CEA
Consumer Electronics Association

Leading in Ways Big and Small

"Discovery consists of seeing what everybody has seen and thinking what nobody has thought."

Albert von Szent-Györgyi, *bio-researcher and Nobel Laureate; first to identify Vitamin C*

Consumer Electronics Association
2013 Sustainability Report

International CES Attendees ●

2,000+
Members Worldwide

About The Consumer Electronics Association

The Consumer Electronics Association (CEA)® is the technology trade association representing the $203 billion U.S. consumer electronics industry. More than 2,000 companies enjoy the benefits of CEA membership, including legislative advocacy, market research, technical training and education, industry promotion, standards development and the fostering of business and strategic relationships. CEA is the industry authority on market research and forecasts, consumer surveys, legislative and regulatory news, engineering standards, training resources and more. CEA is also engaged in consumer education and collaborative partnerships to help meet the challenge of building a more sustainable and eco-efficient tomorrow.

CEA owns and produces the International CES® – The Global Stage for Innovation, the world's largest innovation event. Each year the International CES brings together more than 150,000 retail buyers, distributors, manufacturers, market analysts, importers, exporters and press from 150 countries. Find more about the International CES® at **CESweb.org**. Find CEA online at **CE.org**, and **DeclareInnovation.com**. Find information on CEA's environmental programs and policies at **CE.org/green** and **GreenerGadgets.org**.

150,000+
International CES
Annual Attendees

$203B
Industry
Economic Impact

In Ways Big and Small

The Consumer Electronics Association and its members are working to build a more sustainable future – leading through innovation, collaboration and a commitment to consumers and communities.

A Letter from Leadership

"Consumers increasingly want innovative, eco-friendly products, and our industry is really delivering."

Gary Shapiro, *President and CEO*
Consumer Electronics Association

Our world faces significant opportunities and challenges in building a more sustainable planet. Consumer electronics (CE) companies and CEA® are leading the way with a wide range of initiatives – big and small – to leverage the power of innovation to reduce the environmental impacts of our industry.

CE products play a vital and unprecedented role in today's world. Our products educate, inform, entertain and connect people around the corner and around the globe. No longer is information simply generated from above and disseminated to the masses – information is created and shared in all different directions in transformative ways.

Great features and applications are not enough to ensure the long-term success of our industry. We are committed to embedding sustainable practices in how products are designed, manufactured, distributed, sold and handled at their end-of-life.

Each year brings new scientific and engineering breakthroughs to make products more energy efficient, less resource-intensive and more recyclable. Consumers increasingly desire innovative, eco-friendly products, and the CE industry is delivering. This report highlights company-specific initiatives and achievements since our last CE industry sustainability report in 2010. This report also highlights key sustainability areas like electronics recycling. Leveraging new partnerships, CE manufacturers, retailers and others are working with governments, NGOs and stakeholders to increase significantly the recycling of consumer electronics. In 2011, CEA announced the eCycling Leadership Initiative

A Letter from Leadership *continued*

to increase the amount of consumer electronics being recycled to one billion pounds annually by 2016. So far, our industry is on track, recycling 585 million pounds of CE in 2012. The CE industry also believes that the quality of recycling is just as critical as the quantity, so we are committed to using vendors that employ only the highest recycling standards, including third-party certification systems R2® and e-Stewards®.

One of CEA's most important roles is to channel the commitment and expertise of our members to tackle environmental and resource challenges. CEA organizes industry working groups and multi-stakeholder consortia to collect data, develop industry standards and measure industry performance to advance sustainability and understand environmental impacts. In late 2012, for example, CEA, the National Cable & Telecommunications Association (NCTA) and 15 industry-leading video providers and device manufacturers signed an unprecedented Set-Top Box Energy Conservation Agreement that will result in annual residential electricity savings of $1.5 billion or more.

In addition, CEA released a comprehensive study of CE energy use in U.S. homes in late 2011 and will issue a revision of this well-received report in the near future. CEA also created a multistakeholder group to revise test procedures for measuring power consumption for televisions and set-top boxes.

The emergence of new tools for consumers to find such products is an exciting industry development. The U.S. Environmental Protection Agency's ENERGY STAR® program continues to guide consumers toward more energy-efficient products. Since 2011, all televisions sold in the United States must display an EnergyGuide label that quantifies energy use in terms consumers understand: dollars per year.

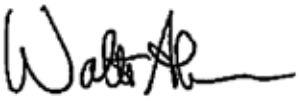
CEA also plays an expanding role in consumer education. CEA's GreenerGadgets.org website informs consumers and users of CE products about how they can make smarter choices that save energy, reduce waste and ensure responsible recycling at end-of-life.

CEA's role as the producer of the International CES® serves as not only the focal point for global innovation but also a case study for how to bring more than 150,000 people together sustainably with fewer environmental impacts. CEA is setting an example by recycling more than 75 percent of show materials, and repurposing CES badge holders for future use. It's an ideal example of how smart and small decisions can add up to big wins for communities and the environment.

The Set-Top Box Energy Conservation Agreement will result in annual residential electricity savings of $1.5 billion or more.

Leveraging the brightest minds in our industry and working collaboratively with a broad range of stakeholders, CEA and our industry partners continue to launch initiatives and forge partnerships that provide innovative and sustainable solutions for consumers, communities and our planet.

Gary Shapiro
President and CEO



Walter Alcorn
Vice President Environmental Affairs & Industry Sustainability

Douglas Johnson
Vice President, Technology Policy

Leading Change Through Collaboration

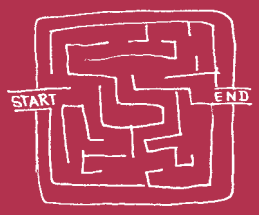
Bringing together stakeholders with diverse interests but common goals is the essence of collaboration – and at CEA we consider it essential to achieving progress. That's why we have been a driving force behind initiatives that bring together business, government, the scientific community, nongovernmental organizations (NGOs), consumers and other stakeholders to meet the challenge to build a more sustainable future.

Many of the most effective solutions with the broadest impact are voluntary programs – initiatives that harness transformative technology to drive efficiency and reduce environmental impacts. For example, CEA and CE companies have long been strong supporters of the U.S. Environmental Protection Agency's ENERGY STAR program. In the more than two decades since its inception, ENERGY STAR has achieved dramatic savings in energy use and reductions in greenhouse gas emissions. In addition, CE companies have embraced the principles of affirmative procurement through tools such as the Electronic Product Environmental Assessment Tool (EPEAT) – and deliver tens of millions of EPEAT-certified products to consumers and business customers each year.

CEA has also been a leader in bringing together many of the brightest minds inside and outside our industry to develop standards, testing protocols and processes to measure and report the environmental and social impacts of electronics. Our efforts support ground-breaking research to measure efficiency improvements of electronic devices – analyses that can help guide even greater improvements going forward.

Whether it is by acting jointly with the National Cable & Telecommunications Association (NCTA) to greatly increase the efficiency of set-top boxes, or working side by side with retailers, recyclers and state and local governments to significantly expand electronics recycling, our commitment to collaborating for the public good will continue. These partnerships are crucial in order to meet the sustainability challenges before us. There is much more we can achieve together. Going forward, CEA is committed to continuing to grow its leadership and serve as a catalyst for change and progress.

Sustainable Product Life Cycle



"How wonderful it is that nobody need wait a single moment before starting to improve the world."

Anne Frank, *13-year-old Jewish victim of the Holocaust and famous diarist*

Bigger Capabilities, Smaller Impacts

Each of us has within our grasp the opportunity to improve our world – sometimes in small ways centered on our individual choices and lifestyles – and at other times through decisions that can positively impact others and on a big scale.

For leaders in the CE industry, the opportunity to create a better world starts by asking important questions that address every phase of the product life cycle: How do we expand capabilities while reducing environmental impacts? Can we add features while lowering power usage? What's the best way to reduce material inputs and conserve resources during manufacturing and shipment? What new technologies allow us to create products that use more recycled material – and also make them more recyclable at end-of-life? Are there better strategies to reduce the amount of CE products entering the waste stream?

Finding answers to these questions, and many others, is the ongoing focus of CE designers, engineers, sustainability experts, marketers and front-line personnel. Our journey remains far from complete, but throughout our industry exciting progress is underway.

Lighter, Greener, More Recyclable

Sustainable Product Design

Achieving greater eco-efficiency starts at the earliest phases of product design. A deliberate design imperative is necessary in order to develop CE solutions that require fewer resources, use less power, reduce or eliminate toxic substances and can be readily recycled at end of life. Increasingly, CE companies employ Life Cycle Assessment (LCA) as one of several valuable Design for the Environment (DfE) tools to guide better choices from the earliest stage of product development.

The LCA methodology helps product designers better understand the environmental impact of raw or recycled materials, manufacturing processes, component selection and packaging. LCA insights reveal the most meaningful opportunities for improvement – changes that will truly "move the needle" in the effort to achieve greater eco-efficiency.

Design also influences how recyclable a product will be once it reaches the end of its operational life. More and more, CE product engineers and designers weigh those considerations as they select materials and assembly techniques – decisions that can facilitate easy disassembly and reclamation of product components, years after the device was manufactured.

In the past, and before new technologies displaced older ones like cathode ray tube technology, toxic substances, including lead, mercury, arsenic, cadmium, obsolete brominated flame retardants (BFRs) and others, could routinely be found in CE devices and/or their packaging. Industry innovation as well as more stringent government regulation around the world has led to a dramatic reduction in materials of concern in CE products. CEA has developed an important tool, the Joint Industry Guide (JIG) – Material Composition Declaration for Electrotechnical Products, to help facilitate compliance with these restrictions and with material disclosure requirements across the global supply chain. (To learn more, visit **CE.org/jig**)

A More Sustainable Life Cycle

Designed With Tomorrow in Mind

Plastics play an integral role in most CE devices. They are used in cases, covers, internal structural and mechanical parts and in multiple other applications. In some CE product portfolios, plastic can constitute 25 percent of the materials contained in devices. Virgin plastics and resins are derived from petroleum and natural gas – requiring the extraction of those natural resources and generating CO2 emissions in the process. Reducing the use of virgin material, and increasing the use of recycled plastic (from both postconsumer and postindustrial sources) represents a big opportunity to enhance eco-efficiency. CE companies are implementing an array of strategies to rapidly expand the use of recycled material. Companies like **Samsung Electronics** – which in one year more than quadrupled the percentage of recycled plastics in its products – are achieving meaningful results.

As the industry continues to increase its use of recycled plastics, a gating item is the need to ensure that recycled materials deliver the strength, durability and other performance characteristics required in sophisticated electronics devices. For **Sony,** the work of their engineers to develop **SoRPlas** (Sony Recycled Plastic) is expanding the possibilities of recycled material – and bringing the company closer to its goal of a zero environmental footprint.

