

**CARBON DISCLOSURE PROJECT**

**EMC 2009 Responses to  
Carbon Disclosure Project CDP7 -  
2009 Investor Information Request &  
Supplier Module**



**v. May 29, 2009**

## Table of Contents

CDP7 Background Information.....	<i>i</i>
Risks and Opportunities.....	1
1. Regulatory Risks.....	1
2. Physical Risks.....	2
3. Other Risks.....	2
4. Regulatory Opportunities.....	2
5. Physical Opportunities.....	2
6. Other Opportunities.....	3
Greenhouse Gas Emissions Accounting, Emissions Intensity, Energy and Trading.....	4
7. Reporting Year.....	4
8. Reporting Boundary.....	5
9. Methodology.....	5
10. Scope 1 Direct GHG Emissions.....	7
11. Scope 2 Indirect GHG Emissions.....	8
12. Contractual Arrangements Supporting Particular Types of Electricity Generation.....	10
13. Scope 3 Other Indirect GHG Emissions.....	10
14. Emissions Avoided Through Use of Goods and Services.....	13
15. Carbon Dioxide Emissions from Biologically Sequestered Carbon.....	13
16. Emissions Intensity.....	14
17. Emissions History.....	14
18. External Verification/Assurance.....	15
19. Data Accuracy.....	16
20. Energy and Fuel Requirements and Costs.....	16
21. EU Emissions Trading Scheme.....	18
22. Emissions Trading.....	19
Performance.....	20
23. Reduction Plans.....	20
24. Planning.....	23
Governance.....	23
25. Responsibility.....	23
26. Individual Performance.....	23
27. Communications.....	24
28. Public Policy.....	25
Supplier Module.....	25
SM 1. Ability to Split Scope 1 and 2 Emissions by Business Category.....	25
SM 2. Your Engagement with Your Suppliers.....	27
SM 3. Emissions over the Lifecycle of Goods and Services.....	28

# EMC 2009 Responses to Carbon Disclosure Project CDP7

## CDP7 Background Information

The following background information is provided for interested EMC stakeholders regarding EMC's participation in the Carbon Disclosure Project (CDP). As described on the CDP website, CDP's mission is to collect and distribute high quality information that motivates investors, corporations and governments to take action to prevent dangerous climate change.

Through annual climate change Information Requests issued on behalf of 475 institutional investors, CDP encourages private and public sector organizations to measure, manage and reduce emissions and climate change impacts. The process of data collection provides management with insight into reducing carbon emissions and provides the private and public sectors with a clear framework and a neutral forum within which to report and discuss the development of climate change strategies. The data is made available to a wide audience including policymakers and their advisers, investors, corporations, academics and the public, in order to raise awareness and advance expertise.

The Carbon Disclosure Project, a company limited by guarantee and registered in England, is a Registered Charity. In the United States, CDP's sponsor liaison is Rockefeller Philanthropy Advisors, which provides CDP with 501(c)3 charitable status. CDP was originally launched in December 2000. The first cycle of the project (CDP1) involved sending a letter and questionnaire to the FT500 largest companies in the world in May 2002. The CDP1 letter was signed by 35 institutional investors who collaborated to provide an efficient mechanism for disclosure. The CDP7 information request was signed by more than 475 institutional investors and sent out to over 3,700 companies in April 2009.

EMC Corporation, although already actively participating in the USEPA's Climate Leaders Program, has been approached by several of our investors who encouraged our participation in the CDP. In response to this investor interest, and in keeping with EMC's existing Corporate Citizenship and Environmental Stewardship policies, EMC participated in 2007 (CDP5), 2008 (CDP6), and 2009 (CDP7). The following report represents EMC's responses to the CDP7 Questionnaire, which were submitted to CDP on May 29, 2009.

EMC also responded to the CDP's Corporate Supply Chain Questionnaire, and our responses are included in this report. EMC is a member of the CDP Corporate Supply Chain Program which seeks to better understand how companies in their supply chains are considering climate change and working to reduce their greenhouse gas (GHG) emissions.

For additional information on the CDP, please visit their website at <http://www.cdproject.net/>

## CDP 2009 Information Request

Respondent: EMC Corporation

---

### General introduction

#### EMC Company Background

EMC provides products, services, software, and solutions for information management and storage that help organizations extract the maximum value from their information, at the lowest total cost, across every point in the information lifecycle. Established in 1979, EMC is represented by EMC direct sales and distribution partners in more than 60 countries. EMC systems are manufactured in Massachusetts and North Carolina in the US, and in Cork, Ireland. With 2008 revenues of more than \$14 billion, EMC employs approximately 40,000 people worldwide. The company is based in Hopkinton, Massachusetts.

EMC recognizes investor concern with potential climate change risks to and opportunities for businesses, and therefore, we have actively and aggressively implemented practices to address, minimize, and mitigate climate-related risks to our business operations while actively maximizing opportunities. Our responses to the CDP are intended to communicate transparently to concerned stakeholders our activities in these areas. As an information technology company, indirect emissions from purchased electricity represent the primary source of GHG emissions from our operations and products.

In accordance with our Corporate Environmental Policy, EMC recognizes our environmental responsibilities to our shareholders, employees, customers and the general public, and is committed to continuous improvement of our environmental management systems. EMC's ISO 14001 certification efforts have expanded to include manufacturing facilities worldwide to complement the existing ISO 9000 accreditations that are currently maintained in each facility. We are working diligently with our employees, suppliers, and contractors to prevent pollution through reduce, reuse, and recycling efforts. EMC's environmental commitment is integral to our corporate vision, mission, and values. This commitment is reflected in our ongoing efforts to:

- Align our production processes to minimize our impact on the environment.
- Reduce our energy consumption and associated GHG emissions.
- Develop products with consideration for environmental impact.
- Dispose of waste generated from operations in a socially responsible and environmentally safe manner.
- Monitor, control, and reduce emissions and discharges from our facilities.
- Actively communicate with interested parties and stakeholders that may be affected by our environmental performance.
- Actively raise awareness of environmental issues for EMC employees and our stakeholder community.

For more information on our environmental programs, visit us at <http://www.emc.com/about/global-citizenship/index.htm>

Certain information contained in this CDP7 Report could constitute forward-looking statements, within the meaning of the Federal securities laws, about EMC's business and prospects. Such forward-looking statements do not include the potential impact of any mergers, acquisitions, divestitures, securities offerings or business combinations that may be announced or consummated after the date of this CDP7 Report. Future results may differ materially from our past results and from those projected in the forward-looking statements due to various uncertainties and risks, including those described in this CDP7 Report. We disclaim any obligation to update any forward-looking statements contained herein after the date of this CDP7 Report.

### Risk and Opportunities

#### 1. Regulatory Risks: (CDP6 1(a)(i))

##### 1.1 Is your company exposed to regulatory risks related to climate change?

We consider our company to be exposed to regulatory risks.

As EMC's operations predominantly result in indirect emissions of greenhouse gas (GHG) (i.e., Scope 2 emissions from electricity use at EMC's operationally controlled facilities), potential risks to EMC business operations from existing and potential future climate change-related regulations are anticipated to be primarily from increased electricity supply costs associated with regulation of direct emitting power plants. As electric power companies become subject to regulations to reduce greenhouse gas emissions, this in turn could result in increased costs for purchased electricity. However, electricity costs are a small fraction of EMC's total operating costs, and given EMC's proactive energy efficiency initiatives (described herein), we believe that electricity cost increases do not present a significant risk to EMC continued business success.

A second potential area of regulatory risk would be promulgation of technology efficiency regulations directed at information technology products and that may not be formulated to be technology-neutral in application and effect, i.e., a regulation that unfairly favors the technology of a competitor. These regulatory risks also could be incurred by our suppliers either directly, by legislation that impacts their operations and therefore EMC's costs for raw material and component goods, or indirectly through potential trade measures taken by nations to equalize disparities in the local costs of carbon.

As discussed in the opportunity sections below, EMC is well positioned to address these potential risks, and potentially benefit from climate change related business opportunities. EMC believes that business risks due to potential climate change regulations can be effectively managed and offset by being proactive and energy efficient in our operations and product and services offerings, and by participating actively in the definition of metrics via industry consortia and working directly with government agencies such as the USEPA and European Commission. We therefore perceive no significant regulatory risk to our continued business success. An overview of current climate-related regulations affecting our business is provided below.

#### Regulatory Overview

In response to the Kyoto Protocol, the European Union has implemented an Emissions Trading Scheme that works as a cap and trade process (EU Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003). EMC's manufacturing facility in Cork, Ireland has obtained a GHG Permit with allowances under this program and reports its direct CO2 emissions to the Ireland EPA on an annual basis. This regulation affects only direct Scope 1 emissions of CO2 and does not require reporting of indirect emissions from electricity purchases, but electricity efficiency continues to make good business sense from a cost reduction perspective and for achieving environmental benefits from associated GHG reductions.

Although not enacted, EMC is aware that USEPA has issued a proposed rule, signed March 10, 2009, for mandatory GHG reporting using its existing authority under the Clean Air Act (CAA). The proposed rule requires mandatory reporting of GHG emissions from large sources in the United States and is intended to collect accurate and comprehensive emissions data to inform future policy decisions. If finalized as is, the rule would require suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG to submit annual reports to EPA. Based on proposed rule requirements, EMC's facilities would not be required to report.

Further information

## 2. Physical Risks: (CDP6 1(a)(ii))

### 2.1 Is your company exposed to physical risks from climate change?

We consider our company to be exposed to physical risks.

Predicted potential physical effects from climate change include sea level rise, increased storm severity and hurricanes, droughts, flooding, and wildfires impacting EMC or partners, suppliers, or customers. Health risks also could result due to spread of diseases. As an information technology industry that is not geographically located in coastal areas subject to flooding, and a business that does not rely on significant water resources for manufacturing, the primary direct physical risk to EMC's operations is expected to be potential for infrastructure damage and related power outages from storms, brownouts from overburdened power grids, and possible business continuity risks due to outbreaks of communicable disease. Such physical risks could affect both EMC facility operations as well as supply chain viability.

To manage physical risks, EMC's has implemented Business Continuity Plans, Crisis Management Plans, Disaster Recovery Plans, and Pandemic Preparedness Plans that include procedures, training, and infrastructure to ensure our ability to maintain business continuity in the event of climate-change-related natural disasters and disease outbreaks. In addition, we have implemented facility upgrades with back-up power and extended fuel supplies to ensure critical business functions will continue in the event of power outages and brownouts. EMC will continue to evaluate potential physical risks to our business operations via our business continuity programs. Our infrastructure, systems, programs, and procedures will be updated and expanded as new information on risks and best preventive practices become available.

In addition, EMC's Global Supply Chain group maintains a Business Continuity Program relative to EMC's supply chain process. The program evaluates the risk of disruptions that can occur due to a number of causes, including environmental events such as hurricanes, floods, etc. As part of this evaluation, the program assesses the level of impact of supplier disruption, as well as regional risk (environment, social, political, etc). We then ensure that mitigation plans are in place for all medium and high risk areas/suppliers. This program proactively addresses concerns of continuity of supply and goes hand in hand with our multi-sourcing strategy. We are working closely with our suppliers to expand our program to look at their mitigation plans and strengthen their preparedness for disruption events.

Further information

## 3. Other Risks: (CDP6 1(a)(iii))

### 3.1 Is your company exposed to other risks as a result of climate change?

We consider our company to be exposed to other risks.

Today's data centers face critical energy issues, including power and cooling limitations, high energy demands and costs, and brownouts and outages from overburdened power grids. Meanwhile, data growth continues to increase. Increased energy costs and supply constraints are expected to spur customers and data center operators to seek greater efficiency from enterprise servers and data centers. This in turn will require IT equipment providers to offer energy efficient hardware systems, software, and services, wherein exist both adaptation risks and business opportunities.

There are also potential reputation risks to businesses that fail to implement sensible strategies and commitments to reduce energy consumption and invest in renewable and sustainable energy alternatives. These risks may also be incurred by our suppliers or partners. As described in this report, by being proactive in addressing energy efficiency initiatives, supply chain management, and evolving climate change regulatory policy, EMC is well positioned to address these potential risks, and benefit from climate related business opportunities.

Further information

## 4. Regulatory Opportunities: (CDP6 1(b)(i))

### 4.1 Do regulatory requirements on climate change present opportunities for your company?

Regulatory requirements present opportunities for my company.

Our involvement with USEPA's Climate Leaders and ENERGY STAR programs and our engagement with IT industry organizations such as The Green Grid, Distributed Management Task Force, and Storage Network Industry Association allow us to participate in the development of standards and metrics for energy efficiency. Proactive regulatory engagement along with our diversified product and services portfolio and technology innovations keep us competitively positioned. These investments ensure that our business is ready to adapt to potential future regulation. As detailed in other sections of this report, EMC already has developed a GHG management strategy, and we are offering products and services that target a carbon constrained economy. For more information on these opportunities, please see questions 5 & 6.

Further information

## 5. Physical Opportunities: (CDP6 1(b)(ii))

### 5.1 Do physical changes resulting from climate change present opportunities for your company?

Physical changes present opportunities for my company.

Given the forecasts for potential increased power outages, storm-related disruptions, and supply shortages accompanied by projections for significant increases in digital information storage requirements, EMC believes there are substantial business opportunities to provide equipment and services to companies affected by and seeking to protect themselves from climate related business risks. These opportunities come from businesses looking to minimize exposure to data loss from a disaster and protect their critical business data on highly reliable and secure back-up servers.

