase, 19% of the electricity consumed was generated from renewable sources. c) CO2 emissions reduction IBM announced its 3rd generation goal in February 2015: reduce CO2 emissions associated with IBM's energy consumption 35% by year-end 2020 against a base year of 2005, adjusted for acquisitions & divestitures. This represents an additional 20% reduction, from year-end 2012 to year-end 2020, over the reductions achieved from 2005 to 2012 under IBM's 2nd generation goal. From 2005 to 2014, IBM has reduced its operational CO2 emissions by over 25%. From 2013 to 2014, our absolute CO2 emissions reduced 6.1%. These goals represent substantial business decisions to address climate change. PRODUCTS & SERVICES: IBM has had a formalized product stewardship program since 1991 calling for "Develop(ing) products that will provide improvements in energy efficiency &/or reduced energy consumption." Leveraging its deep knowledge of industries & research, IT, & services expertise, IBM is applying its products & solutions to the intelligent energy grid, smart transportation systems, biofuel & solar photovoltaic development, energy & material use optimization, logistics planning, "dematerialization" efforts) & other applications designed to assist clients, & the world, to tackle climate change. IBM products such as Measurement & Management Technology (MMT) for data center thermal & energy management, IBM TRIRIGA Real Estate Environmental Sustainability Impact Manager (TREES) for improving building efficiency, have grown out of our internal efforts to improve the efficiency of our data center & real estate operations. IBM's Smarter Planet initiative expands our reach, leveraging data & analytics, social & mobile platforms & generating insights to enable fact-based decisions that optimize utilization of resources, including energy. IBM's leveraging of its core talent & capabilities & has gained market leadership through the delivery of a range of innovative products & solutions to help clients achieve energy efficiency & lower GHG emissions. IBM continues to enhance its offerings across its portfolio to enable better management of energy & improving operational efficiency to address a wide area of business & climate challenges. Strategically, IBM has announced major investments of billions of dollars in the areas of cloud computing, analytics, systems for the internet of things, Watson, & mobile applications to develop & implement leading edge, innovative IT solutions to address these challenges, including those presented by climate change, in its own operations & the operations of its clients.

CC2.2b

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

CC2.2c

Does your company use an internal price of carbon?

No, and we currently don't anticipate doing so in the next 2 years

CC2.2d

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

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
- Other

CC2.3a

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

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
Mandatory carbon reporting	Support with major exceptions	U.S. EPA for the Mandatory Reporting Rule (MRR) of Greenhouse Gases for the Semiconductor Industry: IBM collaborated with the Semiconductor Industry Association (SIA) to substantially improve the implementability of the reporting requirements. IBM committed substantial financial and personnel resources to gather and analyze data required to develop a credible and workable alternative to finalize subpart I regulation.	IBM, in conjunction with SIA, worked with other industry members to develop data to improve default process emissions factors for perfluorinated carbon (PFC) gases; provide data to support default destruction rate efficiencies (DREs) for PFC abatement systems; and method development and validation to demonstrate the appropriateness of stack sampling as a method to measure and assess fab level PFC emissions. EPA finalized the revised regulations in 2013.
Energy	Support with	IBM has been a sustaining and active supporter of product	IBM has advocated both as IBM and through industry

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
efficiency	minor exceptions	efficiency requirements for ICT products, particularly servers and storage equipment, developed under various programs/governments including the ENERGY STAR, European Union, Korean Government, Chinese Government, and California Energy Commission. IBM has committed significant human resources and systems assets to provide test data, qualification process and recommendations to EPA and others regarding product categorization, qualification requirements, test methods and approaches for establishing energy efficiency requirements for ICT products.	associations globally such as the Green Grid (TGG), the Information Technology Industry Council (ITIC), DigitalEurope, and the China based United States Information Technology Office for rational, economic and credible testing protocols and categorization of server and storage products. Unlike many products already subject to ENERGY STAR requirements, server and storage equipment have a broad range of product configurations with widely varied power profiles within a single model because of the many components and options available to configure a product to the exact specifications needed to address a customer's workload.
Energy efficiency	Support with minor exceptions	IBM has worked with ITIC, Digital Europe, Digital Energy and Sustainability Solutions Campaign (DESSC) and The Green Grid on a range of data center energy efficiency initiatives. The efforts are intended to disseminate information on data center energy efficiency and drive improvements in effective energy utilization in data centers.	IBM advocates for improved data center energy efficiency initiatives, as we recognize that there are significant opportunities in this area for both new and existing data centers to improve their efficiency through the application of intelligent data center management systems and virtualization and consolidation technologies. IBM also advocates regarding the benefits that intelligent systems can bring to improving the efficiency of a range of infrastructure, operations and processes, reducing the energy use and efficiency of systems 2 times or more over and above the energy "invested" in the operation of the data centers that run the intelligent systems.
Clean energy generation	Support with minor exceptions	IBM has advocated for improvements in grid technology to facilitate the implementation of distributed generation, specifically wind and solar systems with intermittent power delivery. As currently configured, the grid cannot effectively integrated large, intermittent solar, wind and wave generation systems.	IBM has advocated for necessary regulatory adjustments and funding to facilitate the introduction of Smart Grid technology into grid systems around the globe to enable the diversification of the grid generation system and the stability of the grid.
Adaptation resiliency	Support	IBM engages with various NGOs, local, state and national governments, and academic groups on programs and solutions to assist with adaptation and resiliency demanded by changing demographics and weather patterns. IBM offers smarter solutions which offer improved monitoring, management, and emergency response capability to a full range of city systems which enable optimization of operations of sewer, water, electricity and traffic systems and identify preventative, rather than reactive maintenance management and pinch or risk points that will benefit from investment or infrastructure improvements. Through its	IBM works with governments to execute legislation and programs that enable IT based solutions to more effectively manage, control and modernize city infrastructure to address and manage the impacts of changing demography, land use patterns and climate conditions.

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
		Corporate Citizenship program IBM provided support in a collaboration with the Nature Conservancy on an effort to make it easier for municipalities in the Brazilian Amazon to establish land-ownership records, monitor land use with a goal to stop illegal deforestation.	

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?
Various	Mixed	The positions of specific trade associations can be found by reviewing their respective websites. IBM sets and communicates its own climate protection position, which may have elements of a given trade association's position. IBM's position is posted on the ibm.com website: http://www.ibm.com/ibm/environment/climate/position.shtml and provided below. <ul style="list-style-type: none"> • IBM recognizes climate change is a serious concern that warrants meaningful action on a global basis to stabilize the atmospheric concentration of greenhouse gases (GHGs). • IBM believes all sectors of society, the economy and governments worldwide must participate in solutions to climate change. • IBM supports joint efforts by the private and public sectors to reduce global GHG emissions. These initiatives are most effective when they are implemented through market-driven mechanisms and are economically efficient, environmentally effective and sustainable. • IBM believes a diverse energy portfolio is 	IBM does not conduct advocacy activities on climate change legislation through Trade Associations. IBM is on the board of some trade associations but does not typically provide funding to trade associations beyond its membership.

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?
		<p>necessary to achieve an orderly adaptation to a world in which GHG emissions are constrained while maintaining successful economies and secure supplies of energy, and also meeting the needs of humanity. • IBM considers energy conservation to be a cornerstone of climate protection. IBM will continue to conserve energy and continually improve the energy efficiency of its operations, products and services while collaborating with and encouraging its global suppliers to do likewise. • Consistent with its values, IBM will collaborate with its clients to create new innovations and solutions that are protective of the climate. IBM belongs to various trade and industry associations that add value to IBM, its stockholders and employees. Trade associations cover diverse issue sets, and it is natural that IBM views may diverge from those of any particular group on some issues from time to time.</p>	

CC2.3d

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

CC2.3e

Do you fund any research organizations to produce or disseminate public work on climate change?

CC2.3f

Please describe the work and how it aligns with your own strategy on climate change

CC2.3g

Please provide details of the other engagement activities that you undertake

IBM has been active in advocating the importance, benefits & opportunities of increased energy efficiency for both the climate as well as for business & the economy, as well as available solutions to achieve same. IBM works with NGOs such as the Center for Climate and Energy Solutions (C2ES) and World Resources Institute (WRI), the EU Joint Research Council on the EU Data Center Code of Conduct, and the U.S. Department of Energy programs, and trade organizations such as the Business Roundtable, The Green Grid, Digital Europe, and Information Technology Industry Council (ITIC). Our efforts focus on sharing learning and solutions on energy efficiency and GHG emissions reductions, increasing the availability of renewable energy in economic, commercial quantities for procurement, and promoting voluntary programs and standards that encourage innovation in energy efficiency projects and improvements in product and process energy efficiency. We respond to consultations, such as our participation WRI/WBCSD guidance for IT operations and scope 2 GHG emissions accounting, a U.S. Department of Energy Regulatory Impact Assessment analysis, completed by Navigant consulting, regarding the development of an energy efficiency regulation for computer systems and our work to provide technical data and information for the Energy related Projects Lot 9 study on server and storage products. Given IBM's business focus and capabilities, we believe IBM can best contribute to sound policy making by informing policymakers substantively and in a manner that is results-oriented & based on the deep expertise possessed by our company. To that end, we continue to demonstrate that effective and economical solutions exist today to reduce GHG emissions, and companies like IBM continue to develop/enhance and bring to the market new innovations that enable such reductions across the economy. IBM is carrying out this role with three deliberate objectives: 1. Providing support to governments in their policy activities by developing real solutions and demonstrating that these solutions can be implemented; 2. Providing confidence to governments & enterprises that a broad range of specific energy efficiency initiatives to address climate challenges are feasible, available & cost effective; & 3. Leading by example & taking early action to conserve energy & other resources, improve operational efficiency, & reduce IBM's own GHG emissions. IBM engages in a diverse range of external communications, including its achievements in reducing energy use & GHG emissions associated with its own operations, offering solutions to assist clients in making their operations more efficient; and setting expectations for suppliers. These activities include publishing an annual IBM & the Environment Report and annual Corporate Responsibility Report, participation in various public disclosure schemes, providing product & service information on our website, sharing best practices &/ or participation in conferences, and communicating environmental requirements for our suppliers. IBM is also active both on its own and through ICT industry organizations to provide input and proposed metrics for voluntary and regulatory energy efficiency schemes for ICT products and data centers. IBM has also been involved in the DOE supply chain initiative and various US Federal Government activities to respond to the Federal Gov sustainability metric and objectives as set out in several executive orders, as well as EU's Data Center Code of Conduct.

CC2.3h

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?

The process we follow adheres to clearly and explicitly defined organizational roles and responsibilities set by the company and documented in our global Environmental Management System. IBM's Corporate Environmental Affairs staff organization is responsible for developing IBM environmental public policy positions including those addressing climate protection, and advocating the company's policy positions. Lines of business are responsible for executing against the requirements applicable to them.

CC2.3i

Please explain why you do not engage with policy makers

CC2.4

Would your organization's board of directors support an international agreement between governments on climate change, which seeks to limit global temperature rise to under two degree Celsius from pre-industrial levels in line with IPCC scenarios such as RCP2.6?

CC2.4a

Please describe your board's position on what an effective agreement would mean for your organization and activities that you are undertaking to help deliver this agreement at the 2015 United Nations Climate Change Conference in Paris (COP 21)

Further Information

We offer the following in the interest of providing the proper context and relevant response from IBM rather than the forced-fit statements and choices of answer prescribed for questions 2.4 and 2.4.a. IBM has not advocated for any specific government policy or regulatory scheme to control GHG emissions (e.g., cap & trade vs. carbon tax, or specific government targets on reducing GHG emissions). This is because that given the nature of our business, IBM is not disproportionately impacted by specific mechanisms to control GHG emissions or reductions target in comparison to organizations or certain industry sectors that have significantly greater GHG emissions and who will be materially affected. IBM's corporate policy position on climate change (<http://www.ibm.com/ibm/environment/climate/position.shtml>) makes it clear that IBM recognizes climate change as a serious environmental issue that warrants meaningful action on a global basis to stabilize the atmospheric concentration of GHGs. In support of this recognition, IBM is contributing to sound policy making by informing policymakers substantively and in a manner that is results-oriented & based on the deep expertise possessed by our company. Specifically, we continue to demonstrate that effective and economical solutions exist today to reduce GHG emissions, and companies like IBM continue to develop/enhance and bring to the market new innovations that enable such reductions in response to or supportive of governments' call to action. Our responses to questions 2.2, 2.3, and 3.3 provide further details on our actions, with the associated results, that IBM has taken with regards to climate change and the suite of products and solutions available to our clients to address and reduce their impacts.

Page: CC3. Targets and Initiatives

CC3.1

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

Absolute 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 (metric tonnes CO2e)	Target year	Comment
Abs1	Scope 1+2	100%	35%	2005	2544000	2020	The baseline will be adjusted for acquisitions and divestitures for the reporting period. The baseline data has been adjusted for acquisitions and divestitures (including the IBM System x operations) through year-end 2014.

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	Target year	Comment
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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
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CC3.1d

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

ID	% complete (time)	% complete (emissions)	Comment
Abs1	25%	70%	IBM's CO2 emissions from electricity and fuel use reduced by 6.1% from 2013 to 2014 and 10.3% from 2012 to 2013. As of year-end 2014, IBM achieved operational CO2 emissions reductions more than 25% against the 2005 baseline.

CC3.1e

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

Does the use of your goods and/or services directly enable GHG emissions to be avoided by a third party?

Yes

CC3.2a

Please provide details of how the use of your goods and/or services directly enable GHG emissions to be avoided by a third party

IBM's products & services offer clients a range of solutions to make their operations more efficient & reduce or minimize their scope 1 & scope 2 GHG emissions. All calculations provided use an electricity emissions factor of 0.42 Metric Ton (MT) CO₂/MWH; the IBM global average without including its 2 semiconductor plants.

