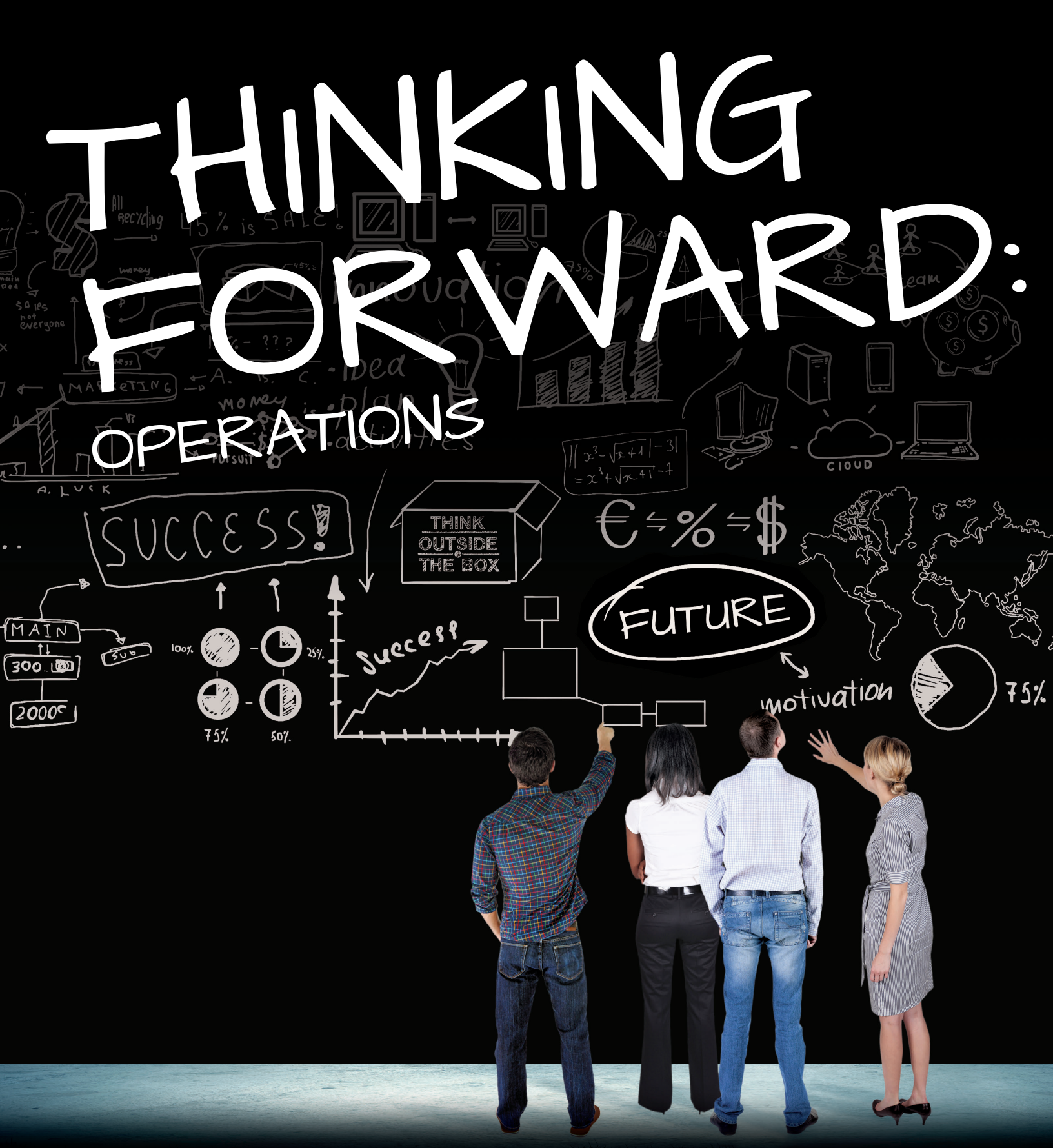
THINKING FORWARD: OPERATIONS



REDEFINE THE FUTURE

2013 EMC Sustainability Report

EMC²

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OPERATIONS

EMC headquarters in Hopkinton, Massachusetts

EMC is committed to protecting the planet's ecosystems and addressing the impacts our business has on the environment. Our forward-looking approach is reflected in the commitments and progress we've made in our priority areas, including energy conservation, climate change mitigation, material use, and waste management.

TOPICS COVERED IN THIS REPORT INCLUDE:

- **Operational Targets**
- **Environmental Strategy**
- **Resource Management & Conservation**
  Energy & Climate Change Strategy
  Efficient Facilities
  Efficient Data Centers
  Recycling & Waste
  Packaging
  Logistics
  Water Use & Management
- **Information Security & Privacy In Our Operations**

OPERATIONAL TARGETS

To help direct our efforts related to our operations and quantify our success, EMC set the following goals and targets:

EMISSIONS

- **30% reduction of global Scope 1 and 2 greenhouse gas (GHG) emissions per revenue intensity below 2005 levels by 2012.** ***Achieved***
- **40% reduction of global Scopes 1 and 2 GHG emissions per revenue intensity below 2005 levels by 2015.** ***Achieved early; however we are not retiring the goal, as we need to maintain reduction levels during 2015***
- **40% absolute reduction of global Scopes 1 and 2 GHG emissions below 2010 levels by 2020***
- **80% absolute reduction of global Scopes 1 and 2 GHG emissions below 2000 levels by 2050**

ENERGY

- **40% reduction in energy consumption per employee below 2005 levels by 2012.** ***We missed the target but we are pleased to have achieved a 35% per employee reduction over the goal period***
- **50% of global electricity needs to be obtained from renewable sources by 2040**
- **20% of global electricity needs served by renewables by 2020***

PRODUCT OPERATIONS

- **20% reduction in Global Supply Chain Logistics CO2e per metric ton-km below 2013 levels by 2020***
- **95% of outbound packs optimized for sustainable materials and/or right-sizing by 2020***

In the pages that follow, we provide more detailed information about these goals, our initiatives, and other examples of how EMC is driving efficiencies throughout our operations.

*Refers to a target newly established in 2014

ENVIRONMENTAL STRATEGY

EMC'S GLOBAL ENVIRONMENTAL POLICY

EMC's environmental strategy guides our approach to managing the environmental impacts of our business and allows us to work towards creating a net positive value for our company, stakeholders, and the planet. We collaborate and engage with external groups with our primary focus on compliance, energy and climate change, material use, and waste. This approach provides EMC with a thoughtful direction and a unified purpose, while enabling us to revise and update our efforts as needed based on the changing Information Technology (IT), environmental, and regulatory landscape.

DEFINING ENVIRONMENTAL SUSTAINABILITY AT EMC

Environmental sustainability is defined by keeping in mind the key stakeholders we serve: our employees and their families, customers, suppliers, partners, investors, and the greater global community. We seek to:

- Protect and conserve the environment in which we live and work
- Create value through adaptations that are required to thrive into the future
- Mitigate risks from changes in the planet that we cannot influence

ENVIRONMENTAL MANAGEMENT SYSTEM

Our environmental management system covers regulatory compliance, waste reduction, conservation of energy and materials, and overall environmental impact. This has allowed us to certify all our company-owned global manufacturing sites with ISO 14001 and limit noncompliance.

We did not incur fines or nonmonetary sanctions at any of our company-owned global manufacturing sites for noncompliance with environmental laws and regulations in 2013.

RESOURCE MANAGEMENT & CONSERVATION

EMC recognizes the importance of managing and conserving our global resources, both in the operation of our facilities and in the manufacturing and delivery of the products we provide to our customers. Because EMC's primary GHG emissions arise from the generation of electricity needed to run our business and power our products, energy efficiency is among our most significant sustainability factors. This perspective drives our climate change and energy strategy and our related goals, targets, and initiatives. We participate in the conversation and evaluate the information about climate change, then adapt and optimize our operations to better address the issues.

EMC's approach to managing energy use and associated GHG emissions comprises:

- An aggressive pursuit of energy efficiency
- Ongoing collaboration among our facilities, engineering, manufacturing, logistics, and IT teams
- Exploring opportunities for the use of renewable energy

This section covers the following resource management and conservation aspects of our operations and product manufacturing and delivery:

- **Energy & Climate Change Strategy**
- **Efficient Facilities**
- **Efficient Data Centers**
- **Recycling & Waste**
- **Packaging**
- **Logistics**
- **Water Use & Management**

EMC is a signatory to The Climate Declaration, a project of Ceres that brings together companies and individuals to demonstrate support for national action on climate change.

