< Previous View

Environment

Overview

Cisco Environmental Sustainability

Materials

Energy and GHG Emissions

Water Use

Biodiversity and Land Use

Non-GHG Emissions

Effluents (Liquid)

Waste

CISCO
Watch the Video!

Environment

We believe information and communications technology (ICT) can both improve living standards and reduce resource waste including energy. We continue to develop our understanding of the impact on the environment from our operations, our supply chain, and our products so that we can not only reduce negative externalities but create opportunities for greater efficiencies.

< Previous View

Environment
> Overview
Cisco Environmental Sustainability
Materials
Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

Overview

This section gives readers an overview of Cisco's environmental performance, progress, key challenges, and objectives for FY13. We have used this overview as part of our Executive Summary, which can be downloaded here.

Energy and greenhouse gas (GHG) emissions are the most important and complex issues for Cisco. The issue of energy consumption includes not only our own operations but also the extended operations of our supply chain partners that we use for manufacturing, component supply, and logistics. Product life cycle analyses indicate that the use phase can make up about 90 percent of the carbon footprint of typical network products. In addition, we believe that through management and reduction of our operational footprint as well as innovation in our products and services that promote energy efficiency and waste reduction, we can help reduce GHG emissions in other industry sectors. According to a Gartner study and as reported in the SMART 2020 report, ICT energy consumption is estimated to produce about 2%. However, through the use of ICT, GHG emissions can be reduced in other industry sectors, such as transportation and buildings, or what's been called "The 98%" (see page F32).

Innovation is at the core of Cisco's environmental sustainability initiatives. With advanced products and solutions and updated business processes, we are multiplying the impact of the network to create sustainable business models and increased economic opportunity.

Cisco is changing the way we work, live, play, and learn through innovative network technologies that create new business and social value. One example is our remote collaboration solutions. "Dematerialization," or replacing the physical with the virtual, reduces business travel and employee commuting, which decreases costs for our customers, Cisco, and all of our employees. Remote collaboration also increases productivity, improves employee work-life balance and job satisfaction, and reduces GHG emissions.

At Cisco, the interplay between innovative business practices and sustainability is being embedded in every business function. Just as we learned in the 1970s and 1980s that quality must be managed as a core business function, so it is with sustainability. Like the commitment to quality, sustainability must become part of every business practice and decision. Just as industry discovered that improved quality ultimately benefits the bottom line, Cisco believes that improved sustainability creates net benefits to our business, our customers, and the planet. Our relationship with our customers is now based on cost, quality, delivery, service, and sustainability.

you + networks = impact^{x}

You: Cisco employees have been rapidly adopting teleworking and remote collaboration technology to reduce the frequency with which they travel and the resulting carbon emissions. Customers, nonprofits, and public sector leaders are also increasingly utilizing the technology to deliver environmental and work-life balance benefits.

Networks: Cisco's remote working technology—including Virtual Office, OfficeExtend, Cisco TelePresence, and Cisco WebEx—enables desktop sharing as well as voice and high-definition video sharing among multiple locations.

Cisco has installed about 1400 room-based TelePresence units in Cisco offices in about 250 cities in 70 countries. We've also installed thousands of desktop video endpoints and thousands of video-enabled IP phones, and we used more than 20 million hours of Cisco WebEx desktop conferencing in 2012 alone.

Over 22,000 Cisco employees telework using Cisco Virtual Office, which extends Cisco's own network into employee homes, permitting secure access to voice, video and data; improved business resiliency; and reduced GHG emissions and employee costs from commuting.

Impact^{x}: Using Cisco's suite of collaborative technologies, Cisco has averaged savings of over $100 million each year through reduced business travel while improving employee productivity, speeding decision making, and increasing employee satisfaction and retention through improved work-life balance.

In addition, Cisco met its goal to reduce all Scope 1, 2, and business-air-travel-related Scope 3 GHG emissions worldwide by 25 percent absolute by 2012 (from a 2007 baseline). This 25 percent absolute reduction was accomplished even with a revenue increase of more than 30 percent over the same period, demonstrating the ability to decouple economic growth from GHG emissions.

< Previous View

Environment

> Overview

Cisco Environmental Sustainability

Materials

Energy and GHG Emissions

Water Use

Biodiversity and Land Use

Non-GHG Emissions

Effluents (Liquid)

Waste

Performance Summary

Key Performance Indicator	FY07	FY08	FY09	FY10	FY11	FY12
Total contractual GHG emissions: Scope 1 and 2, metric tonne CO$_2$e	429,411	330,989	272,880	376,141	416,927	251,672
Progress against reduction goal. Goal: reduce all Scope 1, 2, [and business-air-travel-related Scope 3] GHG emissions worldwide by 25 percent absolute by CY12 (CY07 baseline)	base year	-23%	-36%	-12%	-3%	-41%
Total air-travel GHG emissions: Scope 3, metric tonne CO$_2$e	205,796	197,867	118,602	106,783	127,293	139,431
Progress against reduction goal. Goal: reduce all [Scope 1, 2, and] business-air-travel Scope 3 GHG emissions worldwide by 25 percent absolute by CY12 (CY07 baseline)	base year	-4%	-42%	-48%	-38%	-32%
Product trade-in and return: Product return, metric tonne	*	10,030	10,730	8,580	11,595	13,324
Product trade-in and return: Material to landfill**	*	0.46%	0.44%	0.33%	0.89%	0.43%

*Before FY08, Cisco reported weight of material sent to recyclers. Starting in FY08; we report weight of material received from end users, which is a more relevant metric for stakeholders.

**Landfilled material consists only of nonrecyclable materials such as broken pallets, wet cardboard, and shrink wrap.

Progress Toward Objectives

Objective	Progress in FY12	Status
Scale environmental sustainability reporting by our business partners (supply chain)	We continue to make significant advancements in our supply chain engagement and reporting (see the Supply Chain section of this report).100 percent of our contract manufacturers, 93 percent of global transport providers, and 80 percent of our component suppliers responded to Carbon Disclosure Project’s 2012 survey.	○
Include partner CDP reporting status in our preferred vendor scorecards	We deployed sustainability criteria in business scorecards for all contract manufacturers, preferred component suppliers, and logistics partners.	●
Move all GHG emissions, air travel, and sustainability data to a new, enterprise-wide sustainability information system (SIS)	We are taking a phased approach to SIS rollout and have incorporated all Scope 1 and 2 source data into the SIS; along with tracking all energy and stainability related projects in Cisco’s facilities, we anticipate adding Scope 3 air-travel data in the next phase of implementation. The role of the SIS has also been expanded to include financial management of energy budgets and monitoring of sub-metered energy data, which helps us identify and create solutions to reduce GHG and cost.	○
Continue investment in the development of the Scope 3/Product ICT Sector Supplement to the Greenhouse Gas Protocol (GHGP) standards	As a founding member of the GHGP ICT Sector Supplement, Cisco has contributed significantly to its development during FY12. Additionally, as a member of the Steering Group, Cisco is co-editor of the section on transport substitution. The Sector Supplement is expected to be published for the second Steering Group review in mid-November 2012.	●
Roll out EnergyWise-enabled power distribution units in Cisco engineering labs worldwide	In FY12, we launched the lab energy program. Installation of EnergyWise-compliant power distribution units will continue in FY13. To date, we have installed over 5,000 units and have identified over USD$5 million in energy savings potential.	○
Expand the electric vehicle charging stations currently at our San Jose, California, headquarters campus to other locations	Cisco installed its first electric vehicle charging station in FY11, and by the end of FY12, it had installed a total of 23 stations. The stations are available for use by Cisco employees and guests at no cost at the following locations: San Jose, California; Research Triangle Park, North Carolina; Bedfont Lakes, U.K.; Green Park, U.K.; Netanya, Israel.	○

● **Achieved** ○ **Ongoing**

Environment

> Overview

Cisco Environmental Sustainability

Materials

Energy and GHG Emissions

Water Use

Biodiversity and Land Use

Non-GHG Emissions

Effluents (Liquid)

Waste

Addressing Key Challenges

The key challenges for Cisco are the same for much of the ICT industry. As a sector, the carbon footprint of our operations is not large, but it is growing as emerging markets adopt ICT and as the number of user or consumer-premises equipment increases, both in developed and emerging markets. We believe that our products help to reduce carbon emissions, both in our own operations and globally. We intend to model this opportunity by using our products to support the type of operational and product efficiency that is needed to reduce carbon emissions globally.

In this year's Environment section, we have continued to organize our reporting according to the GRI reporting framework we introduced in our FY11 report. This framework defines the responsibilities of each business function. We understand that our performance and reporting must continue to improve to meet the rising expectations of our stakeholders.

> "I liked the focus on a great variety of environmental issues and thought that reporting was very inclusive and transparent. There is a lot of potential for the ICT sector to drive sustainable business and help improve society, and Cisco definitely seems to be moving in this direction."
>
> **Prof. Sudhakar Yedla**
> Indira Gandhi Institute of Development Research (IGIDR), India
>
> Cisco's 2012 Global Stakeholder Engagement Sessions

Responsible Investor Ratings for Cisco

Carbon Disclosure Project: In FY12, Cisco was ranked the number-one IT company in the world based on our June 2011 responses to the Carbon Disclosure Project 2012 investor survey. We were also ranked fifth across all sectors.	Cisco is #2 on the Greenpeace Cool IT Challenge Leaderboard (v5), which was released in February 2012.

For additional information about awards Cisco received in 2012 for its corporate citizen efforts, please visit our website.

Objectives for FY13 and Beyond

We will continue rolling out EnergyWise-enabled power distribution units (PDUs) in major engineering labs worldwide, with a goal to exceed 13,000 units on line and delivering energy savings. This installation will represent the largest global deployment of EnergyWise devices and will provide use cases and demo capabilities to other users interested in reducing energy costs.

Expand the quantity and usage of electric vehicle charging stations at the San Jose campus and other global locations, based on interest from employees. Complete a pilot in our European region to include electric vehicle options on employee automobile lease plans.

Continue the rollout of our enterprise-wide sustainability information system to incorporate additional activity data, for example, Scope 3 emissions from air travel.

Environment

Overview

> Cisco Environmental Sustainability

Materials

Energy and GHG Emissions

Water Use

Biodiversity and Land Use

Non-GHG Emissions

Effluents (Liquid)

Waste

Environmental Sustainability

This section of the Cisco CSR report provides information on our environmental opportunities and challenges and how we are managing them.

Materiality

Based on input from stakeholders, results of life-cycle assessments (LCAs), and other analyses of Cisco products, we prioritized environmental impact into five tiers, as shown in Table 1. This materiality is based on the overall impact of the ICT industry sector, which helps prioritize issues globally, as well as the impact from Cisco's operations, the impact from our supply chain, and the use of our products by our customers. This materiality ranking is unchanged from FY11; we did not receive comments from stakeholders or uncover new data that required any update. We did reorder the presentation of Tier 3 items to highlight visually that product end-of-life (EOL) and packaging address essentially the same topic, although product EOL is viewed as a greater concern due to potential health impact.

Energy and GHG emissions are the most important and complex environmental issues for Cisco. The issue of energy consumption includes not only our own operations but also the extended operations of our supply chain partners because we outsource business functions such as contract manufacturing, component supply, and transport logistics. Product energy efficiency is material to Cisco because life-cycle assessment of electronic products indicate that the use phase, depending on the product and assumptions made, can make up more than 90 percent of the carbon footprint of typical network products.

Another aspect of the energy and GHG emissions issue that is highly material to Cisco is the opportunity for Cisco products to help reduce GHG emissions in other industry sectors.

We have focused our energy/GHG efforts on improving our operations, supply chain, product energy efficiency, and technology solutions to facilitate emissions reductions for our business and our customers.

Cisco also works to minimize the environmental impact of our products by providing comprehensive product EOL services for our equipment. Cisco has built a worldwide network of qualified recyclers. Through several programs, which are discussed in more detail later on, customers can return any Cisco equipment for credit or for recycling at Cisco's expense. Using leading-edge recycling techniques, all recyclable products and materials are directed into various commodity waste streams for processing and recovery. Our challenge is to promote awareness of our take-back and recycling programs among our channel partners and customers.

Discussions of issues listed in Table 1 are provided under the appropriate topic of the Environment section.

Table 1 is structured around the Global Reporting Initiative (GRI) performance indicator categories. Materiality is also discussed in the Introduction section and is based on research performed by SustainAbility. A discussion comparing these two approaches to environmental materiality is provided in Appendix 1.

Table 1: Materiality Tiers for Cisco Environment-Related Issues

Tier	Environment Topic
1	Product energy efficiency
	Energy consumption (operations)
2	Waste (product EOL)
3	Waste (product packaging EOL)
	Water pollution (liquid effluents)
	Transport emissions (from product logistics)
4	Waste (operational "trash")
	Controlled substances
	Water use
	Biodiversity and land use
5	Hazardous waste
	Non-GHG airborne emissions

Environment
Overview
> Cisco Environmental Sustainability
Materials
Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

Principles

Cisco policies are developed under the following governing principles for environmental sustainability:

- Cisco integrates environmental responsibility into all aspects of our business while meeting customer expectations with respect to product function, delivery, quality, service, and EOL management
- Cisco works with its suppliers ("extended operations") to integrate environmental responsibility into all life cycle phases of Cisco products
- Cisco uses the Global Reporting Initiative (GRI) performance indicators to define the minimum scope of our environmental impact assessment, reporting, and initiatives. All GRI indicators are accorded due diligence to support a meaningful impact assessment.
- Cisco provides complete, accurate, and public environmental reporting for our stakeholders
- Cisco maintains the following governance for our environmental sustainability efforts:
  - Cisco actively seeks out stakeholder engagement and analysis on materiality assessment, reporting, and the results of our initiatives
  - Our EcoBoard is an executive-level forum to ratify strategy and goals, share best practices, and provide opportunities for employee education, awareness, and engagement
  - Cisco seeks and maintains ISO 14001 certification for sites with significant potential for environmental impact
  - Cisco uses our CSR Business Process to govern reporting, stakeholder engagement, feedback to the business, initiative prioritization, implementation, and metrics for environmental sustainability issues
- The risk from increasing GHG concentrations in the Earth's atmosphere is real and significant. Cisco supports the reduction of global GHG emissions through improvements to our products and operations and through the actions of our suppliers. Cisco develops and uses our own products to demonstrate at-scale innovative and cost-effective methods for reducing GHG emissions, helping our customers to do likewise.
- Cisco uses its position as a respected global leader and an industry bellwether to environmental advocacy groups, standards bodies, and policymakers to effect practical and effective solutions to global environmental challenges
- Cisco believes that the most effective leadership is done by example. We will continue to improve our environmental impact assessment, reporting, and initiatives and to encourage our supply chain and business partners to further develop best practices for their own operations.

Organization

The EcoBoard, in tandem with business functions that are covered by our environmental management system, create and implement operational change. These teams promote environmental sustainability through cross-functional collaboration and a wide-reaching network of contacts across the business, including our customers. The teams focus on corporate-level initiatives that directly enhance Cisco's environmental performance.

Performance-Based Compensation

At Cisco, we believe that environmental sustainability can be a part of each employee's job. Our employees can place environmental sustainability-related goals in our online performance management tool, which documents the results of the performance review process and impacts compensation and bonus decisions.

Environmental Management System

An environmental management system (EMS) refers to the management of an organization's environmental impacts and programs in a comprehensive, systematic, and planned manner. It includes the organizational structure, planning, and resources used for developing, implementing, and maintaining a policy for environmental performance, as well as for setting environmental objectives and targets. An EMS:

- Serves as a tool to improve environmental performance
- Provides a systematic way of managing an organization's environmental impacts, requirements, and programs
- Addresses immediate and long-term impacts of an organization's activities, products, services, and processes on the environment
- Gives order and consistency for organizations to address environmental concerns through the allocation of resources and assignment of responsibility, as well as through ongoing evaluation of practices, procedures, and processes and their impacts
- Focuses on the improvement of the system and environmental performance

Cisco seeks to decrease our negative impacts while enhancing our positive impacts on the environment, and this concept and foundation are set out in our Corporate Environmental Policy. This policy, in conjunction with our EMS, provides an environmental performance framework that permits us to monitor and manage the environmental impacts that we find to be of greatest material importance for our business.

< Previous View

Environment

Overview

> Cisco Environmental Sustainability

Materials

Energy and GHG Emissions

Water Use

Biodiversity and Land Use

Non-GHG Emissions

Effluents (Liquid)

Waste

Cisco's EMS is certified to the internationally recognized EMS standard ISO 14001:2004. Cisco sites for ISO 14001 certification are selected based on a set of criteria that includes:

- Facility size and lab area
- Building headcount capacity or persons housed
- Primary facility function

These criteria enable us to apply resources to the certification of sites that we believe will make the greatest contribution to managing and reducing Cisco's environmental impacts. Once a site has been certified, an analysis is performed to evaluate its associated environmental impacts. This includes an evaluation of corporate functional areas; the associated products, activities, or services at that location; and the environmental impacts associated with the generation or use of materials, impacts on air and water, and depletion of natural resources. All of this information is incorporated into the calculation of an environmental score, which then guides the prioritization of facilities and the mitigation of the associated environmental impacts.

All of Cisco's ISO 14001 certified sites are audited by an independent third party. Sites that were part of an acquisition are included in the scope of the Corporate Environmental Policy and corporate environmental initiatives. See Table 2, on the next page, for our ISO 14001 certification KPIs.

The EMS is used to identify the most significant environmental impacts at each Cisco site and to set relevant corporate and local environmental objectives or targets. Based on potential impacts, site teams adopt one or more initiatives to implement at a given site. All ISO 14001 certified sites have teams that pursue environmental goals.

The site operational teams report on goals, initiatives, and metrics that measure Cisco's environmental performance on an internal ISO 14001 dashboard. Per the following:

- Waste reduction and recycling (25 sites, shown in Table 2, support this initiative and report on site-specific goals within the dashboard)
- E-scrap management (all sites support this initiative; 20 sites report on site-specific goals within the dashboard)
- Energy management (all sites support this initiative; 9 sites report on site-specific goals within the dashboard)
- Environmental awareness (5 sites support this initiative and report on site-specific goals within the dashboard)
- Wastewater management (1 site supports this initiative and reports on site-specific goals within the dashboard)

In addition, Cisco has started a Corporate Green Initiatives section of the internal ISO 14001 dashboard that will begin reporting in FY13 on corporate environmental performance goals, initiatives, and metrics. We use performance tracking, metrics, and governance to track our progress toward meeting our goals and to guide us in finding ways to improve our EMS.

In addition, in FY12 Cisco modified its process to monitor and report sustainability metrics in its internal operations by integrating a new, enterprise-wide sustainability information system into its network. The SIS system helped Cisco automate and expand sustainability data collection, improve the accuracy of that data, and focus limited resources on more important tasks, such as evaluating and implementing mitigation projects. In addition, the role of Cisco's SIS system has expanded since its initial deployment to include financial management of energy budgets, monitoring of sub-metered energy data, and tracking of fleet fuel data. We anticipate adding Scope 3 air-travel data in the next phase of implementation.

Audits are a key component of Cisco's EMS, providing regular assessments as to whether our environmental processes and commitments are implemented and how well we are improving our EMS at our certified sites.

CERTIFICADO • CERTIFICAT

CERTIFICATE

The Certification Body of
TÜV SÜD AMERICA INC.

hereby certifies that

Best Practices

An important component of our audit process is identifying best practices. These are shared across the business functions through our internal EMS newsletter and our ISO 14001 committee meetings, which include the ISO 14001 key partners. One best practice identified in FY12 is the institution of a sustainability award for preferred suppliers that includes a set criteria and selection process. Additionally, environmental sustainability criteria have been incorporated into the standard template for the preferred supplier scorecard. This new process not only recognizes the supplier in an area important to Cisco but also internally reinforces that environmental sustainability is integrated into our culture and business processes.

The frequency of these audits depends on set criteria, such as the size and operational activities at the site, in addition to the results of previous year-over-year findings. Typically, within a three-year period, every site receives one onsite audit and one virtual audit. In FY12, we conducted 24 site audits, and 8 of them were virtual audits using Cisco TelePresence and Cisco WebEx.

The data and processes utilized in the environmental portion of the CSR report have been incorporated in the ISO 14001 internal audit plan for calendar year 2012 to provide additional assurance of the validity of the data reported. This will continue as part of the scope of Cisco's ISO 14001 internal audit program.

< Previous View

Environment
Overview
> Cisco Environmental Sustainability
Materials
Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

Table 2: Cisco Environmental Management System ISO 14001 Certification

KPI	FY07	FY08	FY09	FY10	FY11	FY12	Comments
Number of Cisco sites with ISO 14001 certification	25	25	27	28	30	31	Calendar year certifications assigned to fiscal year (e.g., CY12 assigned to FY12).
Percent of employees at sites covered by ISO 14001 certification	74%	73%	73%	73%	71%	71%	Headcount-based metric calculated per 2011. Future reporting will be by real estate footprint (see next row of table).
Percent of real estate portfolio with ISO 14001 certification	100%	100%	96%	96%	95%	95%	Real estate footprint is viewed as a better measure of potential environmental impact than a headcount-based metric. Candidate ISO 14001 sites are filtered by minimum size and engineering lab function.

Life-Cycle Assessment

Cisco focuses current LCAs on estimating GHG emissions associated with our products. This work is described in more detail in a later section on Scope 3 Life Cycle Emissions. LCA is a holistic approach for assessing the environmental impact of a system, process, or product from cradle to grave. At Cisco, LCA helps us:

- Assess the materiality of various contributors to environmental impact
- Facilitate more informed selection of alternative materials that are environmentally preferable
- Understand the impact of product power consumption on product environmental footprints
- Compare assembly and test scenarios to help develop more energy-efficient manufacturing processes
- Inform packaging and accessory kit reduction projects on the trade-offs of alternative materials and the environmental impact improvement of reducing materials
- Understand the relative carbon efficiency of different modes of transport for getting our products to logistics centers and customers

To aid in performing LCA work in various areas, we utilize tools and data sources such as PE International's GaBI 5.0 and ecoinvent. In addition, we use data from the International Energy Agency (IEA), the U.K. Department for Environment, Food and Rural Affairs (DEFRA), and the Greenhouse Gas Protocol (GHGP).

Design for Environment

Although the largest impact of most of our products comes from energy consumption, many other factors related to materials, transportation, and disposal are considered during the design stage to reduce the environmental impact of our products. We employ design-for-environment principles in our product design standards. The benefits include:

- Increasing the energy efficiency of our products
- Shipping our products with less material
- Shipping our products with a tighter packaging footprint
- Designing our products for ease of recycling

We have incorporated design-for-environment into our product requirements document template, which focuses on the following areas:

- Energy efficiency (minimum 80 percent efficient power supply and component)
- Hazardous materials (exclusion of hazardous materials based on Cisco's Controlled Substances Specification)
- Design-for-recyclability and upgradeability
- Recycling marking (ISO 11469, SPI codes)
- Packaging (reduction of materials and package volume)
- Design-for-longevity (designing products for long lifetimes)
- Product take-back

In FY12, approximately 96 percent of new products incorporated design-for-environment principles through the product requirements template.

Employee Training

We have incorporated environmental design principles into our products, systems, and solutions. The goal is to improve designs so that they use less raw material, packaging, and transportation and, at the same time, to enable more effective recycling. The first step was to incorporate environmental design features into our product requirements document. To support these

< Previous View

goals, we implemented company-wide informational and training events, such as Virtual Earth Day and video-on-demand classes. These show employees how they can contribute to our environmental goal of reducing carbon emissions by creating new products like SmartGrid, improving upon existing product designs, and working with our supply chain to make upstream operations more environmentally conscious.

Cisco launched a web-based course, sponsored by the Cisco engineering leadership team, targeting all employees who have a significant role in defining product requirements or developing our products. Employees who take this training learn about Cisco's green initiatives and what they can do to contribute to these efforts. In FY12, this training was made available in Mandarin. The web-based training has been completed by over 1400 members of our product development community.

To further embed environmental practices as part of our standard business operations, Cisco offers employee training on our business management system, which includes an explanation of our EMS and environmental policy and how it applies to each employee.

In FY12, we developed a web-based training module on sustainability and the Supplier Code of Conduct for employees who engage regularly with suppliers. The rollout will continue during FY13 and will become mandatory for component supplier managers. The training is based on a course developed by the Electronic Industry Citizenship Coalition (EICC). We have customized this training course to address Cisco programs and procedures. Supplier management teams will be required to take refresher training as necessary to update them on changes to the Code and other emerging issues.

Supply Chain

We are embedding responsible supply chain practices into routine business processes to make sustainability a key criterion in our assessment of, and ongoing relationships with, our suppliers. This helps us improve the effective management of our supply chain and reduce the associated environmental impacts. Key components to these efforts are outlined in the next section; for more detail see the Supply Chain section of our CSR report.

Supplier Code of Conduct

Cisco has adopted the EICC Code of Conduct for all supply chain partners and requires that they comply with this Code of Conduct as part of our contractual agreement. Requiring supplier compliance with the EICC Code of Conduct helps us further weave environmental sustainability performance into the business scorecard process that we use to establish preferred supplier status. This Code sets expectations with regard to social responsibility and human rights, the environment, ethics and governance, health and safety, and related management systems. The Code is reviewed and updated regularly so that it continues to reflect best practices and take account of emerging issues. In addition to the Code, suppliers must also comply with the Cisco Controlled Substances Specification as part of our compliance program with environmental regulations such as the EU Restriction of Hazardous Substances Directive (see Controlled Substances). For more information regarding Cisco's Supplier Code of Conduct, see the Supply Chain section of the CSR report.

Supplier Scorecard

In FY12, we integrated sustainability criteria into our overall business scorecard for preferred suppliers. The scorecard is used to establish supplier status as preferred and to monitor their performance. Sustainability now represents between 5 and 8 percent of the total score (depending on supplier type), alongside other criteria such as technology, cost, quality, responsiveness, and collaboration. Our suppliers' performance on sustainability metrics is reviewed as part of regular business reviews at least once a year. Suppliers must maintain strong scores to earn and retain their status as preferred suppliers.

By integrating sustainability into business reviews, we aim to show suppliers that Cisco takes sustainability in the supply chain seriously and that they must have an acceptable level of sustainability performance to do business with Cisco.

The scorecard encourages suppliers to track and disclose environmental and labor impacts, helping us improve transparency on sustainability issues in the supply chain. The sustainability part of the score is based on a range of criteria that are tailored to the type of supplier. Such criteria include:

- Providing data and setting goals on environmental impacts such as, GHG emissions, water and waste, and reporting GHG emissions through the Carbon Disclosure Project
- Reporting data on labor issues, such as injury and illness rate, working hours, and employee turnover
- Demonstrating commitment to sustainability by publishing a CSR report with clear goals and metrics and by participating in sustainability-related industry groups

We aim to publish more detailed data on individual scorecard criteria in the 2013 CSR Report. Cisco's Supplier Scorecard is discussed in greater detail in the Supply Chain section of the CSR Report.

