

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 succeed in delivering business value by becoming more innovative, efficient and competitive through the use 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 the best 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, hardware, 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 flexible, and allows for periodic change and rebalancing. The company has exited commoditized businesses like personal computers and hard disk drives, and strengthened its position through strategic investments and acquisitions in higher value segments like services, software, analytics, and Information on Demand. In addition, the company has transformed itself into a globally integrated enterprise which has improved overall productivity and is driving investment and participation in the world's fastest growing markets. As a result, the company is a higher-performing enterprise today than it was several years ago. The business model, supported by the company's long-term financial model, enables the company to deliver consistently strong earnings, cash flows and returns on invested capital in changing economic environments.

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
Tue 01 Jan 2013 - Tue 31 Dec 2013

CC0.3

Country list configuration

Please select the countries for which you will be supplying data. 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
Latvia
Lithuania
Malaysia
Mexico
Morocco
Netherlands
New Zealand
Norway
Pakistan
Peru
Philippines
Poland
Portugal
Puerto Rico
Romania
Russia
Singapore
Slovakia
South Africa
South Korea
Spain

Select country
Sri Lanka
Sweden
Switzerland
Thailand
Turkey
Ukraine
United Arab Emirates
United Kingdom
United States of America
Uruguay
Venezuela
Vietnam
Luxembourg
Kenya
Slovenia
Taiwan
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 sectors, companies in the oil and gas industry, companies in the information technology and telecommunications sectors and companies in the food, beverage and tobacco sectors should complete supplementary questions in addition to the main questionnaire.

If you are in these sectors (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-questions.aspx>.

Further Information

Module: Management

Page: CC1. Governance

CC1.1

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

Individual/Sub-set of the Board or other committee appointed by the Board

CC1.1a

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

IBM's VP of Corporate Environmental Affairs and Product Safety has overall responsibility for IBM Climate Protection programs and reviews IBM's climate programs and performance with a Board Committee. The Directors and Corporate Governance Committee of IBM's Board of Directors (formed in 1993) 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
Other: Corporate Environmental Staff, Managers, and Executives	Monetary reward	<p>These IBM employees have responsibility for IBM's corporate policy on company's energy conservation and climate protection programs, which includes defining and driving the attainment of IBM's energy and GHG emissions reduction goals. IBM has an annual objective to implement energy conservation projects to conserve or avoid energy use equivalent to 3.5% of that year's energy use. Energy conservation actions are a key component of IBM's effort to meet its commitment to reduce its operational CO2. 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 for IBM products and solutions.</p>
Other: Environmental managers	Monetary reward	<p>These IBM employees have responsibility for IBM's corporate policy on company's energy conservation and climate protection programs, which includes defining and driving the attainment of IBM's energy and GHG emissions reduction goals. IBM has an annual objective to implement energy conservation projects to conserve or avoid energy use equivalent to 3.5% of that year's energy use. Energy conservation actions are a key component of IBM's effort to to reduce its operational CO2 emissions. 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 for IBM products and solutions.</p>
Energy managers	Monetary reward	<p>These IBM employees have responsibility for IBM's corporate policy on company's energy conservation and climate protection programs, which includes defining and driving the attainment of IBM's energy and GHG emissions reduction goals. IBM has an annual objective to implement energy conservation projects to conserve or avoid energy use equivalent to 3.5% of that year's energy use. Energy conservation actions are a key component of IBM's effort to to reduce its operational CO2 emissions. 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 for IBM products and solutions.</p>
Process operation managers	Monetary reward	<p>These IBM employees have responsibility for IBM's corporate policy on company's energy conservation and climate protection programs, which includes defining and driving the attainment of IBM's energy and</p>

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator
		<p>GHG emissions reduction goals. IBM has an annual objective to implement energy conservation projects to conserve or avoid energy use equivalent to 3.5% of that year's energy use. Energy conservation actions are a key component of IBM's effort to to reduce its operational CO2 emissions. 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 for IBM products and solutions.</p>
Facility managers	Monetary reward	<p>These IBM employees have responsibility for IBM's corporate policy on company's energy conservation and climate protection programs, which includes defining and driving the attainment of IBM's energy and GHG emissions reduction goals. IBM has an annual objective to implement energy conservation projects to conserve or avoid energy use equivalent to 3.5% of that year's energy use. Energy conservation actions are a key component of IBM's effort to to reduce its operational CO2 emissions. 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 for IBM products and solutions.</p>
Business unit managers	Monetary reward	<p>These IBM employees have responsibility for IBM's corporate policy on company's energy conservation and climate protection programs, which includes defining and driving the attainment of IBM's energy and GHG emissions reduction goals. IBM has an annual objective to implement energy conservation projects to conserve or avoid energy use equivalent to 3.5% of that year's energy use. Energy conservation actions are a key component of IBM's effort to to reduce its operational CO2 emissions. 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 for IBM products and solutions.</p>
Other: Employees responsible for executing energy conservation and climate protection programs	Monetary reward	<p>These IBM employees have responsibility for IBM's corporate policy on company's energy conservation and climate protection programs, which includes defining and driving the attainment of IBM's energy and GHG emissions reduction goals. IBM has an annual objective to implement energy conservation projects to conserve or avoid energy use equivalent to 3.5% of that year's energy use. Energy conservation actions are a key component of IBM's effort to to reduce its operational CO2 emissions. 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</p>

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator
Other: Executive Officer and Business Unit	Recognition (non-monetary)	<p>innovations result in patents for IBM products and solutions.</p> <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 focuses on operational environmental excellence including an evaluation of the leadership and results of IBM's organizations in energy conservation and climate protection. This review considers all environmental attributes, including attainment of the company's energy conservation and GHG emissions reduction goals, as these areas are an integral part of IBM's environmental affairs program. 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. IBM's Chairman personally presents this annual award to the top executive of the organization receiving the award. IBM's Integrated Supply Chain organization received the 2013 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	Individual/Sub-set of the Board or committee appointed by the Board	Global	1 to 3 years	In the context of the environment, the process for identifying climate change risks & opportunities begins with the Environmental (Env) Management System (EMS) assessment of significant environmental aspects. This process assesses the company's business intersections with the environment & considers the full range of risks, including operational & reputational impacts. Energy use & GHG emissions have been identified as significant aspects. Based on the assessment, Corporate Env Affairs staff sets corporate requirements, objectives & targets, with input from business units (BUs) responsible for execution. The BUs are responsible for developing & executing plans to reduce energy use & GHG emissions. IBM has corporate & BU risk management processes to assess business risk comprehensively & include those related to climate change. The assessment includes evaluation of various risks including facility & equipment location, type & age, as well as trends & opportunities in the marketplace.

CC2.1b

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

Our EMS assessment process begins at the corporate level, assessing significant environmental aspects across the corporation including energy use and GHG emissions. Based on this assessment, corporate goals covering energy conservation goal, operational CO2 emissions reduction and PFC reduction are set to mitigate or address climate risk with regard to our operations. Based on the corporate level assessments, the business units, countries and locations assess their impacts and develop and execute plans to mitigate impacts and address the corporate goals. Similar assessments are done for products, services and solutions where impacts apply. The IBM product stewardship program requires that server and storage products be assessed for a range of material, safety, and energy use attributes and that design considerations be made to reduce the impacts through approaches such as innovative uses of materials and energy efficiency initiatives through better power management and utilization attributes of products. The IBM product development teams have made significant efforts to improve the energy efficiency of IBM hardware products. IBM's efforts over the past four years with regards to IT equipment, software, and data center energy efficiency and the Smarter Planet Strategy are all examples of activities initiated, in part, due to the recognition of the importance of energy efficiency and conservation, and reducing GHG emissions across the economy. The corporate and business unit risk management processes further assess supply chain and their operational risk associated with the products, parts and components affecting IBM hardware products, the data center locations which support IBM and client operations, and the 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.

