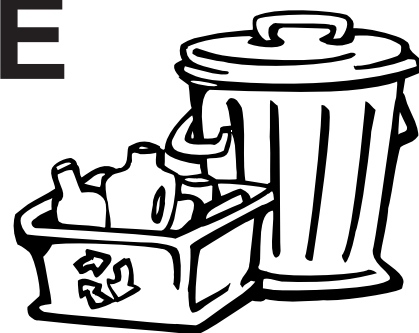


US EPA ARCHIVE DOCUMENT



# REUSABLE NEWS



## The Link Between Climate Change and Waste Management

US EPA ARCHIVE DOCUMENT

As the 21st Century begins, the issue of climate change is in the public spotlight. The average surface temperature of the Earth has been increasing since the late 19th century, and sea level has risen 4 to 10 inches over the past 100 years. Some scientists believe that these global climate changes may be happening in large part because human activities are altering the chemical composition of the atmosphere. This issue of *Reusable News* focuses on some of the latest efforts taking place on the local and national levels to change paradigms and behaviors in a way that will help reduce waste, conserve natural resources, and decrease greenhouse gas (GHG) emissions.

Greenhouse gases have been around as long as the Earth has. A naturally occurring mixture of greenhouse gases primarily water vapor, carbon dioxide, methane, and nitrous oxide comprises 1 to 2 percent of the Earth's atmosphere and helps keep the planet within a livable temperature range. But, since the late 1800s, the amount of greenhouse gases in the atmosphere has increased. This buildup is changing the atmosphere's delicate balance, which ultimately could lead to problems on Earth,

ranging from more intense storms and flooding of coastal areas to widespread species extinction.

Some of the rising levels of greenhouse gases can be attributed to solid waste and its management. The manufacture, distribution, and use of products all typically result in greenhouse gas emissions. The decomposition of organic solid waste in landfills and burning of solid waste in incinerators also create greenhouse gas emissions of methane and carbon dioxide. By focusing on ways to decrease GHG emissions throughout the entire life cycle of a product, from raw material extraction to the product's ultimate disposal, manufacturers and consumers can make decisions that have a positive impact on the Earth's climate.

### Battling Greenhouse Gas Emissions

Recycling and waste prevention activities not only help people better manage the solid waste they generate, but these activities also provide a means of reducing GHG emissions. Community and commercial recycling programs provide a source of recovered materials that manufacturers use to make new products. Typically, making goods

from recycled materials takes less energy than making products from virgin materials. When manufacturers use less energy to make their products, they emit fewer greenhouse gases. For example, when manufacturers make a recycled-content aluminum can instead of using virgin ore such as bauxite, they will prevent 13 tons of carbon dioxide from going into the atmosphere for every one ton of recovered aluminum used.

Waste prevention is an even more effective means of reducing greenhouse gases. When people reuse items or when products are made with less material, fewer raw materials need to be extracted, transported and processed. More efficient manufacturing means less energy is consumed, fewer fossil fuels are burned, and less carbon dioxide is emitted into the atmosphere. Additionally, fewer materials are generated that then need to be incinerated or landfilled. This helps decrease GHG emissions as well.

Through recycling paper and using less paper in the first place, fewer trees will need to be cut down. Trees and other plants and soil conserve carbon by holding and storing it. When trees and

(Continued on page 2)



# Link Between Climate New EPA Fact Sheets Address

## Don't Waste Your Waste!

The state of New Jersey recognizes the connection between reducing greenhouse gas emissions and improved waste management processes and plans to reduce state emissions by 3.5 percent by 2005. The state has written a greenhouse gas management plan, then drafted protocols for landfill gas recovery and plastics recycling, and has provided incentives for organizations that take the actions outlined in these policies. Waste reduction is a significant component of the New Jersey plan.

## Reuse + Recycle = Recognition

Companies that want to reduce greenhouse gases are recognizing the climate benefits of materials recycling and reuse. Through the Department of Energy's voluntary reporting program, more than 230 organizations have reported cumulative reductions of 969 million metric tons of carbon since 1994. EPA provided DOE with the methodology for converting waste activities into greenhouse gas benefits. For more information, go to [www.eia.doe.gov/oiaf/1605/vrrpt/](http://www.eia.doe.gov/oiaf/1605/vrrpt/).

## Cover Up with Compost

Where applicable, landfill operators can reduce methane emissions by as much as 100 percent using compost as a landfill cover. Using compost for landfill cover also could greatly increase the market for compost. Over the next 10 years, the demand for compost could even exceed current supply if small landfills that are closing use compost as cover.

