

US EPA ARCHIVE DOCUMENT



Preserving Resources,
Preventing Waste

Introduction

GHG = Greenhouse Gas

MTCE = Metric Tons of Carbon Equivalent

The U.S. Environmental Protection Agency's (EPA) WasteWise program educates its partners on reuse, recycling, and using recycled products. Through the program's Climate Campaign, it also provides information on how these waste reduction efforts decrease greenhouse gas (GHG) emissions, and in turn, decrease global climate change.

The following case studies are just a few ways that companies mitigate their impact on climate change through waste reduction efforts.



US EPA ARCHIVE DOCUMENT Climate Case Studies

Hanging on to Hangers at Target

Target Corporation has hit a bullseye in achieving its waste and climate impact reduction goals through its hanger reuse and recycling program. As a clothing retailer, Target uses more than 500 million hangers per year. Today, the company keeps 14,400 tons of plastic and nearly 2,865 tons of metal from entering the waste stream each year. By reusing and recycling hangers, Target annually reduces GHG emissions by nearly 16,000 MTCE—the equivalent to the emissions from the quantity of gasoline that would fill nearly 780 tanker trucks.



ment back to its clothing vendors for reuse. Each year, Target reuses approximately 70 to 80 percent of the hangers in circulation.

Although reuse is the major focus of Target's program, recycling is also key to reducing the company's climate footprint. When the hangers reach the end of their useful lives, they are recycled for use in remanufactured products. In 2003, Target recycled 1,800 tons of plastic from hangers for use in post-consumer goods.

Through the reuse program, hangers make several trips through Target's supply chain and are used until damaged. When customers purchase clothing, hangers are collected at the checkout and returned to Plasti-Form, Target's hanger and reuse partner, which cleans, inspects, and reboxes the hangers for ship-

The hanger reuse and recycling program not only reduces waste and GHG emissions, it also reduces hanger expenses, therefore helping to improve the company's bottom line. Before the program began, team members were responsible for hanging clothing at the store. Now, clothing arrives ready to be placed on the racks, and team members have more time to focus on other responsibilities.

The hanger reuse and recycling program is only one aspect of Target's extensive environmental efforts. Recently, Target joined EPA's Climate Leaders program, through which it is working to set a corporation-wide GHG emissions reduction goal. As a member of WasteWise since 1994, Target has received five awards for its environmental excellence.

Target Corporation

Minneapolis, MN

Target Corporation is a retail company that provides general merchandise to customers through its upscale discount stores and its online business. The company has more than 1,200 Target Stores in the United States.

<www.target.com>

Using One-Time-Use Cameras Only Once—Not at Kodak!

With one of the highest consumer product recycling rates, Eastman Kodak Company's one-time-use camera recycling and reuse program prevents waste and helps reduce climate change impacts. Since the program's inception in the early 1990s, Kodak has recycled or reused more than 700 million one-time-use cameras and expects to reach 1 billion by 2010.

Between 1998 and 2002, Kodak kept approximately 30,000 tons of mixed plastics and 15,000 tons of printed circuit boards from entering the waste stream. Kodak's waste reduction efforts have reduced GHG emissions by approximately 30,700 MTCE—which is comparable to taking nearly 24,400 cars off the road for one year. In 2002 alone, consumers recycled more than 275 tons of equipment.

Originally introduced in 1987, one-time-use cameras were intended to be a convenient and inexpensive option. Because the cameras were designed to be used only once, Kodak created the one-time-use camera recycling and reuse program as a response to concerns that the cameras were wasteful. After Kodak launched the program, worldwide one-time-use camera recycling and reuse rates skyrocketed—reaching more than 75 percent.

Since the program's beginning, Kodak one-time-use cameras have been redesigned so that 77 to 90 percent (by weight) of the product could be remanufactured and the remainder could be recycled. Kodak's recycling and reuse program collects one-time-use cameras from photo processors around the world and separates Kodak cameras from other brands. The other brands are returned to the original equipment manufacturers that also have recycling programs.



To remanufacture, Kodak cleans and inspects all cameras for mechanical and electrical performance. Any parts not conforming to Kodak's quality specifications are replaced, and all cameras receive new covers, fresh film, and batteries. Nonconforming parts are reground and remolded into new cameras or other products, and batteries that do not hold a charge are disposed of in an environmentally responsible manner demonstrating that 100 percent of the product is kept from disposal.