EMC provides business recovery, continuity, and back-up products, solutions, and services to companies threatened by power outages and other physical disruptions to business operations, including:

Data Replication products and solutions that help companies minimize exposure to data loss from a disaster and quickly restore applications upon recovery.

For more information go to: <http://www.emc.com/products/category/replication.htm>

Disaster Recovery products & solutions that minimize a companies' exposure to data loss from a disaster by allowing companies to meet demanding service level requirements for recovery time and data loss. These solutions also rapidly restart applications upon failure and replicate information at remote locations.

For more information go to: <http://www.emc.com/solutions/business-need/business-continuity-availability/affordable-disaster-recovery.htm>  
<http://www.emc.com/products/category/backup-recovery.htm>

Business Continuity products and solutions that ensure applications and data are available during planned and unplanned outages. These products solutions are designed to help companies survive a disaster and continue business operations. EMC Business Continuity Services help companies develop high-availability disaster-recovery strategies to protect critical business functions.

For more information go to: <http://www.emc.com/solutions/business-need/business-continuity-availability/enterprise-business-continuity.htm>  
<http://www.emc.com/solutions/business-need/business-continuity-availability/heterogeneous-data-replication.htm>

#### Further information

Flagship products include EMC Symmetrix® Remote Data Facility (SRDF). SRDF is a data mirroring service which provides a means for companies to protect their business critical data on remote servers. The SRDF family of software is a powerful suite of remote storage replication solutions available for disaster recovery and business continuity.

The EMC RecoverPoint® family delivers the advantages of host-based and array-based replication solutions from any SAN-based array to any other SAN-based array over the existing Fibre Channel or Internet Protocol (IP) network. These capabilities protect companies from data loss due to common problems, while also protecting against catastrophic events such as those from climate change or disruption of energy supply that can bring an entire data center to a standstill.

EMC Celerra® Replicator provides data replication over Internet Protocol IP networks. These capabilities enable companies to backup and use networked storage resources more efficiently while keeping remote copy and production data accessible at all times.

EMC MirrorView ensures information is protected from both system and site failures. It leverages the power of EMC CLARiiON networked storage systems—to offer both synchronous and asynchronous remote mirroring.

EMC Avamar® is backup and recovery software that utilizes data de-duplication technology to identify redundant data segments at the source (or client), reducing daily backup data by up to 500x—before it is transferred across the network and stored to disk. This allows companies to utilize existing WAN bandwidth and backup data can be encrypted for added security.

EMC offers three disk library models that deliver a simple-to-deploy and easy-to-use disk-based backup and recovery solution providing faster backup and restore and improved service levels.

EMC NetWorker® enterprise backup and recovery software centralizes, automates, and accelerates data backup and recovery across IT environments, protecting critical business data in a fast, secure, and easy-to-manage way.

EMC Centera® Backup and Recovery Module enables tape backup and restore of EMC Centera storage system content using industry-standard backup software.

Visit our website pages (above links) to view various white papers, analysts' reports, abstracts, and other additional descriptive information on our products and services.

## 6. Other Opportunities: (CDP6 1(b)(iii))

### 6.1 Does climate change present other opportunities for your company?

Climate change presents other opportunities for my company.

Given the forecasts for increased energy costs accompanied by projections for significant increases in digital information storage requirements, EMC believes there are substantial business opportunities to provide equipment, solutions, services, and software to companies affected by and seeking to protect themselves from climate related business risks. These opportunities come from businesses looking to invest in more efficient data centers, procure more efficient technology and server equipment, and achieve energy efficiency through infrastructure consolidation, Information Lifecycle Management (ILM), and virtualization software.

IT managers are wrestling with a host of new challenges in storage infrastructure. Traditional scalability and cost considerations have been joined by new demands for security and power efficiency. Organizations of all sizes are trying to meet these demands as they work to manage operating budgets and keep complexity from overwhelming their limited staff resources. EMC addresses these challenges through innovations, enhancements, and investment protection in its storage platforms, software, and operating environments. In addition, as a result of reducing complexity and increasing power efficiency, energy use and associated GHG emissions decrease. For more information go to: <http://www.emc.com/solutions/business-need/energy-efficiency/index.htm>

#### Energy Efficiency Design and Services

EMC is designing high efficiency storage platforms and services to reduce electricity usage in our equipment. Our design engineers are spearheading the design of energy-efficient systems using innovative power and cooling techniques, advanced storage technologies, and power-aware information management software to increase storage capacity while reducing energy footprint.

EMC Energy Efficiency Services also offer worldwide data center infrastructure analysis to our clients as a service to reduce electrical usage and associated data center cooling costs. EMC consulting services help customers use the right hardware and correct software to maximize energy efficiency. EMC offers a "Power Calculator" utility

that allows customers to calculate expected energy consumption for their unique EMC hardware configurations and determine where consolidation and associated cooling savings are achievable.

For over 15 years, EMC consultants have been helping customers optimize energy utilization in their data centers. EMC delivers customized energy strategies that align business, financial, and technology objectives - so that businesses can benefit from lower energy costs and increased efficiency, and gain the ability to accommodate energy demand growth over time. Through the right combination of server and storage virtualization, storage optimization, and power and cooling component choices, customers can manage energy consumption more effectively. EMC helps design and deploy approaches to achieve efficiency in existing and new data center infrastructures, and to manage these efficiencies moving forward.

Using advanced tools like the EMC power calculator, EMC helps businesses to manage more data, more efficiently - while reducing power and cooling costs. EMC storage platforms are designed to consume less energy per terabyte than alternative solutions. For example, in consolidated and tiered storage environments, the EMC Symmetrix DMX-3 950 reduces energy use by as much as 70 percent compared to alternatives.

#### Energy Efficient Storage Platforms

Power and cooling considerations are key concerns in data centers of all sizes. New EMC Centera nodes deliver up to 67 percent improvement in energy consumption and cooling per terabyte stored and are compatible with existing systems to provide investment protection. EMC's storage platforms leverage new low-power SATA 1TB drive technology to deliver up to a 33 percent reduction in energy consumption per spindle and 94 percent per equivalent capacity, as well as providing adaptive cooling to reduce power costs associated with cooling.

#### Flash Drive Solid State Technology and Storage Tiering

EMC has integrated enterprise-class Flash drives directly into the Symmetrix, CLARiiON and Celerra storage arrays. Flash drives, also referred to as solid state drives (SSD), contain no moving parts and use 97.7 percent less energy per IOP than 15,000 RPM FC drives. EMC provides both Flash Drives for performance and low-power SATA disks for capacity and cost requirements in a single array - along with tools that enable companies to move data non-disruptively to the most energy efficient tier of storage.

#### Data Deduplication

EMC provides a portfolio of products that reduce excess capacity and energy costs associated with redundant data. Archive deduplication eliminates unneeded copies of inactive data. Backup de-duplication reduces data at the source and is ideal for remote office, and VMware backups. EMC Disk Library 3D products deduplicate at the target and are well suited for SAN and LAN backup to disk environments. While EMC primary file system deduplication with compression reduce production data.

#### Virtualization Products

EMC offers Virtualization and ILM software that can greatly increase the energy efficiency of existing data centers/servers by consolidating hardware assets, thereby significantly reducing energy consumption of IT equipment and reducing construction of additional data center facilities. EMC provides a new class of virtualization technologies and services that help businesses transform and manage their infrastructure more efficiently. Businesses can simplify management of server, SAN, and NAS storage assets and significantly reduce power and cooling costs through energy efficiencies. For more information visit us at: <http://www.emc.com/products/category/virtualization.htm>

Server Virtualization using VMware software transforms IT infrastructure for enterprises of all sizes to increase power efficiencies and reduce the cost of IT operations. In addition to virtualization, efficient asset utilization using EMC technologies, such as space-saving snaps, storage tiering, virtual provisioning, and data de-duplication allow data centers to be operated at a higher level of efficiency, which reduces not only the energy consumed by underutilized equipment, but also staves off construction of new datacenters. To that end, EMC is not only becoming energy efficient, but also is enabling customers to achieve greater efficiencies with EMC-developed products for data center optimization. For more information visit us at: <http://www.emc.com/solutions/business-need/virtualizing-information-infrastructure/index.htm>

#### Further information

EMC Rainfinity Global File Virtualization optimizes NAS storage so businesses can increase storage power efficiency to help reduce capital expenditures and overall total cost of ownership.

EMC Invista network-based virtualization boosts power efficiency so businesses can allocate data storage to applications, when and where needed. Invista makes it easy to move data across storage tiers, a key capability for optimizing cost and power consumption.

EMC Symmetrix, EMC CLARiiON and EMC Celerra provide virtual provisioning capabilities. Virtual Provisioning enables organizations to reduce costs by simplifying storage management and increasing capacity utilization. Virtual Provisioning enables a user to present a large amount of capacity to a host or application, and then consume space only as needed from a shared pool. This improves energy efficiency by reducing initial over-allocation of physical storage capacity.

Visit our website pages (above links) to view various white papers, analysts' reports, abstracts, and other additional descriptive information on our products and services.

## Greenhouse Gas (GHG) Emissions Accounting, Emissions Intensity, Energy and Trading

### 7. Reporting Year (CDP6 Q2(a)(ii))

Information about how to respond to this section may be found in "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)" developed by the World Resources Institute and the World Business Council for Sustainable Development ("the GHG Protocol"), see <http://www.ghgprotocol.org/>. ISO 14064-1 is compatible with the GHG Protocol as are a number of regional/national programme protocols. For more information see <http://www.ghgprotocol.org/> and use the guidance button above.

Please provide CDP with responses to questions 7, 8, 9, 10.1, 10.2, 11.1 and 11.2 for the three years prior to the current reporting year if you have not done so before or if this is the first time you have answered a CDP information request. Please work backwards from the current reporting year, so that you enter data for your oldest reporting period last.

Questions 10.1, 10.2, 11.1, and 11.2 are on subsequent webpages and the dates that you give in answer to question 7 will be carried forwards to automatically populate those webpages.

7.1. Please state the start date and end date of the year for which you are reporting GHG emissions.

Start date: 01 January 2008

End date: 31 December 2008

Financial accounting year: 01 January 2008

## 8. Reporting Boundary: (CDP6 Q2(a)(i))

8.1. Please indicate the category that describes the company, entities, or group for which Scope 1 and Scope 2 GHG emissions are reported.

Other

Operations and facilities over which operational control is exercised.

8.2. Please state whether any parts of your business or sources of GHG emissions are excluded from your reporting boundary.

We do not believe we have excluded any sources of GHG emissions from our reporting boundary. We have, however, made some simplifying assumptions for small volumes of emissions as described in the following paragraphs.

Direct emissions from emergency generators have been quantified for our 2005 Base Year by reviewing generator operating logs, calculating associated fuel use based on maximum fuel consumption rate for each generator, and applying Climate Leaders emission factors for diesel fuel and natural gas combustion. Even by overestimating fuel consumption using maximum fuel consumption rates, the Base Year calculations indicate that GHG emissions from operation of emergency generators is only ~0.2% of our US corporate total GHG emissions. Because of the low contribution to corporate GHG emissions, and because emergency generators are intended for use during power outages which EMC cannot control, the EPA approved that EMC will not continue to track generator emissions as part of Climate Leaders, but instead assumes that these emissions remain fairly constant. Therefore, Base Year emergency generator GHG emissions are assumed to remain constant for future years' GHG accounting.

Likewise, direct emissions from fugitive refrigerant use from stationary sources were quantified in 2004 by compiling service records of net refrigerant additions over the course of the year for each facility and using Climate Leaders emission factors to calculate refrigerant emissions. Our 2004 calculations indicate that GHG emissions from refrigerant use are only ~0.3% of our US corporate total GHG emissions. Because of the low contribution to corporate GHG emissions, and because there is only a very low potential to achieve emission reductions from insignificant refrigerant use, the EPA allowed EMC to discontinue tracking refrigerant emissions from stationary sources as part of Climate Leaders, but instead will assume that these emissions remain fairly constant. As a result, the 2004 refrigerant GHG emissions calculations may be used in future years' GHG accounting.

## 9. Methodology: (CDP6 Q2(a)(iii))

9.1. Please describe the process used by your company to calculate Scope 1 and Scope 2 GHG emissions including the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 GHG emissions.

Please provide your answer in the text box. In addition to this description, if relevant, select a methodology from the list of published methodologies. This will aid automated analysis of the data.

EMC completed a GHG Inventory Management Plan (IMP), which uses the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD) methodologies and was reviewed and approved by the USEPA. A copy of our IMP is posted on the USEPA's Climate Leaders website.

[http://www.epa.gov/climateleaders/documents/resources/emc\\_imp.pdf](http://www.epa.gov/climateleaders/documents/resources/emc_imp.pdf)

### Organizational Boundaries

For setting organizational boundaries and for corporate reporting of consolidated GHG emissions, EMC uses the USEPA's Operational Control Approach. Under this approach, EMC accounts for 100% of the GHG emissions from US operations over which it has control. Operational Control means that EMC has the full authority to introduce and implement its operating policies "at the operation." Further details on EMC's IMP have been highlighted on EPA's Climate Leaders website.

EMC has operational control over owned and leased facilities located in Massachusetts, North Carolina, Georgia, and California in the US, and in Cork, Ireland. Facilities excluded from the IMP because EMC does not have operational control include small administrative, sales, and limited engineering offices located throughout the world. These locations, with few exceptions, individually have only insignificant GHG emissions. For the purpose of reporting global emissions to CDP, we have included estimates for our global office locations.