The fact sheets are available in Fall 2001. For copies of these fact sheets, download versions from EPA's Web site at [www.epa.gov/globalwarming/actions/waste/tools.html](http://www.epa.gov/globalwarming/actions/waste/tools.html).

(Continued from page 1)

plants grow, they take carbon dioxide out of the atmosphere through photosynthesis. This process, called carbon sequestration, is an activity that humans can promote through recycling and waste prevention.

Recycling and waste prevention are two powerful examples of resource sustainability. The goal of sustainability is to adopt strategies and activities that meet the needs

of society while protecting, sustaining, and enhancing the human and natural resources that future generations will need to enjoy a quality of life equal to or greater than that which citizens have today.

### In This Issue of *Reusable News*

The articles in this issue of *Reusable News* highlight activities and programs with a direct impact

on greenhouse gas emission reduction. An article on General Motors' Resource Management program (see page 7) reviews the auto company's strategic alternative to traditional disposal contracts. Instead of financially rewarding haulers just for disposing of waste, waste management contractors must also work with GM to look for ways to operate more efficiently by reducing or recycling discarded materials.

# and Waste Several Topics

## Moving Targets

Greenhouse gas emissions that come from vehicles that collect and transport waste and recyclables equaled 918,000 metric tons of carbon equivalent in 2000. These emissions can be reduced through practices such as route optimization and switching from use of diesel fuel to landfill-derived fuel. The city of San Diego has successfully reduced emissions using these two practices.

## Smart-Waste Structures

Diverting and recovering C&D debris from disposal would both conserve resources and decrease greenhouse gas emissions. Of the 136 million tons of C&D debris generated in 1996, only 20 to 30 percent was recovered for recycling. Case studies in California show that nearly 80 percent of this material is reusable or recyclable.

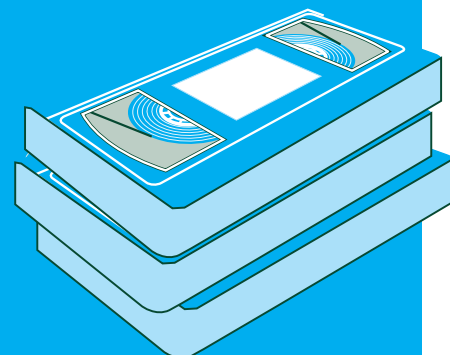
Articles on initiatives to recycle electronics and carpets (page 4) show how reaching beyond traditional recyclables, such as paper and containers, can have a positive impact on reducing the waste stream further, thus leading to greater reductions in greenhouse gas emissions.

EPA's series of Climate Change Fact Sheets (see summary, above) provides up-to-date information on specific programs to reduce green-

house gas emissions, including one that addresses emissions from waste collection vehicles. Another fact sheet addresses using compost for landfill cover to reduce emissions, and a third addresses diverting construction and demolition debris from disposal.

Two articles on composting, one addressing composting food waste at Los Angeles International Airport (see page 8), and another on using compost in roadside land-

## Free Climate and Waste Resources



EPA's Climate and Waste Program in partnership with several national solid waste and governmental organizations broadcast a nationwide satellite forum called *Why Waste a Cool Planet: MSW Solutions for Global Climate Changes*, in December 2000. This interactive program was dedicated to educating businesses and state and local governments about the relationship between solid waste management and climate change.

Request a free video of the broadcast online at [www.epa.gov/globalwarming/actions/waste/sf\\_intro.html](http://www.epa.gov/globalwarming/actions/waste/sf_intro.html).

scaping applications (see page 6), focus on the climate change benefits of collecting and reusing organic materials.

For more information on these and other greenhouse gas reduction initiatives covered in this issue of *Reusable News*, contact Jan Canterbury at the U.S. EPA at 703 308-7264, or via e-mail at [Canterbury.Janice@epa.gov](mailto:Canterbury.Janice@epa.gov).

## Product Stewardship Information Goes Online

**E**PA's Product Stewardship Program is responding to a growing interest in the U.S. in focusing on products using a life-cycle approach, which addresses

environmental aspects of product design, as well as end-of-life options. The program's extensive Web site ([www.epa.gov/epr](http://www.epa.gov/epr)) offers a wealth of information on product stewardship (also known as extended product responsibility) and the ways manufacturers, retailers, consumers, and governments are working together to lessen the impact of products on the environment.

