

SPECIAL ADVERTISING SECTION



# The Digital Wasteland

Electronic gear doesn't have to just be scrapped. It can be reused to protect the planet.



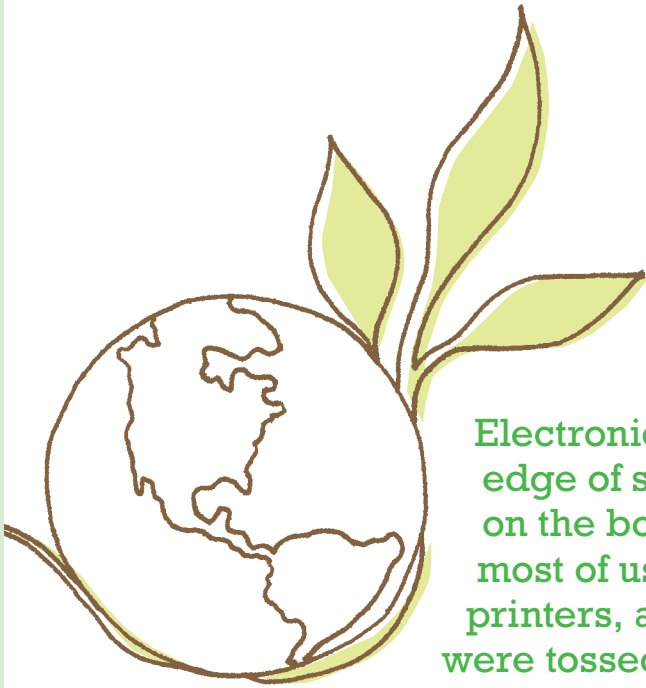
PAOLA MCFARREN

In partnership with:



Institute of  
Scrap Recycling  
Industries, Inc.

Voice of the Recycling Industry



Electronic gear may be on the cutting edge of science, but for too long it was on the bottom rung of recycling. For most of us, disposing of old computers, printers, and monitors was easy: They were tossed in the garbage.

Unfortunately, what wound up in the trash was a lot of recoverable material, such as steel, aluminum, copper, gold, and silver—all of which could have been put into new products. Worse, many discarded devices still had years of life left in them—had they been refurbished and resold. Instead, too much equipment was buried in landfills needlessly, or far before its time.

Fortunately, we're starting to get the message. Approximately 2.8 billion pounds of electronic equipment were recycled in 2006 (the latest year for which figures are available), according to the Institute of Scrap Recycling Industries (ISRI), which represents more than 1,650 companies that process, broker, and consume scrap commodities, including metals, plastics, electronics, paper, and glass. That figure includes some 65 million computers, monitors, and printers, and the numbers are climbing. The ISRI estimates that electronic recycling has increased 15% to 20% over the last two years.

But recycling is only a good news story if it is done responsibly—if recyclers are following accepted standards that govern how and where products are processed. Most household consumer electronic devices are still sent to local landfills when they shouldn't be, or they are processed in unsustainable ways outside of the U.S. These practices are particular concerns in nations where comprehensive waste management and recycling operations are underdeveloped. That can lead to little industry oversight.

### Cycling Dynamics

To understand why these problems can occur, it's important to know how the typical process works. Not everything coming into a recycler has equal value. So a recycler will do a triage, figuring out what can be refurbished and resold (a relatively recent laptop, for example); what can be processed into commodities like steel, aluminum, copper, and plastic; and what actually has a negative value. Something like a cathode ray tube (CRT) monitor or television that contains toxic substances, such as lead and mercury, which must be carefully recycled at a cost, would fall into that category.

"This is what makes electronics so challenging," says Eric Harris, associate counsel and director of governmental and international affairs at the ISRI. "It's not like processing an automobile, where you can put the whole car hulk through a shredder and get material you then sell for a profit. With some electronics, the costs of recycling are greater than the value of the recovered material. So an electronics recycler has to be more industrious to pull every bit of value from these devices."

The good news, says Harris, is that reputable recyclers have come up with some innovative solutions to do just that. They will refurbish and resell devices and components that still can get the job done for a new owner. They'll provide services such as device collection, data sanitization—wiping clean all those hard disk drives. And, of course, they'll sell the materials they recover from processed electronics too.

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## REAL\* Recycling

At Hewlett-Packard, recycling is core to every facet of its business around the world.

**ONE WAY TO MEASURE THE SUCCESS** of a recycling program is to look at the numbers. Since 1987, Hewlett-Packard has recovered more than 1.7 billion pounds of IT equipment and print cartridges—nearly the total weight of the Golden Gate Bridge. By next year, HP expects to hit two billion pounds. These are industry-leading figures, but another way to gauge a recycling effort—perhaps a better one—is to ask how it permeates a company's business. At HP, recycling means more than properly handling end-of-life products. It's about designing new products so they're more easily recyclable; developing ways to reuse recovered material; and working with communities to build REAL recycling solutions tailored for each region.

It's also about experience. "We built our own recycling facilities in the 1980s because the infrastructure didn't exist," says Bonnie Nixon, HP's director for environmental sustainability. "That gave us insight. By managing the process, we saw how to develop a product so that it is easier to disassemble. For instance, to use a single type of plastic instead of multiple types, to facilitate the recycling process."