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

Under our EMS evaluation process, environmental attributes are assessed for significance. The opportunities to mitigate or reduce the significant attributes are identified & evaluated as part of the assessment work. Ongoing risks or concerns are addressed in accordance with corporate policy & requirements. Objectives & goals are established to address tactical & strategic initiatives to address other identified impacts. Specific to climate change, IBM has had an energy conservation goal since 1996, two generations of CO2 emissions reduction goals (completed in 1995 & 2012) & multiple generations of a PFC reduction goal through 2010. IBM has continued to achieve reductions in these areas through 2013 while evaluating our next goal (see response to question 2.2.a). PRODUCTS & SERVICES: IBM's climate protection strategy & programs also directly inform & support its business strategy & offerings, whether they involve hardware, software or services. IBM prioritizes these opportunities based on the capabilities enabled by its broad research expertise, the maturity of available technologies, the impact of the product or solution & the needs of our clients. Examples are at IBM's Smarter Planet website <http://tinyurl.com/kc5soqv> IBM is using its research, IT & services expertise to solve environmental & business challenges faced by companies, governments & society at large, including energy efficient IT equipment, the intelligent energy grid, smart transportation systems, biofuel & solar photovoltaic development, energy & material use optimization, logistics planning, "dematerialization" efforts (delivering a physical good, such as music or records, through the IT network) & other applications in assisting clients, & the world tackle climate change. Similarly risks identified by corporate & business unit risk management processes are prioritized and addressed based on their impact on facilities, equipment, & 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

IBM relies on defined management systems and supporting business processes in developing & communicating its business strategies, and ensuring its execution. Our global EMS contributes to, informs and/or influences our business strategy focusing on energy use, efficiency and GHG emissions reductions in our operations, products and services. The Corporate Environmental Affairs staff leads IBM's environmental goal setting process (including those for energy conservation and GHG emission reductions) with input from business units responsible for execution. The responsible business units establish plans and strategy to meet the corporate objectives. Our EMS also requires business units to set and meet their unit-specific objectives. IBM has enterprise wide database systems that collect data on energy use, GHG emissions, water use, waste production and other key indicators to provide factual information on environmental aspects and enable the analysis of progress on key indicators and the development and execution of improvement programs. We use the data to enhance our corporate objectives, continuously improve our relevant programs, and identify and use innovative new technologies, such as monitoring and analytics based applications to minimize energy use, to improve our operations and those of our clients.

IBM'S OWN OPERATIONS: IBM's climate protection strategy aligns with its short and long term business strategies & begins with making its own operations energy efficient to reduce the energy use & associated GHG emissions. IBM believes doing so is good for both our business and the environment. IBM's energy conservation policy & programs date back to 1974. IBM's key corporate objectives in this area include: **CO2 REDUCTION GOAL:** Between 1990 & 2005, IBM's energy conservation actions reduced or avoided CO2 emissions by an amount equal to 40% of its 1990 emissions. To further extend this achievement, IBM set itself an aggressive "2nd generation" goal: to reduce the CO2 emissions associated with IBM's energy consumption 12% between 2005 & 2012 through energy conservation & the procurement of renewable energy. **RESULTS:** In 2012 IBM exceeded the goal, reducing its global, operational CO2 emissions by 15.7% against the 2005 baseline, adjusted for divestitures & acquisitions. IBM achieved an additional reduction of 10.2% from 2012 to 2013. **ENERGY CONSERVATION GOAL:** Achieve annual energy conservation savings equal to 3.5% of IBM's total operational energy consumption. **RESULTS:** IBM's energy conservation actions in 2013 achieved energy savings equal to 6.7% of the company's 2013 energy consumption, reducing or avoiding 333,368 MWh of electricity use and 274,684 MMBTU of fuel use. Between 1990 & 2013, IBM saved 6.4 billion kWh of electricity consumption & avoided 4 million metric tons of CO2 (an amount equal to 59% of the company's 1990 emissions). **PFC EMISSIONS REDUCTION GOAL:** Reduce PFC emissions from semiconductor manufacturing 25% by 2010 against a base year of 1995. **RESULTS:** In 2013, IBM continued to maintain its conformance to the 2010 PFC emissions reduction goal and reduced its PFC emissions by 49.2% against the 1995 baseline. IBM had continued to invest in new technologies and processes to reduce energy use and semiconductor GHG emissions (see question 3.3b) and improve processes to better manage and reduce environmental impacts. Our continuous, long term focus on energy use and GHG emissions informs and drives our long term strategic focus in this area, helping us identify trends and opportunities ahead of our competitors. **PRODUCTS & SERVICES:** IBM has had a formalized product stewardship program since 1991, which includes a focus on "Develop(ing) products that will provide improvements in energy efficiency &/or reduced energy consumption." With these requirements in mind, we provide products, services & solutions to our clients to assist them in making their operations business processes & infrastructures more efficient. Leveraging its deep knowledge of industries and research, IT, and services expertise, IBM is applying its products & solutions to the intelligent energy grid, smart transportation systems, biofuel and solar photovoltaic development, energy & material use optimization, logistics planning, "dematerialization" efforts (delivering a physical good, such as music or records, through the IT network) & other applications in assisting clients, & the world, to tackle climate change. IBM has expanded its focus on and offerings for energy and GHG emissions related products and services as we have learned from our own internal efforts to make our operations more efficient and as we have anticipated and responded to market interest in efficient ICT equipment. IBM product and service offerings, such as Measurement and Management Technology (MMT) for data center energy use management and IBM TRIRIGA Real Estate Environmental Sustainability Impact Manager (TREES, Formerly IBM Tririga for Energy Optimization) for improving building efficiency, have grown out of our internal efforts to improve the efficiency of our data center and real estate operations. IBM's smarter planet initiative extends this focus, using IT based instrumented systems to analyze big data, generating insights to enable fact-based decisions that optimize utilization of resources, including energy. The combination of our strong IT and research capabilities with our real life operational experience gives IBM a strategic advantage over our competitors enabling us to identify and exploit opportunities across our business portfolio for the benefits of our clients. IBM's

leveraging of its core talent and capabilities, and its recognition of how those can be applied to the challenges of optimizing energy use and minimizing GHG emissions have given it market leadership in IT systems and the delivery of broad systems solutions based on the application of IT infrastructure and the utilization of available system data in new and innovative ways. IBM continues to build on its IT hardware and software expertise and its knowledge of systems and analytics to enable better management of energy and improving system efficiency to address a wide area of business and climate challenges. IBM has four stated growth initiatives: Cloud, Analytics, Mobile, and Social solutions and services. IBM products and solutions are developed and/or applied in each of these four areas, and with our clients, to address the challenges of climate change with specific examples being discussed in the response to the question on opportunities. Strategically, IBM has announced major investments, amounting to billions of dollars, in each of these four areas this year with the stated intent of growing these businesses and building on its proven technical and resource capabilities to develop and implement leading edge, innovative IT solutions to address these challenges in its own operations and the operations of its clients.

CC2.2b

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

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	IBM, in conjunction with SIA, worked with other industry members to develop data to improve default process emissions factors for perfluorinated carbon (PFC) gases;

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
		the implementability of the reporting requirements. IBM committed substantial financial and personnel resources to gather and analyze data to provide a workable alternative to finalize subpart I regulation.	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 efficiency	Support with minor exceptions	IBM has been an active supporter of product efficiency requirements for server and/or storage products 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 hardware assets to provide test data and qualification process recommendations to EPA and others regarding product categorization, qualification requirements, test methods and approaches for establishing energy efficiency requirements for ICT products.	IBM has advocated both as IBM and through the Green Grid (TGG) and the Information Technology Industry Council (ITIC) for rational, economic 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 energy utilization in data centers.	IBM advocates for improved data center efficiency initiatives, as it is recognized 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 to 10 times the energy "invested" in the operation of the data centers that run the intelligent systems.
Clean energy generation		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.

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	IBM sets and communicates its own climate protection position. http://www.ibm.com/ibm/environment/climate/position.shtml 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.	How have you, or are you attempting to influence the position? IBM does not conduct advocacy activities on climate change legislation through Trade Associations.

CC2.3d

Do you publically 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. IBM works with NGOs such as the Center for Climate and Energy Solutions (C2ES), World Resources Institute Green Power Market Development Group V2 and India, the EU Data Center Code of Conduct where we currently have registered 46 data centers, 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 on energy efficiency and GHG emissions reductions and procurement of renewable energy and promoting voluntary programs and standards that encourage innovation in energy efficiency projects, improvements in product and process energy efficiency, and the availability of renewable energy. We respond to consultations, such as our participation WRI/WBCSD guidance for IT operations and scope 2 GHG emissions accounting. While IBM has implemented leadership energy efficiency and climate protection programs and broadly collaborated with NGOs, regulators and industry at large as discussed above, IBM has not been advocating for one particular public policy or regulatory scheme to regulate GHG emissions over another (e.g., cap & trade vs. carbon tax). This is because that given the nature of our business, IBM is not disproportionately impacted by specific mechanisms to control GHG emissions in comparison to organizations or certain industry sectors that have significantly greater GHG emissions. We believe IBM can best contribute to sound policy making by informing policymakers constructively in a manner that is results-oriented & based on the deep expertise possessed by our company. Specifically, we are demonstrating that GHG emission reductions are possible now & we continue to develop solutions for ourselves, our clients, governments & society at large that will enable such reductions. 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.