### Operational Boundaries

Setting operational boundaries involves identifying the emissions associated with EMC's operations and categorizing them as either core direct, core indirect, or optional emissions. At a minimum, all core direct (Scope 1) and core indirect (Scope 2) GHG emissions from our major US facilities are reported under the Climate Leaders Program. EMC currently does not report optional (Scope 3) emissions under the Climate Leaders Program, but we have included Scope 3 GHG emissions from employee business travel in Section 2(c) of this CDP6 report. Under the Climate Leaders Program, EMC must account for and report GHG information separately for each emissions category. Separate reporting of direct and indirect emissions ensures that independent companies do not report the same emissions. EMC has evaluated and identified core emissions from its operations in our IMP.

Electricity is purchased from various utilities to provide lighting and power to facility systems at all of EMC's operationally-controlled facilities. Facilities are heated by natural gas and, at a few locations, by propane. Certain Facility HVAC, kitchen coolers, and chiller process equipment contain HFCs. However, PFC's (perfluorocarbons) and SF6 (sulfur hexafluoride) emissions are not released as part of EMC's operations (typically found in the semiconductor industry). EMC also operates owned or leased fleet vehicles and corporate jets (mobile sources) for which we calculate and report Scope 1 emissions.

The following method is used to quantify GHG emissions from the various sources at EMC facilities:

- Indirect emissions are quantified by compiling electric bills issued to each controlled facility and applying Climate Leaders and WRI emission factors associated with the electric grid sub-region defined by eGRID.
- Direct emissions from facility heating via utility natural gas are quantified by compiling natural gas bills issued to each controlled facility and applying Climate Leaders and WRI emission factors for natural gas combustion. Likewise, direct emissions from facility heating via propane are quantified by compiling propane bills and applying Climate Leaders and WRI emission factors for propane combustion.
- Direct emissions from owned or leased mobile sources are calculated based on fuel purchase records tracked under EMC corporate fleet program and based on jet fuel purchases for EMC corporate jets. Climate Leaders and WRI emission factors are used to calculate these mobile source emissions. Detailed calculations of the above emissions, including conversion of CH4, N2O, and HFCs to CO2-equivalent emissions, are provided to EPA in our annual Climate Leaders reporting. (Our Cork, Ireland facility independently calculates and reports CO2 emissions using Ireland EPA reporting guidance for the EU ETS program.)

Select methodologies:

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

Please also provide:

#### 9.2 Details of any assumptions made.

US Corporate Campuses represent operationally controlled EMC facilities for which Scope 1 and Scope 2 emissions are calculated using actual energy use according to WRI, WBCSD, and USEPA Climate Leaders Program protocol. Our Cork, Ireland facility reports Scope 1 emissions in accordance with Ireland EPA GHG Permit requirements and emission factors. Likewise, Scope 2 emissions from our Cork facility were calculated using actual kWh electric power consumption. EMC's other global facilities represent smaller locations worldwide for which energy use and associated GHG emissions have been estimated based on total facility square feet of office space for each region reported on EMC's US Securities and Exchange Commission Annual Report on Form 10K for the year ended December 31, 2008.

Estimates of electrical and natural gas use associated with EMC's small office locations worldwide were calculated using published US Energy Information Administration (EIA) 2003 Electricity and Natural Gas Consumption and Conditional Energy Intensity by Building per square feet of office space. For lab space, electricity use intensity was estimated using a typical EMC lab facility intensity factor. Using this estimated energy usage, Scope 1 emissions were calculated using WRI and USEPA emissions factors for natural gas combustion as used for EMC's corporate USEPA Climate Leaders Program. Scope 2 emissions were estimated using IEA Data Service 2007 CO2 Emissions from Fuel Combustion weighted by number of offices located within each geographic region of operations.

#### 9.3 The names of and links to any calculation tools used.

For Scope 3 Business Travel Emissions - CO2 Emissions from Business Travel. Version 2.0. June 2006. Developed by World Resources Institute (WRI) and copyrighted. Available at [www.ghgprotocol.org](http://www.ghgprotocol.org) - <http://www.ghgprotocol.org/calculation-tools>

Select calculation tools:

GHG Protocol - CO2 emissions from business travel 1.2 August 2005

#### 9.4 The global warming potentials you have applied and their origin.

The following GWP's were used as provided by the USEPA Climate Leaders Program:

CO2 = 1  
CH4 = 21 gwp  
N2O = 310 gwp  
R-134A = 1,300 gwp  
R-401A = 18.2 gwp  
R-401B = 15.4 gwp  
R-402A = 1,680 gwp  
R-404A = 3,260 gwp

#### 9.5 The emission factors you have applied and their origin.

The following emission factors were used as provided by the USEPA Climate Leaders Program.

Diesel Fuel:

CO2 = 73.15 kg/MMBtu  
CH4 = 0.0006 kg/MMBtu  
N2O = 0.011 kg/MMBtu

Natural Gas:

CO2 = 53.06 kg/MMBtu  
CH4 = 0.0001 kg/MMBtu  
N2O = 0.005 kg/MMBtu

Propane:

CO2 = 63.16 kg/MMBtu  
CH4 = 0.0006 kg/MMBtu  
N2O = 0.011 kg/MMBtu

Mobile Sources:

CO2 CH4 N2O  
Gasoline EF(kg/gallon): 8.81 Varies\* Varies\*  
Diesel EF(kg/gallon): 10.15 Varies\* Varies\*  
Jet Fuel EF(kg/gallon): 9.57 0.00027 0.00031

\*Varies per vehicle model year - refer to USEPA Climate Leaders Guidance

eGrid Factors for Corporate US Locations:

Region CO2 CH4 N2O  
 NEWE (lbs/MWh): 908.90 0.0798 0.0153  
 SRVC (lbs/MWh): 1146.39 0.0294 0.0192  
 SRSO (lbs/MWh): 1490.37 0.0395 0.0249  
 CALI (lbs/MWh): 878.71 0.0359 0.0084

Further information

EMC has operationally controlled facilities and campuses in the US and in Cork, Ireland. We have smaller administrative, sales, and limited engineering lab space in over 50 countries worldwide. These smaller locations do not individually have significant GHG emissions. Refer to question 9.2 above for the methodology used for calculating emissions from small offices and lab space.

10. Scope 1 Direct GHG Emissions: (CDP6 Q2(b)(i))

Instructions for question 10 and question 11 (following page)

When providing answers to questions 10 and 11, please do not deduct offset credits, Renewable Energy Certificates etc, or net off any estimated avoided emissions from the export of renewable energy, carbon sequestration (including enhanced oil recovery) or from the use of goods and services. Opportunities to provide details of activities that reduce or avoid emissions are provided elsewhere in the information request.

Carbon dioxide emissions from biologically sequestered carbon e.g. carbon dioxide from burning biomass/biofuels should be reported separately from emissions Scopes 1, 2 and 3. If relevant, please report these emissions in question 15. However, please do include any nitrous oxide or methane emissions from biomass/biofuel combustion in your emissions under the three scopes.

Please answer the following questions using Table 1.

Please provide:

10.1. Total gross global Scope 1 GHG emissions in metric tonnes of CO<sub>2</sub>-e

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

10.2. Country or region

Please provide CDP with responses to questions 10.1 and 10.2 for the three years prior to the current reporting year if you have not done so before or if this is the first time you have answered a CDP information request. Please work backwards from the current reporting year, so that you enter data for your oldest reporting period last. Table 1 (below) and table 5 (Q11.1 and 11.2) will be automatically populated with the dates that you give in answer to 7.1.

Electric utilities should report emissions by country/region using the table in question EU3.

Table 1 - Please use whole numbers only. Use the "Other" option in the drop down menu to enter the name of a region.

Reporting year Q7.1 Start date	01/01/2008	01/01/2007	01/01/2006	01/01/2005
Reporting year Q7.1 End date	31/12/2008	31/12/2007	31/12/2006	31/12/2005
<b>10.1 Total gross global Scope 1 GHG emissions in metric tonnes CO<sub>2</sub>-e</b>	<b>35850</b>	<b>38498</b>	<b>31336</b>	<b>32396</b>
<b>10.2 Gross Scope 1 emissions in metric tonnes CO<sub>2</sub>-e by country or region</b>				
USA	14338	15159	12256	13440
Ireland	3219	3021	3278	3670
Rest of World	18293	20318	15802	15286

Your answer to question 10.1 will be automatically carried forward to tables 2 and 3 below if you add a country or region in answer to 10.2 or press "Save" at the end of the page.

Please tick the box if your total gross global Scope 1 figure (Q10.1) includes emissions that you have transferred outside your reporting boundary (as given in answer to 8.1). Please report these transfers under 13.5.

Where it will facilitate a better understanding of your business, please also break down your total global Scope 1 emissions by:

10.3. Business division

and/or

10.4. Facility

10.3. Business division (only data for the current reporting year requested)

Table 2 - Please use whole numbers only.

Business Divisions - Enter names below	Scope 1 Metric tonnes CO2-e
<b>Total gross global Scope 1 GHG emissions in metric tonnes CO<sub>2</sub>-e - answer to question Q10.1</b>	<b>35850</b>

10.4. Facility (only data for the current reporting year requested)

Table 3 - Please use whole numbers only.

Facilities - Enter names below	Scope 1 Metric tonnes CO2-e
<b>Total gross global Scope 1 GHG emissions in metric tonnes CO<sub>2</sub>-e - answer to question Q10.1</b>	<b>35850</b>
<a href="#">Franklin Massachusetts Manufacturing Facility</a>	1994
<a href="#">Apex North Carolina Manufacturing Facility</a>	35
<a href="#">Cork Ireland Manufacturing Facility</a>	3219

10.5. Please break down your total global Scope 1 GHG emissions in metric tonnes of the gas and metric tonnes of CO<sub>2</sub>-e by GHG type. (Only data for the current reporting year requested.)

Table 4 - Please use whole numbers only.

Scope 1 GHG Type	Unit	Quantity
CO <sub>2</sub>	Metric tonnes	34299
CH4	Metric tonnes	1
CH4	Metric tonnes CO <sub>2</sub> -e	3
N2O	Metric tonnes	3
N2O	Metric tonnes CO <sub>2</sub> -e	951
HFCs	Metric tonnes	1
HFCs	Metric tonnes CO <sub>2</sub> -e	596
PFCs	Metric tonnes	0
PFCs	Metric tonnes CO <sub>2</sub> -e	0
SF6	Metric tonnes	0
SF6	Metric tonnes CO <sub>2</sub> -e	0

10.6. If you have not provided any information about Scope 1 emissions in response to the questions above, please explain your reasons and describe any plans you have for collecting Scope 1 GHG emissions information in future.

Further information

Note that US Regional emissions provided above represent corporate US campus locations which meet the Operational Control criteria for our GHG accounting methodology (described previously in this report). Emissions from small office locations within the US which do not meet the Operational Control criteria are included in the "Rest of World" emissions value provided above.

EMC operates three primary manufacturing plants (Franklin, Apex, & Cork), which are reported above for Facility-level GHG emissions. Scope 1 emissions reported for Facility-level above do not include mobile source emissions, as these emissions are calculated on a regional and global basis and cannot be accurately apportioned to any single facility. Also, Facility-level emissions do not include refrigeration emissions which, as described previously, are not significant. However, mobile source and refrigerant GHG emissions are included in the global Scope 1 emissions reported above.

11. Scope 2 Indirect GHG Emissions: (CDP6 Q2(b)(i))

Important note about emission factors where zero or low carbon electricity is purchased:

The emissions factor you should use for calculating Scope 2 emissions depends upon whether the electricity you purchase is counted in calculating the grid average emissions factor or not – see below. You can find this out from your supplier.

Electricity that IS counted in calculating the grid average emissions factor:

Where electricity is sourced from the grid and that electricity has been counted in calculating the grid average emissions factor, Scope 2 emissions must be calculated using the grid average emissions factor, even if your company purchases electricity under a zero or low carbon electricity tariff.

Electricity that is NOT counted in calculating the grid average emissions factor:

Where zero or low carbon electricity is sourced from the grid or otherwise transmitted to the company and that electricity is not counted in calculating the grid average, the emissions factor specific to that method of generation can be used, provided that any certificates quantifying GHG-related environmental benefits claimed for the electricity are not sold or passed on separately from the electricity purchased.

[Click here](#) to see the instructions from the previous page on answering question 11.

Please answer the following questions using Table 5.

Please provide:

11.1. Total gross global Scope 2 GHG emissions in metric tonnes of CO<sub>2</sub>-e.

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

11.2. Country or region

Please provide CDP with responses to questions 11.1 and 11.2 for the three years prior to the current reporting year if you have not done so before or if this is the first time you have answered a CDP information request. Please work backwards from the current reporting year, so that you enter data for your oldest reporting period last. Table 5 will be automatically populated with the dates that you gave in answer to 7.1.

Table 5 - Please use whole numbers only. Use the "Other" option in the drop down menu to enter the name of a region.

Reporting year Q7.1 Start date	01/01/2008	01/01/2007	01/01/2006	01/01/2005
Reporting year Q7.1 End date	31/12/2008	31/12/2007	31/12/2006	31/12/2005
11.1 Total gross global Scope 2 GHG emissions in metric tonnes CO <sub>2</sub> -e	335770	312471	285458	266014
<b>11.2 Gross Scope 2 emissions in metric tonnes CO<sub>2</sub>-e by country or region</b>				
USA	208122	193659	190910	173025
Ireland	34066	34246	33182	29895
Rest of World	93581	84567	61367	63093

Your answer to 11.1 will be automatically carried forward to tables 6 and 7 below if you add a country or region in answer to 11.2 or press "Save" at the end of the page.

Where it will facilitate a better understanding of your business, please also break down your total global Scope 2 emissions by:

11.3. Business division

and/or

11.4. Facility

11.3. Business division (only data for the current reporting year requested)

Table 6 - Please use whole numbers only.