ADDITIONAL INFORMATION

CLIMATE CHANGE POLICY STATEMENT

ENERGY & CLIMATE CHANGE STRATEGY

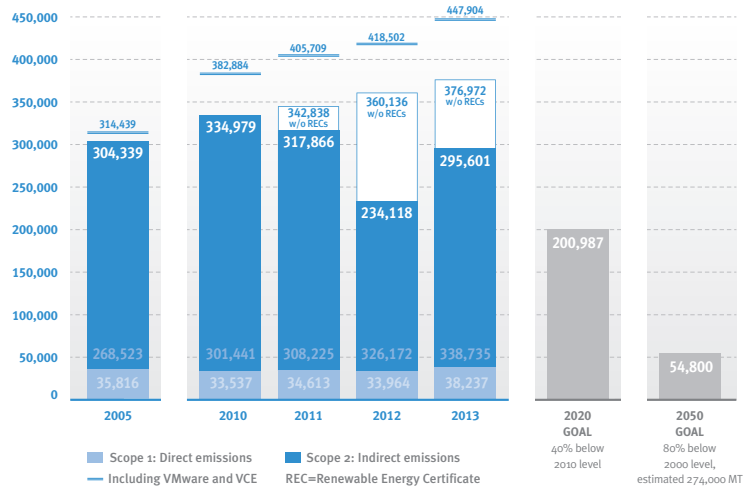
EMC's primary GHG emissions arise from the generation of the electricity needed to run our business. Within our own operations, our energy and climate change strategy focuses on the following key areas:

- Decreasing the demand for energy
- Maintaining a highly efficient infrastructure at our company-owned facilities
- Optimizing logistics routes and modes to decrease carbon intensity
- Designing and operating data centers for energy efficiency
- Identifying opportunities to adopt renewable energy sources that are economically and environmentally sound

To see our full energy and climate change strategy, including our supply chain, use of our products, and global energy demand, visit the Main Report.

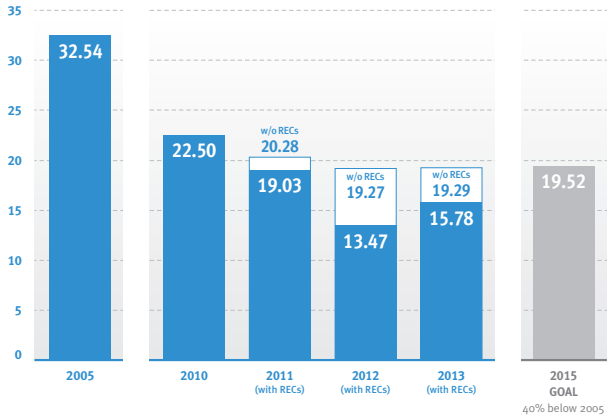
EMC GLOBAL ABSOLUTE GHG EMISSIONS, SCOPES 1 AND 2

ALL LEASED AND OWNED GLOBAL FACILITIES AND MOBILE ASSETS (EXCLUDES VMWARE AND VCE)—METRIC TONS CO_2e



EMC GLOBAL GHG EMISSIONS INTENSITY PER $1M REVENUE, SCOPES 1 AND 2

ALL LEASED AND OWNED GLOBAL FACILITIES AND MOBILE ASSETS (INCLUDES VMWARE AND VCE)—METRIC TONS CO_2e



GOAL SETTING

We began measuring our GHG emissions in 2005. Since then, our energy intensity by revenue—the amount of global GHG we emit per $1 million we earn—has declined by more than 40 percent, from 32.54 to 19.29 metric tons. In the past, our energy efficiency approach has been measured against the following goals:

Short-Term

- 30% reduction of global Scopes 1 and 2 GHG emissions per revenue intensity below 2005 levels by 2012. *Achieved*
- 40% reduction in energy consumption per employee below 2005 levels by 2012. *We missed the target but we are pleased to have achieved a 35% per employee reduction over the goal period.*
- 40% reduction of global Scopes 1 and 2 GHG emissions per revenue intensity below 2005 levels by 2015. *Achieved early; we are not retiring the goal yet, as we need to remain on-target to meet reduction levels through 2015.*

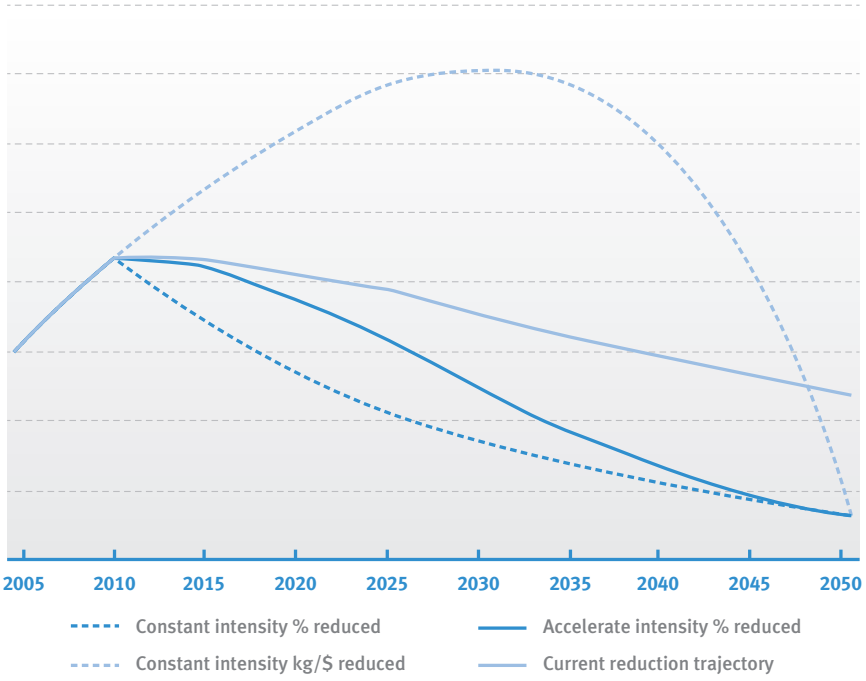
Long-Term

- 50% of global electricity needs to be obtained from renewable sources by 2040 (excludes VMware)
- 80% absolute reduction of global Scopes 1 and 2 GHG emissions below 2000 levels by 2050

Determining Our Goals

To set our long-term goals, we began with the imperative to achieve an absolute reduction of at least 80 percent by 2050 in accordance with the Intergovernmental Panel on Climate Change's (IPCC's) Fourth Assessment Report recommendations. We then modeled various reduction trajectories; our goal was to identify a solution that would be elastic enough to adjust to changes in our business, while achieving a peak in absolute emissions by 2015, in accordance with recommendations from the 2007 Bali Climate Declaration.

TRAJECTORY DIAGRAM



Our model was based on the Corporate Finance Approach to Climate-stabilizing Targets (C-FACT) proposal presented by Autodesk in 2009. The model calculates the annual percentage reduction in intensity required to achieve an absolute goal. We selected this approach because intensity targets better accommodate growth through acquisitions (in which net emissions have not changed but accountability for them has shifted), and aligns business performance with emissions reductions performance rather than forcing tradeoffs between them. Setting an intensity trajectory also drives investment beyond one-time reductions to those that can be sustained into the future.

The C-FACT system, however, is "front-loaded" as it requires a declining absolute reduction in intensity each year. EMC developed a variant of the model that requires reductions to be more aggressive than the previous year. This makes better economic sense for the company as it takes advantage of the learning curve for alternative fuels as they become more efficient and cost effective. Please see the "Trajectory Diagram" for more information.

While EMC put much thought into setting our long-term goals, some stakeholders felt that they were too distant for most people to conceptualize. In response to this feedback, in 2014, we set the following new mid-term targets to mark progress:

- 40% absolute reduction of global Scopes 1 and 2 GHG emissions below 2010 levels by 2020 (excludes VMware)
- 20% of global electricity needs served by renewables by 2020 (excludes VMware)

The basis of our mid-term targets is an understanding of the contribution that businesses must make to GHG mitigation to avoid dangerous climate change, as described in the CDP and World Wildlife Fund report **"3% Solution"**. We believe these mid-term goals are aggressive and aspirational, particularly given the anticipated growth in our business. However, we also realize the potential for a combination of escalating effects of climate change and a lack of collective action could require that all businesses, including EMC, accelerate their mitigation plans. We will continue to monitor conditions and adjust our targets accordingly.

RENEWABLE ENERGY

EMC's reduction targets cannot be achieved through operational energy efficiency alone. We continue to work toward our renewable energy goal (and the new 2020 target) by seeking renewable energy sources that are economically and environmentally sound. In 2013, our efforts included:

- Setting the new mid-goal target of obtaining 20% of global electrical needs from renewables by 2020.
- Continuing investigation of a combined heat and power plant for a large U.S. site. In 2013, we further analyzed the cost-benefit analysis to determine the appropriate next steps needed if we were to bring this project online.
- Continuing evaluation of the use of fuel cell technology for one of our U.S. locations.
- Finishing the acquisition of wind data from the meteorological tower we installed in 2011 at our headquarters in Hopkinton, Massachusetts, and completion of the Wind Study Report. Thinking ahead to 2014, we'll be reviewing the results of the Wind Study Report, and comparing it against other renewable energy scenarios to determine what, if any, options may exist for EMC to further pursue wind power at our Hopkinton headquarters.
- Conducting additional research on solar energy projects, including preliminary discussions for the potential installation of solar photovoltaics in the U.S.
- Initiating discussions for potential alternative energy purchasing in India for our Bangalore Centre of Excellence (COE).