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

Further Information

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	90%	12%	2005	2604000	2012	At year-end 2013, IBM reduced its operational CO2 emissions by 24.7% against the 2005 base year adjusted for acquisitions and divestitures, an impressive achievement considering that between 1990 and 2005 IBM had already reduced its operational CO2 emissions by an amount equal to 40% of the company's 1990 emissions through energy conservation. IBM intends to announce a "third generation" goal.
Abs2	Scope 1	10%	25%	1995	381000	2010	IBM exceeded its PFC emissions reduction goal (36.5% vs. 25%), ending in 2010, against a 2005 baseline. IBM further reduced its 2013 PFC emissions (194,300 MT) 12.7% below the 2010 emissions level.
Abs3	Scope 1+2	100%	7%	2005	2830000	2012	This goal was established for the Climate Savers program and combines the operational Scope 1 and 2 goal and the PFC reduction goal into a single goal: Reduce total global GHG emissions by 7 percent from 2005 to 2012. IBM met

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions (metric tonnes CO2e)	Target year	Comment
							its Climate Leaders goal, reducing operational CO2 emissions and PFC CO2e emissions from semiconductor operations by 14.3% from 2005 to 2012 and increased the percentage reduction to 23.8% in 2014. IBM was recognized by ACCO, USEPA, Climate Register and C2ES with a Climate Leadership Award for Goal Achievement in 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

CC3.1c

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

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

CC3.1d

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

ID	% complete (time)	% complete (emissions)	Comment
Abs1	100%	100%	At year-end 2012, IBM reduced its operational CO2 emissions by 15.7% against the 2005 base year adjusted for acquisitions and divestitures, an impressive achievement considering that between 1990 and 2005 IBM had already reduced its operational CO2 emissions by an amount equal to 40% of the company's 1990 emissions through energy conservation. IBM increased the reduction against the 2005 baseline to 24.7% in 2013.
Abs2	100%	100%	IBM exceeded its PFC emissions reduction goal (36.5% vs. 25%), ending in 2010, against a 2005 baseline. IBM further reduced its 2013 PFC emissions (193,400 MT) 12.7 % below the 2010 emissions level.
Abs3	100%	100%	This goal was established for the Climate Savers program and combines the operational Scope 1 and 2 goal and the PFC reduction goal into a single goal: Reduce total global GHG emissions by 7 percent from 2005 to 2012. IBM met its Climate Leaders goal, reducing operational CO2 emissions and PFC CO2e emissions from semiconductor operations by 14.3% from 2005 to 2012. IBM increased the percentage reduction in 2013 to 23.8%.

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 are key components to make operations and systems more efficient and avoid scope 1 and scope 2 GHG emissions from our clients' operations. Some examples --

1. IBM energy efficient IT products:
 - (a) IBM system x and power® systems servers use x86 and POWER7® processors and memory and I/O components power management capabilities to reduce the power drawn by the server when no workload is present by 23 to 67 percent.
 - (b) PureSystems combine automated hardware systems and pre-loaded/pre-tuned application software to maximize system utilization and reduce the total number of servers required in the datacenter.
2. Project examples found in the IBM Environmental report show space reductions of 66-75% and energy use reductions of 20-40%
 - (a) IBM announced the zEnterprise® BC12, an entry level mainframe. The new BC12 has the same energy use and cooling footprint as the previous generation model, while supporting 77% greater workload.
 - (b) In 2013, IBM introduced a 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.
3. IBM offers data center services which assist clients in delivering more workload from their data centers for each unit of power consumed.
 - (a) IBM offers best practices Monitoring & Measurement Technology (MMT) surveys & installed thermal sensing systems to clients which improve cooling delivery & temperature consistency in data centers.
 - (b) 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%. The IBM Environmental report and ibm.com website provide examples of a whole range of server and storage consolidation projects. 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.
3. IBM Smarter Planet offerings enable clients to implement systems management of activities such as logistics, water systems, traffic systems, utility grids, & other processes & systems to optimize activity flows & minimize resource use.
 - (a) Cloud computing: IBM supports multiple clients on a shared cloud infrastructure which optimizes hardware utilization and may idle unneeded hardware as workload varies with time.
 - (b) The smarter buildings solution— IBM has entered into several large scale engagements with public and private entities to manage real estate and operations portfolios using IBM Tririga Energy Optimization (ITEO, which will be rebranded as Tririga Real Estate Environmental Impact Sustainability Impact Manager in 2014) which enables IBM's clients to better optimize and reduce energy use, by 5% to 13% in two current projects, through monitoring of HVAC systems and power consumption, maintain equipment pro-actively through analytics and assessment algorithms and improved equipment maintenance processes.
 - (c) Smart Grid management systems: IBM is working with utilities and governments on projects which utilize smart meters, energy storage, and demand response control to reduce peak electricity demand and better integrate renewable generation into the power grid. Several current projects have reduced household energy use and cost up to 30% and improved dispatching of renewable electricity into the grid. A demonstration of energy storage using hot water heaters was also completed. IBM offers grid management software which combines weather modeling, weather sensors and cloud monitors, renewable generation facility data, and analytics to forecast near term and long term renewable electricity generation. Two systems, HyRef and WhISE, have improved forecasting and potential dispatching of renewable generation sources, improving the quantity of renewables released into the grid and the matching with conventional generation sources to ensure reliable electricity supply. IBM, through its application of its IT expertise in hardware, software & systems, has been a leader in providing energy efficiency and avoided CO2 emissions options for its clients – from 'dematerialising' physical goods & services, such things as electronic medical records or on-line music purchases, to travel displacement activities such as Lotus Live & virtual worlds. Estimating energy reductions and CO2 emissions avoidance is dependent on customer adoption of hardware and solutions capabilities and is project dependent. Project specific reduction estimates have been provided. It is not possible to credibly provide and generalize estimates of likely reductions across systems or our client base.

Did you have emissions reduction initiatives that were active within the reporting year (this can include those in the planning and 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*	63	72000
Implementation commenced*	37	59000
Implemented*	2600	152000
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)	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, years	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. IBM does not provide information on the level of investment to drive energy efficiency improvements.	67100	19235000	1	1-3 years	The Data Center Energy Efficiency initiatives will continue to deliver energy and CO2 savings for many years.	
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. IBM does not provide information on the level of investment to drive energy efficiency improvements.	39700	8002000	1	1-3 years	The Heating, Ventilation and Air Conditioning and Lighting Systems initiatives will continue to deliver energy and CO2 savings for many years.	
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 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 Energy Optimization) to increase the energy efficiency of its own facilities.	27300	5220000	1	1-3 years	The Central Utility Plant, Recommissioning and real time metering, data collection and analytic initiatives will continue to deliver energy and CO2 savings for many years.	
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	13300	1881000	1	1-3 years	The Manufacturing System Energy Efficiency initiatives will continue to deliver energy and CO2 savings for many years.	

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	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, years	Comment
	changes or modifications. IBM does not provide information on the level of investment to drive energy efficiency improvements.						
Other	Other Energy Efficiency projects including cafeterias improvements, printer systems utilization and energy management, and workstation (e.g., laptops, desktops) power management. IBM does not provide information on the level of investment to drive energy efficiency improvements.	4400	1446000		1-3 years	The Other Energy Efficiency initiatives will continue to deliver energy and CO2 savings for many years.	

CC3.3c

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

Method	Comment
Financial optimization calculations	We find that many energy efficiency and conservation projects generate returns to the business that meet or exceed the financial IRR and ROI requirements. IBM's commitment to meeting its internal conservation objectives, combined with the business value provided 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 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.

Method	Comment
Compliance with regulatory requirements/standards	IBM makes the necessary investments to comply 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 and enables 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 for the project. 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 2013. 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	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/	
In voluntary communications (underway) – previous year attached	One Report. Link to the One Report webpage found at http://www.ibm.com/ibm/environment/annual/	

Further Information

The 2014 IBM and Environmental Report and the 2014 OneReport may be accessed in June or July 2014 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 2013.