Business Divisions - Enter names below	Scope 2 Metric tonnes CO <sub>2</sub> -e
Total gross global Scope 2 GHG emissions in metric tonnes CO <sub>2</sub> -e - answer to question Q11.1	335770

11.4. Facility (only data for the current reporting year requested)

Table 7 - Please use whole numbers only.

Facilities - Enter names below	Scope 2 Metric tonnes CO <sub>2</sub> -e
Total gross global Scope 2 GHG emissions in metric tonnes CO <sub>2</sub> -e - answer to question Q11.1	335770
<a href="#">Franklin Massachusetts Manufacturing Facility</a>	27182
<a href="#">Apex North Carolina Manufacturing Facility</a>	9380
<a href="#">Cork Ireland Manufacturing Facility</a>	34066

11.5. If you have not provided any information about Scope 2 emissions in response to the questions above, please explain your reasons and describe any plans you have for collecting Scope 2 GHG emissions information in future.

#### Further information

USA Regional emissions provided above represent corporate US campus locations which meet the Operational Control criteria for our GHG accounting methodology (described previously in this report). Emissions from small office locations within the US which do not meet the Operational Control criteria are included in the "Rest of World" emissions value provided above.

## 12. Contractual Arrangements Supporting Particular Types of Electricity Generation: (CDP6 Q2(b)(i)- Guidance)

12.1. If you consider that the grid average factor used to report Scope 2 emissions in question 11 does not reflect the contractual arrangements you have with electricity suppliers, (for example, because you purchase electricity using a zero or low carbon electricity tariff), you may calculate and report a contractual Scope 2 figure in response to this question, showing the origin of the alternative emission factor and information about the tariff.

12.2. If you retire any certificates (eg: Renewable Energy Certificates) associated with zero or low carbon electricity, please provide details.

In 2008, EMC purchased and retired 63,151 MWh of Green-e Certified Wind Renewable Energy Certificates (RECs) equivalent to 40,235 metric tonnes of CO<sub>2</sub>-eq.

#### Further information

[http://cdp.cdproject.net/attachedfiles/Responses/53493/7222/Purchased\\_2008-2009\\_REC\\_Certificate.pdf](http://cdp.cdproject.net/attachedfiles/Responses/53493/7222/Purchased_2008-2009_REC_Certificate.pdf)

## 13. Scope 3 Other Indirect GHG Emissions: (CDP6 Q2(c))

For each of the following categories, please:

- Describe the main sources of emissions,
- Report emissions in metric tonnes of CO<sub>2</sub>-e,
- state the methodology, assumptions, calculation tools, databases, emission factors (including sources) and global warming potentials (including sources) you have used for calculating emissions.

#### Notes about question 13

When providing answers to question 13, please do not deduct offset credits, Renewable Energy Certificates etc, or net off any estimated avoided emissions from the export of renewable energy, carbon sequestration (including enhanced oil recovery) or from the use of goods and services. Opportunities to provide details of activities that reduce or avoid emissions are provided elsewhere in the information request.

Carbon dioxide emissions from biologically sequestered carbon e.g. carbon dioxide from burning biomass/biofuels should be reported separately from emissions Scopes 1, 2 and 3. If relevant, please report these emissions in question 15. However, please do include any nitrous oxide or methane emissions from biomass/biofuel combustion in your emissions under the three scopes.

#### 13.1 Employee business travel

Describe the main sources of emissions

Scope 3 emissions from employee business air travel have been estimated and are reported below.

Mobile source GHG emissions from EMC corporate fleet vehicles and corporate jets are included under our Scope 1 emission calculations.

There are also emissions that result from employee travel by personal/company vehicles in the course of conducting business duties. This consists primarily of field-based employees (e.g., sales account managers, customer service engineers, and professional services staff) who are frequently required to be present at customer facilities to deliver certain services. EMC has begun to assemble the information required to establish metrics to report estimated emissions from these sources.

In the meantime, EMC is undertaking specific actions to reduce GHG emissions associated with employee business travel by implementing changes in technology, business processes, and resource management. For example, implementing technology to perform changes to customer technical environments from remote support center personnel in lieu of sending an engineer on site eliminates the associated travel and its emissions. A substantial amount of work that previously required travel to a customer location is now being performed remotely with no travel required. Other actions that will impact these travel emissions over time include increased use of telepresence and job role/skill redesign to reduce the number of different individuals required to perform common services.

In addition, EMC has increased its use of virtual meeting technologies to reduce long-distance and inter-campus travel. Increased use of multiple video-conferencing technologies, along with a combination of audio-conferencing and "desktop sharing" technologies has allowed employees to collaborate while avoiding travel.

As a result of these programs, EMC has reduced employee business travel emissions from 85,000 metric tonnes in 2007 to 60,500 metric tonnes in 2008.

Emissions in metric tonnes CO<sub>2</sub>-e.

60,500 CO<sub>2</sub>e metric tonnes

State the methodology, assumptions, calculation tools, databases, emission factors (including sources) and global warming potentials (including sources) you have used for calculating emissions.

For employee business travel, we obtained a comprehensive global reporting of air and rail miles traveled from our corporate travel service provider. Using this travel data, we used CO<sub>2</sub> Emissions from Business Travel, Version 2.0, June 2006, developed by World Resources Institute (WRI), available at [www.ghgprotocol.org](http://www.ghgprotocol.org), to calculate GHG emissions from employee business travel. Note that business travel emissions reported under question 13.1 include only air travel and does not include business rental car emissions, which are more difficult to quantify and are believed to be relatively insignificant compared to air and rail travel emissions.

### 13.2. External distribution/logistics

Describe the main sources of emissions

EMC's main source of emissions from distribution and logistics is trucking and airfreight. Currently, our transportation providers are unable to provide us specific emissions data. Therefore, EMC is engaging our shipping companies to develop tracking mechanisms that can be used to quantify emissions using recognized emission factors for modal transportation. This includes our out-bound shipment of goods as well as our post-sale activities for support parts distribution and return.

In the meantime, EMC has implemented programs to reduce the total number of miles of freight shipping. We have had success in this area through initiatives such as order-consolidation and by positioning packaging material closer to the customer. EMC also joined the EPA's SmartWay program in 2008 and we have submitted an action plan which includes our initiatives and documents our progress.

Emissions in metric tonnes CO<sub>2</sub>-e.

Not quantified

State the methodology, assumptions, calculation tools, databases, emission factors (including sources) and global warming potentials (including sources) you have used for calculating emissions.

### 13.3 Use/disposal of company's products and services

For auto manufacture and auto component companies – please refer to the additional questions for these sectors before completing question 13.3.

Describe the main sources of emissions

Use of EMC data storage products is expected to result in user Scope 2 (EMC Scope 3) indirect GHG emissions from electricity use. As described in the Opportunities section of this submittal, EMC is actively pursuing technologies that will result in greater product efficiencies and thereby result in decreases in user scope 2 emissions associated with product use.

The USEPA is in the process of developing ENERGY STAR standards for Enterprise Server and Data Center Energy Efficiency, and is working with international organizations in Europe, Japan and elsewhere to promote consistency. In addition, the EPA has just announced it will begin the process of developing an ENERGY STAR standard for Data Center Storage. EMC is actively involved with the EPA, both directly and through industry consortia and standards organizations, to develop a standard that is meaningful and technology-neutral for affected industries.

To address product end-of-life issues, EMC recommends that customers redeploy their older generation EMC products. Redeployment enables a customer to maximize use of its equipment and reduces the total cost of ownership. When redeployment is not possible, EMC has processes to take back the equipment from the customer. EMC does not currently quantify product end-of-life emissions.

Emissions in metric tonnes CO<sub>2</sub>-e.

Not quantified

State the methodology, assumptions, calculation tools, databases, emission factors (including sources) and global warming potentials (including sources) you have used for calculating emissions.

### 13.4 Company supply chain

Describe the main sources of emissions

EMC has a global supply chain that has GHG emissions associated with the manufacture and transportation of component parts used in EMC's operations. In recent years, our supply chain has grown in terms of geography, communications, interconnection, and risk. As a result of this rapid growth and the impact of conducting business across different cultures and ideologies, we have adopted a Supplier Code of Conduct to reaffirm our existing policies and establish the minimal level of supplier behavior as a condition to being selected and continuing to do business with EMC. As described below, in addition to our Supplier Code of Conduct, EMC is actively working to engage our suppliers in an effort to better understand and quantify Scope 3 GHG emissions associated with this source.

EMC is a member of the Electronics Industry Citizenship Coalition (EICC) Environmental Sustainability workgroup focused on developing an ICT industry standard carbon measurement system. The workgroup anticipates that the system will be released in the first half of 2009, and EMC will participate in the first group to use the tool to measure carbon emissions of our supply base.

EMC participates in two of the World Resources Institute (WRI) technical working groups focused on the development of a cross-industry, Scope 3 corporate GHG accounting protocol. This work has enabled EMC to better understand the challenges and various levels of understanding of emissions reporting by different industries.

In 2009, EMC will be participating in the EICC's pilot Carbon Reporting Tool questionnaire to be completed by all first tier suppliers. We have also joined the Carbon Disclosure Project (CDP) Supply Chain initiative and will be evaluating strategic suppliers through the CDP's tool. We will continue participation with WRI and Technical Working Groups. In the second half of 2009, EMC will conduct benchmark analysis to identify further opportunities to reduce carbon emissions by launching sustainability initiatives with suppliers.

Although much work is being accomplished in this area, at this time we are not able to quantify Scope 3 emissions associated with our supply chain.

Emissions in metric tonnes CO<sub>2</sub>-e.

## Not quantified

State the methodology, assumptions, calculation tools, databases, emission factors (including sources) and global warming potentials (including sources) you have used for calculating emissions.

### 13.5 Other

If you are reporting emissions that do not fall into the categories above, please categorise them into transferred emissions and non-transferred emissions (please see guidance for an explanation of these terms).

Please report transfers in the first three input fields and non-transfers in the last three input fields.

#### Transfers

Describe the main sources of emissions

#### Transfers

Report emissions in metric tonnes of CO<sub>2</sub>-e.

#### Transfers

State the methodology, assumptions, calculation tools, databases, emission factors (including sources) and global warming potentials (including sources) you have used for calculating emissions.

#### Non-transfers

Describe the main sources of emissions

To address mobile source emissions associated with employee commuting, EMC participates in the Massachusetts Department of Environmental Protection's Rideshare program, which focuses on reducing pollution through carpooling and other commuter options.

In 2006, for the third year in a row, EMC was recognized as one of the Best Workplaces for Commuters by the USEPA and the U.S. Department of Transportation. EMC was ranked in the Top 20 employers on the list of Best Workplaces for Commuters from the FORTUNE 500 Companies.

The program was temporarily discontinued by the USEPA in 2007, but in 2009, is being re-launched. Best Workplaces for Commuters<sup>SM</sup> is an innovative membership program that provides qualified employers with national recognition and an elite designation for offering outstanding commuter benefits, such as free or low cost bus passes, strong telework programs, carpooling matching and vanpool subsidies. Employers that meet the National Standard of Excellence in commuter benefits, a standard created by the Center for Urban Transportation Research (CUTR) and the USEPA, can be placed on the list of Best Workplaces for Commuters.

EMC will continue to play a leadership role in the Best Workplace for Commuters program, sharing valuable experience with other companies. Our corporate programs include:

- Guaranteed Ride Home. Vouchers for taxi or rental car transportation to get home in the event of a personal emergency. Available to registered, carpooling employees that travel to work in any shared ride mode (including bike/walk) at least two days per week.
- Preferred Parking. For registered EMC carpools of at least three people.
- Carpool/Vanpool. A new on-line ridematching database.
- Monthly Prize Drawings. MetroWest/495 TMA picks a "commuter of the month" for various prizes (restaurant gift certificates, etc.).
- Bicycling/Walking. Showers/lockers, bike racks and other resources to encourage employees to make this commuting choice.

EMC currently is working to expand our commuter programs to US field office locations.

#### Non-transfers

Report emissions in metric tonnes of CO<sub>2</sub>-e.

In addition to the employee commuter programs described above, EMC is implementing a progressive "WeWork" program with the objective of developing a vision for a workplace that results in a more competitive, productive and cost-effective model that effectively supports all of the businesses located in the Americas field offices. The concepts are:

- The whole facility is an employee's office
- Work anywhere in a multitude of different types of spaces
- Increase Collaboration Spaces
- Increase Teaming Spaces
- Better Facilities Support
- Being Green by using products that are sustainable and allowing the employee to work remotely avoiding the need to drive to the office each day.

WeWork brings together Sales and Service organizations in the field from different locations and consolidates them to encourage an environment that lends itself to

collaboration. By using work space in this innovative fashion, we believe we can cut energy and space costs, effectively reducing the GHG footprint of our field office locations.

#### Non-transfers

State the methodology, assumptions, calculation tools, databases, emission factors (including sources) and global warming potentials (including sources) you have used for calculating emissions.

13.6 If you have not provided information about one or more of the categories of Scope 3 GHG emissions in response to the questions above, please explain your reasons and describe any plans you have for collecting Scope 3 indirect emissions information in future.

#### Further information

### 14. Emissions Avoided Through Use Of Goods And Services (New for CDP 2009)

14.1. If your goods and/or services enable GHG emissions to be avoided by a third party, please provide details including the estimated avoided emissions, the anticipated timescale over which the emissions are avoided and the methodology, assumptions, emission factors (including sources), and global warming potentials (including sources) used for your estimations.