The recently updated site provides general information on the concept of product stewardship, highlights national and international programs, and features innovative activities by states, businesses, and multi-stakeholder

groups. Visitors to the site can learn about cutting-edge initiatives such as Sony's electronic takeback program in Minnesota and the activities of the Midwestern Working Group on Carpet (see article, page 5). The site also contains detailed profiles on product stewardship programs that specifically apply to electronics, carpet, packaging, tires, batteries, and vehicles. In addition, it offers a comprehensive collection of related links and downloadable resources.

For more information, contact Gordon Hui of EPA at [Hui.Gordon@epa.gov](mailto:Hui.Gordon@epa.gov), or visit the Web site at [www.epa.gov/epr](http://www.epa.gov/epr).



## Did You Know?



A new CD-ROM of EPA waste management publications contains the text equivalent of 10,000 pieces of paper. With more than 2,000 copies distributed to date, this single resource has potentially saved 20 million pieces of paper or a stack of paper more than 1 mile high! *A Collection of Solid Waste Resources*, Fall 2001 edition, features more than 250 publications, including the *Municipal Solid Waste Factbook*, an electronic reference containing national and state data on household waste management practices. Other publications cover topics of interest to the general public on both solid and hazardous waste. To obtain a free copy of the CD-ROM, call the RCRA Call Center at 800 424-9346.

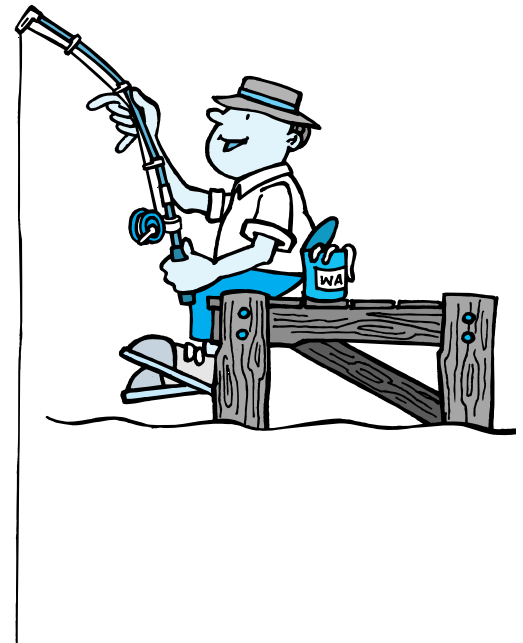
## Recycling Program Lures Kids—Hook, Line, and Sinker

**L**ooking beyond recovery of traditional recyclables, Catch-All Lures, a fishing lure manufacturer, has launched a lure recycling program that benefits the environment and helps kids fishing programs. The program, Catch-All Kids, collects used soft plastic fishing lures, which would normally be thrown in the water or garbage, from fishermen, fishing clubs, tackle shops, and manufacturers and remelts them into new lures. Catch-All Kids then donates the new recycled lures to clubs that promote fishing as an activity that benefits inner city children, troubled teens, and other groups, like Get Hooked on Fishing, Not on Drugs.

The program is doing well and has donated recycled lures to six fishing tournaments and organizations this past year, said Shelley Antuna, vice president of operations for Catch-All Kids. Our goal is to supply kids groups and tournaments with recycled lures all across the country within the next 5 years. Catch-All Kids is

currently running its second annual lure design contest and will announce the winner in January 2002.

For more information about the program contact, Shelley Antuna, vice president of operations at Catch-All Kids, at 877 944-9558 or [shelleyantuna@catchalllures.com](mailto:shelleyantuna@catchalllures.com) or visit the company's Web site, which has press releases and information about the program, at [www.catchallkids.org](http://www.catchallkids.org).



## Roll out the Recycled Carpet

**E**PA estimates that 2.3 million tons of carpeting and rugs were discarded in 1996. To divert this waste from landfills, industry and government have joined to establish ongoing communication and cooperation among those who manufacture, sell, install, recycle, and dispose of carpet.

For the past year, state governments, the carpet industry, and nonprofit organizations have held a series of meetings leading to the

formation of the Carpet America Recovery Effort

disposal and incineration of post-consumer carpet. CARE also establishes goals to increase recycling and reuse of carpeting. In addition, an industry-run third-party organization will ensure that goals are achieved, while state governments develop model procurement guidelines for public entities. A Memorandum of Understanding solidifying these goals will be signed at the National Recycling Coalition's Annual Congress in October 2001.