< Previous View

Environment
Overview
> Cisco Environmental Sustainability
Materials
Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

Training Cisco Supplier Managers
To integrate sustainability into core business processes and raise awareness of our requirements among suppliers, it is essential that our supplier management teams at Cisco understand sustainability and communicate about it confidently. For more detail on Cisco supplier manager training, see the Employee Training in the Environment section or Training Cisco Supplier Managers in the Supply Chain section of the CSR report.

Supplier Audits and Capability Building
Environmental management of our suppliers is outlined in the Supplier Code of Conduct and is included as part of the audit and continuous improvement process. The environmental factors that we focus on are GHG emissions, water use and discharge, solid waste, and hazardous materials management. Helping suppliers improve their management of environmental issues and reduce their impacts can, in turn, help us reduce the overall impacts of our products throughout their life cycle.

In FY12, we continued to engage with many of our preferred suppliers to communicate our sustainability priorities, understand their priorities and challenges, and identify opportunities where we can partner to improve overall sustainability performance. These discussions helped to align priorities and better prepare suppliers to implement programs that support Cisco's sustainability goals.

The integration of sustainability metrics into our scorecards and business reviews for preferred suppliers helps us identify areas for capability building. One focus priority is to help suppliers understand how to allocate GHG emissions to each product or component to support their customers' calculations of product life cycle impacts.

Cisco aims to raise sustainability standards throughout the supply chain by working with suppliers to help them improve their management systems and to put in place similar processes to work with their own suppliers. For more information on these efforts see Supplier Audits and Capability Building in the Supply Chain section of the CSR report.

The text that follows includes supply chain–related information for water, biodiversity, non-GHG emissions, effluents, and solid waste. Supply chain GHG and energy topics are discussed in the Energy and GHG section.

Water: Water quality and availability are of concern to Cisco not only in its operations but also within the supply chain. Water consumption in our supply chain wholly depends on the type of supplier. For Cisco's suppliers that manufacture finished goods, water is a very small component of environmental impact. However, water consumption may be greater for other supplier types. For example, pure water requirements for semiconductor manufacturing become stricter as wafer technologies advance. We work with industry groups, such as the EICC, to identify water scarcity issues that may occur within our supply chain.

We address supply chain–related water issues through the Supplier Code of Conduct, the supplier audit process, and the sustainability metrics in our preferred supplier scorecard. More detail is provided on these topics in the Supply Chain section of the CSR report.

Biodiversity: Cisco has no active programs addressing biodiversity issues in our supply chain. As we work with our manufacturing partners on CSR reporting, it is our expectation that all GRI performance indicators will be evaluated to determine their materiality.

Non-GHG Emissions: Cisco addresses non-GHG emissions in our supply chain through our Supplier Code of Conduct, which states that all local environmental laws must be followed, including those governing air emissions. As we work with our manufacturing partners on CSR reporting, it is our expectation that all GRI performance indicators will be addressed.

Effluents: Effluents consist of waste that is released from industrial outfalls into the environment. Water quality is an important area of concern for our supply chain. Although our quantity of water discharged could be small, the quality of that water is vital. We are working with industry groups like the EICC to identify water quality issues that may occur within our supply chain.

Solid Waste: We have added a solid-waste performance measurement to our supplier scorecard.

Employee Engagement

Cisco supports employee interest in the environment through several efforts:

- Virtual Earth Day: An annual activity consisting of a series of webinars on a variety of environmental topics either specific to Cisco or of general interest to our worldwide employee base
- Think Green, Act Green: An internal, quarterly newsletter summarizing Cisco environmental activities for the period
- Civic councils: Cisco sponsors more than 30 Civic Councils at major Cisco sites around the world. These councils, discussed in more detail in the Society section, provide a means for groups of employees to volunteer in their local communities on social or environment-related programs
- Employee electronics recycling (e-scrap): Once a year, Cisco employees can bring in any used electronics to have them recycled using the same vendors and processes used in Cisco's business

< Previous View

Environment
Overview
Cisco Environmental Sustainability
> Materials
Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

- Employee commuter incentives: Cisco encourages employee use of mass transit at some sites through programs that allow eligible employees to use pre-tax dollars to purchase mass-transit passes. Cisco has also begun installing electric vehicle charging stations for our employees, discussed in more detail later in the section on Scope 3 Employee Commuting.

Regulatory Fines

GRI EN28: Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with environmental laws and regulations.

Our EMS certifications provide a regular assessment of our environmental compliance. Our culture is one of transparency and collaboration, and employees are encouraged to raise concerns or report issues without fear of retaliation. We investigate any allegation of noncompliance to determine root causes and implement corrective actions, if needed, to prevent their recurrence. Cisco's proactive approach and close attention to environmental requirements resulted in no significant fines or penalties greater than US$10,000 in the past five years.

Materials

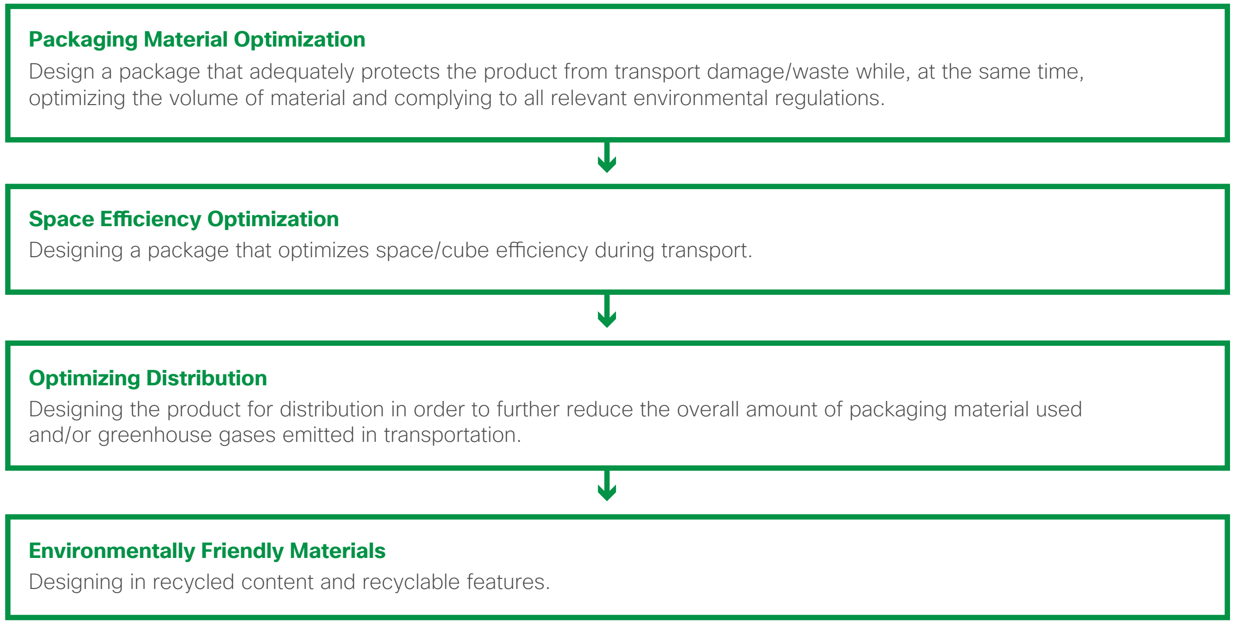
GRI EN1: Materials used by weight or volume.

Packaging

The growing amount of municipal solid waste being added to landfills from product packaging has become an area of environmental concern. To minimize Cisco's impacts in this area, our packaging team designs packages to protect against shipping damage while minimizing material usage.

After the basic packaging and material requirements have been met, Cisco evaluates four additional aspects of environmental package design (see Figure 1):

Figure 1: Four Dimensions of Environmental Packaging Design



Packaging Material Optimization
Design a package that adequately protects the product from transport damage/waste while, at the same time, optimizing the volume of material and complying to all relevant environmental regulations.

Space Efficiency Optimization
Designing a package that optimizes space/cube efficiency during transport.

Optimizing Distribution
Designing the product for distribution in order to further reduce the overall amount of packaging material used and/or greenhouse gases emitted in transportation.

Environmentally Friendly Materials
Designing in recycled content and recyclable features.

Packaging Material and Space Efficiency Optimization

Products that are damaged in transit have both negative business and environmental impacts because they need to be disposed of and replacement products need to be shipped. Each packaging design goes through rigorous drop and vibration testing to achieve the adequate level of product protection while minimizing materials usage.

Packages are subject to CEN13428:2004, CEN13430:2004, and CEN13431:2004 standards. Cisco packaging is designed to comply with all applicable regulations, including those in the EU and Australia. In addition, our packaging is manufactured from nontoxic or nonhazardous constituents. Concentrations of heavy metals present in packaging waste (Directive 94/62/EC) are reported by suppliers of package components to verify they fall within or below levels cited by the EU Directives. For a broader discussion on Cisco's efforts to use more environmentally friendly materials, see the Controlled Substances section.

In FY12, Cisco continued to apply its latest packaging design strategies to new and existing products. For example, our switching product lines (Catalyst 3750, Catalyst 3560, Catalyst 2360, Catalyst 2300, and Catalyst 2350) included the following updates:

- Replacement of the legacy EPE endcaps with molded EPS endcaps, with an option to utilize recycled EPS endcaps in some areas

< Previous View

Environment
Overview
Cisco Environmental Sustainability
> Materials
Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

- Reduction of the number of corrugated packaging components
- Introduction of the option to use 1.5 lb/ft^3 or 1.7 lb/ft^3 recycled foam in regions where the material is available

Overall, this work contributed to an annual usage reduction of 757,000 pounds of paper and plastic, and an increase of up to 6.7 percent in the overall packaging efficiency ratios for some of our highest volume sales of Catalyst 3750 products. Packaging efficiency is defined as the total weight of the product packaging over the total weight of the entire product (including the packaging). In FY13, Cisco will begin measuring all of its packaging improvement projects using this metric.

In total, our packaging improvement projects reduced 466 metric tonne of corrugated cardboard, plastic, and paper in our shipments in FY12.

Distribution Optimization

During product design, packaging engineers work with the design teams to reduce protrusions and decrease the fragility of the product as well as to increase its compactability. These efforts aim to reduce the size of the product for an overall reduction in packaging use.

Configurable options also help to reduce and eliminate packaging. For many years, Cisco has been shipping primary products configured whenever possible. However, recently we have broadened the scope of this work by creating configurable options for secondary items such as cables and brackets. For example, customers might opt not to order an RJ45 cable in their accessory kit rather than it being shipped by default. This fulfillment strategy results in a minimum set of supporting material and eliminates items that customers may not need in their installation. To understand more about Cisco's efforts to reduce packaging and distribution waste (multipack and electronic fulfillment), see the Scope 3 Logistics section.

Environmentally Friendly Materials

Most of our packaging parts are made of either one material or multiple materials that are easily separable for recycling. However, the recycled content varies from item to item and with geographic regions. The ability of customers to recycle our packaging depends on the recycling facilities in place in their region. Except for antistatic bags, which make up a tiny fraction of all packaging material, all Cisco packaging should be recyclable in most markets. This year, we have sourced, qualified, and begun using a fully recyclable antistatic bag. We will expand the use of this new alternative in FY13.

The plastic used in Cisco packaging falls into categories identified by codes 1 to 7. Polyethylene (codes 2 and 4) is the predominant material. Many but not all of the plastic components are labeled. Cisco products use polyethylene bags for many purposes, such as protection or consolidation of accessory kit subassemblies. Over the years, Cisco has reduced the thickness of many bags such as these to eliminate waste while still protecting the product.

Products

Understanding the materials that make up our products helps Cisco identify opportunities to reduce or eliminate waste. Over the past three years, Cisco has used product dematerialization projects to identify and remove unnecessary items that ship with our products. These products include removing excess or unnecessary accessory kit items, such as documentation, bags, and hardware, from our products.

Dematerialization projects are cross-functional, collaborative efforts that reduce the auxiliary material previously included with most products and also allow for further packaging reductions. Best practices developed on these projects have been incorporated into our product design cycle. One example is known as the pointer card, a small printed card that provides the customer with links for accessing product documentation and software on the web. The pointer card has replaced large documents within accessory kits in many product families.

Recycled Content

GRI EN2: Percentage of materials used that are recycled input materials.

Packaging

Generally, Cisco product packaging uses corrugated cardboard that includes some recycled content. In addition, thermoformed cushions that are made from 100 percent recycled polyethylene can be found on some of our products. However, this type of cushion is not suitable for every product, and therefore some products use foam cushions made from virgin material or recycled substitutes. Cisco products also use recyclable polyethylene bags for protection and accessory kit subassembly consolidation, but we are reducing the thickness and quantity of the bags we ship with our products while maintaining adequate product protection.

Cisco's intention is to encourage and promote the use of recyclable packaging. There are some applications that require use of dissimilar materials joined together that cannot easily be recycled, such as metallized static shielding bags, or ESD bags, but in those cases we minimize the quantity and amount of material used and evaluate internal reuse programs for them. An alternative is to use antistatic, recyclable pink poly bags in place of ESD bags where the amount and type of protection required permits.

Products

In addition to recycled packaging content, most products have material that has been recycled from other products. Electronic products consist primarily of circuit boards, steel, and plastics. In general, the enclosures and structures of our products utilize recycled materials that are consistent with safety and performance requirements. We use reground plastic in our IP phones

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

where structural rigidity is not required, and we use recycled material in the steel that makes up enclosures of our products. Printed circuit boards typically use recycled material, such as copper, and most electronic components make use of recycled material that is reclaimed from electronics recycling.

Our dematerialization efforts help us optimize the amount and type of auxiliary items that we ship with our products without compromising the customer experience or product quality. For items that we can't eliminate or minimize further, we work toward using as many recyclable and recycled materials as possible. For example, recycled content documentation is a Cisco standard.

Many of our documentation vendors are Forest Stewardship Council (FSC) certified. Because FSC membership requires complete chain of custody and reforestation for any materials, the environmental impact of virgin paper is minimal.

Our print vendors use state-of-the-art processes to minimize their environmental impact, and we encourage our vendors to use natural inks where practical (on boxes or large print diagrams, for instance). However, where clarity is important (safety materials, operating instructions), the vendor is expected to use a type of ink that does not bleed or fade.

Along with documentation, Cisco optimizes the thickness and types of plastic bags shipped with our products. This allows us to use the appropriate size, type, and thickness of bags for the items that they are protecting and to be as efficient as possible with the plastic bags we ship with our products.

We have incorporated new guidelines in our design-for-environment process to help make it easier to recycle the materials that make up our products. For example:

- For ease of separation, all mechanical parts greater than 100 grams consist of one material
- Plastic parts greater than 25 grams are designed with material coding, as per ISO 11469, so plastic material types can be more easily identified at the recycler
- All plastic parts are free of metal inlays and can be separated with common tools, improving recyclability

Energy and GHG Emissions

This section reviews Cisco's environmental impacts and our initiatives concerning energy and GHG emissions. The Global Reporting Initiative (GRI) indicator protocols place GHG emissions under the Emissions, Effluents, and Waste category. Because Cisco GHG emissions are almost all directly associated with the use of energy (typically electricity), we report GHG emissions with energy.

Cisco has made two GHG emission reduction goals:

- September 2006: Clinton Global Initiative (CGI) commitment to reduce GHG emissions from all Cisco business air travel worldwide by 10 percent absolute (against a FY06 baseline). This CGI goal was met in 2009, and the commitment has been closed.
- June 2008: EPA Climate Leaders commitment to reduce all Scope 1, 2, and business-air-travel Scope 3 GHG emissions worldwide by 25 percent absolute by CY12 (CY07 baseline). Refer to Table 3 and Table 8 for our performance against this goal. This goal has not changed since the original announcement. Cisco will report its final CY12 reduction figures in next year's FY13 CSR Report.

Cisco has been recognized for our GHG reporting by Greenpeace and the Carbon Disclosure Project (CDP).

- In February 2012, Greenpeace rated Cisco #2 in its Cool IT Challenge Leaderboard (v5). We were rated #1 in the previous iteration of the Leaderboard. Cisco did particularly well on reporting our GHG emissions, providing ICT solutions that our customers can use to reduce their GHG emissions and calculating the impact of these solutions. We scored lower on advocacy and dropped a position.
- In September 2011, Cisco was ranked the number-one IT company in the world by CDP following its analysis of responses to its investor survey. Cisco also placed in the global Top 10 (all sectors) for the first time, scoring 98 out of 100. Cisco was rated the number-one IT company in the world by CDP in 2008 and 2010, and it was rated the number-two IT company in 2009. Cisco has been on the Carbon Disclosure Leadership Index (CDLI) each year since 2008. Cisco has responded to the FY13 CDP Investor survey, and we will report those results in our FY13 CSR report.

In December 2011, the Sustainability Real Estate Roundtable recognized Cisco's Workplace Resources organization for its work on more sustainable leasing strategies.

For additional information about awards Cisco received in 2012 for its CSR efforts, visit our website.

Environment

Overview

Cisco Environmental Sustainability

Materials

> Energy and GHG Emissions

Water Use

Biodiversity and Land Use

Non-GHG Emissions

Effluents (Liquid)

Waste

Operations Scope 1 and 2

GRI EN3: Direct energy consumption by primary energy source.

GRI EN4: Indirect energy consumption by primary energy source.

GRI EN16: Total direct and indirect GHG emissions by weight.

See Table 3 for our Scope 1 and 2 GHG emissions KPIs.

All prior-year Scope 1, 2, and 3 business-air-travel emissions data vary to some extent from previously reported values, either in the most recent CDP survey or in our FY11 CSR Report, because of updates to emissions factors, methodology, structural adjustments from acquisitions or divestitures, and correction of minor errors found upon repeated review. To support standardization and benchmarking across companies, Cisco uses the GHG Protocol Corporate Accounting and Reporting Standard as the basis for our Scope 1, 2, and 3 business-air-travel emissions calculations. The EPA Center for Corporate Climate Leadership provides additional program guidance.

Table 3: Summary of Scope 1 and 2 GHG Emissions

KPI	FY07	FY08	FY09	FY10	FY11	FY12	Comments
Total gross GHG emissions: Scope 1, metric tonne CO_2e	50,462	50,879	52,560	52,515	60,718	65,832	*Gross* is used consistent with Carbon Disclosure Project (CDP) terminology. Gross GHG emissions do not include reductions from renewable energy purchases.
Total gross GHG emissions: Scope 2, metric tonne CO_2e	444,684	523,560	575,555	581,252	599,528	628,164	
Total contractual GHG emissions: Scope 2, metric tonne CO_2e	378,948	280,110	220,320	323,626	356,209	185,840	*Contractual* is used consistent with CDP terminology. Contractual GHG emissions include reductions from renewable energy purchases.
Scope 1 and 2 emissions (gross) intensity, metric tonne CO_2e per million dollars of revenue	14.2	14.5	17.4	15.8	15.3	15.1	
Scope 2 emissions from primary data, percent	96.3%	97.0%	96.8%	98.5%	97.9%	97.9%	
Total contractual GHG emissions: Scope 1 and 2, metric tonne CO_2e	429,411	330,989	272,880	376,141	416,927	251,672	
Progress against reduction goal, percent. Goal: reduce all Scope 1 and 2, GHG emissions worldwide by 25 percent absolute by CY12 (CY07 baseline)	na	-23%	-36%	-12%	-3%	-41%	Cisco's corporate GHG reduction goal was set as part of U.S. EPA Climate Leaders program, which required a *calendar*-year baseline. The Climate Leaders program has since been discontinued. To avoid reporting both calendar and fiscal year data, Cisco is publicly reporting emissions using fiscal year data.

Cisco has reported to the CDP every year the survey has been distributed. CDP is an independent, not-for-profit organization that holds the largest repository of GHG emissions data in the world. The CDP questionnaire and our answers provide a comprehensive view of the following topics related to climate change: risks and opportunities, actual emissions, reduction goals, avoided emissions, and regulatory and policy activities.

Each year, Cisco has an independent third party review our GHG inventory, including all emissions relevant to our current GHG reduction goal, which includes Scope 1 and Scope 2 emission sources and Scope 3 business-air-travel emissions. In FY12, this limited assurance review was provided by WSP Environment & Energy in accordance with the ISO 14064-3 International Standard.

Table 4 provides use-weighted electricity emission factor (EF) KPIs for all Cisco facilities, as well as for our major data centers. As the table shows, Cisco's average (gross) electricity emission factor for both its global facilities and data centers are 14% percent and 15% percent lower than the global average, respectively. This is a reflection of Cisco locating the majority of its facilities in grid locations where low-carbon to no-carbon grid electricity is available. The challenge in future years will be to prevent these average emission factors from increasing as Cisco grows in emerging markets where low-carbon and no-carbon electricity is not readily available.

Reducing Emissions from Operations

GRI EN5: Energy saved due to conservation and efficiency improvements.

GRI EN7: Initiatives to reduce indirect energy consumption, and reductions achieved.

GRI EN18: Initiatives to reduce greenhouse gas emissions, and reductions achieved.

GRI EN30: Total environmental protection expenditures and investments by type.

Reducing our energy consumption and enabling a diverse energy supply for our facilities makes good business sense and benefits the environment. A number of energy-related programs and projects were implemented in FY12 that helped Cisco reduce its energy costs and GHG emissions. We continue to evaluate and implement similar projects throughout our real estate portfolio that help us reduce our GHG emissions, reduce energy costs, and future exposure to energy price fluctuations. These tactics help us stay competitive and reinforce our commitment to being environmentally responsible.

Table 4: Electricity Emissions Factors

KPI	FY07	FY08	FY09	FY10	FY11	FY12	Comments
International Energy Agency (IEA) world average EF, g CO_2e per kWh	508.4	504.5	500.0	500.0	500.0	500.0	Calendar year per IEA. Latest 2009 EF from IEA value used for 2009–2012.
Cisco, global average electricity EF (gross) g CO_2e per kWh	437.1	448.8	456.9	460.9	443.2	428.7	
Cisco, global average electricity EF (contractual) g CO_2e per kWh	375.4	246.4	182.2	262.1	266.6	126.8	
Cisco, major data center average electricity EF (gross) g CO_2e per kWh	397.5	401.3	418.8	435.4	435.0	423.0	

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

See Table 5 for a summary of all of our energy-related KPIs.

Our strategy to reduce energy consumption and GHG emissions from our operations is to:

- Continue to deploy global space policy and the Cisco Connected Workplace, which increases the utilization of our office space and our ability for remote collaboration
- Improve the efficiency of our buildings, with a focus on our engineering labs, which are Cisco's largest consumer of electricity and biggest source of GHG emissions
- Purchase electricity from certified low-carbon and renewable sources, where available

Through this strategy, Cisco estimates that in FY12 it conserved approximately 15.6 million kWh of energy and avoided 7,300 metric tonne CO_2e through an investment of $1.6 million in energy conservation projects. Since FY09, we estimate this strategy has conserved approximately 94.3 million kWh of energy and avoided 41,900 metric tonne CO_2e; these projects are described in more detail in the next sections.

Global Space Policy and Cisco Connected Workplace

As a result of Cisco's new building space policy, which was approved in FY11, we have expanded and will continue to expand the use of Cisco Connected Workplace in our real estate portfolio because all new and renovation projects must comply with Cisco Connected Workplace requirements. By the end of FY12, Cisco Connected Workplace represented approximately 19.5 percent of Cisco's total office space. This is one of the most cost-effective GHG-reduction strategies that we are deploying in our real estate operations because it helps increase the utilization and limit the growth of our office space, even as Cisco increases its headcount.

Labs

Reducing electricity consumption is a priority for Cisco because Scope 2 emissions from electricity consumption make up more than 91% percent of our worldwide total Scope 1 and 2 emissions. Considering that over 60% percent of our electricity is used to power and cool equipment in our engineering and services labs, making our labs more energy efficient represents a large opportunity to reduce GHG and energy costs.

We have been executing a global program to reduce electricity consumption in our labs in three areas:

- Improve the energy efficiency of the building infrastructure that supports our labs
- Install and utilize power monitoring and control technologies for our lab equipment
- Develop and execute a sustainable lab employee engagement program

Table 5: Energy Totals

KPI	FY07	FY08	FY09	FY10	FY11	FY12	Comments
Energy usage, GWh	1,249	1,404	1,500	1,491	1,613	1,750	
Indirect energy usage, GWh	1,024	1,173	1,265	1,267	1,353	1,465	Indirect energy usage is electricity consumption.
Direct energy usage, GWh	225	231	235	224	260	285	Direct energy consumption is the sum of Cisco's natural gas and diesel usage for heating and back-up power generation and regular gasoline and diesel fuel used in Cisco's fleet.
Electricity usage, GWh	1,024	1,173	1,265	1,267	1,353	1,465	
Natural gas usage, GWh	147	153	143	115	118	141	

This $16.8-million strategy was approved for funding at the end of FY11 and is now being deployed across the lab community. When completed, we expect this lab energy program to reduce Cisco's electricity costs by approximately $9 million per year, to reduce GHG emissions by over 30,000 metric tonne CO_2e, and to provide a return on its investment of less than 2 years.

Initial projects have shown that significant energy can be saved through a combination of these efforts. This program is now being deployed across the global lab community with over $5 million of energy savings in projects identified or underway.

Data Centers

Cisco opened a new green data center in Research Triangle Park, North Carolina, in early FY12 to replace an existing disaster recovery facility that was rapidly approaching its limits for space, power, and cooling. Rather than build a traditional disaster recovery facility that would remain idle most of the time, Cisco IT designed a data center that could support nonproduction applications most of the time and be quickly repurposed for disaster recovery, if needed. The dual-purpose infrastructure costs significantly less to operate, uses much less energy, and reduces Cisco's impact on the environment compared with a new data center solely dedicated for disaster recovery and needlessly running in standby mode.

Cisco data center, Research Triangle Park, North Carolina

Besides being a dual-purpose data center, Cisco IT incorporated numerous features that also reduce our environmental impact, including:

- Chimney rack hot-air isolation for improved cooling efficiency
- Waterside economizer, used on average 41 percent of the time
- Variable frequency drives (VFDs) on major equipment, including pumps, chillers, and computer-room air handler (CRAH) units
- Higher-voltage electrical service distribution of 480/277V; rack distribution of 415/230V
- 100 kW solar photovoltaic cells on building roof
- Heat recovery from data hall for office space use
- LED exterior lighting
- Low-E glass windows
- Reclaimed water use in cooling towers
- Non-chemical water treatment system
- Water-efficient plumbing
- Occupancy sensors integrated with lighting and temperature controls
- Landfill diversion during construction

The new data center is designed to achieve a Power Usage Effectiveness metric of 1.35 at full load and has achieved a Leadership in Energy and Environmental Design (LEED)-NC Gold Certification (v2.2) from the U.S. Green Building Council. For more information on the design and construction of Cisco's latest green data center, please read our full case study on the project.