SoRPlas has proven to be a viable alternative to virgin polycarbonate plastic. In this innovative manufacturing process, plastic scrap from leftover optical discs, transparent sheets and used water bottles is crushed, washed and converted to SoRPlas. Traditional recycled plastics contain about 30 percent recycled material. Setting the bar higher, in SoRPlas the recycled content can be as high as 99 percent – and the one percent remainder includes Sony's original flame retardant that provides superior flame resistance while eliminating the need for brominated flame retardants (BFRs). This breakthrough material can be found today in Sony's digital still cameras and other Sony products.

The HP Deskjet 3050A e-All-in-One contains 25 percent postconsumer recycled plastic. HP is also reducing the amount of material reaching the waste stream through a "closed-loop" recycling process in which original HP ink and LaserJet toner cartridges are reduced to raw materials that can then be used to make new cartridges as well as other metal and plastic products. In just two years, HP shipped 600 million inkjet cartridges containing recycled plastic derived from this process.

Big Gets Light

Devices that are smaller and lighter are also more resource efficient – that's why reducing product mass can create significant environmental benefits. CE designers and engineers are focused on bringing to market a new generation of products that have big features but require fewer resources to build *and* reduce GHG emissions during manufacturing. In addition, industry research and development teams are exploring the vast potential of nanotechnology, which holds long-term promise for creating solutions that require significantly less virgin material input.

HP Thin Client, HP t610

HP is taking important strides to use materials more efficiently through innovations in technology and product design. For example, HP Thin Client computing devices can require up to 50 percent less material to produce than a traditional HP desktop PC. They deliver true PC-like performance for remote or cloud computing environments.

Panasonic AW-HE120

Used for teleconferencing, sports, government video and other applications, **Panasonic**'s HD rotatable integrated camera offers a solution that is 60 percent smaller in size and mass compared with the conventional model. Equipped with broadcast-quality sensors, digital signal processing and a high-performance lens, the camera's reduced size and mass also improves its pan and tilt functionality

Sony XBA-NC85D

In the past, conventional noise-cancelling headphones required a cord-mounted control box to house components such as a processor and microphone. **Sony** found a more elegant solution – smaller and lighter headphones that relocate these components into the ear bud housing. The design also saves resources by eliminating the need for replaceable batteries.

Leading Through Green Purchasing

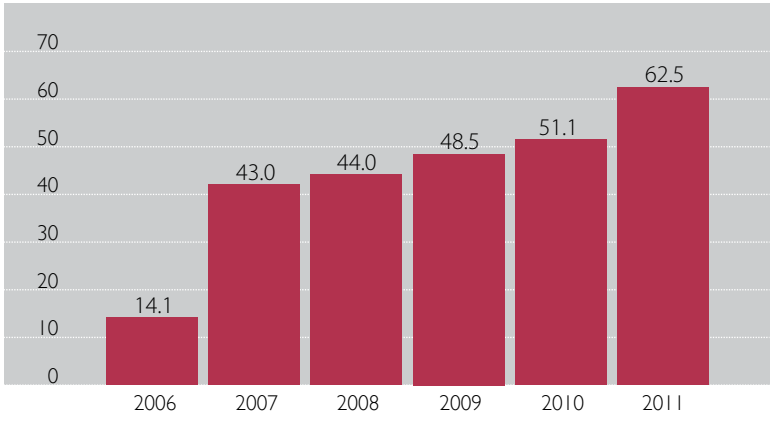
Since its inception in 2006, industry and consumer acceptance of the Electronic Product Environmental Assessment Tool® (EPEAT) – the Green Electronics Council's global rating system for environmentally preferable electronics – has grown exponentially. Initially designed primarily as a tool for procurement professionals in business and government settings, EPEAT ratings today are used by growing numbers of individual consumers. In 2011 more than 532 million EPEAT-registered products sold worldwide.

Using the IEEE 1680 industry standards developed by a cross-section of stakeholders during the past decade, the EPEAT system measures electronics products according to more than 50 required and optional life cycle performance criteria. Bronze, Silver and Gold ratings are reached based upon meeting ascending numbers of these checkpoints. These measures include design, production, energy use and recycling, among others. Importantly, all manufacturer claims are validated by ongoing independent verification, including unannounced, publicly reported audits.

Although used to date primarily as a purchasing tool for institutional buyers, the potential for EPEAT in the CE industry is exciting. Today approximately 50 manufacturers are EPEAT participants. In the United States, at the end of 2011 there were nearly 3,000 individual products registered. That number is expected to continue to grow rapidly; in 2012 and 2013 new IEEE standards were adopted to include imaging equipment and televisions.

EPEAT-Registered Products U.S. Sales Growth

2006-2011 [in millions]



The environmental benefits of EPEAT purchasing have been significant. The Green Electronics Council calculates that in the United States in 2011 EPEAT purchasing reduced the use of toxic materials by 1,053 metric tonnes, and greenhouse gas emissions by more than one billion metric tonnes of carbon equivalent. Those totals are commensurate with removing nearly 750,000 average passenger cars from the road for a full year.

In 2012, **Best Buy** customers purchased more than 1.5 million EPEAT-qualified products – energy savings equivalent to powering nearly 15,000 homes for one year.

Read the Screen, Save the Trees

It's a simple idea with a powerful impact. Migrating the content of product guides and operating manuals from analog to digital formats greatly reduces the need for voluminous printed materials – conserving resources and eliminating the energy and GHG emissions required to produce them. From manufacturers of smartphones, cameras and televisions to publishers of electronic games, CE companies are finding smarter, greener ways to convey information to those who use their products. For some devices, that means shrinking the printed manual to a basic overview of features, with more detailed product information embedded in the device or available via the Internet. For other products, printed manuals have been eliminated altogether.

LG Electronics, for example, replaced the hard copy manual for its S5ype smartphone with an entirely online edition. Televisions are also fertile ground for this trend. As TVs gain new capabilities and features, their printed manuals have also expanded – sometimes to hundreds of pages. Not only is moving this content to a digital format preferable from an environmental perspective – it also makes information easier to find. In its current line of HD televisions, **Samsung** incorporates e-manuals, available on screen, that provide answers to most consumer questions. Some **Sony** BRAVIA™ LCD TV models include an i-manual button on the remote, which allows the user to view a list of help topics and makes information instantly available.

The potential for resource savings is not restricted to operating manuals for CE devices alone. With their light weight, long battery life and expansive memory capacity, today's tablet computers are proving to be an ideal solution to replace bulky – and financially and environmentally costly – paper manuals.

Designing For Tomorrow Today

An important characteristic of ecologically sound product design is planning for how a device can be responsibly recycled at end of life. Choices of materials, components, fasteners, device architecture and the recycling technology ultimately employed all will play a role in determining the degree to which resources in a device can be reclaimed.

Close collaboration between manufacturers and recyclers can help product designers gain a better understanding of the current challenges in recycling electronics. For some CE companies, training programs are in place to enable personnel to learn by dismantling an end-of-life device themselves. This hands-on experience helps design engineers gain deeper insights into how future products can be made more recyclable. Techniques like marking the number and position of screws, and labeling the materials and flame retardants used in plastic parts, can all contribute to easier reclamation.

HP is one of many CE companies targeting greater recyclability in the design of its products. HP designs products to use common fasteners and snap-in features and to avoid applying glues and adhesive welds where feasible. These measures make it easier for recyclers to dismantle products and to separate and identify different plastics. Most HP PCs are more than 90 percent recyclable by weight, and workstations and the Elite and Pro series desktop PCs have a chassis that can be easily disassembled for upgrade to extend product life and for recycling at end of life.

For **Dell**, close collaboration with recyclers helps guide the selection of materials that can ultimately be reclaimed. The Dell XPS 13 Ultrabook™, launched in fiscal 2012, uses an innovative polymer-reinforced carbon fiber base that helps keep it cool to the touch. Before entering final design and production, Dell worked with its recycling and asset recovery partners to ensure this new material would meet the recyclability criteria for new green label standards such as IEEE 1680.1.

Dell XPS 13 Ultrabook

It Doesn't Have to End Here

Extending the Life of Existing Electronics

There is perhaps no better way to reduce waste and conserve precious resources than to lengthen the operating life of CE products currently in use. A single smartphone may contain 50 different chemical elements – many of which are not economically viable to recover during recycling. Finding ways to repair, refurbish or update these devices is both economically sound and environmentally smart.

DIRECTV is one company at the forefront of this effort. Central to the company's operating model is a commitment to refurbish used equipment recovered from customers' homes. That approach reduces the number of new receivers built and the resources required to produce and ship them. In fact, DIRECTV refurbished more than eight million receivers and 650,000 pieces of other electronic hardware in 2012 alone.

America's largest electronics retailer, **Best Buy**, is playing an important role to help extend the life of existing devices. The company's Geek Squad® repair service extends the life of products and reduces the volume of electronics reaching the waste stream. Best Buy has also invested in one of the most in-depth parts catalogs in the repairs industry. The Best Buy PartStore™ offers nearly five million new and used parts available to technicians and customers in the United States and Canada, including access to parts taken from nonworking units.

iFixit is a socially motivated, dynamic company that also serves as the hub of a global repair community – thousands of technicians and volunteers working together to make the world better by teaching people how to fix things. iFixit offers tools and parts, and leverages the expertise of its community to produce thousands of repair guides for hundreds of devices – phones, computers, game consoles, tablets, cameras and more. And regular "tear down" analyses provide consumers with detailed assessments of how repairable or recyclable a new device will be.

Dell XPS 10 Receives Top Score for Tablets

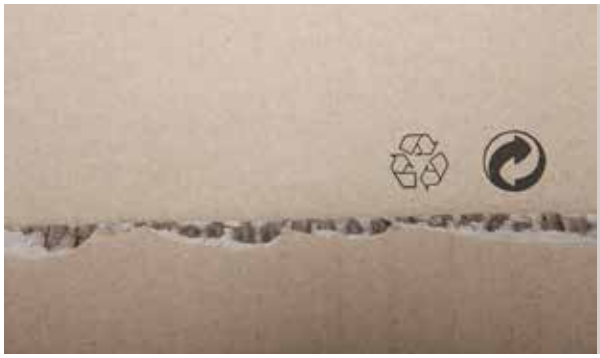
When iFixit assessed 18 tablets for ease of disassembly for recycling and repair, the Dell XPS 10 received its highest rating. Key attributes? A clean design that uses ZIF connectors and cables rather than soldered connections, clear internal labeling, an easy-to-remove battery, accessible cameras and only 20 standard Phillips head screws.