CARE's unique negotiated outcomes process focuses on maintaining flexibility in order to

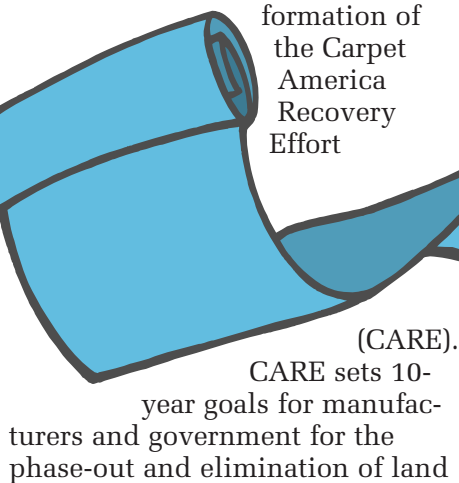
effectively meet the 10-year goals. Several factors will be considered when setting goals,

including current and

planned market

development infrastructure, planned new product development, opportunities for enhancing collection activities, and solid waste policies that may impact carpet.

For more information, visit [www.moea.state.mn.us/policy/carpet](http://www.moea.state.mn.us/policy/carpet), or contact Henry Ferland of EPA at 703 308-7269 or [Ferland.Henry@epa.gov](mailto:Ferland.Henry@epa.gov).



### Government Participants:

- U.S. EPA
- Minnesota
- Iowa
- California
- Massachusetts
- Oregon
- North Carolina
- Maryland

### Industry Participants:

- Carpet and Rug Institute
- Honeywell
- DuPont
- Lees Carpet
- Mohawk Industries, Inc.
- Interface
- Collins & Aikman Floor Covering
- Milliken Carpet
- BASF Corporation
- Solutia, Inc.
- Shaw Industries
- BP Fabrics and Fibers

### Nongovernmental Organizations:

- Northeast Recycling Council
- Reuse Development Organization
- Center for Clean Products and Clean Technologies, University of Tennessee-Knoxville

**I**ndustry and government hope to reduce the amount of waste carpet through product stewardship all parties who have a role in producing, selling, or using carpet also have a role in managing it at the end of its useful life.

## Los Alamos Achieves 95 Percent Waste Diversion from the Cerro Grande Fire

**T**he Cerro Grande Fire in Los Alamos, New Mexico, in May 2000 devastated large portions of the state. The fire burned 44,000 acres of land, destroyed more than 250 Los Alamos residences and parts of the Los Alamos National Laboratory, and forced 25,000 people to be evacuated from their homes.

The good news is that 95 per-

cent of the 160 million cubic yards of waste created by the fires was reported to be diverted from disposal. Concrete and rubble were crushed and given to local contractors. Green waste was chipped, and scrap metal was sold to a processing firm in Albuquerque.

The New Mexico Environment Department also hired a private

contractor to remove the household hazardous waste from the homes that were burnt. In addition, a substantial amount of asbestos was delivered to a specially permitted landfill for disposal.

For more information, contact Ray Sisneros, solid waste division manager for Los Alamos County, at 520 622-8082.

## WasteWise Encourages Partners to Adopt "Resource Management"

As a partner in EPA's WasteWise program, General Motors is experiencing resounding success in conserving material resources and reducing cost at its facilities throughout North America using Resource Management (RM) contracting. The RM approach has broad climate change impacts as well a reduction in waste generation translates into reduced greenhouse gas emissions.

RM is a strategic alternative to traditional disposal contracts rather than financially rewarding haulers for handling increased volumes of waste, customers and contractors become allies in search of mutually beneficial innovations in waste prevention, recycling and recovery of materials. RM operates under the assumption that contractors will pursue environmentally preferable options when provided with proper financial incentives. Under RM, the scope of services provided by the contractor moves upstream to address many of the internal activities that affect waste generation and resource efficiency opportunities.

In a traditional disposal contract, the contractor has an incentive to

handle ever-increasing volumes of waste to make the largest profit. But customers have an incentive to decrease waste volumes and cost. These conflicting incentives can hinder serious progress in waste prevention recycling and recovery. In RM contracts, the customer provides the contractor with a profit incentive to help manage resources more efficiently. The customer calculates and caps its total waste management costs, and if the contractor reduces costs below this predetermined level, the contractor receives a portion of the cost savings. Thus, the value to the customer and profitability to the contractor become driven by waste prevention, rather than waste generation.