Module: Risks and Opportunities

Page: CC5. Climate Change Risks

CC5.1

Have you identified any 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 risks 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
Air pollution limits	IBM's semiconductor manufacturing operations are subject to requirements to include GHG emissions in a facility's operating permit pursuant to Title V of the U.S. Clean Air Act Amendments. Affected locations are preparing or have completed their initial submittal to regulatory agencies, established operating procedures to meet current requirements and are establishing	Other: Increased operational and capital cost	Unknown	Direct	Virtually certain	Medium	The two subject facilities are proceeding with several million dollars in capital investment to install the infrastructure to comply with applicable regulations. There will also be ongoing operating costs of 0.5 to 1 M/year to meet the reporting requirements.	Both semiconductor fabs will be submitting required air emissions permit applications or updates to comply with the requirements.	Complying with the permitting, monitoring and reporting requirements will increase operating costs by several hundred thousand dollars per year.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	operational, reporting, and testing processes to meet emerging requirements.								
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	Likely	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 reduce GHG emissions.	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.
Cap and trade schemes	As IBM's energy use is primarily use of electricity, we expect the impact of a cap and trade	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	The impact of cap and trade schemes on IBM will likely manifest through	We expect some cost increases 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
	scheme would manifest through increases in the cost of energy for IBM and its suppliers in the relevant places. A cap and trade system would have an impact on IBM's semiconductor operations if it includes PFC emissions.						through increases in the cost of energy, as electricity is the primary energy source used at our facilities.	increases in the cost of energy, as electricity is the primary energy source used at our facilities.	
Emission reporting obligations	IBM uses fuel, electricity and PFCs, all of which have scope 1 or scope 2 emissions. Increasingly, governments are considering or implementing GHG emissions reporting schemes. Additional reporting requirements will drive additional operating costs particularly for IBM semiconductor manufacturing operations. Currently IBM is meeting all	Other: Increased operational and capital costs.	1 to 3 years	Direct	Virtually certain	Low	Impacts of GHG Reporting requirements being considered by various jurisdictions vary, from minimal impact to significant impact such as under USEPA's Mandatory Reporting Rule (MRR).	For energy use, IBM's energy conservation and efficiency program discussed in under section 3 of this document provides our means to manage the risk of increased energy costs. For the US MRR, which affects our semiconductor mfg. operations, we are working with the US Semiconductor Industry	In order to assure compliance with the MRR requirements it may cost up to several million dollars. Because most facilities use only electricity and IBM has established a robust data collection process, additional reporting requirements will be minimal.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	applicable GHG reporting requirements in jurisdictions where it operates.							Association and the USEPA to develop technically feasible and cost effective methods to estimate GHG emissions from semiconductor operations. We have also undertaken project work to establish systems to collect the required data.	
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 as suppliers in the jurisdictions which establish fuel/energy taxes.	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 use. We have reduced fuel use in IBM operations by over 20% from	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
								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.	
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 and Ministry of Environmental Protection in China and Ministry of Knowledge Economy in Korea, the Japan Energy Law, the California Energy	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 with resulting loss of revenue.	IBM has been 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 governmental efforts such as the USEPA ENERGY STAR program. IBM works through these groups to set sensible	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 requirements. However, there are cost implications as energy efficient designs are likely to have

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	Commission, 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.							energy efficiency requirements for ICT equipment which enable product innovation and deliver more performance per unit of energy consumed to ICT equipment users.	higher component costs and require the development of more sophisticated firmware and software management systems.
Product labeling 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	Increased operational cost	Up to 1 year	Direct	Very likely	Medium	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	IBM collects product energy use data as part of its product qualification products.	There will be additional financial costs to complete the required testing and labeling. These costs increase significantly if each country or jurisdiction promulgates separate, different requirements. IBM is working with industry

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>and Reporting Standard, Publicly Available Specification 2050) that 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 labeling (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</p>						<p>with products. If no action is taken, market access may be lost.</p>		<p>groups, governments and standards bodies to establish harmonized product energy 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>for estimating product "carbon footprints", they will not meaningfully improve the quality of data that would be required to support credible external reporting or labeling 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 does not believe that use of "carbon</p>								

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	footprints” or other labeling 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 be factored into business decisions.	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.
Renewable energy regulation	Increased renewable energy generation requirements are	Other: Increased operational cost and	1 to 3 years	Direct	Very likely		Currently, electricity generated from renewable	See the discussion in section 3 on IBM's energy	We expect some cost increases over time above our current

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	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. IBM is developing smart grid software, based on sensor management and analytics, to effectively manage the integration of conventional and renewable generation assets and energy storage assets to maintain grid stability and maximize the dispatch of renewables into the grid.	increase potential for power interruptions due to intermittent nature of renewable generation sources causing grid instability.					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.	conservation program.	energy costs.

CC5.1b

Please describe your 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
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CC5.1c

Please describe your 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 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	Other: Impacts to a company's reputation extend across many of the potential impacts detailed in the dropdown list.	Up to 1 year	Direct	Virtually certain	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	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	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 (\$6.2B in 2013) in research activities. A portion of these research dollars were applied to

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated Financial Implications	Management method	Cost of management
	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 environmental report.						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 provide revenue.	addition, IBM's operational expertise, experience from executing our own programs and results inform the companies regarding potential and likely business opportunities.	the development of products and solutions intended to address the climate change impacts of our operations and those of our clients.
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	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 &	IBM has a well established, global Environmental Management System (EMS), which requires regular assessment of the environmental impacts of its operations 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

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated Financial Implications	Management method	Cost of management
	necessary innovations to address changing market needs.						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 provide revenue.	activities and setting goals and objectives to proactively 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.	(\$6.2B in 2013) 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.
Other drivers	As society addresses its energy requirements and the environmental implications of energy use, including the environmental	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	IBM has a well established, global Environmental Management System (EMS), which requires regular assessment of	There are no extra-ordinary cost risks, as costs to execute our programs and strategy are embedded in IBM's current operational

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated Financial Implications	Management method	Cost of management
	<p>impact of GHG emissions, it is likely that transformational innovations will be needed. It will be important for companies to identify, anticipate, and lead on key transformational opportunities.</p>						<p>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 enable us to avoid disruptions and minimize financial impacts while capturing opportunities to provide revenue.</p>	<p>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>structure. IBM continues to invest significantly (\$6.2B in 2013) 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>

Please explain why you do not consider your company to be exposed to 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 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. 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 and / or unique disruptions to the business.

CC5.1f

Please explain why you do not consider your company to be exposed to 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 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 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
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	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 offer IBM expanded market opportunities based on its portfolio hardware, software and service solutions including ICT equipment, data center cooling management system (MMT), data center	IBM implements ongoing and effective business processes to identify, analyze, evaluate, 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 (\$6.2B in 2013) in research activities. A portion of these research

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	have been established or may be considered in the future.						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 companies and governments to respond to emerging challenges of climate change.		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.
Fuel/energy taxes and regulations	IBM's experience in making its own operations more energy efficiency and its internal deployment of the capabilities developed by the company lend	Other: Increased demand for products and services, premium pricing opportunities, new products	Up to 1 year	Indirect (Client)	Virtually certain	Medium	These opportunities offer IBM expanded market opportunities based on its portfolio hardware,	IBM implements ongoing and effective business processes to identify, analyze, evaluate, and	There are no extra-ordinary cost risks, as costs to execute our programs and strategy are embedded in IBM's current

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>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 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.</p>	<p>and business services</p>					<p>software and service solutions including ICT equipment, data center cooling management system (MMT), data center management systems, software solutions, service offerings, and research capabilities. IBM is uniquely positioned to apply one, some, or all of these capabilities in a synergistic fashion to assist companies and governments to respond to emerging challenges of climate</p>	<p>exploit emerging business opportunities which can be addressed with IBM's range of expertise and offerings.</p>	<p>operational structure. IBM continues to invest significantly (\$6.2B in 2013) 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
Cap and trade schemes	See response under "Fuel/Energy Taxes and Regs". 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 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 constraint economy.	Other: Increased demand for products and services, premium pricing opportunities, new products and business services	1 to 3 years	Indirect (Client)	Likely	Low	change. These opportunities offer IBM expanded market opportunities based on its portfolio hardware, software and service solutions including ICT equipment, data center cooling 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	IBM implements ongoing and effective business processes to identify, analyze, evaluate, 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 (\$6.2B in 2013) 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
							capabilities in a synergistic fashion to assist companies and governments to respond to emerging challenges of climate change.		
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 inventory and reporting, asset management, smarter infrastructure and operational efficiency.	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 offer IBM expanded market opportunities based on its portfolio hardware, software and service solutions including ICT equipment, data center cooling management system (MMT), data center management systems, software solutions,	IBM implements ongoing and effective business processes to identify, analyze, evaluate, 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 (\$6.2B in 2013) 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
							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 companies and governments to respond to emerging challenges of climate change.		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 Impact Management (formerly IBM Tririga Energy Optimization) offer functionalities to	Other: Increased demand for products and services, premium pricing opportunities, new products and business services	Up to 1 year	Indirect (Client)	Likely	Medium	These opportunities offer IBM expanded market opportunities based on its portfolio hardware, software and service solutions including ICT	IBM implements ongoing and effective business processes to identify, analyze, evaluate, and exploit emerging 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