EMC helps our customers reduce GHG emissions in two ways: by delivering more energy-efficient IT solutions directly into our customers' data centers; and by the significant role IT plays in enabling an energy-efficient information economy.

EMC has long designed energy efficient products; when we introduced our first generation Symmetrix in 1990, it was the world's most power-efficient storage array. Our platform engineers are constantly innovating ways to reduce energy demand while increasing performance of our systems. For example,

- Our virtualization technology enables more efficient use of server and storage assets.
- EMC's Solid State drives use 38% less power per drive and 98% less power per IOPS (input/output per second)
- With our drive Spin-Down capabilities in disk libraries, drives that are not actively being accessed will cease spinning, which can save in excess of 1,000 kWh/month in a typical use model for archived data.
- Our Virtual Provisioning software reduces the volume of disks required to maintain pool of unused space, and therefore reduces energy needed per terabyte of data stored.
- De-duplication software can reduce the total amount of data stored by up to 90% with no loss of information content, but with significant energy savings.
- Adaptive Cooling adjusts fan speed to the required level based on ambient temperature, which saves energy lost to unneeded cooling.

In addition, EMC's consulting organization helps customers assess the efficiency of their data centers, identify opportunities to eliminate wasted power and cooling, and design and implement best practices.

Because the energy savings from our products and services can vary widely depending on each customer's unique configuration, we are unable to predict the GHG savings from the optimized use of our products' energy efficiency capabilities by our customers around the world. However, if all of EMC's available optimization features are applied in data centers, based on our own data center and our customer experience, we believe that the energy savings delivered by our product can be as much as 50%. In fact, through the application of best practices in one of our own data centers, we were able to avoid 6,793 tonnes of GHG emissions each year.

While the use of IT products consumes electricity, IT also significantly decreases the overall energy intensity of the global economy and therefore plays an important part in the reduction of GHG emissions. In its 2008 landmark study, "Information and Communication Technologies: The Power of Productivity," the American Council for an Energy-Efficient Economy (ACEEE) found that "for every extra kilowatt-hour of electricity that has been demanded by ICT technologies, the U.S. economy increased its overall energy savings by a factor of about 10."

Similarly, the 2008 SMART 2020 Report reveals that IT solutions "could deliver 15% emissions savings in 2020". These savings are expected to be achieved through increased energy efficiency of IT products and services, but even more importantly, through the capacity of the IT industry to enable efficiencies in other industries. The SMART 2020 report predicts that the savings enabled by the IT industry will be five times larger than the total emissions attributed to the sector. <http://www.smart2020.org>

In addition to enabling other sectors to become energy efficient, dematerialization and substitution – replacement of high-carbon products and activities with their virtual substitutes (books, meetings replaced with e-government, e-commerce, precision farming)—can also deliver significant emissions savings.

#### Further information

### 15. Carbon Dioxide Emissions from Biologically Sequestered Carbon: (New for CDP 2009)

An example would be carbon dioxide from burning biomass/biofuels.

15.1. Please provide the total global carbon dioxide emissions in metric tonnes CO<sub>2</sub> from biologically sequestered carbon.

Emissions in metric tonnes CO<sub>2</sub> - Please use whole numbers only

0

Further information

#### 16. Emissions Intensity: (CDP6 Q3(b))

16.1. Please supply a financial emissions intensity measurement for the reporting year for your combined Scope 1 and 2 emissions.

Please describe the measurement.

Total global Scope 1 & Scope 2 emissions divided by total revenue as reported on EMC's US Securities and Exchange Commission Annual Report on Form 10K for the year ended December 31, 2008.

16.1.1. Give the units. For example, the units could be metric tonnes of CO<sub>2</sub>-e per million Yen of turnover, metric tonnes of CO<sub>2</sub>-e per US\$ of profit, metric tonnes of CO<sub>2</sub>-e per thousand Euros of turnover.

Metric tonnes of CO<sub>2</sub>-e per million US dollars turnover (revenue).

16.1.2. The resulting figure.

Use a decimal point if necessary. Please use a "." rather than a ",", i.e. please write 15.6 rather than 15,6

24.98

16.2. Please supply an activity related intensity measurement for the reporting year for your combined Scope 1 and 2 emissions.

Please describe the measurement.

Total global Scope 1 & Scope 2 emissions divided by the total real estate square footage as reported on EMC's US Securities and Exchange Commission Annual Report on Form 10K for the year ended December 31, 2008.

16.2.1. Give the units e.g. metric tonnes of CO<sub>2</sub>-e per metric tonne of output or for service sector businesses per unit of service provided.

Metric tonnes of CO<sub>2</sub>-e per thousand square feet of real estate.

16.2.2. The resulting figure.

Use a decimal point if necessary. Please use a "." rather than a ",", i.e. please write 15.6 rather than 15,6

29.72

Further information

#### 17. Emissions History: (CDP6 Q2(f))

17.1. Do emissions for the reporting year vary significantly compared to previous years?

Yes

For 2008, EMC provided a better estimate of global real estate energy intensity by differentiating between office space and computer lab space for our global small office locations. A better estimate of 450 kwh/ft<sup>2</sup> annual energy intensity was used for computer lab space. This adjustment was made to past years reporting as well to normalize the trending from our 2005 base year.

In addition, EMC made a number of acquisitions in 2008 and upgraded additional corporate engineering lab space resulting in a higher energy intensity of space, while avoiding the need to develop additional real estate. These changes resulted in increased overall emissions and emissions intensity measured per square footage of real estate. We note that since new acquisitions involved existing operations, no net new emissions were associated with our acquisitions. Also, upgrade of lab space, while resulting in an increase in energy intensity of existing space, avoided the need to construct new facilities that may have had a significantly larger overall GHG contribution.

For additional information on acquisitions, please visit our website at: [http://www.emc.com/about/news/index.esp?pr\\_topic=Mergers%20%26%20Acquisitions](http://www.emc.com/about/news/index.esp?pr_topic=Mergers%20%26%20Acquisitions)

If the answer to 17.1 is Yes:

17.1.1. Estimate the percentage by which emissions vary compared with the previous reporting year.

This box will accept numerical answers containing a decimal point. Please use "." not "," i.e. write 10.6, not 10,6.

5.9 %

Have the emissions increased or decreased?

Increased

Further information

18. External Verification/Assurance: (CDP6 Q2(d))

18.1. Has any of the information reported in response to questions 10 – 15 been externally verified/assured in whole or in part?

Yes, it has been externally verified/assured in whole or in part. (Please continue with questions 18.2 to 18.5)

It would aid automated analysis of responses if you could select responses from the tick boxes below. However, please use the text box provided if the tick boxes menu options are not appropriate.

18.2. State the scope/boundary of emissions included within the verification/assurance exercise.

Scope 1 Q10.1

Scope 2 Q11.1

Retirement of certificates Q12.2

Please use the text box below to describe the scope/boundary of emissions included within the verification/assurance exercise if the tick box menu options above are not applicable.

Our Climate Leaders Inventory Management Plan (IMP) and 2005 Base Year data reported to USEPA were independently verified by a private consulting agency, Rizzo Associates (now Tetra Tech Rizzo, TTR). In addition, USEPA conducted an onsite review of EMC's Climate Leaders Program as part of the approval of our Inventory Management Plan. GHG data for 2005 through 2008 was externally prepared and verified by an independent on-site environmental consultant employed by EMC.

EMC procured a third party firm to conduct on-site audits of several key suppliers to assess suppliers for social and environmental responsibility. EMC expects to expand the Supply Chain program and conduct additional audits of suppliers. Also, EMC conducts visits of our ITAD (IT Asset Disposition) vendor facilities to ensure their standards meet EMC requirements and conducts periodic unannounced inspections to ensure processes are being maintained.

In addition, as part of our ISO 14001 Environmental Management System certification of our three manufacturing plants (Franklin, Massachusetts; Apex, North Carolina; and Cork, Ireland), these facilities undergo a third party environmental audit, which includes evaluating climate-related GHG management programs.

EMC's Cork, Ireland facility has its CO2 emissions independently verified each year for submission of the Installation Emissions Report to the Ireland EPA. The Verifier Opinion Statement is submitted by the independent verifier on the IEPA's website. When companies such as EMC propose submissions for surrender on the IEPA website, the submissions cannot actually be surrendered until the independent verifier also enters the EPA website site and verifies the numbers.

REC's purchased for retirement in 2008 are Green-e certified.

18.3. State what level of assurance (eg: reasonable or limited) has been given.

USEPA, through the Climate Leaders Program, annually reviews our corporate US emissions inventory data as well as our GHG emission reduction goal progress. USEPA performs desktop reviews of both the inventory data and IMP to ensure they meet USEPA's quality standards and also conducts a risk-based on-site IMP review to ensure that the management plan is being well-implemented at the facility level. These reviews provide assurance to USEPA that a well-implemented GHG data collection and management system is in place. EMC's Director of Global EHS evaluates the Climate Leaders Program status annually to decide whether formal external auditing is warranted. If the Director of Global EHS believes an external verification audit is warranted, he will direct an external onsite audit of the selected facility(ies) and/or program components.

EMC Cork, Ireland facility GHG data is verified to assurance level required by Ireland EPA under the EU-ETS (see attached).

18.4. Provide a copy of the verification/assurance statement.

Please attach a copy/copies.

[http://cdp.cdproject.net/attachedfiles/Responses/53493/7264/Signed\\_Verifier\\_Opinion\\_Statement\\_2009.pdf](http://cdp.cdproject.net/attachedfiles/Responses/53493/7264/Signed_Verifier_Opinion_Statement_2009.pdf)

18.5. Specify the standard against which the information has been verified/assured.

US corporate GHG emissions data submitted under Climate Leaders is reviewed against the Climate Leaders GHG Inventory Guidance, which is based on the Corporate Accounting and Reporting Standard developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development.

Cork, Ireland GHG emissions data is reviewed according to the Ireland EPA Emission Trading Scheme Permit Verification Opinion Statement (copy attached).

18.6. If none of the information provided in response to questions 10-15 has been verified in whole or in part, please state whether you have plans for GHG emissions accounting information to be externally verified/assured in future.

Further information

19. Data Accuracy: (CDP6 Q2(e) – New wording for CDP 2009)

19.1. What are the main sources of uncertainty in your data gathering, handling and calculations e.g.: data gaps, assumptions, extrapolation, metering/measurement inaccuracies etc?

If you do not gather emissions data, please select emissions data is NOT gathered and proceed to question 20.

Emission data is gathered.

The greatest source of uncertainty is estimating small office space based on square footage of office and lab space using USEIA published energy intensity for office space and engineering estimate energy intensity for lab space.

19.2. How do these uncertainties affect the accuracy of the reported data in percentage terms or an estimated standard deviation?

Corporate US and Cork, Ireland data are independently verified, and based on actual utility energy invoices and accepted emission factors and protocols (described previously in this report).

Small office locations are estimated to account for approximately 30% of EMC's total global GHG emissions. Emissions calculated for small office locations are believed to be representative of actual emissions.

19.3. Does your company report GHG emissions under any mandatory or voluntary scheme (other than CDP) that requires an accuracy assessment?

Yes (Please answer the following questions - 19.3.1, 19.3.2).

19.3.1 Please provide the name of the scheme.

Other

USEPA Climate Leaders Program

19.3.2. Please provide the accuracy assessment for GHG emissions reported under that scheme for the last report delivered.

Working with the USEPA Climate Leaders Program, EMC has developed a corporate GHG emissions Inventory Management Plan (IMP). The IMP includes all institutional, managerial, and technical arrangements made for the collection of data, preparation of the inventory, and implementation of steps to manage the quality of the inventory. An IMP provides a systematic process for ensuring data quality, and identifies areas where investments will likely lead to the greatest improvement in overall inventory quality. The primary objective of an IMP is ensuring the credibility of a company's GHG inventory information.

Further information

20. Energy and Fuel Requirements and Costs: (New for CDP 2009)

Please provide the following information for the reporting year:

Cost of purchased energy

20.1. The total cost of electricity, heat, steam and cooling purchased by your company.

83291000

Select currency

United States dollar

20.1.1. Please break down the costs by individual energy type.

Table 8 - The "Cost" column will not accept text. Please use whole numbers only.

Energy type	Cost	Currency
Electricity	83291000	United States dollar
Heat	0	United States dollar
Steam	0	United States dollar
Cooling	0	United States dollar

Cost of purchased fuel

20.2. The total cost of fuel purchased by your company for mobile and stationary combustion.

5980000

Select currency

United States dollar

20.2.1. Please breakdown the costs by individual fuel type.

Table 9 - The cost column will not accept text. Please use whole numbers only.

Mobile combustion fuels	Cost	Currency
Gasoline / petrol	222000	United States dollar
Diesel	2000	United States dollar
Jet fuel	2594000	United States dollar

Stationary combustion fuels	Cost	Currency
Natural gas	3011000	United States dollar
Distillate fuel oil No.1	133000	United States dollar
Propane	17000	United States dollar

Energy and fuel inputs

The following questions are designed to establish your company's requirements for energy and fuel (inputs). Please note that MWh is our preferred unit for answers as this helps with comparability and analysis. Although it is usually associated with electricity, it can equally be used to represent the energy content of fuels (see CDP 2009 Reporting Guidance for further information on conversions to MWh).

Purchased energy input

20.3 Your company's total consumption of purchased energy in MWh.

Please use whole numbers only.

727500 MWh

Purchased and self produced fuel input

20.4. Your company's total consumption in MWh of fuels for stationary combustion only. This includes purchased fuels, as well as biomass and self-produced fuels where relevant.

Please use whole numbers only.