GM adopted the RM approach in 1997 to help meet its goals of conserving plant resources and reducing costs. Previously, GM's disposal contracts among its 72 North American facilities had varied from facility to facility, lacked technological innovations, and produced limited and uncoordinated waste reduction efforts. To date, GM has set up RM contracts at two-thirds of its North American facilities, with all remaining facilities scheduled to come on line by the end of 2001.

Plants that have had RM in place for a year or more have realized a 20 percent reduction in overall waste generation (30,000 tons), a 65 percent increase in recycling (from 50,000 tons to more than 82,000 tons), a 60 percent decrease in disposal, and a 30 percent decrease in waste management costs.

As a result of GM's success, WasteWise now is encouraging all of its partners to explore RM as an option for their facilities. Given that approximately 100 million tons of municipal solid waste in the United States are managed through private contracts, applying GM's results to this waste stream would result in 50 million tons of additional waste diverted from landfills through waste prevention or recycling. With paper alone, 9 million metric tons of carbon equivalent of greenhouse gases could be prevented. WasteWise waste reduction could increase by 65 percent, with a corresponding greenhouse gases reduction of about one million metric tons of carbon equivalent.

For more information, contact Angie Leith at EPA at 703 308-7253, or [Leith.Angie@epa.gov](mailto:Leith.Angie@epa.gov), or visit the WasteWise Web site at [www.epa.gov/ww](http://www.epa.gov/ww).

## Roadside Landscaping Turns to Compost

Compost is turning up on the side of the nation's highways. EPA's Office of Solid Waste has started a program to promote the use of compost in roadside landscaping. And diverting compostable materials from disposal into practical end uses also helps diminish emissions of greenhouse gases, such as methane gas, into the atmosphere.

An outgrowth of larger composting initiatives, the new program will focus on increasing compost use, and the market for compost, in roadside applications. EPA will work with federal purchasing vehi-

cles, such as the Comprehensive Procurement Guidelines, Executive Orders, and agency environmental programs, to advance the use of compost in roadside landscaping.



Construction companies and landscapers can use compost alongside highways to stabilize the soil, prevent erosion, and improve the growth of roadside vegetation. Compost not only performs these functions better than straw, which is commonly used, but compost also helps reduce greenhouse gas emissions. Composting diverts organic materials from landfills in the average landfill, 50 percent of waste disposed of is organic, according to EPA. Organic materials in landfills, left to decompose without air, are a significant

*(Continued on page 7)*

# Biobased Products and Energy — Broadening Our Horizons

**B**iomass energy is gaining in popularity as environmental and economic concerns about using traditional energy supplies such as fossil fuels increase. Biomass is organic matter that can be used to produce products or to provide heat, make fuel, and generate electricity. Biomass currently accounts for 76 percent of renewable electricity generation and 1.6 percent of total U.S. electric supply.

The National Energy Plan recently released by President George W. Bush, describes biomass as plants, residue from agriculture or forestry and the organic components of municipal and industrial wastes. Examples of biomass energy technologies highlighted in the National Energy Plan include landfill gas-to-energy projects, co-firing of biomass in coal fired power plants, gasification systems and biofuels, such as ethanol and biodiesel.

However, the use of biomass for energy should be balanced with the promotion of biobased products. A multi-agency effort known as the Biomass Initiative is coordinating and promoting federal

biobased products (e.g., fuels, chemicals, and building materials from biomass) and biomass energy research and development. The effort is guided by two policy initiatives: The Biomass Research and Development Act of 2000 and Executive Order 13134. An accompanying executive memorandum sets the goal of tripling U.S. use of biobased products and bioenergy by 2010. The initiative is coordinated through the Biomass Board, a cabinet level council co-chaired by the U.S. Department of Energy and the U.S. Department of Agriculture, and the Advisory Committee a group of 25 individuals representing farm, forestry, industry, environmental, academic, and nonprofit sectors.

A comprehensive approach to expanding the use of biobased products and energy can be good for the economy and the environment by supporting our secondary materials infrastructure and adding to the growing list of renewable energy projects in the U.S.

For more information on the Biomass Initiative, visit the Web site at <[www.bioproducts-bioenergy.gov](http://www.bioproducts-bioenergy.gov)>.

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source of methane gas emissions, one of the most potent greenhouse gases. The organic materials that make up compost products, including grass clippings, leaves and branches, and food wastes, can also help in reducing carbon dioxide in the atmosphere by locking up, or sequestering the carbon in the soil.