Kodak is an industry leader in environmental protection, exemplified by its commitment to reusing and recycling materials, reducing GHG emissions, and conserving energy. Through a variety of activities, including the one-time-use camera recycling and reuse program, Kodak achieved a 17 percent reduction in CO₂ emissions from companywide power production during the last five years. As a member of the Waste Wise Hall of Fame, Kodak exhibits superior waste reduction efforts and commitments. Kodak has been a WasteWise partner since 1994 and has won five WasteWise awards between 1998 and 2002. As a partner of EPA's Climate Leaders program, Kodak has set a goal to reduce total global GHG emissions by 10 percent between 2002 and 2008.

Eastman Kodak Company

Rochester, NY

Kodak is the leader in helping people take, share, print, and view images—for memories, for information, for entertainment. The company employs approximately 63,900 people worldwide and has manufacturing operations in the United States, Canada, Mexico, Brazil, the United Kingdom, France, Germany, Australia, China, Japan, India, Indonesia, and Russia. <www.kodak.com>

Miami University—Book Collection

After the completion of the 2003 academic year, Miami University conducted a hardback book recycling campaign. By collecting more than 7 tons of books to recycle, the university reduced GHG emissions by 6 MTCE, equivalent to preventing emissions from the use of 50 barrels of crude oil.

What You Can Do To Reduce Your Climate Impact

There are countless waste reduction activities that companies can implement to reduce their climate impacts. A comprehensive list of basic suggestions can be found online in the WasteWise document, Selected Goals of WasteWise Partners (available to WasteWise partners only) <www.ergweb.com/waste/private/pubs/goals.pdf>. By implementing similar goals, companies should realize that their waste reduction activities can significantly decrease GHG emissions. By decreasing production waste or using materials with recycled content, companies can decrease their demand on virgin raw materials. Therefore, companies decrease GHG emissions by curtailing the need for harvesting, transporting, and manufacturing raw materials. Companies can also decrease energy consumption and improve energy efficiency by making processes more efficient and regularly maintaining equipment. This decreases GHG emissions by lessening the demand on exploring, extracting, gathering, processing, distributing, and transmitting natural resources required to produce energy. The following activities can be implemented to decrease climate impacts:

- **Implement waste reduction practices: reuse/donate, compost, recycle, use recycled-content products**
EPA's WasteWise program
www.epa.gov/wastewise
- **Reduce raw material usage**
WasteWise Tip Sheet: Buying or Manufacturing Recycled Products
www.epa.gov/wastewise/pubs/buy.pdf
- **Improve/optimize manufacturing processes**
The Pew Center on Global Climate Change
www.pewclimate.org/what_s_being_done/in_the_business_community/processimprovements.cfm
- **Improve material specification standards**
EPA's Comprehensive Procurement Guidelines Web site
www.epa.gov/cpg
- **Sell byproducts and scraps for reuse**
The Buy Recycled Business Alliance
www.nrc-recycle.org/brba
- **Increase energy efficiency**
EPA's ENERGY STAR® program
www.energystar.gov
- **Implement environmental design**
EPA's Design for the Environment Program
www.epa.gov/dfe
- **Change product lines based on environmental impacts**
EPA's Life Cycle Assessment Web site
www.epa.gov/ORD/NRMRL/lcaccess
- **Decrease transportation of materials or products**
EPA's SmartWay Transport Partnership
www.epa.gov/smartway
- **Use energy substitutes or waste-to-energy processes**
EPA's Green Power Partnership
www.epa.gov/greenpower
- **Remanufacture/refurbish products**
WasteWise Update: Remanufactured Products
www.epa.gov/wastewise/pubs/wwupda6.pdf
- **Improve operation and maintenance programs**
The Practical Steps: Products and Processes section of the Global Environmental Management Initiative Business and Climate Change Web site
www.businessandclimate.org
- **Measure waste reduction GHG impacts**
EPA's climate and waste tools
www.epa.gov/mswclimate
- **Calculate GHG emission reduction equivalents**
U.S. Climate Technology Cooperation Gateway
www.usctcgateway.net/tool

www.epa.gov/wastewise/climate

Pepco Focuses Its Energy on Environment

Although Pepco's primary task is to provide electric services to customers in the Mid-Atlantic region, the company is focusing its own energy on protecting the environment. Pepco incorporates prevention-based approaches into its practices, and one of the company's most successful waste prevention programs is its transformer refurbishment program. Through this program, which was started in the late 1980s, Pepco overhauls and restores out-of-service transformers, preventing waste and reducing GHG emissions. Since initiating the refurbishment program, Pepco has kept approximately 500 transformers out of the scrap yard each year. By reusing nearly 25 tons of aluminum, 90 tons of copper, and 400 tons of steel from these transformers in one year, Pepco reduced GHG emissions by more than 450 MTCE—equivalent to the annual emissions from the power consumption of 195 households for one year.