During 2013, EMC purchased 113,000 MWh of Renewable Energy Certificates (RECs) in support of renewable energy generated in the U.S. The RECs purchased supported renewable electricity delivered to the national power grid by alternative energy sources. The RECs are third-party verified by Green-e Energy to meet strict environmental and consumer protection standards. The 113,000 MWh represents 19 percent of the grid electricity consumed at all U.S. EMC facilities, including all divisions during 2013.

ADDITIONAL INFORMATION

EMC 2013 INVESTOR CDP RESPONSE

EMC 2012 INVESTOR CDP RESPONSE

EMC LISTED ON LEADERSHIP INDICES

CDP 2013 GLOBAL 500
PERFORMANCE LEADERSHIP INDEX
EMC was included on the Performance Leadership Index for strategies committed to improving its impact on the environment.

CDP 2013 GLOBAL 500
DISCLOSURE LEADERSHIP INDEX
EMC was included on the Disclosure Leadership Index for a strong approach to the disclosure of information regarding climate change.

REPORTING & ACCOUNTABILITY

We are committed to reporting our progress transparently and disclosing our GHG emissions annually to CDP. In 2013, we expanded our carbon accounting to report on more Scope 3 categories. To learn more, see the link in the sidebar for our 2013 Investor CDP response.

Our Ireland COE continues to participate in the European Emissions Trading Scheme (ETS), which is a cap and trade Scope 1 emissions scheme that has now entered the third trading phase from 2013 to 2020. This COE has consistently remained within its operating allowance for the previous phases since 2005, but phase three will prove challenging as the free emission allowance allocated to participants has been reduced by 30 percent.

SCOPE 3 EMISSIONS

At EMC, we strive to increase the breadth and depth of our GHG reporting each year. In our 2013 Investor CDP response, we reported estimated global corporate emissions for eight of the 15 categories of Scope 3 emissions based on the WRI Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard. The following five reported categories represent the greatest opportunity to drive improvement through our own actions and influence.

Business Travel

In 2013, the GHG emissions associated with business travel was 171,571 metric tons CO_2e. We track global corporate business travel miles from commercial flight and rail via our corporate travel booking tool. Beginning in reporting year 2012, we also accounted for the GHG emissions associated with global business travel car rentals. In 2013, we incorporated the emissions associated with our global hotel stays into our Scope 3 business travel GHG emissions. The methodology for calculating the emissions associated with business travel is aligned with the GHG Protocol Corporate Accounting and Reporting Standard.

We are undertaking specific actions to reduce GHG emissions associated with employee business travel by implementing changes in technology, business processes, and resource management. We continue to expand technology to perform changes to customer technical environments that result in reduced emissions. To learn more, visit the Employee Travel & Commuting section of our detailed report titled Our People & Workforce.

Employee Commuting

As of the publication of this report, our 2013 global GHG emissions from employee commuting have not yet been estimated. Please refer to EMC's 2014 CDP Climate Change response for updated information. EMC maintains a comprehensive employee commuter services program focused on minimizing single-occupancy vehicles and unnecessary local employee travel. To learn more about our employee commuting programs, visit the Employee Travel & Commuting section of our detailed report titled Our People & Workforce.

Direct Tier 1 Suppliers

In 2013, the GHG emissions associated with EMC's direct Tier 1 suppliers was 90,000 metric tons CO_2e. We collected Scope 1 and 2 GHG emissions data from direct Tier 1 suppliers comprising 99 percent of annual spend. Using economic allocation, we then approximated our share of these emissions. To learn more, visit the Supply Chain Social and Environmental Responsibility section of our detailed report titled Supply Chain.

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Logistics

EMC's Global Logistics Operations generated approximately 109,802 metric tons CO_2e in 2013. This number is estimated using the GHG emissions reports from our logistics partners, cross-checked with standard emissions factors and calculation methodologies, and covers inbound, outbound, interplant, and customer service transportation and logistics. In 2013, we collected emissions footprint data related to carrier operations representing 89 percent of our logistics spend and extrapolated total emissions proportionately based on the reports we received. To learn more, visit the Logistics section of this report.

Use of Sold Products

Environmental Lifecycle Analyses conducted prior to 2012 confirmed our expectations that more than 90 percent of lifecycle impacts are due to electricity consumed during the product use phase. EMC estimates that the lifetime GHG emissions from use of EMC® products shipped to customers during 2013 will be approximately 4,095,306 MT metric tons CO_2e. This value represents our customers' Scope 2 GHG emissions from powering our equipment. To learn more about how we provide ongoing information to end-use customers about how to use our products more efficiently, visit our detailed report titled Our Products.

A SNAPSHOT OF EMC'S GLOBAL 2013 GREENHOUSE GAS EMISSIONS

METRIC TONS CO_2e

Purchased Goods and Services, Direct Tier 1 Suppliers

90,000

Logistics

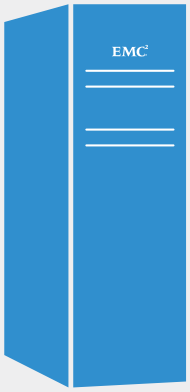
109,802

Business Travel

171,571

Scope 1 & 2 GHG Emissions from EMC Global Operations

447,901



Emissions Associated with Use of Products Sold in 2013

4,095,306

EFFICIENT FACILITIES

We recognize and embrace our role in mitigating the impacts from the various energy sources we use and their contributions to climate change. We address this issue in our owned and operated facilities by evaluating, optimizing, and adapting our operations—an important piece of the overall approach that drives and redefines our climate change and energy strategy.

EMC GLOBAL FACILITIES ELECTRICITY CONSUMPTION

EMC GLOBAL FACILITIES NATURAL GAS CONSUMPTION

ENERGY EFFICIENCY & GHG REDUCTION

In 2013, we implemented several new energy-efficiency initiatives at our owned and operated facilities. These initiatives range from hot and cold aisle containment in our Durham data center, to evolving manufacturing processes for reduced energy consumption and associated GHG emissions.

EFFICIENCIES VIA INTERNAL COLLABORATION

To help realize efficiencies across the business and create a consolidated approach to energy procurement, management, and sustainability, we established the global Energy & Water Management Steering Committee in 2013. This cross-functional committee meets quarterly and is comprised of representatives from the four geographical regions in which EMC operates. The committee is tasked with: reviewing and refining energy and water strategy; identifying and prioritizing goals; developing recommendations for management; establishing plan, task, and cost models; and implementing programs.

Our facilities and manufacturing teams continue to work closely with engineering and IT to manage global energy consumption by monitoring power use and implementing energy efficiency initiatives in our labs, data centers and manufacturing floors. Our data centers are designed to automatically capture and report Power Usage Efficiency (PUE), which is The Green Grid standard for measuring the energy efficiency of data center infrastructures. We use PUE across all data center and lab facilities, including our locations in Hopkinton, Massachusetts; Durham, North Carolina; and Cork, Ireland. These systems allow data center managers to consistently monitor and measure the impact of changes they make.

In 2013, the Ireland COE data center achieved a PUE of 1.6. Since the lab areas in the COE consume a significant percentage of overall electricity, much of the focus has been on efficiency gains in lab areas, which now operate at the equivalent of an average 1.16 PUE.

PURCHASING EFFICIENT EQUIPMENT

We purchase energy-efficient servers, printers, photocopiers, and personal computers for our operations worldwide. The purchases are guided by explicit efficiency requirements (including ENERGY STAR® certification) and help achieve efficiencies by replacing older equipment with more efficient equipment, and by creating energy reductions through consolidation and virtualization.

EMC BUILDING CERTIFICATION THROUGH THE YEARS

2009:

- EMC's Apex manufacturing facility is recognized by the North Carolina Department of Environment and Natural Resources as a North Carolina Environmental Stewardship Initiative (ESI) Environmental Steward.

2011:

- EMC's corporate headquarters building at 176 South Street, Hopkinton is awarded Leadership in Energy and Environmental Design (LEED) Gold certification.
- Our Milan, Italy office location receives LEED "Core & Shell" Silver Certification.

2012:

- EMC's cloud data center in Durham, North Carolina receives LEED Gold certification
- EMC's COE facility in Bangalore, India receives LEED Platinum certification.

EFFICIENT FACILITIES AROUND THE GLOBE

Franklin, MA

This year, we continued to roll out a variety of energy-saving programs at this location. This included installing our hybrid Environmental Stress Screening (ESS) chambers—devices that use liquid nitrogen (LN2) to subject products to different environments (e.g., temperatures and rates of change). More than 100 Hybrid ESS Chambers were modified for hybrid operation at EMC facilities in Cork, Ireland and Franklin, Massachusetts. The program is projected to reduce overall global GHG emissions (over 4,063 metric tons CO2e per year) and save the company over $2.3 million per year. In addition, several lighting and retrofit projects resulted in an annual savings of approximately 980,000 kWh in Franklin. To learn more, watch this video.