Big Gets Small

Sustainable Packaging Design

The beauty of green packaging is the echo chamber of positive effects it creates from the factory floor to the consumer's home. Smaller, lighter and more efficient package designs not only require fewer resources to produce – their benefits resonate throughout the supply chain. These packages require fewer ships, planes, railcars and trucks to transport; less space in warehouses, distribution centers and retail locations; reduced waste after purchase; and less energy at every step of the process.

For CE companies, shrinking packaging mass and volume is a key focus. So, too, is reducing environmentally unfriendly content and expanding the use of recycled and renewable material. **Best Buy** is committed to a goal to eliminate packaging materials that are considered toxic or create challenges in the material-recovery processes. In fiscal 2013, the company eliminated an additional 12 million tons of PVC plastic from its retail packaging and more than 20 tons of expanded polystyrene foam from its Exclusive Brands TV packaging. For Best Buy that approach also means choosing, whenever possible, paper-based materials rather than plastic, eliminating or reducing PVC, using postindustrial and postconsumer recycled cardboard, and applying nonsolvent coatings and organic inks.



LG Electronics: Documenting Recycled Pulp in Packaging

In 2012, **LG** surveyed suppliers to create a new database that lists recycled pulp content of each paper stock used for packaging TV and mobile phone products. In its first year of implementation, the new measurement tool helped the company achieve **80 percent** of recycled pulp content for TV packaging and **71 percent** for mobile phones. The data will serve as a baseline for continued increases in recycled content going forward.

Recyclable and Renewable

By sourcing packaging materials from unexpected sources like bamboo, mushrooms and wheat straw, **Dell** has become a leading innovator in sustainable packaging design. This breakthrough strategy to leverage fast-growing, renewable organic material is aligned to help meet the company's ambitious goal – to create a waste-free packaging stream by 2020. Achieving this objective requires:

- That 100 percent of Dell packaging be sourced from sustainable materials or material that was formerly part of the waste stream; and,
- Ensuring that 100 percent of Dell packaging is either recyclable or compostable at the end of its life.

Dell launched its renewable packaging initiative with bamboo. Sourced in China near its manufacturing facilities, bamboo is used to create cushions and trays for laptop and tablet products. Actually a type of woody grass, bamboo is rapidly renewable – and can regrow at a rate of more than one inch per hour. The material is also highly recyclable and can be treated like cardboard at the recovery stage.

What if you could leverage natural processes to grow packaging rather than manufacture it from petroleum or natural gas? That's the big idea behind Dell's mushroom-based packaging. The company's team worked with sustainable packaging innovator Ecovative Design to develop mushroom packaging for Dell servers. The product is grown using mycelium, a fungal network of threadlike cells that is combined with agricultural waste like cotton hulls. Within a week, strong, durable packaging material emerges from this organic process – perfect for cushioning and bracing Dell's valuable high-performance servers. After its work is done, the mushroom packaging is fully compostable.

In 2013 Dell added to its renewable packaging portfolio when it announced it will begin using a new sustainable material – wheat straw – in its cardboard boxes for notebooks originating in China. Many Chinese farmers currently treat this byproduct of wheat harvesting as waste and burn it for disposal, contributing to environmental degradation. Dell will incorporate the straw in its boxes, starting with 15 percent by weight and ramping up as operations scale. The remainder of the box will primarily come from recycled content fiber. During pulping, the wheat straw goes through an enzymatic process – modeled after the way cows digest grass – that uses 40 percent less energy and almost 90 percent less water than traditional chemical pulping.

Leading With Less

MeadWestvaco's **Natralock®** utilizes a tear-resistant paperboard that is as durable and secure as traditional clamshells – but much more eco-efficient. Natralock packages use 70 percent less plastic and require 55 percent less energy to manufacture. And they provide consumers with an easy and safe opening experience.

In 2012, **LG Electronics** set new guidelines to reduce the weight and volume of packaging while increasing reuse and recycling and launched a new green packaging development process. The results were immediate. For new TV products released in 2013, LG was able to reduce packaging materials by nearly five percent – despite increased product size – and packaging materials in mobile phones by more than 20 percent.

By designing the packaging for the **Sony®** VAIO S series so that each component serves two functions, Sony succeeded in trimming the number of packaging components used and shrinking the package size, thereby reducing the total package weight. Both the inner and outer boxes are designed to be reusable.

HP is collaborating with suppliers of 100 percent recycled foam cushions to broaden industry adoption of these materials – and build the infrastructure to recycle them. The company worked with Sealed Air Corporation, a major provider of recycled packaging foam, to expand its "closed-loop" recycling process globally. Today, HP commercial desktop PCs in North America are packaged with foam cushions made from 100 percent recycled plastic content.

Big Features, Smaller Power Needs

Sustainable Product Use

Consumer electronics devices enhance our daily lives in many respects – providing entertainment, information and connecting us in ways that enrich our personal lives and make our work more productive. Those robust capabilities also require electricity. Yet, considering that the typical American household contains 24 electronic devices, it is perhaps surprising that a study by Fraunhofer USA found that CE devices account for only 13.2 percent of residential energy consumption in the United States.

Throughout the CE industry and across every product category, the drive for even greater energy efficiency in devices is underway – and achieving results. A product that consumes less power costs consumers less to operate and accounts for fewer GHG emissions during its lifespan.

Today, engineers and designers are focused on several clear targets of opportunity for power savings. These include reducing or eliminating power needs in standby mode, improving the efficiency of power adapters and charging devices, and developing a new generation of processors and other components that require less electricity.

Manufacturers of game consoles, for example, have increased energy efficiency through smaller chips which require less power and diminish the need for other components designed to address heat remediation, such as fans, radiating fins and insulation. Current models of all three console systems demonstrate lower energy consumption than previous versions. Today's **Microsoft** Xbox 360 uses less than half the energy of the 2005 launch model for game play and navigation mode. The current **Sony** PlayStation® 3 model uses just around 35 percent as much power for game play mode and navigation mode as its 2006 predecessor. The **Nintendo** Wii, which has the lowest energy usage of the three systems, uses 22 percent less power in active gaming and 43 percent less power in standby mode than the 2006 Wii model.

Haswell's Big Leap Forward

Processors serve as the central nervous system of laptop computers, and making them more energy efficient offers a big payoff – reduced power consumption overall and longer battery life when unplugged. In 2013, **Intel** took a big leap forward in power efficiency with the introduction of its fourth Generation Intel® Core™ Processor – codenamed "Haswell." The new chip draws 50 percent less power than previous iterations of Core processors during power-intensive activities like watching a movie. Haswell's power consumption in standby mode has also dropped precipitously – it's now 20 times lower than its 2011 predecessor, "Sandy Bridge." The enhancements will provide the biggest battery life increase in Intel's history. Reduced electricity demands and longer battery life in millions of next-generation laptops – Haswell presents the opportunity to create a win-win for people and planet.

Pointed in the Right Direction

Televisions are by far the largest source of power usage among CE residential devices – representing slightly more than one-third of the energy required by CE products in American homes. Today's digital sets have much larger screen sizes than the cathode ray tubes (CRTs) of a generation ago, yet in many cases, today's flat panel digital sets consume less energy than their analog predecessors. Today's digital televisions also include features like HD, 3D and Internet connectivity. As a result of the work of CE product engineers, the digital models reaching consumers today are achieving much higher levels of energy efficiency.

Engineers have developed improved technologies to make the display panel more efficient. In plasma applications those improvements include optimizing the xenon/neon gas mixture, driving circuits, electrodes and the panel cell structure. In LCD and LED applications, enhancements produced better management of image contrast, with blacker blacks – and darkened areas that require less power draw. Every digital TV operates on direct current (DC) internally – and a DC power supply must convert the AC power supplied by the utility grid. Advancements in power supply design, better power management algorithms and other improvements today are lessening internal power losses.

These changes, and others, are earning big energy savings dividends for consumers. A 2011 study by TIAX found that between 2003 and 2010, active mode power density in LCD TVs fell by 63 percent, and the study's measurement for standby mode showed even greater reductions of 87 percent. Plasma models showed comparable reductions: active power demands fell by 41 percent while standby power dropped by 85 percent.

Increased consumer awareness of power-efficiency performance is also driving progress. The U.S. Environmental Protection Agency's (EPA) ENERGY STAR Program began qualifying TVs in 1998, and in 2011 consumer education was further enhanced when the U.S. Federal Trade Commission (FTC) initiated EnergyGuide labels for TVs with support and participation by the consumer electronics industry. These informative labels describe a model's estimated yearly energy cost and provide a comparison to the annual energy cost of other televisions with similar screen sizes.

The Power of Innovation

It's not only TVs that are becoming more energy efficient. CE companies are leveraging breakthrough technology to reduce power requirements in devices big and small.

Greener Ways to Cool

Dell's PowerEdge 12th generation servers include significant new features for energy-efficient computing. A notable enhancement: reductions in fan power during normal server operation. It now takes less power to cool the PowerEdge R720 server than it does to run a typical nightlight.

Smarter Power, Longer Battery Life

In 2011, **AMD** launched a new class of processor, the APU, which integrates a central processing unit (CPU) with a discrete-level graphics processor onto a single chip. This breakthrough architecture makes computing applications such as multimedia, productivity and simulations run faster, allowing PCs to transition to lower-power idle/sleep/off states for longer periods of time. Other power savings features include AMD AllDay™ power designed to extend notebook battery life. A carbon footprint study conducted by AMD found the integrated APU design provides an average 40 percent savings in GHG emissions, as compared to previous-generation products that were not integrated on a single chip. In 2013, AMD introduced "system on a chip" APUs for tablets and other mobile computing devices that provide additional power savings.

The Sweet Sound of Savings

Sony engineers applied their R&D talents to take advantage of a NASA discovery: magnetic fluid, a liquid that can be attracted by a magnetic field. Sony's consumer application? The world's first speakers to replace traditional dampers with magnetic fluid suspension. Found in Sony's Blu-ray Home Theater System, the speakers consume approximately 35 percent less power than traditional designs* – while delivering great sound.

*Energy consumption of magnetic fluid speakers alone, compared to that of conventional speakers at equivalent volume of +2dB noise level.

How Low Can You Go? Panasonic's Blu-ray Disc Recorder

Thoughtful product design has enabled **Panasonic** to bring to market an exceptionally energy-efficient Blu-ray disc recorder, the DMR-BRT220. Its annual power consumption is only 18.9 kWh – or less than 2.2 watts per hour of operation. The recorder's energy efficiency, resource savings and recycling-oriented design helped it earn the demanding Eco Mark designation from the Japan Environment Association, a rating standard aligned with the requirements of ISO 14020 and ISO 14024.

