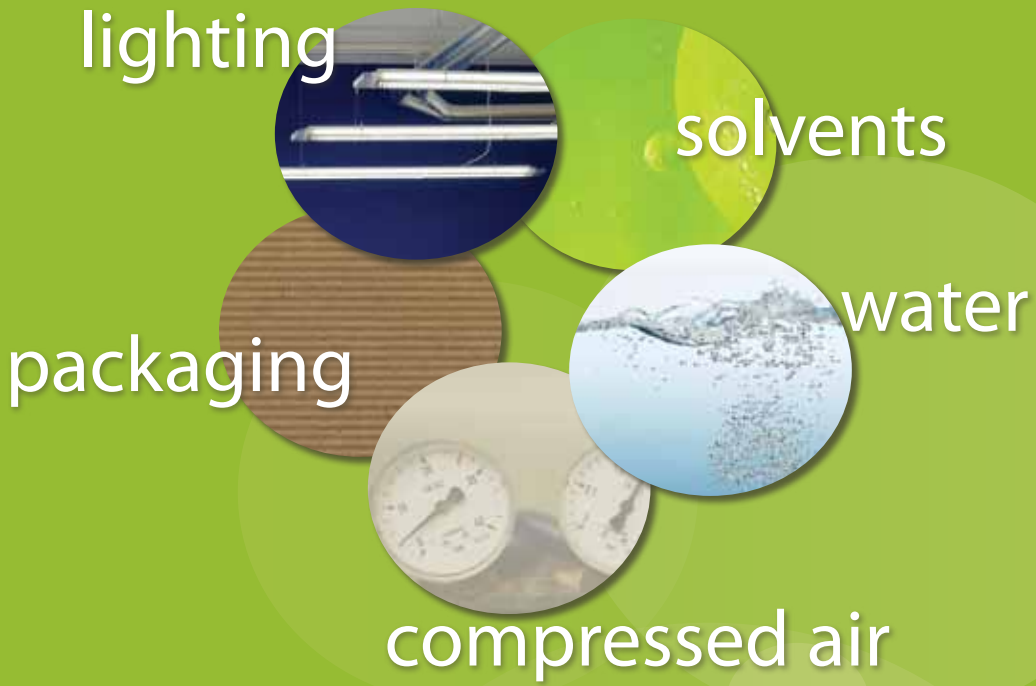
A BUSINESS GUIDE TO SOURCE REDUCTION



Easy energy and materials savings

SAVINGS ACHIEVED BY MIDWEST BUSINESSES AND THEIR P2 INTERN PARTNERS

These businesses reduced waste in their operation ... and yours can too!

Sustainability is commonly defined as meeting our present needs without compromising the ability of future generations to meet their needs. It includes the concepts of businesses remaining profitable, employees receiving livable wages, and natural resources being managed wisely.

In this booklet, you will read about companies that pursued sustainability initiatives, reducing their environmental impact while increasing their profit margin. Their projects demonstrate a crucial strategy in this effort—source reduction. Source reduction involves examining the whole life cycle of a product (extraction of raw materials, transportation, processing, manufacturing, consumer use, and disposal) to reveal opportunities for reducing materials and energy consumption.

Some businesses begin improvement with thorough planning and evaluation of operations. Others simply implement projects they know will reduce materials and energy use. In this booklet, you will find many examples of easy, proven projects ("low hanging fruit") that most companies can begin today. For companies ready to commit to ongoing improvements, we provide information on how to develop an Environmental Management System.

Many of these successful projects were initiated by engineering interns from a Pollution Prevention (P2) Intern program in their state. This is a highly effective way to get help improving your processes at very little cost. Contact information for these programs plus other resources is included.

Companies who examine their processes for leaner operation not only improve the environment but also empower their people and encourage innovation. I hope their stories will inspire your company to undertake similar projects for your greater profitability and advancement toward sustainability.

Jean Waters
Energy Engineer
Nebraska Business Development Center
Pollution Prevention Regional Information Center (P2RIC)

Duncan Aviation case study, page 7

"We make changes in our processes that are environmentally conscious, good for the airplane, good for our customers and excellent for our people. Avoiding use of hazardous products keeps us from being subject to regulations and allows us to grow."

—**Kelly Becker, environmental director, Duncan Aviation, Lincoln, NE**

Physicians Mutual, headquartered in Omaha, NE, with nearly 1,000 employees, has a 30-year record of sustainability initiatives.