Building Energy Efficiency

Cisco takes three parallel approaches to making our real estate portfolio as energy efficient as possible:

Cisco LEED Platinum–certified facility, Bangalore, India

- Incorporate efficiency into a new or significantly renovated space by following standards in accordance with the U.S. Green Building Council LEED standards
- Rigorously apply Cisco's "green leasing" standards in selecting leased space and work with landlords to improve the energy efficiency of their buildings
- Identify and implement energy-efficiency projects throughout our global operations

We have made significant progress since our first LEED-certified building was built in August 2009 toward integrating green building standards into our real estate portfolio. By the end of FY12, 26 Cisco facilities had achieved LEED certification, 17 of them Gold or Platinum status. These include our newest data center in Allen, Texas, and a renovated data center in Research Triangle Park, North Carolina, which achieved LEED Platinum and LEED Gold certification, respectively. It also includes our latest renovation project in Bangalore, India, completed in July 2012, where Cisco's Bangalore 16 building received one of the highest-rated Platinum LEED ID+C scores in the world (96 points). LEED elements are incorporated into Cisco's design standards for every new construction or renovation project.

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

Cisco worked closely with our outside legal counsel and real estate partner to create “green leasing” terms and to integrate these terms into our standard lease template in the United States and Canada in FY09. Green leases provide corporations with a valuable opportunity to communicate and implement sustainability goals as well as to provide a foundation for measurement of the same. We applied these standards globally in FY11. Since then, we have implemented ten green lease agreements representing 158,714 square feet of leased office space across Cisco’s real estate portfolio. The green leasing terms in our standard template vary depending on the size of the premises and the length of the lease agreement, but in general, the larger the premises and the longer the lease, the more comprehensive the green leasing terms. Sample terms in the green leasing template include:

- Temperature controls
- Sub-meters for major utilities
- Building recycling program
- No chlorofluorocarbons (CFCs) used in HVAC system
- Bicycle storage and facilities in which cycling commuters can change for work
- Green building certification (e.g., LEED, BREEAM, ENERGY STAR)

Incorporating these terms into leases up front is important for Cisco because about half of Cisco’s real estate footprint is leased, and the leases are often long-term commitments. In addition, if we do not specify any green leasing requirements at the time of leasing, it can be extremely difficult to incorporate the requirements later.

Not all of the terms in Cisco’s green lease template are mandatory to implement in every lease. At a minimum, the template is a tool for Cisco’s real estate team to negotiate with the landlord to promote Cisco’s sustainability goals in its leased facilities to ensure they are healthy, efficient, and sustainable both now and throughout the term of the lease.

Global Energy Management

Cisco maintains a global energy management and sustainability team that meets on a biweekly basis to discuss energy efficiency and onsite power generation opportunities in our real estate portfolio. This team includes Cisco employees as well as dedicated energy managers from our current facility management partners, CB Richard Ellis (CBRE) and Johnson Controls (JCI), which manage the day-to-day operation and maintenance of our buildings. Cisco incorporated energy-efficiency requirements as part of our facility management contracts. These new contracts were implemented in FY10. For each year of the five-year contract, our partners are required to identify and implement various energy-efficiency projects at Cisco facilities. In FY12, approximately $1.6 million in energy-efficiency projects were identified and implemented in many Cisco facilities, including:

- Improving lighting efficiency
- Installing LED exit signs
- De-lamping vending machines
- Installing variable frequency drives (VFDs)
- Performing building and lab specific energy audits
- Improving lab air distribution with blanking panels and diffusers
- Retro-commissioning facilities
- Upgrading HVAC systems

Onsite Power Generation: Solar

In FY11 and FY12, Cisco installed and commissioned solar photovoltaic (PV) systems at data centers in Allen, Texas, and Research Triangle Park, North Carolina. Both pilot systems have a capacity of 100 kW. Cisco will use the experience gained through the use of these pilot systems to assess wider implementation. In FY12, these systems collectively produced 270,000 kWh of electricity for Cisco, saving $16,000 and avoiding 170 metric tonne of CO_2e of GHG emissions. Cisco is actively evaluating additional locations for installing solar PV systems, but the bulk of our effort and resources continue to be focused on implementing those energy-efficiency projects that have been shown to have a greater return on investment and a larger reduction of Cisco’s GHG emissions.

Cisco solar array at the Allen, Texas, data center

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

Onsite Power Generation: Cogeneration

In FY12, Cisco started a project to install a 425 kW cogeneration system on its campus in Bedfont Lakes, U.K. This system will become operational in FY13, and it will supply both normal and emergency power to a critical lab facility on the campus as well as providing significant cooling through an absorption chiller. By operating the waste-heat recovery capabilities, the system is expected to reduce GHG emissions by more than 704 metric tonne CO_2e per year. In addition, the team is now evaluating using the residual heat remaining after the chiller cycle for under-floor heating in a planned child care center.

Purchasing Renewable Energy

The percent of electricity purchased from renewable energy sources for various regions is shown in Table 6.

Table 6: FY12 Electricity Usage from Renewable Sources

Region	Percent of FY12 Electricity from Renewable Sources
Europe	62%
United States	44%
Global	38%

Cisco has increased renewable power purchases since FY06 by buying Renewable Energy Certificates (RECs) and by entering into green power contracts with various electricity suppliers in the United States to reduce GHG emissions from Cisco operations. In FY12, Cisco purchased 457 million kWh of RECs certified by Green-e, an independent auditor of renewable energy products, generated by wind projects in Texas and the eGRID Midwest Regional Organization West (MROW) region. Cisco purchased approximately 94 million kWh through various European green power suppliers. We continue to follow the guidelines from the U.K. Department for Environment, Food and Rural Affairs (DEFRA), and we use the grid average emission factor when calculating emissions associated with green power purchased in Europe.

Table 7: Renewable Energy

KPI	FY07	FY08	FY09	FY10	FY11	FY12
Electricity from renewable sources, GWh	110	342	469	351	358	552
Percent of electricity from renewable sources	11%	29%	37%	28%	27%	38%
GHG emissions reduction from renewable energy, metric tonne CO_2e	66,000	243,000	355,000	258,000	243,000	442,000

Cisco participates in the U.S. EPA's Green Power Partnership. As of July 2012, Cisco was listed sixteenth among the National Top 50 and eleventh among Fortune 500 companies in the EPA's green power ranking. This ranking is updated quarterly by the U.S. EPA.

Purchasing electricity generated from renewable and non-carbon sources is an important component of Cisco's GHG reduction strategy. Cisco purchases renewable power where it is available in the local power market. Cisco currently purchases power from no- or low-carbon sources in both the United States and Europe, and it plans to support no- or low-carbon energy sources in other regions of the world as they become available in the marketplace. Cisco's global renewable electricity purchases are summarized in Table 7.

Operations Scope 3

GRI EN17: Other relevant indirect GHG emissions by weight.

Cisco has prioritized its Scope 3 operations-related efforts on reducing our business-air-travel emissions and developing business processes, management practices, information systems, and standardized methodologies for using network technologies to reduce air travel. During this time, Cisco actively participated in the development of the Greenhouse Gas Protocol (GHGP) Scope 3 and GHGP Product accounting standards led by the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD).

Scope 3 emissions cover a broad range of activities, and while our Scope 3 reporting has been primarily focused on the reduction of emissions related to business air travel, we have expanded our efforts to address life cycle emissions, including our supply chain, logistics, product use phase, and end of life. Cisco provides a comprehensive response to Scope 3 questions on the CDP Investor survey. Cisco also initiated the GHGP Scope 3/Product ICT Sector Supplement under the auspices of the WRI and WBCSD.

The following sections provide additional detail on our Scope 3 emissions reporting and reduction activities. A later section provides an overview of the Cisco solutions that help our customers reduce their own Scope 1, 2, and 3 GHG emissions. Cisco uses many of these same solutions internally to understand, at scale, the effect of our products on GHG emissions. We also better understand the "soft" challenges to successful implementation–the necessary updates to business processes, management expectations, and employee behavior that are the key to widespread adoption.

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

Scope 3 Business Air Travel

GRI EN29: Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce.

Cisco believes that the global problem of climate change requires a significant reduction in emissions in absolute terms. For our operations, Cisco has made the following public commitments that impact Scope 3 emissions:

- September 2006: Clinton Global Initiative (CGI) commitment to reduce GHG emissions from all Cisco business air travel worldwide by 10 percent absolute (against a FY06 baseline)

This CGI goal was met in 2009 and the commitment closed with CGI.

- June 2008: EPA Climate Leaders commitment to reduce all Scope 1 and 2 and business-air-travel Scope 3 GHG emissions worldwide by 25 percent absolute by CY12 (CY07 baseline)

Cisco is on track to meet this EPA Climate Leaders goal, which has not changed since the original announcement.

This section reviews our progress meeting the EPA Climate Leaders goal and provides additional information concerning our Scope 3 emissions. Cisco's total global GHG emissions from business air travel over the last five fiscal years are shown in Table 8.

Because of EPA requirements, our reduction goal is stated in terms of calendar years. To avoid potential confusion from reporting very similar numbers for fiscal and calendar years, we report only emissions by fiscal year and use fiscal-year emissions internally for operational control and initiative planning. We will report against our CY12 EPA commitment in our FY13 CSR Report. Because of rolling updates to flight data, prior-year business air-travel emissions data vary slightly from values previously reported in either our 2011 CSR Report or our response to the CDP 2012 Investor survey.

There are two reasons we have not adopted different emissions factors for different classes of air service. First, Cisco's focus is on using Cisco ICT remote collaboration technologies to avoid travel. Reporting reduced emissions because a larger fraction of employees flew economy class this year compared to last year moves the focus away from travel substitution. Second, we are unsure of the treatment of using different emissions factors for different classes of air travel for a given company. Even though Cisco is a large company, it is likely that scheduled air service has not been impacted by our reduction in air travel, even reductions measured in hundreds of thousands of flights per year. (That is, the same number of planes are still flying.) Of course, as more companies adopt these network technologies, the number of plane flights should decrease. Therefore, we have chosen not to complicate what is inherently a conceptual reduction by considering class of service flown in selecting emissions factors. We use DEFRA air-travel emissions factors in our calculations.

Our FY12 Scope 3 air-travel emissions data and calculations were reviewed by a representative of WSP Environment and Energy. Our Scope 3 emissions reporting process has been audited in the past by both Cisco's internal audit team and our external ISO 14001 auditor, but it was not selected for audit by either in FY12.

Reducing GHG Emissions from Scope 3 Business Air Travel

To replace physical travel and meet our EPA Climate Leaders reduction goal, Cisco is relying on Cisco remote collaboration technologies, including Cisco TelePresence, products from the acquisition of Tandberg, and Cisco WebEx desktop conferencing.

Table 8: Scope 3 Air-Travel Greenhouse Gas Emissions

KPI	FY07	FY08	FY09	FY10	FY11	FY12	Comments
Total Scope 3 air-travel GHG emissions, in metric tonne CO_2e	205,796	197,867	118,602	106,783	127,293	139,431	Primary air-travel data adjusted to represent 100 percent of Cisco business air travel.
Percent Scope 3 air-travel emissions from primary data	98.0%	98.5%	97.9%	96.1%	98.2%	98.2%	FY12 estimated; to be confirmed.
Percent progress against reduction goal. Goal: Reduce all business-air-travel-related Scope 3 GHG emissions worldwide by 25 percent absolute by CY12 (CY07 baseline)	base year	-4%	-42%	-48%	-38%	-32%	FY07 base year; see prior comment on Scope 1 and 2 portion of reduction goal.

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

Worldwide utilization of general-use Cisco TelePresence units has remained steady at just under 50 percent, based on an eight-hour day. Many Cisco TelePresence units are booked at or over 100 percent capacity. The larger, three-screen Cisco TelePresence systems have the highest utilization rate. For example, our CTS-3200 series units, which seat 18 people, have a utilization rate of about 65 percent based on a 10-hour day. Higher utilization of the larger Cisco TelePresence rooms is constrained by room availability or substantial time differences between endpoints. Table 9 illustrates our rollout of Cisco TelePresence across the company since September 2006, which was in the first quarter of our FY07.

Table 9: Cisco-internal TelePresence Room Cumulative Deployment

Cumulative, as of End of Fiscal Year	Total Number of Cisco TelePresence Rooms	Total Number of Cities	Total Number of Countries
2007 (general use)	72	50	20
2008 (general use)	179	109	37
2009 (general use)	369	156	44
2010 (general use)	534	214	59
2011 (general use)	601	238	67
2012 (general use)	956	254	69
2007 (private or EBC)	26	6	3
2008 (private or EBC)	53	12	7
2009 (private or EBC)	179	47	21
2010 (private or EBC)	334	73	26
2011 (private or EBC)	433	98	28
2012 (private or EBC)	453	95	28

EBC stands for Executive Briefing Center and refers to one of numerous regional meeting facilities that Cisco uses for presentations to customers. Many executives have Cisco TelePresence units in their offices, typically the CTS-500. We also have rolled out thousands of Tandberg, desktop, hardware-based (e.g., EX60, EX90), and software-based (Movi) high-definition videoconferencing units in a move to make high-definition video interaction pervasive at Cisco.

We have installed various Cisco TelePresence models at many locations to accommodate the different requirements of each site. This includes models that accommodate anywhere from one or two users in a private office setting to larger group meetings of up to 18 people in a single room connecting with multiple TelePresence suites of varying sizes. Up to 42 screens in multiple locations can be scheduled for an internal meeting using the Cisco TelePresence Multipoint Switch. By having a range of Cisco TelePresence units available, more types of interactions can be virtualized and more physical travel can be avoided, reducing travel expenses and GHG emissions.

Cisco WebEx and Cisco MeetingPlace products are also part of the suite of solutions our employees use to collaborate virtually with other Cisco employees, our customers, our partners, and other stakeholders. Table 10 shows that our use of these products continues to grow, mirroring a similar growth in the use of Cisco TelePresence. A “people-hour,” as used in the table, is one person attending a remote meeting for one hour, either by teleconference or via the web and a personal computer. Five people attending a two-hour meeting would equal 10 people-hours.

Cisco CTS-3000 TelePresence unit (6 users) with CTS-3200 TelePresence (18 users)

< Previous View

Environment

Overview

Cisco Environmental Sustainability

Materials

> Energy and GHG Emissions

Water Use

Biodiversity and Land Use

Non-GHG Emissions

Effluents (Liquid)

Waste

Table 10: Cisco WebEx and MeetingPlace Usage

Calendar Year	Total Web Conferencing (in millions of people-hours)
2007	4.7
2008	7.7
2009	13.9
2010	18.5
2011	23.0
2012	23.4

Cisco TelePresence and WebEx now interoperate (WebEx users see TelePresence video), expanding the types of remote collaboration experiences that are made possible with our network technologies.

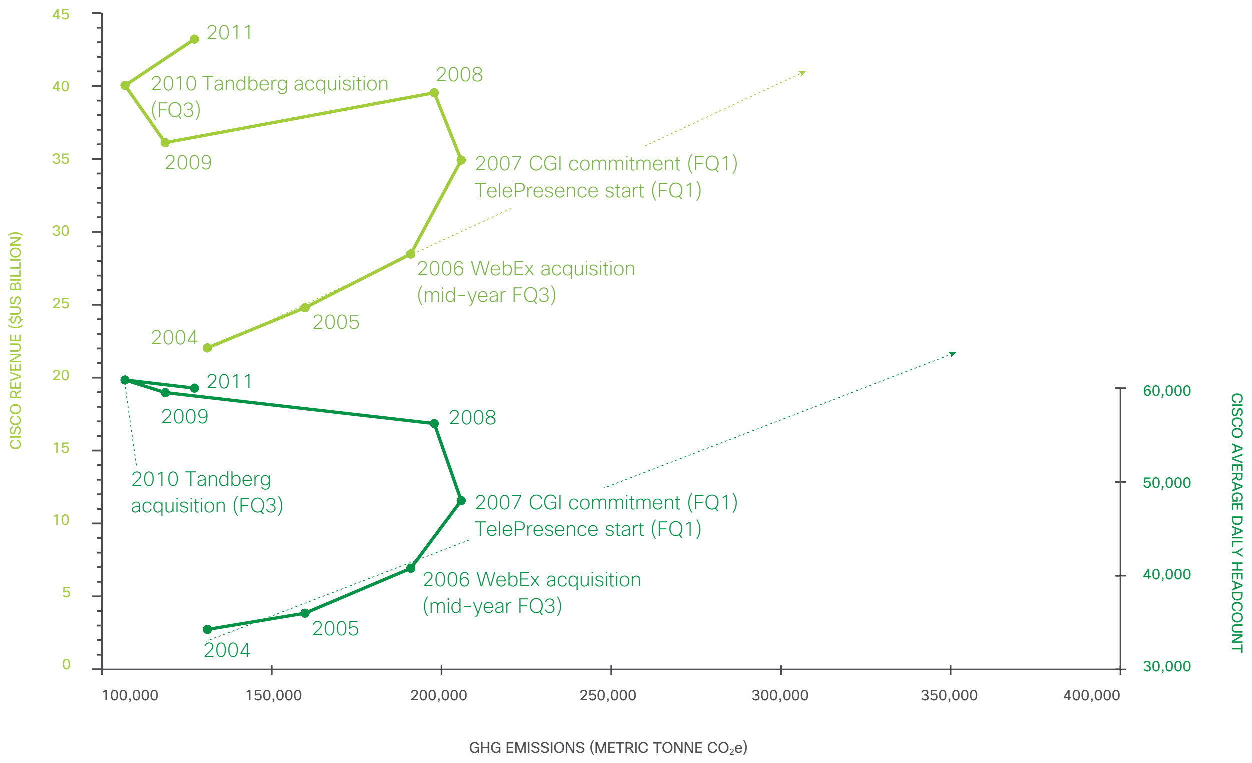
Using Cisco TelePresence, Tandberg products, and web conferencing, Cisco has piloted and developed the business processes and management practices for virtual company meetings, executive operational reviews, department "all hands" meetings, our annual sales meeting, and our annual senior leadership "offsite" meeting, thereby expanding the types of interactions that can effectively be completed remotely. About a third of our global ISO 14001 site audits were performed using Cisco remote collaboration solutions. This real-world experience guides product development and helps with the rollout of supporting management practices. Use of and familiarity with these and related products continue to expand at Cisco for more functions and business activities. Decisions are made faster, cross-cultural communications are improved, stakeholder and customer feedback from around the world is better disseminated within the company, and products move to market faster.

Avoided GHG Emissions from Scope 3 Business Air Travel

It is difficult to project with certainty what might have happened to Cisco air-travel emissions without widespread use of these collaborative technologies. However, in response to stakeholder inquiries, Cisco has compared changes to our actual air-travel emissions against changes to revenue and headcount. Revenue and headcount are the two factors believed to be the primary drivers of air travel. In Figure 2, actual emissions on the x-axis are plotted against revenue (light green line, left axis) and headcount (dark green line, right axis).

Cisco's acquisition of WebEx in mid-FY06, the start of Cisco TelePresence use and our CGI air-travel emissions reduction commitment in early FY07, and our Tandberg acquisition in the second half of FY10 are also shown. From FY04 to FY06, changes to GHG emissions were roughly proportional to changes in revenue and headcount. This observation is consistent with the fact that about two-thirds of Cisco's air-travel emissions were from our sales and service organizations, both "high touch" business functions. The more products sold and the more customers Cisco serves, the more the potential for business travel.

Figure 2: Avoided CO_2 Emissions from Use of Remote Collaboration Technologies (data through 2011)



< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

The case for collaborative technologies to reduce physical travel and GHG emissions is unambiguous. With a 25 percent increase in revenue and headcount compared to FY07, in FY12 air-travel emissions have dropped more than 30 percent on an absolute basis compared to FY07, exceeding our EPA Climate Leaders goal of a 25 percent absolute reduction. In prior years, Cisco worked to first overcome upward pressure on travel from business growth and then to achieve absolute reductions in emissions compared to the base year. As a result of this earlier effort, we experienced an initial reduction in air-travel emissions starting in FY08. As the economy has slowly recovered, our travel has increased from last year, but we are still well below our committed goal. The net effect of our collaborative technologies has been a reduction in travel, carbon emissions, and travel costs and an increase in employee productivity and work-life integration while at the same time maintaining and growing the customer relationships needed for continued revenue growth as the worldwide economy improves.

Replacing business air travel with remote collaboration requires more than just installing more technology. Business processes, management practices, and culture need to be adapted to take full advantage of these new network technologies. As experience with remote collaboration technologies increases, both within Cisco and among our customers and partners, remote interactions have progressed from being the exception of a few years ago to becoming standard practice currently within Cisco, and we anticipate they will be expected behavior worldwide in the future.

Scope 3 Employee Commuting

Teleworking

The employee skill sets developed to reduce business air travel and the accompanying business processes and management practices are also used to reduce employee travel between home and work, as well as between buildings at a Cisco site. The wide availability of sophisticated collaboration tools within Cisco permits employees to become well versed in integrating these technologies into their daily business activities. Several Cisco technologies permit flexible working environments, including Cisco Virtual Office and Cisco OfficeExtend. Cisco Virtual Office is based on an 800-series Cisco Integrated Services Router providing secure, wired and wireless voice, data, and video service for small commercial offices or an employee's home. OfficeExtend is a simpler, remote wireless access point in the employee's home that provides secure communications to a WLAN controller at the company campus.

As shown in Table 11, employees have rapidly adopted Cisco Virtual Office, which includes an Integrated Services Router and IP phone, to effectively work remotely. Although telecommuting or working in a flexible office space does not directly reduce air travel, it does afford opportunities to become more proficient in using collaborative technologies. This proficiency can be applied directly to business activities where remote collaboration does reduce air travel.

Table 11: Cisco Virtual Office Installations in Employee Homes

As of End of Calendar Year	Total Installations (Cumulative)
2005	1,467
2006	5,006
2007	8,234
2008	9,214
2009	13,457
2010	16,449
2011	20,487
2012 (through July)	22,767

Electric Vehicle Charging Stations

Electric vehicles are becoming more common, particularly in locations where Cisco has major operations, including California and North Carolina. One of the biggest concerns that prevents people from purchasing electric vehicles is the limited range of the vehicles and the likelihood of running out of charge. Deployment of charging stations is progressing, with models that include public stations, stations affiliated with retail outlets, and for-fee charging stations. However, because charging is still a very time-consuming process (it takes approximately 2 hours to provide 50 miles of charge), the workplace is a logical place for charging stations.

Providing charging stations on our campuses for employees and guests has a few key benefits for Cisco. As an employee service, it can assist with employee satisfaction, recruiting, and retention. Supporting electric vehicle adoption also aligns with Cisco's Environmental Sustainability strategy and can help reduce Scope 1 emissions related to Cisco's fleet operations. Cisco installed its first electric vehicle charging station in FY11. By the end of FY12, the company will have installed a total of 23 stations available for use by Cisco employees and guests at no cost at several campus locations, including:

- San Jose, California
- Research Triangle Park, North Carolina
- Bedfont Lakes, U.K.
- Green Park, U.K.
- Netanya, Israel

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

Electric vehicle charging at Cisco (San Jose, California)

Additional stations and sites are planned and funded for FY13. Cisco has directly contributed to saving 4415 gallons of fuel, $11,204 in fuel costs, and 23,622 pounds of CO_2e in GHG emissions as a result of employees and guests using these stations in FY12. These figures are expected to increase as electric vehicles become more prevalent in society and as Cisco expands the number of charging stations in its real estate portfolio.

Employee bicycle sharing at Cisco (San Jose, California)

Employee Bicycle Sharing

In FY12, Cisco started a pilot employee bicycle sharing program at its Research Triangle Park campus. The program provides a quick, easy, and healthy way for Cisco employees and badged contractors to get around the RTP campus. It also gives our employees a way to reduce their individual GHG footprint while supporting Cisco's goal to reduce its overall GHG emissions. Users must first register for the program, and then they can use their mobile phones to check out a bike whenever they want to use one. Cisco will evaluate the program throughout FY13, and the company hopes to expand the program if employee participation remains high and program feedback is positive.

Scope 3 Life Cycle Emissions

Cisco's general use of life-cycle assessment (LCA) techniques was discussed in an earlier section. Carbon footprinting, the LCA specifically focused on the environmental impact from GHG emissions, is the subject of multiple standards activities as well as increasing numbers of channel partner, service provider, and end-use customer inquiries.

ISO 14040:2006 provides the principles and framework for life-cycle assessment as part of environmental management.

Cisco has adopted the five product life cycle stages defined by the GHGP in its 2011 Product Life Cycle Accounting and Reporting Standard, which is based on the ISO 14040-series standards:

1. Material acquisition and preprocessing
2. Production
3. Distribution and storage
4. Use
5. End of life

Cisco is committed to shaping our industry in this area through two avenues:

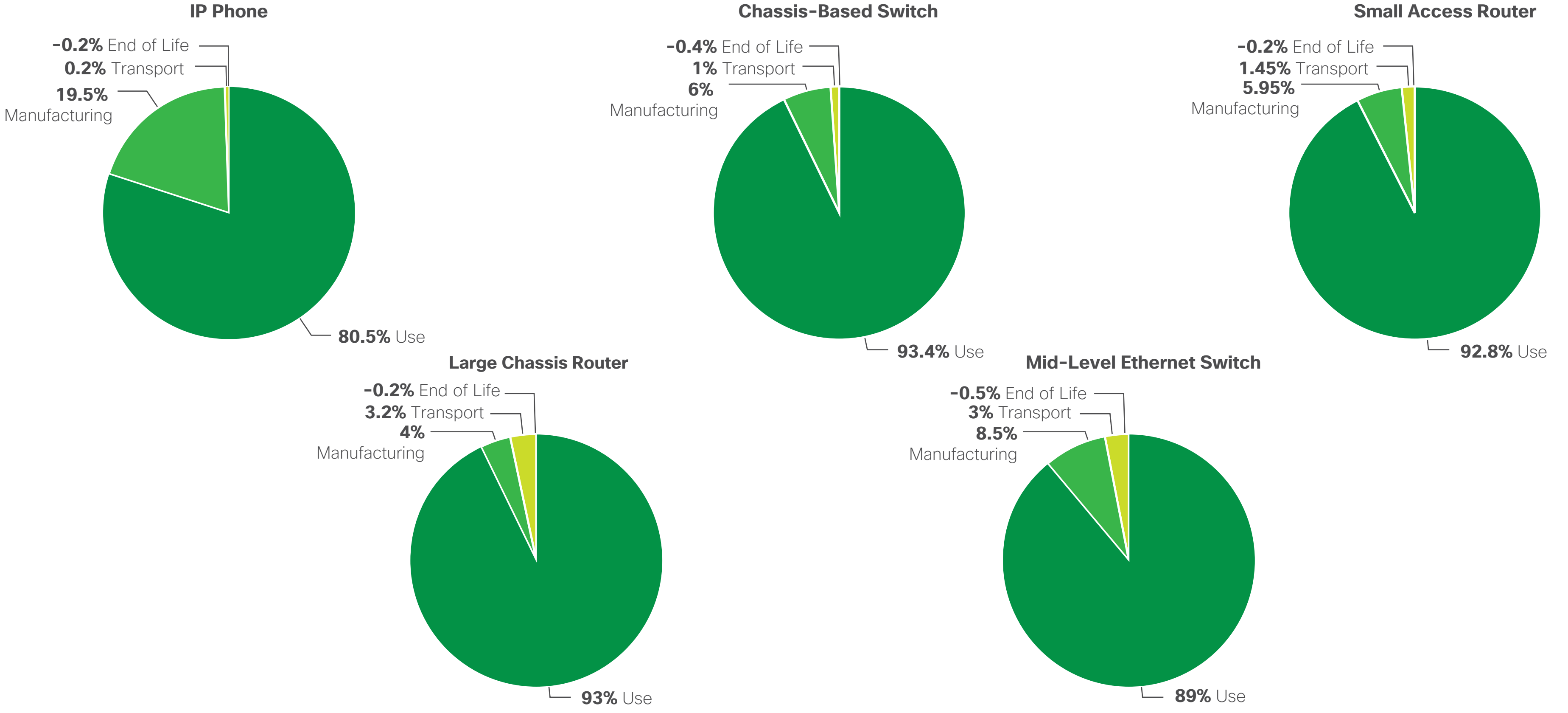
- Internal research to develop our capabilities
- Industry engagement

Our internal LCA studies have focused on our most common products, including IP phones, standalone switches/routers (which cover a substantial portion of our product line), and Cisco TelePresence. For many of our products, we have determined that the use phase accounts for between 80 and 90 percent of the carbon life cycle impact. (There may be as much as a 25 percent uncertainty in these values due to variation in assumed product use.) Global emissions factors can vary by a factor of three, which impacts emissions factors and use phase emissions.