1. IBM systems: (a) IBM POWER® systems servers offer power management capabilities to match power use to workload, reducing power use by 28 to 50 percent as workload varies. This saves between 0.3 & 1 kwh/day, assuming 10% to 40% server utilization. This represents a scope 2 emissions reduction of 1.3 to 3.8 MT CO₂ per year per server. For a data center running 100 servers, this represents 130 to 380 MT of CO₂ avoided per year. (b) POWER® systems & System z servers can be run at up to 65% & 95% utilization respectively if the systems are properly configured for the workloads they are operating. For a POWER server, increasing utilization from 10 to 40% increase the workload delivered by a factor of 4 while increasing the electricity use by 10%. Virtualizing the workload of 20 x86 2 socket servers (200 Watts (W)/server) onto 1 POWER system 2 socket server (750 W/server) reduces annual energy use by 3,250 watts or 28.5 MWH/year & scope 2 emissions by 12 MT CO₂/year. A System z server can consolidate 200 x86 servers, avoiding 75 MT CO₂/year (assuming 40 kw for the x86 servers, 20 kw for the System z). (c) IBM storage products offer a range of capacity optimization methods (COMs) such as compression, data de-duplication, thin provisioning, & tiered storage which enable up to 95% of the available storage capacity to be utilized. When the COMs are properly combined for a given workload & installed on a current generation IBM storage system (XIV, Storwize, DS8800 & Flash 840/900), a single storage product can do the work of 2 to 5 previous generation products, reducing energy demand & associated CO₂ emissions by 20 to 80 percent. Two examples: (i) An internet company streaming video content shrank its storage footprint from 16 racks to 3. Assuming 5 kilowatts per rack, it reduced 550 MWH per year & 240 MT CO₂/year while performance increased by 10x. (ii) A leading software development & management support company deployed a V7000 system with a flash storage layer, Easy Tier & IBM Real-time compression, reducing energy use by 30%. At 5 kw for the system, this saved 13 MWH/year & avoided 5.7 MT CO₂/year of associated emissions. (d) IBM SoftLayer & Cloud Managed Services (CMS) offers public & private cloud services to IBM clients. Properly utilized, cloud services can reduce the infrastructure required to support a given workload. IBM has increased it both its public SoftLayer Cloud & private or hybrid CMS offerings, with 37 cloud data centers locations around the globe. Cloud computing offers an on-demand, more efficient way to deploy & run IT applications & systems. As an example of the benefits of the cloud, a banking client transferred its IT infrastructure to an IBM hybrid cloud solution, reducing server infrastructure by 60%. Assuming the client's data center operation used 3,000 MWH/year, this would save 1,800 MWH of electricity consumption & avoid 770 MT CO₂ emission/year. If 500 clients make this type of switch, 385,000 MT CO₂ emissions/year would be avoided.

2. IBM Smarter Planet offerings enable clients to implement systems management of activities such as logistics, water systems, traffic systems, utility grids, & other processes & infrastructures to optimize activity flows & minimize resource use. (a) The Smarter Buildings solution—IBM Tririga Real Estate Environmental Sustainability Management (TREES) enables IBM's clients to reduce building energy use by 5% to 13% through the use of analytics to monitor & control of HVAC & lighting systems, pro-active equipment maintenance. A large government client is using TREES on 55 buildings reducing energy consumption by 160,000 MWH/year & avoiding 69,000 MT CO₂ emissions/year. (b) Smart Grid management systems: IBM is working with utilities & governments on projects which utilize smart meters, energy storage, demand response, & renewable generation forecasting to reduce peak electricity demand & better integrate renewable generation into the power grid. IBM is working with two utilities to implement grid management software which can improve the utilization of renewable generation assets by 5 to 10%. Assuming a 200 MW wind farm with an average utilization of 45%, a 10% improvement in utilization corresponds to 20 MW of capacity, which is 175,000 MWH/year of increased production. Assuming replacement of coal generation at 1.2 MT CO₂/ MWH, CO₂ emissions would be reduced by 210,000 MT CO₂/year. IBM is applying its IT expertise in software & systems, to provide energy efficiency & avoided CO₂ emissions solutions for its clients across a full range of business & process types.

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		
To be implemented*	105	81000
Implementation commenced*	32	35000
Implemented*	2200	142000
Not to be implemented		

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	Data Center Energy Efficiency: 1. Best Practices implementation (air flow balancing and temperature adjustments). 2. Virtualization and Consolidation of Server and Storage Assets. Specific investment information not provided to protect business confidential information.	74000	Scope 1 Scope 2	Voluntary	17600000	1	1-3 years	Ongoing	The Data Center Energy Efficiency initiatives will continue to deliver energy and CO2 savings for many years following the completion of the projects.
Energy efficiency: Building services	Heating Ventilation and Air Conditioning and Lighting Systems: 1. Equipment Upgrades: control systems and more efficient equipment. 2. Refine alignment of system operation times with building occupancy times. Specific investment information is not provided to protect business confidential information.	28100	Scope 1 Scope 2	Voluntary	6200000	1	1-3 years	Ongoing	The Heating, Ventilation and Air Conditioning and Lighting Systems initiatives will continue to deliver energy and CO2 savings for many years following the completion of the projects.
Energy efficiency: Building services	Central Utility Plant systems, Building System Recommissioning and implementation of real time metering,data collection and analytic programs. IBM does not provide information on the level of investment to	12600	Scope 1 Scope 2	Voluntary	3900000	1	1-3 years	Ongoing	Central Utility Plant systems, Building System Recommissioning and implementation of real time metering,data collection and analytic programs. IBM does not provide information on the level of investment to

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
	drive energy efficiency improvements. The IBM team is also implementing innovative, leading-edge technologies that enable real-time management of energy use.								drive energy efficiency improvements. The IBM team is also implementing innovative, leading-edge technologies that enable real-time management of energy use. IBM is deploying its Smarter Building technologies (for example, IBM Tririga Real Estate Environmental Sustainability Manager) to increase the energy efficiency of its own facilities.
Energy efficiency: Processes	Manufacturing System Energy Efficiency Projects: Reducing the energy use of equipment, changing manufacturing environment specifications, installation of variable speed drives on systems, and process changes or modifications. Specific investment information is not provided to protect business confidential information.	11700	Scope 1 Scope 2	Voluntary	2200000	1	1-3 years	Ongoing	The Manufacturing System Energy Efficiency initiatives will continue to deliver energy and CO2 savings for many years following the completion of the project..
Other	Other Energy Efficiency projects including cafeterias improvements, printer	2200	Scope 1 Scope	Voluntary	800000	1	1-3 years	Ongoing	The Other Energy Efficiency initiatives will continue to deliver energy and CO2

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
	systems utilization and energy management, and workstation (e.g., laptops, desktops) power management. Specific investment information is not provided to protect business confidential information.		2						savings for many years following the completion of the project.
Low carbon energy purchase	IBM contracted for the purchase of 683,000 MWH of renewable electricity in 2014	250000	Scope 2	Voluntary	0	1	>25 years	1-2 years	IBM pays a premium for the majority of its renewable electricity purchases.
Energy efficiency: Building services	IBM is deploying its Smarter Building technologies Tririga Real Estate Environmental Sustainability Manager (TREES) to increase the energy efficiency of its own facilities. TREES collects and integrates data from the full range of available building system meters and sensors and applies analytics to continually minimize energy use in the building and identify anomalies in building operation. Currently 33% of IBM operated floor space is monitored and managed by TREES. The investment in	13100	Scope 1 Scope 2	Voluntary	1600000	2000000	1-3 years	Ongoing	The Energy Efficiency: Building Systems will deliver energy and CO2 savings for many years following the completion of the project.

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
	implementing trees at the 28 facilities using the system occurred over a four year period from 2011 to 2014. Investmetn information was provided with this example to give an indication of the kind of returns available from these types of projects.								
Low carbon energy installation	IBM installed a MW fuel cell at its Connecticut U.S. data center facility	600	Scope 1 Scope 2	Voluntary	0	0	<1 year	6-10 years	System installed on a power purchase agreement/lease. IBM will achieve limited cost savings with the fuel cell installation.

CC3.3c

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

Method	Comment
Financial optimization calculations	We prioritize on energy efficiency and conservation projects that meet our internal financial IRR and ROI requirements, and continue to be successful in identifying them IBM's commitment to meeting its energy conservation goal, combined with the business returns generated by conservation projects sustain our ability to have these projects funded and implemented.
Employee engagement	IBM promotes a variety of programs to engage employees in achieving energy use and related GHG emission reductions

Method	Comment
	including publicity campaigns, "best idea" solicitations, personal energy use, software based meters for office employees, and other methods to encourage employees to identify, propose, and/or implement energy saving and GHG reduction ideas. IBM locations also work with local transit authorities or use IBM developed software tools to encourage more efficient employee commuting activities including van pooling, ride sharing, and the use of public transit.
Compliance with regulatory requirements/standards	IBM makes the necessary investments to comply and exceed compliance requirements with applicable regulatory requirements or meaningful standards. UK's Carbon Reduction Commitment is a regulatory example. ENERGY STAR program is an example of a meaningful standard. IBM also anticipates and proactively addresses emerging requirements through its product development processes to improve product and service energy efficiency with the objective of competitively positioning the company in the marketplace.
Partnering with governments on technology development	IBM has partnered with governments around the globe on the development and implementation of innovative solar electricity generation systems, development of technologies and IT based solutions to improve the efficiency of built infrastructure, the use of high performance computers to analyze climate and energy challenges, development of IT based electric grid management systems to facilitate the integration of EV charging stations and distributed, renewable energy generation into the grid infrastructure, development of innovative data center power and cooling infrastructures, and other projects which drive energy efficient technology development.
Internal finance mechanisms	Within IBM, Corporate Environmental Affairs staff, Finance, and business units have collaborated to execute a cross functional business process that identifies energy conservation projects which need support and involvement from multiple business units to enable them to be competitive for capital funding.
Other	IBM organizations make use of energy efficiency incentives, grants, and tax incentives offered by governments, utilities, and energy efficiency utilities to improve the financial viability of projects and justify co-funding to implement energy conservation projects which might not otherwise meet internal IRR or ROI requirements.

CC3.3d

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

Further Information

Under table 3.3.a, IBM has many projects which it is evaluating the technical and economic feasibility and/or in the process of securing the necessary financing. These projects are key to IBM's continued attainment of its annual energy conservation goal and its CO2 reduction target. The MT CO2 reductions in the "To Be Implemented" and "Implementation Commenced" are estimates only and represent annualized CO2 avoidance expected as a result of projects implemented in 2014. Emissions quantities are calculated using regional or country electricity grid emissions factors. Many additional small projects, not included in this project list, will be executed to gain additional CO2 avoidance and increase the project numbers to the level seen in the "Implemented" category of this year's report. Actual

energy savings and CO2e reductions will depend on the final project implementation and the electrical or fuel sources available and/or in use at the facility at which the project is completed. IBM does not speculate on the savings or costs associated with projects under evaluation. CO2e savings reported in in 3.3a and 3.3b are in metric tons.

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
In voluntary communications	Underway - previous year attached	IBM and the Environmental Report, Energy and Climate Programs Section. Found on http://www.ibm.com/ibm/environment/annual/	https://www.cdp.net/sites/2015/84/9284/Climate Change 2015/Shared Documents/Attachments/CC4.1/IBMEnvReport_2013-4.pdf
In voluntary communications	Underway - previous year attached	One Report. Link to the One Report webpage found at http://www.ibm.com/ibm/environment/annual/	https://www.cdp.net/sites/2015/84/9284/Climate Change 2015/Shared Documents/Attachments/CC4.1/2013 GRI Report.pdf

Further Information

The 2015 IBM and Environmental Report and the 2015 OneReport may be accessed in July 2015 at the following URL: <http://www.ibm.com/ibm/environment/annual/index.shtml> . These reports will provide data and information for the IBM's operations in 2014.

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 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	IBM's energy use and scope 1 and 2 GHG emissions primarily involve electricity. We expect the impact of a carbon tax scheme to IBM would manifest through increases in the cost of energy for IBM and its suppliers in the countries or jurisdictions which establish a tax.	Increased operational cost	1 to 3 years	Direct	More likely than not	Low-medium	Carbon taxes will increase operating costs for our operations and the operations of our suppliers.	We have an active energy conservation and efficiency program, which targets conservation savings and avoidance equivalent to 3.5% of that year's energy use. We require our tier 1 suppliers to develop an EMS, assess their significant environmental aspects and set goals to conserve their energy use and	IBM makes significant investments in energy conservation and efficiency, but does not publish specific investment numbers as we consider this to be business confidential information.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								reduce GHG emissions and pass those requirements to their suppliers.	
Cap and trade schemes	As IBM's energy use is primarily use of electricity, we expect the impact of a cap and trade scheme would manifest through increases in the cost of energy for IBM and its suppliers where cap and trade schemes are implemented.	Increased operational cost	3 to 6 years	Direct	More likely than not	Low-medium	The impact of cap and trade schemes on IBM will likely manifest through increases in the cost of energy, as electricity is the primary energy source used at our facilities.	We have an active energy conservation and efficiency program, which targets conservation savings and avoidance equivalent to 3.5% of that year's energy use. We require our tier 1 suppliers to develop an EMS, assess their significant environmental aspects and set goals to conserve their energy use and reduce GHG emissions and pass those requirements to their suppliers.	We expect some cost increases over time above our current energy costs.
Emission reporting	IBM uses fuel, electricity and	Other: Increased	1 to 3 years	Direct	Virtually certain	Low	Impacts of GHG Reporting	For energy use, IBM's energy	Because most facilities use only

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
obligations	PFCs, all of which have scope 1 or scope 2 emissions. Increasingly, governments are considering or implementing GHG emissions reporting schemes which can drive additional costs. Currently IBM is meeting all applicable GHG reporting requirements in jurisdictions where it operates.	operational and capital costs.					requirements being considered by various jurisdictions vary and their impact will depend on the specific requirements. In general these requirements are not expected to be a significant cost impact, though multiple requirements such as those legislated in the UK, ESOP, CRC, and CCA, do require significant resources to manage.	conservation and efficiency program discussed in under section 3 of this document provides our means to manage the risk of increased energy costs.	electricity and IBM has established a robust data collection process, additional reporting requirements will be minimal.
Fuel/energy taxes and regulations	Implementation of fuel/energy taxes and regulations in a country or regional jurisdiction would increase the cost of energy and operations for IBM as well as other affected enterprises such	Increased operational cost	1 to 3 years	Direct	Likely	Low-medium	Fuel/energy taxes and regulation will increase operating costs for our operations and the operations of our suppliers.	We have an active energy conservation and efficiency program, which targets conservation savings and avoidance equivalent to 3.5% of that years energy	IBM makes significant investments in energy conservation and efficiency, but does not publish specific investment numbers.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	as suppliers in the jurisdictions which establish fuel/energy taxes.							use. We have reduced fuel use in IBM operations by over 20% from 2005 to 2013. We require our tier 1 suppliers to develop an EMS, assess their significant environmental aspects and set goals to conserve their energy use and reduce their GHG emissions and pass those requirements to their suppliers.	
Product efficiency regulations and standards	Product energy efficiency regulations and standards, such as the EU Energy Related Product Directive, ICT Equipment energy efficiency standards proposed by China National Institute of Standardization	Increased operational cost	Up to 1 year	Direct	Virtually certain	High	As countries and regions drive to adopt more product energy efficiency requirements, failure to anticipate these developments and design energy efficiency products there is a risk of losing market access	At the most foundational level IBM has executed a formal product stewardship program since 1991. One of the stated focus this program is designing products to be energy efficient. The IBM product	Integration of energy efficiency considerations in the product development process as part of the IBM product stewardship program (formalized in 1991) limits the financial impact of these