After comparing the new purchase prices and the refurbishment expenses, it was clear that refurbishing was a cost-effective solution for reducing waste. To refurbish the transformers, employees sandblast the rusted exterior to white metal, then prime and repaint the surface with special paints. Refurbished equipment is fitted with new internal parts and returned back to service. For transformers that



have reached the end of their life, usable parts are removed and cleaned, tested, and stored. These parts are then used in other refurbished units or in-service units requiring these components. Refurbishing an out-of-service transformer is not as simple as manufacturing a new one, but the financial and GHG savings are worth it.

With an environmental policy aimed at preventing pollution and reducing waste in all business activities, Pepco strives to decrease its impact on the environment. Even before implementa-

tion of the refurbishment program, the company disassembled transformers that had reached the end of their lives and sent scrap to be remanufactured—a process that decreased GHG emissions and increased the availability of recycled metal. However, refurbishing transformers provides an even greater environmental benefit than disassembly because the company uses fewer virgin materials for new equipment, requires less energy to manufacture new products, and prevents hazardous wastes from entering the waste stream. For its efforts in environmental stewardship, Pepco received a WasteWise Climate Change Honorable Mention Award, one of four WasteWise awards the company has received since 1995.



Climate Notes

General Motors—Resource Management (RM)

GM's RM program is an important driver helping the company achieve its waste reduction and recycling goals. Through RM and other waste prevention efforts, GM reduced GHG emissions by nearly 350,170 MTCE—equivalent to the carbon sequestration from preserving at least 10,520 acres of forest from deforestation.

Pepco

Washington, DC

Pepco is a regulated electric utility that provides transmission and distribution services and is a wholly owned subsidiary of Pepco Holdings, Inc. Pepco delivers electricity at regulated rates to more than 700,000 customers in Washington, DC, and major portions of Prince George's and Montgomery Counties in Maryland. <www.pepco.com>

“Refurbishing out-of-service transformers and restoring them back to the system has been a success for Pepco both in terms of being cost-effective and having an environmental benefit to the climate by reducing GHG emissions.”

— Pepco Manager of Shops and Test Sunil Panacholi

Sweeping up the Scraps at Springs Industries



Springs Industries has made sweeping changes to its waste reduction program during the last five years—by actually sweeping. By incorporating environmental leadership into its everyday processes, Springs saves money and reduces its impact on global climate change through waste reduction.



in the U.S. Department of Energy's Voluntary Reporting of Greenhouse Gases program. In both programs, the company makes an effort to show its waste-related GHG reductions. Springs' actions demonstrate its clear understanding of the climate-waste link and its dedication to protecting the environment.

As a textile manufacturing company, Springs produced noticeable amounts of fiber waste and lint in its yarn processing facilities. To reduce the amount of waste, Springs invested in an air collection system to remove ambient lint as the yarn is spun. For scraps too large to be removed by air, employees sweep the floors. Scraps are sent to be recycled and used in products such as stuffing and low-quality yarns and rags. The remaining fiber waste is sent for composting.

After a successful pilot program in one manufacturing plant, which began in 1999, the fiber reclamation program quickly spread to other facilities. Since the program's inception, Springs has recycled more than 26,500 tons of scrap fiber. Such recycling has reduced GHG emissions by approximately 11,500 MTCE—equivalent to the carbon sequestration of preserving more than 300 acres of forest from deforestation. In 2003 alone, Springs sent nearly 1,830 tons of fiber to be recycled and an additional 1,240 tons for composting.

Such accomplishments are common at Springs, where one of the corporate commitments is to “increase recycling programs to reduce landfill usage.” The company's pledge to reduce waste goes far beyond waste fiber. Since 1990, Springs has reduced its overall solid waste by approximately 75 percent. Plus, in the last three years alone, the company has reduced GHG emissions by more than 5,700 MTCE. A WasteWise partner since 1994, Springs is also an active participant

Springs Industries, Inc.