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

Figure 3: General GHG Emissions Breakdowns of Cisco's Most Common Products



This analysis used a global average electricity emissions factor based on unit shipments. Larger-core routers and switches are even more heavily weighted to the use phase. For lower-power devices, especially consumer-premises equipment (CPE) that might have a shorter lifetime and might often be turned off or in a lower-power, nonoperation mode, the percentage of emissions from the use phase is lower.

In addition, Cisco has been increasing its capability to balance the complexity and time of performing LCAs.

Tools have been developed to speed up the bill-of-materials analysis portion of the electronic components of our products by 90 percent through automated analysis of our design files and standardized life cycle models while maintaining accuracy with manual analyses.

Cisco actively participates in ICT industry efforts that are working toward a common approach to assessing environmental impacts of products, including:

- GHGP Scope 3 and previously referenced product accounting and reporting standards
- GHGP Scope 3/Product ICT Sector Supplement (Cisco is a founding member and chapter editor and is participating in the European Commission's pilot for ICT Footprint)
- European Telecommunications Standards Institute (ETSI) LCA assessment of telecommunication equipment and service, DTS/EE-00014
- International Electronics Manufacturers Initiative (iNEMI) Eco-Impact Evaluator Project to develop a simplified LCA tool for ICT products (Cisco is co-editor)

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

- Massachusetts Institute of Technology (MIT) PAIA (Product Attribute to Impact Algorithm) program, which is developing a simplified, top-down carbon footprint methodology and is sharing data and best practices with iNEMI
- Sponsorship of Stanford University civil engineering graduate program project and MIT internship on sustainability

In FY12, Cisco has participated and presented in many forums on LCA, including:

- iNEMI Eco Impact Evaluator Article in *onBoard Technology magazine*
- Presented a lecture on LCA types and approaches for electronics for the University of Wisconsin at Madison
- Institute of Electrical and Electronics Engineers (IEEE) International Symposium on Sustainable Systems, 2012, Boston, "Life-Cycle Assessment of a Modular Router: Analysis, Uncertainty and Applications"
- MIT Global Leaders in Environmental Assessment and Performance, 2012, Boston, "Embracing Product Sustainability"

The collective intent of these efforts is to build and share knowledge, apply life cycle concepts to our product design and operations, build engagement with academia, and support the ICT sector in working toward practical and useful methodologies to assess the GHG emissions impact of our products.

Scope 3 Extended Operations Emissions (Supply Chain)

Cisco receives numerous inquiries from stakeholders concerning supply chain emissions. This interest is properly founded on the concern that GHG emissions "disappear" from Cisco's Scope 1 and 2 reporting when a business function, such as manufacturing or component supply, is subcontracted to a business partner. Cisco subcontracts the assembly of our final products and also relies on a worldwide network of component suppliers and logistics providers. These business partners, in turn, rely on additional supply chain partners to support their respective contributions to Cisco's products.

We ask our manufacturing partners and logistics providers to give us information regarding our share of their GHG emissions to help us understand the impacts related to our products and help suppliers reduce these, but currently fewer than half of our preferred component suppliers are able to provide this data. To address this information gap, Cisco utilizes life-cycle assessment techniques and software, discussed in the previous section, to understand the relative contributions of the various phases of product life.

To target supply chain emissions, we are using our business relationships to encourage our suppliers to report to CDP. In February 2011, Cisco asked approximately 1500 suppliers to report to CDP. It is Cisco's objective for preferred suppliers to:

1. Report carbon emissions through CDP annually (with 100 percent of suppliers reporting by FY13)
2. Set a GHG emissions reduction goal (by FY15)
3. Report Cisco's share of the supplier's GHG emissions (by FY15)

A follow-up communication to suppliers was sent in April of 2012 as one of our Cisco Supplier and Manufacturing Partner newsletters. An example of this communication that contains relevant excerpts is available in Appendix 2.

We recognize that not all partners can complete all three objectives in their first year of reporting. As such, we are currently tracking, via a subscription to CDP's Reporter Services software, what percentage of Cisco expenditures is with suppliers that report to CDP.

We currently are tracking CDP reporting KPIs from three categories of suppliers, as shown in Table 12.

We want to continue to push this approach to GHG reporting accountability to other categories of business partners. We will also start measuring against Cisco's objectives for preferred suppliers, which we outlined earlier in this report.

Table 12: Supply Chain Partners Reporting to CDP

KPI	FY07	FY08	FY09	FY10	FY11	FY12	Comments
· Contract manufacturing, by percent of spend	na	63%	82%	100%	100%	100%	Tier 1 partner. Goal: 100% (met).
· Approved Vendor List (AVL) components, by percent of planned spend	na	54%	59%	69%	69%*	80%	*FY11-specific metric unavailable; Tier 2 partner. Goal: 80% (met).
· Global transportation, by percent of spend	na	na	na	50%	50%*	93%	*FY11-specific metric unavailable; Tier 1 partner. Goal: 90% (met).

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

Scope 3 Logistics

Logistics, or the delivery of new products to our customers, is part of the transportation sector and includes shipment from our manufacturing sites to customers. This may encompass how products are packaged and delivered. The largest impact to Scope 3 emissions in product logistics comes from shipping by air. To minimize our impact from product delivery, we are taking the following approach:

- Where possible, Cisco uses a volume or multipack ("eco-pack" or "bundle pack") packaging solution, which continues to gain traction on several of our high-volume products. Multipack has been shown to reduce total packaging weight by up to 2 percent compared to its equivalent single-product packaging option. For volume products like our branch routers, where it is estimated that we ship over 4.5 million pounds of packaging each year, this can make a big difference.

Cisco's Aironet products are a great example of multipack success. In FY12, 40 percent of the Aironet products that offered multipack shipped with this option. This translates to an estimated 172 tons of avoided packaging use. In FY13, Cisco has committed to working with our customers to further improve this adoption rate, not only for the existing Aironet multipack but for all existing multipacks. For more information on Cisco's packaging efforts, see the Materials section:

- We continue to expand our electronic fulfillment (or "e-Delivery") capabilities on our software and licensing products to enable software, document, and license download options and to reduce materials included in packages sent. By the end of FY12, 76.9 percent of total software and licensing order lines were fulfilled electronically, representing 67 percent of their revenue, an increase of 34 percent and 37 percent respectively year over year. Electronic adoption of products offered both electronically and physically also rose 6 percent year over year, ending FY12 at 87.6 percent of the total available market. Of our top 50 customers in this space, 96.7 percent of their orders were fulfilled via e-Delivery. Overall, it is conservatively estimated to have saved over 46 metric tonne of material (paper, CDs, and packaging) in FY12 alone.
- In FY12, Cisco kicked off a massive effort to optimize transportation methods used for products traveling in between our global facilities. A careful refinement of our demand and supply practices on some of our highest-volume product lines led teams to convert air-based shipments to sea-based shipments whenever possible. The result was a staggering 96 percent reduction in CO_2 emissions for the impacted products.
- We are engaging with our transport and logistics partners to set expectations for sustainability performance, and we regularly measure and score our partners on environmental performance. Our transport partners have led the industry in sustainable solutions, which includes fleet upgrades and the introduction of biofuels. Our primary logistics partners with activities in North America are all U.S. EPA SmartWay-certified.
- We work closely with our transport logistics partners to develop more efficient means of transporting our products. This includes packaging reduction, which leads to package volume reduction and higher shipping efficiency, and also provides opportunities for shipping consolidation, which leads to fewer trips and the opportunity to use alternative modes of transport.

To promote sustainability in our supply chain, we need to have strong partnerships with our suppliers, and we must support them with public reporting and setting reduction goals. In the second half of FY11, we began scoring suppliers on providing sustainability performance data and any important initiatives that have led to reduction in the environmental impact of delivering our products. For more information on sustainability in supplier scorecards, see the Supply Chain section.

Scope 3 Product Use Phase (Energy Efficiency)

GRI EN6: Initiatives to provide energy-efficient or renewable energy–based products and services, and reductions in energy requirements as a result of these initiatives.

GRI EN26: Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation.

As global energy use has risen, so have GHG emissions. While the ICT industry accounts for only "2%" of the world's GHG emissions, its proportion is growing as adoption and use of technology expands globally. Product energy efficiency (or reducing our products' wasted energy usage) is a big issue for Cisco because of the number and type of energy-consuming products that we sell each year. Some of these devices are replacements; others are additive, contributing to the emissions from IT equipment. Throughout their life cycle, our products consume the largest proportion of energy, and release the most GHG emissions, during the use phase. Product energy efficiency has emerged as a key design criterion in our products in light of our increasing awareness of climate change issues.

Customers and regulators are increasingly requiring products that minimize energy costs and GHG emissions. Every year, the number of environmental sustainability–related inquiries from analysts, customers, shareholders, and NGOs continues to increase. Cisco tracks the energy-use regulations and certification programs of all countries in which we do business. Table 13 provides a broad overview by country of mandatory and voluntary energy-efficiency requirements and standards for products relevant to Cisco.

For these reasons, improving product energy efficiency represents more than just a regulatory requirement for Cisco; it is a significant opportunity for us to help customers save on energy costs, reduce global energy demand, and lower GHG emissions, in addition to making our products more competitive. Product energy efficiency is a key part of all product design and generation improvements at Cisco (see Design for Environment).

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

Advocacy and Standards Development

Cisco actively engages with governments and standard-setting bodies around the world to monitor and influence the development of emerging product energy-efficiency requirements, particularly around climate change. Cisco believes that product energy-efficiency standards can promote innovation by being performance-based; by taking into account product functionality; and by relying on objective criteria, real-world data, and system-level efficiency.

Cisco engages with regulatory and standards bodies, directly and as part of industry groups, to influence the development of standards and requirements that are clear and effective. This engagement includes Cisco's engineering, suppliers, facilities, compliance, regulatory

Table 13: Relevant Worldwide Energy-Efficiency Standards

	Cable Modem	Data Center	Display & TV	EPS & BC	Horizontal Standard	Mobile	PC & Tablet	Routers & Switches	Servers	Set Top Box
Argentina			●							○
Australia				●	●		○			●
California			●	●						○
Canada			●	●						●
Chile			○							○
China			○	○					○	○
Europe	○	○	●		●		○	○	○	
Hong Kong			○				○			
Israel					○					
Japan			○	○	○		●	●	●	
South Korea				●	○		○		○	
Mexico					●					
New Zealand				●						
Russia			○		○					
Switzerland			●	●	●					●
Thailand			○	○	○					
Turkey			●		●					
USA	○	○	●	●	○	○	○	○	○	●
Vietnam			●							

● **Mandatory requirements currently in effect** ○ **Voluntary standard or new standard under development**

Brazil and India are also delveloping their energy efficiency regulations

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

affairs, government affairs, and corporate affairs teams. We believe that these regulatory and standards activities, when done properly, bring clarity and consistency to the global marketplace and create predictable requirements and a level playing field that reduces risk.

Improving Product Energy Efficiency

Cisco is working to qualify its most efficient products with the U.S. EPA ENERGY STAR program. To date, the focus has been on set-top boxes: cable, satellite, Internet protocol, or other devices whose primary function is to receive television signals from a specific source and deliver them to a consumer display or recording device. ENERGY STAR–qualified set-top boxes are at least 40 percent more efficient than conventional models. According to the EPA, if all set-top boxes in the United States met ENERGY STAR requirements, consumer energy cost savings would grow to about $1.8 billion each year, reducing GHG emissions equivalent to those from more than 2 million vehicles. ENERGY STAR–qualified set-top box products are listed on the program website. Additionally, Cisco has been providing feedback to the U.S. EPA ENERGY STAR program regarding their ENERGY STAR specification for computers.

In 2009, Cisco was co-editor for several of the Alliance for Telecommunications Industry Solutions (ATIS) standards and Energy Efficiency of Telecommunications Equipment: Methodology for Measurement and Reporting standards, and specifically those regarding:

- Server and server blade (ATIS-0600015.01.2009)
- Transport/network systems (ATIS-0600015.02.2009)
- Router and Ethernet switch products (ATIS-0600015.03.2009)

Table 14: Energy Efficiency-Related Initiatives and Organizations

Organization	Area/Issue of Engagement
Alliance for Telecommunications Industry Solutions (ATIS)	Cisco is an active member of ATIS and engages with other member organizations to develop standards relevant to the telecom industry. In 2010, Cisco took a lead role in the development of the Telecommunications Equipment Energy Efficiency Rating, or ATIS TEER, standard for the measurement of product energy efficiency.
Minimum Energy Performance Standards–MEPS (Australia and Korea)	Energy performance requirements and maximum power consumption of standby modes.
European Telecommunications Standards Institute (ETSI)	Cisco is engaged with ETSI in the development of standards for energy efficiency.
Electronic Industry Citizenship Coalition (EICC)	Cisco is a major contributor and signatory to the Broadband Code of Conduct.
EU/EuP (Europe)	Cisco is an important stakeholder that helps with the development of energy using product (EuP) regulations and voluntary agreements for Europe.
International Telecommunication Union–ITU (worldwide)	Cisco is a major contributor to the ITU-T SG5 Lead Study Group on ICTs and climate change. Cisco presented to ITU the ATIS TEER methodology, which was then incorporated into Measure L, energy-efficiency metrics and measurement for telecom equipment, creating the opportunity for a single worldwide metric.
Ministry of Economy, Trade and Industry–METI (Japan)	Minimum energy efficiency requirement for networking router and switch product groups.
U.S. Department of Energy (DOE), Environmental Protection Agency (EPA), Green Grid	Cisco has been actively working with the EPA to define ENERGY STAR standards for networking equipment. Cisco provided the initial framework about four years ago. Since then, Cisco has actively worked with Lawrence Berkeley National Labs, the EPA technical arm, on measurement methodologies and metrics. Cisco routinely provides feedback to these organizations on best practices, draft standards, and actual power measurement procedures for relevant products.

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

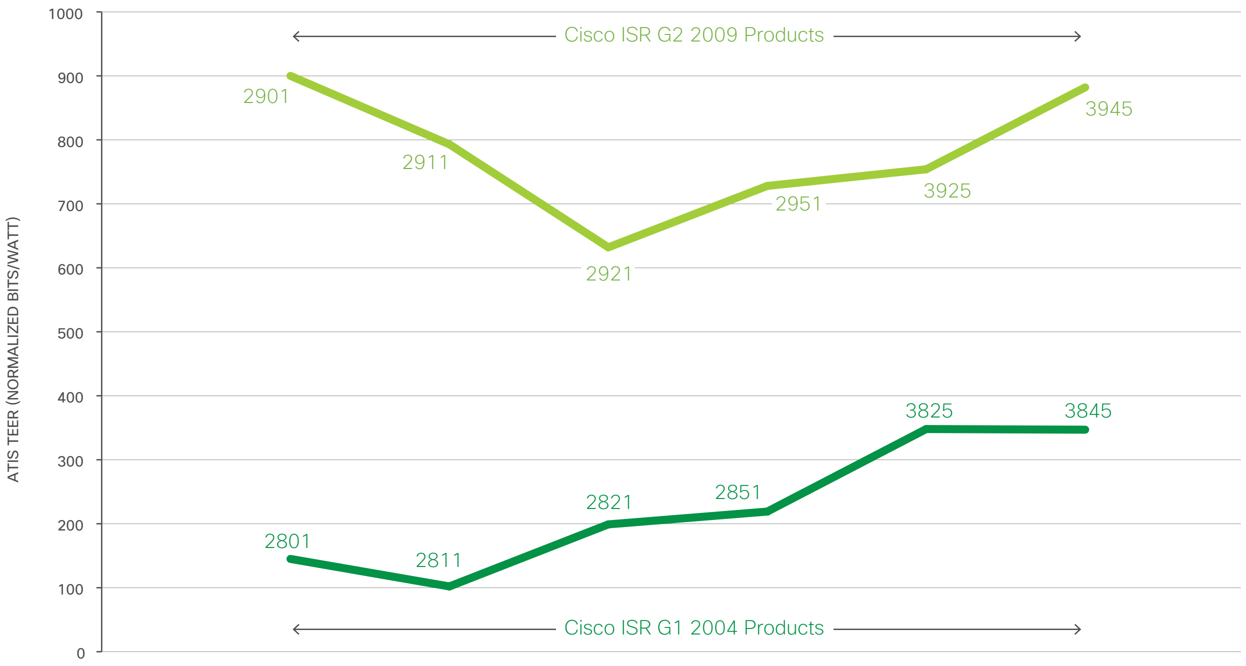
These ATIS TEER standards created a framework for measuring product energy usage that takes into account product functionality and uses real-world loads to determine energy efficiency. This is important because it allows companies like Cisco to compare energy-usage design improvements from product generation to generation, and it helps consumers make more informed purchasing decisions.

Cisco is in the process of applying the router and switch standard to develop energy profiles for products within the enterprise and ISP router and switch product family categories. Representative models have been tested from each of the product families listed in Table 15.

Table 15: Cisco Product Families Tested Using the ATIS TEER Methodology

CRS1	Catalyst 2800
CRS3	Catalyst 2900
GSR	Catalyst 3800
ASR 9000	Catalyst 4500
15454	Catalyst 6000
Nexus 7000	Catalyst 6500
Catalyst 1900	

Figure 4: Energy Efficiency Performance Improvements Between Two Generations of Cisco Integrated Services Routers



The products tested make up approximately 90 percent of Cisco products in ATIS TEER scope. In 2010 and 2011, we collected baseline performance data for a representative product from each category listed in Table 15. The goal is to measure products as new generations are released to gauge improvement between generations.

Figure 4 presents performance improvements per watt consumed from a selected sample set of Cisco products for which first- and second-generation energy performance was measured using the ATIS TEER standard. This is the same data used in our 2011 CSR Report, as next-generation products have not yet been released in other product lines. The results show that across the products measured, there was roughly a threefold increase in normalized bits-per-watt performance between the two generations of products.

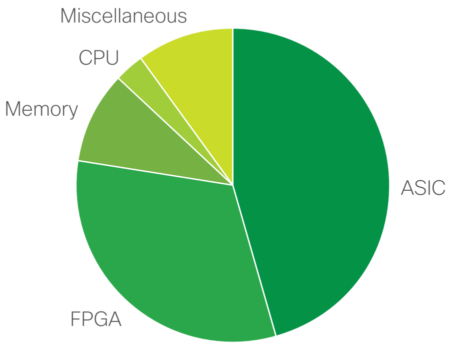
From 2006 to 2010, Cisco was a major force behind Energy Efficient Ethernet (IEEE 802.3az), which specified an industry standard protocol to allow networked devices to save energy based on utilization. In 2011, Cisco proposed and initiated a project to add a similar energy efficiency protocol for ultra-high-speed network interfaces within the project for enhanced 100Gbps operation (IEEE P802.3bj).

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

Cisco is working to reduce energy demand by cutting the power used by the Application-Specific Integrated Circuits (ASICs) found in most Cisco products. ASICs are designed for a particular application in a particular product. Lower-cost, higher-volume products that Cisco sells use off-the-shelf OEM-designed ASIC chips. For the enterprise and data center switches (Cisco Nexus and Cisco Catalyst series), Cisco designs its own ASIC chips. As shown in Figure 5, ASICs consume a significant percentage of board-level energy consumption.

Figure 5: Example of Board-Level Energy Consumption by Function



Cisco is developing energy savings approaches for these chips that include:

- Feature-based energy management: ASIC chips are often developed to be rich in features and capability so they can be used in a large number of product models. Cisco is developing new ASIC chips that are configurable to the specific features within the product using such ASIC chips. As an example, such a chip would not draw the power needed to manage 48 ports when it is placed in a 24-port switch.
- Voltage scaling: To compensate for the performance variation inherent in manufactured products, Cisco is scaling, or adjusting, the energy consumed by ASICs to achieve performance standards and minimize energy consumption. Cisco is adjusting the ASIC chip energy requirement (up and down) to compensate for any manufacturing variation in performance.
- Adaptive power management: This enables an ASIC to actively manage the energy it requires based on the load of work it is processing

These ASIC energy-management mechanisms will soon be available to designers to drive down the energy requirements for devices. These refinements have been shown, in lab tests, to reduce energy consumption between 10 and 30 percent.

Cisco has included a requirement in our product requirements document that power supplies be at least 85 percent efficient. Power supplies are the devices that power computers, servers, and other electronic devices. They convert AC power from electrical plugs into DC power typically used by ICT equipment. In FY12, all new power supply awards that fall within the scope of the 80 PLUS certification were rated silver or higher. The 80 PLUS performance specification requires multi-output power supplies in computers and servers to have 80 percent or greater energy efficiency at 20 percent, 50 percent, and 100 percent of their rated load. As an example, improving the efficiency of the power supply for our Cisco Catalyst 6500 Series Switch from 80 to 90 percent can provide an annual savings of more than 3500 kWh. For more details on how we cut power use for the Catalyst 6500 Series, see the Cisco website.

Power supply efficiency addresses only a portion of the problem. Often in the electronics industry, power supplies are not designed for the specific operating parameters of individual products. Thus, the power supply is operating at a low utilization, and products end up using power supplies that manage and use more energy than the products require. Cisco sees this as an opportunity to specify the actual range of power demands for a given product and then design the power supply to manage and provide power within this range. Members of Cisco's product design teams are engaged in efforts, such as the Climate Savers Computing Initiatives within the Green Grid industry consortium, to identify the best approaches to resolving these problems.

Scope 3 Product End of Life

The last product life cycle phase defined in the GHGP Product Life Cycle Accounting and Reporting Standard is end-of-life (EOL) management. There are minimal emissions associated with this life cycle phase, and most of them are connected to the transport of the returned product and the recycling process. The largest opportunity for reduction of GHG emissions from recycling is in reducing upstream emissions.

As Cisco introduces initiatives to increase the return of used or EOL products, we will need to study the relative environmental impact of earlier or later product retirement. Energy efficiency improves with each product generation, so earlier product retirement can decrease overall emissions since the use-phase emissions dominate the product life cycle. However, creating new products introduces other environmental impacts. A similar dynamic exists in the auto industry. Overall, is it better to retire a relatively new 30-mpg car for a 50-mpg car? We will use LCA techniques to inform our strategy in this area.

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

Benchmarking GHG Emissions Reduction Goals

Figure 6 places our 25 percent reduction goal in the context of the 80 percent goal for developed countries highlighted by the Intergovernmental Panel on Climate Change (IPCC).

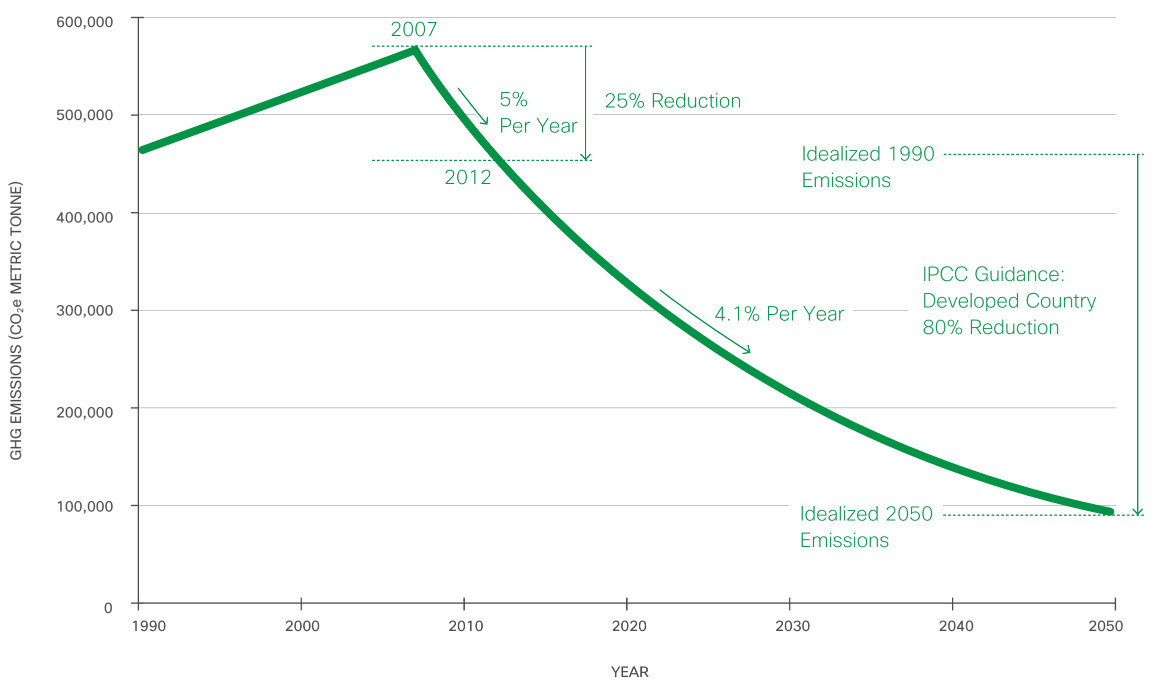
To estimate Cisco's 1990 emissions levels for Figure 6, we assumed the average worldwide rate of emissions growth from 1990 to 2007 and calculated a generic 1990 baseline. Cisco's actual 1990 energy consumption data is not available because it was not collected, and it would be unrealistic to use this data as a baseline given how rapidly our business has grown. Our FY1990 revenue was only 0.2 percent of FY09 revenue. More discussion will be needed in FY13, informed by COP17, to better understand how emissions allocations for developed and emerging countries will affect expectations for Cisco's next reduction goal.

Cisco will continue to develop products that leverage network technologies and implement the recommendations of the SMART 2020 report. Roughly 75 percent of energy-related GHG emissions are from buildings and transportation. By advancing the Cisco solutions discussed in this section, we are well positioned to reduce not only our own building and transportation emissions, but also the aggregated emissions of our customers.

The Enabling Effect–The 98%

In the previous sections, we provided an overview of our Scope 1, 2, and 3 emissions from our own operations and offered metrics for addressing the emissions of our supply chain as well as other phases of the product life cycle. An additional consideration when assessing the carbon footprint of a product or service over its life cycle is the so-called enabling effect. The term "enabling" is used where ICT sector products and services can be used to achieve reductions in GHG emissions in other industry sectors. For example, high-definition videoconferencing (ICT sector) can be used to simulate face-to-face interaction and avoid air travel (transportation sector), or energy monitoring and control of IP-enabled devices (ICT sector) can be used to reduce energy consumption in buildings (real estate, industrial sectors).