Hopkinton, MA

Research and development labs can be a challenge due to the amount of energy required and the flexibility in product layouts needed for equipment testing. In 2013, our facilities teams began working more closely with the R&D teams to better understand how operations could be improved, with the goal of realizing efficiencies that could be shared across the business. This included using one of the labs in Hopkinton as a beta site for testing energy efficiency methods. We are exploring product configurations, including hot aisle containment, and hope to use the learnings to share best practices with other EMC labs. In addition, approximately 25 other energy efficiency projects at this location, ranging from lighting to boiler controls upgrades, resulted in an annual savings of more than 11.8 million kWh.

Cork, Ireland

We continue to look for new ways to optimize our manufacturing processes for energy use reductions. In Cork, Ireland, the VMAX® testing team focuses on four key metrics to measure the efficiency of their operations. The team compares energy usage data trends at daily staff meetings and continually optimizes test processes and sequencing to help reach energy use reduction goals. This focus on efficiency has helped the team lower electricity consumption by over 11 million kWh from 2008 to 2013—a 62 percent reduction, with a cumulative CO2e savings of over 5,000 metric tons.

In 2013, the Cork team successfully completed ISO 50001 re-certification for the COE. In addition, our Cork team has pursued a variety of other projects ranging from LED lighting installations to more efficient hand dryers in bathrooms to updating controllers for boilers—proving that even smaller projects can save energy and money.

Cairo, Egypt

In 2013, the Egypt COE reduced energy consumption by adjusting the output temperature in the building air conditioners. This change, which was made in COE Egypt buildings, has saved approximately 22 percent in energy consumption, while not affecting staff comfort levels.

EFFICIENT DATA CENTERS

EMC IT is faced with the same challenges surrounding the growth of data and demand as our customers. By innovating and deploying new technologies, we advance our vision for secure cloud computing and Big Data while also developing and redefining best practices that we can deliver to our customers.

EMC'S JOURNEY TO CLOUD COMPUTING

EMC IT supports more than 63,000 "internal" users working in approximately 400 sales and corporate offices in more than 86 countries—not to mention the home offices of our large telecommuting population. EMC's Global IT environment spans five data centers with approximately 11,000 OS Images and 94 percent of all servers virtualized, and hosts more than 500 applications and 22 PB of information storage.

EMC IT began its multi-year journey to the cloud in 2004. What began as "doing more with less" became an opportunity to completely rethink the way IT is built, managed, and consumed. Virtualization, cloud computing, and IT as a Service (ITaaS) provide EMC with an opportunity to improve efficiency, gain agility, enable business innovation, and create competitive advantage.

Our initial goal was to reduce IT costs by consolidating and virtualizing the IT infrastructure, including servers, storage, networks, and desktops. This resulted in significantly higher utilization rates for storage and servers and dramatically improved efficiency and power consumption in our data centers. We then focused on improving quality of service and time-to-value for our business units and employees. EMC accomplished this by extending virtualization to existing business-owned, mission-critical applications, including enterprise resource planning (ERP), email, customer relationship management (CRM), and decision support/business intelligence.

Rather than building complex, custom solutions for every need throughout the company, EMC IT began automating, simplifying, and packaging competitive IT services for dynamic selection. The EMC IT service catalog offers transparent prices and service levels that give the business choices based on needs, usage, and budget. EMC IT's cloud operating model enables the business to embrace our standardized technology and application platforms for a broader spectrum of choice, while allowing EMC IT to spend more time consulting proactively with our business professionals in support of their strategic objectives.

While our journey was fueled initially by economic factors, it has also produced environmental benefits from both lower GHG emissions and reduced material consumption. To learn more about our cloud journey, please visit EMC IT Proven.

CONTINUOUS IMPROVEMENT AT THE DURHAM DATA CENTER

A focus on continuous improvement of the Durham Data Center's operation has led to the complete sealing of cold aisle containment implementations from floor to ceiling. Making this change resulted in a drop of 15 percent in the amount of electricity needed to power the fans circulating air in each enclosed aisle. In 2014, Durham will implement water metering for the data center to permit an increased focus on water utilization.

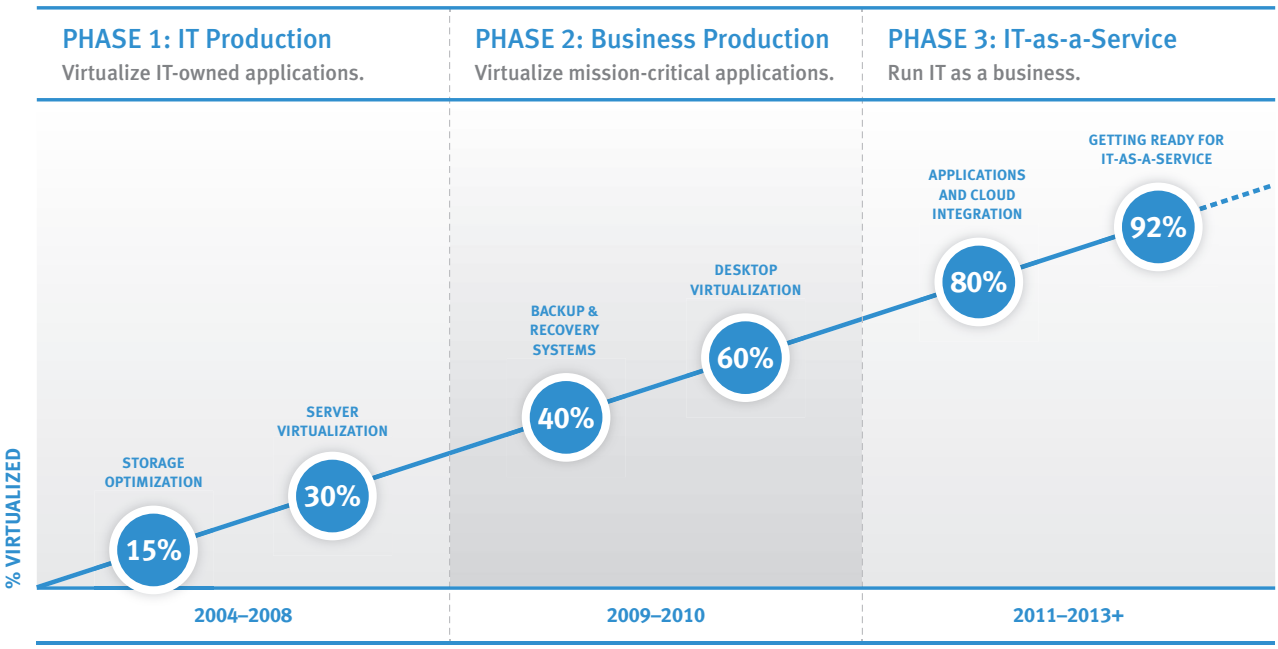
ADDITIONAL INFORMATION

DURHAM DATA CENTER: POWERING EMC'S CLOUD VISION

DURHAM DATA CENTER: ENERGY EFFICIENT DESIGN AND CONSTRUCTION

EMC IT TRANSFORMATION

EMC's journey began in 2004. The goal—improve IT efficiency and agility while enhancing security and choice for the business.



EMC Durham Data Center

LEVERAGING OUR TECHNOLOGY FOR EFFICIENCY

Virtualization and cloud computing are improving energy efficiency in our data centers. By leveraging our own products and technologies—virtualization, data deduplication, and Fully Automated Storage Tiering (EMC FAST™)—we are delivering significant energy and cost savings on our journey to the cloud.

Dynamic allocation of server and storage resources in a highly virtualized IT infrastructure allows us to strike the right balance between energy efficiency and business performance.

Our virtualization strategy includes:

- Tiered, shared, and virtualized server and storage—based on the VCE Vblock® converged infrastructure; implementing this change to one portion of the Hopkinton data center resulted in a reduction of 477,000 kWh in the fourth quarter of 2013 alone
- Virtual (thin) Provisioning of IT infrastructure
- Integrated management and automation for virtualized infrastructure

By the end of 2013, EMC IT had virtualized 94 percent of OS images using the VMware® vSphere® platform. On average, we are achieving virtual to physical consolidation ratios of 14:1. Capacity utilization rates across compute and storage have increased to about 75 percent. EMC FAST VP technology, which automatically moves data to the appropriate tier of storage, such as Flash drives for ultra-high performance or SATA drives for infrequently used information, is further optimizing our storage infrastructure for performance, energy efficiency, and cost.

By deploying EMC Avamar® and Data Domain® data deduplication solutions, EMC IT has transformed backup and restore. We have eliminated backup for certain applications by providing online archiving, removing more than 1 PB of email, file system, and database data from the backup schedule. Data deduplication, using Data Domain for databases and Avamar for virtual machines (VMs) and file systems, has further reduced the amount of data to be backed up—and reduced backup times by 75 percent. Avamar is also used to centralize backups for 121 remote sites, increasing data availability and eliminating offsite backup costs.