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>and Ministry of Environmental Protection in China, the Japan Energy Law, and the ENERGY STAR® IT equipment requirements, will have applicability to IBM's product design, manufacturing, testing and qualification processes. These requirements can affect the design of our products and our interactions with our supply chain.</p>						<p>with resulting loss of revenue. Financial implications result from testing required to measure energy use of the products and cost of updating fulfilment systems to provide necessary labels, fliers, and/or electronic documentation with products. If no action is taken, market access may be lost.</p>	<p>design teams follow the IBM Product Stewardship process giving consideration to product energy efficiency. With respect to the external requirements landscape, IBM is actively involved in the development of ICT product energy efficiency requirements through participation in industry groups such as The Green Grid, standards bodies such as ECMA, and government efforts such as the USEPA ENERGY STAR program. IBM works through these groups toward setting sensible energy efficiency</p>	<p>requirements. However, there are cost implications as energy efficient designs are likely to have higher component costs and require the development of more sophisticated firmware and software management systems.</p>

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								requirements for ICT equipment .which enable product innovation while delivering more performance per unit of energy consumed by ICT equipment users.	
Product labelling regulations and standards	Regulatory product labeling requirements will impact fulfilment processes. IBM is currently conforming with requirements in Mexico and evaluating proposed labelling schemes in other jurisdictions. With regard to voluntary standards (e.g., the WRI/ WBCSD Product Accounting and Reporting Standard, Publicly Available Specification 2050) that	Increased operational cost	1 to 3 years	Direct	Very likely	Medium	Financial implications result from testing required by regulation to measure energy use of the products and cost of updating fulfilment systems to provide necessary labels, fliers, and/or electronic documentation with products. If no action is taken, market access may be lost.	IBM collects product energy use data as part of its product qualification process.	There will be additional financial costs to complete the required testing and labelling. These costs increase significantly if each country or jurisdiction promulgates separate, different requirements. IBM is working with industry groups, governments and standards bodies to establish harmonized product energy

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>promote voluntary reporting of "embedded carbon content" of products, IBM is not planning to implement those. IBM's position is grounded on the fact that methodologies for estimating "carbon footprints" associated with complex products do not provide results that are sufficiently accurate to allow for credible external reporting or labelling (and/or product comparison) of products and / or services. Even if or when sector specific guidance were established for developing more consistent system boundaries and assumptions for estimating product "carbon</p>								<p>efficiency testing and reporting metrics and requirements.</p>

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>footprints", they will not meaningfully improve the quality of data that would be required to support credible external reporting or labelling of products. High quality process specific GHG emissions data associated purchased materials, components and assemblies remain difficult and costly to obtain or generate. Finally, "carbon footprint" studies on individual products are very resource intensive and seldom provide new insight for product design or business value. Given the aforementioned discussion, IBM</p>								

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	does not believe that use of "carbon footprints" or other labelling standards for reporting of "embedded carbon" in a product or comparison of products in the marketplace is supportable.								
General environmental regulations, including planning	Where specific jurisdictions set planning, design and/or operational requirements for buildings, data centers, manufacturing facility or other operations this will have the potential to cause additional capital investments, increase operating costs or the time required to bring a product or service to market. These additional costs which will need to	Increased operational cost	Up to 1 year	Direct	Likely	Low-medium	Without appropriate actions, it may not be possible to execute development or growth plans in specific jurisdictions.	IBM has corporate, country, and location level programs as required to monitor regulatory developments which may impact IBM's products, services, or operations.	There are incremental costs to staff regulatory review efforts and subscribe to regulatory update programs.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	be factored into business decisions.								
Renewable energy regulation	Increased renewable energy generation requirements are likely to increase the cost of electricity at facilities and increase the risk of grid instability where aggressive efforts are not undertaken to upgrade the grid and its associated management systems to manage the intermittent nature of wind and solar generating facilities.	Other: Increased operational cost and increase potential for power interruptions due to intermittent nature of renewable generation sources causing grid instability.	1 to 3 years	Direct	Very likely	Medium	Currently, electricity generated from renewable sources has higher costs than that generated from conventional sources. Higher levels of renewable generation, under current market conditions and technology capabilities, will drive higher utility rates.	See the discussion in section 3 on IBM's energy conservation program; efforts to reduce our electricity consumption help to offset the additional cost drive by renewable generation assets in some jurisdictions. The Real Estate group is working with various suppliers to identify and capture opportunities to install on-site renewable generation projects, primarily solar photovoltaic installations, and or procure renewable	We expect some cost increases of 1 to 5% over time above our current energy costs.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								electricity from grid based, commercial projects at rates equal to or less than grid rates.	

CC5.1b

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

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management

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	Companies are increasingly being assessed on their	Other: Impacts to a company's reputation extend	Up to 1 year	Direct	Virtually certain	High	IBM's early action and robust	IBM has a well established, global	There are no extra-ordinary cost risks, as

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>environmental programs, including their efforts to improve the energy efficiency of their operations, reducing their GHG emissions and providing products and services to their clients that enable clients to take action on these attributes of their operation. IBM has demonstrated leadership in energy management for 4 decades and in climate protection for over two decades; IBM provides products and services that enable its clients to improve performance and demonstrate leadership. These programs are described in section 3 of this document and in the IBM</p>	<p>across many of the potential impacts detailed in the dropdown list.</p>					<p>programs on energy conservation & GHG emissions reduction & our focus on developing energy efficient products, services & solutions for our clients, such as our Smarter Planet strategy, enable us to adapt in the current and evolving public policy and regulatory environment, client demands and impacts of climate change. These programs and capabilities enable us to avoid disruptions and minimize financial impacts while capturing opportunities to generate revenue.</p>	<p>Environmental Management System (EMS), which requires regular assessment of the environmental impacts of its operations and activities and setting goals and objectives to pro-actively manage its significant aspects. In addition, IBM's operational expertise, experience from executing our own programs and results inform the companies regarding potential and likely business opportunities.</p>	<p>costs to execute our programs and strategy are embedded in IBM's current operational structure. IBM continues to invest significantly (\$5.4 B in 2014) in research activities. A portion of these research dollars were applied to the development of products and solutions intended to address the climate change impacts of our operations and those of our clients.</p>

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	environmental report.								
Changing consumer behaviour	As consumers, governments, and companies increase their focus on energy efficiency and GHG emissions, it is important that companies anticipate requirements for their products and manage the necessary innovations to address changing market needs.	Reduced demand for goods/services	3 to 6 years	Direct	Likely	High	IBM's early action and robust programs on energy conservation & GHG emissions reduction & our focus on developing energy efficient products, services & solutions for our clients, such as our Smarter Planet strategy, enable us to adapt in the current and evolving public policy and regulatory environment, client demands and impacts of climate change. These programs and capabilities enable us to avoid disruptions and minimize	IBM has a well established, global Environmental Management System (EMS), which requires regular assessment of the environmental impacts of its operations and activities and setting goals and objectives to pro-actively manage its significant aspects. In addition, IBM's operational expertise, experience from executing our own programs and results inform the companies regarding potential and likely business opportunities.	There are no extra-ordinary cost risks, as costs to execute our programs and strategy are embedded in IBM's current operational structure. IBM continues to invest significantly (\$5.4 B in 2014) in research activities. A portion of these research dollars were applied to the development of products and solutions intended to address the climate change impacts of our operations and those of our clients.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							financial impacts while capturing opportunities to generate revenue.		
Other drivers	As society addresses its energy requirements and the environmental implications of energy use, including the environmental impact of GHG emissions, it is likely that transformational innovations will be needed. It will be important for companies to identify, anticipate, and be prepared to capture key transformational opportunities.	Other: Loss of Competitiveness and Relevancy in this space.	Up to 1 year	Direct	Likely	High	IBM's early action and robust programs on energy conservation & GHG emissions reduction & our focus on developing energy efficient products, services & solutions for our clients, such as our Smarter Planet strategy, enable us to adapt in the current and evolving public policy & regulatory environment, client demands and impacts of climate change. These programs & capabilities	IBM has a well established, global Environmental Management System (EMS), which requires regular assessment of the environmental impacts of its operations and setting goals and objectives to pro-actively manage its significant aspects. In addition, IBM's operational expertise, experience from executing our own programs and results inform the companies regarding potential and	There are no extra-ordinary cost risks, as costs to execute our programs and strategy are embedded in IBM's current operational structure. IBM continues to invest significantly (\$5.4 B in 2014) in research activities. A portion of these research dollars were applied to the development of products and solutions intended to address the climate change impacts of our operations and those of our clients.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							enable us to avoid disruptions and minimize financial impacts while capturing opportunities to generate revenue.	likely business opportunities.	

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 physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

At this time, based on the nature and scope of our business operations, IBM does not perceive unusual physical impacts outside of those we plan for as part of our ongoing business and risk management processes. These risk management processes look at business risk comprehensively including, but not limited to, risks and impacts related to climate change. We apply analytic tools to our supply chain assessment activities, integrating and assessing over 10,000 data points to evaluate potential risks. There are potential physical impacts, albeit not unique to IBM, in certain geographies which may include water scarcity or diseases. We anticipate

that the business models of both IBM's and our suppliers' operations will enable those operations to anticipate and adapt to potential risks and mitigate the impacts without significant disruptions to the business.

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
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Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Other regulatory drivers	IBM's portfolio of energy efficient ICT equipment, data centers, and cloud offerings, deep expertise and offerings in analytics and optimization solutions, and systems and analytics capability uniquely position IBM to assist its clients in responding to the full range of energy efficiency and GHG reduction mandates that have been established or may be considered in the future.	Other: Increased demand for products and services, premium pricing opportunities, new products and business services	1 to 3 years	Indirect (Client)		Medium-high	These opportunities present IBM expanded market opportunities based on its portfolio systems, software, services and solutions including ICT equipment, data center thermal management system (MMT), data center management systems, software solutions, service offerings, and analytics and research capabilities. IBM is uniquely positioned to apply one, some, or all of these capabilities in a synergistic	IBM implements ongoing and effective business processes to identify, analyze, and exploit emerging business opportunities which can be addressed with IBM's range of expertise and offerings.	There are no extra-ordinary cost risks, as costs to execute our programs and strategy are embedded in IBM's current operational structure. IBM continues to invest significantly (\$5.4 B in 2014) in research activities. A portion of these research dollars were applied to the development of products and solutions intended to address the climate change impacts of our operations and those of our clients.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							fashion to assist clients in both private and public sectors to respond to challenges of climate change.		
Fuel/energy taxes and regulations	IBM's experience in making its own operations more energy efficient and its internal deployment of the capabilities developed by the company lend credibility to various solutions IBM offers to clients including data management and analytics software. These tools can help clients optimize their operations, reduce their energy use and GHG emissions. IBM's business consulting services offers a suite of strategy setting, change	Other: Increased demand for products and services, premium pricing opportunities, new products and business services	Up to 1 year	Indirect (Client)	Virtually certain	Medium	These opportunities present IBM expanded market opportunities based on its portfolio systems, software, services and solutions including ICT equipment, data center thermal management system (MMT), data center management systems, software solutions, service offerings, and analytics and	IBM implements ongoing and effective business processes to identify, analyze, and exploit emerging business opportunities which can be addressed with IBM's range of expertise and offerings.	There are no extra-ordinary cost risks, as costs to execute our programs and strategy are embedded in IBM's current operational structure. IBM continues to invest significantly (\$5.4 B in 2014) in research activities. A portion of these research dollars were applied to the development of products and solutions intended to address the

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	management, business planning and process development tools to help clients minimize the impact of regulations and adapt. IBM's expertise and offerings such as those in smart transportation systems help clients minimize the impact of increased fuel costs.						research capabilities. IBM is uniquely positioned to apply one, some, or all of these capabilities in a synergistic fashion to assist clients in both private and public sectors to respond to challenges of climate change.		climate change impacts of our operations and those of our clients.
Cap and trade schemes	IBM's experience in making its own operations more energy efficient and its internal deployment of the capabilities developed by the company lend credibility to various solutions IBM offers to clients including data management and analytics software. These tools can help	Other: Increased demand for products and services, premium pricing opportunities, new products and business services	1 to 3 years	Indirect (Client)	Likely	Low	These opportunities present IBM expanded market opportunities based on its portfolio systems, software, services and solutions including ICT equipment, data center thermal management	IBM implements ongoing and effective business processes to identify, analyze, and exploit emerging business opportunities which can be addressed with IBM's range of expertise and	There are no extra-ordinary cost risks, as costs to execute our programs and strategy are embedded in IBM's current operational structure. IBM continues to invest significantly (\$5.4 B in 2014) in research

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>clients optimize their operations, reduce their energy use and GHG emissions. IBM's business consulting services offers a suite of strategy setting, change management, business planning and process development tools to help clients minimize the impact of regulations and adapt. IBM's expertise and offerings such as those in smart transportation systems help clients minimize the impact of increased fuel costs. In addition, IBM could be a provider of IT infrastructure for trading schemes. IBM's business consulting services offers a suite of strategy setting, business</p>						<p>system (MMT), data center management systems, software solutions, service offerings, and analytics and research capabilities. IBM is uniquely positioned to apply one, some, or all of these capabilities in a synergistic fashion to assist clients in both private and public sectors to respond to challenges of climate change.</p>	<p>offerings.</p>	<p>activities. A portion of these research dollars were applied to the development of products and solutions intended to address the climate change impacts of our operations and those of our clients.</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	planning and process development tools to help clients minimize the impact of regulations and adapt. IBM's expertise and offerings such as those in smart grid help utility clients become more competitive in servicing customers in a carbon constrained economy.								
General environmental regulations, including planning	IBM's systemized approach to environmental management, its compliance processes, experience and record lends credibility for its business consulting services. These service offerings include strategy setting, compliance assurance, GHG	Other: Increased demand for products and services, premium pricing opportunities, new products and business services	1 to 3 years	Indirect (Client)	Virtually certain	High	These opportunities present IBM expanded market opportunities based on its portfolio systems, software, services and solutions including ICT equipment, data center thermal management	IBM implements ongoing and effective business processes to identify, analyze, and exploit emerging business opportunities which can be addressed with IBM's range of expertise and	There are no extra-ordinary cost risks, as costs to execute our programs and strategy are embedded in IBM's current operational structure. IBM continues to invest significantly (\$5.4B in 2014) in research

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	inventory and reporting, asset management, smarter infrastructure and operational efficiency.						system (MMT), data center management systems, software solutions, service offerings, and analytics and research capabilities. IBM is uniquely positioned to apply one, some, or all of these capabilities in a synergistic fashion to assist clients in both private and public sectors to respond to challenges of climate change.	offerings.	activities. A portion of these research dollars were applied to the development of products and solutions intended to address the climate change impacts of our operations and those of our clients.
Emission reporting obligations	IBM's suite of software offering including Maximo, Tivoli, Tririga Real Estate Environmental and Sustainability	Other: Increased demand for products and services, premium pricing	Up to 1 year	Indirect (Client)	Likely	Medium	These opportunities present IBM expanded market opportunities based on its	IBM implements ongoing and effective business processes to identify,	There are no extra-ordinary cost risks, as costs to execute our programs and strategy are