Fort Mill, SC

Springs Industries is a home furnishings manufacturer and marketer. It has created a complete line of coordinated home fashion products; bed and bath products for retailers, institutional, and hospitality customers; home sewing fabrics; and baby products. The company has approximately 30 manufacturing facilities in the United States, Canada, and Mexico—employing nearly 15,000 people. <www.springs.com>



“Being a leading company requires more than just providing jobs and supporting communities. That's why we're committed to providing a safe work environment for our associates, being good stewards of our resources, and promoting environmental sustainability.”

— Springs Chairman and CEO Crandall Bowles

Climate Notes

Allergan Sales, Inc.—Packaging Reduction

Careful to minimize waste throughout its products' lifetimes, Allergan designs packaging to reduce its GHG footprint. In one year, Allergan reduced packaging material by 75 percent, which translates to GHG reductions equaling more than 50 MTCE—equivalent to the emission reductions from not using more than 22,000 gallons of gasoline.



Can a Can Change the Climate? CROWN Holdings Can!

CROWN Holdings's SuperEnd® is the most radical—and most profitable—change to the top of a beverage can (also called the can end) in more than 20 years. Challenging industry standards, the company realized the potential to save aluminum and money through lightweighting, reducing the amount of material needed for the can end while maintaining quality. As a result of CROWN Holdings's efforts, the SuperEnd uses 10 percent less aluminum than a traditional can end.

Since 2002, 25 billion SuperEnds have been produced in North America, saving 6,500 tons of aluminum. The SuperEnd reduced GHG emissions by more than 16,000 MTCE—comparable to the GHG emission reductions from preventing the use of nearly 125,000 barrels of crude oil. An additional 430 million cans could be made with the saved metal. With 100 billion beverage cans used each year, the SuperEnd has the potential to keep 26,000 tons of new aluminum out of circulation. More than 200 brands already use the SuperEnd, and others are eager to switch.

CROWN Holdings and its customers also reap economic benefits from using less aluminum. Traditional can ends use a thick and expensive alloy. By lightweighting, the company made a major change without making a huge monetary investment or changing the industry's infrastructure. Since 60 percent of beverage packing costs are related to materials, reducing them is a fundamental way for a beverage packaging company to see cost savings.



Climate Notes

Public Service Enterprise Group (PSEG)— Electronics Recycling Program

PSEG remanufactures and refurbishes computer equipment to donate or sell to local charitable organizations, schools, non-profit community groups, or other interested parties. The successful computer management program prevented nearly 60 tons of computers from disposal in 2003. The GHG emission reductions from this effort are equivalent to the carbon sequestration from growing nearly 91,200 tree seedlings for 10 years.

6



Lightweighting is only one of CROWN Holdings's environmental initiatives. By using a more efficient machining process, the company reduces the amount of waste generated when making the aluminum can body. Recycling is also extremely important to the company. Since recycling a can takes only 5 percent of the energy needed to produce a can from virgin raw materials, recycling improves the company's bottom line. With this in mind, the company recycles 140 million tons of aluminum scrap within its own facilities. While the results of these activities and others are just being realized, CROWN Holdings continues to make small changes to reduce their environmental impact in a big way.



CROWN Holdings

Philadelphia, PA

CROWN Holdings, Inc. is a manufacturer of packaging products for consumer marketing companies around the world. The company produces a variety of metal packaging for food, beverage, personal care, household and industrial products; dispensing systems; plastic and metal closures; and canmaking equipment. The company operates approximately 190 plants in 42 countries, and employs nearly 27,500 people. <www.crowncork.com>

“One of our key environmental health and safety principles is pollution prevention with an emphasis on source reduction. Our lightweighting activities are an important part of our program and the development of the SuperEnd clearly demonstrates that significant environmental benefits can be realized along with economic gain.”

— CROWN Holdings Director of Environment, Health, and Safety Mike Antry

Zero Waste at Xerox



According to Xerox's Chair and CEO Anne Mulcahy, "Xerox's goal—simply stated—is to make Waste-Free Products in Waste-Free Factories to help our customers attain Waste-Free Workplaces." For more than a decade, Xerox has committed itself to becoming a Waste-Free company and currently recycles 85 percent of its non-hazardous solid waste. By striving to be Waste-Free, Xerox reduces waste destined for disposal, reduces the amount of virgin raw materials and energy needed to manufacture new parts, and reduces GHG emissions.