EPA's ultimate goal is to increase the use of compost and thus reduce greenhouse gas emissions from organic waste materials.

Where others see waste material, we see a valuable resource that can easily be put to use for a myriad of

environmental benefits, said Jean Schwab, EPA's program director.

In addition to the program's efforts, EPA has provided a grant

**T**he Recycled Materials Resource Center, in partnership with the U.S. Federal Highway Administration, is hosting a conference on the Beneficial Use of Recycled Materials in Transportation Applications in Washington, D.C., from Nov. 13 to 15. This international conference will address the use of a wide array of recycled products in road construction. Visit <[www.rmrc.unh.edu/2001Conf/overview.asp](http://www.rmrc.unh.edu/2001Conf/overview.asp)> for more information.

## Eliminating Electronics Waste

**A** new wave of electronics recycling and refurbishing initiatives intends to divert obsolete electronics from disposal while emptying overflowing storage rooms in offices around the country. The National Electronics Product Stewardship Initiative (NEPSI) represents one of the more significant efforts; in this case, efforts to develop a national infrastructure for collecting and recycling end-of-life electronics. With EPA's support, the electronics industry, state governments, non-governmental organizations, and others are negotiating toward a recovery program for computers, monitors, peripherals, and televisions.

NEPSI also plans to look at appropriate incentives to design products that are easy to reuse and recycle, are less toxic, and contain recycled content. Facilitated by the University of Tennessee's Center for Clean Products and Clean Technologies, the planning process will involve six meetings over one year and is expected to end in Spring 2002.

For more information, contact Clare Lindsay at EPA, at 703 308-7266 or [Lindsay.Clare@epa.gov](mailto:Lindsay.Clare@epa.gov).

to the U.S. Composting Council to assess how much compost currently is used in roadside landscaping. Building on the Composting Council's Seal of Testing Assurance, the study will quantify the potential applications of using compost in roadside landscaping, and develop boilerplate language for others to use when procuring compost products.

For more information on OSW's compost program, contact Jean Schwab of EPA at 703 308- 8669 or [schwab.jean@epa.gov](mailto:schwab.jean@epa.gov).



# LAX Pilot Project Uses Food Waste To Create Energy

In a new project with multiple environmental benefits, the Los Angeles International Airport, in partnership with the City of Los Angeles Department of Public Works, has begun a six-month pilot project to recover food waste generated at the airport. In addition to conserving landfill space and reducing greenhouse gas emissions, the project will supplement the city's electricity generation.

The ultimate goal of the project is to divert 8,000 tons of food waste from disposal each year. California law requires all municipalities in the state to divert 50 percent of solid waste from disposal.

Gate Gourmet, an in-flight catering company, is a vendor participating in the project. Gate Gourmet

collects kitchen scraps from food preparation for the airline flights it services each day, which are transported to the nearby Hyperion Wastewater Treatment Plant. Gate Gourmet collects and sends about 200 to 250 pounds of food to the treatment plant each week. At the facility, food waste is ground into tiny particles and fed into a digester. The organic matter breaks down, creating methane gas. Project managers at the Hyperion facility estimate that food waste from the airport will produce 12 percent more methane gas than the sewage that is currently being processed at the plant.

The methane gas captured during the anaerobic digestion process is piped to an adjacent power station, which generates electricity

and sends it back to the treatment facility at a discounted rate. Ultimately, excess energy generated through this process will be sent to the public power grid serving the greater Los Angeles area.

The remnants from the digestion process are used to enrich soil. Water, another byproduct of the process, is sent to a neighboring water treatment plant, where it is treated and sent back to Hyperion for landscape irrigation and use in bathroom toilets.

I think this is a very promising and exciting program, said Jerry Hernandez, project manager at Hyperion Treatment Facility. It's not only saving landfill space, but also creating energy. If this program works out as anticipated, we will have another renewable resource for power generation.

For more information, contact Jerry Hernandez at the Hyperion Treatment Facility at 310 648-6200, or by e-mail at [ghernand@eng.ci.la.ca.us](mailto:ghernand@eng.ci.la.ca.us).



This issue of *Reusable News* is also available on the Internet. Access this and other EPA publications through the World Wide Web at [www.epa.gov/epaoswer/non-hw/recycle/reuse.htm](http://www.epa.gov/epaoswer/non-hw/recycle/reuse.htm).



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