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>Impact Management offers IT based software to inventory, assess and manage energy and asset / material utilization and provides a platform that entities can use to gather data, manage assets, reduce energy use and report energy use or GHG emissions.</p>	<p>opportunities, new products and business services</p>					<p>portfolio systems, software, services and solutions including ICT equipment, data center thermal management system (MMT), data center management systems, software solutions, service offerings, and analytics and research capabilities. IBM is uniquely positioned to apply one, some, or all of these capabilities in a synergistic fashion to assist clients in both private and public sectors to respond to challenges of</p>	<p>analyze, and exploit emerging business opportunities which can be addressed with IBM's range of expertise and offerings.</p>	<p>embedded in IBM's current operational structure. IBM continues to invest significantly (\$5.4B in 2014) in research activities. A portion of these research dollars were applied to the development of products and solutions intended to address the climate change impacts of our operations and those of our clients.</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							climate change.		
Renewable energy regulation	<p>IBM Smart Grid software and analytics has functionality that facilitates the integration of distributed, renewable electricity generation systems into the electricity distribution grid. IBM has also done work on innovative means of managing and storing peak generation through the use of EV charging/docking systems and energy storage in refrigerated warehouses and water heaters. IBM Research continues to conduct basic research and develop materials and knowhow to drive down the</p>	<p>Other: Increased demand for products and services, premium pricing opportunities, new products and business services</p>	Up to 1 year	Indirect (Client)	Likely	Medium	<p>These opportunities present IBM expanded market opportunities based on its portfolio systems, software, services and solutions including ICT equipment, data center thermal management system (MMT), data center management systems, software solutions, service offerings, and analytics and research capabilities. IBM is uniquely positioned to apply one, some, or all of</p>	<p>IBM implements ongoing and effective business processes to identify, analyze, and exploit emerging business opportunities which can be addressed with IBM's range of expertise and offerings.</p>	<p>There are no extra-ordinary cost risks, as costs to execute our programs and strategy are embedded in IBM's current operational structure. IBM continues to invest significantly (\$5.4B in 2014) in research activities. A portion of these research dollars were applied to the development of products and solutions intended to address the climate change impacts of our operations and those of our clients.</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	cost of solar energy and battery technology.						these capabilities in a synergistic fashion to assist clients in both private and public sectors to respond to challenges of climate change.		
Other regulatory drivers	IBM's portfolio of energy efficient ICT equipment, data centers, and cloud offerings, deep expertise and offerings in analytics and optimization solutions, and systems and analytics capability uniquely position IBM to assist its clients in responding to the full range of energy use and GHG reduction mandates that have been established or may be considered in the	Other: Increased demand for products and services, premium pricing opportunities, new products and business services	Up to 1 year	Indirect (Client)	Virtually certain	Medium-high	These opportunities present IBM expanded market opportunities based on its portfolio systems, software, services and solutions including ICT equipment, data center thermal management system (MMT), data center management systems, software solutions,	IBM implements ongoing and effective business processes to identify, analyze, and exploit emerging business opportunities which can be addressed with IBM's range of expertise and offerings.	There are no extra-ordinary cost risks, as costs to execute our programs and strategy are embedded in IBM's current operational structure. IBM continues to invest significantly (\$5.4B in 2014) in research activities. A portion of these research dollars were applied to the development of products

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	future.						service offerings, and analytics and research capabilities. IBM is uniquely positioned to apply one, some, or all of these capabilities in a synergistic fashion to assist clients in both private and public sectors to respond to challenges of climate change.		and solutions intended to address the climate change impacts of our operations and those of our clients.

CC6.1b

Please describe the 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	IBM has invested	Increased	1 to 3	Direct	Very likely	Medium	These	IBM	There are no

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
mean (average) precipitation	in advanced water management solutions which are informed by IBM's decades-long water management know-how, and leverage IBM's hardware, software and big data / analytics capabilities. These IBM services, technologies and solutions enable business, governments and others to better understand, anticipate, and address the potential physical impacts of climate change with regards to water, resource, and systems challenges.	demand for existing products/services	years				opportunities present IBM expanded market opportunities based on its portfolio systems, software, services and solutions including ICT equipment, data center thermal management system (MMT), data center management systems, software solutions, service offerings, and analytics and research capabilities. IBM is uniquely positioned to apply one, some, or all of these capabilities in a synergistic fashion to assist clients in both private and public sectors to	implements ongoing and effective business processes to identify, analyze and exploit emerging business opportunities which can be addressed with IBM's range of expertise and offerings.	significant cost risks, as these costs are embedded in IBM's current operational structure. IBM continues to invest significantly (\$5.4B in 2014) in research activities. A portion of these research dollars were applied to the development of products and solutions intended to respond to and capture opportunities including those discussed above. IBM also continues to be the leader in generating patents on a wide range of innovations across our operations.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							respond to challenges of climate change.		
Induced changes in natural resources	IBM's hardware and software / big data analytics capabilities, services, technologies and solutions enable business, governments and others to better understand (e.g., through modeling, predictive analytics), anticipate, and address the potential physical impacts of climate change with regards to water, resource, and systems challenges.	Increased demand for existing products/services	1 to 3 years	Direct	Likely	Medium	These opportunities present IBM expanded market opportunities based on its portfolio systems, software, services and solutions including ICT equipment, data center thermal management system (MMT), data center management systems, software solutions, service offerings, and analytics and research capabilities. IBM is uniquely positioned to apply one, some, or all of these capabilities in a	IBM implements ongoing and effective business processes to identify, analyze and exploit emerging business opportunities which can be addressed with IBM's range of expertise and offerings.	There are no significant cost risks, as these costs are embedded in IBM's current operational structure. IBM continues to invest significantly (\$5.4B in 2014) in research activities. A portion of these research dollars were applied to the development of products and solutions intended to respond to and capture opportunities including those discussed above. IBM also continues to be the leader in generating patents on a wide range of innovations

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							synergistic fashion to assist clients in both private and public sectors to respond to challenges of climate change.		across our operations.
Change in precipitation extremes and droughts	IBM possesses deep research expertise and high performance and predictive computing capabilities (e.g., weather forecasting) which have been deployed to assist with preparedness and response ahead of anticipated storms; as well as water use budgeting / planning based on predictive rainfall. These capabilities can be leveraged to help with anticipating and preparing for	Increased demand for existing products/services	1 to 3 years	Direct	Likely	Medium	These opportunities present IBM expanded market opportunities based on its portfolio systems, software, services and solutions including ICT equipment, data center thermal management system (MMT), data center management systems, software solutions, service offerings, and analytics and research capabilities. IBM is uniquely	IBM implements ongoing and effective business processes to identify, analyze and exploit emerging business opportunities which can be addressed with IBM's range of expertise and offerings.	There are no significant cost risks, as these costs are embedded in IBM's current operational structure. IBM continues to invest significantly (\$5.4B in 2014) in research activities. A portion of these research dollars were applied to the development of products and solutions intended to respond to and capture opportunities including those discussed above. IBM also continues to be

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	extreme weather events and more effectively utilize resources.						positioned to apply one, some, or all of these capabilities in a synergistic fashion to assist clients in both private and public sectors to respond to challenges of climate change.		the leader in generating patents on a wide range of innovations across our operations.
Change in precipitation pattern	IBM has invested in advanced water management solutions which are informed by IBM's decades-long water management know-how, and leverage IBM's hardware, software and big data / analytics capabilities. These IBM services, technologies and solutions enable business, governments and others to better	Increased demand for existing products/services	1 to 3 years	Direct	More likely than not	Low-medium	These opportunities present IBM expanded market opportunities based on its portfolio systems, software, services and solutions including ICT equipment, data center thermal management system (MMT), data center management systems, software solutions, service	IBM implements ongoing and effective business processes to identify, analyze and exploit emerging business opportunities which can be addressed with IBM's range of expertise and offerings.	There are no significant cost risks, as these costs are embedded in IBM's current operational structure. IBM continues to invest significantly (\$5.4B in 2014) in research activities. A portion of these research dollars were applied to the development of products and solutions intended to respond to and capture

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	understand, anticipate, and address the potential physical impacts of climate change with regards to water, resource, and systems challenges.						offerings, and analytics and research capabilities. IBM is uniquely positioned to apply one, some, or all of these capabilities in a synergistic fashion to assist clients in both private and public sectors to respond to challenges of climate change.		opportunities including those discussed above. IBM also continues to be the leader in generating patents on a wide range of innovations across our operations.
Snow and ice	IBM possesses deep research expertise and high performance and predictive computing capabilities (e.g., weather forecasting) which have been deployed to assist with preparedness and response ahead of anticipated storms; as well	Increased demand for existing products/services		Direct	More likely than not	Low-medium	These opportunities present IBM expanded market opportunities based on its portfolio systems, software, services and solutions including ICT equipment, data center thermal management system (MMT), data center	IBM implements ongoing and effective business processes to identify, analyze and exploit emerging business opportunities which can be addressed with IBM's range of expertise and offerings.	There are no significant cost risks, as these costs are embedded in IBM's current operational structure. IBM continues to invest significantly (\$5.4B in 2014) in research activities. A portion of these research dollars were applied to the development

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	as water use budgeting / planning based on predictive rainfall. These capabilities can be leveraged to help with anticipating and preparing for extreme snow and ice events and more effectively utilize resources.						management systems, software solutions, service offerings, and analytics and research capabilities. IBM is uniquely positioned to apply one, some, or all of these capabilities in a synergistic fashion to assist clients in both private and public sectors to respond to challenges of climate change.		of products and solutions intended to respond to and capture opportunities including those discussed above. IBM also continues to be the leader in generating patents on a wide range of innovations across our operations.

CC6.1c

Please describe the 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	<p>Increasingly, clients want to do business with environmentally responsible companies, and this objective generally includes seeking suppliers that are addressing climate change in their operations and providing energy efficient products, services and solutions. Similarly, employees want to work for a company that is a leader in environmental protection. IBM's sustained commitment to environmental leadership and record of achievements enable the company to attract top talent, and lend credence to its energy, climate and environmental offerings. Our own operational results demonstrate IBM as an environmental leader, enable the company to meet client expectations in this area and will continue to serve as a differentiator for IBM.</p>	Increased demand for existing products/services	Up to 1 year	Direct	Very likely	High	An inability to capture these opportunities would result in lost talent, business opportunities and revenue.	IBM's implements ongoing and effective business processes to identify, analyze, and exploit emerging business opportunities which can be addressed with IBM's range of expertise and offerings.	There are no significant cost risks, as these costs are embedded in IBM's current operational structure. In addition, IBM continues to invest significantly (\$5.4 B in 2014) research activities. A portion of these research dollars were applied to the development of products and solutions

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
									intended to respond to and capture opportunities including those discussed above.
Changing consumer behaviour	<p>IBM continues to expand services solutions and extending its deep process optimization and analytics capabilities under its Smarter Planet strategy, offering services, IT and solutions to drive optimized processes and systems in a variety of industries and public sectors. More details can be found at: http://www.ibm.com/smarterplanet/us/en/overview/ideas/index.html?re=spf</p>	Increased demand for existing products/services	Up to 1 year	Direct	Likely	Medium-high	An inability to capture these opportunities would result in lost talent, business opportunities and revenue.	IBM's implements ongoing and effective business processes to identify, analyze, and exploit emerging business opportunities which can be addressed with IBM's range of expertise and	There are no significant cost risks, as these costs are embedded in IBM's current operational structure. In addition, IBM continues to invest significantly (\$5.4 B in 2014) research activities.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								offerings.	A portion of these research dollars were applied to the development of products and solutions intended to respond to and capture opportunities including those discussed above.
Increasing humanitarian demands	IBM has developed analytics capabilities that can assist with prioritizing and targeting aid in response to natural disasters.	Premium price opportunities	1 to 3 years	Direct	More likely than not	Low-medium	An inability to capture these opportunities would result in lost	IBM's ongoing and effective business processes to identify, analyze, and	There are no significant cost risks, as these costs are embedded in IBM's current operation

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							talent, business opportunities and revenue.	exploit emerging business opportunities which can be addressed with IBM's range of expertise and offerings.	al structure. In addition, IBM continues to invest significantly (\$5.4 B in 2014) research activities. A portion of these research dollars were applied to the development of products and solutions intended to respond to and capture opportunities including those discussed

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
									above.

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 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	Sat 01 Jan 2005 - Sat 31 Dec 2005	334000
Scope 2	Sat 01 Jan 2005 - Sat 31 Dec 2005	2210000

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
PFCs	IPCC Second Assessment Report (SAR - 100 year)
SF6	IPCC Second Assessment Report (SAR - 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
Diesel/Gas oil	0.07396	Other: Metric Tonnes CO2 per MMBtu	2015 Climate Registry Default Emission Factors, April 2015

Fuel/Material/Energy	Emission Factor	Unit	Reference
Distillate fuel oil No 2	0.07396	Other: metric Tonnes CO2 per MMBtu	2015 Climate Registry Default Emission Factors, April 2015
Distillate fuel oil No 6	0.0751	Other: metric Tonnes CO2 per MMBtu	2015 Climate Registry Default Emission Factors, April 2015
Kerosene	0.07520	Other: metric Tonnes CO2 per MMBtu	2015 Climate Registry Default Emission Factors, April 2015
Liquefied petroleum gas (LPG)	0.06171	Other: metric Tonnes CO2 per MMBtu	2015 Climate Registry Default Emission Factors, April 2015
Natural gas	0.05306	Other: metric Tonnes CO2 per MMBtu	2015 Climate Registry Default Emission Factors, April 2015

Further Information

IBM has continued to use the Second Assessment emissions factors for PFCs to provide consistent year to year reporting of PFC emissions. IBM is reporting semiconductor emissions to the USEPA under the Greenhouse Gas Mandatory Reporting Rules Subpart I requirements and data reported in 2014 uses the updated emissions factors for 200 mm and 300 mm process conversion, abatement device destruction efficiency, and 4th assessment emissions factors. With the pending divestment of the IBM semiconductor operations, it was decided not to rebaseline the PFC data.

Page: CC8. Emissions Data - (1 Jan 2014 - 31 Dec 2014)

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

556653

CC8.3

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

1882012

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?

No

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 Scope 2 emissions excluded from this source	Explain why the source is excluded

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	Less than or equal to 2%	Data Gaps Extrapolation Other: Published emission factors	About 8% of IBM's property portfolio, representing 2% of electricity use, is referred to as "the unreported space". As the majority of these operations are in triple net leases where utility costs are rolled up with other costs and not broken out and/or space that is shared with other tenants any fuel use is considered to be either the responsibility of the landlord or too small to be of consequence to the overall IBM scope 1 inventory. No attempt is made to estimate fuel use and associated GHG emissions for this space.
Scope 2	Less than or equal to 2%	Data Gaps Extrapolation Other: Published emission factors	To estimate electricity use for locations that did not report into IBM's enterprise level energy management database - Utility Accountant (about 8% of IBM's property portfolio, termed "the unreported space"), an electricity use factor (MWH/square foot) is calculated by country from the reported data. Where reported space is dominated by data center space, data center locations may be appropriately excluded from the country specific factor to establish a more accurate estimate of the MWH per square foot for office space in a given country.