CASE STUDY { Reduce, reuse, recycle }

Green team success

PHYSICIANS MUTUAL, a national leader in health and life insurance, started recycling packaging materials and paper from their Mail Processing Center in the 1980s. Building on more than two decades of success, the company formed a green team in 2007 to help identify ways to lessen the ecological footprint of its workplace. Their first focus was to increase the company's recycling efforts and reduce what it puts into landfills. Some of Physicians Mutual's green initiatives today include the following —

- Placing centralized recycling containers for the collection of aluminum cans and plastic drinking bottles on every floor and in high-traffic areas.
- Implementing a reusable to-go clamshell food container with the help of its food service provider, Treat America. This eliminates 6,000 Styrofoam containers a month from going into the landfill. That's enough containers in a year to build a nine-foot wall around the company's quarter-mile garden path.
- Implementing desk-side recycling to help separate trash from recyclable paper being thrown away. Physicians Mutual's total recycling for 2010 was more than 393,000 pounds. That's nearly 200 tons!
- Installing copiers/printers capable of duplex printing to reduce paper usage. Computer/projection equipment in meeting rooms was installed to reduce the need for paper handouts. And, several of the company's printed publications were converted to electronic versions.

One step leads to another in green business projects.

CASE STUDIES

Easy ways to save money and reduce waste

Lighting

Lighting improvements are one of the easiest and most cost-effective ways to reduce energy bills. Many incentives are offered and vendors may be able to help calculate savings. Save electricity now and control costs due to rising energy prices.

CASE STUDY { T-8 lighting retrofit }

FLEXSTEEL INDUSTRIES, INC. in Dubuque, Iowa, replaced inefficient T-12 fluorescent lamps and high-intensity discharge (HID) lamps with T-8 lamps and electronic ballasts. The facility's 3,200 old lighting fixtures accounted for more than one-half of its electricity use. A lighting audit conducted by the Iowa Department of Natural Resources (IDNR) Pollution Prevention Intern Program revealed that over the years, the lighting had not been adjusted for changes in space use, resulting in some areas being overlit and others underlit (e.g. production lighting in a space that is now a warehouse). Old lights provided poor color balance causing headaches and eyestrain.

In addition to energy savings, new lighting improved visibility, safety, productivity, and employee morale. Increased lamp life of the new T-8s will also reduce maintenance time. Rebates from Flexsteel's utility provider and a tax-deduction provision will offset much of the cost of lighting upgrades.

LIGHTING RETROFIT
Cost savings = $74,500/yr
Energy savings = 783,000 kWh/yr

CASE STUDY { Timers and tracking }

VIA CHRISTI HOSPITAL in Wichita, Kansas, discovered an easy and low-cost method to save energy by installing timers for lighting in hallways with adequate daylight. Light levels were measured throughout the buildings to assure compliance with code. The hospital will track savings from the improvements with Energy Star Portfolio Manager software. The total lighting project cost about $5,500 and saved 355,800 kWh/year and $25,600/year. An intern from the Kansas State University Pollution Prevention Institute (KSUPPI) assisted with the project.

TIMERS AND AWARENESS
Initial investment = $5,500
Cost savings = $25,600/yr
Energy savings = 355,800 kWh/yr

CASE STUDY { Plasma and T-5 lights }

A MISSOURI GALVANIZING PLANT replaced old HID high-bay lighting with new plasma lights to improve plant visibility and reduce electricity costs. The conversion of each fixture was done in a few minutes by employees. The facility also replaced T-12 fluorescent fixtures with T-5 lamps using a conversion kit. With incentives from its electric utility and a state energy grant, the company's investment was only a third of the total project cost of $51,215. The plant was assisted by an intern from the University of Missouri Environmental Assistance Center (MOEAC).

PLASMA AND T-5 LIGHTS
Initial investment = $51,215
Cost savings = $21,380/yr
Energy savings = 148,839 kWh/yr

SMALL STEPS SAVE

- $ Energy Star reports LED exit signs are ultra-low energy users and have low maintenance requirements.
- $ LEDs use about **8%** of the energy used by incandescent exit signs and about **30%** of the energy used by fluorescents.
- $ LEDs last up to **10** times life of fluorescents.

Consider savings from less heat produced by more efficient lighting—especially in refrigerated spaces. Also, lamp disposal costs may be less.

CASE STUDIES

Easy ways to save money and reduce waste

Solvents

Solvents are expensive and, if hazardous, special handling and management requirements add even more cost. Fortunately, many effective, nonhazardous alternatives are available. The exact combination of solvent and cleaning techniques will vary based upon soils and materials being cleaned.