155000 MWh

In answering this question and the one below, you will have used either Higher Heating Values (also known as Gross Calorific Values) or Lower Heating Values (also known as Net Calorific Values).

Please state which you have used in calculating your answers.

Higher Heating Value

20.4.1. Please break down the total consumption of fuels reported in answer to question 20.4 by individual fuel type in MWh.

Table 10 - Please use whole numbers only

Stationary combustion fuels	MWh
Natural gas (dry)	153500
Propane	170
Distillate fuel oil No.1	1400

#### Energy output

In this question we ask for information about the energy in MWh generated by your company from the fuel that it uses. Comparing the energy contained in the fuel before combustion (question 20.4) with the energy available for use after combustion will give an indication of the efficiency of your combustion processes, taking your industry sector into account.

20.5. What is the total amount of energy generated in MWh from the fuels reported in question 20.4?

Please use whole numbers only.

0 MWh

20.6. What is the total amount in MWh of renewable energy, excluding biomass, that is self-generated by your company?

Please use whole numbers only.

0 MWh

#### Energy exports

This question is for companies that export energy that is surplus to their requirements. For example, a company may use electricity from a combined heat and power plant but export the heat to another organisation.

20.7. What percentage of the energy reported in response to question 20.5 is exported/sold by your company to the grid or to third parties?

Please use whole numbers only.

0 %

20.8. What percentage of the renewable energy reported in response to question 20.6 is exported/sold by your company to the grid or to third parties?

Please use whole numbers only.

0 %

#### Further information

Questions 20.5 through 20.8 are not applicable to EMC.

#### 21. EU Emissions Trading Scheme: (CDP6 Q2(g)(i) – New wording for CDP 2009)

Electric utilities should report allowances and emissions using the table in question EU5.

21.1. Does your company operate or have ownership of facilities covered by the EU Emissions Trading Scheme (EU ETS)?

Yes (Please answer the following questions - 21.2 to 21.4)

Please give details of:

21.2. The allowances allocated for free for each year of Phase II for facilities which you operate or own. (Even if you do not wholly own facilities, please give the full number of allowances).

Table 11 - Please use whole numbers only.

	2008	2009	2010	2011	2012
Free allowances metric tonnes CO2	3948	3948	3948	3948	3948

21.3. The total allowances purchased through national auctioning processes for the period 1 January 2008 to 31 December 2008 for facilities that you operate or own. (Even if you do not wholly own facilities, please give the total allowances purchased through auctions by the facilities for this period).

Total allowances purchased through auction

0

21.4. The total CO<sub>2</sub> emissions for 1 January 2008 to 31 December 2008 for facilities which you operate or own. (Even if you do not wholly own facilities, please give the total emissions for this period.)

Total emissions in metric tonnes

3219

Further information

Reported emissions represent EMC Cork Ireland facility which is EMC's only facility covered under an ETS.

## 22. Emissions Trading: (CDP6 Q2(g)(ii) - New wording for CDP 2009)

Electric utilities should read EU6 before answering these questions.

22.1. Please provide details of any emissions trading schemes, other than the EU ETS, in which your company already participates or is likely to participate within the next two years.

We only participate in the EU ETS. (Please go to question 22.2)

22.2. What is your overall strategy for complying with any schemes in which you are required or have elected to participate, including the EU ETS?

EMC's Cork, Ireland facility participates in the EU ETS and has obtained a GHG permit with allowances from the Ireland EPA. As EMC operations have relatively low direct GHG emissions, ongoing efficiency measures implemented and being implemented at the facility are believed to be adequate to comply with the allowances received under the facility's GHG permit.

Further information

## 22. Carbon credits

22.3. Have you purchased any project-based carbon credits?

Yes. (Please answer the following questions)

Please indicate whether the credits are to meet one or more of the following commitments:

Primarily for voluntary offsetting of your own emissions

Please also:

22.4 Provide details including the type of unit, volume and vintage purchased and the standard/scheme against which the credits have been verified, issued and retired (where applicable).

EMC purchased 63,151 MWh of Green-e-certified Vintage Year 2008 Renewable Energy Credits (RECs) from Texas Wind projects. This purchase is equivalent to offsets of 40,235 metric tonnes of CO<sub>2</sub>-equivalents, and is used to voluntarily offset our own Scope 2 emissions.

22.5. Have you been involved in the origination of project-based carbon credits?

No. (Please go to question 22.7)

22.6. Please provide details including:

- Your role in the project(s),
- The locations and technologies involved,
- The standard/scheme under which the projects are being/have been developed,
- Whether emissions reductions have been validated or verified,
- The annual volumes of generated/projected carbon credits,
- Retirement method if used for own compliance or offsetting.

22.7. Are you involved in the trading of allowances under the EU ETS and/or project-based carbon credits as a separate business activity, or in direct support of a business activity such as investment fund management or the provision of offsetting services?

No. (Please go to question 23)

22.8. Please provide details of the role performed.

Further information

[http://cdp.cdproject.net/attachedfiles/Responses/53493/7265/Purchased\\_2008-2009\\_REC\\_Certificate.pdf](http://cdp.cdproject.net/attachedfiles/Responses/53493/7265/Purchased_2008-2009_REC_Certificate.pdf)

Performance

23. Reduction plans & goals: (CDP6 Q3(a))

23.1. Does your company have a GHG emissions and/or energy reduction plan in place?

Yes. (Please go to question 23.3)

23.2. Please explain why.

It would aid automated analysis of responses if you could select a response from the options below as well as using the text box. However, please just use the text box provided if the options are not appropriate.

In process of being defined

If the menu options above are not appropriate, please answer the question using the text box below:

As noted previously in this report, EMC has a GHG reduction goal in place for corporate US facilities under the auspices of the USEPA Climate Leaders Program. We are currently in the process of defining a global energy and GHG reduction strategy.

Goal setting

23.3. Do you have an emissions and/or energy reduction target(s)?

Yes. (Please answer the following questions)

23.4 What is the baseline year for the target(s)?

2005

23.5. What is the emissions and/or energy reduction target(s)?

Under the USEPA's Climate Leaders Program, EMC has set a reduction goal to reduce GHG emissions 8% below 2005 levels by 2012. The goal is an emissions intensity goal normalized by facility square footage.

23.6. What are the sources or activities to which the target(s) applies?

Operationally-controlled, Corporate US facilities Scope 1 & Scope 2 emissions.

23.7. Over what period/timescale does the target(s) extend?

2005 through 2012

Further information

23. GHG emissions and energy reduction activities

23.8. What activities are you undertaking or planning to undertake to reduce your emissions/energy use?

As part of our overall strategy to meet our Climate Leaders Program GHG reduction targets, EMC is in the process of evaluating options for installing onsite distributed renewable energy systems (wind, solar etc.). Also, we are investigating the Renewable Energy Certificates (RECs) to determine the optimum path for inclusion of RECs in our overall reduction strategy and energy portfolio. Ongoing projects include various energy efficiency initiatives and controls to minimize energy use at EMC facilities. Since 2005, a representative listing of our energy efficiency activities is provided below.

1. Implementation of Building Automation Systems and Energy Management Systems to control and reduce energy use at EMC facilities.

2. Replacement of high bay lighting with high efficiency lighting.
3. Installation of automatic temperature controls on Chillers which links operation to actual outside temperature and eliminates unneeded operation.
4. Installation of Plate & Frame Heat Exchangers on process water cooling tower loops to minimize chiller operation.
5. Installation of High Efficiency Boilers to reduce natural gas usage.
6. Implementation of process changes to maximize product Environmental Testing Room usage and thereby reduce electricity usage.
7. Installation of high efficiency chillers which reduce electricity usage associated with facilities and data center cooling.
8. Installation of lighting sensors on all new EMC buildings to automatically turn-off lighting in unoccupied spaces and systematic upgrade of like systems at existing buildings.
9. Ongoing implementation of a PC Monitor Energy-Saver Program which automatically shuts off employee computer monitors via the corporate network after 15-20 minutes of inactivity.
10. Reduction of static air pressure in air handling units to increase HVAC fan efficiency.
11. Joined the Climate Savers initiatives whereby EMC agrees to purchase systems that meet or exceed the latest ENERGY STAR specification for a majority of its corporate personal computer and volume server computer purchases.
12. Conducted independent studies on electricity consumption at EMC data center and IT lab space to increase efficiency and reduce cooling energy requirements.
13. Ongoing implementation of Information Lifecycle Management (ILM) storage tiering, campus storage consolidation and server virtualization at EMC data centers.
14. Our Cork, Ireland manufacturing plant is pursuing accreditation for an IS 393 Energy Management System which will allow the facility to better manage and reduce energy consumption. Significant savings have been realized to date due to the roll out of this program.
15. Our Corporate Headquarters facility in Massachusetts is pursuing LEED certification which includes significant energy systems recommissioning projects.
16. Ongoing upgrades to Lighting and HVAC systems at EMCs corporate campus locations.

Further information

For years 2008 and 2009, EMC purchased a total of 126,302 MWh of Green-e-certified Renewable Energy Credits (RECs) which are approved by the USEPA Climate Leaders Program for offsetting Scope 2 emissions. EMC is further evaluating the purchase of RECs as a part of our long term global GHG reduction goal strategy.

23. Goal evaluation

23.9. What benchmarks or key performance indicators do you use to assess progress against the emissions/energy reduction goals you have set?

EMC measures Scope 1 & Scope 2 emissions on both a corporate US and regional/global facilities basis and track historic GHG emissions intensity using both a revenue and facility square footage metric to assess progress toward our GHG reduction goal.

Further information

23. Goal achievement

23.10. What emissions reductions, energy savings and associated cost savings have been achieved to date as a result of the plan and/or the activities described above? Please state the methodology and data sources you have used for calculating these reductions and savings.

Since 1998, global efficiency projects at EMC have resulted in over 127,000 metric tonnes of CO2-e avoidance, over 300,000 MWh of electricity use avoided, and over \$30 million in savings.

23.11. What investment has been required to achieve the emissions reductions and energy savings targets or to carry out the activities listed in response to question 23.8 and over what period was that investment made?

Table 13 - The "Investment number" column will not accept text. Please use whole numbers only.

Emission reduction target/energy saving target or activity	Investment number	Investment currency	Timescale
Climate Leaders 8% Reduction Goal	2247000	United States dollar	2005-2012

Further information

Answer to question 23.10 above represents global initiatives.

Table 13 represents projects initiated within the 2005-2008 time period for EMC corporate US facilities. Not all capital investment data are available for reporting from various projects implemented, therefore, the Investment Number reported in Table 13 is conservative.

[http://cdp.cdproject.net/attachedfiles/Responses/53493/7266/2004\\_to\\_2008\\_Energy\\_Projects\\_Savings.pdf](http://cdp.cdproject.net/attachedfiles/Responses/53493/7266/2004_to_2008_Energy_Projects_Savings.pdf)

23. Goal planning & investment

Electric utilities should read the table in question EU3 for giving details of forecasted emissions.

23.12. What investment will be required to achieve the future targets set out in your reduction plan or to carry out the activities listed in response to question 23.8 above and over what period do you expect payback of that investment?

Table 14 - The "Number" column will not accept text. Please use whole numbers only.

Plan or action	Investment number	Investment currency	Payback
Based on current energy projections through our goal period, ongoing energy efficiency projects that have a relatively short return on			

investment (ROI) period will be a continued investment. In addition to short term energy efficiency projects, an investment in renewable energy and/or renewable energy credits (RECs) is being evaluated. At this time, it is unclear how many RECs might be purchased, and EMC is engaging with REC providers to better determine an appropriate investment.	4750000	United States dollar	3 to 5 years
--	---------	----------------------	--------------

23.13. Please estimate your company's future Scope 1 and Scope 2 emissions for the next five years for each of the main territories or regions in which you operate or provide a qualitative explanation for expected changes that could impact future GHG emissions.

If possible, please use table 15 below to structure your answer to the question or alternatively use the text box below.

The Table 14 investment number above represents approximately \$1,000,000 US dollars per year invested in corporate facilities energy efficiency projects and an estimated investment of \$750,000 in RECs. Forecasted absolute emission numbers (i.e., not intensity rates) are provided in Table 15 below, but do not reflect any Scope 2 emissions reduction from potential REC purchases.

Scope 1 forecasted emissions in Table 15 below are in the following units.

metric tonnes CO2e

Scope 2 forecasted emissions in Table 15 below are in the following units.

metric tonnes CO2e

Table 15 - The "Scope" columns will not accept text. Please use whole numbers only.

Type in the name of the territory or region for which you are giving data and then press "Add Territory/Region". If giving a global figure instead of separate figures for regions or territories, please write "global" in the box labelled "Enter name of territory or region".

[Click here to see a sample table.](#)

Future reporting years:										
End date for year end DD/MM/YYYY	31/12/2009		31/12/2010		31/12/2011		31/12/2012		31/12/2013	
Emission forecasts	Scope 1	Scope 2	Scope 1	Scope 2	Scope 1	Scope 2	Scope 1	Scope 2	Scope 1	Scope 2
USA	14500	215000	14500	192000	14500	191000	14500	190000	14500	189000
Cork Ireland	3300	33500	3300	33300	3300	33100	3300	33000	3300	32800
Rest of World	14000	86600	13000	80000	13000	80000	13000	80000	13000	80000

23.14. Please estimate your company's future energy use for the next five years for each of the main territories or regions in which you operate or provide a qualitative explanation for expected changes that could impact future GHG emissions.

If possible, please use table 16 below to structure your answer to the question or alternatively use the text box below.

[See Table 16 below](#)

Table 16 - Please use whole numbers only.