Figure 6: Idealized Greenhouse Gas Emissions Reduction Model



< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

According to data from the International Energy Agency (IEA) and U.S. Energy Information Agency (EIA), summarized in Figure 7, about 75 percent of energy-related GHG emissions are from buildings and transportation.

Although the use of ICT products such as computers, data center devices, and network equipment consumes energy, there is substantial opportunity to use ICT products to reduce global energy-related GHG emissions and make the world more energy efficient. In FY09, Cisco sponsored and contributed to the SMART 2020 report, which identified opportunities for the ICT sector to develop and apply network technologies to reducing annual GHG emissions by 15 percent, which is a substantial positive impact considering that the ICT sector was projected to be responsible for only 3 percent of global emissions in 2020. Potential abatements are concentrated in the areas of transportation, buildings, power/energy, and industry. Innovative application of network technologies promotes change through our solutions, our products, and our operations.

The GHGP Scope 3/Product ICT Sector Supplement mentioned previously is intended to fully develop this methodology for use by practitioners in the field.

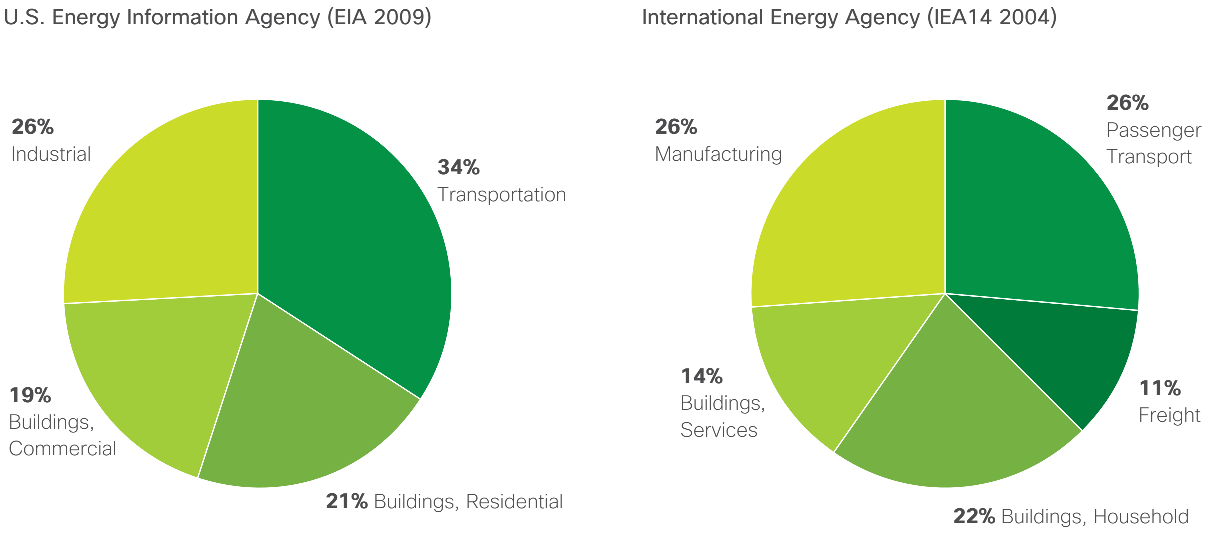
Cisco customers are looking for ways to reduce their energy-related costs and their carbon footprint. This creates market opportunities for Cisco. Cisco is researching, developing, piloting, and delivering network technologies that can help reduce GHG emissions by:

- Offering low-carbon ways to avoid business travel and employee commuting: Customers are rethinking their behaviors and finding innovative, network-enabled alternatives, such as web-based collaboration as an alternative to travel, and teleworking as an alternative to daily commuting.
- Providing connected energy management: Customers can employ the network to measure, monitor, report, and plan for greater energy efficiencies.

At Cisco, we are developing solutions for both mitigating and adapting to climate change. We are looking for ways to increase energy productivity and energy efficiency, which helps reduce avoidable emissions by slowing growth in energy demand and reducing the rate of increase in global GHG emissions from increasing energy use. Cisco data center virtualization technologies, for example, significantly reduce the number of data center components. Using fewer components means less electricity is used to operate both the ICT equipment and the HVAC equipment used for data center cooling. Using few components also reduces emissions due to the manufacture of underutilized equipment.

Cisco recognizes that the application of technology alone will not result in a drop in emissions. Changes in culture, management practices, and business processes are also needed to achieve the full potential of the technology. However, this evolution to collaborative technologies, smart buildings and work spaces, and connected energy management creates additional benefits, including faster decision-making, improved cross-cultural communications, broader dissemination of information around the world, and increased ability to efficiently deploy scarce internal resources.

Figure 7: Industry Sector Breakdown of Greenhouse Gases from Energy Use



Subsequent sections of this report highlight Cisco customer solutions and research and development programs that not only address the key sources of energy-related GHG emissions shown in Figure 7, but also address the challenges associated with adapting to climate change.

Transportation

There are two use cases that employ Cisco remote collaboration technologies: avoiding business air travel and avoiding employee commuting.

The figure in Appendix 3 depicts the business-as-usual meeting (requiring travel) and the remote collaboration meeting (utilizing ICT) that provides voice, desktop sharing, and high-definition video among multiple locations.

The increasing interoperability of our remote collaboration products, such as Cisco TelePresence, Cisco WebEx, and Tandberg, further extend the potential for remote collaboration. For instance, Tandberg devices and Cisco TelePresence products can both be endpoints in a single meeting.[1] WebEx can be connected to a Cisco TelePresence meeting so that WebEx attendees who may not be near a Cisco TelePresence room can participate in the meeting. Cisco TelePresence exchanges, similar to telephone switchboards, are now in place with partners such as AT&T, BT, and Tata so that Cisco TelePresence calls can be made both within a single company and between companies through the exchanges.

The figure in Appendix 4 depicts the second use case for transport substitution: business-as-usual employee commuting (requiring travel) and teleworking using many of the same technologies used to avoid business travel (plus high-definition, video-capable broadband in the home). The left side of the figure depicts car, bus, and rail commuting to a multi-building campus. The teleworking depiction on the right side of the figure shows a campus with fewer buildings, augmented by employees working from home or from nearby satellite offices used by one or more companies.

Several calculators have been released to estimate the enabling effect of Cisco solutions. Cisco has developed calculators for Remote Collaboration, Cisco Virtual Office/Telecommuting, Connected Buildings, and Connected Workplace. We've collected these interactive calculators into a single PowerPoint file. Each calculator has eight or nine tabs at the top that are accessible when in full-screen mode and are divided between inputs (on left) and results (on right). Results are net emissions. The input tabs and the provided DOMANI validation letters provide an explanation of assumptions. There is also a web implementation of the telepresence tab of this spreadsheet. An additional standalone web-based calculator for telepresence has also been released for mobile phones and web browsers.

Because of the need for additional, dedicated equipment, Cisco carefully studied the energy/GHG cost of the Cisco TelePresence operation. Most of this cost is from operation of end-user equipment (screens, lighting, and local electronics), the local HVAC system, and vampire loads. Several orders of magnitude less power is used by network aggregation and backbone functions, as shown in work partly sponsored by Cisco (IEEE, UCSB).

Buildings

LEED Accreditation

Where Cisco products can be shown to save energy, provide an innovative solution to an energy problem, or both, these products can contribute to achievement of LEED credits under certain LEED rating systems. For example, under LEED v3 Commercial Interiors, EAc4.4 Optimize Energy Performance, Equipment and Appliances, credit is given to appliances if they are specified with an ENERGY STAR label. Cisco ENERGY STAR servers will meet these criteria. Additionally, equipment like the Cisco EnergyWise management system can also help achieve credit in multiple rating systems if it can be shown to contribute to overall energy savings at a building level. For example, if a customer uses the EnergyWise software and calculates that it contributes to an 18 percent cost savings, those savings can be included in an Energy Model, which is required in the LEED NC rating system for New Buildings. Those savings would also potentially improve the ENERGY STAR score of an existing building, which helps achieve a LEED EB (Existing Buildings) rating.

Virtualization and Cloud Computing

According to a Forrester Consulting study commissioned in 2009 by VMware, firms initially deployed virtual servers to improve hardware utilization. Today, these firms cite improved power and cooling efficiency as the motivation to adopt virtualization technology. Cisco data center solutions achieve resource savings of up to 70 percent through virtualization.

At the Cisco Efficiency Assurance Program website, information on power consumption can be found in the "planning" box, and the calculators and planning tools are midway down the list of choices. A tutorial on the calculator is available. A product-specific calculator for the ASR 1000 Aggregation Services Router for service providers is also provided.

In FY11, Cisco opened a green data center in Allen, Texas, with an architecture deploying Cisco's entire data center technology portfolio spanning computing, switching, and data storage access to support Cisco's internal private cloud. All of these technologies are available to our customers to improve the efficiency of their data center operations.

---

1. Cisco has combined all videoconferencing equipment under the Cisco TelePresence name.

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

This data center incorporates numerous features to reduce environmental impact:

- The uninterruptible power supply (UPS) room in the 5 MW data center (expandable to 10 MW) uses rotary flywheels, which require little energy to continue in motion, to start the diesel generators in case of power loss, instead of the hundreds of batteries typically used in older data centers.
- The data center is cooled by an air-side economizer design that reduces the need for mechanical chilling by using ambient air when the outside temperature is low. Cisco calculates the facility can use filtered, unchilled outdoor air 65 percent of the time, saving an expected $600,000 per year in cooling costs.
- A lagoon captures rainwater to irrigate the indigenous, drought-resistant landscape plants
- Solar cells on the roof generate 100 kW of power for the office spaces in the building
- Cisco received LEED Gold certification for the data center in early FY12

The data center is designed to achieve a Power Usage Effectiveness metric of 1.35. This metric was developed by the Green Grid industry consortium to measure the efficiency of data center facility design. An interview showing various features of the data center was done by Data Center Knowledge in June 2011. The data center is paired with a second one in Richardson, Texas, to form what we call a Metro Virtual Data Center. Together, the data centers form a virtualized, dynamic IT services cloud, and they serve as backup sites for one another. This enables both data centers to run real-time critical applications, such as Cisco WebEx, simultaneously in both places for world-class business resiliency.

This next-generation data center tightly integrates Cisco Unified Fabric, Unified Computing, and Unified Network Services into a holistic data center fabric designed to be simple, scalable, and highly secure and to deliver any application across to any location, within the data center, across data centers, and to the cloud.

Cisco EnergyWise

Cisco EnergyWise is an energy management technology that allows organizations to report and reduce the energy use of all IP-enabled equipment. Cisco EnergyWise is embedded in our switching and routing portfolio and helps improve operational efficiency and to reduce energy costs and GHG emissions across the corporate infrastructure, potentially impacting any powered device. EnergyWise is a part of Cisco IOS software, but interfacing hardware is upgraded to enable the hardware to understand EnergyWise commands. The purpose of EnergyWise is to control power-over-Ethernet at the switch or, if the end-user hardware device has also been upgraded, at the end-user device itself.

Brunel University in West London and the Council Rock School District in Newtown, Pennsylvania, were both outfitted with SMART technologies, including Cisco EnergyWise. EnergyWise was used to control switches, WAPs, IP phones, PCs and laptops, IP cameras, IP-enabled projectors, and electronic whiteboards. Through the use of EnergyWise-enabled products, these institutions were able to save $140,000 and $200,000 annually in energy costs. This kind of reduction is thought to be possible in most buildings (and homes).

Through our developer network, Cisco has partnered with several vendors of EnergyWise-compliant power distribution units (PDUs). Each plug of the PDU is individually addressable for EnergyWise instruction and for power monitoring. Because almost every energy-using device has a power cord, EnergyWise-compliant PDUs are a universal means for power monitoring and device control, regardless of vendor or date of manufacture.

Cisco EnergyWise won the Best of Interop 2009 award in the Green category for leadership in improving corporate energy efficiency and for lowering operational costs with its energy-management architecture. For the average-sized Cisco customer, EnergyWise has the potential to reduce energy usage by 20 percent in the first phase of deployment and to realize significant cost savings. A calculator for estimating energy savings is available on the Cisco website.

As part of Cisco’s commitment to open standards and energy savings, Cisco has led a new working group within the Internet Engineering Task Force (IETF) to apply the principles used in EnergyWise in an open and interoperable manner that may be used without restriction by any developer in the industry.

Examples of EnergyWise product footprint, partnerships, and implementation growth in FY12 are:

- As of FY12, there are 30 EnergyWise partners actively selling the product
- In FY12, we created a program to make the benefits of EnergyWise more easily accessible. With the purchase of Cisco Catalyst 4500, 3750, or 3560 series switches, an EnergyWise software license is provided for use with Joulex, Nimsoft (CA Technologies) or Verdiem software.
- Cisco partnered with Xerox to develop a simple network management protocol (SNMP) translation to control printers using EnergyWise and any SNMP-capable device

Watch the Video! Cisco EnergyWise gives companies a global view of energy management. Energy use can be controlled through the network, delivering economic and environmental savings.

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

- Cisco partnered with Joulex and NuLeds to demonstrate LED lighting control via EnergyWise
- Cisco launched an energy-optimization service (EoS) in advanced services to allow customers to get energy services (audits and controls) directly from Cisco using EnergyWise
- Internally we launched the lab energy services using EnergyWise on PDUs to monitor the energy of labs across Cisco

Cisco Connected Workplace

Cisco Connected Workplace is a flexible work environment designed to support employee mobility and improve collaboration by providing a variety of workplace settings and enhanced technology tools. The initiative takes advantage of the fact that workplaces today are vacant up to 60 percent of the time because people are working away from their desks, collaborating formally and informally in person, and using rich remote technologies such as Cisco WebEx and Cisco TelePresence.

Cisco Connected Workplace case studies show reduced costs associated with real estate, furniture, workplace services, and IT infrastructure. Such environments typically support 30 percent more employees than a traditional layout, thereby substantially reducing footprint demands and associated costs.

Utility/Smart Grid

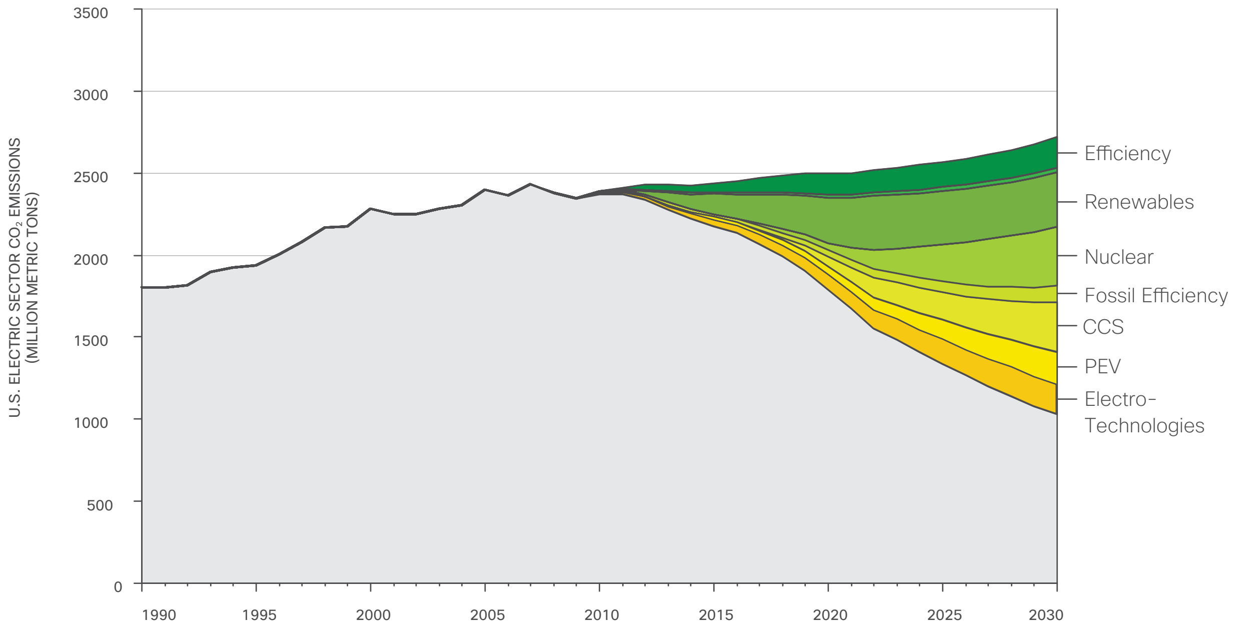
Energy-related carbon dioxide emissions from the generation of electricity are about 40 percent of total energy-related GHG emissions. That is, industrial processes, buildings, and some transportation are powered directly by electricity and total about 40 percent of all energy-related emissions. Therefore, efficiency improvements in delivering electricity have significant potential to reduce GHG emissions.

In the electricity industry, the pace of change and opportunity for disruption is accelerating. Thirty years of energy policy and industry structural changes are combining with accelerated social and technological evolution. This is creating significant pressure for fundamental changes in the design, operation, structure, and regulation of the electric industry. Strategies to aid these changes require alignment among policy, economics, and technology in what Cisco calls Gridonomics.

Improved network infrastructure will help utility companies optimize power supply and demand by routing power more efficiently and by allowing demand-side management and two-way, real-time information exchange with customers. This information is critical for implementing dispersed renewable generation and adding plug-in hybrid and electric vehicles to the utility grid. An Electric Power Research Institute (EPRI) report projects the role of both technologies in the low-carbon electricity mix through 2030, as shown in Figure 8.

Figure 8: Contribution of Renewables and Plug-in Electric Vehicle (PEV) to Projected Future Energy Supply

Low-carbon generation enables electrification and CO_2 reductions in other sectors of economy



< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
> Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

Renewables and plug-in electric vehicles (PEVs) are seen to constitute a significant part of the projected generation mix in 2030, but only if enabled by smart grid technologies.

Combined with smart meters and time-of-day pricing, customers will see how power is being used to influence behavior to reduce energy consumption or shift demand in time to permit use of lower-carbon sources of electricity. Pilot projects, including a 2010 report sponsored by the U.S. Department of Energy Pacific Northwest Laboratory, have shown a 10 to 15 percent reduction in household energy use with smart grid technologies. Cisco is partnering with General Electric, Florida Power & Light, and Silver Spring Networks on Energy Smart Miami, a pilot for a comprehensive smart grid deployment. Cisco is participating in the Pecan Street Project to make the city of Austin, Texas, a test bed for clean energy and smart grid goals. Cisco is also a member of the GridWise Alliance, advocating for the adoption of smart grid technologies.

Integrated Solutions

Smart+Connected Communities

Cities currently account for a significant percentage of the world's GHG emissions. Cisco has launched the Smart+Connected Communities initiative globally to take advantage of the leadership, ideas, and solutions incubated by the Connected Urban Development program and to promote economic, social, and environmental sustainability to our customers around the world. Cisco's Smart+Connected Communities is a global initiative that uses the network as the platform to transform physical communities into connected communities that are run on networked information. The initiative is leveraging the network to deliver integrated offerings across real estate, transportation, safety and security, utilities, health, education, and government to improve community management, economic growth, citizen quality of life, and sustainable development.

A range of additional material is available on our Internet Business Solutions Group website concerning the role of the network in creating sustainable cities. A Forbes article provides an overview of the potential impact of IT on city development and living.

Planetary Skin

Two powerful trends are reshaping the world. The first trend is resource scarcity, which is the result of an explosive growth in demand for resources (water, energy, food, fiber, minerals) as growing populations with rising incomes push against increasing constraints on the supply of these resources due to environmental degradation, land use change, increasing variability of weather conditions and resource productivity, and the threat of catastrophic climate change. Further complicating this trend are the complex trade-offs in and between the different resource classes embedded in the land-water-energy-food-climate nexus. The second trend is data abundance, which is created by an increase in low-cost sensor networks and network-enabled data collection systems, the explosion of social media data, and data mining capabilities. Planetary Skin Institute (PSI) aims to address the challenge posed by the first trend with the opportunity presented by the second.

PSI is a global nonprofit research and development organization, initially incubated by Cisco and NASA, that aims to improve the lives of millions of people around the world by developing risk- and resource-management decision services. PSI collaborates with research and development partners to incubate replicable and scalable innovations that can significantly increase the resilience of communities; increase food, water, and energy security; and protect key ecosystems and biodiversity.

PSI aims to support the efforts of communities, governments, businesses, think tanks, international funding organizations, academic institutions, and other stakeholders by creating open-platform capabilities and tools that meaningfully advance the world's resource- and risk-management capabilities. PSI is committed to the development of global public goods that address the resource scarcity challenge, reduce the complexity of the water-food-energy-land nexus, and address the increasing impact of weather extremes. See more details on the Planetary Skin Institute website.

< Previous View

Environment

Overview

Cisco Environmental Sustainability

Materials

Energy and GHG Emissions

> Water Use

Biodiversity and Land Use

Non-GHG Emissions

Effluents (Liquid)

Waste

Water Use

GRI EN8: Total water withdrawal by source.

GRI EN9: Water sources significantly affected by withdrawal of water.

Because our headquarters are located in California, where water rights and usage are a significant issue, Cisco has always been conscious of water use in our operations. Since FY07, Cisco has been collecting water data for our major campus locations. Using the World Business Council for Sustainable Development water tool, we believe that three of these sites are located in water-scarce areas and that two sites are in water-stressed areas. Key objectives of Cisco's water management program are to:

- Identify and respond to site-level water conservation opportunities for our operations
- Work with partners such as local governments, water utilities, and owners of our leased buildings to pursue and replicate best practices in our operations and beyond

Cisco's primary water impacts come from office building potable water and sanitation, landscaping, and cooling towers. In FY12, we have continued measuring our water use so we can better understand the impact of our programs, and we integrated a new Sustainability Information System (SIS) that has greatly improved our ability to track water consumption data for the majority of our real estate operations. Given the size and geographic dispersion of our operations, this has been a challenging task, as many of the locations where Cisco shares a building with other tenants do not have water sub-meters installed. In FY12, we were able to increase the collection of water data to 71 percent of our total real estate portfolio by area, as shown in Table 16.

We are minimizing our water impacts through innovative strategies for reduction and reuse. Although our efforts to date have recognized the importance of a locally relevant approach to water management, we are now acting to institutionalize water management systems. Wherever appropriate, Cisco reduces water consumption within the operation of its buildings and uses reclaimed water for landscaping and similar applications. Over the years, we have been able to make many changes to our landscaping practices while creating attractive and inviting landscapes for our customers, employees, and our surrounding communities.

Throughout our campus locations in FY12, we have continued to support and maintain a number of water conservation initiatives that were started as early as FY08, including:

- Utilizing irrigation controllers throughout the San Jose main campus
- Using recycled water for irrigation and fountain displays
- Installing variable-frequency drives in our cooling towers
- Installing two-way valves for toilets, sink aerators, low-flow shower heads, and pre-rinse spray valves for kitchen sinks
- Converting decorative fountains into landscaped beds planted with native drought-resistant plants
- Replacing turf with planter beds that require little water, and installing drip irrigation lines to improve irrigation efficiency
- Utilizing a water harvesting system at our Bangalore, India, campus to capture rainwater for filtering and use

We mitigate our impacts in water-scarce areas by incorporating resource constraints into our local office building and data center development plans. Cisco seeks to site our operations in areas where we can most successfully serve our customers while minimizing negative environmental impacts.

It is important to note that because the production of electrical power is one of the largest uses of fresh water worldwide, the largest opportunity for Cisco to reduce our impact on water resources is by continuing to make our operations, our suppliers' operations, and our products more energy efficient.

Table 16: Water Use

KPI	FY07	FY08	FY09	FY10	FY11	FY12	Comments
Total water use, m^3	1,725,618	1,570,831	1,690,348	1,753,269	1,763,536	1,908,953	Includes irrigation (where used) and potable water
Real estate portfolio covered by water reporting	59%	58%	65%	67%	68%	71%	

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
Energy and GHG Emissions
Water Use
> Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
Waste

Biodiversity and Land Use

GRI EN11: Location and size of land owned, leased, managed in, or adjacent to protected areas and areas of high biodiversity value outside protected areas.

GRI EN12: Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.

GRI EN13: Habitats protected or restored.

GRI EN14: Strategies, current actions, and future plans for managing impacts on biodiversity.

GRI EN15: Number of International Union for Conservation of Nature (IUCN) Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.

GRI EN25: Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff.

At Cisco, land use for facilities and office-based operations represents our primary impact on biodiversity. Cisco mitigates our impact by reducing the demand for physical office space. Cisco employee telework programs and other support solutions, such as Cisco Connected Workplace, Cisco Virtual Office, and OfficeExtend, are instrumental to our strategy. The flexibility of Cisco Connected Workplace and Cisco collaboration technologies reduces the demand for office space by more efficiently using existing space and enabling employees to work remotely while remaining productive. As mentioned previously, a space using Cisco Connected Workplace could accommodate approximately 30 percent more employees compared to a traditional office layout, substantially reducing office space and land use requirements and the associated impacts on the environment (see Table 17).

Cisco actively evaluates the biodiversity and land-use impacts of potential facility sites through environmental impact assessments required for permitting. In addition, Cisco generates an annual biodiversity summary report that summarizes GRI EN11-15 and EN25 for all existing Cisco owned land and property. For example, in Alviso, California, Cisco has a 20.4-acre parcel of land that is a protected habitat for the burrowing owl (ICUN Redlist Category Least Concern) and a rare plant species (Congdon's Tarplant). Protection activities that Cisco has implemented on this land include the following:

- Developing and implementing a wetland mitigation plan that created 0.77 acres of wetlands in the habitat preserve area and establishing a five-year monitoring program and maintenance program
- Implementing a rare plant species mitigation plan to protect Congdon's Tarplant. This plan requires seed collection and replanting within the habitat preserve area and ongoing maintenance over a five-year period.
- Implementing a burrowing owl mitigation plan that required preconstruction surveys for burrowing owls and the installation of 12 artificial burrows in the habitat preserve area, habitat maintenance measures to encourage owls to relocate to and remain in the preserve area, monitoring during construction activities, and a permanent perimeter fence around the preserve area
- Locating grazing cattle on this habitat preserve area as a method of weed abatement and soil compaction to help facilitate wetlands establishment

Table 17: Biodiversity and Land Use

KPI	FY07	FY08	FY09	FY10	FY11	FY12	Comments
Percent of real estate portfolio with biodiversity assessment	not reported	not reported	not reported	65%	63%	61%	Includes International Union for Conservation of Nature (IUCN) Red List and national conservation list species with habitats in areas affected by operations. Owned property.

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
Energy and GHG Emissions
Water Use
Biodiversity and Land Use
> Non-GHG Emissions
Effluents (Liquid)
Waste

Non-GHG Emissions

GRI EN19: Emissions of ozone-depleting substances by weight.

GRI EN20: NOx, SOx, and other significant air emissions by type and weight.