P2 INTERN PROGRAM

CASE STUDY { Bio-based solvents }

A MISSOURI MANUFACTURER was disposing 50% of the solvent it purchased each year as hazardous waste. Assisted by P2 interns from the University of Missouri Environmental Assistance Center (MOEAC), the company began a phased initiative that will save $191,000/year. First, the interns tested several products before identifying one citrus solvent that performed well enough to replace three hazardous solvents used in painting operations. Next, mechanical washing stations were tested and compared for cleaning paint guns with small amounts of the new solvent. Equipment vendors provided washing stations for the trial. The winning combination of preferred washing station and citrus solvent cost $30,000 but will save $42,000 in the first year. The final phase will be distillation of the citrus solvent so it can be reused many times. The $129,000 purchase cost of distillation equipment should save $149,000 in the first year and each year after.

BIO-BASED SOLVENTS
Initial investment = $159,000
Cost savings = $191,000/yr
Haz. waste reduced = 19,500 gal/yr

CASE STUDY { Equipment substitution }

DUNCAN AVIATION, the largest family-owned aircraft support organization in the U.S., has its largest facility in Lincoln, Nebraska. The company services business aircraft and specializes in airframe and engine maintenance, avionics installations, interior design and installation, and custom paint modifications. A University of Nebraska Partners in Pollution Prevention (UNL P3) intern assisted the company in making some easy improvements. The company replaced the solvent used in parts washers with a less-toxic solvent and changed equipment to a type that recycles and reuses the solvent. The changes resulted in a reduction of 14,800 pounds of hazardous waste between 2007 and 2010, saving $1,780. Since 2002, the company has reduced the hazardous air pollutants (HAP) content in its cleaner solvent use by 36%. In addition, aerosol cans are being replaced at the facility with bulk compressed- air cans, which are refillable.

EQUIPMENT SUBSTITUTION
Cost savings = $1,780/yr
Haz. waste reduced = 4,900 lbs/yr

CASE STUDY { Computerized production }

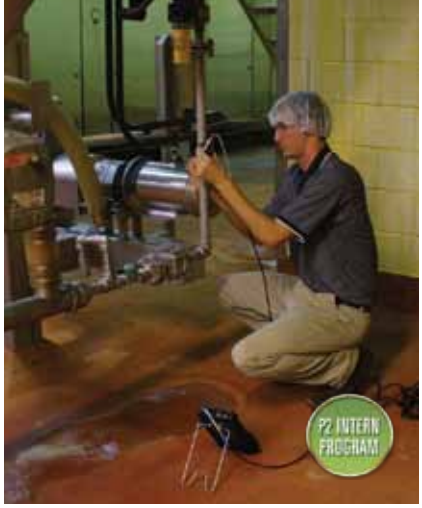
SIEGWERK USA is a privately owned, independent printing ink manufacturer and the third-largest ink producer in the world. Its primary market is the packaging industry. Siegwerk recognizes that given the cost of raw materials and their associated transport expense, any waste has a direct impact on the company's profitability. Because different inks are manufactured with the same equipment, solvents are used to clean equipment and reduce color and chemical contamination. Assisted by a P2 intern from Iowa Department of Natural Resources (IDNR), Siegwerk programmed computer software to calculate the needed quantity of solvent between chemically incompatible runs. They added parameters to improve production scheduling to minimize cleaning requirements. Finally, Siegwerk determined that solvents from cleaning operations could be reused in some cases without compromising product quality.

COMPUTERIZED PRODUCTION
Cost savings = $414,788/yr
Haz. waste reduced = 52,000 gal/yr

Easy ways to save money and reduce waste

Water

Water has been undervalued for many decades, but companies are starting to notice that the cost of water and wastewater disposal is draining their budget. Hidden costs of water include energy to heat, pump, and treat it, plus wastewater management.



CASE STUDY { Operational changes }

SARA LEE FOODS in Storm Lake, Iowa, implemented measures to conserve water in a large-scale turkey harvesting facility. With the assistance of the Iowa Department of Natural Resources (IDNR) Pollution Prevention Intern Program, Sara Lee identified operational changes that could result in significantly reduced water usage. Solutions included a simple policy to turn off water to all production machines during breaks and lunches, installing new valves, and adding simple controls. These changes, along with low-flow aerators on hand-wash stations, should result in savings of 3.6 million gallons of water and $27,310 annually. The intern also found a way to reuse chilled water that will reduce cooling and chemical costs, saving 25,000 gallons of water per day and about $50,000/year.

OPERATIONAL CHANGES
projected **Cost savings = $77,300/yr**
projected **Water savings = 3.6M gal/yr**

CASE STUDY { Low-flow aerators }

ST. LUKE'S HOSPITAL in Kansas City, Missouri with help from a University of Missouri Environmental Assistance Center (MOEAC) pollution prevention intern found that replacing the facility's two-gallon-per-minute sink aerators with 1/8 gallon-per-minute aerators had the potential to save the hospital 4,370,418 gallons of water and $37,323 annually.