Sharp's Quattron Technology: Energy Efficiency at Every Size

Sharp leverages its proprietary Quattron technology to achieve higher levels of efficiency in even its largest models. Quattron enables lower power consumption by using the LED backlight more efficiently. Sharp's newest 80" TVs have more than 2.5 times the area of a 50" model, yet are still efficient enough to qualify for ENERGY STAR. And several Sharp 70" LCD TV models have earned ENERGY STAR's new "Most Efficient" classification.

Efficiency From Top to Bottom

When fully implemented, the **Set-Top Box Energy Conservation Agreement** will produce annual residential energy **savings of $1.5 billion or more.**

What does it take to make one of today's most essential CE devices more energy efficient? For CEA and its industry partners, it's a new kind of collaboration – bringing together industry leaders with a unified commitment to drive down energy costs for consumers and reduce GHG emissions.

Today's set-top box (STB) enables a wide variety of digital services in millions of American homes every day. These devices receive and decode signals for playback on televisions, and many incorporate features such as high-definition programming, video on demand, digital video recording (DVR) and even home networking. STBs offer powerful capabilities – but they have, until now, also required surprisingly large amounts of electrical power. In fact, on a per-unit basis, cable set-top boxes rank third in power consumption among CE devices – exceeded only by televisions and desktop computers.

In 2012 CEA worked in concert with the National Cable and Telecommunications Association (NCTA) and the nation's top cable, satellite and telco providers and with STB manufacturers to launch a major new initiative to drive significantly higher levels of STB energy efficiency. Just how big is this voluntary commitment? When fully implemented, the Set-Top Box Energy Conservation Agreement will produce annual residential energy savings of $1.5 billion or more.

Achieving those savings required an ambitious approach. The voluntary agreement requires that at least 90 percent of all new set-top boxes purchased and deployed after 2013 will meet EPA ENERGY STAR 3.0 efficiency levels. The initiative also calls for cable operators to download "light sleep" capabilities to more than 10 million currently installed DVRs, for telco operators to offer light sleep functionality, and for satellite providers to include an automatic power-down feature in 90 percent of STBs deployed.

These engineering and performance improvements are particularly important since many legacy devices, which are configured to continuously communicate with the service provider, draw similar amounts of power whether in active or off/standby mode. Newer designs that incorporate hardware and firmware enhancements that reduce power draw meaningfully improve environmental performance and reduce operation costs.

The 15 signatories of the agreement include 10 of the largest service providers as well as the largest STB manufacturers: **Cisco, EchoStar Technologies** and **ARRIS**. We were excited to help forge this partnership, which will produce billions of dollars in energy savings and significantly reduce GHG emissions.

Energy Savings That Hit Home – And Away From Home

It's not only manufacturers and retailers that are leading the drive toward greater eco-efficiency in consumer electronics. Across the United States, installation and integration professionals are playing an important role by helping residential and commercial customers identify solutions and strategies to reduce energy consumption and operate more efficiently.

In Maryland, **Bethesda Systems** is meeting a growing demand for solutions that save energy through more efficient lighting, climate control and sophisticated systems to enable remote systems monitoring. Bethesda Systems Co-founder Jon Stovall's deep interest in green solutions allows him to help customers meet their energy-efficiency goals.

Small businesses and residential customers alike have found that the savings can be profound. At a popular Bethesda sports bar, outdated lighting was both costly and labor-intensive – with employees replacing up to 15 bulbs per week. After a comprehensive LED retrofit installed by Bethesda Systems, the tavern benefited from reduced maintenance and better-quality light – and meaningful energy savings. Energy costs were reduced by $5,000 a year and, thanks to utility rebates, the project achieved a seven-month return on investment.

Strong partnerships with local utilities enable Bethesda Systems to offer customers advice on how to maximize their energy savings incentives.

Residential customers can also leverage new technology to reduce energy usage, so Bethesda launched the LED Diet, an enterprise that helps homeowners transform their residence into a high-efficiency home. LED "Dieticians" research and test hundreds of LEDs to find the very best bulbs and fixtures and offer comprehensive services that can provide increased energy efficiency every hour of every day.

Dan Fulmer, CEO and Founder of **FulTech Solutions**, uses his company's Jacksonville, FL, headquarters to spread the message to customers about the opportunities for greater eco-efficiency. Their showroom/office serves as "Exhibit A" of the potential of innovative new monitoring and control technologies. The completely integrated system includes access control, security, HVAC, audio, video, digital signage and more. Crestron smart sensors adapt to individuals' habits and "know" when to shut off office LED lights. "When our customers visit, we can show them how little interaction is needed with our building management system. Passivity is key; the less interaction required, the better energy management systems will work. We, people, tend to forget things," said Fulmer.

The FulTech headquarters has earned an ENERGY STAR score of 96, increasing from 91, since 2009 installation, and the company spends only $250 a month in utilities for 5,000 square feet of office space with a small warehouse. Fulmer has replicated this high-tech system for several customers, and market interest continues to grow. "It's our own unique design, and a real-world example of what can be done when a system is properly integrated and programmed."

Never More Ways to Save the ENERGY STAR Way

18,000 organizations
in ENERGY STAR Program

1.8 billion tons
of GHG emissions prevented

$230 billion
saved in utility bills in 2012

In 2012 the U.S. Environmental Protection Agency's (EPA) ENERGY STAR program, a voluntary energy-efficiency initiative, celebrated its twentieth year of saving consumers money while protecting the environment. At every step, CE companies have engaged as strong partners of this program, one that has served as a catalyst for positive change to protect our environment and human health.

2012 EPA data reveals that the environmental benefits from the ENERGY STAR program have nearly tripled in the last decade. More than 18,000 organizations are partners in the program, working collaboratively to prevent more than 1.8 billion tons of GHG emissions and saving over $230 billion in utility bills in 2012 alone.

ENERGY STAR arms consumers and business customers with unbiased, objective information to better inform their purchasing decisions. It is clear that consumers have responded: more than 4.5 billion ENERGY STAR products have been purchased since 1993. Moreover, public awareness of the program and its value is high. A 2012 research study commissioned by the Consortium for Energy Efficiency reported that 87 percent of U.S. households recognized the ENERGY STAR label – making it one of the most valuable brands in U.S. markets.

The program's strong recognition and credibility have had a strong influence on consumer purchasing decisions. A 2011 CEA consumer research study found that 85 percent of consumers said energy consumption was "important" or "very important" in making their purchase decisions – surpassed only by price and features in their decision making.

In 2013, **Samsung Electronics** earned the program's highest award: **ENERGY STAR Partner of the Year – Sustained Excellence.** The recognition was earned by offering 1,435 ENERGY STAR-qualified models across multiple product categories, as well as Samsung's efforts in training, consumer education, recycling and labeling practices.

eCycling

Leveraging the Opportunity to Lead

Saluting Top Performers

In the second annual report of the eCycling Leadership Initiative in 2013, we recognized five leaders – top performers who operate at the highest level of effort to address the eCycling challenge:

CE devices play an increasingly important role in our daily lives – in fact, research shows that approximately 24 separate electronic devices can be found in the typical U.S. home. Laptops, Blu-ray players, game consoles, smartphones and tablets – they perform diverse functions but all share a common future – they will eventually reach end of life. With rapid product development cycles and robust consumer demand for the latest capabilities and features, the challenges associated with e-waste are changing nearly as fast as CE technologies.

Individually, many CE manufacturers and retailers have implemented high-impact programs to encourage the diversion of their products from the waste stream at end of life. At CEA, we support and applaud those efforts – but we also know more needs to be done, and on a collective basis.

In 2011 that recognition drove the creation of the eCycling Leadership Initiative. It is an unprecedented national CE recycling effort structured to achieve several key goals:

- Improve consumer awareness of the more than 8,000 available collection sites currently sponsored by our industry, which can be found on CEA's www.GreenerGadgets.org;
- Increase the amount of electronics materials recycled responsibly to one billion pounds annually by 2016;
- Increase the number of collection opportunities available to consumers; and
- Provide regular, transparent metrics on eCycling performance.

Spearheaded by CEA, the eCycling Leadership Initiative represents a unique collaboration between consumer electronics manufacturers, retailers, collectors, recyclers, nongovernmental organizations and governments at all levels.

A National Approach to a National Issue

Consumer electronics are widely used in virtually every community in the United States. Given the widespread marketplace penetration of CE products, CEA supports a national approach to eCycling. We are working to make recycling electronics as easy as purchasing them, for all consumers in every state in our nation.

CEA's CRT Challenge: Seeking New Solutions

Perhaps the most challenging issue in recycling is how to address the growing number of discarded cathode ray tubes (CRTs) from analog televisions and computer monitors. CRTs are difficult to recycle responsibly because the tube funnels contain several pounds of lead chemically bound into the glass. To seek new recycling solutions, in 2013 CEA joined with the Institute of Scrap Recycling Industries Inc. (ISRI) and InnoCentive to launch the CRT Challenge. The initiative invites scientists and engineers to participate through a crowd-sourcing competition to identify financially viable, environmentally conscious proposals for using recycled CRT glass, with winners eligible for a $10,000 award. Now in its second year, the Challenge has spurred promising research in the field. **Panasonic** is also tackling the problem with a proprietary closed-loop reprocessing technology that converts glass from CRTs into glass wool fibers – for use as insulation in refrigerators.

A Partnership That Breaks New Ground

Salt Lake County, UT, like many other American communities, is seeking new solutions to the challenge of proper collection and processing of electronic waste. Successful diversion of this material from the waste stream requires both effective public education and the infrastructure and capacity to responsibly recycle end-of-life electronics.

At CEA we believe that voluntary, collaborative partnerships between industry, government and community stakeholders offer the best path to reach the goal we all seek – keeping electronics out of landfills and maximizing the responsible recycling of end-of-life material. Today, Salt Lake County's partnership with **Samsung Electronics** is demonstrating just how successful that approach can be. And it may serve as a national model of what can be accomplished when industry and government work together.

Through this innovative partnership, Samsung provides support for the Salt Lake County Health Department's (SLCHD) e-scrap activities that serve a community of 1.8 million people in the Salt Lake City (SLC) area. The company supports collection operations at five permanent locations. The collaborative program between SLCHD and Samsung also includes 17 one-day public e-waste collection events, including curbside pickups, held throughout the community each year. Some events, such as the one which takes place at the University of Utah in April, include incentives for participants – such as sweepstakes for free Samsung products for those who sign the ENERGY STAR pledge, which reminds pledge takers to consider ENERGY STAR when purchasing consumer products. ENERGY STAR is a climate-change mitigation program that creates opportunity for consumers to help the environment, while reducing energy consumption and costs for consumers through use of high-quality, energy-efficient products.