RECYCLING & WASTE

EMC is constantly increasing recycling and material reuse in our owned and operated facilities, and encourages recycling and reuse in our leased facilities. In addition to meeting regulatory requirements for waste reduction and recycling in the countries where we operate, EMC's global recycling strategy is to seek opportunities to minimize waste disposal through reduction techniques, material reuse, and recycling efforts. Looking ahead in 2014, we will continue to focus on new opportunities, sharing best practices between our facilities on a global basis, and increasing employee awareness.

MINIMIZING MANUFACTURING WASTE

We further reduced the waste we sent to landfill from seven percent of our overall manufacturing refuse stream in 2012 to three percent in 2013.

RECYCLING & COMPOSTING

We use the following approach to capture recyclable materials in our facilities:

- In our Massachusetts, New Hampshire, North Carolina, California, and Cork locations, recyclables are removed from the waste stream by waste management contractors or municipal providers.
- In our manufacturing operations, waste materials are segregated and recycled by our waste management vendors into reusable commodities, reducing the overall cost of recycling to the business.

We are continuously looking for opportunities to improve our recycling and composting efforts at our global facilities. In our cafeterias in Massachusetts, North Carolina, and California, we have replaced many traditional service items with compostable alternatives. In 2013, we worked with Sodexo (cafeteria food service) and E.L. Harvey (waste/recycling) to refresh recycling and composting efforts at our 176 South Street location in Hopkinton, Massachusetts. This pilot program enabled us to revamp old recycling and compost signage and improve recycling receptacles. We plan to extend the program to nearby locations in 2014.

STRIVING FOR ZERO WASTE AT NORTH CAROLINA MANUFACTURING LOCATION

Our manufacturing facility in Apex, North Carolina, is taking an aggressive and creative approach to waste management. Until 2013, much of the polypropylene (PP) and polyethylene (PE) foam the plant took in—primarily from packaging associated with components from its inbound supply chain—ended up in the waste bin. While PP and PE foams are technically recyclable, their large volumes and low densities made them uneconomical to transport and process via recycling in that region. This past year, however, the facility began to use equipment to melt the foam into highly compressed "bricks" that can be cost-effectively transported to recycling processors. In 2013, the "densifier" helped us recycle most of the foam coming into the plant—nearly 33 metric tons. Looking ahead to 2014, we will continue working with suppliers to reduce the foam packaging coming into the facility in the first place.

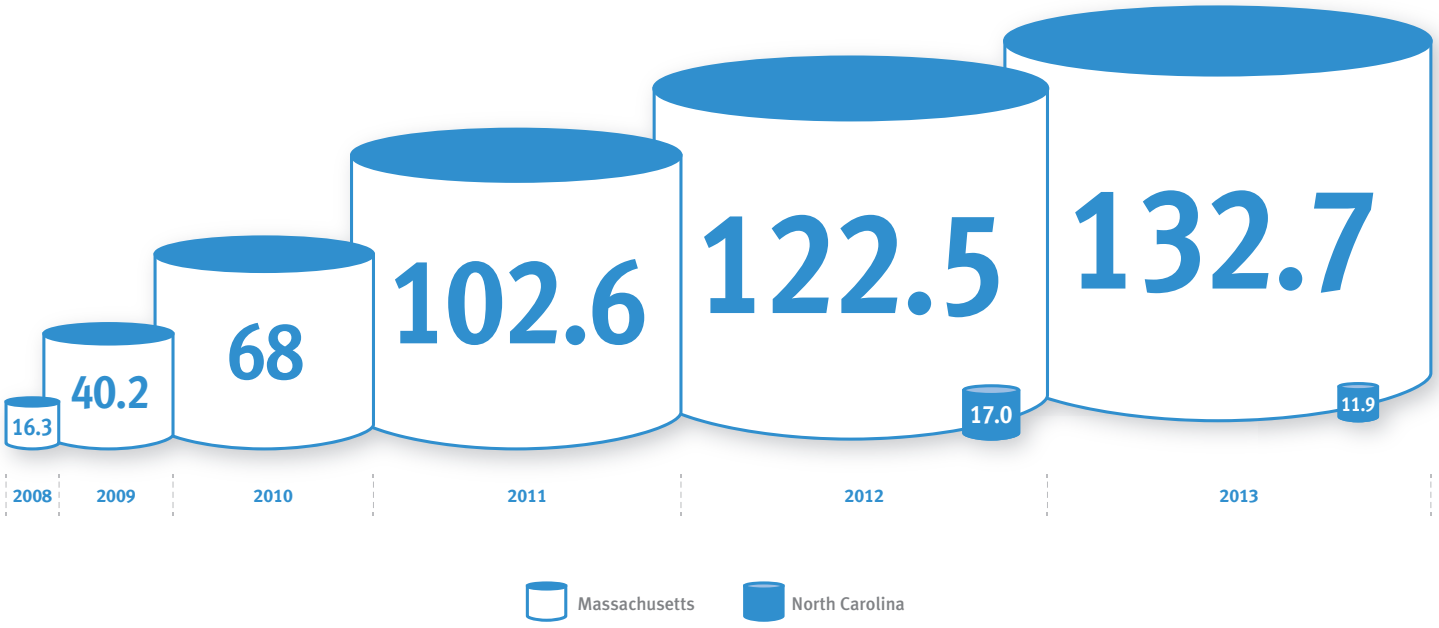
Other highlights from 2013 include:

- Our Massachusetts locations recycled more than 452 metric tons, and composted more than 132 metric tons of waste.
- Our North Carolina locations composted more than 11.9 metric tons, and avoided 3,683 metric tons or 96.8 percent of our total waste stream to landfill.
- Our Cork, Ireland, location reused 485 metric tons, recycled 1,246 metric tons, and composted 42 metric tons.
- The Bangalore, India, location recycled 92.8 metric tons and reused 0.5 metric tons—approximately 80 percent of the waste generated.

We continue to explore recycling opportunities and efficiencies in company-owned and leased facilities.

COMPOST MADE FROM EMC CAFETERIA WASTE

METRIC TONS



EWASTE

We encourage and accept returns of all EMC-branded products at the end of their useful life. We also strive to re-use office electronics, extend their useful life, and reduce waste at all of our company-owned and operated facilities. When office electronics reach the end of their useful life, they are either returned to those manufacturers who accept them, or sent to IT Asset Disposal suppliers for reuse or recycling.

In India, our COE continues to be authorized by the Karnataka State Pollution Control Board to store, handle, and dispose of its own eWaste. In 2013, we disposed of 24.5 metric tons of eWaste through this facility. The COE is working with local recycling partners to further improve the eWaste program in 2014.

To learn more about EMC's vision for and management of eWaste, visit the Product End-of-Life section of our detailed report titled Our Products.

HAZARDOUS WASTE

We are committed to reducing and eliminating the use of hazardous materials in our operations wherever possible. Our manufacturing operations generate only small quantities of hazardous waste (as defined by the U.S. and Ireland Environmental Protection Agencies). In addition:

- The Apex, North Carolina, manufacturing facility is a Conditionally Exempt Small Quantity Generator (CESQG) of hazardous waste and a Small Quantity Handler (SQH) of universal waste. As a CESQG, the Apex facility generates 100 kilograms or less of hazardous waste in any calendar month.
- The Franklin, Massachusetts, manufacturing facility is registered as a Small Quantity Generator (SQG) of hazardous waste and waste oil, and is considered an SQH of universal waste. As an SQG, the Franklin facility generates less than 1,000 kilograms of hazardous waste in any calendar month.
- The Cork, Ireland, manufacturing facility produced 1,950 metric tons of hazardous waste over the course of 2013 that was removed and managed by specialist licensed operators.

In 2013, there were no significant spills on any EMC property.

PACKAGING

EMC's sustainable packaging program seeks to maximize environmental benefits across the product lifecycle. We collaborate to identify opportunities, generate ideas, and implement projects that reduce environmental impact and cost.

Our process includes these steps:

- Starting with the sourcing of our product, we collaborate with suppliers on packaging best practices that integrate sustainability into our inbound supply chain.
- We then focus on optimizing the packaging of our finished product for transport, emphasizing "right-sizing" to reduce excess material weights and volumes. This helps us lower costs and fuel consumption, as it allows more product to be loaded into each truck, plane, train, and ship we use to transport our solutions to our customers.
- Finally, we design our packaging with end-of-life in mind, prioritizing reusability and sustainable materials to drive cost and waste reductions—both for us and for our customers.

We understand that packaging is often the first way our customers experience our product, and our packaging design choices visibly demonstrate our commitment to integrating sustainability into how we do business. In 2014, we will begin managing our packaging sustainability performance even more aggressively, moving toward ambitious new goals for right-sizing and sustainable material use in the packs we design.