CC8.6

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

Third party verification or assurance complete

CC8.6a

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

Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
Limited assurance	https://www.cdp.net/sites/2015/84/9284/Climate Change 2015/Shared Documents/Attachments/CC8.6a/2014_IBM_Energy_EnMP_EXEC_SUMMARY_Report.pdf	The document has seven pages which detail the energy audit activity. The bill entry verification is detailed on pages 1-4.	ISO14064-3	21
Limited assurance	https://www.cdp.net/sites/2015/84/9284/Climate Change 2015/Shared Documents/Attachments/CC8.6a/IBM Verification Statement for 2014 GHG Emissions .pdf		ISO14064-3	100

CC8.6b

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

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

CC8.7

Please indicate the verification/assurance status that applies to your reported Scope 2 emissions

Third party verification or assurance complete

CC8.7a

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

Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 2 emissions verified (%)
Limited assurance	https://www.cdp.net/sites/2015/84/9284/Climate Change 2015/Shared Documents/Attachments/CC8.7a/2014_IBM_Energy_EnMP_EXEC_SUMMARY_Report.pdf	The document has seven pages which detail the energy audit activity. The bill entry verification is detailed on pages 1-4.	ISO14064-3	21
Limited assurance	https://www.cdp.net/sites/2015/84/9284/Climate Change 2015/Shared Documents/Attachments/CC8.7a/IBM Verification Statement for 2014 GHG Emissions .pdf		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
Other: Additional Limited Assurance	Additional Limited Assurance provided for Global Renewable Energy Purchases and for Avoided CO2 Emissions

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

The Verification Audit for the 2014 IBM GHG Emissions Inventory was completed on June 9, 2015 and final report is expected before end of July 2015. The verification report will be available later in the year at <http://www.ibm.com/ibm/environment/annual/verification.shtml> The 2013 GHG Verification report is attached for reference.

Attachments

[https://www.cdp.net/sites/2015/84/9284/Climate Change 2015/Shared Documents/Attachments/ClimateChange2015/CC8.EmissionsData\(1Jan2014-31Dec2014\)/IBM Verification Statement for 2013 GHG Emissions .pdf](https://www.cdp.net/sites/2015/84/9284/Climate%20Change%202015/Shared%20Documents/Attachments/ClimateChange2015/CC8.EmissionsData(1Jan2014-31Dec2014)/IBM%20Verification%20Statement%20for%202013%20GHG%20Emissions.pdf)

Page: CC9. Scope 1 Emissions Breakdown - (1 Jan 2014 - 31 Dec 2014)

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
Argentina	565
Australia	666
Belgium	217
Brazil	1691
Canada	12644
Chile	86
China	49
Colombia	317
Czech Republic	331
Denmark	778
Ecuador	2
France	736
Germany	10227
Hungary	147
India	988
Ireland	1726
Italy	914
Japan	4845
Mexico	531
Netherlands	1218
New Zealand	39
Peru	77
Poland	68
Portugal	281
Romania	282
Slovakia	431
Spain	1045
Sweden	299
Switzerland	539
Taiwan	46
Thailand	18
United Kingdom	6497

Country/Region	Scope 1 metric tonnes CO2e
United States of America	492580
Uruguay	15745
Venezuela	25

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	226187
HFCs	7283
N2O	23724
Other: Heat Transfer Fluids	83566
PFCs	166372
SF6	49521

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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CC9.2e

Please break down your total gross global Scope 1 emissions by legal structure

Legal structure	Scope 1 emissions (metric tonnes CO2e)
-----------------	--

Further Information

IBM does not disclose or attempt to allocate GHG emissions by business unit, facility, or activity level. Our businesses and mixed use of our facilities make such allocation not meaningful.

Page: CC10. Scope 2 Emissions Breakdown - (1 Jan 2014 - 31 Dec 2014)

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 metric tonnes CO2e	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low carbon electricity, heat, steam or cooling accounted for in CC8.3 (MWh)
Argentina	13035	32833	
Australia	66096	82723	3088
Austria	776	4703	3732
Belgium	6319	29808	16954
Brazil	10252	104616	
Bulgaria	658	1398	

Country/Region	Scope 2 metric tonnes CO2e	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low carbon electricity, heat, steam or cooling accounted for in CC8.3 (MWh)
Canada	27032	322032	
Chile	6201	12839	
China	61252	83450	
Colombia	1967	15991	
Costa Rica	141	2620	
Croatia	66	211	
Czech Republic	3269	7049	
Denmark	18310	68448	49500
Ecuador	160	512	
Egypt	1646	3708	
Estonia	90	99	
Finland	3392	18693	14143
France	7466	213161	
Germany	81073	234355	81446
Greece	1208	1763	
Hong Kong	6599	8706	
Hungary	6167	19939	
India	194807	210375	2389
Indonesia	1260	1557	
Ireland	15743	34448	17325
Israel	29727	38757	
Italy	29401	77826	26429
Japan	105857	208948	250
Kenya	253	1132	
South Korea	11088	20533	
Latvia	11	124	
Lithuania	88	326	
Luxembourg	190	559	
Macau	6	19	
Malaysia	9033	13463	
Mexico	17147	37853	
Morocco	307	441	

Country/Region	Scope 2 metric tonnes CO2e	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low carbon electricity, heat, steam or cooling accounted for in CC8.3 (MWh)
Netherlands	7503	17137	16806
New Zealand	1225	7083	
Pakistan	1269	3036	
Peru	4205	14702	
Philippines	11475	22859	
Poland	18712	25940	
Portugal	12219	36737	
Romania	6707	15772	
Russia	1125	2623	
Singapore	17180	36398	
Slovakia	1118	5762	
Slovenia	568	1715	
South Africa	18244	19960	
Spain	23738	77831	46942
Sri Lanka	178	328	
Sweden	458	41724	36383
Switzerland	1477	52760	22237
Taiwan	12614	21637	
Thailand	2816	5631	
Turkey	10534	22950	
United Arab Emirates	861	1443	
United Kingdom	103485	211194	191580
United States of America	882637	2481666	154090
Uruguay	735	2694	
Venezuela	1194	4505	
Vietnam	224	639	
Rest of world	1414	4201	

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 emissions (metric tonnes CO2e)

CC10.2b

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

Facility	Scope 2 emissions (metric tonnes CO2e)

CC10.2c

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

Activity	Scope 2 emissions (metric tonnes CO2e)
----------	--

CC10.2d

Please break down your total gross global Scope 2 emissions by legal structure

Legal structure	Scope 2 emissions (metric tonnes CO2e)
-----------------	--

Further Information

IBM does not disclose or attempt to allocate GHG emissions by business unit, facility, or activity level. Our businesses and mixed use of our facilities make such allocation not meaningful.

Page: CC11. Energy

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 fuel, electricity, heat, steam, and cooling in MWh your organization has purchased and consumed during the reporting year

Energy type	MWh
-------------	-----

Energy type	MWh
Fuel	1118089
Electricity	4828825
Heat	54718
Steam	1399
Cooling	170001

CC11.3

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

Fuels	MWh
Distillate fuel oil No 2	53203
Distillate fuel oil No 6	70589
Natural gas	910026
Diesel/Gas oil	17362
Liquefied petroleum gas (LPG)	787
Kerosene	42840
Motor gasoline	23282

CC11.4

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

Basis for applying a low carbon emission factor	MWh associated with low carbon electricity, heat, steam or cooling	Comment
Tracking instruments, Guarantees of Origin	191580	Levy exemption certificates for renewable energy purchased in the United Kingdom (UK). Number of Certificates equals the number of MWh purchased. Per the UK energy provider, these certificates represent 100% biomass generated power. The CO2 emissions avoidance associated with these purchases is estimated at 93,874 MT of CO2.
Tracking instruments, Guarantees of Origin	331897	IBM has entered into contractual agreements to source electricity generated from renewable energy sources in Austria, Belgium, Denmark, Finland, Germany, Italy, Netherlands, Spain, Sweden and Switzerland. These purchases represent 60% hydro generated power, 10% biomass generated power, 26% wind power and 4% solar power. The CO2 emissions avoidance associated with these purchases is estimated at 98,394 MT of CO2.
Supplier specific, backed by instruments	5727	IBM has entered into contractual agreements to source electricity generated from renewable sources in Australia, India and Japan. These purchases represent 84% wind generated power 11% biomass generated power, 5% solar power and 84% wind power. The CO2 emissions avoidance associated with these purchases is estimated at 4817 MT of CO2
Tracking instruments, RECS (USA)	1337	IBM has entered into contractual agreement to source electricity generated from renewable sources at two locations in the United States. These purchases represent 45% wind generated power, 31% hydro power, and 24% biomass generated power . The CO2 emissions avoidance associated with these purchases is estimated at 371 MT of CO2
Supplier specific, backed by instruments	152753	IBM has entered into contractual agreement to source electricity generated from renewable sources at six locations in the United States. These purchases represent 65% hydro generated power, 2% biomass power, 4% solar power and 29% wind generated power . The CO2 emissions avoidance associated with these purchases is estimated at 52,888 MT of CO2.

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	Comment
Emissions reduction activities	6.3	Decrease	Energy Conservation and efficiency savings detailed in 3.3(a) and (b). IBM conserved or avoided 325,500 MWH of electricity consumption and 267,200 MMBTU of fuel consumption yielding a net avoidance of 142,000 Metric Tons of CO2/year
Divestment	.3	Decrease	Divestiture of System x server design and testing operations. Represents 3 months of consumption.
Acquisitions	3	Increase	Addition of energy consumption for SoftLayer operations where SoftLayer runs the IT and the facilities infrastructure.
Mergers	0	No change	
Change in output	3.4	Increase	Increased energy consumption and CO2 emissions from growth in various business unit operations across IBM.
Change in methodology	0	No change	
Change in boundary	0	No change	
Change in physical operating conditions	0		
Unidentified	0	No change	
Other	3.4	Decrease	Increase in renewable electricity purchases and a decrease in the average Metric Tons/MWH emissions factor for the electricity purchased by IBM.

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	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change
.00002341	metric tonnes CO2e	unit total revenue	1.5	Increase	The change was driven by a 6% decrease in revenue and a 3.6% decrease in total CO2e emissions for IBM's operations from 2013 to 2014. The correct 2013 intensity is .00002307 MT CO2/\$ revenue. IBM uses absolute metrics as opposed to intensity metrics (whether based on activity, production, financials, etc.) to measure its CO2 emissions reduction. IBM has diverse business activities and no one single indexed metric appropriately characterizes our programs and progress. (1) IBM has many facilities which support more than one operation including but not limited to software labs, consulting services, data center operations, data center services, hardware design, hardware manufacturing and semiconductor manufacturing. There is no effective methodology to disaggregate operations or to allocate the overhead energy use associated with centralized activities. (2) IBM's operations are not able to be divided into neatly differentiated "unit operations" for which an activity related metric would make sense. (3) The majority of IBM activities are based on knowledge transfer including but not limited to research, software labs, consulting services, hardware design, and data center services. For these operations, an activity related intensity is merely a measure of the efficiency of the office space and the number of people who work at home or are mobile. The true measure of worth is the energy efficiency offered through the services and products offered by IBM. (4) For IT hardware manufacturing and assembly, even for semiconductor manufacturing, various parts of component manufacturing and assembly are subcontracted. Individual facilities make a multitude of products for a multitude of customers. An activity related metric provides no insight into the efficiency or attributes of the manufacturing processes. We do not believe an increase or decrease in an intensity metrics provide a meaningful correlation between IBM's emissions and activities given the diversity of our business and where / how our businesses are conducted. This notwithstanding, IBM is committed to climate protection, supported by goals and programs and demonstrated by results.

CC12.3

Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per full time equivalent (FTE) employee

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change
5.72	metric tonnes CO2e	FTE employee	8.7	Increase	A review of the data indicated that the MT CO2e per FTE increased in 2014 due to a 3.6% decrease in CO2e emissions and a 11.9% decrease in FTEs. The correct 2013 value of the metric is 5.263 MT CO2/FTE. IBM uses absolute metrics as opposed to intensity metrics (whether based on activity, production, financials, etc.) to measure its CO2 emissions reduction. IBM has diverse business activities and no one single indexed metric appropriately characterizes our programs and progress. (1) IBM has many facilities which support more than one operation including but not limited to software labs, consulting services, data center operations, data center services, hardware design, hardware manufacturing and semiconductor manufacturing. There is no effective methodology to disaggregate operations or to allocate the overhead energy use associated with centralized activities. (2) IBM's operations are not able to be divided into neatly differentiated "unit operations" for which an activity related metric would make sense. (3) The majority of IBM activities are based on knowledge transfer including but not limited to research, software labs, consulting services, hardware design, and data center services. For these operations, an activity related intensity is merely a measure of the efficiency of the office space and the number of people who work at home or are mobile. The true measure of worth is the energy efficiency offered through the services and products offered by IBM. (4) For IT hardware manufacturing and assembly, even for semiconductor manufacturing, various parts of component manufacturing and assembly are subcontracted. Individual facilities make a multitude of products for a multitude of customers. An activity related metric provides no insight into the efficiency or attributes of the manufacturing processes. We do not believe an increase or decrease in an intensity metrics provide a meaningful correlation between IBM's emissions and activities given the diversity of our business and where / how our businesses are conducted. This notwithstanding, IBM is committed to climate protection, supported by goals and programs and demonstrated by results.

CC12.4

Please provide an additional intensity (normalized) metric that is appropriate to your business operations

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change
	metric tonnes CO2e				

Further Information

Page: CC13. Emissions Trading

CC13.1

Do you participate in any emissions trading schemes?

Yes

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 CO2e	Details of ownership
European Union ETS	Tue 01 Jan 2008 - Wed 31 Dec 2014	11621		1006	Facilities we own and operate

CC13.1b

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

The EU ETS has had minimal impact on the operating costs at the 4 covered facilities in the United Kingdom. Because fuel usage is a small part of the operating expense of these facilities and the emissions from these facilities are an insignificant part of the overall national CO2 emissions for the UK and Ireland, management of the EU ETS allocation has not had a material impact on facility operating costs. These facilities are also engaged in implementing energy conservation projects to meet IBM's energy conservation commitment. The expectation is that these conservation projects would drive reductions in fuel use and emissions at affected facilities.