According to Dorothy Adams, who directs the Health Department's Household Hazardous Waste Program, public reaction has been strong for the county's e-waste initiatives and the prize drawings associated with the ENERGY STAR pledge. "Very seldom do people come into government offices with such excitement, happy to win a Samsung product from the recycling event and ENERGY STAR pledge drive. We got many emails saying that it was a nice touch that they were rewarded essentially for taking the time to responsibly recycle their electronic scrap," said Adams.

In 2012, the county collected more than half a million pounds of electronic waste – constituting about 42 percent of the program's hazardous household waste volume for the year. Consistent public education about the environmental benefits of eCycling is a strong program component. "Our volumes continue to grow, and as we make it more convenient we collect more material," said Adams.

Mike Moss, Director, Corporate Environmental and Regulatory Affairs for Samsung Electronics America, said the company's commitment to Salt Lake County and to its broader recycling program "emerged out of the strong efforts of SLCHD to partner with Samsung to solve the e-waste issues in a collaborative and effective manner. It's all about a shared responsibility, everyone working together to create a solution. We believe that reaching out to the community through programs, like our e-waste program with the greater Salt Lake City area through SLCHD, offers a great opportunity to create positive business and environmental results for the area, and for Samsung."

Added Adams, "Samsung has been a wonderful partner. We look for that partnership to continue, because it is meeting a very important need in our area. We see this as a real model, and we're hopeful it expands to other communities in the state."

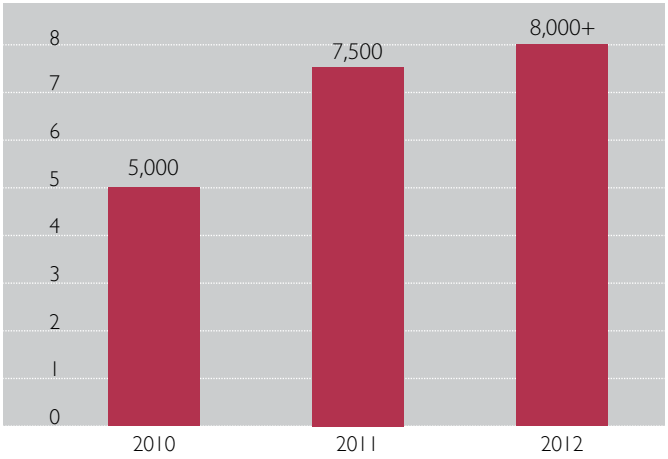
eCycling Points of Progress

eCycling LEADERSHIP INITIATIVE

greenergadgets

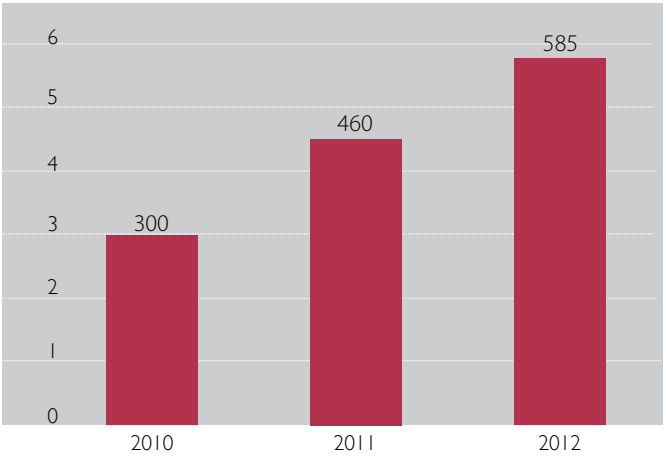
Number of eCycling Locations Nationwide

Increased 60 percent in three years



Pounds Collected by CE Industry

Increased 95 percent in three years [in millions]



Assuring Responsibility at Every Step

Collecting increasing volumes of e-waste is only the first step toward conserving resources and preventing environmental damage. Today, too much of our domestic e-waste is exported overseas and into the informal sector – often in developing nations where it is processed in ways that damage the environment and public health. CE companies like **Best Buy, Samsung** and many others are setting higher standards for the processing of waste by collectors and recyclers. These and many other CE companies are requiring as an initial screen that their recycling partners be certified by e-Stewards, R2 or both – third-party entities that establish standards for responsible handling of recovered materials that draw heavily from manufacturer/vendor due diligence and auditing processes pioneered during the 1990s and 2000s.

On the Road Toward a Billion

As part of the eCycling Leadership Initiative, in April 2011, CEA joined with a dozen leading consumer electronics companies to issue an unprecedented challenge to our industry partners: to collect for responsible recycling one billion pounds of electronics annually by 2016 – the "Billion Pound Challenge." With collections nearly doubling within the last three years, we are taking major strides toward achieving this goal.

Avoiding the Landfill

An Old Desktop Computer's Final Hours

In fiscal 2013, **Best Buy** collected and responsibly recycled 96 million pounds of consumer electronics. But what happens behind the scenes when a consumer brings in, for example, an old desktop computer to their local Best Buy store? After the unit is brought in, it is boxed for shipment to one of Best Buy's recycling partners – each provider must have earned certification by either R2 or e-Stewards. At the recycling facility, components are sorted into various waste streams.

The keyboard heads straight to the shredder, but other components require more processing. The CPU's hard drive is removed and connected to a device to erase all its data. As an additional step to ensure data privacy, the drive is snapped with a hole punch to destroy it. Only then is it directed to the shredder with other CPU components. The high-tech shredder uses sophisticated technology to separate the steel, aluminum and precious metals from the plastic. Meanwhile, the CRT is saw cut along the frit line, and the panel glass is removed from the funnel glass and the frit before the bare CRT is crushed. The glass pieces are cleaned, then both streams are crushed for eventual smelter processing.

Visit here (insert video link) to learn more about what goes on behind the scenes in Best Buy's eCycling operations.

In fiscal 2013, Best Buy collected and responsibly recycled **96 million pounds** of consumer electronics.

New Life for Older Devices

Another important contributor to diverting CE products from the waste stream is a robust secondary market for used devices. Several CE companies are taking the lead to help grow this burgeoning retail sector – which in 2011 was estimated to be worth $13 billion in annual sales.

Through buybacks, trade-ins, refurbishments and resales, consumers have the opportunity to monetize their old devices, and purchasers can access technology more inexpensively. Moreover, through secondary market activity, hundreds of thousands of products do not reach landfills or recycling collection centers.

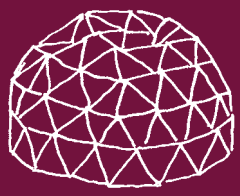
In 2012, **NextWorth**, a technology and recommerce company, collected more than 350,000 devices nationwide. NextWorth provides omni-channel trade-in programs for leading retailers and OEMs including nearly 1,500 locations at Target stores nationwide. In 2013, NextWorth will collect between 750,000 and one million devices and has collected more than two million devices since inception.

Brightstar operates global device buyback and trade-in programs, offered through major wireless operators and retailers. And **Best Buy** manages a portfolio of refurbished products, available at Best Buy stores or through secondary markets.

When electronics are repurposed, individuals and companies are understandably concerned about hard disk drives that often contain sensitive data, such as financial records, social security numbers or medical files. Solutions offered by companies such as **Aleratec, Inc.** address this problem. Aleratec's hard disk drive duplicators permanently delete sensitive information from used hard drives. Using Secure Erase or third-party-certified overwrite technology, the data are completely sanitized, thus preventing confidential information from falling into the wrong hands. And the duplicators offer a more sustainable alternative to hard disk drive destruction.

$13 billion estimated sales of used devices in 2011

Sustainable Operations



"I look for what needs to be done. After all, that's how the universe designs itself."

R. Buckminster Fuller, *a renowned twentieth century visionary and inventor, most notably of the geodesic dome*

Leading the Drive Toward Eco-Efficiency

As we confront the challenge of climate change, what needs to be done is clear – but not always easy to achieve. For the CE industry it means we must perform our work more eco-efficiently – discharging less carbon into the atmosphere as we deliver on the promise of ever more capable technology to inform, educate and entertain millions of consumers here and around the world.

To that end, many CE companies have taken a leading role to design facilities, processes and supply chains that are more resource efficient, that require less energy and water, and that produce less waste. This effort includes a large and growing commitment to energy from renewable sources. It also encompasses more efficient transportation for products and for the people who design, manufacture and sell them. And it means investing to boost efficiency at the massive data centers that are crucial to connecting our wired world.

Today and in the years ahead, bold, continuous innovation will be the key factor as our industry strives to find new ways to deliver greater value while continuing to reduce or eliminate harmful environmental impacts.

Targeting Eco-Excellence

Across the CE industry, leaders are making smart choices to operate more sustainably – in their facilities and throughout their logistics and operations.

Googling a More Sustainable Commute

Google has built a green transportation system incorporating biodiesel shuttle buses and the largest corporate electric vehicle charging infrastructure in the United States. GFleet – a car-sharing program for employees – includes the newest generation of plug-in vehicles. Combined, these efforts result in a net annual savings of more than 5,400 metric tons of CO2 – the equivalent of avoiding 40 million vehicle miles.

Hyper-Efficient Data

HP's award-winning Wynyard trade data center is powered by 100 percent renewable energy – and is one of the most efficient general-purpose data centers in the world. Features such as ambient air cooling, white walls and a reflective roof add to its high levels of energy efficiency.

Less Running on Empty

Best Buy has reengineered its fleet operations to reduce "empty miles" – the distance driven with no products on a truck – by back-hauling e-waste to distribution centers, where it is collected by the company's recycling partners. In its first year of implementation, the initiative reduced empty miles traveled by more than 560,000.

Designed for Conservation

The **Plantronics**' Santa Cruz, CA, headquarters was designed to meet the standards of California's **Savings by Design** program. At the facility, low-flow plumbing fixtures, waterless urinals, drought-tolerant plant materials and a smart irrigation system combine to conserve 550,000 gallons of water per year.

An Investment in LEED

Now under construction in Newark, NJ, **Panasonic**'s new U.S. headquarters is being built to the exacting environmental standards of the U.S. Green Building Council's Leadership in Energy and Environmental Design – LEED. The external shell of the facility will be LEED-certified Gold and the interior will be LEED Platinum.

Renewable Leadership

As part of **Samsung**'s participation in the EPA's Green Power Partnership , Samsung purchases more than 25 percent of its power (more than 25.5 GWh) from renewable energy sources. Included in this mix is an array of solar panels on the rooftop of its Rancho Dominguez, CA, facility, which generates more power than the facility consumes.

AMD's newest data center, located in Alpharetta, GA, was awarded a LEED Commercial Interiors certification and was powered by 100 percent renewable wind energy in 2012.