PACKAGING DESIGN GOALS

Our highest packaging priority is product protection and—just as different product shapes, sizes, and transportation scenarios require different protective solutions—our sustainable packaging design strategy must be tailored to the needs of each product. With an emphasis on right-sizing and renewable materials, we have set a target to optimize 95 percent of our packs for sustainable design by 2020. We will drive progress toward this target through a "balanced scorecard" approach for our high-volume packs. In 2014, we intend to do the following:

- **Right-sizing:** We will establish target ratios between pack weight and product weight. We recognize that heavier products often must be protected by heavier packs, and that for lighter-weight products, lighter packs may be practical. Our intention is to make sure that we get the ratio right by limiting the use of excess material wherever possible.
- **Sustainable Materials:** We will set goal percentages for the renewable, recyclable, and biodegradable content of our packaging designs. While there may not yet be effective substitutes for foams, anti-static envelopes, and other less sustainable materials in some applications, we are implementing a systematic approach focused on more sustainable alternatives. These aim to lower the impacts of our packs both when they are created and at their end of life.
- **Balanced scorecard:** We will implement a "balanced scorecard" for our volume packs, which will prioritize an adaptable approach to sustainability designed to meet the individual protective requirements of our products.

BALANCED SCORECARD CRITERIA & SPECIFICATIONS

SCORE VALUE	1	2	3
RENEWABLE[1]/RECYCLABLE[2]/ BIODEGRADABLE CONTENT BY WEIGHT	75%	90%	99+%
RATIO OF PACK WEIGHT TO FINAL PRODUCT SHIP WEIGHT	30%	20%	10%

[1] By "renewable," we mean made from majority recycled or biologically derived content, by weight.
[2] By "recyclable," we mean recyclable at curbside or as part of consumer-accessible waste management infrastructure in a majority of markets in which we do business.

By 2020, we want to ensure that every pack we ship in volumes greater than 1,000 per year reaches at least a "3" based on a composite score for the criteria above. For example, if a pack is made up of 75 percent sustainable material (equal to one point), it must also have a pack-to-product weight ratio of no more than 20 percent (equal to two points). If a design's pack-to-product weight ratio is 10 percent or less (equal to three points), sustainable material content of less than 75 percent is acceptable. The balanced scorecard will allow us to ensure strong performance in terms of sustainable materials and right-sizing, without dictating a one-size-fits-all approach.

DRIVING SUSTAINABLE PACKAGING PRIORITIES ACROSS THE PRODUCT LIFECYCLE

Inbound Packaging

We buy thousands of different components from our suppliers each year, with a diverse array of related packaging. In 2014, we will focus on improving the sustainability performance of our highest-volume inbound packs through collaboration with related suppliers. We multi-source many of the components we purchase, and by promoting "positive competition" between the pack designs different suppliers use for the same part, we are able to drive enhanced right-sizing and sustainable materials performance for packaging in our inbound supply chain.

Packaging Reuse and Reduction between Supply Chain Nodes

We continue to implement cost and waste reductions, and reuse opportunities for the packs that travel between our supply chain nodes.

For example, in 2013, we took a reusable packaging solution that was first developed for our customer-facing operations and implemented it for high-volume shipping between our manufacturing plants. Instead of shipping 2.5-inch and 3.5-inch disk drives between our facilities in Massachusetts and North Carolina using cardboard boxes that hold only five drives apiece, we now use heavy-duty, reusable plastic totes that can each carry up to 420 2.5-inch drives or 200 3.5-inch drives. These reusable totes can last 10 or more years before needing to be replaced. This eliminates the cost and waste from more than 29,000 single-use drive boxes, saving over $100,000 and 70 metric tons of carbon dioxide emissions each year.

We have taken our reusable inter-plant packaging solution one step further at our COE in Cork, Ireland. Until recently, we packed drives at the COE into cardboard boxes and shipped them to a warehouse 15 miles away, where they would be stored until needed for product integration. Then they would be shipped back to the COE Ovens location and unpacked, one box at a time. In 2013, Nelson Award winner Vince Crean implemented a solution incorporating reusable drive transport units, made from recycled product cabinets, which can store up to 390 drives each. The cabinets are stored at the COE, eliminating the need for the external warehouse. Vince's project has helped eliminate the waste associated with 50,000 single-use boxes each year and reduce carbon emissions from transportation to and from the warehouse—both of which are no longer needed. In addition, the project is saving the company $560,000 each year in costs associated with packaging and labor.

CTP–RMA DRIVE PACKAGING ELIMINATION

By retrofitting existing containers with racks so they function as reusable shipping trolleys, Cork Manufacturing reduced the amount of waste packaging they produced and saved over $500,000.

In the past...	Now...
Drives were packed into cardboard boxes, which were readied and shipped to a local warehouse for storage.	Drives are packed into the **CMO Drive Transport Unit**, a modified recycled EMC rack developed as a transport trolley.
200 drives PER PALLET	400 drives PER TROLLEY
$376 IN PACKAGING	$0 IN PACKAGING
4 WORKERS	2 WORKERS
The boxed drives were held at the warehouse until needed. At that time, they were reloaded and trucked to EMC Ovens.	When needed, trolleys can be sent to the factory almost immediately. Offsite storage and transport is no longer necessary.
	no warehousing
Additional labor was required for unpacking, and the cardboard boxes were recycled.	Trolleys are easily unpacked and reused, reducing labor, packaging, warehousing and trucking costs.
	$560,000 saved
50,000 boxes used	no boxes used

LOGISTICS

Cost, quality, and timeliness are the key focal areas of our global logistics operations at EMC, as our customers expect our products to be delivered on time, in perfect condition, and at a competitive price. We have consistently found that working to reduce our carbon impact helps us execute on those objectives.

For example, choosing a transport route or mode with a lower carbon footprint often leads to lower expenditures. Through route consolidation, mode of transport optimization, and logistics carrier engagement, we are able to reduce GHG emissions from product shipping. In 2014, we will fully implement an enterprise data management system that will help us set aggressive new carbon performance goals for our global logistics operations.

LOGISTICS CARBON INTENSITY REDUCTION GOALS

EMC's logistics carbon emissions management has focused on partnering with our carriers to optimize individual route designs and modal choices. This includes merging shipments in transit and shifting from truck to rail and air to ocean transport where possible. We have tracked the overall carbon footprint associated with our global logistics operations, and have made changes that saved money and led to thousands of tons of carbon emissions reductions each year. In 2014, we plan to expand these strategies to manage and reduce our carbon impact even more effectively.

Tracking and reducing our carbon footprint is an important means of managing our contribution to global climate change, but this metric alone does not actually tell us how well we are performing when it comes to carbon management. For example, if our carbon footprint were to double in a given year, a closer look could reveal that we had simply shipped twice as much product that year, meaning we grew our business with the same carbon impact, on a relative basis, as before. Or it could mean that we shipped three or four times as much product, and did so more efficiently from a relative carbon emissions standpoint. In order to manage our carbon performance more effectively for our logistics operations, we have chosen to focus on carbon intensity, not just measuring our overall carbon footprint. Using 2013 as a baseline, we set a 2020 goal to reduce by 20 percent the carbon intensity associated with our global logistics operations.

In 2014, we will complete implementation of a data management solution that will allow us to track the average kilograms of GHG emissions associated with each metric ton of product we ship globally (kg CO2e/metric tons-km). Understanding the carbon intensity associated with our logistics operations worldwide, as well as that related to each of our carriers, will allow us to systematically prioritize lower-carbon routes and modes where these make sense for our business and our customers.

PARTNERING WITH OUR CARRIERS

In 2013, 98 percent of our U.S. domestic freight was transported by U.S. Environmental Protection Agency (EPA) SmartWay-certified carriers. Seventy four percent of our European freight was carried by companies certified to European Union (EU) Green Freight standards.

In Europe, one of our major freight partners has begun a significant fleet overhaul initiative that replaces older trucks with more efficient models. Additionally, in 2013 we encouraged this carrier to reexamine its inter-depot transit structure in the United Kingdom (UK). The old model used only one merge center to distribute products. With our support, the carrier established a more centrally located distribution hub, as well as several regional depots that are closer to customer delivery points. Dedicated vehicles now run overnight between depots, traveling the shortest possible routes and taking advantage of low traffic congestion to save cost, fuel, and time. This hub, route, and timing optimization has led to a reduction of over 60,000 vehicle kilometers traveled each year and avoided over 160 metric tons of CO_2e emissions.

Elsewhere in Europe, we partnered with another carrier in 2013 to consolidate the Returned Material Authorization (RMA) process for products headed from the mainland to our Reverse Logistics Center in Cork, Ireland. We undertook a multi-part analysis of cost, lead time, and carbon impacts associated with further consolidating RMA shipments and transporting them back to Cork in a reduced number of trips via ocean, learning that such a shift could yield cost and carbon savings without negatively impacting material planning time objectives. This initiative is expected to save us over $350,000 and reduce our carrier's GHG emissions by 226 metric tons CO_2e each year.