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	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.						equipment, data center cooling 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 companies and governments to respond to emerging challenges of climate change.	which can be addressed with IBM's range of expertise and offerings.	significantly (\$6.2B in 2013) 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.
Renewable energy	IBM Smart Grid software and	Other: Increased	Up to 1 year	Indirect (Client)	Likely	Medium	These opportunities	IBM implements	There are no extra-ordinary

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
regulation	<p>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 cost of solar energy and battery technology.</p>	<p>demand for products and services, premium pricing opportunities, new products and business services</p>					<p>offer IBM expanded market opportunities based on its portfolio hardware, software and service solutions including ICT equipment, data center cooling 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</p>	<p>ongoing and effective business processes to identify, analyze, evaluate, and exploit emerging business opportunities which can be addressed with IBM's range of expertise and offerings.</p>	<p>cost risks, as costs to execute our programs and strategy are embedded in IBM's current operational structure. IBM continues to invest significantly (\$6.2B in 2013) 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
							companies and governments to respond to emerging challenges of climate change.		
	<p>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 future.</p>	<p>Other: Increased demand for products and services, premium pricing opportunities, new products and business services</p>	<p>Up to 1 year</p>	<p>Indirect (Client)</p>	<p>Virtually certain</p>	<p>Medium-high</p>	<p>These opportunities offer IBM expanded market opportunities based on its portfolio hardware, software and service solutions including ICT equipment, data center cooling management system (MMT), data center management systems, software solutions, service offerings, and research</p>	<p>IBM implements ongoing and effective business processes to identify, analyze, evaluate, 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 (\$6.2B in 2013) in research activities. A portion of these research dollars were applied to the development of products and solutions intended to address the climate change</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							capabilities. IBM is uniquely positioned to apply one, some, or all of these capabilities in a synergistic fashion to assist companies and governments to respond to emerging challenges of climate change.		impacts of our operations and those of our clients.

CC6.1b

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

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in mean (average) precipitation	IBM has invested in advanced water management	Increased demand for existing products/services	1 to 3 years	Direct	Very likely	Medium	These opportunities offer IBM expanded	IBM implements ongoing and effective	There are no significant cost risks, as these costs are

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>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.</p>						<p>market opportunities based on its portfolio hardware, software and service solutions including ICT equipment, data center cooling 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 companies and governments to respond to emerging challenges of climate change.</p>	<p>business processes to identify, analyze, evaluate, 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 (\$6.3 B in 2013) 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.</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
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 offer IBM expanded market opportunities based on its portfolio hardware, software and service solutions including ICT equipment, data center cooling 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 companies and governments to respond to	IBM implements ongoing and effective business processes to identify, analyze, evaluate, 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 (\$6.3 B in 2013) 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
							emerging challenges of climate change.		
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 extreme weather events and more effectively utilize resources.	Increased demand for existing products/services	1 to 3 years	Direct	Likely	Medium	These opportunities offer IBM expanded market opportunities based on its portfolio hardware, software and service solutions including ICT equipment, data center cooling 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, evaluate, 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 (\$6.3 B in 2013) 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
							fashion to assist companies and governments to respond to emerging challenges of climate change.		across our operations.

CC6.1c

Please describe the 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	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	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	IBM's ongoing and effective business processes to identify, analyze, evaluate, and exploit emerging	There are no significant cost risks, as these costs are embedded in IBM's current operational structure. In

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	client expectations in this area and will continue to serve as a differentiator for IBM.						ties and revenue.	business opportunities which can be addressed with IBM's range of expertise and offerings.	In addition, IBM continues to invest significantly (\$6.2 B in 2013) 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.
Changing	IBM continues to expand services solutions and	Increased	Up to 1	Direct	Likely	Medium	An	IBM's	There are

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
consumer behavior	<p>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>	demand for existing products/services	year			-high	<p>inability to capture these opportunities would result in lost talent, business opportunities and revenue.</p>	<p>implement ongoing and effective business processes to identify, analyze, evaluate, and exploit emerging business opportunities which can be addressed with IBM's range of expertise and offerings.</p>	<p>no significant cost risks, as these costs are embedded in IBM's current operational structure. In addition, IBM continues to invest significantly (\$6.2 B in 2013) research activities. A portion of these research dollars were applied to the development of products and solutions intended</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
									to respond to and capture opportunities including those discussed above.

CC6.1d

Please explain why you do not consider your company to be exposed to 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 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 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)

Base year	Scope 1 Base year emissions (metric tonnes CO2e)	Scope 2 Base year emissions (metric tonnes CO2e)
Sat 01 Jan 2005 - Sat 31 Dec 2005	336000	2268000
Sun 01 Jan 1995 - Sun 31 Dec 1995	381000	

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 Third Assessment Report (TAR - 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
Distillate fuel oil No 2	0.07396	Other: metric tonnes CO2/MMBtu	2014 Climate Registry Default Emission Factors, April 11, 2014
Distillate fuel oil No 6	0.07510	Other: metric tonnes CO2/MMBtu	2014 Climate Registry Default Emission Factors, April 11, 2014
Liquefied petroleum gas (LPG)	0.06298	Other: metric tonnes CO2/MMBtu	2014 Climate Registry Default Emission Factors, April 11, 2014
Natural gas	0.05302	Other: metric tonnes CO2/MMBtu	2014 Climate Registry Default Emission Factors, April 11, 2014
Diesel/Gas oil	0.07396	Other: metric tonnes CO2/MMBtu	2014 Climate Registry Default Emission Factors, April 11, 2014

Further Information

In the answer to 7.1, the first row of data, detailing the scope 1 and scope 2 baseline emissions for 2005 covers CO2 emissions data for operational CO2 emissions resulting from IBM's use of fuel and electricity in its owned and leased buildings. This baseline is for our CO2 reduction goal for operational CO2 emissions, adjusted for real estate and data center workload acquisitions and divestitures between 2005 and 2012. The second row provides the base year PFC emissions, reported in CO2e. This baseline is for the IBM PFC emissions reduction goal.

Page: CC8. Emissions Data - (1 Jan 2013 - 31 Dec 2013)

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

514464

CC8.3

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

1978594

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 1 emissions: Uncertainty range	Scope 1 emissions: Main sources of uncertainty	Scope 1 emissions: Please expand on the uncertainty in your data	Scope 2 emissions: Uncertainty range	Scope 2 emissions: Main sources of uncertainty	Scope 2 emissions: Please expand on the uncertainty in your data
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 7% of IBM's property portfolio representing 2% of electricity use, is referred to as "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.	Less than or equal to 2%	Data Gaps 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 underway for the reporting year but not yet complete - last year's statement attached

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/2014/84/9284/Investor CDP 2014/Shared Documents/Attachments/CC8.6a/IBM Verification Statement for 2012 GHG Emissions .pdf		ISO14064-3	40

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
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CC8.7

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

Third party verification or assurance underway for the reporting year but not yet complete - last year's statement attached

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 Scope 2 emissions verified (%)
Limited assurance	https://www.cdp.net/sites/2014/84/9284/Investor CDP 2014/Shared Documents/Attachments/CC8.7a/IBM Verification Statement for 2012 GHG Emissions .pdf		ISO14064-3	40

CC8.8

Please identify if any data points other than emissions figures have been verified as part of the third party verification work undertaken

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 2013 Verification Audit for the IBM GHG Emissions Inventory is slated for completion during June 2013. The verification report will be available later in the year. The 2012 Verification report is attached for reference.