Big Data, Big Opportunities

Data centers have been with us since the advent of the mainframe computer more than half a century ago. Today, their importance and relevance to our daily lives has grown exponentially along with the explosion of digital information. Sending an email, downloading an app, streaming a movie, performing a web search – these and countless other daily tasks today rely on data centers. And the projected growth of cloud-based storage and services will likely expand their role yet further.

Data centers and the millions of servers they house are essential to today's wired world – and they are also big consumers of energy. Consider that a typical server remains on every hour of every day – that is 8,760 hours a year of energy consumption. The electricity to run a single server can cost $1,000 a year and, when the associated energy costs to cool the facility and convert power are included, that amount can double.

A 2011 Stanford University study found that the global electricity consumption of data centers grew by approximately 56 percent between 2005 and 2010 and today represents as much as 2.5 percent of total electricity use in the United States.

$1,000 – estimated electricity cost for one server for one year

56% – estimated increase in global data center electricity consumption [2005-2010]

2.5% – estimated total U.S. electricity consumption for data centers

Big Data, Big Opportunities *continued*

The trajectory of data traffic and storage is clearly upward. However, CE company teams are working today to bend the curve of data center energy demands in a new direction. They are taking strides to make their own facilities much more energy efficient, and they are helping their business customers save energy and money through better design strategies.

- **Google** is one of the leaders of this effort. Their massive data centers employ best practices like taking advantage of evaporative cooling, increasing ambient center temperatures to 80 degrees, eliminating water chillers and optimizing power distribution.

- At its Western Technology Center in Quincy, WA, **Dell** employs heat-wheel technology that maximizes the use of outside air, which reduces the center's overall energy and water demands. This is in addition to other energy-efficient and low-carbon features, such as taking advantage of fresh-air cooling during much of the year, and most of the facility's electricity comes from renewable sources.

- **AMD** has teamed up with Clarkson University, HP and other partners to research effective ways to power data centers from renewable energy sources. The goal is to build a distributed computing network by co-locating renewable energy sources such as wind and solar with containerized data centers like HP's Performance Optimized Data-center, which is driven by AMD Opteron™ microprocessors.

- **HP** is addressing the need for lower cost and more efficient server technology with its **Project Moonshot** initiative – a multiyear program designed to offer extreme low-energy server technologies. Rather than designing a server for all uses, Moonshot designs are optimized for the specific type of software and operation they will be running, thereby reducing energy use by up to 89 percent and costs by up to 63 percent. In fact, HP is using Moonshot's servers to power the company's primary web presence (HP.com), which gets more than 300 million hits per day. These Moonshot servers are so energy efficient that the total power consumed by the servers powering HP.com is equal to that consumed by 12 60-watt lightbulbs.

Today, **Microsoft** is using electricity market analytics to increase the use of renewable energy sources in data centers and reduce its carbon emissions by up to 99 percent. The work involves analyzing algorithms that rate different criteria on the electric grid, like current, carbon emissions and the rate at which renewable energy is being integrated to power the grid. This analysis can help determine the best time to perform Microsoft's highest-energy-consuming computation, scheduling moveable computation at times when the grid is being powered by renewable energy sources or, alternatively, relocating computation to areas of the grid where renewable energy sources are being utilized. These measures can help reduce the overall carbon footprint associated with cloud computing.

Powering Innovation – Renewably

Coupled with innovative efficiency measures for facilities and equipment, CE companies are working to lower GHG emissions through a growing commitment to renewable energy. These large-scale investments are reducing their carbon footprint, supporting break-through sustainable energy technologies and helping to build stronger long-term market demand for green power. In addition, CE companies are designing and manufacturing some of the most promising new innovations to generate power renewably. Taken together, these commitments are moving us toward a more renewable and responsible energy future.

Plantronics investments in solar arrays and sun tubes, which harness natural light to save energy, have offset 80 percent of the energy consumption at the California headquarters buildings that house the panels. In addition, solar panels at its Tennessee facility have produced electricity savings of 32 percent monthly.

LG Electronics is both a major provider and deployer of photovoltaic systems. In 2012 the company supplied solar panels to customers in 32 countries – and sold 1.6 million high-efficiency panels between 2010 and 2012. At its new U.S. headquarters in Englewood Cliffs, NJ, the company will install an 85,000-square-foot solar array system, expected to generate more than 1,000 MWh of electricity annually.

By the end of fiscal 2013, 16 **Dell** facilities were purchasing 100 percent of their electricity needs from renewable sources such as wind, water and solar – an increase from seven facilities in fiscal 2012. These include Dell's headquarters in Round Rock, TX, which has purchased 100 percent renewable electricity since 2007. Overall, Dell sourced 22.6 percent of its electricity from renewables, and has been on the U.S. EPA's Green Power Partnership Top 50 list since 2008.

A leader in both photovoltaic and fuel cell technologies, **Panasonic** has a diverse portfolio of renewable energy solutions. Their HIT240/233 panels are designed for residential use and boast the world's highest energy conversion efficiency rate. Panasonic was also the first to offer a household fuel cell cogeneration system – which leverages the electrochemical reaction between oxygen and hydrogen.

In 2013, **Intel** was recognized for the fifth consecutive year as the largest voluntary purchaser of green power in the United States, according to the U.S. EPA's Green Power Partnership rankings. Intel has committed to purchase a total of approximately 12.4 billion kWh of green power from 2008 through 2013, which is equivalent to the greenhouse gas emissions impact of taking 1.8 million cars off the road for one year.

HP has installed more than 1,400 rooftop solar panels at its data center in Suwanee, GA. The solar array is estimated to generate approximately 450,000 kWh per year, enough to power the center's noncritical facilities.

International CES

Little Things That Make the World's Biggest Trade Show Even Greener

The Brand Matters keynote at the 2013 International CES brings together executives from the world's top brands to discuss how technology and digital platforms are impacting marketing and brand strategy on a global scale.

Panasonic's Mr. Kazuhiro Tsuga delivers the opening keynote at the 2013 International CES.

As owner and producer of International CES, the world's largest innovation event, CEA is committed to making this global event both a venue to spotlight more sustainable solutions – and an event that raises the bar for eco-friendly operations. The 2013 CES drew nearly 3,300 exhibitors and more than 152,000 industry professionals – providing the ideal setting to demonstrate that there are no limits to environmental innovation.

International CES *continued*

All Together, At Once – a Big Ecofriendly Idea

When CES attendees from across the world connect with one another, build new relationships and get business done in a single location, they collectively avoid nearly two million miles in business travel. And with more than 36,000 industry leaders from 150 countries in attendance, CES has become truly a global village of innovation.

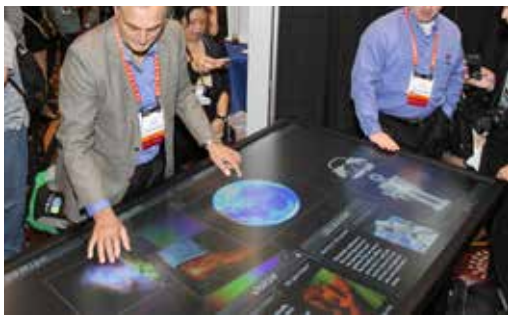
Green Starts With Knives, Forks and Spoons

No detail is too small to enhance the eco-efficiency of CES – even the eating utensils supplied by our catering partner Aramark are made of biodegradable organic products. We review every aspect of operations to identify greener alternatives.

Environmentally friendly cleaners are used instead of harsh chemicals. A closed-loop recycling process that reclaims the previous year's vinyl banners is used to produce 190,000 show badge holders. By adopting better digital alternatives, production of print materials has been reduced by nearly 50 percent from six years ago. Show floor carpeting is made from recycled materials, and turnkey exhibitor booth packages use recyclable panels and soy ink printing. And the reuse/recycle rate for solid waste generated at the show stands at 75 percent. These efforts have spurred one trade publication to designate CES as "North America's Greenest Show."

Building a Lasting Legacy

CEA has established a tradition of investing in projects that support sustainability in the City of Las Vegas and benefit the local community. In 2013, $50,000 donations were awarded to Green Chips, a local sustainability group to fund a solar installation project, and to the city's Convention and Visitors Authority for the installation of electric vehicle charging stations at the convention center.



Reaching Higher

[Key Accomplishments]

CE companies are setting aggressive goals to deliver higher levels of environmental and social performance. Important milestones have been reached; more progress is required to reach some of the most ambitious objectives.

COMPANY	GOALS AND PROGRESS
Best Buy	Reduce absolute carbon emissions in North America by 20 percent by 2020 from a 2009 baseline. Best Buy is more than 75 percent toward attainment. Since the goal was set, absolute carbon has been reduced by 16.8 percent, and 223 million kWh have been saved by conservation and efficiency improvements. Best Buy was recognized by the Carbon Disclosure Project with a score of "96" and a performance band of "A" in the Carbon Disclosure Performance Leadership Index (CDLI).
	To collect one billion pounds of consumer electronics and appliances for recycling by the end of calendar year 2014. More than 700 million pounds of consumer electronics and appliances collected to date. In fiscal 2013, 96 million pounds of consumer electronics were collected.
Dell	Offer EPEAT-registered models in the United States and Canada for all newly offered commercial and end-user computing products by the close of fiscal 2013. Progress: achieved.
	To increase electronics take-back volume totals to a worldwide cumulative one billion pounds of collected equipment by 2014. By 2013 Dell had attained this goal.
Google	Google uses huge quantities of servers and other equipment to power its operations. The company has attained its goal of recycling 100 percent of the electronic equipment that leaves its data centers. Since 2007, Google has repurposed enough outdated servers to avoid buying 300,000 new replacements.
	To power the company with 100 percent renewable energy – that is the ambitious long-term goal Google has established for eco-efficiency. By 2013, renewable power was used to power more than 30 percent of its operations.
HP	Reduce greenhouse gas emissions from product transport by 180,000 tonnes of CO2e from the end of 2008. HP has met and exceeded this goal by implementing network enhancements, warehouse consolidations, mode changes and route optimization programs.
	Complete the phase-out of bis (2-ethylhexyl) phthalate (DEHP), dibutyl phthalate (DBP) and benzyl butyl phthalate (BBP) in newly introduced personal computing products by the end of 2012. Goals achieved: all HP personal computing products to be newly introduced in 2013 meet these requirements.
Panasonic	In its effort to reduce the amount of newly extracted resources used in its products, Panasonic set a fiscal 2012 target that 12 percent of all resources used be from recycled materials. The amount of recycled content in its products that year – 14.7 percent – exceeded the goal, and the company used approximately 8,000 tons of recycled plastic for its products during the year.
	In addition to its efforts to reduce carbon emissions, Panasonic established a goal to reduce GHGs other than CO2 – these gases are mainly used as etching and cleaning gases in semiconductor factories. In fiscal 2012 the company had achieved a 60 percent reduction of these emissions from its 1995 baseline level.