Early in the Waste-Free quest, Xerox realized reuse and remanufacturing goals were essential in product design. The company now designs its products to maximize end-of-life (EOL) potential and increase recyclability and reusability with features such as easy machine disassembly, fewer parts, and more durable parts to last multiple life spans. As a result of Xerox's design efforts, new equipment can be remanufactured using 70 to 90 percent (by weight) of machine components. Since the EOL management program's inception in 1991, Xerox has diverted more than 750,000 tons of waste from disposal. In 2003, equipment remanufacture and the reuse and recycling of parts kept 72,000 tons of copying and printing equipment from the waste stream.

In addition to large equipment remanufacturing, Xerox collects and remanufactures spent print/copy cartridges, toner containers, and waste toner through the Green World Alliance. Xerox provides its supply customers with prepaid labels and packaging to return materials to the company. In 2003, customers returned more than



4.5 million cartridges and toner containers—reducing GHG emissions by nearly 3,040 MTCE, comparable to the emission reductions from not using more than 1.1 million gallons of gasoline. Of these materials, nearly 90 percent (by weight) were remanufactured or recycled.

Efforts to become a Waste-Free company have yielded improvements in both Xerox's products and its facilities. At times, Xerox faced significant challenges in its pursuit to use waste reduction as a means to decrease GHG emissions, but it maintained its commitment to Waste-Free products and Waste-Free facilities. These changes have dramatically reduced GHG emissions and have provided Xerox with an environmentally friendly corporate image and cost-effective decisionmaking.

Xerox Corporation

Stamford, CT

Xerox Corporation is a technology and services enterprise that helps businesses deploy smart document management strategies and find better ways to work. The company's digital system products include: printing and publishing systems, digital presses, multifunction devices, network printers, copiers, and fax machines. Xerox also offers various services, such as developing online document archives; analyzing efficient document-sharing; operating in-house print shops or mailrooms; and building Web-based processes for personalizing direct mail, invoices, and brochures. Xerox has operations worldwide, with 35,100 employees in the United States alone.

<www.xerox.com>

Climate Notes

The Seydel Companies—Plastics Recycling

In one year, The Seydel Companies recycled more than 810 tons of HDPE plastic from chemical containers and various other types of packaging, reducing GHG emissions by approximately 320 MTCE—an amount equivalent to the reduced emissions from removing more than 250 cars from the road for one year.

Climate Campaign Resources



Don't "Waste" Your Chance to Do Your Share—How To Reduce Your Climate Footprint

This WasteWise guide provides information on the climate-waste link, how companies can decrease their climate impacts, tools for getting out climate messages, and how to share climate-waste achievements with staff, management, customers, and the general public. [Coming Soon]

"Global Warming...Is A Waste!"

This *WasteWise Update* explores the connection between solid waste and climate change, describes waste-related climate impacts, identifies ways to reduce GHG emissions and minimize global climate change, and introduces the new WasteWise Climate Change Initiative and Climate Change Award. <www.epa.gov/wastewise/pubs/wwupdate18.pdf>



Why "Waste" a Cool Planet: MSW Solutions to Global Climate Change

This video, broadcast nationally in December 2000, is dedicated to educating businesses and state and local governments about the relationship between solid waste management and climate change. To order a free copy of this video, contact the WasteWise Helpline at (800) EPA-WISE (372-9473) or <ww@erg.com>.

WasteWise Bulletin—September/October 2002

This issue of the *WasteWise Bulletin* discusses the link between climate change and waste, announces the WasteWise Climate Change Toolkit, provides information on EPA's WARM Calculator, and recognizes Allergan, Inc. for its climate-waste efforts. (available only to WasteWise partners) <www.ergweb.com/waste/private/pubs/bulletin/bul9-02.pdf>



Climate Campaign Case Studies

These case studies feature WasteWise partners that have made climate activities an important part of their WasteWise efforts.

- General Motors (GM) <www.epa.gov/wastewise/pubs/gm_factsheet.pdf>
- Public Service Enterprise Group (PSEG) <www.epa.gov/wastewise/pubs/pseg_factsheet.pdf>
- City of Clifton, New Jersey <www.epa.gov/wastewise/pubs/clifton.pdf>
- Allergan Sales, Inc. <www.epa.gov/wastewise/pubs/allergan.pdf>
- The Seydel Companies <www.epa.gov/wastewise/pubs/seydel.pdf>