Looking forward to 2014, we plan to use the Quarterly Business Reviews that we conduct with our primary carriers to set new expectations for the carriers' carbon management performance. Focusing on areas including no-idling policies, efficient vehicle operator training programs, and carrier-specific carbon goals and performance plans, we will work to help ensure that each freight partner doing business with us continues to improve its sustainability performance.

MEASURING OUR IMPACT

EMC's global logistics operations generated approximately 109,802 metric tons CO_2e in 2013. This number is estimated using the GHG reports from our logistics partners and is cross-checked with standard emissions factors and calculation methodologies. This value represents inbound, outbound, interplant, and customer service transportation and logistics. In 2013, we collected emissions footprint data related to carrier operations representing 89 percent of our logistics spend and extrapolated total emissions proportionately based on the data received.

WATER USE & MANAGEMENT

Although EMC has a relatively small water footprint throughout our operations, we take a conscientious approach to conserving this important global resource today and for future generations. We are guided by our focus on minimizing water consumption and managing wastewater in our owned and operated facilities to help protect local water quality.

Our owned global manufacturing facilities produce no industrial wastewater. Our greatest potential water impact, however, is directly tied to energy efficiency. By creating more efficient products, we reduce the need for water to cool them and decrease the quantities of water demanded for generating electricity. To learn more, visit the Efficient Products section of our detailed report titled Our Products.

WATER CONSERVATION EFFORTS

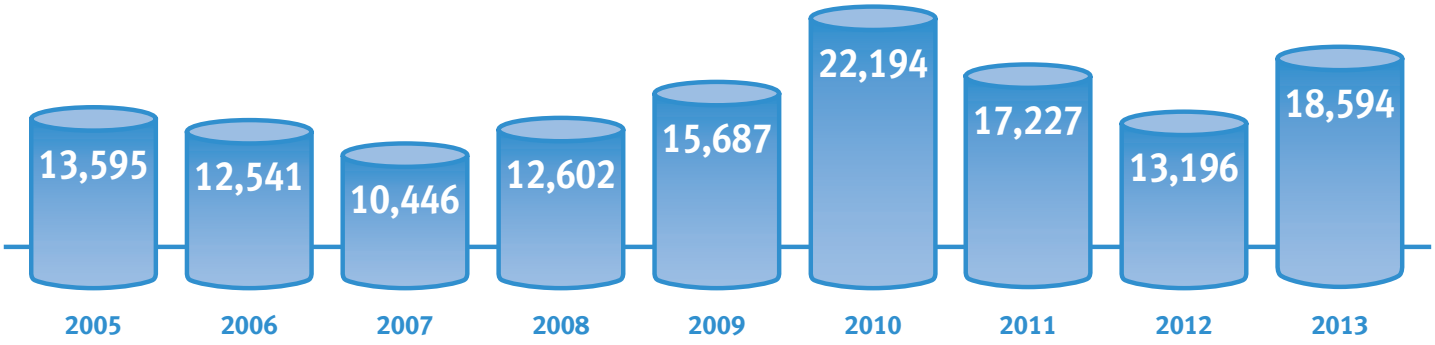
EMC's approach includes the use of various water efficiency and conservation features in our facilities worldwide, such as low-flow plumbing fixtures, rainwater capture systems, and free air cooling. We also consider water conservation and efficiency elements when designing and constructing new facilities.

At our headquarters in Hopkinton, Massachusetts and our Bangalore, India COE, wastewater is reclaimed at the onsite treatment plants, which filter wastewater through three treatment and disinfection processes, resulting in treated "gray" water. In 2013, we reused more than 18,594 cubic meters of gray water for cooling, sanitation, and irrigation at the Hopkinton facility, and 51,777 cubic meters at the Bangalore COE facility. Unused gray water is returned to the ground through infiltration systems to replenish local watersheds.

In 2014, the newly formed Energy & Water Management Steering Committee will be reviewing potential options for further water conservation methods and projects.

EMC CORPORATE WATER REUSE

MASSACHUSETTS FACILITIES—CUBIC METERS



ADDITIONAL INFORMATION

2013 CDP WATER DISCLOSURE RESPONSE

STORMWATER MANAGEMENT

At EMC's Massachusetts campus facilities, which account for more than 30 percent of our corporate physical footprint, we have implemented a stringent Stormwater Management System to help protect and maintain the integrity of the surrounding resources. At these facilities, we have also implemented an Integrated Pest Management program to minimize and eliminate the use of chemical herbicides, insecticides, and pesticides where possible. Through diligent management efforts, we ensure a high quality of storm water runoff from our facilities. This minimizes the impact of our operations on natural resources, including groundwater and surface water, and helps ensure that these resources are protected in the future.

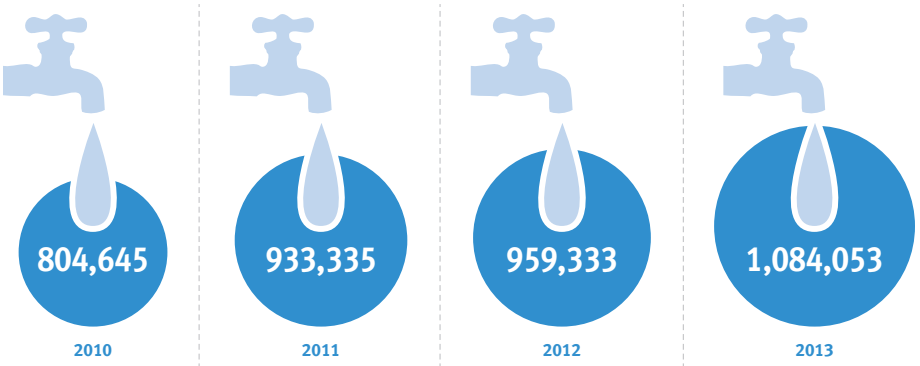
WATER FOOTPRINTING

Since 2007, we have tracked water consumption data for all of our owned facilities and most of the larger facilities that we lease. We use the World Business Council on Sustainable Development's Global Water Tool to analyze our operations and calculate our water footprint in water-stressed areas.

Our total 2013 global water withdrawal was 1,084,053 cubic meters. Eighty-two percent of the water withdrawal data were compiled from reliable water bills and water meter readings. The remaining annual corporate water consumption was estimated using a water intensity factor calculated by benchmarking consumption at metered EMC facilities.

GLOBAL WATER WITHDRAWAL

ALL LEASED AND OWNED GLOBAL FACILITIES (INCLUDES VMWARE)—CUBIC METERS (M^3)



ENERGY—WATER NEXUS

We recognize that water, energy, and carbon emissions are interconnected. Water is required to generate and transmit the energy EMC consumes, and energy is used to supply the water we use. Our suppliers also use water in their operations to produce the material components in our products. Thoughtful water conservation and efficiency practices help save energy and reduce the carbon emissions generated from these activities.

We also understand that there can be trade-offs between water and carbon emissions. Water and energy are needed to power and cool our own data centers, as well as those of our customers, and our wastewater treatment plant consumes energy, while reducing our water footprint.

We take a systematic view of energy and water use and the resulting carbon emissions, and focus on driving efficiencies in our products and operations. For example, applying free air cooling technology has allowed us to reduce the amount of energy and water consumed in our data centers and labs.

INFORMATION SECURITY & PRIVACY IN OUR OPERATIONS

The unprecedented number of targeted, increasingly sophisticated cyber-attacks is requiring companies to rethink and redefine their security strategies for this new threat environment. EMC is adopting a new Intelligence-Driven Security strategy to address not only today's threats but also the evolving challenges of tomorrow.

Traditional perimeter-focused security practices of firewalls, anti-virus, and intrusion detection systems have been rendered moot as the perimeter has been eroded by the dramatic adoption of social and cloud-based applications and mobile devices. Today's business and IT practices, coupled with a more dangerous threat landscape, require us to evolve from solely focusing on preventing network intrusions to being able to rapidly detect and effectively respond to attacks. Intelligence-Driven Security provides EMC the necessary visibility, insight, and ability to respond to threats that enables us to protect both our own infrastructure and any sensitive information we hold about our customers and our products.

EMC's Global Security Organization (GSO) develops the security strategy that identifies the high-level objectives to be addressed and strategic initiatives to be undertaken to fulfill EMC's security mission.

To achieve this mission, the GSO addresses the following organizational responsibilities via the functions described below:

- Service Operations and Incident Response
- Emerging Technology and Security Engineering
- Governance, Risk and Controls Assurance

SERVICE OPERATIONS AND INCIDENT RESPONSE	
CRITICAL INCIDENT RESPONSE CENTER	Uses technical solutions coupled with detailed processes and skilled analysts to provide a holistic approach to monitoring, analyzing, responding to and researching the latest threats to the enterprise.

EMERGING TECHNOLOGY AND SECURITY ENGINEERING	
SECURITY ARCHITECTURE	Provides consulting to internal business units and delivers designs for application and data security. These internal teams include product engineering and customer service. This ensures the back-office applications used by these teams have inherently secure designs.
SECURITY ENGINEERING	Works with EMC IT telecom to design and build EMC's global network infrastructure, including WAN, LAN, Internet gateways, remote access infrastructure, wireless infrastructure, firewalls, internet filtering technology, IDS and network monitoring. With the goal of providing a secure operating environment for EMC's business units, this team also pays special attention to EMC product engineering to provide a secure network.