Because most of Cisco's production is outsourced to supply chain partners, our global operations primarily consist of standard office activities and research labs. This limits our non-GHG emissions to volatile organic compounds (VOCs) from occasional use of cleaning products, nitrous oxides (NOx) and sulfur oxides (SOx) from onsite fuel combustion, and the subsequent development of ozone from the photochemical reaction of NOx.

Table 18 summarizes other airborne emissions: VOCs, NOx, SOx, and particulate matter. NOx and SOx emissions originate from the combustion of fossil fuels in vehicle engines, boilers, or emergency generators that are occasionally tested onsite. These emissions are calculated based on fuel consumption collected in the past three fiscal years. As Cisco is working on reducing overall GHG emissions, we expect a proportional reduction of NOx and SOx emissions across our operations.

The actual quantities of VOC-based chemicals are minimal, and therefore monitoring is not required.

At locations across Northern California, Cisco complies with California Air Resources Board requests and does not use any mechanical equipment, such as gasoline-powered lawn mowers, after 11 a.m. on designated Spare the Air days, when air quality is poor in San Francisco Bay Area. In addition, we have instituted Summer Saturday Shift Work, which reduces equipment emissions due to improvements in maintenance staff productivity. Over the course of 32 weeks, we saved 44 hours per week of grounds crew time as a result of increased efficiency.

In accordance with the 1987 Montreal Protocol on Substances That Deplete the Ozone Layer, we have worked with our supply chain partners to phase out ozone-depleting substances (ODS) in their manufacturing processes.

Table 18: Non-GHG Emissions

KPI	FY07	FY08	FY09	FY10	FY11	FY12	Comments
Volatile organic compound (VOC) emissions	negligible	negligible	negligible	negligible	negligible	negligible	Because most of Cisco's production is outsourced to supply chain partners, Cisco's global operations primarily consist of offices and research labs, which may require the occasional use of cleaning products containing VOCs. Quantities of VOC-based chemicals are minimal and are not required to be monitored.
NOx, metric tonne	177	167	164	241	339	381	
SOx, metric tonne	0.67	0.71	0.73	0.84	1.05	1.11	
Particulate matter	negligible	negligible	negligible	negligible	negligible	negligible	

Effluents (Liquid)

GRI EN10: Percentage and total volume of water recycled and reused.

GRI EN21: Total water discharge by quality and destination.

GRI EN23: Total number and volume of significant spills.

We seek to site our operations in areas where we can successfully service our customers while minimizing our negative environmental impacts. Operations siting is an especially important consideration with our data centers. We currently cool most of our data centers by air movement. However, as equipment becomes more compact and consumes more power per unit area, we need to identify more efficient cooling mechanisms, and one of the options we are considering is water-based cooling.

We also work closely with the owners of our leased spaces to incorporate environmentally sound practices into lease agreements. Our green lease terms incorporate LEED criteria, allowing us to negotiate requirements such as water use measures into new leases as well as those up for renewal. Given the nature of office buildings, these changes often benefit all tenants and frequently provide cost savings to the landlord.

Cisco seeks out partners, such as local governments and utilities, that can provide support and share best-practices to help reduce water use (and effluents). We count on these experts and leaders as a resource in our own operational efforts. Cisco participates in the California Environmental Dialogue Longview Committee, a forum for frank and honest discussion about California's long-term strategic environmental, economic, and resource management issues. Table 19 shows Cisco's KPI for liquid effluents.

Table 19: Effluent Spills and Discharges

KPI	FY07	FY08	FY09	FY10	FY11	FY12	Comments
Spills and discharges	none	none	none	none	none	none	In FY12, there were no reportable spills or discharges to the environment from Cisco facilities or operations worldwide.

Waste

Controlled Substances

As a global supplier of electronic equipment to consumers and industry, Cisco is responsible for the management of materials within our products. Global environmental regulations and Cisco's interest in reducing the impact of the materials used in the manufacturing of our products and in our supply chain have helped spur the development of products that use environmentally preferable materials. Cisco has established substance requirements for products in our controlled substances specification. The purpose of this specification is to communicate Cisco's substance use and reporting requirements to suppliers and manufacturers. The specification outlines the restricted substances, exemptions to these restrictions, substances to be reported and phased out, and substances to be watched for potential inclusion on the restricted substances list. These include controlled substances associated with applicable global regulations such as Restriction of Hazardous Substances Directive (RoHS) and Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Two examples of substances outside the current scope of global regulatory requirements that Cisco monitors for reduction and substitution in the manufacturing of its electronics are brominated flame retardants (BFRs) and polyvinyl chloride (PVC).

Cisco has been working with our research and development teams, manufacturing partners, industry standards technical committees, and academia to validate proposed alternatives for BFRs and PVC in our products. We have continued to identify, confirm, and endorse alternatives for plastics containing BFR and PVC that are used in our products. Over the last 2 to 3 years, we have performed material assessments, surveyed suppliers, and identified the areas within our business where we could have the greatest influence and success transitioning to BFR- and PVC-free materials. This issue is most relevant to Cisco as it relates to printed circuit boards, Cisco-designed plastic parts, and cables. Findings from these efforts for each area are described in the following sections.

BFRs in Printed Circuit Boards (PCBs)

In 2011, Cisco performed its own reliability and signal integrity testing of new laminate alternatives by way of new material qualification processes. As a result, Cisco qualified new PCB laminate materials that do not have halogenated flame retardants for use in new products in the high-end switching and routing spaces. In 2012, Cisco continued to qualify more halogen-free PCB laminate materials and has increased the use of these materials on many new products. Cisco will continue to research new laminate materials as they become available and will continue to apply them to new products where performance requirements can be met.

Cisco supports the International Electronics Manufacturers Initiative's (iNEMI) industry efforts focused on BFR reduction. Cisco is an active member of the HFR-Free PCB Materials Project (HFR stands for halogenated flame retardant; bromine is a halogen), which was chartered to study whether alternative materials meet performance requirements concerning delamination, plated through-hole reliability, pad cratering, and solder joint reliability. We also are actively participating in the HFR-Free Signal Integrity Initiative to similarly evaluate material options. Cisco co-chairs the HFR-Free Signal Integrity Project, which focuses on the critical electrical parameters of the alternative laminates.

BFRs and PVC in Cisco-Designed Plastic Parts

Cisco is monitoring the plastic resins used in Cisco-designed plastics. In FY12, we continued to gather information on the presence of BFRs and PVC in Cisco-designed plastic parts provided to or manufactured for Cisco. Our research found that over 75 percent of resin compounds (by part volume) used in Cisco products use resins that are BFR- and PVC-free. Those Cisco-designed components that do contain BFR or PVC are generally small in mass (less than 25 grams) and are used in products with relatively low sales volumes. Cisco will continue to research and propose BFR- and PVC-free alternatives in our products and as part of the design-for-environment guidelines; the use of BFR- and PVC-free alternative materials in plastics is recommended for all new designs.

PVC in Cables

Cisco is helping to lead reductions in cable PVC content through the iNEMI PVC Alternatives Project, which is focused on conducting cradle-to-grave life-cycle assessment of PVC and non-PVC jacketing in cables to better understand the environmental trade-offs of standard, non-halogen, and bio-based cable jacketing. Cisco also is monitoring the industry for PVC-free cabling materials and has invited cable manufacturers and resin suppliers to present on industry updates and challenges. Cisco will continue its efforts to identify, test, and implement PVC-free cabling as opportunities arise.

Cisco is an active member of the High-Density Packaging Users Group (HDPUG) BFR/PVC-Free Cables and Wires Project, which is comparing the electrical, mechanical, performance, and manufacturability requirements of alternative materials with existing options; designing and manufacturing test samples; and conducting performance evaluations.

Cisco has recently qualified several BFR-free laminates that can now be used in place of materials containing BFRs. The cost, design flexibility, and performance of these qualified BFR-free laminates makes them attractive for a growing percentage of Cisco products, and we are actively encouraging our business units and suppliers to select BFR-free laminates for new designs. Thus, we expect to see increasing use of these BFR-free materials.

Separate from the efforts just mentioned, lead-based solder has been a key component of circuit boards and other electronic parts. Although lead solder is currently exempt from the RoHS Directive for networking infrastructure equipment, product conversion and testing efforts have allowed Cisco to make significant progress toward removing lead assembly solder from Cisco products. For the transition, we have developed a lead-free solder specification for components, interconnects, and printed circuit board reliability. We have also implemented lead-free data management systems, assessed supplier capabilities, tested the reliability of alternative substances, and developed a product conversion roadmap. In the interests of protecting product quality, we are working with global industry associations to develop highly reliable lead-free solder.

Product Take-Back, Reuse, and Recycling

GRI EN27: Percentage of products sold and their packaging materials that are reclaimed by category.

Our trade-in and take-back programs are designed to bring back to Cisco any item that Cisco or our acquired companies has put on the market. Cisco recycles 100 percent of the electronics sent to our e-scrap recyclers. All commodity fractions go to downstream recyclers to be made into new products. Table 20 contains Cisco's reduce, reuse, and recycle KPIs.

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
> Waste

Table 20: Product Trade-in and Return

KPI	FY07	FY08	FY09	FY10	FY11	FY12	Comments
Product return, metric tonne	*	10,030	10,730	8,580	11,595	13,324	*Before FY08, Cisco reported weight of material sent to Cisco's recyclers. Using process improvements started in FY08, we are now reporting weight of material received from end users, which is the metric of primary concern to stakeholders.
Refurbish, resell, and reuse rate, percent	–	–	–	–	17%	25%	Data unavailable prior to FY11
Returned material sent to landfill	*	0.46%	0.44%	0.33%	0.89%	0.43%	*See comment above. Landfilled material consists only of non-electronic waste materials, such as broken pallets, wet cardboard, and shrink wrap, accompanying Cisco product returned by customers for recycling.

During FY12, Cisco's Reverse Logistics Group refurbished, resold, or reused over 3328 metric tonne of products returned to Cisco, a 25 percent reuse rate. This represents a 45 percent increase from our FY11 reuse rate.

Information regarding all Cisco e-scrap recycling and our recycling programs is provided in the following description and supplemented by our reverse logistics recycling web portal.[1]

Cisco has nine different reverse-logistics recycling programs to support our independent producer responsibility efforts. These fall into three categories, as shown in Table 21.

Table 21: Cisco Take-Back, Reuse, and Recycling Programs

Category	Material Stream
Customer programs	· Cisco Technical Migration Program (TMP) · Exceptional Pick-Up Program (EPUP) · Take-Back and Recycle Program
Programs for companies producing or repairing Cisco products	· Scrap/Reuse Program · Global Scrap Program
Internal programs for Cisco	· eBin/Lab Scrap Program · Cisco Data Center Server Recycling Program · Non-Genuine Brand Program · E-scrap events

---

1. Cisco Connection Online registration required.

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
> Waste

A flow diagram of these reverse-logistics material streams is shown in Figure 9. Note that the Cisco Technical Migration Program and the Exceptional Pick-Up Program are combined in one box in the upper left of this figure.

Each program or process is formally documented and is part of the contracting process with each of our contracted recyclers.

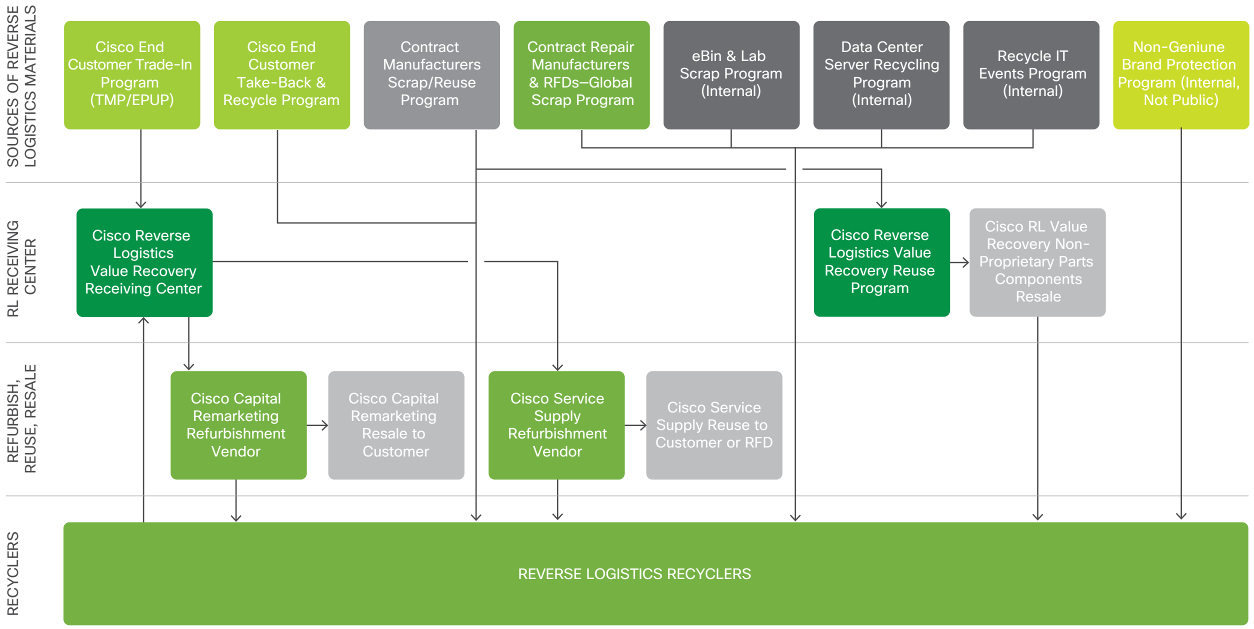
Cisco has trade-in programs for customers who are purchasing new equipment and have qualifying equipment to upgrade. Eligible customers receive an additional discount for returning working used equipment to Cisco for possible reuse. These programs are the single largest flow of materials back to Cisco's reverse-logistics programs. And the trade-in programs provide the newest and best-quality used equipment with the highest potential for refurbishment and reuse.

Engaging with our reuse/recycling programs is easy and straightforward. Customers go to the web portal, select the program that applies to them, and submit a pick-up request form. Cisco then contacts the customer to arrange the pick-up and work out the logistics for returning the materials to the appropriate location. The trade-in items are routed to a returns receiving center for analysis of each item to evaluate its reuse or refurbishment potential, and take-back and recycled material is routed directly to a recycler.

Customer Programs

Our two customer trade-in programs are the Cisco Technical Migration and the Exceptional Pick-Up Program. All trade-in materials are routed to a receiving center where each item is analyzed for possible reuse. If there is demand for the specific product being received, it is refurbished before being sent for reuse to Cisco Capital Remarketing, Cisco Service Supply, or an internal Cisco lab.

Figure 9: Reverse-Logistics Material Sources and Flow of Materials for Reuse and Recycling


SOURCES OF REVERSE LOGISTICS MATERIALS
Cisco End Customer Trade-In Program (TMP/EPUP)
Cisco End Customer Take-Back & Recycle Program
Contract Manufacturers Scrap/Reuse Program
Contract Repair Manufacturers & RFDs–Global Scrap Program
eBin & Lab Scrap Program (Internal)
Data Center Server Recycling Program (Internal)
Recycle IT Events Program (Internal)
Non-Geniune Brand Protection Program (Internal, Not Public)
RL RECEIVING CENTER
Cisco Reverse Logistics Value Recovery Receiving Center
Cisco Reverse Logistics Value Recovery Reuse Program
Cisco RL Value Recovery Non-Proprietary Parts Components Resale
REFURBISH, REUSE, RESALE
Cisco Capital Remarketing Refurbishment Vendor
Cisco Capital Remarketing Resale to Customer
Cisco Service Supply Refurbishment Vendor
Cisco Service Supply Reuse to Customer or RFD
RECYCLERS
REVERSE LOGISTICS RECYCLERS

Reuse is always the first priority. In FY12, Cisco reused over US$286 million of Cisco equipment, calculated at standard cost. This amount has been above US$200 million for each of the last three fiscal years. If an item does not qualify to be reused, it goes to one of our authorized recyclers.

The Take-Back and Recycle program is focused on Cisco branded items that do not qualify for either of our two trade-in programs. This program also accepts competitor equipment that has been displaced in the customer's network by newly purchased Cisco items. Take-back and recycle equipment is typically old and has no reuse value, or it is damaged. These materials go to the closest Cisco-approved recycling site. Currently, there are 29 recycling locations around the world, as shown in the map.

The number and location of Cisco authorized recyclers continue to expand based on the growth in our business and the requirements of local regulations.

Programs for Companies Producing or Repairing Cisco Products

The Cisco manufacturing Scrap/Reuse Program takes all excess, obsolete, or damaged materials from our contract manufacturers, MPAs, OEMs, ODMs, and proprietary component suppliers. First, each load is reviewed by the Cisco Value Recovery group for possible reuse or resale. If Value Recovery determines it is not economically viable to reuse or resell the materials, the materials go to Cisco-approved e-scrap recyclers.

< Previous View

Environment
- Overview
- Cisco Environmental Sustainability
- Materials
- Energy and GHG Emissions
- Water Use
- Biodiversity and Land Use
- Non-GHG Emissions
- Effluents (Liquid)
- > Waste

Cisco's contracted repair manufacturers and distribution depots use the Global Scrap program for their excess, obsolete, or damaged materials. Again, the Cisco Value Recovery team reviews all items and retains any for which they have customers, sending the remainder to our approved recyclers.

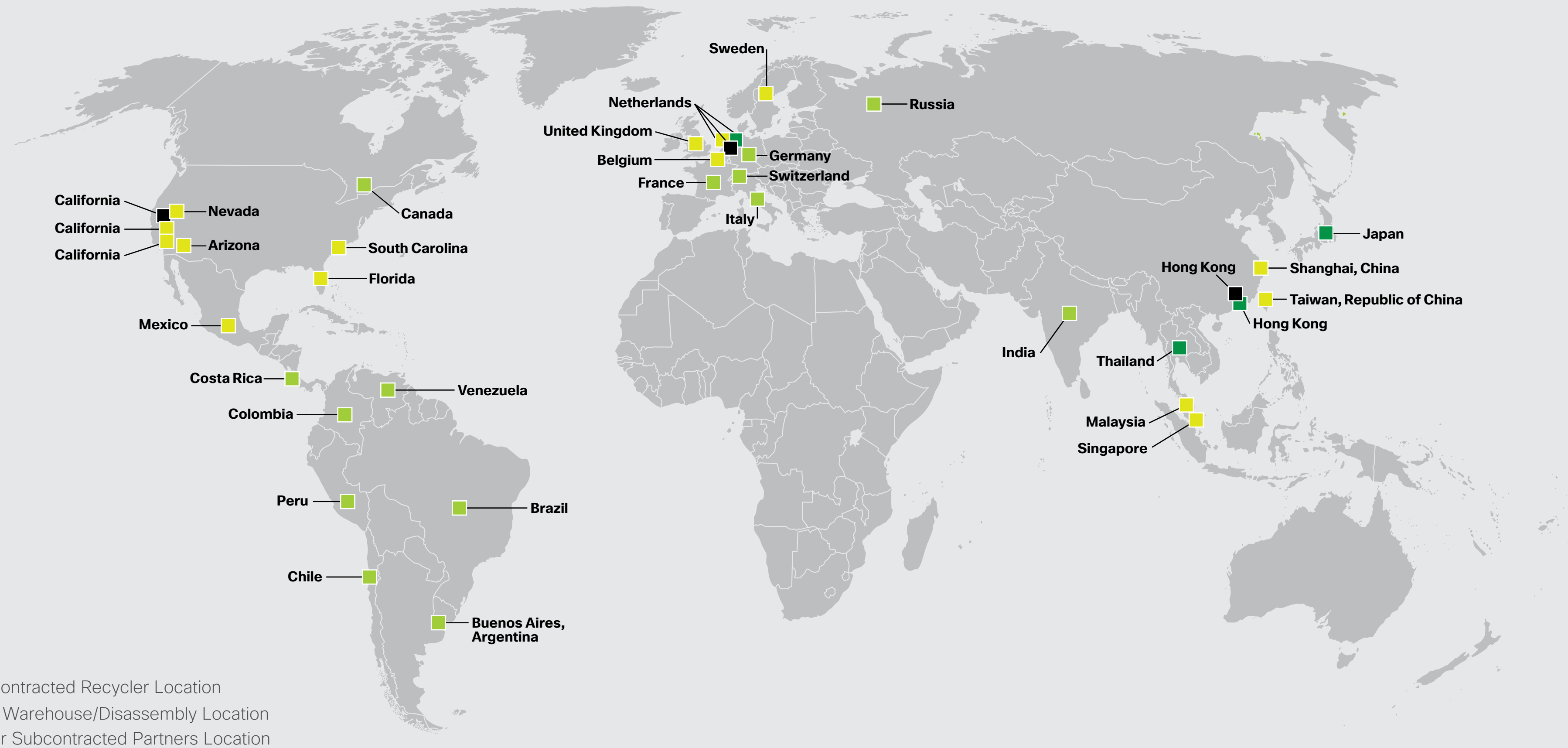
Internal Programs for Cisco

The largest of Cisco's internal programs is the eBin/Lab Scrap Program. The eBin program began at our San Jose campus, where 185 labs produce a large amount of e-scrap. The eBins are green plastic rolling bins where materials are collected for recycling. Smaller labs may have only one eBin, and large labs may have more than a dozen. Each bin has an owner, and when the bin is full, the owner visits our recycling web portal and fills out a pick-up request. The recycler responds to arrange the date and time of pick up and to deliver empty eBins.

Cisco Reverse Logistics Global Supply Base Locations

Mouse over 4 region names below for enlarged views

North America Latin America Europe Asia Pacific


Sweden
Netherlands
United Kingdom
Belgium
France
Germany
Switzerland
Italy
Russia
California
California
California
Nevada
Arizona
Canada
South Carolina
Florida
Mexico
Costa Rica
Venezuela
Colombia
Peru
Brazil
Chile
Buenos Aires, Argentina
Japan
Hong Kong
Shanghai, China
Taiwan, Republic of China
Hong Kong
India
Thailand
Malaysia
Singapore

- 🟨 Cisco Contracted Recycler Location
- 🟩 Current Warehouse/Disassembly Location
- 🟩 Recycler Subcontracted Partners Location
- ⬛ SCFO Receiving and Reuse Operations

< Previous View

Environment

Overview
Cisco Environmental Sustainability
Materials
Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
> Waste

The Cisco Data Center Server Recycling Program serves data centers in 12 countries. When a data center no longer needs a server, it is offered to other Cisco data centers for possible reuse. When one of these servers reaches the end of its useful life, it is recycled, with all parts being shredded. Because these servers have sensitive data residing in their memory, they are not reused.

The Non-Genuine Materials Program handles items that we occasionally receive in service returns which are non-genuine Cisco products. Non-genuine items also come to Cisco through law enforcement actions that seize fake Cisco equipment. When non-genuine equipment is found, we use a special witnessed protocol whereby the collected materials are properly destroyed.

We hold annual e-scrap events called Recycle IT Days for our employees. Cisco employees and contractors can bring in their e-scrap from home and have Cisco pay to have the materials recycled properly. Any Cisco office location can host a recycling day event. In April 2012, we held our 17th e-scrap event, with 128 Cisco sites around the world participating and over 193 metric tonne of used electronics collected. Since Cisco started holding e-scrap events, our employees and contractors have helped recycle over 1810 metric tonne of used electronics.

E-Scrap Recyclers

Cisco currently has four contracted e-scrap recyclers. Each recycler has several company-owned facilities. Each recycler also has several subcontracted recyclers to assure global recycling coverage. Cisco contracts require the recycler to enforce our strict recycling processes upon subcontractors doing Cisco work. Cisco must approve of each prospective recycling company and each recycling location prior to sending any Cisco equipment for processing.

Each contracted recycler provides us with monthly reports delineating all cases opened and processed on a lot by lot basis. When each lot is processed, the report includes a mass balance showing the weight as received and the weights of each fractional commodity separated from the lot.

Cisco holds quarterly business reviews with each of the four contracted recyclers to review the past quarter's results and to go over all action items that were to be worked during the quarter and the focus areas for the next quarter. Cisco also does random spot site audits of the recycling facilities.

E-Scrap Recycling Process

Each load of e-scrap is weighed in on calibrated scales upon arrival. Next, each unit is demanufactured, and a high-level sort into "commodity fractions" separates the steel, aluminum, cardboard, plastic, wire/cable, and printed circuit boards. Certain fractions may then be shredded. Some Cisco printed circuit boards contain a rechargeable battery that is removed prior to shredding. After the shredding, an additional hand sorting is done to pull off any loose pieces of the commodity fractions. All fractions are sent to downstream or second-level recyclers to be made into new products again. Shredded printed circuit boards go to a secondary smelter where as many as 19 metals are harvested from the boards. These harvested metals re-enter the metals markets to make new products. Any batteries or packaging materials sent to recycling facilities are also sent to downstream recyclers.

Product Packaging End of Life

The environmental impact, including transportation and emissions, from a packaging take-back program outweighs the potential benefits when compared with using the local recycling stream. This is primarily because packaging material logistics are significant, and thus packaging creation is local to the point of shipment. Therefore, Cisco takes the approach to design our packaging to be easily separable and as recyclable as possible so it can be easily absorbed into local packaging material recycling programs.

Solid Waste from Operations (Trash)

GRI EN22: Total weight of waste by type and disposal method.

GRI EN24: Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally.

Cisco's Waste Reduction and Recycling Program is a key component of Cisco ISO 14001 certification and our global environmental policy. We routinely collect and recycle waste streams, including batteries, CDs and diskettes, beverage containers, trash, wood and pallets, cardboard, mixed paper, confidential waste, packaging materials, toner cartridges, compost, polyurethane foam, landscape waste, mobile phones, food waste, and construction waste. Electronic waste collection programs are described in the previous section.

Table 22 shows our solid waste KPIs. Note that operational waste recycling performance depends on both Cisco performance and the availability of supporting services by local waste hauling and disposal vendors. In FY12, Cisco continued implementation of a global, enterprise sustainability information system (SIS) to improve completeness and quality of sustainability-related data, as well as calculated metrics and public reporting.

< Previous View

Environment
Overview
Cisco Environmental Sustainability
Materials
Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
> Waste

We encourage all Cisco facilities to take steps to reduce their operational waste and recycle any materials that can be recycled in each location. For example, initiatives at our San Jose headquarters are leading the way by diverting 78 percent of all waste streams in FY12.

A breakdown of our waste stream for our San Jose site is provided in Figure 11 as an illustration of our key sources of operational waste, the complexity of proper waste stream segregation, and the need for local recycling services.

In addition to specific initiatives at individual facilities, Cisco has implemented programs at multiple sites that address the following kinds of waste streams:

Food waste: In addition to lessening the impacts of our office environments, we strive to reduce the environmental impacts of our cafeterias. Cisco partners with Bon Appétit Management Company, a leader in sustainable food service, to provide Cisco employees in North America with healthy, sustainable, and socially responsible food options. Our sustainable food purchasing initiatives date back to 1999 with the establishment of Bon Appétit's Farm to Fork program, an initiative to purchase food locally. This program promotes local farming and supports sustainable farming and harvesting techniques.