LOW-FLOW AERATORS
projected **Cost savings = $37,000/yr**
projected **Water savings = 4.3M gal/yr**

CASE STUDY { Water audit }

FRITO-LAY, INC. in Topeka, Kansas received a P2 award from the Kansas Department of Health and Environment in 2009 for its efforts in energy efficiency and pollution prevention. An audit of water usage was conducted with assistance of a Kansas State University Pollution Prevention Institute (KSU PPI) pollution prevention intern. A combination of fresh and recycled water is used in various processes, but water restrictors could be installed to reduce the amount of fresh water required and still meet water quality standards. The facility has conserved 7,460,000 gallons of water per year, which is an approximate savings of $37,500 annually.

WATER AUDIT
projected **Cost savings = $37,500/yr**
projected **Water savings = 7.5M gal/yr**

Small changes equal big savings.
You can pay the utility or invest in your facility.

Microfiber mopping saves money

A regional hospital that switched to microfiber mopping saved **23,000** gallons of water and **1,400** pounds of cleaning chemicals per year.

Easy ways to save money and reduce waste

Compressed air

Air is still free—however, it costs a lot of money to keep it under pressure. Why use energy to compress air that simply leaks from the system? Equipment such as ultrasonic leak detectors can help find these leaks and stop the waste.

CASE STUDY { Detecting Leaks }

Noticing the rising costs of water and energy in its processes, a Kansas food manufacturer with a strong environmental commitment worked with an intern from Kansas State University Pollution Prevention Institute (KSU PPI) to help identify savings. Using an ultrasonic leak detector, the intern tagged and measured 46 air leaks throughout the plant. These compressor system leaks cost the company more than $23,000 per year in electricity costs. The intern recommended testing for new leaks every six months as part of a maintenance schedule.

DETECTING LEAKS
Cost savings = $23,060/yr
Energy savings = 458,336 kWh/yr

CASE STUDY { Changing nozzles }

MOLEX, INC., a manufacturer of electronic connectors in Lincoln, Nebraska, worked with University of Nebraska Partners in Pollution Prevention (UNL P3) interns and replaced compressed air blow-off nozzles with ones having smaller orifices to reduce air and energy used. This project, with a payback period of only 2.5 days, saved $69,237 per year in energy costs through 1,652,432 kwh/year electricity use reduction.

CHANGING NOZZLES
Cost savings = $69,237/yr
Energy savings = 1,652,434 kWh/yr

CASE STUDY { Equipment monitoring }

As one of many projects at a manufacturing facility, a University of Missouri Environmental Assistance Center (MOEAC) pollution prevention intern used an ultrasonic leak detector to complete a compressed air system audit. She discovered most of the leaks were at the connectors for attached equipment, and occurred when pressure increased because no one was using the equipment. The solution -- that cost nothing to implement -- was for employees to turn off end-use equipment at the connection valve when not in use.

EQUIPMENT MONITORING
Cost savings = $356/yr
Energy savings = 3,233 kWh/yr

Remember, doing nothing costs money too!

Fix leaks to reduce energy

A Nebraska company saved **$17,500** and reduced energy consumption by **250,000 kWh** annually by fixing leaks in its compressed air system.

Easy ways to save money and reduce waste

Packaging

Packaging is often paid for twice—first in the product cost and again in its disposal. Heavy pallets and containers have hidden costs in transportation weight. After minimizing the quantity of packaging material needed, reusing, recycling, or composting packaging materials can provide some cost recovery.

Switch to bulk dispensers

Working with a Kansas State University PPI intern, **PRAIRIE BAND POTAWATOMI NATION** in Mayetta, Kansas, discovered that it can save approximately **seven tons of waste** and **$37,000** a year by switching from individual amenities (soap, shampoo, lotion) to bulk dispensers in its hotel rooms.

CASE STUDY { Packaging redesign }

CONAGRA FOODS' much beloved Peter Pan peanut butter underwent a jar redesign that significantly reduced environmental impacts associated with packaging. In 2009, changes in jar weight and complexity of packaging reduced materials used by more than 700,000 pounds and reduced the number of lids for all size jars from 12 to four. They converted an additional 190,000 pounds of non-recyclable PVC (polyvinyl chloride) to recyclable PET (polyethylene terephthalate). These benefits were communicated to consumers on packages, marking the first time ConAgra Foods had shared sustainable packaging improvements with consumers in this manner.