STRATEGY AND EMERGING TECHNOLOGY	Evaluates new technology, drives proof of concept program, provides input to architecture and consulting teams and wider IT. This group provides critical feedback about features, usability and integrations needed to support customers with complex IT environments.
GOVERNANCE, RISK AND CONTROLS ASSURANCE	
CONTROLS ASSURANCE	Works to identify, test, and implement automated tools to enable business units to monitor and measure controls effectiveness and reporting. This team primarily supports EMC's newly-formed governance committees, which have the responsibly to understand EMC's overall compliance to applicable regulations and standards. Many standards—for example, Product Source Code Protection—are included in this assurance process.
SECURITY ENABLEMENT	Consulting group with alignment to specific areas of EMC to understand their unique operations and align information security protection strategies for them. This team supports the EMC governance process by administering much of the risk management, resolving identified security issues and providing guidance on the direction of key programs such as Product Source Code Protection.
SECURITY RELATIONS	Develops and manages the EMC FirstLine Security Awareness and Training Program. This program is one of the most critical components in establishing a "culture of security" to inform our business practices and promote and reinforce employee behaviors that safeguard EMC's information and assets. EMC's FirstLine Security Awareness and Training Program involves everyone in the organization. The program components include employee training in secure best practices in areas such as phishing detection and reporting, developing and using strong passwords, safe use of social networking sites, smartphone security, safe web browsing and social engineering; a FirstLine website with security alerts and learning resources; awareness videos and presentations; articles, blogs, newsletters and e-mail campaigns; posters and collateral; and both employee and community-focused events and programs, such as National Cyber Security Awareness Month and in-school cyber security awareness and cyberbullying programs.
GOVERNANCE	Provides strategic planning for security priorities, suggests updates for IT security policies and standards, facilitates cross-functional collaboration for security priorities, and reviews and prioritizes security findings.

ADDITIONAL INFORMATION

PRACTICES FOR SECURE DEVELOPMENT OF CLOUD APPLICATIONS

EMC CORPORATION PRIVACY STATEMENT

RESPONDING TO CYBER SECURITY RISKS

Like any large company, EMC experiences and successfully defends numerous cyber-attacks on its IT infrastructure every day. We remain committed to our relentless pursuit of building trust in the digital world and have dedicated ourselves to maintaining the confidence of our customers and partners. Through a rigorous process of regular enhancements to our products and services, we continuously strengthen EMC's internal security to better protect our business and customers from cyber threats.

IT PROVEN PROGRAM

Through the IT Proven Program, EMC's GSO implements our security solutions across IT operations throughout the enterprise. By tackling the same problems our customers face, we can test our own products and provide real-world feedback on their performance.

The GSO also develops prototypes of new security solutions for EMC. For example, the GSO developed a Secure Management Infrastructure, using VMware, Cisco, and RSA® technology to create a security management portal to manage our data centers.

PROTECTING PERSONAL INFORMATION

At EMC, confidential, personal information may not be used or disclosed except as necessary for legitimate business purposes, such as for human resources and employment functions or as otherwise permitted or required by applicable law. From a data security standpoint, we use state-of-the-art administrative, technical, and physical measures to safeguard confidential, personal, and corporate information.

EMC complies with the U.S.-E.U. Safe Harbor Framework and the U.S.-Swiss Safe Harbor Framework, as set forth by the U.S. Department of Commerce, regarding the collection, use, and retention of personal information from the European Union and Switzerland. In addition, EMC has been awarded TRUSTe's Privacy Seal. The seal signifies that the EMC.com privacy statement and EMC's practices have been reviewed by TRUSTe for compliance with TRUSTe's program requirements, including transparency, accountability, and choice regarding the collection and use of personal information.

ISO 27001 CERTIFICATIONS

EMC's security program is based on the ISO 27001 standard for security management systems. We also seek ISO 27001 certification for select business units as the business need arises. Nine business units in four countries are ISO 27001 certified, including all of our RSA data centers servicing the RSA Identity Protection and Verification products.

NATIONAL CYBER SECURITY AWARENESS MONTH

When company leadership communicates that security is important, employees take notice. EMC kicked off Cyber Security Awareness Month with a video featuring EMC executives who discussed our shared responsibility for keeping EMC's sensitive information secure and the importance of secure best practices broadcast to EMC employees worldwide immediately prior to the company's Q3 2013 Employee Quarterly Review Meeting. During the month, we also launched new cyber security training, including modules on phishing, developing and using strong passwords, safe use of social networking sites, smartphone security, safe web browsing, social engineering and more. Through both the FirstLine Cyber Security Awareness and Training Program and RSA, we hosted educational events for our employees at primary and secondary schools, at institutions of higher education, and with community groups across the U.S. and around the world.

PARTNERING FOR SECURITY IN A CHANGING WORLD

An ongoing challenge for EMC, and all large companies, is implementing security processes for new, rapidly changing technology environments. As our company evolves, we are becoming a hyper-extended enterprise, sharing information with more people and using more technology tools across more geographies than ever before.

Our stringent information security strategy and practices prepare us for this challenge. We also recognize that we don't have all the solutions, and we are working with partner organizations to address the evolving security landscape. Some of our 2013 initiatives include:

- **National Cyber Security Alliance (NCSA)**—Through funding and board-level participation, EMC actively supports the NCSA, a nonprofit organization dedicated to promoting Internet safety and security at home, work, and school. For the seventh year in a row, we collaborated with NCSA to celebrate National Cyber Security Awareness Month in October 2013.
- **SAFECode**—As it relates to product security and privacy, EMC continues to participate with SAFECode, a global organization it helped launch in 2007 that is focused on improving trust in IT products and services. In 2013, EMC contributed to five software development training modules through SAFECode. The modules are free and publicly available and aim to help raise the bar on software development security across the industry. To learn more, visit the Product Information Security & Privacy section of our detailed report titled Our Products.
- **Internet Engineering Task Force (IETF)**—EMC supports the development of Internet standards through our work with IETF, an open, international community of IT professionals and researchers concerned with the evolution of Internet architecture and seamless operation. EMC's involvement continued to grow in 2013 as one of our senior staff was nominated and selected as one of the two area directors for security. EMC will be sponsoring her as she focuses on providing security insight and approval for a new set of IETF standards.
- **Open Group**—EMC is a member of Open Group, a nonprofit organization working to develop open, secure, vendor-neutral IT standards and certifications. Through the Open Group Trusted Technology Forum (OTTF), EMC is helping the organization to develop solutions for a more trusted global supply chain.
- **Computer Security Research Alliance (CSRA)**—In 2013, EMC continued to work with CSRA, a nonprofit research consortium it helped found in 2012 that aims to tackle information security challenges. The consortium works closely with industry members, universities, and government agencies to develop breakthrough technologies to improve cyber security.
- **Cloud Security Alliance (CSA)**—RSA, EMC's security division, is a member of CSA, a nonprofit industry coalition that promotes best practices in security assurance within cloud computing and provides education on the uses of cloud computing to help secure all other forms of computing.

  In 2013, we co-created a paper with CSA focused on software development for the cloud. Though the information was already available to CSA employees and limited other parties, it is now accessible to the broader IT industry.

- **The Fast IDentity Online (FIDO) Alliance**—At the beginning of 2014, RSA joined the Board of the FIDO Alliance to help develop specifications for user authentication that help improve usability, increase security, and ensure user privacy. Our goal is to work with the FIDO Alliance community to create a new "general purpose" open authentication framework that is based on standards and protocols and supported by an interoperable ecosystem of vendors.
- **Financial Services—Information Sharing and Analysis Center (FS-ISAC)**—Information sharing is a key component of an Intelligence-Driven Security strategy. In 2013, RSA continued its strategic relationship with FS-ISAC's global operations, including maintaining its Board position with the organization.
- **Organization for the Advancement of Structured Information Standards (OASIS)**—EMC employees actively participate on several OASIS Technical Committees helping to define industry standards in areas such as security, content management, and cloud computing. These standards help ensure that EMC products are able to interoperate with other systems and products.
- **Security for Business Innovation Council (SBIC)**—In 2008, EMC formed SBIC, a group of leading security executives from Global 1000 enterprises. SBIC publishes recommendations to help advance information security worldwide. In 2013, we sponsored two reports focused on the transformation of two of the three elements of information security: people and processes. A report focused on the third element, technology, is planned in 2014. To learn more, visit the SBIC website.

To learn more about information security and privacy in our products, visit our detailed reports titled Our Products and Customers.

CONTACT

EMC encourages its stakeholders to provide feedback on the topics covered in this report. Please submit any questions or comments about the report or its contents to the Office of Sustainability at Office_of_Sustainability@emc.com.

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