Figure 10: Recycling Rates for Solid Waste from Major North American Operations (Trash)

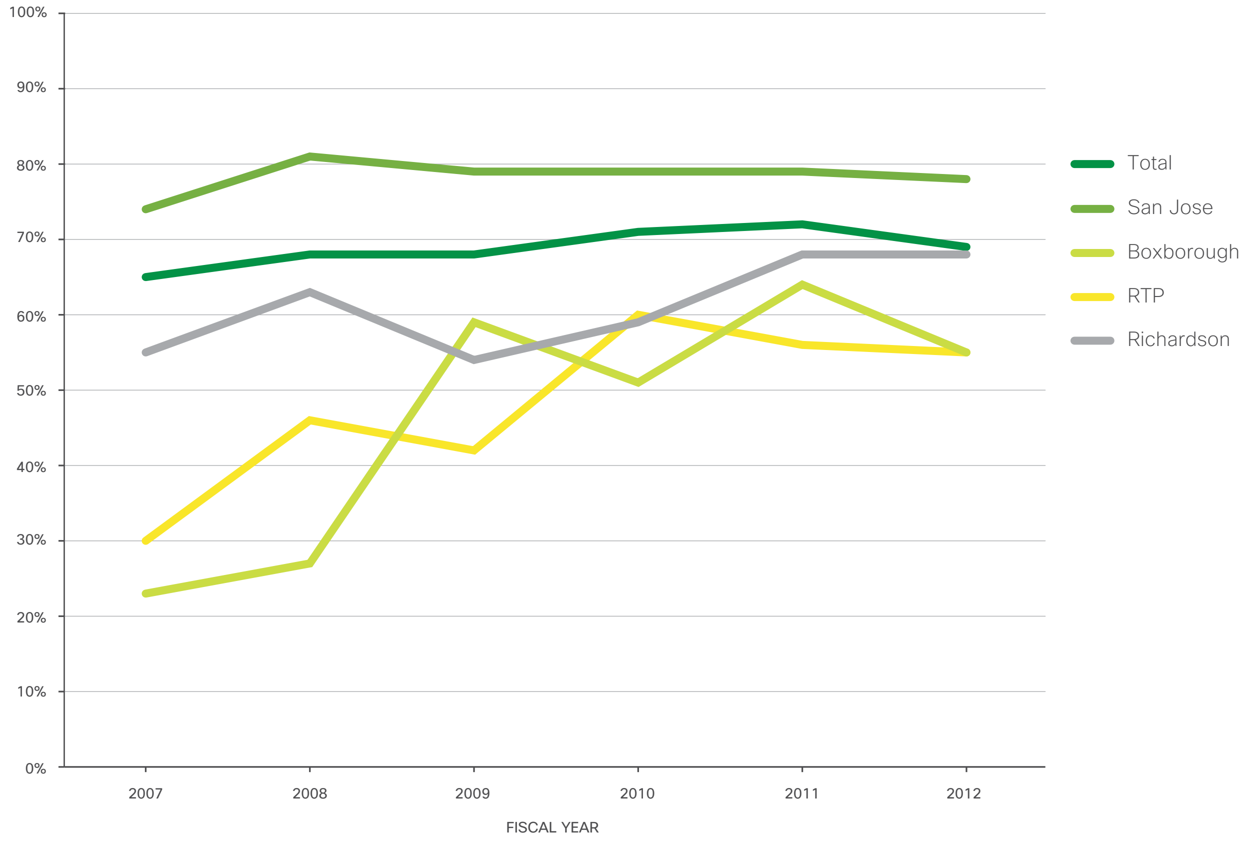
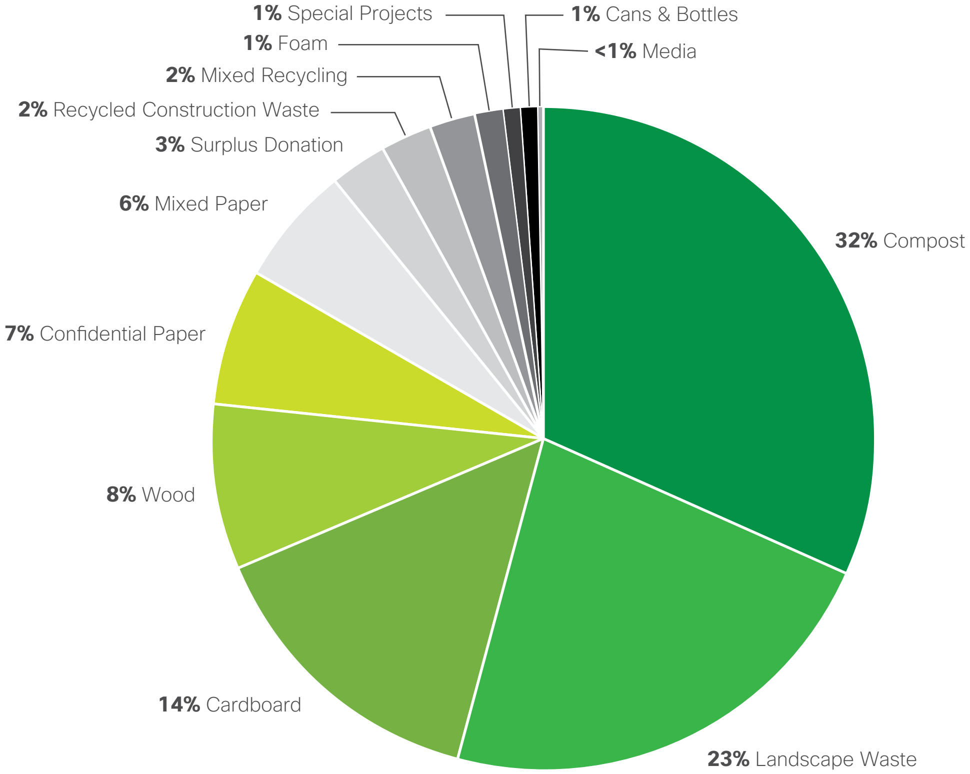


Table 22: Solid Waste from Operations (Trash)

KPI	FY07	FY08	FY09	FY10	FY11	FY12	Comments
Total operational waste generated, metric tonne	7156	7409	6246	4845	4643	4524	
Percent real estate portfolio covered by waste reporting	53%	53%	48%	46%	51%	58%	Includes all U.S. and Canada Cisco campuses.
Total operational waste recycled, metric tonne	4633	5023	4250	3443	3345	3119	
Operational waste recycled, percent	65%	68%	68%	71%	72%	69%	Cisco added a new site with lower diversion rates to its recycling portfolio, reducing the corporate average.

Environment
Overview
Cisco Environmental Sustainability
Materials
Energy and GHG Emissions
Water Use
Biodiversity and Land Use
Non-GHG Emissions
Effluents (Liquid)
> Waste

Figure 11: Breakdown of Solid-Waste Streams (Trash) at San Jose, California, Headquarters Campus



Composting: Cisco campuses in San Jose, California, and other North American locations host programs for composting and recycling food wastes where municipal facilities are available to process these materials. During FY12, the food waste separation program at Cisco's San Jose campus diverted more than 713 metric tonne of food waste that otherwise would have been sent to local landfills. The waste was then turned into compost and made available by the municipality for purchase by gardeners. In addition, Cisco's facilities in San Jose and Research Triangle Park, North Carolina, recycle waste vegetable oil. This vegetable oil is converted into biodiesel fuel used to power traditional diesel vehicles.

Bottled water: In FY08, Cisco's North American offices disposed of 13.7 million plastic water bottles. In FY09, we ran a pilot water filtration program in Boxborough, Massachusetts, and several San Jose campus buildings that reduced our plastic water bottle consumption level to 11.6 million units. After fully implementing the water filtration program and a new beverage vending program throughout North America, the total plastic beverage units consumed at Cisco's facilities was substantially reduced. Through FY12, both of these programs are still in place at Cisco facilities, and as a result, each year we prevent millions of plastic bottles from entering landfills globally.

< Previous View

GRI Index

Strategy and Analysis
Performance: Economic
Performance: Environmental
Performance: Labor Practices and Decent Work
Performance: Human Rights
Performance: Society
Performance: Product Responsibility

GRI Index

Global Reporting Initiative Index

The Global Reporting Initiative's (GRI) G3.1 Sustainability Reporting Guidelines are a set of internationally recognized indicators covering a company's social, economic, and environmental impacts.

The table in this section covers the GRI G3.1 indicators found in our 2012 Corporate Social Responsibility Report, 2012 Annual Report, and company website. It includes all of the G3.1 core indicators, including those that we do not report against. We have only included additional indicators if we report against them.

Based on an internal review, Cisco determines this to be a B level report against the GRI G3.1 guidelines.

< Previous View

GRI Index

> Strategy and Analysis
Performance: Economic
Performance: Environmental
Performance: Labor Practices and Decent Work
Performance: Human Rights
Performance: Society
Performance: Product Responsibility

GRI G3.1 Guideline		Location
Strategy and Analysis		
1.1	Statement from the most senior decision maker of the organization about the relevance of sustainability to the organization and its strategy	CEO Letter
1.2	Description of key impacts, risks, and opportunities	Introduction/Materiality, Governance & Ethics
Profile		
2.1	Name of reporting organization	Cisco Systems, Inc.
2.2	Primary brands, products, and/or services	Products & Services
2.3	Operational structure of the organization, including main divisions, operating companies, subsidiaries, and joint ventures	Corporate Overview
2.4	Location of organization's headquarters	Worldwide Contacts
2.5	Number of countries where organization operates, and names of countries with either major operations or that are specifically relevant to the sustainability issues covered in the report	Worldwide Contacts
2.6	Nature of ownership and legal form	Restated Articles of Incorporation of Cisco Systems, Inc.
2.7	Markets served (including geographic breakdown, sectors served, and types of customers/beneficiaries)	Worldwide Contacts, FY12 Annual Report, Cisco Overview
2.8	Scale of the reporting organization including: • Number of employees • Net sales • Total capitalization broken down in terms of debt and equity • Quantity of products or services provided	Cisco Overview, FY12 Annual Report
2.9	Significant changes during the reporting period regarding size, structure, or ownership, including: • Location of, or changes in, operations, including facility operations, closings, and expansions • Changes in the share capital structure and other capital formation, maintenance, and alteration operations	Corporate Development, Cisco FY12 Earnings, FY12 Annual Report
2.10	Awards received in the reporting period	CSR Awards and Recognition, Diversity Awards Archive
Report Parameters		
3.1	Reporting period for information provided	Introduction/About This Report
3.2	Date of most recent previous report	2011 CSR Report
3.3	Reporting cycle	Cisco FY12
3.4	Contact point for questions regarding the report or its contents	csr_report@cisco.com

(continues on next page)

< Previous View

GRI Index

> Strategy and Analysis

Performance: Economic

Performance: Environmental

Performance: Labor Practices and Decent Work

Performance: Human Rights

Performance: Society

Performance: Product Responsibility

GRI G3.1 Guideline (continued)		**Location**
Report Scope and Boundary		
3.5	Process for defining report content, including: • Determining materiality • Prioritizing topics within the report • Identifying stakeholders the organization expects to use the report	Introduction/Material Issues, Governance & Ethics/CSR Management
3.6	Boundary of the report (e.g., countries, divisions, subsidiaries, leased facilities, joint ventures, suppliers)	Introduction/About This Report
3.7	State any specific limitations on the scope or boundary of the report	Only as noted in report
3.8	Basis for reporting on joint ventures, subsidiaries, leased facilities, outsourced operations, and other entities that can significantly affect comparability from period to period and/or between organizations	Cisco reports on all operations Introduction to Acquisitions
3.9	Data measurement techniques and the bases of calculations, including assumptions and techniques underlying estimations applied to the compilation of the indicators and other information in the report	Introduction, Environment
3.10	Explanation of the effect of any restatements of information provided in earlier reports, and the reasons for such restatement	Environment/Energy and GHG Emissions
3.11	Significant changes from previous reporting periods in the scope, boundary, or measurement methods applied in the report	Introduction, Environment/Energy and GHG Emissions
GRI Content Index		
3.12	Table identifying the location of the Standard disclosures in the report	This table
Assurance		
3.13	Policy and current practice with regard to seeking external assurance for the report. If not included in the assurance report accompanying the sustainability report, explain the scope and basis of any external assurance provided. Also, explain the relationship between the reporting organization and the assurance provider.	Introduction/Assurance We continue to explore the viability of external assurance for the entire CSR report.
Governance, Commitments, and Engagement		
4.1	Governance structure of the organization, including committees under the highest governance body responsible for specific tasks such as setting strategy or organizational oversight	Corporate Governance
4.2	Indicate whether the Chair of the highest governance body is also an executive officer (and, if so, state his or her function within the organization's management and the reasons for this arrangement)	Corporate Governance
4.3	For organizations that have a unitary board structure, state the number of members of the highest governance body that are independent and/or non-executive members	Corporate Governance
4.4	Mechanisms for stakeholders and employees to provide recommendations or direction to the highest governance body	Governance & Ethics/CSR Management, Our People/Working Together, Share Your Concerns
4.5	Linkage between compensation for members of the highest governance body, senior managers, and executives (including departure arrangements) and the organization's performance (including social and environmental performance)	Compensation and Management Development Committee Charter

(continues on next page)

< Previous View

GRI Index

> Strategy and Analysis
Performance: Economic
Performance: Environmental
Performance: Labor Practices and Decent Work
Performance: Human Rights
Performance: Society
Performance: Product Responsibility

GRI G3.1 Guideline (continued)		**Location**
4.6	Processes in place for the highest governance body to ensure that conflicts of interest are avoided	Corporate Governance
4.7	Process for determining the qualifications and expertise of the members of the highest governance body for guiding the organization's strategy on economic, environmental, and social topics	Corporate Governance
4.8	Internally developed statements of mission or values, codes of conduct, and principles relevant to economic, environmental, and social performance, and the status of their implementation	Governance & Ethics/Ethics, Code of Business Conduct, Supplier Code of Conduct
4.9	Procedures of the highest governance body for overseeing the organization's identification and management of economic, environmental, and social performance, including relevant risks and opportunities, and adherence or compliance with internationally agreed standards, codes of conduct, and principles	Governance & Ethics, Corporate Governance, Code of Business Conduct, Supply Chain
4.10	Processes for evaluating the highest governance body's own performance, particularly with respect to economic, environmental, and social performance	Corporate Governance
Commitments to External Initiatives		
4.11	Explanation of whether and how the precautionary approach or principle is addressed by the organization	Governance & Ethics/Governance, Environment/The Enabling Effect
4.12	Externally developed economic, environmental, and social charters, principles, or other initiatives to which the organization subscribes or endorses	Governance & Ethics/CSR Management
4.13	Members in associations and/or national/international advocacy organizations in which the organization: • Has positions in governance bodies • Participates in projects or committees • Provides substantive funding beyond routine membership dues • Views membership as strategic	Environment/Advocacy and Standards Development, Society, Governance & Ethics/CSR Management, Governance & Ethics/Privacy and Data Protection, Supply Chain/Working with Industry Groups
Stakeholder Engagement		
4.14	List of stakeholder groups engaged by the organization	Governance & Ethics/CSR Management
4.15	Basis for identification and selection of stakeholders with whom to engage	Governance & Ethics/CSR Management
4.16	Approaches to stakeholder engagement, including frequency of engagement by type and by stakeholder group	Governance & Ethics/CSR Management
4.17	Key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting	Governance & Ethics/CSR Management, Introduction/Material Issues

(continues on next page)

< Previous View

GRI Index

Strategy and Analysis
> Performance: Economic
Performance: Environmental
Performance: Labor Practices and Decent Work
Performance: Human Rights
Performance: Society
Performance: Product Responsibility

GRI G3.1 Guideline (continued)		Location
Performance: Economic		
	Disclosure on management approach	Governance & Ethics, Society, FY12 Annual Report/Letter to Shareholders
Economic Performance Indicators		
Aspect: Economic Performance		
EC1	Direct economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings, and payments to capital providers and governments	FY12 Annual Report
EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change	Environment/The Enabling Effect
EC3	Coverage of the organization's defined benefit plan obligations	FY12 Annual Report
EC4	Significant financial assistance received from government	Cisco does not receive financial government support
Aspect: Market Presence		
EC5	Range of ratios of standard entry-level wage by gender compared to local minimum wage at significant locations of operation	We provide competitive levels of compensation above local minimum wage requirements
EC6	Policy, practices, and proportion of spending on locally based suppliers at significant locations of operation	Not material: nearly 100% of our manufacturing is outsourced
EC7	Procedures for local hiring and proportion of senior management hired from the local community at locations of significant operation	Not material: nearly 100% of our manufacturing is outsourced
Aspect: Indirect Economic Impacts		
EC8	Development and impact of infrastructure investments and services provided primarily for public benefit through commercial, in-kind, or pro-bono engagement	Society/Overview, Society/Education, Society/Healthcare, Society/Economic Empowerment, Society/Critical Human Needs and Disaster Relief
EC9	Understanding and describing significant indirect economic impacts, including the extent of impacts	Society/Overview, Society/Education, Society/Healthcare, Society/Economic Empowerment, Society/Critical Human Needs and Disaster Relief

(continues on next page)

< Previous View

GRI Index

Strategy and Analysis
Performance: Economic
> Performance: Environmental
Performance: Labor Practices and Decent Work
Performance: Human Rights
Performance: Society
Performance: Product Responsibility

GRI G3.1 Guideline (continued)		**Location**
Performance: Environmental		
	Disclosure on management approach	Environment/Principles
Environmental Performance Indicators		
Aspect: Materials		
EN1	Materials used by weight or volume	Environment/Materials
EN2	Percentage of materials used that are recycled input materials	Environment/Materials/Recycled Content
Aspect: Energy		
EN3	Direct energy consumption by primary energy source	Environment/Energy and GHG Emissions/Operations Scope 1 and 2
EN4	Indirect energy consumption by primary source	Environment/Energy and GHG Emissions/Operations Scope 1 and 2
EN5	Energy saved due to conservation and efficiency improvements	Environment/Energy and GHG Emissions/Operations Scope 1 and 2/Reducing Emissions from Operations
EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives	Environment/Energy and GHG Emissions/Scope 3 Product Use Phase (Energy Efficiency)
EN7	Initiatives to reduce indirect energy consumption, and reductions achieved	Environment/Energy and GHG Emissions/Operations Scope 1 and 2/Reducing Emissions from Operations
Aspect: Water		
EN8	Total water withdrawal by source	Environment/Water Use
EN9	Water sources significantly affected by withdrawal of water	Environment/Water Use
EN10	Percentage and total volume of water recycled and reused	Environment/Effluents (Liquid)
Aspect: Biodiversity		
EN11	Location and size of land owned, leased, or managed in, or adjacent to, protected areas and areas of high biodiversity outside protected areas	Environment/Biodiversity and Land Use
EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas	Environment/Biodiversity and Land Use
EN13	Habitats protected or restored	Environment/Biodiversity and Land Use
EN14	Strategies, current actions, and future plans for managing impacts on biodiversity	Environment/Biodiversity and Land Use
EN15	Number of IUCN Red List Species and national conservation list species with habitats in areas affected by operations, by level of extinction risk	Environment/Biodiversity and Land Use

(continues on next page)

< Previous View

GRI Index
Strategy and Analysis
Performance: Economic
> Performance: Environmental
Performance: Labor Practices and Decent Work
Performance: Human Rights
Performance: Society
Performance: Product Responsibility

GRI G3.1 Guideline (continued)		**Location**
Aspect: Emissions, Effluents, and Waste		
EN16	Total direct and indirect greenhouse gas emissions, by weight	Environment/Energy and GHG Emissions/Operations Scope 1 and 2
EN17	Other relevant indirect greenhouse gas emissions, by weight	Environment/Energy and GHG Emissions/Operations Scope 3
EN18	Initiatives to reduce greenhouse gas emissions, and reductions achieved	Environment/Energy and GHG Emissions/Operations Scope 1 and 2/Reducing Emissions from Operations
EN19	Emissions of ozone-depleting substances, by weight	Environment/Non-GHG Emissions
EN20	NO_x, SO_x, and other significant air emissions, by type and weight	Environment/Non-GHG Emissions
EN21	Total water discharged, by quality and destination	Environment/Effluents (Liquid)
EN22	Total weight of waste, by type and disposal method	Environment/Waste/Solid Waste from Operations (Trash)
EN23	Total number and volume of significant spills	Environment/Effluents (Liquid), Environment/Waste/Solid Waste from Operations (Trash)
EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally	Environment/Waste/Solid Waste from Operations (Trash)
EN25	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff	Environment/Biodiversity and Land Use
Aspect: Products and Services		
EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation	Environment/Energy and GHG Emissions/Scope 3 Product Use Phase (Energy Efficiency)
EN27	Percentage of products sold and their packaging materials that are reclaimed, by category	Environment/Waste/Product Take-Back, Reuse and Recycling
Aspect: Compliance		
EN28	Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with environmental laws and regulations	Environment/Materials/Regulatory Fines
Aspect: Transport		
EN29	Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and of transporting members of the workforce	Environment/Energy and GHG Emissions/Operations Scope 3/Scope 3 Business Air Travel
Aspect: Overall		
EN30	Total environmental protection expenditures and investments by type	Environment/Energy and GHG Emissions/Operations Scope 1 and 2/Reducing Emissions from Operations

(continues on next page)

< Previous View

GRI Index

Strategy and Analysis
Performance: Economic
Performance: Environmental
> Performance: Labor Practices and Decent Work
Performance: Human Rights
Performance: Society
Performance: Product Responsibility

GRI G3.1 Guideline (continued)		Location
Performance: Labor Practices and Decent Work		
	Disclosure on management approach	Our People/Working Together, Our People/A Safe and Healthy Work Environment, Our People/An Open and Diverse Culture, Our People/Employee Opportunities, Our People/Rewarding Our People
Labor Practices and Decent Work Performance Indicators		
Aspect: Employment		
LA1	Total workforce, by employment type, employment contract, and region	Our People
LA2	Total number and rate of employee turnover, by age group, gender, and region	Our People/An Open and Diverse Culture
LA3	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by major operations	Our People/Rewarding Our People
Aspect: Labor/Management Relations		
LA4	Percentage of employees covered by collective bargaining agreements	Zero
LA5	Minimum notice period(s) regarding operational changes, including whether it is specified in collective agreements	We meet all applicable laws, regulations, and standards where we do business
Aspect: Occupational Health and Safety		
LA6	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs	Not reported
LA7	Rates of injury, occupational diseases, lost days, absenteeism, and number of work-related fatalities, by region	Our People/A Safe and Healthy Work Environment
LA8	Education, training, counseling, prevention, and risk-control programs in place to assist workforce members, their families, or community members regarding serious diseases	Our People/A Safe and Healthy Work Environment, Our People/ Rewarding Our People/ Cisco Employee Benefits
LA9	Health and safety topics covered in formal agreements with trade unions	Not reported
Aspect: Training and Education		
LA10	Average hours of training per year per employee, by employee category	Our People/Employee Opportunities
LA11	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing their careers	Our People/Employee Opportunities
LA12	Percentage of employees receiving regular performance and career development reviews, by gender	Our People/Employee Opportunities
Aspect: Diversity and Equal Opportunity		
LA13	Composition of governance bodies and breakdown of employees per category according to gender, age group, minority group membership, and other indicators of diversity	Our People/An Open and Diverse Culture
LA14	Ratio of basic salary of men to women, by employee category	Not reported

(continues on next page)

< Previous View

GRI Index
Strategy and Analysis
Performance: Economic
Performance: Environmental
Performance: Labor Practices and Decent Work
> Performance: Human Rights
Performance: Society
Performance: Product Responsibility

GRI G3.1 Guideline (continued)		**Location**
Performance: Human Rights		
	Disclosure on management approach	Governance & Ethics/Ethics, Governance & Ethics/Human Rights, Supply Chain
Human Rights Indicators		
Aspect: Investment and Procurement Activities		
HR1	Percentage and total number of significant investment agreements that include human rights, clauses or that have undergone human rights screening	Not reported
HR2	Percentage of significant suppliers and contractors that have undergone screening on human rights and actions taken	Governance & Ethics/Ethics, Supply Chain
HR3	Total hours of employee training on policies and procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees that are trained	Governance & Ethics/Ethics
Aspect: Nondiscrimination		
HR4	Total number of incidents of discrimination, and actions taken	Not reported
Aspect: Freedom of Association and Collective Bargaining		
HR5	Operations identified in which the right to exercise freedom of association and collective bargaining may be at significant risk, and actions taken to support these rights	Supplier Code of Conduct, Supply Chain/Partnering with Suppliers to Improve Performance and Build Capability
Aspect: Child Labor		
HR6	Operations identified as having a significant risk for incidents of child labor, and measures taken to contribute to the elimination of forced or compulsory labor	Supplier Code of Conduct, Supply Chain/Partnering with Suppliers to Improve Performance and Build Capability
Aspect: Forced and Compulsory Labor		
HR7	Operations identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of forced or compulsory labor	Supplier Code of Conduct, Supply Chain/Partnering with Suppliers to Improve Performance and Build Capability
Aspect: Security Practices		
HR8	Percentage of security personnel trained in the organization's policies or procedures concerning aspects of human rights that are relevant to operations	Not material: Nearly 100% of our manufacturing is outsourced
Aspect: Indigenous Rights		
HR9	Total number of incidents of violations involving rights of indigenous people, and actions taken	Not material: Cisco's operations do not uniquely impact indigenous people

(continues on next page)

GRI Index
- Strategy and Analysis
- Performance: Economic
- Performance: Environmental
- Performance: Labor Practices and Decent Work
- Performance: Human Rights
- > Performance: Society
- Performance: Product Responsibility

GRI G3.1 Guideline (continued)		**Location**
Aspect: Assessment		
HR10	Percentage and total number of operations that have been subject to human rights reviews and/or impact assessments	Not material: Nearly 100% of our manufacturing is outsourced
Aspect: Remediation		
HR11	Number of grievances related to human rights filed, addressed, and resolved through formal grievance mechanisms	Not reported
Performance: Society		
	Disclosure on management approach	Society
Society Performance Indicators		
Aspect: Community		
SO1	Nature, scope, and effectiveness of any programs and practices that assess and manage the impacts of operations on communities, including entering, operating, and exiting	Governance & Ethics/CSR Management, Society, Society/Employee Engagement
Aspect: Corruption		
SO2	Percentage and total number of business units analyzed for risks related to corruption	Governance & Ethics/Ethics/Code of Business Conduct
SO3	Percentage of employees trained in organization's anti-corruption policies and procedures	Governance & Ethics/Ethics/Code of Business Conduct
SO4	Actions taken in response to incidents of corruption	Governance & Ethics/Ethics/Code of Business Conduct, Governance & Ethics/Ethics
Aspect: Public Policy		
SO5	Public policy positions and participation in public policy development and lobbying	Global Policy and Government Affairs (GPGA), Governance & Ethics/Public Policy
SO6	Total value of financial and in-kind contributions to political parties, politicians, and related institutions, by country	Governance & Ethics/Public Policy
Aspect: Anti-Competitive Behavior		
SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices, and their outcomes	FY12 Annual Report, Notes to Consolidated Financial Statements, Legal Proceedings
Aspect: Compliance		
SO8	Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with laws and regulations	FY12 Annual Report, Notes to Consolidated Financial Statements, Legal Proceedings
SO9	Operations with significant potential or actual negative impacts on local communities	Zero
SO10	Prevention and mitigation measures implemented in operations with significant potential or actual negative impacts on local communities	Not material: Cisco does not have operations with significant potential or actual negative impacts on local communities