PACKAGING REDESIGN
Solid waste diverted = 350 tons/yr
Cost savings = reduced purchases and inventory

CASE STUDY { Reusable pallets }

A P2 intern from the University of Missouri Environmental Assistance Center (MOEAC) persuaded a raw materials supplier to a Missouri manufacturing facility to use reusable plastic pallets. These were lightweight and could be easily stacked in far less space than wooden pallets. Annual savings to the manufacturer was $18,200 in purchase and disposal costs, $463 in diesel fuel to transport pallets to the recycler, and elimination of 53 tons of wood waste. Additional savings that were not calculated resulted from reduced labor and storage costs associated with pallets and increased fuel efficiency from less shipping weight.

REUSABLE PALLETS
Solid waste diverted = 7 tons/yr
Cost savings = $18,600/yr

CASE STUDY { Packaging reduction }

HALLMARK CARDS, INC. introduced an initiative to reduce the number of cartons shipped to retail outlets. The same amount of product is shipped, but operational changes assuring that each carton is full, decreased packing materials and reduced number of shipments (by 1.3 million). This change will result in annual net savings of 68,095 gallons of diesel fuel and 650 tons of cardboard. A "zero-landfill" initiative at their world headquarters in Kansas City, Missouri, includes diverting compostable materials from their waste stream and diverting the clean, high-BTU materials that can't be recycled to a local waste-to-energy facility. Wastes that still must be taken to the landfill are compacted. Installation of pressure gauges on compactors and the elimination of compostables reduced waste hauling frequency by one third.

PACKAGING REDUCTION
Solid waste diverted = 650 tons/yr
Fuel savings = 68,095 gal diesel/yr

CASE STUDY { Recycling }

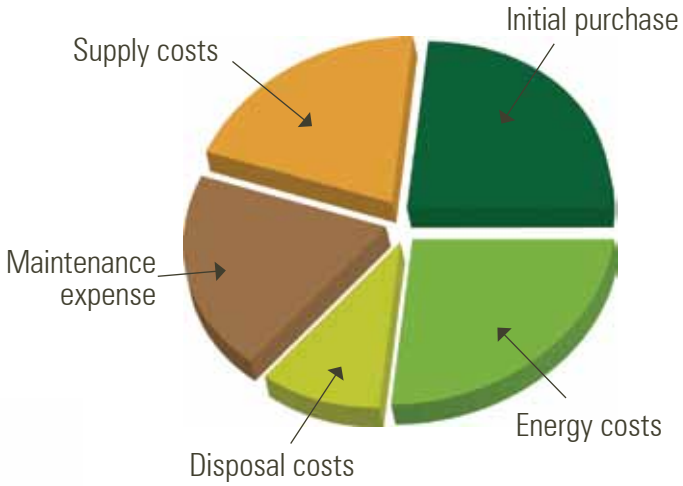
EMCO ENTERPRISES INC. in Des Moines, Iowa produces storm doors and is a fully owned subsidiary of Andersen Windows. Assisted by a P2 intern from Iowa Department of Natural Resources (IDNR) Pollution Prevention Intern Program, the company found that cardboard accounted for approximately 65% of its annual solid waste volume. EMCO implemented a recycling program that will divert 180 tons of solid waste and save $15,000 annually. Additionally, EMCO is testing alternatives to eliminate paper packaging of aluminum products, which will reduce usage and cost.

RECYCLING
Solidwaste diverted = 180 tons/yr
Cost savings = $15,000/yr

{WHERE YOU BEGIN}
Study the whole picture

Evaluate total cost of purchases

When purchasing products or equipment, consider the total cost over the lifespan of the product, not just the initial cost. Hidden costs include energy to operate the equipment, disposal, maintenance, and supplies.



Total cost of equipment over its useful life

Life-cycle analysis (LCA) includes environmental impacts at every stage of a product's life.

Include customers' costs in life-cycle analysis

In addition to evaluating total costs of purchases, many companies also consider costs passed along to their customers, society, and the environment. Life-cycle analysis helps show what costs are being borne by whom. A growing number of state and federal initiatives for product stewardship or extended producer responsibility aim to include the cost of end-of-life management into the price of products that generate hazardous or large volumes of waste. These initiatives are driving companies to produce more environmentally responsible products.

Additionally, many large companies, such as Subaru, Honda, Caterpillar, Proctor and Gamble, and Frito-Lay, have zero-landfill goals and evaluate suppliers partially based upon their environmental impact. End-of-life and life-cycle costs can be reduced for customers based upon changes at the manufacturing facility.

For example, a life-cycle analysis for cleaning with cold water and concentrated detergents revealed significant energy savings from 1) not heating water; 2) reduced transportation weight; 3) less packaging manufacture; and 4) less package disposal.

{ INCREASE PROFITABILITY }

Use waste management hierarchy

As efforts focus on the more preferable options in the hierarchy and move from disposal towards reduction, opportunities for savings increase.