Page: CC9. Scope 1 Emissions Breakdown - (1 Jan 2013 - 31 Dec 2013)

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	846
Australia	987
Austria	86
Belgium	293
Brazil	1736
Canada	14878

Country/Region	Scope 1 metric tonnes CO2e
Chile	46
China	29
Colombia	111
Czech Republic	249
Denmark	879
Ecuador	2
France	491
Germany	9825
Hungary	170
India	2562
Ireland	2218
Italy	154
Japan	4623
Mexico	1037
Netherlands	1856
Peru	71
Poland	177
Portugal	4
Romania	246
Slovakia	453
South Africa	114
Spain	1245
Sweden	559
Switzerland	1078
Taiwan	20
Thailand	11
Turkey	47
United Kingdom	8326
United States of America	458943
Uruguay	9
Venezuela	34
New Zealand	49

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

CC9.2c

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

GHG type	Scope 1 emissions (metric tonnes CO2e)
N2O	23150
CO2	225514
PFCs	174154
HFCs	9752
SF6	20147
Other: Heat Transfer Fluids	61747

CC9.2d

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

Activity	Scope 1 emissions (metric tonnes CO2e)
----------	--

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 2013 - 31 Dec 2013)

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 CC8.3 (MWh)
Argentina	15544	39855	
Australia	86091	90714	3379
Austria	963	4481	1330
Belgium	6232	31794	24350
Brazil	7133	104920	
Bulgaria	678	1192	
Canada	30291	316932	
Chile	5349	12130	
China	73656	96408	
Colombia	1287	11918	
Costa Rica	159	2488	
Croatia	76	228	
Czech Republic	3944	8435	

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 CC8.3 (MWh)
Denmark	23922	75997	49500
Ecuador	163	472	
Egypt	1796	3931	
Estonia	93	86	
Finland	4512	21833	17000
France	14521	227761	
Germany	89620	253446	28465
Greece	1296	1800	
Hong Kong	1504	1958	
Hungary	6964	22545	
India	209856	245159	2178
Indonesia	1213	1606	
Ireland	14671	34358	
Israel	33981	46742	
Italy	13450	35597	19214
Japan	104161	222824	957
Kenya	111	376	
South Korea	9312	17086	
Latvia	19	145	
Lithuania	93	345	
Luxembourg	213	550	
Malaysia	8594	12491	
Mexico	15107	33571	
Morocco	225	308	
Netherlands	9282	23306	22334
New Zealand	1005	7130	
Pakistan	1215	2972	
Peru	3719	12521	
Philippines	20595	41860	
Poland	17060	23897	
Portugal	10213	37595	
Puerto Rico	55	194	

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 CC8.3 (MWh)
Romania	5403	12583	
Russia	1168	2673	
Singapore	18736	37471	
Slovakia	873	4366	
Slovenia	555	1642	
South Africa	17416	20041	
Spain	21572	74130	9572
Sri Lanka	156	332	
Sweden	820	48252	41376
Switzerland	1711	57019	10187
Taiwan	14379	23925	
Thailand	2893	5542	
Turkey	7933	18578	
United Arab Emirates	825	1375	
United Kingdom	134871	249299	243885
United States of America	895461	2456457	105952
Uruguay	532	2701	
Venezuela	1780	7608	
Vietnam	281	655	
Rest of world	1285	4119	

CC10.2

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

CC10.2a

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

Business division	Scope 2 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
Fuel	1122992
Electricity	4920181
Heat	60949
Steam	1096
Cooling	178480

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	53874
Distillate fuel oil No 6	51849
Natural gas	918334
Diesel/Gas oil	24974
Liquefied petroleum gas (LPG)	847
Kerosene	44853
Motor gasoline	28259

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	243885	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 75% biomass generated power, 20% wind generated power and 5% hydro generated power. The CO2 emissions avoidance associated with these purchases is estimated at 131,942 MT of CO2.
Tracking instruments, Guarantees of Origin	223328	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 74% hydro generated power, 11% biomass generated power, 12%, wind power and 3% solar power. The CO2 emissions avoidance associated with these purchases is estimated at 58,017 MT of CO2.
Supplier specific, backed by instruments	6514	IBM has entered into contractual agreements to source electricity generated from renewable sources in Australia, India and Japan. These purchases represent 65% wind generated power 25% biomass generated power and 10% solar power. The CO2 emissions avoidance associated with these purchases is estimated at 5,538 MT of CO2
Tracking	1304	IBM has entered into contractual agreement to source electricity generated from renewable sources at two locations

Basis for applying a low carbon emission factor	MWh associated with low carbon electricity, heat, steam or cooling	Comment
instruments, RECS (USA)		in the United States. These purchases represent 47% wind generated power, 32% hydro power, and 22% biomass generated power . The CO2 emissions avoidance associated with these purchases is estimated at 361 MT of CO2
Supplier specific, backed by instruments	104648	IBM has entered into contractual agreement to source electricity generated from renewable sources at seven locations in the United States. These purchases represent 94% hydro generated power and 6% wind and solar generated power . The CO2 emissions avoidance associated with these purchases is estimated at 27,766 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	7.9	Decrease	IBM's energy conservation projects reduced energy use and associated GHG emissions. These projects and their associated reductions are detailed in table 3.3.b. This is the reduction in the CO2 inventory achieved through the energy conservation and efficiency projects (155,000 MT CO2) and PFC emissions reduction activities (45,000 MT CO2e).

Reason	Emissions value (percentage)	Direction of change	Comment
Divestment	0.5	Decrease	A number of client accounts removed their operations from IBM data center space. This value is estimated.
Acquisitions	0.2	Increase	IBM acquired real estate as part of business acquisitions and IT workload moved from client data center operations into IBM owned and operated space. This value is estimated.
Mergers	0	No change	
Change in output	2.4	Decrease	IBM experienced reductions in energy use and production from changes in output in several business units.
Change in methodology	0	No change	
Change in boundary	0	No change	
Change in physical operating conditions			
Unidentified			
Other	3.9	Decrease	Increase in CO2 avoidance from renewable electricity purchases (0.5%) and a decrease in the overall average corporate MT CO2/ MWH emissions factors for electricity purchase.

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
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Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change
.00002162	metric tonnes CO2e	unit total revenue	10.6	Decrease	<p>The change was driven by a 4.6% decrease in revenue and a 14.5% decrease in total CO2e emissions for IBM's operations from 2012 to 2013. 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 assembly, 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, 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. Though the simple intensity metric decreased from 2012 to 2013, we would hasten to discourage any such comparison or analysis based on this fact. IBM would hold this same view whether the year-to-year indexed emissions value increases or decreases. This is because we do not believe 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.</p>

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
5.0	metric tonnes CO2e	FTE employee	13.9	Decrease	<p>A review of the data indicated that the MT CO2e per FTE decreased to 2013 due to a 14.5% decrease in CO2e emissions and a 0.7% decrease in FTEs. 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. Though the simple intensity metric increased from 2012 to 2013, we would hasten to discourage any such comparison or analysis based on this fact. IBM would hold this same view whether the year-to-year indexed emissions value increases or decreases. This is because we do not believe 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.</p>

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	12909	0	1288	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 primary data	Explanation
Purchased goods and services	Relevant, not yet calculated		<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 that all its 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 further requires its suppliers to publicly disclose their environmental programs and performance and require to cascade these requirements to their suppliers and so on. IBM also requested a key subset of its production suppliers to report their GHG and water use data to the EICC environmental reporting system to validate the presence of their EMS and public reporting of key environmental metrics. 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. The IBM procurement team has provided training and</p>		<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. The program is explained in the 'Methodology' section and we ask you to take time to read that section as its an integral part of our response to our actions on this scope 3 emissions source. 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 improved 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 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</p>

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using primary data	Explanation
			<p>conducted assessments to evaluate 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 assessment program 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 the 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>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 other companies/customers. In addition, IBM's specific scope of business with any given supplier remains dynamic as it is driven by business need. Moreover, one company's asserted scope 3 emissions are another company's scope 1 and scope 2 emissions.</p>
Capital goods	Relevant, not yet calculated				<p>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 report or estimate the embedded missions of our purchased capital equipment. This item would require gross assumptions to estimate of product level embedded GHG estimates for building materials, semiconductor manufacturing equipment, IT equipment assembly equipment</p>