Targeting More Progress

Looking to the future, many CE companies have established goals and objectives to take their environmental performance to a higher level.

COMPANY	GOALS
LG Electronics	Reduce greenhouse gas emissions from its U.S. operations by 50 percent by the end of 2020.
Panasonic	Increase to 16 percent the amount of postconsumer recycled content materials contained in new product lineup by 2018.
AMD	By 2017, to avoid 10 percent of GHG emissions and achieve 10 percent avoidance in manufacturing water use, based on a 2012 baseline, through conservation efforts.
Sony	By 2050, to achieve a zero environmental footprint throughout the life cycle of its products and business activities – a plan Sony calls its "Road to Zero." The company has established mid-term targets to be met by fiscal 2015 on the path toward this ambitious long-term objective.
DIRECTV	DIRECTV reduced its carbon footprint 10 percent relative to its 2011 baseline. This single-year reduction allowed DIRECTV to surpass its 2015 emissions reduction goal several years ahead of schedule.
Samsung	By 2015 to decrease the volume of waste generated per unit of production by 10 percent a year, and to increase its waste recycling rate to 95 percent. Samsung now recycles waste glass, waste plastics and organic sludge that were incinerated or landfilled in the past.
Microsoft	By fiscal 2013 achieve carbon neutrality and net-zero emissions for Microsoft's data centers, software development labs, offices and employee travel by increasing energy efficiency and purchasing renewable energy. The initiative also includes implementing an internal carbon fee that makes the company's business divisions financially responsible for the cost of their carbon emissions.

Sustainable Society

"It is our collective and individual responsibility to protect and nurture the global family, to support its weaker members and to preserve and tend to the environment in which we all live."

The Dalai Lama, *a simple Buddhist monk and spiritual leader of Tibet*

Tough Challenges, Big Solutions

When leveraged to its fullest, technology can be a key catalyst for progress for people and communities. The opportunity for technology to improve lives is profound – whether as a conduit for learning, commerce and creativity, as a means to improve the lives of the disabled, or to help deliver better health care to millions.

Many of today's brightest minds can be found at CE companies – men and women working to envision new solutions that address these challenges. The innovations emerging today from CE research laboratories are opening new possibilities to enrich the lives of millions of our fellow citizens.

Those efforts do not end with technological innovation. Individually and collectively, CE companies and their employees are engaged in strategies and initiatives to build a more sustainable society. This work is being carried out through volunteerism, charitable giving, mentoring youth, attacking hunger and by helping to ensure fair treatment of those whose work contributes to the products we offer.

Increasing opportunity and meeting human needs is a job for all of us, and our industry is committed to expanding possibilities for every member of the global family.

Doing More for More

Research indicates that too many American teenagers have little or no access to the kinds of technology that can improve their academic performance, strengthen their skills and put them on a path toward a bright career future. And even for teens who have some access to some technology tools, too often it is limited to passive consumption rather than active content creation. To address this need, **Best Buy** has developed a new initiative to provide greater access to the technological tools, resources and opportunities teens need to develop twenty-first century technology skills.

Best Buy Teen Tech Centers provide an engaging environment where teens can develop technology skills through hands-on activities such as filmmaking, music production, graphic design, robotics, mobile applications and game development. As teens undertake these projects, they hone new skills that can be applied both in the classroom and in the workplace. Best Buy is currently piloting the program with nonprofit partners in Chicago, Miami, San Antonio and Minneapolis.

To help design effective programming, support the center staff members and monitor results, Best Buy worked in collaboration with the **Intel Computer Clubhouse Network**, (ICCN). Now in its twentieth year of service, ICCN is a program of the Museum of Science, Boston that, with the support of the MIT Media Lab, reaches 25,000 youth annually through 100 clubhouses worldwide.

Two Million by 2018: Panasonic's Goal for Youth

Panasonic's vision for youth environmental education is a global one – executed on a big scale. The company has created Panasonic Kids School to provide a wide variety of programs targeted to elementary and junior high school students. In fiscal 2012 the school educated more than 448,000 children in 29 countries by utilizing content from Panasonic's "Eco Learning Program." Topics and curriculum are targeted to the specific needs of each country. The program's goal is to have reached two million children with environmental education programs by 2018.

Big Ideas That Change Lives

Innovative breakthroughs often begin with two simple words: What if? Recently, engineers at **Samsung Electronics** posed that very question: What if we could develop a mouse for the disabled that was inexpensive – and simple enough to be assembled with common electronic components? The result was "eyeCan," an eye-tracking mouse that can be built for a fraction of the cost of existing systems.

Samsung established the Creative Development Research Institute to provide opportunities for employees to pursue creative new ideas that take full advantage of their talents and professional passions. At the Institute, risk-taking is encouraged, and employees are accepted into the program to pursue a project for an entire year.

eyeCan, launched in 2012, was the first big idea to emerge from this creative environment. eyeCan enables individuals with profound paralysis, including those with Lou Gehrig's disease (ALS) and locked-in syndrome (LIS), to communicate with and through computers. The device, built on an open-source platform, tracks the user's eye movements to enable them to write emails and text messages, search the web and even play computer games.

The idea of an eye-tracking mouse is not new, but the breakthrough comes in the eyeCan's much lower cost. Using only a pair of eyeglasses, a web cam and a few other inexpensive electronic components, volunteers and family members can assemble their own eyeCan and access free software. This exciting work can be done for a small fraction of the expense of similar commercial devices – which can cost up to $10,000. The eyeCan team's motto describes its innovation well: "One blink, a connection to the world."

High-Performance Computing: A Crucial Weapon to Fight Pediatric Cancer

In the new age of personalized medicine, some of the most effective cancer treatment regimens utilize a patient's molecular information to carefully select the most promising therapy. Today, experts at **Dell** are working with researchers at the Translational Genomics Research Institute® in the world's first FDA-approved personalized medicine trial for pediatric cancer. Dell's goal: to accelerate cancer genome analysis to enable teams of doctors and scientists to more easily share and apply molecular information. Using Dell's high-performance computing, now pediatric cancer researchers can compress the time it takes to analyze a patient's molecular data from 10 days to only six hours.

See, Act, Lead

The philanthropic commitment of CE companies involves both significant cash contributions as well as donations of technology and expertise to address human needs.

Through its Community Grants program, **Best Buy**'s retail teams across the United States choose nonprofit organizations within their communities that help teens develop twenty-first century technology skills necessary to excel at school and inspire future career choices. In fiscal 2013, the program awarded $2.75 million to more than 500 nonprofits nationwide.

Microsoft acts on its belief that software can help nonprofits overcome obstacles and improve their service to communities. Each year the Technology for Good program donates hundreds of millions of dollars in software to these organizations. In fiscal 2012, those contributions reached 62,200 nonprofits – a 33 percent increase from the previous year.

With the **DIRECTV** GOES TO SCHOOL® program, qualifying state-accredited K–12 schools can receive a free DIRECTV® system and a programming package – SCHOOL CHOICE® – specially designed to enhance and complement classroom lessons. This package includes a combination of news, educational and informational programming to accompany teacher instruction.

From helping to prevent deforestation to conserving the rights of indigenous populations, **Google** Earth Outreach has supported over 4,000 partners through software grants, technical support and training. By using Google Earth to visualize data and stories, these organizations have been able to promote their cause to hundreds of millions of people worldwide. The program is but one component of Google's donations of technology that totaled $1 billion in 2012.

BlackBerry supports its employees' efforts to give back to communities through Proud2Be, a set of internal programs which provide several opportunities to support nonprofit organizations through fundraising drives and volunteerism. Through their Proud2Be Program, BlackBerry donated to 294 organizations around the world.

Caring That Knows No Boundaries

CE companies and their emaployees are focusing philanthropic and volunteer efforts on human and community needs not only in North America – but also in every region of the globe.

Giving Babies in Africa a Better Chance – Right From the Start

Today's antiretroviral ARV therapies offer excellent treatment outcomes for infants born with HIV – but they are effective only if a child is diagnosed early. Without rapid treatment, half of these newborns will not live to see their second birthday. Early testing and rapid delivery of test results are key to saving the lives of thousands of infants born with HIV in Africa each year.

HP, through a partnership with the Clinton Health Access Initiative and the Ministries of Health in Kenya, Uganda and Nigeria, is leveraging technology to speed up testing and improve outcomes for thousands of children. Six modern HP data centers linked to Kenya's national laboratories provide a platform to accelerate HIV test data transmission. With financial and technical support provided by HP, students at Strathmore University in Nairobi developed a custom database application to make HIV test results quickly available online – enabling real-time tracking and analysis. Faster information and faster treatment – today, technology is working wonders for thousands of African newborns.

For over five years **Dell** worked with Conservation International on a major reforestation initiative in Madagascar. Dell supported Conservation International's work with indigenous populations, programs which encourage sustainable agricultural practices and water use and protect the natural infrastructure. The project was also designed to protect some of the last remaining habitats of lemurs, found only in Madagascar.

Making STEM a Priority

As part of its commitment to advancing education in science, technology, engineering and math (STEM), **BlackBerry** has partnered with JA-YE Europe, Europe's largest provider of entrepreneurship education programs. The initiative supports STEM innovation camps, which provide real-life, technology-based business challenges for the students to tackle with Blackberry employee volunteers. Over 900 students from Italy, Spain, South Africa, France, Sweden and the U.K. have participated in these innovative events.

Actions Speak

Changing the World – Through Teamwork with Boys & Girls Clubs of America and ENERGY STAR

An important way to reduce energy consumption and protect the climate is for each of us to choose new ways to live and play more energy efficiently. The EPA's "Save the World – Start With ENERGY STAR" pledge initiative is designed to help drive those positive behaviors. To date more than 3.2 million Americans have signed on. **Samsung**'s unique partnership with ENERGY STAR and the Boys & Girls Clubs of America (BGCA) is contributing to that success. This grassroots initiative leverages the efforts of thousands of boys and girls as they reach out to their peers, neighbors and family members to "take the pledge" to reduce energy use and address climate change.

According to Marvin Laster, Director of Character and Citizenship Programs for BGCA, "Through our programs with the EPA and with Samsung's help, we have been able to engage more than 150 clubs throughout the United States. Club members have been enthusiastic and taught others in their communities about energy conservation, through the ENERGY STAR pledge and through other creative BGCA initiatives. The kids understand the importance of why we need to change the world by saving energy." Thanks to Samsung, BGCA clubs have an opportunity to compete for Samsung PCs, laptops, TVs, tablets and other valuable technology at their individual clubs.