BEST

{ REDUCE } Look at the process. What changes can be made so no waste is created?

SECOND BEST

{ REUSE } When there are unavoidable wastes, can they be reused or recycled within the process?

GOOD

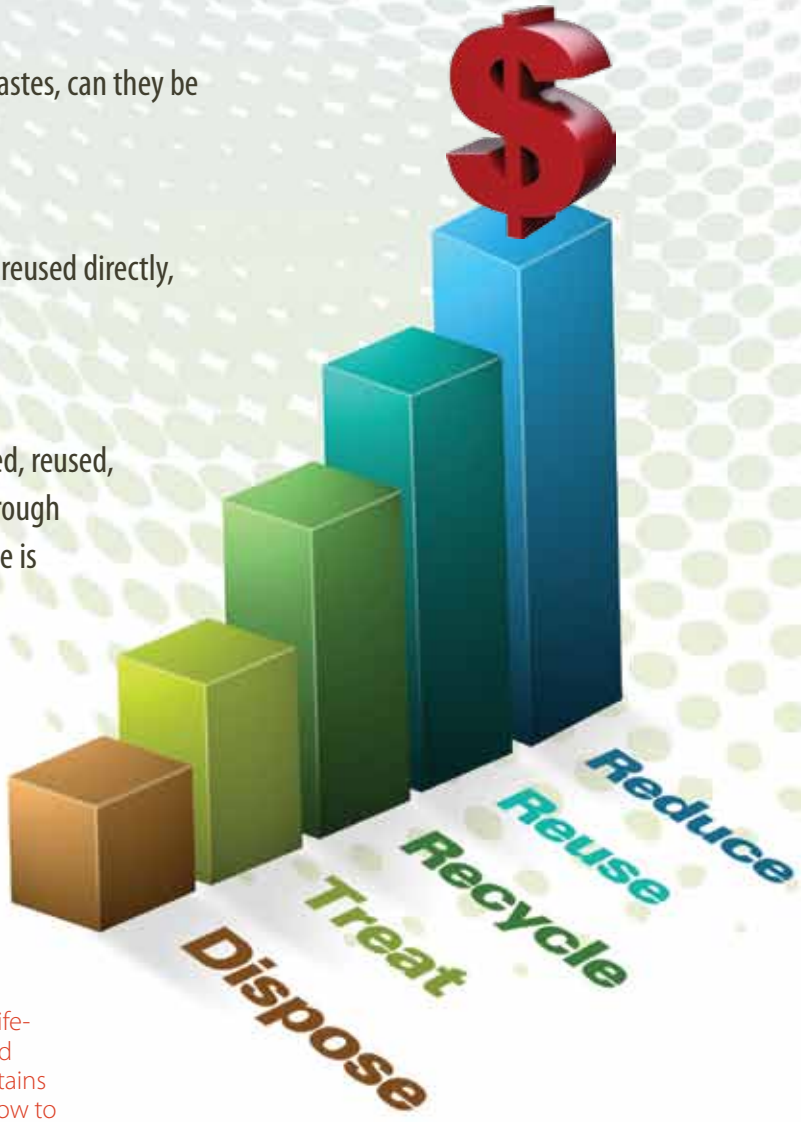
{ RECYCLE } For materials that cannot be reused directly, can they be recycled off site?

LESS DESIRABLE

{ TREAT } If the waste cannot be prevented, reused, or recycled, can its volume be reduced through compacting, dewatering, etc.? If the waste is hazardous, can it be neutralized?

LEAST DESIRABLE

{ DISPOSE } For wastes that cannot be prevented, reused, recycled, or reduced, safely store or dispose them.



An introductory overview "Life-Cycle Assessment: Principals and Practice," published by EPA, contains significant information about how to conduct an assessment. Find it on the web at p2ric.org/business.

How to implement and sustain improvements

Companies can increase efficiency of operations and material utilization through easy, proven projects like those just described. However, they represent only a small sample of what can be accomplished. To know how to look for more savings and where to invest time and effort requires a system of ongoing program development. An Environmental Management System (EMS) can be used to help systematically identify and manage wastes in processes and assure continuous improvement. Here are the basic steps to develop an EMS—

STEP 1 Management commitment

Support from upper management is essential for developing a lasting and successful sustainability program. A formal written policy establishes commitment, guides the program, outlines goals, directs implementation, communicates the importance of reducing waste, and encourages participation.

STEP 2 Sustainability champion

A sustainability champion is an individual or team with the passion and authority to plan, design, implement, and manage activities that support the sustainability policy. The champion leads the program, working with employees to overcome any resistance that occurs when changes are made. In order to gain innovation, a sustainability team needs to continually monitor and communicate results. P2 programs can help organize teams and evaluate potential project priorities for businesses.