Type in the name of the territory or region for which you are giving data and a description of the data you are giving e.g. electricity consumption. Then press "Add Row". If giving a global figure instead of separate figures for regions or territories, please use the word "global". This table will also accept different types of units e.g. units of volume or mass.

[Click here to see a sample table.](#)

Future reporting years:										
End date for year end DD/MM/YYYY	31/12/2009		31/12/2010		31/12/2011		31/12/2012		31/12/2013	
Energy use estimates for territory/region	Number	Units	Number	Units	Number	Units	Number	Units	Number	Units
USA - Electricity (MWh)	514400	MWh	459400	MWh	457000	MWh	455000	MWh	453000	MWh
Cork Ireland Electricity (MWh)	57400	MWh	57000	MWh	56700	MWh	56400	MWh	56100	MWh
Rest of World Electricity (MWh)	158300	MWh	146200	MWh	147000	MWh	147000	MWh	147000	MWh

23.15. Please explain the methodology used for your estimations and any assumptions made.

Provided forecasts are gross estimates based on past growth in our real estate holdings and ongoing consolidations and efficiency projects, with consideration given to current economic conditions, technology trends, and energy costs. Subsequent changes in global economy, technology trends, and future energy cost fluctuations, can affect the accuracy of the projections.

Note that Scope 1 emissions are due to facility heating and are therefore directly associated with forecasted real estate square footage. EMC currently is engaged in office consolidation projects expected to be implemented in 2009 & 2010.

Scope 2 emission projections are associated with both consolidations and energy efficiency projects. EE projects are targeted primarily at our corporate US and Cork Ireland facilities (see also question 23.13 above).

Further information

#### 24. Planning: (CDP6 Q3(c))

24.1. How do you factor the cost of future emissions into capital expenditures and what impact have those estimated costs had on your investment decisions?

From a corporate-wide perspective, as a predominantly indirect (Scope 2) emitter of GHG within our operations, EMC's future emissions costs primarily consist of a potential for increased electrical costs, which currently make up only a small percentage of our overall operating budget. Potential for energy cost increases are factored into EMC Facilities Organization's operating budget to target investments in energy efficiency projects designed to reduce facility energy use, increase efficiency, and achieve our Climate Leaders goal.

Further information

#### Governance

#### 25. Responsibility: (CDP6 Q4(a))

25.1. Does a Board Committee or other executive body have overall responsibility for climate change?

Yes. (Please answer question 25.3 and 25.4)

25.2 Please state how overall responsibility for climate change is managed and indicate the highest level within your company with responsibility for climate change.

- The Corporate Governance and Nominating Committee of EMC's Board of Directors provides board level oversight of environmental strategy, including climate change
- An Environmental Sustainability Board comprised of senior executives reviews and ensures the execution of environmental strategy
- The Office of Sustainability develops the strategy
- Global Real Estate & Facilities and EHS groups track energy use and GHG emissions, and implement energy efficiency projects & business continuity programs
- The Green Business Leadership is a cross-functional team that coordinates, aligns, and drives corporate initiatives
- "Green Teams" drive initiatives within business functions
- Employee volunteer "Green Champions" raise awareness and drive initiatives in local offices

25.3. Which Board Committee or executive body has overall responsibility for climate change?

The Corporate Governance and Nominating Committee of the Board of Directors is charged with considering issues rated to corporate social responsibility and sustainability, which includes climate change.

25.4. What is the mechanism by which the Board or other executive body reviews the company's progress and status regarding climate change?

As indicated above, EMC has created a Corporate Sustainability Office responsible for EMC's corporate sustainability strategy, including addressing climate change and collaborating with leadership throughout the company to ensure integration of our environmental sustainability values into our culture, our policies, and our operation. The Sr. Director of Corporate Sustainability chairs the Green Business Leadership (GBL), a cross-functional committee comprising of leadership for each functional organization. The GBL drives environmental sustainability initiatives across the company, ensures alignment of functional activities, and engages with internal and external stakeholders. On behalf of the GBL, the Senior Director of Corporate Sustainability reports on progress regarding climate change to the Executive Environmental Sustainability Board comprised of senior executives. The Sr. Director of Corporate Sustainability reports to the Corporate Governance and Nominating Committee on biannual basis.

Further information

#### 26. Individual Performance: (CDP6 Q4(b))

26.1. Do you provide incentives for individual management of climate change issues including attainment of GHG targets?

Yes. (Please go to question 26.2)

26.2. Are those incentives linked to monetary rewards?

Yes

### 26.3. Who is entitled to benefit from those incentives?

Sr. Director, Corporate Sustainability, the Director of Global EHS, and members of specific project teams.

#### Further information

The MBOs (Management by Objective) goals of the Senior Director of Corporate Sustainability, who heads the Sustainability Office at EMC, are tied to establishing goals for GHG reductions. Likewise, the Director of Global EHS has MBOs associated with climate change initiatives such as Climate Leaders Program participation and CDP reporting. Members of specific project teams hold MBOs associated with achieving their specific goals. Quarterly bonuses are directly tied to achievement of these MBOs.

EMC expects that all employees do their part to reduce energy usage and implement conservation initiatives applicable to their respective areas of responsibility. In order to educate its workforce about climate change and other pressing environmental issues, and to drive initiatives that will contribute to the reduction of EMC's carbon footprint, EMC has also launched a company-wide employee environmental engagement program.

### 27. Communications: (CDP6 Q4(c))

27.1. Do you publish information about the risks and opportunities presented to your company by climate change, details of your emissions and plans to reduce emissions?

Yes

EMC discloses information about risks and opportunities related to climate change, as well as details of our emissions and plans to reduce emissions in its Sustainability Report as well as on its website.

<http://www.emc.com/about/global-citizenship/2008-sustainability-report.htm>

<http://www.emc.com/about/global-citizenship/environmental-commitment/climate-leader.htm>

EMC disclosed risks related to changes in regulations driven by climate change concerns in its Annual Report on Form 10K for the year ended December 31, 2008.

<http://www.emc.com/about/investor-relations/sec-filings.htm>

EMC issued a letter to our shareholders that references our environmental sustainability initiatives including our efforts to reduce energy consumed by our product, operations, and supply chain.

<http://www.emc.com/about/emc-at-glance/annual-overview/2009/letter-to-shareholders-final-09.pdf>

EMC Investor Relations routinely answers investor requests for information on our climate change programs. The Sr. Director of Sustainability also holds bi-annual calls with investors in which issues pertaining to climate change are also discussed.

If so, please indicate which of the following apply and provide details and/or a link to the documents or a copy of the relevant excerpt:

27.2. The company's Annual Report or other mainstream filings.

Yes

Annual Report on Form 10K for the year ended December 31, 2008 <http://www.emc.com/about/investor-relations/sec-filings.htm> page 16 also excerpt below.

Excerpt: Our business could be materially adversely affected by change in regulations or standards regarding energy use of our products.

We continually seek ways to increase the energy efficiency of our products. Recent analyses have estimated the amount of global carbon emissions that are due to information technology products. As a result, governmental and non-governmental organizations have turned their attention to development of regulations and standards to drive technological improvements and reduce such amount of carbon emissions. There is a risk that the rush to development of these standards will not fully address the complexity of the technology developed by the IT industry or will favor certain technological approaches. Depending on the regulations or standards that are ultimately adopted, compliance could adversely affect our business, results of operations or financial conditions.

27.3. Voluntary communications (other than to CDP) such as Corporate Social Responsibility reporting.

Yes

See the attached corporate Sustainability Report, which includes information on our climate change initiatives.

<http://www.emc.com/about/global-citizenship/2008-sustainability-report.htm>

EMC's participation in EPA Climate Leaders and our GHG reduction targets are published on the Climate Leaders website at:

<http://www.epa.gov/climateleaders/partners/index.html>

In addition, we post information on our corporate climate strategy, our GHG reductions prior to joining Climate Leaders, and our progress towards meeting our GHG reduction goal, on our company's individual Climate Leaders webpage at:

<http://www.epa.gov/climateleaders/partners/partners/emccorporation.html>

To educate our stakeholders and employees on our approach to climate change, and to involve employees in a range of GHG reduction activities that will contribute to meeting our goal, we publicize our participation in Climate Leaders on our internal employee intranet and our corporate website: <http://www.emc.com/about/global-citizenship/environmental-commitment/climate-leader.htm>

Further information

## 28. Public Policy: (CDP6 Q4(d))

28.1. Do you engage with policymakers on possible responses to climate change including taxation, regulation and carbon trading?

Yes

To proactively inform the federal government on product efficiency opportunities in the data center, EMC contributes to the EPA's ENERGY STAR Enterprise Server and Data Center Energy Efficiency initiatives. [http://www.energystar.gov/index.cfm?c=prod\\_development.server\\_efficiency](http://www.energystar.gov/index.cfm?c=prod_development.server_efficiency)

EMC is actively engaged in The Green Grid, a consortium of companies that is dedicated to advancing energy efficiency in data centers and computing ecosystems. The Green Grid is developing platform-neutral metrics, processes, and technologies to improve energy efficiency in the data center. EMC holds a board seat and chairmanship of several task forces.

EMC also holds a board seat of the Storage Networking Industry Association (SNIA). SNIA's Green Storage Initiative develops standards and educates on best practices for data center energy efficiency. In 2008, we collaborated on their whitepaper, "Best Practices for Energy Efficient Storage Operations."

In Europe, EMC supports European Commission's Directorate-General Joint Research Centre Institute for Energy. This program of the European Commission helps European data centers develop and execute improvement plans. We contributed our expertise on Best Practices for Storage that resulted in a document titled "The European Code of Conduct on Data Centres Energy Efficiency, version 1".

EMC chairs the Energy and Environment Committee of the Information Technology Industry Council. The mission of the Committee is to share the IT industry's views and knowledge to enable leaders in Washington to make better policy and regulatory decisions that will affect our industry's ability to produce and advance solutions towards better energy and environmental policies. The charter of the Committee is to engage Members of Congress and the Executive Branch to inform policymakers on the role IT plays in driving energy efficiency. [http://www.cdproject.net/admin/attachedfiles/Responses/40991/268/Att%204%20-%20ITI%20EEC%20Charter%20v7%20\(2\)%20\(2\).doc](http://www.cdproject.net/admin/attachedfiles/Responses/40991/268/Att%204%20-%20ITI%20EEC%20Charter%20v7%20(2)%20(2).doc)

EMC is also a member of the Technology CEO Council (TCC), the information technology industry's public policy advocacy organization comprising Chief Executive Officers from America's leading information technology companies. Founded in 1989, and formerly known as the Computer Systems Policy Project, The Technology CEO Council is dedicated to advancing policies that ensure and promote U.S. competitiveness through technology leadership. <http://www.techceocouncil.org/index.php>

In 2008, EMC was one of the founding members of the Digital Energy Solutions Campaign (DESC), a coalition of leading ICT companies and environmental NGOs, advocates for U.S. public policy to support the intelligent use of ICT in improving the energy efficiency of the broader economy. This group was formed by the Technology CEO Council and is affiliated with the Alliance to Save Energy, The Climate Group, and the World Wildlife Fund.

EMC is a member of the IT Industry Partnership of the World Economic Forum. In 2008, we participated in the Green Technology workstream within the WEF. The group explored the enabling role of the IT sector in reducing emissions produced by other industries. EMC contributed to the report, "Green Technology, Economic and Environmental Benefits from ICT," which was released at the GreenTech session of the World Economic Forum in early 2009. Our Vice Chairman was discussion leader in the session and will lead our work contributing to an environmentally sustainable information economy.

EMC was one of the businesses invited by Sustainable Energy Ireland (SEI), Irish national energy agency, to participate in the input and commentary phases of the development of an Accelerated Capital Allowance (ACA) scheme that encourages the purchase of energy efficient capital equipment by providing tax incentives for their purchase. We provided background and education on the various software and hardware contributions to energy efficiency, and recommended specific technologies that SEI should identify as qualifying for ACA benefits. We also recommended a methodology for rewarding the presence of contributing technologies in different combinations, since they will not all appear simultaneously in any products.

By participating in organizations like The Green Grid, ITIC and TCC, EMC is providing information about how our products and solutions help our customers (end users) use less power. We participate with organizations that identify and define best practices in IT equipment design and operation and that message the important role IT plays as part of the solution to climate change. With these IT organizations, EMC is engaging government agencies to ensure that future regulations (product efficiency standards etc.) that potentially could affect the IT sector are legislated appropriately to achieve the intended results.

Further information

## Supplier Module

### SM 1 Ability to Split Scope 1 and 2 Emissions by Business Category

The aim of these questions is to help your customers estimate the extent to which your Scope 1 and Scope 2 emissions are linked with their purchases of services or goods from you.

Please note that we use the term "product" to cover both goods and services.

SM 1.1 Are you able to break down your total Scope 1 and Scope 2 emissions by the following categories:

- Business division
- Business unit
- Factory
- Product group
- Other

Please give details in each case.

Business division?

No

Business unit?

No

Factory?

Yes

EMC operates manufacturing plants in Franklin Massachusetts, Apex North Carolina, and in Cork Ireland for which facility-level Scope 1 & Scope 2 GHG emissions are calculated.

Product group?

No

Other

No

Unable to breakdown by category?

No

Further information

While EMC can provide Facility-level emissions data for our corporate and manufacturing facilities, EMC facilities are multi-use with multiple engineering groups supporting the development, testing, and manufacture of diverse product lines. Product-level footprint analysis is not available at this time.

### SM 1.2 Splitting Scope 1 and Scope 2 Emissions by Category

SM 1.2. Using your preferred method (question SM 1.1) for splitting emissions, please consider what are the five biggest emitting categories (e.g. business units or product groups) for your company? For each of the five biggest emitting categories, plus any other categories specified by your customer(s), please complete the table SM1.2.