Noted John Godfrey, Vice President, Communications Policy and Regulatory Affairs, government Samsung Electronics America, "By bringing Samsung, ENERGY STAR and BGCA together through the ENERGY STAR pledge and other BGCA initiatives related to climate change awareness, we've really made a difference in teaching young people and their families about saving energy and household costs, while helping the environment. Actually, Samsung is the number-one manufacturing partner of ENERGY STAR in signing up people for the pledges."

Learn more about Samsung's partnership with ENERGY STAR and Boys & Girls Clubs of America.

At **Best Buy** in 2012, more than 18,000 U.S. employees volunteered in excess of 100,000 hours to causes and organizations for which they are passionate. "Tag Team Awards" encourage employee involvement. The program provides monetary donations to nonprofit organizations to which employees donate their time.

Microsoft's Volunteer Manager brings nonprofit needs and volunteer skills together. In 2012 more than 10,000 employees and 2,000 nonprofit organizations were registered; employees donated more than 431,000 hours of service.

Meeting a Growing Need

Even in a land of abundance, hunger can be found all around us, and in every community there are those who lack access to adequate nutrition. The U.S. Department of Agriculture reports that nearly 15 percent of U.S. households do not have consistent access to enough food for a healthy, active life. And the number of households in severe need is growing – now standing at more than one in 20.

CE companies and their employees are stepping forward with solutions to the problem of hunger – supporting food banks, feeding kitchens and other community-based programs through financial support and volunteer effort.

Haier and its employees are strong supporters of the Food Bank For New York City. Their contributions include 75 employee community kitchen volunteers, a cash match of consumer donations and a Virtual Food Drive targeted to attendees at the International CES.

The **Plantronics** commitment to the Second Harvest Food Bank of Santa Cruz County, CA, began in 1997. During the last 16 years the company has donated more than three million pounds of food to local families in need.

In 2013, **Sony Pictures** combined its financial support with the contributions of participating food growers to donate over 80,000 pounds of fresh produce to Feeding America's nationwide network of food banks in support of the motion picture release of *Cloudy with a chance of Meatballs 2*. The campaign, part of Hunger Action Month, also invited consumers to support Feeding America's work on behalf of 61,000 community agencies nationwide, and a custom animated PSA was created with the Ad Council urging consumers to take action to end hunger.

In 2012, **BlackBerry** employees supported 22 food banks, donating 30,000 pounds of food globally – which helped feed 800 people in need for an entire month.

Enabling Progress Through People

Organizations prosper and drive continuous innovation when they can leverage the talents of a fully engaged and highly motivated workforce. Providing opportunities for employees to contribute, excel and advance in their careers is how good companies become great, and great companies remain on top. Leading CE companies recognize this opportunity – as well as the importance of tapping the energy and passion of their employees to achieve their organization's sustainability objectives.

The **Sony Electronics** Green Workspace Certification (GWC) is designed to help all employees take measurable actions to reduce their personal environmental impact at work – decisions that can help reduce Sony's overall impact as well. GWC is structured to give employees a clear picture of how they can influence both eco-efficiency and cost performance. Team members are presented with opportunities for simple but impactful actions they can take in their daily work lives to make a positive difference. Accomplishments are recognized with incentives and, at the highest personal level (Tree), 50 trees are planted in the employee's name.

For **Dell**, a key driver of team member engagement is its Connected Workplace program. It enables one in five global team members to arrange their work in a flexible manner – including work from home and part-time arrangements, variable hours and job sharing. The program is not only good for employee well-being, it's good for the environment – avoiding an estimated 13 million kWh of energy and 6,785 metric tons of GHG emissions annually.

The **HP** Sustainability Network was created to help employees learn about, demonstrate and share environmental practices that benefit their professional and personal lives. With thousands of members, it is one of the largest employee network groups in the company. Local chapters coordinate a wide range of efforts, including alternative commute programs, local volunteering efforts, on-site composting and educational workshops.

Responsible Sourcing

Addressing Conflict Minerals

The problem of conflict minerals, the sources of tin, tantalum, tungsten and gold mined in the Democratic Republic of Congo and surrounding countries, is a serious concern to every person and organization committed to human rights and environmental protection. Efforts to exert control over these valuable resources have led to armed conflict and serious human rights abuses in the region. In the United States, legislative and regulatory actions are underway in an effort to stem the flow of conflict minerals. CE companies are undertaking a number of actions to address what clearly is one of the most significant environmental and social concerns in the global supply chain.

BlackBerry is taking aggressive and meaningful steps to address the problem through a variety of initiatives. The company is an active member of the EICC®–GeSI Extractives Work Group, an organization focused on developing practical traceability solutions that companies can implement to help prevent the use of minerals sourced from conflict mines. A major initiative has been the launch of a Conflict-Free Smelter (CFS) program, which seeks to identify smelters and refiners that can verify they are not processing minerals sourced from conflict mines.

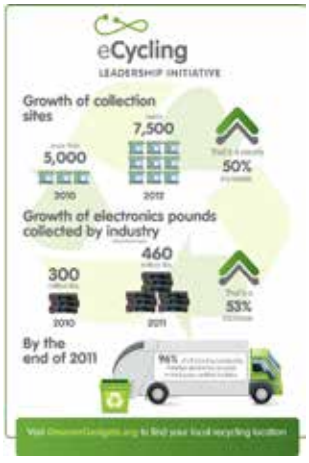
BlackBerry is also a participant in the pilot of the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. In 2012 the company launched its program with a request sent to more than 170 direct suppliers of materials to provide information regarding their minerals sourcing practices. The company is also a member of the Public-Private Alliance for Responsible Minerals Trade, a program launched by the U.S. Department of State in 2011. The Alliance brings together governments, companies and NGOs to support supply chain solutions in the DRC and other countries in the region.

Solutions For Hope is a project created to deliver verifiably conflict-free tantalum material from the DRC in accordance with the OECD Due Diligence Guidance. BlackBerry is a participant in this effort, which utilizes a "closed pipe" strategy in which tantalite ore mined from sites within the DRC is traced along its secure supply chain to the smelter. This program helps ensure that tantalum used in BlackBerry products is derived from conflict-free sources, and also provides economic opportunities to the small artisanal miners who rely upon this work for their livelihoods.

Leading Through Consumer Education

Knowledge is power. At CEA we believe that by empowering consumers with actionable information on how to live green, buy green and recycle responsibly, we can help millions of people lower their energy consumption, shrink their carbon footprint, reduce waste – all while saving money.

Providing that knowledge is the big idea behind GreenerGadgets.org – CEA's online resource for consumers who want to live and work more eco-efficiently. Our research shows that 60 percent of consumers are concerned about their energy bills and energy consumption – but many lack the information they need to make smarter choices. At GreenerGadgets.org consumers find valuable tools like an interactive calculator that lets them compute the energy consumption of their CE devices based upon type, quantity and the number of usage or charging hours. Online visitors can access valuable tips on how to operate their existing products more efficiently. And they can learn how to make their next purchase a greener purchase – including links to EPEAT-registered and ENERGY STAR-labeled devices.

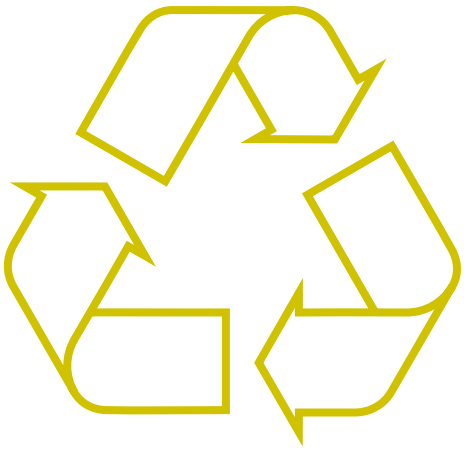


Spreading the Word About Responsible Recycling

Public education is central to our strategy to help divert more end-of-life CE products from the nation's waste stream. At GreenerGadgets.org consumers learn more about the importance of responsible eCycling – and they can find a responsible recycling collection location in their community by using our zip code search tool. The database of electronics recyclers is created in partnership with the National Center for Electronics Recycling (NCER), a non-profit dedicated to the development and enhancement of a national infrastructure for electronics recycling in the United States. As of September 2013, there are more than 8,000 locations nationwide, from Bar Harbor, ME, to Honolulu.

Strong Partners, Essential Message

Recyclebank calculates that it has motivated its members to recycle nearly **four billion pounds of material** – an amount that continues to grow every minute of every day.



As part of an ongoing effort to build increased awareness of CEA's consumer education efforts and GreenerGadgets.org, we have partnered with **Recyclebank** – an innovative company that motivates individuals and communities to live more sustainably.

Recyclebank's more than four million members earn points for taking everyday green actions – points they can redeem for valuable products, services and offers from their commercial partners. Points are earned by taking green actions like reading and learning about environmental concerns, making a greener purchase, using fewer resources or recycling materials responsibly. Recyclebank calculates that it has motivated its members to recycle more than 3.5 billion pounds of material – an amount that continues to grow every minute of every day.

Recyclebank is an important point of referral to drive more and more visitors to GreenerGadgets.org – where its members can earn points for actions such as looking up an eCycling location or learning how to save energy when they purchase and operate a CE product. Looking ahead, we believe it is a partnership that will continue to benefit more and more consumers – and the planet as well.

About This Report

CEA's 2013 Sustainability Report is our third, issued biennially, profiling the sustainability challenges, opportunities and performance of our member companies, of the consumer electronics industry generally and of CEA and its internal operations. This report addresses industry activities during calendar years 2011, 2012 and portions of 2013.

By necessity, this report does not attempt to document the activities, initiatives and performance of all of our 2,200 member companies. Such an effort, while valuable, would be of a size and complexity far beyond the scope of this project. In this year's report we have chosen not to aggregate greenhouse gas (GHG) and electricity usage data reported by the 10 largest companies in our membership. The composition of that group has changed since our last report, reporting practices and periods are not consistent across all companies, and any comparison to previously published aggregated metrics would therefore be unhelpful or even misleading.

The content of this year's report is drawn from reports, case studies and data submitted by CEA members; from interviews with industry representatives and public stakeholders; from academic, governmental and NGO sources, including the U.S. Environmental Protection Agency and the Green Electronics Council; from media accounts; and from the public corporate sustainability and corporate responsibility reports published by CEA members.

In many instances, additional information concerning members' operations and performance is available on their corporate websites or can be found within their own sustainability reports.

In an effort to conserve natural resources, this report was designed for distribution in interactive form, including mobile-friendly formats, or via a downloadable personal document format (pdf).

We value your feedback. For comments, suggestions or questions about this report, please contact: Samantha Nevels at snevels@ce.org or 866-858-1555.

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