CC13.2

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

No

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 of CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits cancelled	Purpose, e.g. compliance
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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, not yet calculated	0	<p>The scope 3 emissions associated with our supply chain are the scope 1 & 2 emissions of our suppliers who are in a position to responsibly manage & reduce these emissions. To encourage/require action by our suppliers to inventory & reduce their scope 1 & 2 emissions, IBM established & communicated a new requirement in February of 2010, and reinforced the requirements in November 2014, that Tier 1 suppliers globally establish an environmental management system (EMS) to identify their key environmental intersections. IBM also requires suppliers to measure performance & set voluntary goals in, at a minimum, the following areas: energy conservation, Scope 1 and Scope 2 GHG emissions, waste management & recycling. IBM requires its suppliers to publicly disclose their environmental programs and performance and to cascade these requirements to their suppliers. IBM has continued to work with its suppliers globally to help them build their capabilities to comply with IBM's Supply Chain Social and Environmental Management System and other requirements and effectively manage the environmental impacts from their own operations. The IBM procurement team has provided training</p>	0.00%	<p>IBM does not intend to attempt to calculate a GHG inventory for reasons discussed below. Instead our approach is to require our suppliers to create an Environmental Management System, inventory energy use and GHG emissions, and establish reduction plans to achieve actual reductions in emission. The program is explained in the 'Methodology' section and we ask you to take time to read that section as it is an integral part of our response to our actions to address scope 3 emissions. Gross approximations of Scope 3 GHGs can help one recognize where the greatest amounts of GHGs may occur during the lifecycle of a general product or service on a macro level. This can be helpful when assessing what phases of a general product's evolution, use and disposal are ripe for improvement to achieve greater energy efficiency and innovation. However, IBM does not assert on a micro level what the scope 3 GHG emissions are from the operations of its suppliers and external distribution partners for their work that is specific to IBM. The necessary estimating assumptions and corresponding variability simply do not allow</p>

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
			<p>and reviewed supplier performance, including their disclosure of energy use and GHG emissions. (1) IBM made available a podcast and provided many external sources of information to all suppliers to explain the EMS requirements, assist them in preparing energy and GHG emissions inventories, and the basic steps needed to conform to the requirements. (2) To-date, our ongoing review found suppliers corresponding to the majority of IBM's procurement spend have such a management system in place. (3) IBM uses the EICC environmental reporting initiative or a suppliers' own websites to review suppliers' practice on disclosing energy use and GHG emissions. IBM's supplier EMS program rest on our foundational belief that real results in GHG emissions reduction are enabled by actionable information about a company's energy use and GHG emissions & that suppliers are best positioned to assess their own performance and take actions that lead to real GHG reductions as opposed to merely accounting & reporting someone else's emissions.</p>		<p>for adequate credibility, let alone calculations that could be perceived as deterministic. Like many manufacturers, IBM has thousands of suppliers around the world. They are in all types of businesses and very few, if any, work solely for IBM. Furthermore, the sources of energy used by these suppliers varies, and IBM does not believe it could determine a credible estimate or apportionment of the energy used by these suppliers that would be associated with the products or services provided to IBM versus that associated with products or services provided to their other customers. In addition, IBM's specific scope of business with any given supplier remains dynamic as it is driven by business need. Finally, one company's asserted scope 3 emissions are another company's scope 1 and scope 2 emissions, and we are biased toward taking action to reduce actual emissions than merely accounting.</p>
Capital goods	Relevant, not yet calculated	0	No calculation was performed.	0.00%	IBM has no plans to attempt to estimate embedded emissions associated with its purchase of capital goods. There is no rational basis on which to estimate or report the embedded emissions of our purchased capital equipment. This item would require gross

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
					assumptions to estimate of product level embedded GHG estimates for building materials, semiconductor manufacturing equipment, IT equipment assembly equipment etc. This data is not available in any form that has any validity or basis in reality.
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Not relevant, calculated	15457	Lease Vehicle Emission Calculation: - All IBM car fleet data related to composition, term & mileage, fuel & fuel consumption are collected locally through Fleet Reporting, a tracking system used by IBM. Only vehicles with more than 1 active day in the reporting period have been included. In case a car has been renewed during the period both active days of the former car and the new car have been taken into account (pro rata); - Data validation took place and only company cars, Light Commercial Vehicles, vans, pick-ups and trucks are included. Excluded are: travel cards, rental cars and trailers; - Mistypes and missing data (e.g. fuel consumption in l/km) have been evaluated, corrected or deleted where relevant; - All mileage data are converted into kilometers, all fuel consumption data in l/100km and CO2 in grams or tons; - After validation all data was imported into EcoCalculator, a tool which calculates the related CO2 emission per vehicle in g/km and in tons per annum; - The CO2 emissions provide both CO2 figures based on OEM values for fuel consumption and budgeted	100.00%	In some countries, certain IBM employees are provided vehicles through a lease program. These vehicles may be used for business purposes as well as for personal use. IBM continues its effort to move to more fuel-efficient lease vehicles by setting guidelines for smaller engines with lower emissions for vehicles that are offered to employees under this program. These guidelines provide the framework for selecting lower emitting vehicles which reduces average car emission levels as employees renew their lease. The CO2 emissions reported include emissions from vehicles used in conducting business as well as personal use by employees.

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
			<p>mileage as well as actual CO2 figures based on actual mileage and fuel consumption; - The calculation of the CO2 emission is based on the density figures of the various fuel types. The density figures used are standard: Diesel 2645 (each liter of diesel produces 2.65 kg CO2); Petrol 2272(each liter of petrol produces 2.27 kg CO2); LPG 1612 (each liter of LPG produces 1,661 kg CO2); and E85 1459 (each liter of E85 produces 1.46 kg CO2).</p>		
Upstream transportation and distribution	Relevant, not yet calculated	0	No calculation was performed.	0.00%	<p>IBM's upstream suppliers manage their own logistics / shipping operations. There are a large numbers of suppliers and locations from which parts and components are sourced. Motivated by our desire to reduce emissions associated with transport of good, beyond an accounting exercise, IBM focuses on, through its Worldwide Packaging Engineering organization working with our suppliers to reduce packaging volume and weight to make shipping more efficient. It is appropriate that our suppliers managed transportation and packaging of components and parts to IBM as they are doing the same for multiple customers. We provide assistance in the packaging area where we can bring our expertise to bear to help our suppliers improve their packaging, reducing the use of materials and fuel and reducing costs. Please see the</p>

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
					discussion under “Purchased Goods and Services” and the “Protective Product packaging” sections of the IBM Environmental Report for further explanation of our methodology and position.
Waste generated in operations	Relevant, not yet calculated	0	No calculation was performed.	0.00%	IBM does not intend to estimate GHG emissions associated with waste disposal because there is no rational basis for credible assumptions, let alone generating an estimate. IBM has and publishes goals for hazardous waste reduction and recycling of non-hazardous wastes generated in its operations. IBM focuses its efforts on making its operations more efficient to reduce waste generation and increase recycling. These efforts deliver demonstrable emissions reductions. Please see the discussion under “Pollution Prevention” section of the IBM Environmental Report for further discussion.
Business travel	Relevant, calculated	444459	CO2 emissions calculation is based on European standards as outlined in UNECE/EMEP Emission Inventory Guidebook (SNAP/CORINAIR) Air traffic as a source of combustion emissions depends on a number of variables: • Type of aircraft • Type of engines and fuel used • Emission characteristics of aircraft / engines (emissions per unit of fuel used depending on engine load) • Location (altitude of operation) • Traffic volume (number of flights and distance	100.00%	IBM airline travel.

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
			<p>traveled) Standard tables per type of aircraft (total 256 types); these are clustered into 32 representative types (engine variance is not taken into consideration) Fuel burn tables in relation to distance flown are used: Distance (nm) 0 > 499, 500 > 999, 1000 > 1499, 1500 > 1999, 2000 > 2499, 2500 > 2999, 3000 > 3499, 3500 > 3999, 4000 > 4499, 4500 > 4999, 5000 > 5499, 5500 > 5999, 6000 > 6500 Fuel burn (KG) is per aircraft and total is a combination of: LTO: Taxi, Take out, Take off, Climb out and CCD (climb, cruise, descent): Approach, Landing, Taxi in.</p> <p>Methodology used for airline combustion tables:</p> <ol style="list-style-type: none"> 1. Total amount of fuel used (in ktonnes) 2. Total number of LTO activities per aircraft (for each aircraft type fuel use factor is used) 3. Total number of CCD (subtracting total amount of fuel for LTO from total amount of fuel used) 4. Calculating emissions from LTO activities per aircraft type (number of LTO's for each aircraft type is multiplied by the emission factor related to the particular aircraft type and pollutant) 5. Calculating emissions from CCD activities using the corresponding emission factor for the most common aircraft types used. 6. Calculating total emissions for LTO and CCD activities <p>CO2 calculation: CO2 emissions / fuel burn ratio = 3.15kg CO2/ kg fuel. Emissions are allocated per seat. In general airlines express energy efficiency with standard cabin configuration for each of its</p>		

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
			aircraft types. Overall average (western hemisphere legacy airlines) is: 2.6 kg per standard passenger (pax + luggage) per 100 kilometers transported.		
Employee commuting	Relevant, calculated	141254	IBM estimates its CO2 emissions from employee commuters in the United States. This estimate was made using the WRI Combustion Calculator Tool, version 2.3 and the following assumptions: traditional employees commuted 235 days a year; mobile employees commuted 141 days a year; and home office employees commuted 47 days a year; with an average roundtrip of 25.4 miles using total vehicle distance traveled in miles; vehicle type (passenger car - gasoline - Year 2005 to present; CO2 emission factor of 0.392 MT CO2/1000 miles.	0.00%	Estimates of IBM commuter travel in the United States.
Upstream leased assets	Not relevant, explanation provided	0	Not relevant	0.00%	IBM does not have a significant inventory of upstream leased assets.
Downstream transportation and distribution	Relevant, not yet calculated	0	No calculation was performed.	0.00%	Logistics and shipping activities directly supporting IBM's operations are managed by a 4PL (4th party logistics) provider. Over the last several years, IBM has worked with its 4th PL provider in a focused effort to review actual logistics information related to movement of our products. The finding of this effort indicated that data sources are too widely dispersed to be manageable, before one can even assess the feasibility for establishing

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
					<p>credible assumptions and boundaries required to generate an estimate of CO2 emissions associated with logistics activities. IBM does not presently have plans to try to determine the mileage, weight and GHG emissions associated with the transport of parts and components between suppliers and IBM's manufacturing and assembly locations. Once again motivated by achieving real GHG reductions as opposed to merely accounting, we continue to execute programs and actions in that regard. 100% of IBM's spend for shipping goods within the U.S. and from the U.S. to Canada and Mexico, involved the use of a SmartWay logistics provider since 2009. IBM also voluntarily applies specific SmartWay requirements to its distribution operations globally. IBM has a packaging engineering organization which designs and/or improve the efficiencies of packaging for IBM products and packaging used to move components to IBM product assembly locations. These engineering efforts have reduced packaging volume and weight to make shipping more efficient by increasing shipping density. Efficient packaging also results from collaboration with the product design teams to increase product ruggedness and through the use of lighter, more environmentally preferable packaging materials. All these results</p>

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
					effectively reduce the CO2 emissions associated with product shipment, in addition to the direct reductions in packaging materials. The IBM Worldwide Packaging Engineering organization boasts a decades-long record of continually improving packaging solutions to reduce shipping weight and packaging volume and sharing our knowledge with our supplier network. Descriptions of these projects can be found in the IBM Environmental report in the "Protective Product Packaging" section.
Processing of sold products	Relevant, not yet calculated	0	No calculation was performed.	0.00%	IBM does not attempt to calculate the emissions associated with further processing of its semiconductor products. IBM's semiconductors and semiconductor packages are used in a wide array of consumer and enterprise products manufactured by a plethora of suppliers. There is no effective or meaningful way to assess subsequent emissions associated with manufacturing the final product nor is there value in doing so.
Use of sold products	Relevant, calculated	1100000	Reporting Annual Estimated Emissions Associated with Products SOLD in 2014: IMPORTANT: The reported number only estimates the annual quantity of power used by products sold by IBM in 2014 and only reflect the stated assumptions. It does NOT include emissions of the entirety of our product installed base. The total estimated emissions are Metric	100.00%	IBM does not believe there is meaningful value to estimating and reporting downstream emissions associated with product use. Installed base quantity, configuration differences, customer use patterns, differences in applications, and the very different electricity CO2 emissions factor depending on where the electricity is sourced from make any

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
			<p>Tons of CO2. Assumptions: 1. Scope: server and storage systems sold by IBM in 2014. 2. Maximum name plate power requirement: an average maximum name plate power use is assigned to each machine type. Each machine type has many models with different configurations and maximum power use. The average maximum power use for a given machine type is determined based on our experience in assigning this number. 3. Actual power use estimate: The assigned maximum power is discounted when estimating actual operating power of equipment in the data center. This takes into account that actual operating power will be less than the maximum name plate power and that systems do not operate in a fully loaded mode at all times. 4. Cooling requirements: a. It is assumed that for every watt of power required to run a server or storage system, 0.5 watts of power is required for cooling. 5. Operating requirements: Servers and storage systems run 24 hours per day, 7 days per week, 365 days per year. 6. The GHG emissions factor for electricity is .43 Metric Tons CO2 per MWh. Equations for estimating GHG emissions from Servers and Storage: Estimated annual CO2 emissions during use phase of servers and storage systems sold in 2014: multiply the following: Number of Units sold in 2014; 0.43 MT CO2/MWh consumed; Discount factor; assigned average maximum name plate</p>		<p>calculation highly uncertain at best. As such this information is not deterministic and cannot be used to support important decisions such as performance comparison among products or organizations. Environmental impacts, including energy requirements during the use phase of a product should be evaluated in the design process. Careful evaluation of the use conditions and the power or fuel use will allow the designers to determine which hardware components and functions offer opportunities and should be prioritized for improvements in energy efficiency. Moreover, one company's asserted scope 3 emissions are another company's scope 1 and scope 2 emissions. Since the ultimate goal for climate protection is for global societies to achieve demonstrable reductions in actual GHG emissions, we believe real results in GHG emissions reduction are directly achieved when each enterprise takes responsibility to address its own emissions and improve its energy efficiency.</p>

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
			power; Hours of operation in 2014, Power Use Effectiveness factor of 1.5.		
End of life treatment of sold products	Relevant, not yet calculated	0	No calculation was performed.		<p>IBM does not attempt to estimate GHG emissions associated with disposal of its products at end of life. There is no accepted standard or practice for how to determine when a product (in particular non consumer products) will reach end of life or the ways it will be reused and recycled. There are too many variables and too much uncertainty in establishing assumptions and the analysis to generate credible scope 3 data associated with product disposal. IBM focuses its resources on its product design activities to make systems upgradeable and easy for of disassembly, to allow components to be reused or recycled at end of life, to minimize energy use over the life of the product, and to enable product end of life recycling. In 2014, IBM's Product End-of-Life Management (PELM) operations worldwide processed over 32,000 metric tons of end-of-life products and product waste. This represents 76 percent of the estimated 42,000 metric tons of new IBM IT equipment manufactured and sold in 2014. IBM's PELM operations reused or recycled approximately 96.6 percent of the total amount of product and product waste they processed and only 0.5% of the total processed material</p>

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
					went to land fill. The remainder was incinerated for energy recovery.
Downstream leased assets	Not relevant, explanation provided				IBM does lease equipment to clients. These emissions are included in the use of sold products.
Franchises	Not relevant, explanation provided				IBM does not operate franchises.
Investments	Not relevant, explanation provided				IBM's scope 3 emissions result from supplier activities and purchases to support its direct operations. IBM does not make significant investment outside of its own operations.
Other (upstream)	Not relevant, explanation provided				There are no other upstream scope 3 emissions categories associated with IBM operations.
Other (downstream)	Not relevant, explanation provided				There are no other downstream scope 3 emissions categories associated with IBM operations.