STEP 3 Employee involvement

Input from employees who often deal directly with waste should be sought, encouraged, considered, and valued. Often these people have insight into how pollution prevention can be implemented. Many of the most innovative and cost-saving suggestions came from P2 interns' discussions with employees.

STEP 4 Measurable goals

Setting measurable goals that are accepted by employees, flexible to changing requirements, and achievable with a practical level of effort will keep a sustainability program moving forward. If it can be measured, it can be managed. It is important to track material and energy use, waste generation, and air emissions.

Get employees involved

FARLEY'S AND SATHERS CANDY COMPANY, INC. in Creston, Iowa found they had to get employees involved in order to change cleaning procedures and reduce the amount of sugar and starch going down the drain, as well as reduce overall hot water usage. Installing temperature monitors in drains helped provide accountability to reinforce the cleaning process changes.

Get more information about implementing and sustaining a program of improvement from the EMS Topic Hub at p2ric.org/business

See more benefits.

When companies begin to look at waste reduction projects, they will discover there are far more benefits than just the money saved.

For example:

Air pollutants diverted by case studies (in metric tons)

CO_2E	$S0_2$	VOC	NOx	PM-10
5,020	15	3	8	1

The material and energy savings from projects in this booklet was equated to reduction in air pollution using the Economic Input-Output Life Cycle Assessment Tool from Carnegie Mellon University.
CO2E=carbon dioxide equivalents (sum of all global warming potential gasses expressed as an equivalent amount of CO2); SO2=sulfur dioxide; VOC=volatile organic compounds; NOx=nitrogen oxides; PM-10=particulate matter 10 microns or less

Environmental impact of this publication

THIS PUBLICATION IS PRINTED on FSC-certified Rolland Enviro paper manufactured with 100% post-consumer recycled fibre using biogas energy. It is certified as environmentally preferable by EcoLogo and processed chlorine free. Ink used is vegetable based with zero VOCs. Using post-consumer recycled fiber in place of virgin, preserved 9 trees, did not create 27 lbs of waterborne waste, saved 4,036 gals of wastewater, prevented 446 lbs solid waste and 879 lbs net greenhouse gases, and did not consume 6,728,669 BTUs of energy. Environmental impact estimates were made using the Environmental Defense Fund Paper Calculator.

Regional resources

Iowa

Iowa Department of Natural Resources (IDNR)
Pollution Prevention Services
502 East 9th Street
Des Moines, IA 50319-0034
Contact: Jeff Fiagle
(515) 281-5353
jeff.fiagle@dnr.iowa.gov
www.iowadnr.gov/waste/p2

Offers confidential and nonregulatory assistance at no cost. The Pollution Prevention (P2) Intern Program places top Iowa college students with Iowa businesses interested in cost-effective ways to cut or eliminate waste from their operations.

Iowa Waste Reduction Center (IWRC)
University of Northern Iowa
Suite 113, BCS Building
Cedar Falls, IA 50614-0185
Contact: Dan Nickey
(319) 273-8905
Daniel.nickey@uni.edu
www.iwrc.org

Assists Iowa small businesses (fewer than 200 employees) in complying with environmental regulations through free and confidential environmental consultation. The center also conducts research and develops technologies for more efficient and environmentally friendly production painting processes. Services include on-site review and air emissions assistance.

Kansas

Kansas State University Pollution Prevention Institute (KSU PPI)
133 Ward Hall
Manhattan, KS 66506
Contact: David Carter
(800) 578-8898
dcarter@k-state.edu
www.sbeap.org

Provides free, confidential, technical environmental assistance. PPI houses the Kansas Small Business Environmental Assistance Program (SBEAP) and the Energy Efficiency and Pollution Prevention Intern Program, a nonregulatory summer program designed to link top-level engineering and environmental sciences students with business and industry.

Kansas Department of Health and Environment (KDHE)
Small Business/Community Support
1000 SW Jackson, Suite 430
Topeka, KS 66612
Contact: Cathy Colglazier
(800) 357-6087
ccolglazier@kdheks.gov
www.kdheks.gov/sbcs

Provides information about whom to contact with a problem or issue and is the Division of Environment's public advocate for small businesses.

Missouri

Missouri Environmental Assistance Center (MOEAC)
University of Missouri Extension
200 Engineering Building North
Columbia, MO 65211
Contact: Marie Steinwachs
(573) 882-5011
moeac@missouri.edu
www.missouribusiness.net/eac

Provides confidential and technical environmental assistance. The Pollution Prevention (P2) Intern Program matches top engineering students from Missouri colleges with Missouri businesses to develop and implement industry-specific solutions that result in significant energy, water, waste, and cost reductions.