(continues on next page)

< Previous View

GRI Index

Strategy and Analysis
Performance: Economic
Performance: Environmental
Performance: Labor Practices and Decent Work
Performance: Human Rights
Performance: Society
> Performance: Product Responsibility

GRI G3.1 Guideline (continued)		**Location**
Performance: Product Responsibility		
	Disclosure on management approach	Governance & Ethics/Human Rights, Environment/Life-Cycle Assessment, Environment/The Enabling Effect
Product Responsibility Performance Indicators		
Aspect: Customer Health and Safety		
PR1	Lifecycle stages in which health and safety impacts of products and services are assessed for improvement, and percentage of significant products and services categories subject to such procedures	Not reported
PR2	Total number of incidents of non compliance with regulations and voluntary codes concerning health and safety impacts of products and services during their lifecycle, by type of outcomes	Zero
Aspect: Product and Service Labeling		
PR3	Type of product and service information required by procedures, and percentage of significant products and service subject to such information requirements	Not reported
PR4	Total number of incidents of non compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes	Zero
PR5	Practices related to customer satisfaction, including results of surveys measuring customer satisfaction	Annual Customer Satisfaction Survey
Aspect: Marketing Communications		
PR6	Programs for adherence to laws, standards, and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship	Marketing communications are regulated by national and international law and are also subject to voluntary codes. Cisco's marketing communications are also governed by our Code of Business Conduct and by additional guidelines and best practices.
PR7	Total number of incidents of non compliance with regulations and voluntary codes concerning market communications, including advertising, promotion, and sponsorship by type of outcomes	Zero
Aspect: Customer Privacy		
PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data	Zero, Governance & Ethics/Privacy and Data Protection
Aspect: Compliance		
PR9	Monetary value of significant fines for noncompliance with laws and regulations concerning the provision and use of products and services	FY12 Annual Report, FY12 Cisco Form 10-K

< Previous View

Appendix

1. Comparison of SustainAbility Materiality Matrix and Table 1 of Environment Section
2. Global Supplier Management Letter
3. Comparison of BAU and ICT Solution for Remote Collaboration
4. Comparison of BAU and ICT Solution for Teleworking

Appendix

< Previous View

Appendix

> 1. Comparison of SustainAbility Materiality Matrix and Table 1 of Environment Section
2. Global Supplier Management Letter
3. Comparison of BAU and ICT Solution for Remote Collaboration
4. Comparison of BAU and ICT Solution for Teleworking

1. Comparison of SustainAbility Materiality Matrix and Table 1 of Environment Section

Table 1: Materiality Tiers for Cisco Environment-Related Issues

Tier	Environment Topic
1	Product energy efficiency
	Energy consumption (operations)
2	Waste (product EOL)
3	Waste (product packaging EOL)
	Water pollution (liquid effluents)
	Transport emissions (from product logistics)
4	Waste (operational "trash")
	Controlled substances
	Water use
	Biodiversity and land use
5	Hazardous waste
	Non-GHG airborne emissions

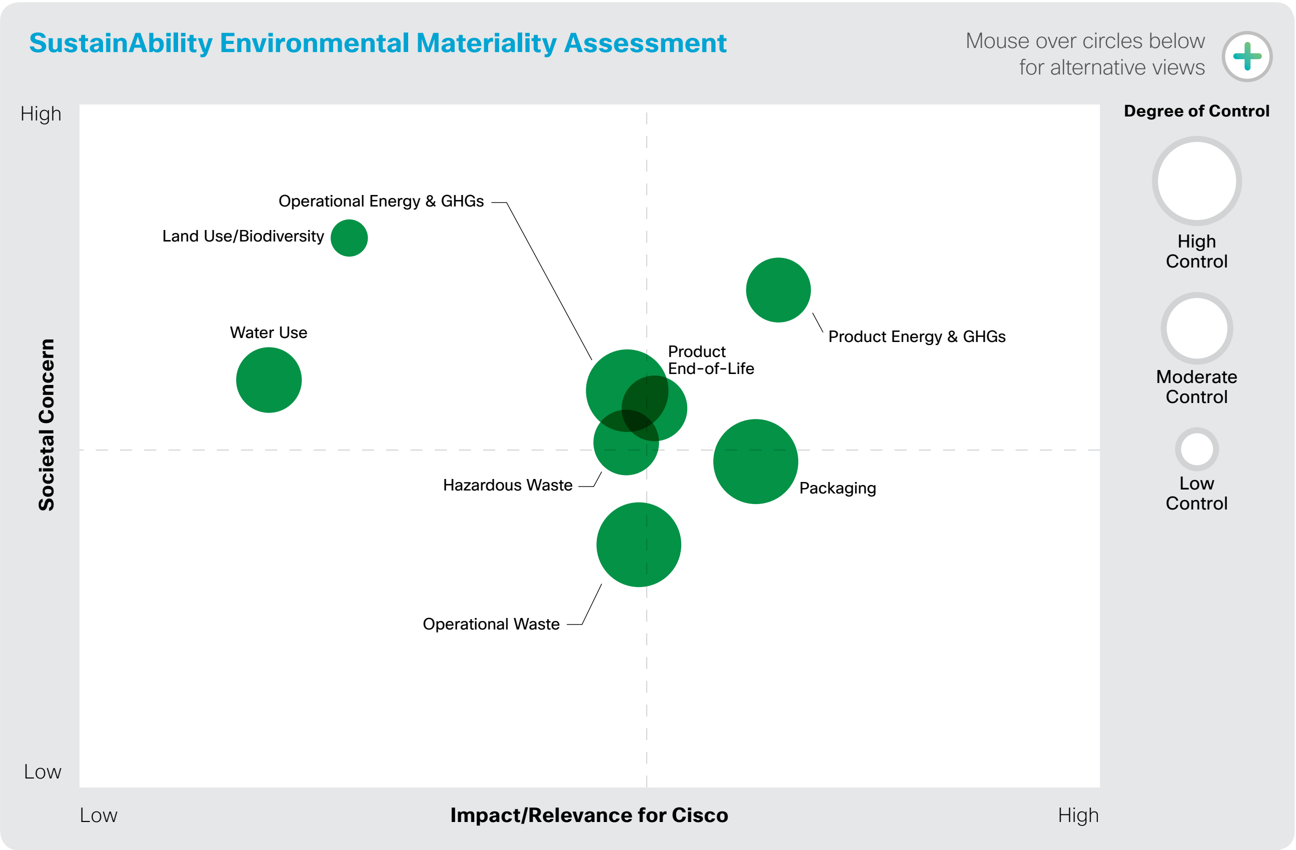
SustainAbility's assessment of materiality, discussed in the Introduction section and reproduced on this page, was organized around issue categories whose boundaries don't correlate exactly with GRI performance indicators. Cisco's materiality ranking, discussed in the Environment section and reproduced on this page, uses GRI performance indicators as part of our standardization of our CSR reporting.

In general, there is general agreement between the two materiality assessments:

- Energy/GHG emissions—related both to operations and our products, product EOL, and packaging are most material in both presentations
- Hazardous waste in the SustainAbility assessment is ranked more highly than Cisco's original ranking (from 2011 and updated slightly for 2012). We interpret the underlying concern of survey respondents to be the same for hazardous waste and product EOL. However, we place issues controlled by legal requirements in Tier 5 since compliance is a given. Stakeholder feedback has consistently indicated that a company's commitment to sustainability is measured voluntary action, and not simple legal compliance. We therefore treat issues of legal compliance, such as RoHS, REACH and WEEE, separately to mainstream sustainability initiatives.
- SustainAbility rank land use, biodiversity, and water use lower in relevance to Cisco. These issues are similarly placed in the lower Tier 4 as defined by the GRI performance indicators.

Materiality is the foundation upon which Cisco's sustainability strategy and initiatives are built.

If you have comments or need further clarification, please send us an email.



SustainAbility Environmental Materiality Assessment

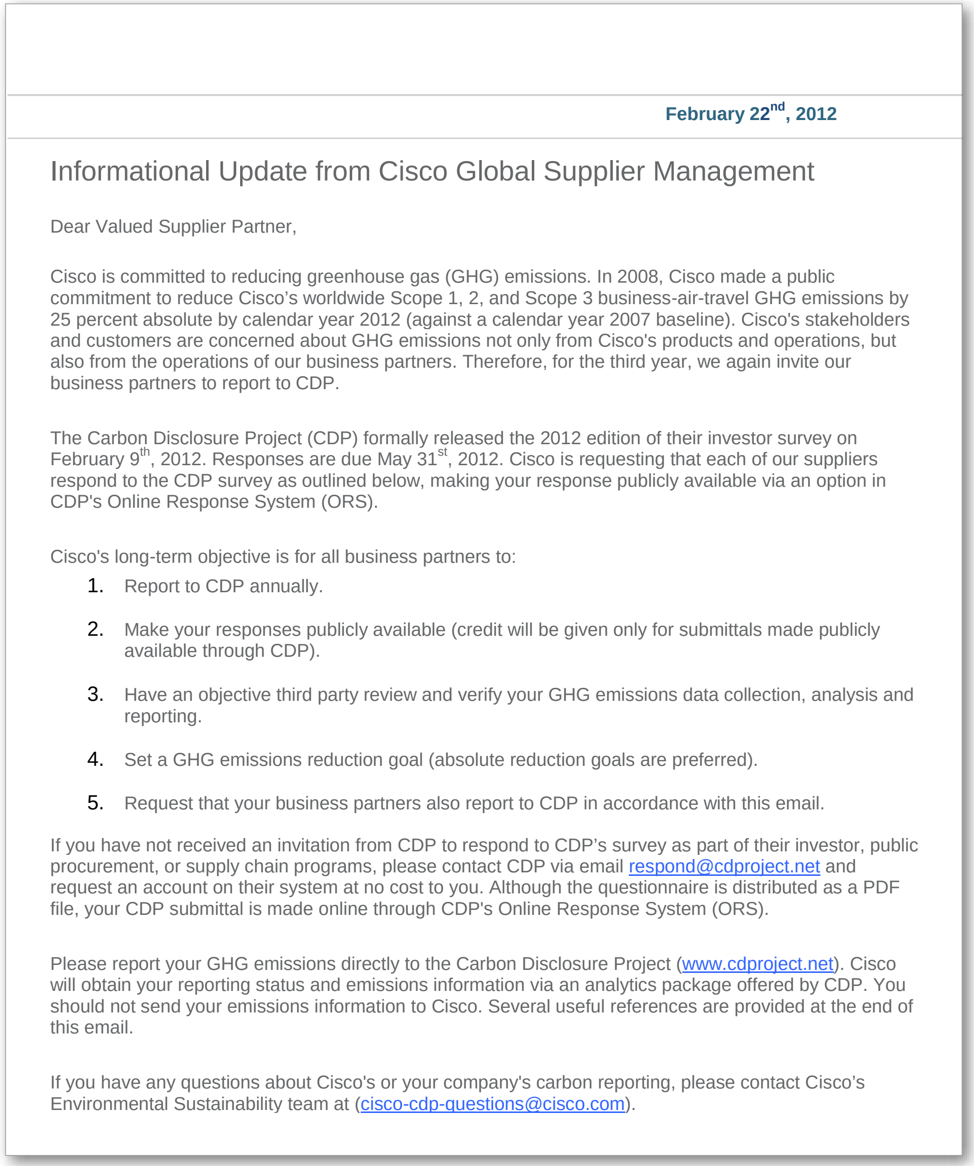
Mouse over circles below for alternative views

< Previous View

Appendix

1. Comparison of SustainAbility Materiality Matrix and Table 1 of Environment Section
> 2. Global Supplier Management Letter
3. Comparison of BAU and ICT Solution for Remote Collaboration
4. Comparison of BAU and ICT Solution for Teleworking

2. Global Supplier Management Letter



February 22nd, 2012

Informational Update from Cisco Global Supplier Management

Dear Valued Supplier Partner,

Cisco is committed to reducing greenhouse gas (GHG) emissions. In 2008, Cisco made a public commitment to reduce Cisco's worldwide Scope 1, 2, and Scope 3 business-air-travel GHG emissions by 25 percent absolute by calendar year 2012 (against a calendar year 2007 baseline). Cisco's stakeholders and customers are concerned about GHG emissions not only from Cisco's products and operations, but also from the operations of our business partners. Therefore, for the third year, we again invite our business partners to report to CDP.

The Carbon Disclosure Project (CDP) formally released the 2012 edition of their investor survey on February 9th, 2012. Responses are due May 31st, 2012. Cisco is requesting that each of our suppliers respond to the CDP survey as outlined below, making your response publicly available via an option in CDP's Online Response System (ORS).

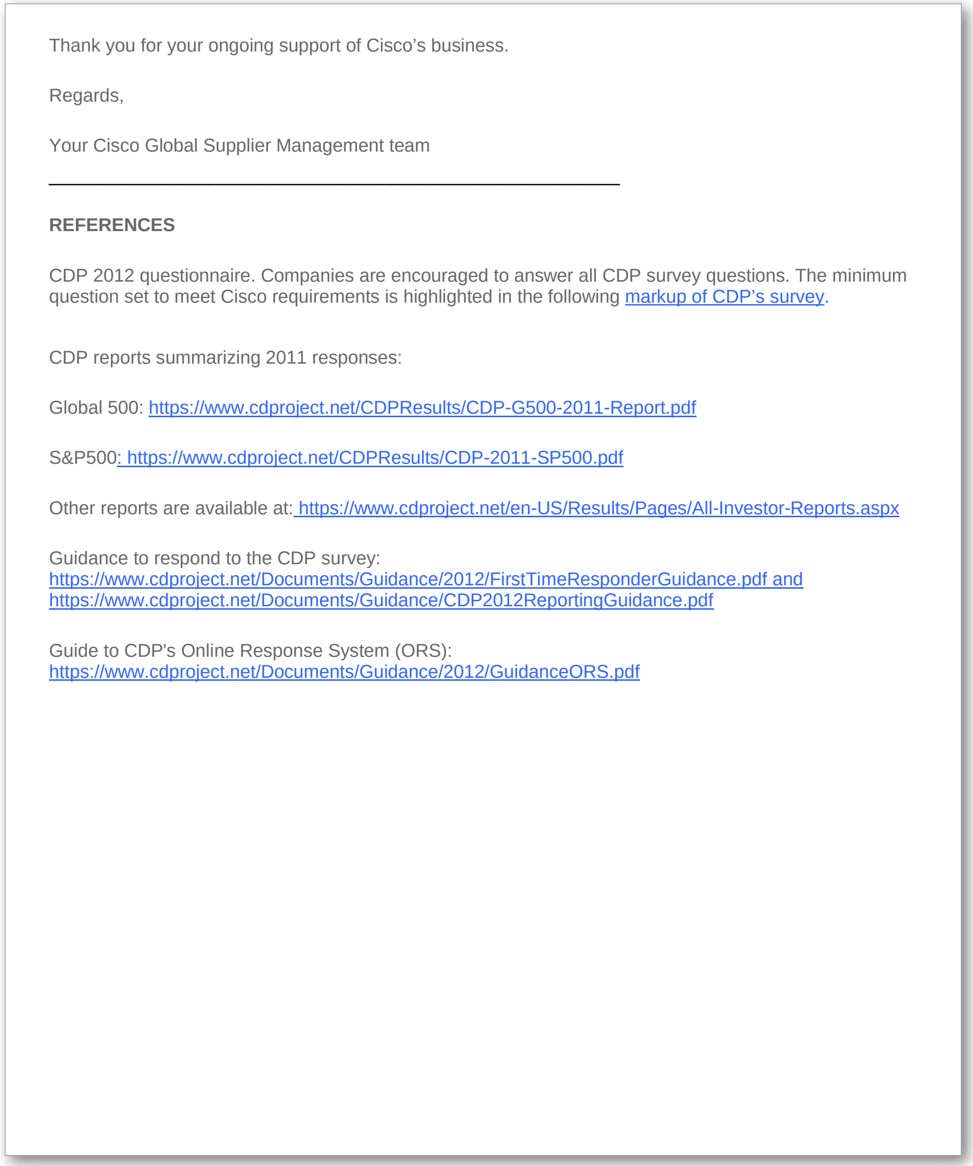
Cisco's long-term objective is for all business partners to:

1. Report to CDP annually.
2. Make your responses publicly available (credit will be given only for submittals made publicly available through CDP).
3. Have an objective third party review and verify your GHG emissions data collection, analysis and reporting.
4. Set a GHG emissions reduction goal (absolute reduction goals are preferred).
5. Request that your business partners also report to CDP in accordance with this email.

If you have not received an invitation from CDP to respond to CDP's survey as part of their investor, public procurement, or supply chain programs, please contact CDP via email respond@cdproject.net and request an account on their system at no cost to you. Although the questionnaire is distributed as a PDF file, your CDP submittal is made online through CDP's Online Response System (ORS).

Please report your GHG emissions directly to the Carbon Disclosure Project (www.cdproject.net). Cisco will obtain your reporting status and emissions information via an analytics package offered by CDP. You should not send your emissions information to Cisco. Several useful references are provided at the end of this email.

If you have any questions about Cisco's or your company's carbon reporting, please contact Cisco's Environmental Sustainability team at (cisco-cdp-questions@cisco.com).



Thank you for your ongoing support of Cisco's business.

Regards,

Your Cisco Global Supplier Management team

REFERENCES

CDP 2012 questionnaire. Companies are encouraged to answer all CDP survey questions. The minimum question set to meet Cisco requirements is highlighted in the following markup of CDP's survey.

CDP reports summarizing 2011 responses:

Global 500: https://www.cdproject.net/CDPResults/CDP-G500-2011-Report.pdf

S&P500: https://www.cdproject.net/CDPResults/CDP-2011-SP500.pdf

Other reports are available at: https://www.cdproject.net/en-US/Results/Pages/All-Investor-Reports.aspx

Guidance to respond to the CDP survey:
https://www.cdproject.net/Documents/Guidance/2012/FirstTimeResponderGuidance.pdf and
https://www.cdproject.net/Documents/Guidance/CDP2012ReportingGuidance.pdf

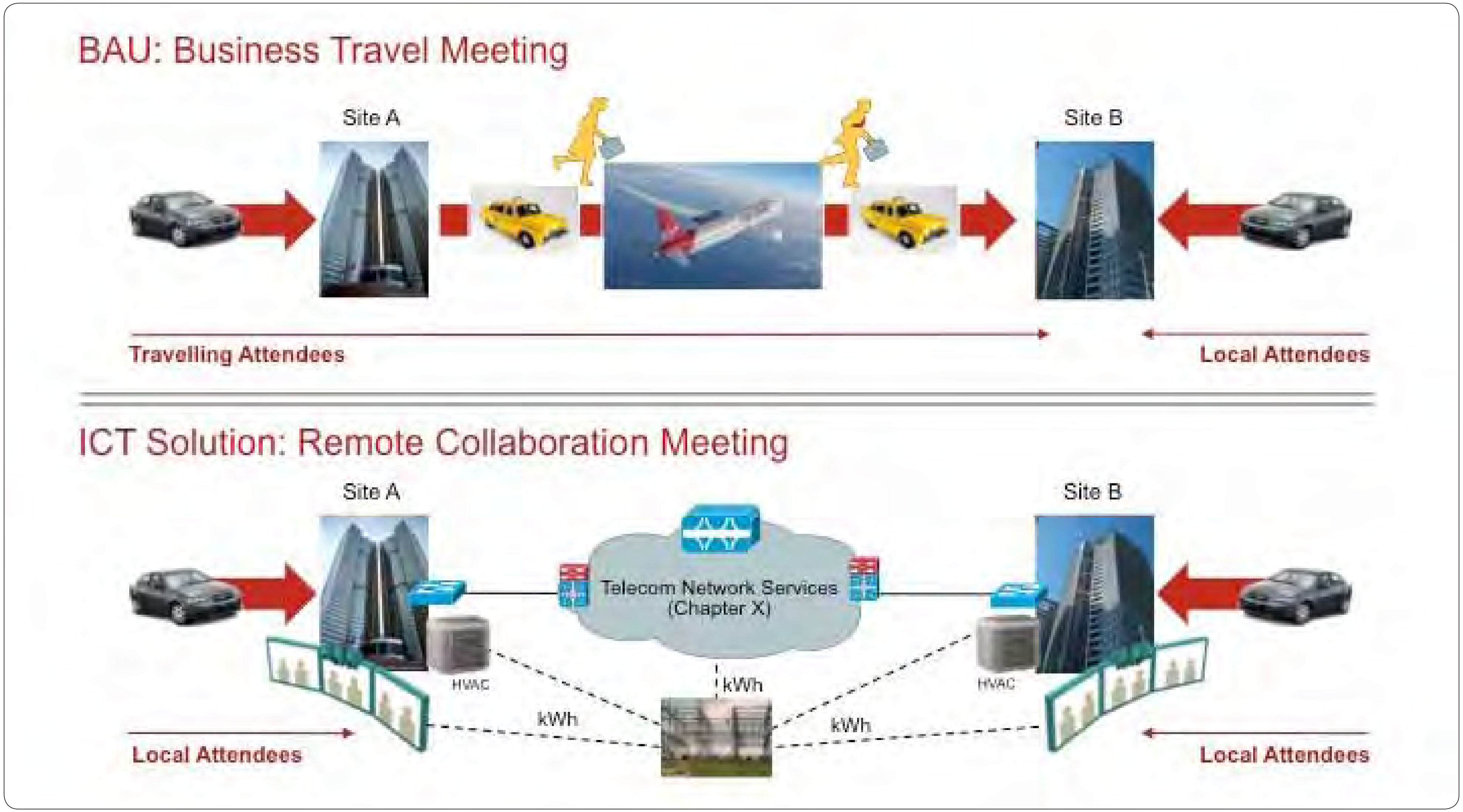
Guide to CDP's Online Response System (ORS):
https://www.cdproject.net/Documents/Guidance/2012/GuidanceORS.pdf

< Previous View

Appendix

1. Comparison of SustainAbility Materiality Matrix and Table 1 of Environment Section
2. Global Supplier Management Letter
> 3. Comparison of BAU and ICT Solution for Remote Collaboration
4. Comparison of BAU and ICT Solution for Teleworking

3. Comparison of BAU and ICT Solution for Remote Collaboration (Avoiding Business Travel)

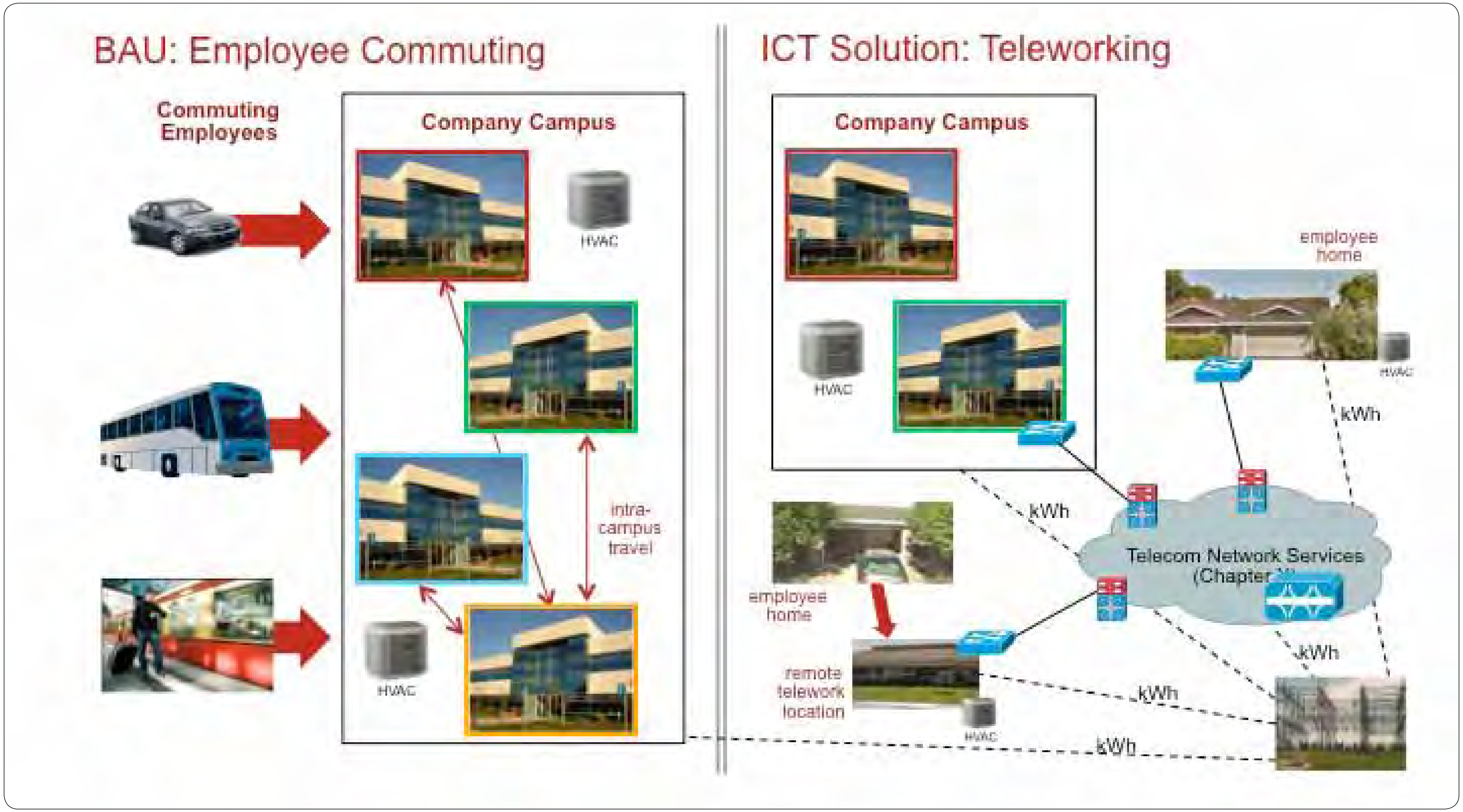

BAU: Business Travel Meeting
Site A
Site B
Travelling Attendees
Local Attendees
ICT Solution: Remote Collaboration Meeting
Site A
Site B
Telecom Network Services (Chapter X)
HVAC
HVAC
kWh
kWh
kWh
Local Attendees
Local Attendees

< Previous View

Appendix

1. Comparison of SustainAbility Materiality Matrix and Table 1 of Environment Section
2. Global Supplier Management Letter
3. Comparison of BAU and ICT Solution for Remote Collaboration
> 4. Comparison of BAU and ICT Solution for Teleworking

4. Comparison of BAU and ICT Solution for Teleworking (Avoiding Employee Commuting)


BAU: Employee Commuting
Commuting Employees
Company Campus
HVAC
intra-campus travel
HVAC
ICT Solution: Teleworking
Company Campus
HVAC
employee home
HVAC
kWh
kWh
Telecom Network Services (Chapter
employee home
remote telework location
HVAC
kWh
kWh
kWh