CC14.2

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

Third party verification or assurance complete

CC14.2a

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

Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of Scope 3 emissions verified (%)
Limited assurance	https://www.cdp.net/sites/2015/84/9284/Climate Change 2015/Shared Documents/Attachments/CC14.2a/IBM Verification Statement for 2014 GHG Emissions .pdf		ISO14064-3	100

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
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Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Fuel- and energy-related activities (not included in Scopes 1 or 2)	Emissions reduction activities	35	Decrease	IBM continues to work with its auto leasing supplier to offer more fuel efficient vehicles. Use of more fuel efficient vehicles reduces the emissions. In addition, there was a 35% reduction in the number of lease vehicles from 2013 to 2014. That said, we believe in general, comparing year to year emissions for the leased vehicle fleet has almost no value, due to the high level of uncertainty in the emissions estimate created by the extensive assumptions that have to be made regarding the percentage of personal use and the average emissions associated with a given vehicle.
Business travel	Other: Reduction in business travel mileage	6	Decrease	There was a 6% reduction in business travel mileage from 2013 to 2014. That said, we believe in general, comparing year to year emissions for business travel has almost no value due to the high level of uncertainty in the emissions estimate created by extensive assumptions that have to be made in determining business travel emissions.
Employee commuting	Emissions reduction activities	7	Decrease	IBM continues to enable employees to regularly work at home, reducing the amount of employee commuting. There was an estimated 7% reduction in employee commuting miles from 2013 to 2014. That said, we believe in general, comparing year to year emissions for commuting activities has almost no value, due to the high level of uncertainty in the emissions estimate created by the extensive assumptions that have to be made regarding number of employees commuting, the average commute and the average emissions associated with an average vehicle.
Use of sold products	Change in output	31	Decrease	IBM had reduced product shipments in 2014 as compared to 2013. That said, we believe in general, comparing year to year emissions for our use of sold products has almost no value, due to the high level of uncertainty in the emissions estimate created by the extensive assumptions that have to be made regarding energy use of the IT equipment, the operating conditions, the PUE of the data centers, and the electricity emissions factor at the data centers where the equipment is housed.

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

CC14.4a

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

The IBM Integrated Supply Chain (ISC) Organization maintains a Social & Environmental Management System (S&EMS) which evaluates and addresses ISC's intersections between the environment and supply chain management. Its execution is led by technical leaders responsible for specific areas including environmental regulatory compliance of procured hardware products; fulfilment; logistics; packaging; supply chain social responsibility; and environmental management. These leaders interact with 30 procurement commodity councils to implement, sustain and continually improve the S&EMS across ISC globally. During 2014, we continued our focus on working with IBM's supply chain to foster greater energy efficiency and climate protection. IBM is committed to doing business with environmentally responsible suppliers. We require that all of our first tier suppliers—those firms with which we hold a direct commercial relationship—to establish and sustain a management system to address their social and environmental responsibilities—including their use of energy and scope 1 and scope 2 GHG emissions. They are also required to measure their performance, establish voluntary, quantifiable goals in this area, publicly disclose their performance against those goals, and cascade these requirements on to their suppliers who perform work that is material to the products, parts and/or services being supplied to IBM. Through the Electronic Industry Citizenship Coalition (EICC) Environmental Reporting system, IBM and other participating companies are gathering information to gain an understanding on how suppliers are addressing climate change and working to reduce GHG emissions. IBM has continued to work with its suppliers to help them build their capabilities through compliance to IBM's Supply Chain Social and Environmental Management System and other requirements for IBM's suppliers. The IBM procurement team has provided training and conducted assessments to evaluate supplier performance, and disclosure. 1. IBM made available a podcast on management system and provided many external sources of information to all suppliers to explain the EMS requirements, assist them in preparing energy and GHG emissions inventories, and the basic steps needed to conform to the requirements. 2. IBM executes an ongoing assessment program of suppliers prioritized by spend and type of product or service provided to IBM. The measure of success is that the supplier has a publically reported energy use and GHG inventory and reduction plan. 3. IBM uses the EICC environmental reporting systems or suppliers' own websites to review suppliers' practice on disclosing energy use and GHG emissions. Client engagement: IBM supplies to a broad range of environmental surveys which include climate change topics. IBM also works extensively with its clients (private and public alike) to assist them in making their operations and systems more efficient as measured by energy efficiency, avoidance of carbon emissions, and reduced material use. We measure success based on the conformance of our suppliers with our requirements and the satisfaction of our clients.

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

Number of suppliers	% of total spend	Comment
27000	100%	IBM communicated its Supply Chain Social and Environmental Management System (S&EMS) requirements to all of its suppliers globally. IBM has continued to work with its suppliers to help them build their capabilities to meet IBM's S&EMS and other environmental requirements, setting priority with those suppliers that ask for assistance, those with whom IBM has highest spend, and those whose operations have a greater intersection with the environment. The IBM procurement team has provided training and reviewed supplier

Number of suppliers	% of total spend	Comment
		<p>performance, including validating that suppliers are disclosing their energy use and GHG emissions. 1.IBM made available a podcast on management system and provided many external sources of information to all suppliers to explain the EMS requirements, assist them in preparing energy and GHG emissions inventories, and the basic steps needed to conform to the requirements. 2.To-date, our review found suppliers corresponding to the majority of IBM's procurement spend have such a management system in place. Where suppliers are not meeting all of the requirements, we work with them as appropriate to bring their programs up to IBM's requirements. 3.IBM uses the EICC environmental reporting systems or suppliers' own websites to review suppliers' practice on disclosing energy use and GHG emissions. IBM's supplier EMS program rests on the foundational belief that real results in GHG emissions reduction are enabled by credible and actionable information about a company's energy use and GHG emissions and that individual companies must be accountable for their own operations and are best positioned to assess, implement and sustain real GHG reductions. Each enterprise must take responsibility to reduce energy use and GHG emissions.</p>

CC14.4c

If you have data on your suppliers' GHG emissions and climate change strategies, please explain how you make use of that data

How you make use of the data	Please give details
Other	<p>IBM assesses suppliers' energy use and GHG emissions and their associated reduction plans through the EICC environmental reporting process, public CDP disclosures, reviews of supplier websites, supplier audits, and direct discussions with the supplier to validate that suppliers have established an S&EMS and taken the requisite actions required of IBM suppliers. Reviews are prioritized based on spend with the suppliers and the nature of the products or services provided to IBM. Having a management system for managing their environmental intersections and meeting the accompanying requirements (e.g., monitoring performance, setting goals, disclosing results and performance) that IBM communicated to suppliers are a condition of doing business with IBM. We do not rank our suppliers using these requirements but rather they are a binary criterion (Y or N) in our supplier selection process. In addition, IBM reviews suppliers' data to assess their capabilities in understanding and managing their environmental intersections and to ascertain whether our suppliers are making continual improvement in their environmental performance. Finally IBM neither aggregates nor allocates suppliers' GHG emissions data for developing a scope 3 emissions number for IBM because we believe the resulting number is neither credible nor meaningful. IBM does expect suppliers to take action to reduce their energy use and GHG emissions because we believe each enterprise must be accountable for their activities and that achieving energy and GHG reductions will improve the supplier's bottom line and reap environmental benefits.</p>

CC14.4d

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

IBM environmental requirements for suppliers can be found at: <http://www-03.ibm.com/procurement/proweb.nsf/ContentDocsByTitle/United+States~Letter+from+IBM+Chief+Procurement+Officer+to+suppliers+on+supply+chain+and+environmental+responsibilities?OpenDocument&Parent=Global+Procurement>

Module: Sign Off

Page: CC15. 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
Edan Dionne	Director, Corporate Environmental Affairs	Environment/Sustainability manager

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"

IBM operates data centers (DCs) inclusive of a range of cloud and non-cloud infrastructure that support IT applications and solutions for its own operations, including support for product (software and systems) development and testing, as well as operations of its clients. These operations are supported by public and private clouds and dedicated data centers. IBM operates a large data center fleet that consists of several hundred locations in countries around the globe in facilities that IBM operates as well as third party facilities where IBM only operates the IT equipment and the third party operates the facilities infrastructure. IBM also operates data centers on behalf of its clients in client facilities. Data in this report is specific to the data centers where IBM operates both the IT equipment and facilities infrastructure. The hundreds of data centers that IBM operates range in vintage. Recently constructed IBM data centers in the U.S. (Raleigh NC and Boulder CO), New Zealand (Auckland), and Canada use the latest energy efficiency innovations for DC operations. They include the IBM Measurement and Management Technology (MMT) to provide real time thermal monitoring and management in DCs, free cooling, variable speed fans, high efficiency chiller systems, and intelligent building control systems. IBM also works toward achieving significant efficiency improvements in its existing DCs. IBM has installed MMT at the majority of its strategic DCs supporting all aspects of its business. This innovative system from IBM Research produces a real-time, detailed, three dimensional thermal map of the heat sources and sinks within a DC, allowing for accurate identification and mitigation of DC hot spots and increased DC operating temperatures, with attendant reductions in cooling requirements and GHG emissions. In 2014, we completed over 290 projects at 120 existing DC locations that reduced energy use by over 28,000 MWh, and saved more than \$3.6 million. From 2010 to 2014, IBM has shut down nearly 33% of the total number of computer room air conditioning (CRAC) units and raised the average DC raised floor temperature 2.0oC in the DCs with MMT deployed. IBM continues to aggressively utilize virtualization technologies to consolidate workloads from servers and storage systems with low utilization onto single systems. We have virtualized tens of thousands of applications and reduced energy use and cost by more than 135,000 megawatt-hour (MWh) and \$13 million, respectively, in 2014. As of the end of 2014, IBM has 45 data centers in 19 countries, representing 70% of IBM's EU DC space, registered to the EU Data Center Code of Conduct. IBM has the largest portfolio of registered DCs from a single company under this program. The EU Data Center Code of Conduct is a voluntary initiative that aims to promote energy efficiency performance standards for DCs. IBM maintains energy efficiency leadership in DCs by deploying uniform practices across its global data center portfolio. IBM continues to expand its cloud computing offerings. SoftLayer®, an IBM company, now operates 24 data center locations in 18 cities worldwide, and IBM's Cloud Managed Services operates from 13 data centers in 12 countries. Cloud computing is an efficient model for providing IT services, representing a computing services model that optimizes the use of virtualization technologies. It allows us to further improve utilization of IT equipment assets, better balance workloads, adjust power consumption and virtualize infrastructure in data centers to align processing and storage needs with power consumption. In response to ICT1.2: IBM does not provide energy use or GHG emissions information for individual locations or specific business units, activities, or operations. IBM will complete all of the questions in ICT1 with the exception of ICT1.2. We consider our data center electricity consumption and GHG emissions to be business confidential. IBM operations are widely interconnected, with many locations supporting multiple business units and diverse business activities, making allocating energy consumption or GHG emissions by location or activity less than meaningful.

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
Data centers				

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
80%	IBM has had an ongoing corporate wide effort to measure power usage effectiveness (PUE) at the data centers it operates. Presently approximately 80% of IBM data center space is collecting PUE data. Some data center space, particularly older data centers, does not have the necessary metering to provide a precise PUE estimate. The PUE at these facilities are indicative of the data center performance and useful in assessing performance improvements but are not suitable for use in reporting and are not used in the calculation of the average corporate PUE reported in ICT1.4.

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)

Average
Range

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
60	1.71	1.2	Decrease	IBM does not report on the number of data centers it operates around the globe. The average PUE value was generated from data centers that report PUE and is representative of the average PUE of IBM's global data center inventory. The 60 data centers represent approximately 70% of our services data center space. As discussed below, IBM has been aggressively executing data center energy efficiency projects in its data centers over the past 5 years. IBM's average PUE has decreased year to year. The overall performance of these data centers is equivalent to the average PUE of 1.7 as reported in the Uptime Institute 2014 Data Center Industry Survey of 1,000 Data center users, and performs favourably against the average PUE of 2.0 as reported by a Forrester Consulting Survey commissioned by Digital Realty Trust in its survey of 300 IT decision makers reported in February of 2014.

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
60	1.42	1.4	3.2	36	Decrease	IBM does not report on the number of data centers it owns and operates around the globe. The range of PUE values was generated from 60 data centers that report PUE and is representative of the PUE range of IBM's global data center inventory. As discussed below, IBM has maintained a focused and aggressive effort in implementing data center energy efficiency projects in its data centers over the past 5 years. The minimum PUE value decreased slightly. The maximum PUE value increased and is the result of a data center going through a transition of moving, consolidating and removing equipment due to customer activity.

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
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ICT1.5

Please provide details of how you have calculated your PUE value

Green Grid, or Total Facility Power divided by IT Equipment Power

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	Server Virtualization	These numbers include server consolidation activities. IBM is utilizing virtualization technologies to consolidate workloads from servers and storage systems with low utilization onto single systems, reducing annual energy use and cost by more than 135,000 MWh and \$14 million in 2014. IBM continued to virtualize tens of thousands of applications in our data centers in 2014, as well as in data centers where we operate the IT equipment for clients in their own space.