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using primary data	Explanation
					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	23706	Lease Vehicle Emission Calculation: - All car fleet data related to composition, term & mileage, fuel & fuel consumption are collected locally through FleetReporting; - 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, LCVs, 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 per vehicle the related CO2 emission in g/km and in tons per annum; - The carbon footprint provides both CO2 figures based on OEM values for fuel consumption and budgeted mileage as well as actual CO2 figures based on real-, 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 2750 (each liter of diesel produces 2,75 kg CO2) Petrol 2380 (each liter of petrol produces 2,38 kg CO2) LPG 1626 (each liter of LPG produces 1,626 kg CO2)		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 and select lower emitting vehicles. 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 primary data	Explanation
			<p>E85 1641 (each liter of E85 produces 1,641 kg CO2) - For the actual CO2 data the 'last known mileage' is used to calculate the real fuel consumption and by that the actual CO2 emitted by the vehicle in the required period. In case the last known mileage was incorrect, the budgeted mileage has been taken. This was done in case of missing odometer readings or in case of more than 50% deviation of the budgeted values; - Where the actual fuel consumption for Europe only was lower than 3,5 l/100km or more than 20 l/100km, the OEM fuel consumption was taken instead based on mixed city/ highway usage of the vehicle; - The periodic CO2 footprint is, where possible, based on actual mileage (calculated per annum). 'Flex-fuel' engines have been regarded as only filled with E85 and not mixed with petrol. Because employees are allowed to use the cars for personal use at their own expense, the emissions are discounted by 50% in recognition of the use for personal business.</p>		
Upstream transportation and distribution	Relevant, not yet calculated				<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's 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</p>

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using primary data	Explanation
					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 discussion under "Purchased Goods and Services" and the "Protective Product packaging" section of the IBM Environmental Report for further explanation of our methodology and position.
Waste generated in operations	Relevant, not yet calculated				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 manufacturing and facilities operations more efficient to reduce waste generation, increase recycling. These efforts deliver demonstrable emissions reductions.
Business travel	Not relevant, calculated	472565	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 traveled) Standard tables per type of aircraft (total 256 types); these are clustered into 32 representative		

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using primary data	Explanation
			<p>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. Methodology used for airline combustion tables: 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 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 aircraft types. Overall average (western hemisphere legacy airlines) is: 2.6 kg per standard passenger (pax + luggage) per 100 kilometers transported.</p>		
Employee	Not relevant,	151347	IBM estimates its CO2 emissions from		

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using primary data	Explanation
commuting	calculated		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.		
Upstream leased assets	Not relevant, explanation provided				IBM does not have a significant inventory of upstream leased assets.
Downstream transportation and distribution	Relevant, not yet calculated				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 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 the IBM manufacturing and assembly locations. Once again motivated by achieving real GHG reductions as opposed to merely accounting, we continue to

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using primary data	Explanation
					<p>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 develops improved, more efficient designs for packaging for IBM products and for packaging used to move components to IBM product assembly locations. These engineering efforts have reduce packaging volume and weight to make shipping more efficient by increasing shipping density. Improved 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. This effectively reduces 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.</p>
Processing of sold products	Relevant, not yet calculated				<p>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</p>

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using primary data	Explanation
					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	1600000	Reporting Annual Estimated Emissions Associated with Products SOLD in 2013: IMPORTANT: The reported number only estimates the annual quantity of power used by products sold by IBM in 2013 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 Tons of CO2. Assumptions: 1. Scope: server and storage systems sold by IBM in 2013. 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:		IBM does not believe there is any 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 calculation highly uncertain at best. As such this information cannot be used to make important decisions. 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.

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using primary data	Explanation
			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 the average for IBM's 2012 global electricity use. Equations for estimating GHG emissions from Servers and Storage: Estimated annual CO2 emissions during use phase of servers and storage systems sold in 2013: multiply the following: Number of Units sold in 2013; Average IBM global GHG emissions factor; Discount factor, assigned average maximum name plate power; Hours of operation in 2013, Power Use Effectiveness factor of 1.5.		
End of life treatment of sold products	Relevant, not yet calculated				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 ease 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 2013, IBM's Product End-of-Life Management (PELM) operations worldwide processed over 33,227 metric tons of end-of-life products and product waste. This represents 67 percent of the estimated 47,826 metric tons of new IBM IT equipment manufactured and sold in

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using primary data	Explanation
					2013. IBM's PELM operations reused or recycled approximately 96.8 percent of the total amount of product and product waste they processed and only 0.3% of the total processed material 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

No third party verification or assurance

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 (%)
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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
Fuel- and energy-related activities (not	Other: No meaningful	1.8	Increase	Emissions Reduction Activities: IBM continues to work with its auto leasing supplier to offer more fuel efficient vehicles. Use of more fuel efficient vehicles reduces the

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
included in Scopes 1 or 2)	change in emissions			emissions. There were no major changes in the fleet to drive changes from 2012 to 2013. 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.
Employee commuting	Emissions reduction activities	4.3	Decrease	IBM continues to enable employees to regularly work at home, reducing the amount of employee commuting. 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.
Business travel	Other: No meaningful change in emissions.	0.2	Decrease	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.
Use of sold products	Change in output	33	Decrease	IBM had reduced product shipments in 2013 as compared to 2012. 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

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; fulfillment; 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 2013, 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.

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%	<p>IBM has continued to work with all its suppliers to help them build their capabilities through compliance to IBM’s Supply Chain Social and Environmental Management System and requirements for IBM’s suppliers. While we know that working with all 27,000 suppliers is not practical, IBM does work with those suppliers that ask for assistance and an assessment of conformance with the SEMS requirements has been made of suppliers prioritized based on spend and activity. The IBM procurement team has provided training and conducted assessments to evaluate supplier 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 ongoing assessment program 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</p>

Number of suppliers	% of total spend	Comment
		<p>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. IBM also survey approximately 100 suppliers through the EICC environmental reporting process, representing about 50% of its production spend. A majority responded and most were in compliance with the IBM S&EMS requirements. Where suppliers were not meeting requirements, we work with them as appropriate to bring their program up to IBM requirements.</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, review 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 (i.e., 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 evlues suppliers' data to assess their capabilities in understanding and managing their environmental intersections, to ascertain whether our suppliers are making continual improvement in their environmental performance. Finally IBM neither aggregates nor allocate 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

Link to IBM's Supply Chain Environmental Responsibility webpage: <http://www-03.ibm.com/procurement/proweb.nsf/ContentDocsByTitle/United+States~Supply+chain+environmental+responsibility>

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
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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 inclusive of a range of cloud infrastructure that support IT applications and solutions for its own operations, including support for product (software and hardware) development and testing, as well as operations of its clients. These operations are supported by public and private clouds and dedicated data center operations. IBM operates one of largest data center fleets consists of several hundred locations in countries around the globe both in its own facilities and in client facilities. Recently constructed data centers in the U.S. (Raleigh NC and Boulder CO), New Zealand (Auckland), and Canada use the latest energy efficiency innovations for data center (DC) operations including the IBM Measurement and Management Technologies (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 has also worked on achieving significant improvements in its legacy DCs. IBM has installed MMT at the majority of its strategic DCs supporting all aspects of its business. This innovative MMT from IBM Research produces a real-time, three dimensional thermal map of the detailed 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 2013, we completed over 300 projects at 85 existing DC locations that reduced energy use by over 53,400 MWh, and saved more than \$5.2 million. IBM has shut down nearly 30% of the total number of computer room air conditioning Units (CRAC) and raised the average DC raised floor temperature 0.5oC in the DCs with MMT deployed. IBM continues to aggressively utilize virtualization technologies to consolidate multiple workloads from servers and storage systems with low utilization onto single systems, reducing energy use and cost by more than 99,000 MWh and \$11.0 million, respectively, in 2013. IBM continued to virtualize tens of thousands of applications in our DCs. At the end of 2013, IBM increased the number of DCs with EU Data Center Code of Conduct participant status from 43 to 46, covering DCs in 19 countries. The registered DCs represent more than 70 percent of IBM’s DC space in the EU. IBM has the largest portfolio of registered DCs from a single company. The EU 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’s expanded its cloud computing offerings with the acquisition of SoftLayer and the growth of our Cloud Managed Services (CMS) offerings in 2013. IBM also announced \$1.2 B investment to grow its cloud data center portfolio to 40 data centers by 2015. 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. 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 one or more business units or business activities.