Drury University Ozarks Center for Sustainable Solutions (OCSS)
Drury University
900 North Benton Avenue
Springfield, MO 68502
Contact: Doug Neidigh
(417) 873-7641
dneidigh@drury.edu
www.drury.edu/ocss

Provides assistance to businesses and public entities to improve their competitiveness and sustainability. The P2 Intern Program provides businesses with the resources necessary to research and implement specific projects that can help companies conserve energy or reduce environmental waste streams.

Nebraska

University of Nebraska Lincoln Partners in Pollution Prevention (UNLP3)
234 Chase Hall
Lincoln, NE 68583-0726
Contact: Stacey Hawkey
(402) 472-2838
shawkey2@unl.edu
www.p3.unl.edu

Provides one-to-one pollution prevention assistance to Nebraska businesses utilizing undergraduate student interns who perform waste assessments or other waste-reduction projects, and provides each client a written report detailing waste-minimization suggestions. UNLP3 has been helping area college students and Nebraska businesses since 1997.

WasteCap Nebraska
285 S. 68th Street Place, Suite 540
Lincoln, NE 68510
Contact: Carrie Hakenkamp
(402) 436-2384
Chakenkamp@wastecapne.org
www.wastecapne.org

Provides confidential, nonregulatory waste- reduction and resource conservation services to Nebraska businesses. WasteCap is a nonprofit organization that offers on-site assessments, employee training and workshops, product recycling research, recycling contract management services, and business-to-business networking through Green Team Roundtables.

Region-wide

Pollution Prevention Regional Information Center (P2RIC)
University of Nebraska at Omaha
Mammel Hall; Suite 200
Omaha, NE 68182
Contact: Rick Yoder
(402) 554-2521
ryoder@unomaha.edu
www.p2ric.org
Twitter: @p2ric

- Serves EPA Region 7 (Iowa, Kansas, Missouri, and Nebraska) with pollution prevention information, networking opportunities, and other services.

Bridging the Gap—By-Product Synergy
435 Westport Rd., #23
Kansas City, MO 64111
Contact: Noelle Morris, By-Product Synergy Mgr.
816-561-1061 ext. 115
noelle.morris@bridgingthegap.org
www.bridgingthegap.org

- Works with regional companies to identify raw material and waste streams; coordinate innovative ways to integrate operations; and help companies cut pollution, reduce material costs, improve internal processes, and improve the bottom line.

EPA Waste-Wise
www.epa.gov/region07/waste/solidwaste/wastewise.htm

- Offers technical assistance and a beneficial tracking and reporting tool for solid-waste reduction. This free voluntary program from the EPA also includes a public recognition program and an opportunity to receive awards.

ENERGY STAR
www.energystar.gov

- Provides energy management resources and tools, including portfolio manager– a free tool to help track energy use in buildings and benchmark use against national data. Recognizes buildings that perform in the top 25% of their category nationwide.

WaterSense
www.epa.gov/WaterSense

- Provides resources and tools to help users become more water-efficient. This free, voluntary program also labels water-efficient products and provides information on water-efficient outdoor landscaping practices and leak detection.

P2 interns are a great value

Iowa, Kansas, Missouri, and Nebraska all have pollution prevention (P2) intern programs that offer on-site help. These programs use engineering students trained to identify and evaluate savings opportunities and to help companies examine their processes and implement changes. In today's economy, the assistance of a capable, motivated student with engineering expertise at minimal cost to the company is an incredible value!

In 2010 alone, P2 interns in Missouri, Iowa, Kansas, and Nebraska helped 64 client businesses save—

$2.9 million dollars
233.6 billion BTUs
51.4 million gallons water
1,312 tons solid waste
1.8 million metric tons CO_2E*

*CO_2E – carbon dioxide equivalents – sum of all global warming potential gasses expressed as an equivalent amount of CO_2

Contact the intern program in your state to find out how to participate.

The amount of greenhouse gasses reduced by these savings is equivalent to removing more than **316,000** passenger vehicles from the road for a year!

Pick a project today, big or small. Opportunities for starting on the path to sustainability are within your reach.

CASE STUDIES are all used with permission of the companies where the savings occurred. Significant contributions were made by the Pollution Prevention Intern programs in Iowa, Missouri, Kansas, and Nebraska. Booklet was produced by the Pollution Prevention Regional Information Center (www.p2ric.org/business) at the University of Nebraska at Omaha, under a cooperative agreement from the United States Environmental Protection Agency, Region 7.

p2ric.org/business