Status in reporting year	Energy efficiency measure	Comment
Implemented	Cooling Efficiencies	In 2014, we completed 290 projects at 120 existing data center locations that reduced energy use by over 28,000 MWh, and saved more than \$3.6 million. These projects included blocking cable and rack openings; rebalancing air flow; shutting down, upgrading and reprovisioning air flow from computer room air conditioning (CRAC) units, and increasing the chilled water temperature used to cool the data center floor. The IBM Management and Measurement Technology (MMT) thermal management system has been installed at IBM's data centers covering over 60% of our global raised floor energy consumption. This innovative technology from IBM Research produces a real-time, detailed, three-dimensional thermal map of the heat sources and sinks within a data center which provide the information needed to take the following actions over the past four years: closing floor opening and reducing the short circuiting of cooling air, shutting down approximately 33% of CRAC units; improving CRAC utilization; and increasing average raised floor temperature by 2oC with work continuing to further raise DC temperatures. MMT offers the additional benefit of rebalancing a data center's thermal profile as equipment is removed or installed, enabling the early identification of developing problems to pro-actively mitigate their impacts.
Implemented	Power Management Efficiencies	We continue to implement power management on servers where it does not compromise our client requirements.
Planned	Server Virtualization	IBM plans to further virtualize and consolidate server and storage applications over the next several years as IT hardware is refreshed and through working with our clients to continue to drive increased operational efficiencies.
Planned	Cooling Efficiencies	IBM anticipates that the currently installed MMT systems offer the opportunity to reduce an additional 30,000 to 50,000 MWH/year of energy use reductions and 12,000 to 20,000 MT of CO2 avoidance. IBM is also exploring direct air free cooling, cold aisle containment technologies and other options for minimizing energy consumption for cooling systems.
Planned	Power Management Efficiencies	Power management initiation for x86 servers is part of the server installation process where there are no impacts or concerns to clients and savings will continue to be realized in this area as new systems are installed / systems are refreshed.

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
EPA Energy Star	IBM leadership data center in Boulder CO has been registered to the ENERGY STAR building portfolio	1%
EU Code of Conduct	To-date IBM has achieved participant status for 45 of its data centers in the EU. These participant facilities represent over 70% of IBM's data center space in Europe.	21%
LEED	IBM's Leadership data centers in RTP NC, Boulder CO and Barrie Canada are LEED certified.	2%

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)?

IBM measures utilization using available tracking algorithms on the ICT equipment. Different system architectures and operating systems measure utilization using different algorithms; the data provides relative, not absolute, comparisons regarding system workloads and enables the identification of opportunities to consolidate onto a smaller hardware count to deliver a given workload.

ICT1.10

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

Yes

ICT1.10a

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

We can supply this information to clients upon their request. We provide general estimates of energy use and associated CO2 emissions for a client account, applying necessary assumptions. Where available / appropriate factors and necessary assumptions may include equipment involved and their power use, consideration of the range of product configurations and power management features, the PUE of the data center, the MT CO2/MWH grid or location emissions factor for the procured electricity.

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

IBM endeavors to procure renewable energy to power its data center operations whenever it is available and makes economic sense. IBM contracted for 683,000 MWH of renewable electricity in 2014, representing 14.2% of its electricity purchases. With the renewable electricity in our general utility purchasing, approximately 19% of IBM's electricity consumption came from renewable sources. Approximately 1/3 of IBM's global, strategic data centers receive some or all of their electricity from renewable generation sources and we are taking specific steps to contract for additional renewable electricity to increase this number over time. This this end, IBM set a renewable electricity procurement goal in early 2015 to Procure electricity from renewable sources for 20% of IBM's annual electricity consumption by 2020. IBM also draws upon renewable or low-CO2 emitting electricity from on-site generating systems. Some examples: IBM contracted with the landlord of a leased IT lab location in Massachusetts to purchase electricity from a roof top solar panel array. The system supplies electricity directly to the facility and is estimated to deliver 5 percent to 10 percent of the location's annual electricity use. The system was fully operational in April 2013. IBM Zurich Research center has been pursuing research work in recovering heat from IT operations. <http://www.zurich.ibm.com/st/energy/zeroemission.html>. IBM has built a first-of-a-kind hot water-cooled supercomputer for the Swiss Federal Institute of Technology Zurich (ETH Zurich). The innovative system, dubbed Aquasar, consumes up to 40 percent less energy than a comparable air-cooled machine. Through the direct use of waste heat, which provides warmth to the university buildings, it decreases the carbon footprint of the system by up to 85 percent. The supercomputer consists of special water-cooled IBM BladeCenter Servers*, which were designed and manufactured by IBM scientists in Zurich and Böblingen, Germany. The servers incorporate microchannel coolers, which are attached directly to the processors. Owing to this chip-level cooling, the thermal resistance between the processor and the water is reduced to the extent that even cooling water temperatures of up to 60°C ensure no overheating of the processors. This high input temperature of the water results in high-grade heat of up to 65°C at the output. The IBM India Research center has installed a 50 kw solar panel system which provides direct current power to a server rack; the rack system optimizes the use of solar power and as a DC power system reduces the AC to DC conversion losses required when conventional power has to be used.

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
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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
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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

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"

IBM manufactures server and storage products. IBM assembles many of its products at IBM locations, with some products assembled by 3rd party manufacturers. IBM procures the majority of the components for its products from 3rd party manufacturers, but does manufacture some semiconductors for IBM server and storage products. IBM also manufactures semiconductors and semiconductor packaging solutions for external clients. IBM delivers application-optimized semiconductor technologies designed to take performance, integration and power efficiency to the next level in solutions spanning mobile and wired, from consumer products to the cloud. With technologies that benefit from cutting-edge collaborative semiconductor R&D and a silicon portfolio tuned to tackle the challenges and opportunities created by more users, more connectivity and more data, IBM provides a wide range of semiconductor products to a broad range of clients. In response to ICT3.2: IBM does not provide energy use or GHG emissions information for individual locations or specific business units, activities, or operations. IBM operations are widely interconnected, with many locations supporting multiple business units and diverse business activities, making allocating energy consumption or GHG emissions by location or activity less than meaningful.

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
Manufacture or assembly of hardware/components				

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
Servers	N/A		N/A		Energy Star	80%	IBM does not disclose product sales volumes in the interest of protecting business confidential information. As of May 2015, IBM has 7 ENERGY STAR certified Power® systems servers available on the market. These servers meet the U.S. EPA's requirements for power supply efficiency, idle power limits or power management capability, and data reporting as established in version 2 of the server requirements which went into effect in December of 2013. A list of IBM ENERGY STAR qualified servers may be found at the IBM ENERGY STAR Web site for Power systems; http://www-03.ibm.com/systems/power/hardware/energy-star/ Note: Sleep and standby mode are not applicable to server products. Percentage of products meeting ENERGY STAR is an estimate.
Storage products	N/A		N/A		Energy Star	30%	IBM does not disclose product sales volumes in the interest of protecting business confidential information. The ENERGY STAR requirements for storage systems were effective in December of 2013. IBM certified some or all configurations of three storage systems, Flash 840, XIV and V3700, to the standard. Datasheets for the certified systems and configurations can be found at:

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
							http://www-03.ibm.com/systems/storage/energy-star/ . IBM Storage systems are utilizing various software-based data management capabilities such as Easy Tier, thin provisioning and storage virtualization which can reduce the number of terabytes required to accomplish a given storage task. Note: Sleep and standby mode are not applicable to storage products. Percentage of products meeting ENERGY STAR is an estimate.

ICT3.4

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
Servers	N/A		Energy Star	50%	Energy Star	100%	All newly introduced IBM Power® systems server products with 4 processor sockets or less were qualified to ENERGY STAR in 2014 and early 2015. As of May 2015, IBM had 7 ENERGY STAR qualified Power® server systems available on the market. Server products do not have sleep, standby or in use mode criteria. ENERGY STAR sets idle power standards for one and two sockets managed servers and 2 socket resilient servers. The 3 products represented 100% of the products released with 4 processor sockets or less.
Storage	N/A		N/A		Energy		IBM qualified 3 storage products to ENERGY STAR V1 Storage

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
products					Star		product requirements in 2014 and early 2015. These products represented 75% of the products released that could be qualified to ENERGY STAR.

ICT3.5

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

As of May 2015, IBM has 7 Power® systems servers certified to the version 2 ENERGY STAR® Computer Server Requirements. These servers meet the United States EPA's requirements for power supply efficiency, idle power limits or power management capability, and data reporting. A list of IBM ENERGY STAR qualified servers may be found on the IBM ENERGY STAR pages. IBM's products & services are key components to make operations and systems more efficient and avoid GHG emissions in the public and private sectors of the economy. Some examples -- 1. IBM energy efficient IT products: (a) IBM POWER® systems servers offer power management capabilities to match power use to workload, reducing power use by 28 to 50 percent as workload varies and saving 5 to 20% in overall power consumption. (b) POWER® systems & System z servers can be run at up to 65% & 95% utilization respectively if the systems are properly configured for the workloads they are operating. (c) New Power® servers increased their perf/power ratio by 4 to 38% generation to generation depending on the configuration and the IBM z13™, announced in January 2015, increases the available capacity per kilowatt over the IBM zEnterprise® EC12 system by 46 percent for the air-cooled and 58 percent for the water-cooled model. (c) IBM storage products offer a range of capacity optimization methods (COMs) such as compression, data de-duplication, thin provisioning, & tiered storage which enable up to 95% of the available storage capacity to be utilized. When the COMs are properly combined for a given workload & installed on a current generation IBM storage system (XIV, Storwize, DS8800 & Flash 840/900), a single storage product can do the work of 2 to 5 previous generation products, reducing energy demand & associated CO2 emissions by 20 to 80 percent. (d) Properly utilized, cloud services can reduce the infrastructure required to support a given workload. IBM has increased it both its public SoftLayer Cloud & private or hybrid CMS offerings, with approximately 40 cloud data centers locations around the globe. Cloud computing offers an on-demand, more efficient way to deploy & run IT applications & systems. See the response to question 3.2.a for specific energy consumption and GHG emissions reduction examples. (e) In 2014, IBM expanded its range of flash based storage systems. Flash storage reduces energy use by 60% or more compared to disk drives and significantly improves server and storage performance by minimizing the latency associated with data transfer within the data center. (f) IBM offers virtualization & consolidation services which enable multiple applications to be supported on a single server or storage product reducing data center energy use & space requirements by 10 to 80%. IBM's energy efficient products and data center service offerings enable customers to perform more IT work per unit of energy consumed, reducing their data center hardware footprint and their energy use across their IT operations and avoiding CO2 emissions associated with the avoided electricity use.

ICT3.6

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

IBM's semiconductor manufacturing facility in New York abates all of its PFC emissions using thermal destruction devices. The abatement systems minimize the total PFC gas emissions by 90 to 95%. IBM's semiconductor manufacturing facility in Vermont, which manufactures older technologies on 200 mm wafers, has utilized chemical substitution to reduce its PFC emissions. In 2014, the facility implemented chemical substitution projects on chamber clean operations where C2F6 is replaced by C4F8 (resulting in more fully utilization of C4F8 which also has a lower global warming potential than C2F6). This reduced greenhouse gas emissions from the chamber clean process by 40% for the year.

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?

IBM does not believe that a representative or credible estimate can be made of carbon emissions embedded in an IBM product. IBM commissioned a study by Carnegie Mellon University to estimate the embedded carbon emissions of an IBM server product and the associated uncertainty in the estimate. http://www.ce.cmu.edu/~greendesign/research/CMU_IBM_ExecSum_12032010.pdf The study determined "Uncertainty ranges from around +15% for the production and delivery phase to around +35% for cradle to grave carbon footprint, including the product's use phase and logistics associated with delivery of products. However, given limitations in available data to access uncertainty associated with temporal variability and technological specificity, it is likely that true uncertainty is much larger. Given the relatively long lifetime and continuous use of servers, the use phase was dominant, representing around 94% (88%--97%) is the range when considering the uncertainty in the embedded carbon estimates) of the server's total product carbon footprint." If a customer would insist on an embedded carbon emissions estimate for a product we would provide them an estimate in line with the analysis done in the CMU study.

Further Information

Page: [ICT4. Manufacture of software](#)

ICT0.1d

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

Yes

ICT4.1

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

IBM is the world's largest business software company and offers an unmatched software portfolio which is both broad and deep in its capabilities to solve real business needs. IBM software solutions include business analytics (helps organizations better understand, anticipate and shape business outcomes), Watson cognitive computing (enhances, scales and accelerates human expertise), collaboration solutions (including enterprise messaging and email, virtual meetings, information repositories, data exchange, and application design and development), industry solutions (including commerce, enterprise content and marketing management, and focused industry sector solutions), and security systems (software that enables organizations to build a strong security posture that helps reduce costs, improve service, manage risk, and enable innovation), information management software (integrates data and content to deliver information that is always available, always complete and always right), Rational software (software delivery project management), Tivoli software (provides smarter solutions and the expertise needed to design, build and manage a dynamic infrastructure that enables improved service, reduction of cost and management of risk), websphere (Software for Service-oriented Architecture environments that enables dynamic, interconnected business processes, and delivers highly effective application infrastructures for all business situations) and a range of development tools for cloud and mobile applications (including Bluemix, DevOps and others). Individually, or in combination, these solutions help organizations to be more efficient and effective. IBM software is sold by IBM both as standalone software and as appliances and integrated systems (an example is IBM PureSystems) and by business partners and value add retailers. Due to the complexity and many different software products sold by IBM, software is distributed through a variety of delivery systems including cloud and electronic delivery. In response to ICT4.2 and ICT4.3: IBM does not provide energy use or GHG emissions information for individual locations or specific business units, activities, or operations. IBM operations are widely interconnected, with many locations supporting multiple business units and diverse business activities, making allocating energy consumption or GHG emissions by location or activity less than meaningful. For ICT4.4, our broad software portfolio does not enable an estimation of the % of software delivered electronically.

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
Software manufacturing				

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
	metric tonnes CO2e	Unit of production			

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?

Yes

ICT4.5a

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

We can supply this information to clients upon their request. We provide estimates of energy use and associated CO2 emissions for a specific software package development, applying necessary assumptions. Where available / appropriate factors and necessary assumptions may include equipment involved and their power use, consideration of the range of product configurations and power management features, the PUE of the data center, the MT CO2/MWH grid or location emissions factor for the procured electricity.

Further Information

IBM does not provide energy use or GHG emissions information for individual locations or specific business units, activities, or operations. IBM operations are widely interconnected, with many locations supporting multiple business units and diverse business activities, making allocating energy consumption or GHG emissions by location or activity less than meaningful. IBM provides electronic procurement for some of its software, but the wide range in size and complexity of the software solutions does not always make electronic procurement feasible and there is no way to assess all of IBM's software products to get a percentage of the products delivered electronically. In addition, many products are directly available on a cloud platform as software as a service. The majority of IBM's systems and software manuals can be accessed electronically.

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)"

IBM has a broad range of consulting services, systems and hardware product design, software design and research activities which occur at its facilities. In response to ICT5.2 and ICT5.3. IBM does not provide energy use or GHG emissions information for individual locations or specific business units, activities, or operations. IBM operations are widely interconnected, with many locations supporting multiple business units and diverse business activities, making allocating energy consumption or GHG emissions by location or activity less than meaningful. ICT5.4: IBM does not provide intensity metrics for its operations, as we do not believe that intensity metrics provide a representative look at our operations.

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
Business services (office based activities)				

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
	metric tonnes CO2e	Square meter			

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
	MWh	Square meter			

Further Information

IBM does not provide energy use or GHG emissions information for individual locations or specific business units, activities, or operations. IBM operations are widely interconnected, with many locations supporting more than one business units or business activities.

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
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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
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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
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Further Information

CDP