[Click here to see a sample of a completed table.](#)

Please complete this table. Use the figure given in answer to question 11.1. as the basis for your Scope 2 emissions.

	Category e.g. business division, business unit, factory, product group.	Total emissions (number)	Total emissions Units of measure e.g. metric tonnes CO2-e	Do these represent emissions from Scope 1 only, Scope 2 only, or both?	Output	Units	Major emission Sources
Group 1	Franklin Massachusetts Manufacturing Facility	30385	metric tonnes CO2-e	Scope 1 and 2			Scope 1 from Electricity Use & Scope 2 primarily from natural gas use.
Group 2	Apex North Carolina Manufacturing Facility	9322	metric tonnes CO2-e	Scope 1 and 2			Scope 1 from Electricity Use & Scope 2 primarily from natural gas use.
Group 3	Cork Ireland Manufacturing Facility	37285	metric tonnes CO2-e	Scope 1 and 2			Scope 1 from Electricity Use & Scope 2 primarily from natural gas use.
Group 4							
Group 5							
Other							
Total							

Further information

[Please refer to our responses to Questions 10 & 11 of the CDP Investor Questionnaire.](#)

### SM 1.3 Methodology

SM 1.3. Please explain how you have identified the GHG sources listed in the previous question, including major limitations to this process and assumptions made.

Describe your system for allocating emissions to the groups in the table.

Where published information has been used, please provide a reference(s).

Give the degree of confidence that you have in the figures expressed as a percentage, e.g. you estimate that they are accurate to +/- 15%.

If the allocation of emissions to different categories has been externally verified, please give details.

Individual plant emissions are calculated using total energy consumption (purchased electricity, natural gas, diesel fuel, gasoline, propane etc.) and applying USEPA Climate Leaders, e-GRID, WRI, and Ireland EPA emission factors, as described in our response to Question 9 of the CDP Investor Questionnaire.

Refer to our responses to Questions 7 through 9 of the CDP Investor Questionnaire for additional details on EMC's GHG accounting methodology.

Further information

## SM 1.4 Challenges and Developments

What are the challenges in allocating emissions to different business categories and what would help you to overcome these challenges? Please describe whether and how you plan to develop your capabilities to allocate your emissions in the future.

As described above, multi-use facilities and a diverse and dynamic engineering supporting structure currently make it untenable to calculate or assign the appropriate portion of our Facility-level GHG emissions to a particular product, product group, or business unit. EMC is participating in the World Resources Institute Scope 3 Greenhouse Gas Protocol for Products and Supply Chains to help develop a consistent approach to determine when and how such allocations should be made.

Further information

EMC is implementing ongoing sub-metering of facility functions to better measure, control, and reduce our energy use across individual data centers and labs. This data may help to better understand product-level GHG metrics in the future.

## SM 2. Your engagement with your suppliers

Your customers want to engage with you to learn more about the emissions from their immediate suppliers. The purpose of this section is to find out what you in turn are doing to engage with your own suppliers.

SM 2.1 Do you have a strategy for engaging with your suppliers on their GHG emissions and the impacts of climate change on their business? If so, please provide details of this strategy. To give a sense of the scale of this engagement, please include the number of suppliers with whom you are engaging and the proportion of your total spending that they represent.

If you do not have a strategy, please explain any plans you have to develop one in the future.

Yes

Our Global Supply Chain Organization supports ethical, social, and environmental standards worldwide, both to meet our own sustainability commitments and to be able to give the same assurance to our customers. Our Supplier Code of Conduct establishes our standards on legal compliance, employee health and safety, environmental management, non-discrimination, ethics, confidentiality, and financial reporting for suppliers.

In 2007, we launched a pilot program to audit our suppliers and are working with them to improve their social and environmental practices as needed.

In 2008, we joined the Electronic Industry Citizenship Coalition (EICC) and updated our Supplier Code of Conduct to substantially adopt the EICC's Code, a standard for sustainable supply chains. The Supplier Code of Conduct has been distributed to suppliers with a requirement for them to acknowledge it. The code is available on our corporate website in both English and Chinese. We also incorporated social and environmental key performance indicators in our Quarterly Supplier Performance Scorecard.

We evaluate our suppliers' compliance with our Supplier Code of Conduct and local laws with surveys, self-assessments, and on-site audits. We work collaboratively with suppliers to understand the cause of, and remediate any, negative audit findings. In 2009, we are participating in the launch of EICC shared audits, which benefits member companies and suppliers by reducing the number of audits required and establishing a basis for comparison. We are active in several EICC workgroups this year and have invited suppliers to participate in the EICC training in China. Many suppliers as well as several people from EMC in Asia attended the training events.

We also have been active members of the EICC Environmental Sustainability and World Resource Institute (WRI) Technical workgroups. We have implemented a data membership to the Carbon Disclosure Project Supply Chain Leadership Collaboration (CDP SCLC). EMC has been working with the CDP and the EICC to launch carbon reporting questionnaires to our supply base totaling 95% of our spend. When the data becomes available we will use the information received from these questionnaires to better understand our suppliers' emissions, work with our suppliers to continue building EMC's environmental program, and identify opportunities to change processes with the goal of reducing our impact on the environment together.

EMC is committed to maintaining compliance with hazardous substances and electronic waste regulations. EMC extends its efforts beyond the legal requirements by pursuing initiatives that reduce the impact of electronic material throughout its lifecycle. All products supplied by EMC and initially placed on the EU market after July 1, 2006 meet with the requirements of the RoHS Directive. For identification, products are clearly marked with the WEEE logo subject to European Directive 2002/96/EC for WEEE. In addition, EMC or, as appropriate, its distributors, is registered as a WEEE Producer in all countries that have transposed the law.

Further information

EMC goes beyond the minimum of complying with legal requirements by actively pursuing the elimination of hazardous substances in its products and by sourcing alternatives that do not negatively affect product quality, reliability or cost. Beginning mid-2009, EMC eliminated lead solder from all new products and is targeting a 50 percent reduction in the use of brominated flame retardants (BFRs) and PVCs by 2010, should suitable alternatives become available. EMC engages in returnable packaging initiatives and promotes package re-designs that significantly reduce waste and increase efficiency. In addition, EMC packaging engineers use International Safe Transit Association testing protocol, allowing them to use the "just right" amounts of material to adequately protect products for worldwide shipment. EMC is a partner in the U.S. EPA SmartWay program, which focuses on reducing emissions with carefully chosen logistics carriers.

## SM 2.2 Use of data

If you have data on your suppliers' GHG emissions and climate change strategies, please explain how you make use of that data (for example: identifying major GHG sources to prioritise emissions reduction actions, identifying physical risks in the supply chain, stimulating innovation, etc).

As described above, we are in the process of receiving such data from our suppliers. We plan to use that information to identify and mitigate risk, to institute training with our suppliers, and ultimately to work with our suppliers to reduce GHG emissions in our supply chain.

### Further information

## SM 3. Emissions over the lifecycle of goods and services

SM 3.1. Please list any major successes and/or planned activities to reduce GHG emissions in the lifecycle of groups of products or individual products, including an estimate of the possible reductions for each initiative.

EMC successes in reducing GHG emissions from our products include:

- Solid State Drives (SSD) - a single SSD can deliver the IOPS of 30 15K rpm drives. Set forth below are examples of power savings per drive for the SSDs compared to standard HDDs:

15K => SSD equals 48% reduction  
10K => SSD equals 45% reduction  
7.2K => SSD equals 39% reduction  
5.4K => SSD equals 10% reduction

- Drive spin-down in disk libraries – enable drives that are not actively being accessed to be spun down for power savings. Potential savings from disk drive spin down can save over 1,000 kWh/month in a typical use model for archived data.
- Virtual Provisioning – reduces volume of disks required to maintain pool of unused space. Available in all EMC SAN and NAS storage platforms.
- Adaptive cooling – adjusts fan speed to the level required based on ambient temperature. Used in all EMC SAN and NAS storage platforms.

EMC is currently pursuing the following planned activities (actual impact will vary significantly depending on customer configuration and usage):

- Ongoing Power-efficiency improvements in hardware – we are driving our vendors to new standards for efficient components as well as optimizing system hardware design for power & cooling.
- Hardware-enabled power controls – We are embedding the ability to "turn knobs," adjusting controls to optimize power/performance.
- Software power optimization – Our software is continually being optimized to take advantage of the hardware controls within the core storage service.
- Power-aware storage -policy-based, automated management of data placement will incorporate energy considerations into Service Level Agreements.
- Environmental management – We focus on being able to monitor, control, and analyze the relationship between the information infrastructure and the patterns of power usage and energy consumption.
- Integrated Services and Solutions – we continue to leverage the EMC product portfolio to provide comprehensive solutions for our customers that enable increased efficiency without compromising security or availability.

SM 3.2 Do you offer customers information or steps they can take to reduce the GHG emissions associated with use of your products, and - in the case of goods - with their disposal? Please give examples.

Yes. The EMC Power Calculator allows EMC equipment users to plan the energy consumption from their specific configuration, and to compare alternative approaches for selection of the most energy-efficient configuration possible. The calculator covers the entire EMC portfolio.

In addition, we provide customers with information on how to run their information infrastructures more efficiently through the use of best practices including:

- Tiering of data to use fewer, lower-power disk drives
- Data de-duplication to reduce network, storage and process requirements for backup
- Snapshot technology to allow repurposing of data and rapid recovery with less storage
- Application of solid state disk drives for high-performance applications with up to 97% reduction in energy consumption
- Use of spin-down to reduce energy consumption for disk-based backup systems.

We provide this information on energy-efficiency processes through white papers available on our customer-accessible PowerLink web site as well as on EMC.COM and in product documentation. EMC also offers services that perform assessments and help estimate the savings to a particular customer from application of any of the above strategies (for additional information, including information on EMC Data Center Efficiency Services, see our responses to Question 6.1 of the Investor Questionnaire).

To address product end-of-life issues, EMC recommends that customers redeploy their older generation EMC products. Redeployment enables a customer to maximize

use of its equipment and reduces the total cost of ownership. When redeployment is not possible, EMC has processes to take back the equipment from the customer.

In addition, EMC complies with international ROHS and WEEE regulations to reduce the amount of hazardous materials in our products and ensure proper product recycling. EMC has numerous processes to assure electronic waste is properly managed and disposed in accordance with federal and local laws and in an environmentally conscious manner. EMC works with Information Technology Asset Disposition (ITAD) providers and recyclers to assure maximum reclamation of raw materials, asset protection and data security throughout the recycle process which results in deriving maximum value and lowering demand for new materials whenever possible.

#### Further information

Please refer to our responses to Question 6 of the Investor Questionnaire to see how EMC is actively pursuing technologies that will result in greater product efficiencies and thereby result in decreases in GHG emissions associated with product use.

Also, as discussed in our responses to Question 14 of the Investor Questionnaire, while the use of IT products consumes electricity, IT can also significantly decrease the overall energy consumed by the global economy and therefore plays an important part in the reduction of GHG emissions. In its 2008 landmark study, "Information and Communication Technologies: The Power of Productivity," the American Council for an Energy-Efficient Economy (ACEEE) found that "for every extra kilowatt-hour of electricity that has been demanded by ICT technologies, the U.S. economy increased its overall energy savings by a factor of about 10."

Similarly, the 2008 SMART 2020 Report reveals that IT solutions "could deliver 15% emissions savings in 2020". These savings are expected to be achieved through increased energy efficiency of IT products and services, but even more importantly, through the capacity of the IT industry to enable efficiencies in other industries. The SMART 2020 report predicts that the savings enabled by the IT industry will be five times larger than the total emissions attributed to the sector. <http://www.smart2020.org>

In addition to enabling other sectors to become energy efficient, dematerialization and substitution – replacement of high-carbon products and activities with their virtual substitutes (books, meetings replaced with e-government, e-commerce, precision farming)—can also deliver significant emissions savings.

### SM 3.3 and 3.4 Individual Request Questions

Some suppliers may have customers who request that they provide estimates of GHG emissions over a particular product's lifecycle. Others may have estimated this information for their own purposes and wish to publicise it. If you fall into either group, please answer the following question and then complete the table SM 3.4.

SM 3.3 Please give details of the method that you have used to estimate lifecycle emissions. State if you have followed a published procedure (e.g. ISO 14040 & 14044 or PAS 2050) or one that you have developed yourself.

Clearly define the good or service for which data is being given and the boundary of your assessment. Please make it clear which GHGs and GHG sources are included in your assessment. If relevant GHGs and GHG sources are excluded, please describe them and give reasons for omissions.

Give references to data sources used.

If you are giving life cycle assessment (LCA) information for more than one product, please use this text box to describe your methodologies, each time making it clear to which product you are referring.

### SM 3.4. Emissions over the lifecycle of goods and services

An example of the lifecycle stages of a service might be - in the case of a hotel stay - check in, use of room, check out, cleaning.

You can use this table to provide LCA data to all requesting CDP members or to selected members only.

In the box at the top you will see a list of all your requesting members. If you would like to limit the availability of this particular product information to a particular member, please select that member. To select multiple members, hold down the control key and click on each.

You can repeat this process as you move to the next table if you have data for more than one product to input.

If you do not select specific members, this data will be visible to all requesting members. If you choose to make your response public, it will then appear in your published response on our website.

#### Further information

As described in our responses above, product-specific lifecycle analysis is not currently available. EMC is actively engaging its industry peers to identify the optimal approach to lifecycle carbon accounting for the ITC industry.