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 PUE at the data centers it owns or leases and operates. Presently approximately 80% of IBM data center space is collecting PUE data. Currently some data center space, particularly older legacy data centers, does not have the necessary metering to provide a meaningful PUE estimate. However, all data centers are performing energy conservation assessments against the best practices and implementing best practices where appropriate. Approximately 80% is the estimated percentage of raised floor space for which PUE is currently being measured, calculated, or estimated.

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
53	1.73	0	No change	IBM does not report on the number of data centers it owns and operates around the globe. The average PUE value was generated from 53 data centers that report PUE and is representative of the average PUE of IBM's global data center inventory. As discussed below, IBM has been aggressively executing data center energy efficiency projects in its data centers over the past 4 years. IBM's year to year PUE has stayed constant. The overall performance of these data centers is slightly behind the average PUE of 1.657 to 1.75 as reported in the "Uptime Institute 2013 Data Center Industry Survey" of 1,000 Data center users and performs favourably against the average PUE of 2.9 as reported by a Digital Realty Trust in its survey of 300 IT decision makers reported in April of 2013

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
53	1.42	3	2.35	3	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 53 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.

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

Other: IBM uses the Green Grid methodology to calculate PUE at its data centers. At many of its data centers, IBM has installed metering or initiated data collection from existing systems such as uninterruptible power systems, to segregate and collect the energy use data to calculate the PUE.

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 multiple workloads from servers and storage systems with low utilization onto single systems, reducing energy use and cost by more than 99,000 MWh and \$11 million in 2013. IBM continued to virtualize tens of thousands of applications in our owned/leased data centers in 2013, as well as in data centers where we operate the IT equipment for clients in their own space.
Implemented	Cooling Efficiencies	In 2013, we completed 300 projects at 85 existing data center locations that reduced energy use by over 53,400 MWh, and saved more than \$5.2 million. These projects included blocking cable and rack openings, rebalancing air flow, shutting down, upgrading and reprovisioning air flow from computer room air conditioning 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 three-dimensional thermal map of the detailed heat sources and sinks within a data center. Using the information provided by MMT the following actions were implemented over the past three years: closing floor opening and reducing the short circuiting of cooling air, shutting down approximately 30% of CRAC units; improving CRAC utilization; and increasing average raised floor temperature by 2.1oC 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 and 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 without compromising our client requirements.
Planned	Server Virtualization	IBM plans to further virtualize server and storage applications at the current pace each year over the next several years to continue to drive increased operational efficiencies.

Status in reporting year	Energy efficiency measure	Comment
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 and other options for cooling systems.
Planned	Power Management Efficiencies	Power management initiation for x86 servers is part of the server installation process 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
EU Code of Conduct	To-date IBM has achieved participant status for 46 of its data centers in the EU. These participant facilities represent over 70% of IBM's data center space in Europe.	
EPA Energy Star	The Boulder leadership data center has been registered to the ENERGY STAR building portfolio.	
LEED	IBM's Leadership data centers in RTP NC, Boulder CO and Barrie Canada are LEED certified.	

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.

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. Where customers are interested, it is possible to use IBM's Active Energy Manager and Tivoli software to measure energy use by dedicated equipment and provide an estimate of associated indirect CO2 emissions.

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. Approximately 1/3 of IBM's strategic data centers in Europe and the U.S. receive some or all of their electricity from renewable generation sources and we are endeavouring to increase this number over time. In 2012, IBM contracted with the landlord of a leased 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 ICT 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. 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 one or more business units or business activities.

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		N/A		IBM does not disclose product sales volumes. As of May 2014, IBM has 14 ENERGY STAR certified server systems available on the market—four System p and ten System x enterprise server systems. 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/and system x servers: http://www-03.ibm.com/systems/x/hardware/energy-star/index.html . The preponderance of new IBM server products with 4 processor sockets or less (not including blade servers) introduced in 2013 were qualified to ENERGY STAR.
Switches/routers	N/A		N/A		N/A		IBM does not disclose product sales volumes. The ENERGY STAR requirements for storage systems were effective in December of 2013. IBM is currently in the process of certifying storage systems to the standard. 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.

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		N/A		N/A	80%	Over 80% of the newly introduced IBM server products with 4 processor sockets or less were qualified to ENERGY STAR in 2012. As of May 2013, IBM had 14 ENERGY STAR qualified server systems available on the market—four System p and ten System x enterprise server systems.

ICT3.5

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

As of May 2014, IBM has 14 version 2 certified server systems available on the market—four System p and 10 System x enterprise server systems. 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 and ENERGY STAR page. IBM intends to qualify system p and system x servers to the ENERGY STAR version 2 requirements, including adding blade and resilient servers. 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 system x and power® systems servers use x86 and POWER7® processors and memory and I/O components power management capabilities to reduce the power drawn by the server when no workload is present by 23 to 67 percent. (b) PureSystems combine automated hardware systems and pre-loaded/pre-tuned application software to maximize system utilization and reduce the total number of servers required in the datacenter. 2 project examples found in the IBM Environmental report show space reductions of 66-75% and energy use reductions of 20-40% (c) IBM announced the zEnterprise® BC12, an entry level mainframe. The new BC12 has the same energy use and cooling footprint as the previous generation model, while supporting 77% greater workload.(d) In 2013, IBM introduced a 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. 2. IBM offers data center services which assist clients in delivering more workload from their data centers for each unit of power consumed. (a) IBM offers best practices Monitoring & Measurement Technology (MMT) surveys & installed thermal sensing systems to clients which improve cooling delivery & temperature consistency in data centers. (b) 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%. The IBM Environmental report and ibm.com website provide examples of a whole range of server and storage consolidation projects. 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. 3. IBM Smarter Planet offerings enable clients to implement systems management of activities such as logistics, water systems, traffic systems, utility grids, & other processes & systems to optimize activity flows & minimize resource use. (a) Cloud computing: IBM Cloud Manager Services (CMS) and SoftLayer supports multiple clients on a shared infrastructure which optimizes hardware utilization and may idle unneeded hardware as workload varies with time. (b) The smarter buildings solution— IBM has entered into several large scale engagements with public and private entities to manage real estate and operations portfolios using IBM Tririga Energy Optimization (ITEO, which will be replaced by Tririga Real Estate Environmental Impact Sustainability Impact Manager in 2014) which enables IBM's clients to better optimize and reduce energy use, by 5% to 13% in two current projects, through monitoring of HVAC systems and power consumption, maintain equipment pro-actively through analytics and assessment

algorithms and improved equipment maintenance processes. (c) Smart Grid management systems: IBM is working with utility companies and governments on projects which utilize smart meters, energy storage, and demand response control to reduce peak electricity demand and better integrate renewable generation into the power grid. Several current projects have reduced household energy use and cost up to 30% and improved dispatching of renewable electricity into the grid. IBM, through its application of its IT expertise in hardware, software & systems, has been a leader in providing energy efficiency and avoided CO2 emissions options for its clients – from ‘dematerialising’ physical goods & services, such things as electronic medical records or on-line music purchases, to travel displacement activities such as Lotus Live & virtual worlds. Estimating energy reductions and CO2 emissions avoidance is dependent on customer adoption of hardware and solutions capabilities and is project dependent. Project specific reduction estimates have been provided. It is not possible to provide a credible estimate of the likely reductions across systems or our client base.

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. Two substitution projects where C2F6 is replaced by NF3 (resulting in in 95 – 99% reduction in GHG emissions for a given process step or piece of manufacturing equipment) and C4F8 (resulting in more fully utilization of C4F8 which also has a lower global warming potential than C2F6) have been used to reduce the facilities emissions associated with PFC use. From 2012 to 2013, the two facilities reduced their PFC related emissions by 16%. IBM also tracks the use of heat transfer fluids. At the facility in Vermont, IBM completed a two-year project to qualify a new non-conductive heat transfer fluid used in tool-specific chiller units. It has a lower vapor pressure and a lower global warming potential than the previous fluid, resulting in less process fluid losses and reducing the metric tons of CO2e emitted from the process by more than two orders of magnitude.

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 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), collaboration solutions (including enterprise messaging, 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 stand alone software and as appliances and integrated hardware systems (IBM's recently announced 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 electronic delivery. 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 one or more business units or business activities.

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?

No

ICT4.5a

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

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. 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. It should also be noted that the majority of IBM's hardware and software manuals can be accessed electronically.

Page: ICT5. Business services (office based activities)

ICT0.1e

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

Yes

ICT5.1

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

IBM has a broad range of consulting services, hardware and semiconductor product design, software design and research activities which occur at its facilities. 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.

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