Just as importantly, HP learned how to turn recycling into a resource. In 2000, it started exploring how to reuse the PET plastic found in more

than half of its inkjet cartridges. The task was daunting. For one thing, PET loses some strength during the molding process, so any reused plastic would need its durability enhanced. Another challenge: The PET extracted from old cartridges wouldn't be enough to build all of HP's new cartridges. It took a lot of creative solutions—adding PET from recycled water bottles assured a sufficient supply; mixing in additives provided extra strength. In 2005, HP manufactured its first inkjet cartridges from recycled PET plastic. Now it is exploring how to make new from old—"closing the loop," as HP calls it—with several other plastic materials. (For example,

the HP D2600 printer is made of 50% recycled materials.)

HP's creative thinking hasn't been limited to technology. With recycling programs in 53 countries and territories, the company has learned that different regions require different solutions. In China and India, this means working with the networks of people who collect discarded products, giving them a financial incentive to turn the items over to HP instead of attempting—often dangerously—to extract metals and other materials themselves. "Because formal processing methods aren't just safer, but better, they might yield enough additional value to cover our costs and put more money in collectors' pockets," says Steve Rockhold, HP's global program manager for reuse and recycling. The company keeps a sharp eye on its more formal recycling partners, too, who are audited frequently to ensure compliance with HP's strict standards.

Lobbying for the right legislation is another focus of HP's recycling efforts. When the European Union began exploring how to implement its Waste Electrical and Electronic Equipment (WEEE) Directive in 2005, HP pushed for a system where manufacturers could choose the vendors and develop the policies to get recycling done, instead of being forced to participate in state-mandated systems. The result, the European Recycling Platform, has been a model of cost-effective recycling, with more than 1,200 companies now taking part.

Along the way, HP has shown that the same innovation and tenacity that make the most successful companies make the most sustainable ones, too. ●



\*R (regional customization), E (embedded sustainability), A (accountable and transparent), L (leveraging legislation).

For large corporate customers, the goal is to find responsible recyclers with good track records. Most start by asking smart questions: Is the recycler reputable? Does the recycler have a comprehensive quality, environmental, health, and safety management system in place, such as the Recycling Industry Operating Standard (RIOS) to manage its facility operations? Does it have a plan for responding to potential hazards and other events that could pose a danger to workers or the community? Does it follow a reuse-recover-dispose hierarchy for managing end-of-life products? All this is just a first step. Companies must also verify that recyclers are doing what they say they're doing.

**\$71**  
billion industry that is leading the way in the 21st century global economy.

### Auditing Vendors

For technology giant Dell—which made product recycling a top priority back in 2004—the solution has been making sure its 40-plus global recycling partners adhere to strict guidelines for electronics waste disposal. These include tracking all materials to their final disposition and prohibiting the export of electronic waste to developing nations. To keep recyclers on track, Dell does regular audits. The company works with a third party, Environmental Resources Management, to audit new vendors before engagement and existing partners at least once a year.

“We monitor the process closely,” says Mike Watson, senior compliance manager, Dell Global Asset Recovery. “When vendors don’t comply with our standards, they either correct their behavior or they no longer work with us.”

With these policies in place, Dell has been able to create a comprehensive recycling program. It is the only manufacturer to offer free worldwide recycling for consumers. “We take back every product with the Dell brand on it,” says Watson. Dell also takes back competitors’ computers and printers at no cost with the purchase of a new Dell system. Consumers can print

postage-paid mailing labels for at-home computer pickup at [www.dell.com/recycling](http://www.dell.com/recycling). In the U.S., consumers also have the option of taking their Dell-branded systems to more than 1,000 Goodwill and 1,500 Staples locations.

For commercial customers refreshing their systems, Dell’s Asset Recovery Services are available to collect retired hardware, assess its value, and help sell it to third parties. Along with the proceeds, customers can obtain a detailed report verifying that all data on the hard drives was overwritten

or reformatted. Equipment that can’t be resold can be broken down for recycling or disposal.

The goal, says Watson, isn’t just to do the right thing, but to make it simple to do the right thing: “It should be as easy to recycle a computer as it is to buy one.”

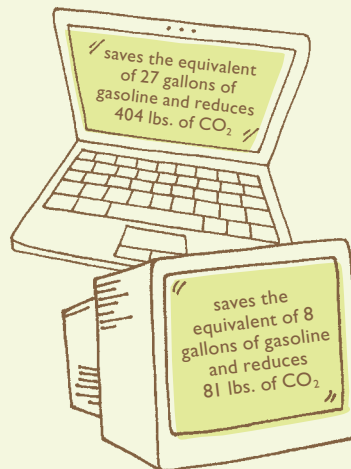
But not every company has the capability to monitor recyclers. To that end, last October the U.S. Environmental Protection Agency, in conjunction with electronic recyclers, electronics manufacturers, and state governments, released a set of best practices, known as R2 (Responsible Recycling Practices). Among them:

adhering to the reuse-recover-dispose hierarchy; and exporting CRTs, circuit boards, and products containing focus materials, like mercury, only to countries that legally accept them.

“Ideally, a company looking for a recycler would put R2/RIOS compliance right in their RFP,” says Harris. “That will alleviate a lot of their due diligence, saving them time and money.” But those aren’t the only benefits. Responsible recycling will make it easier to build new products, reduce health and safety risks, and show that going green isn’t just good for the environment. It’s good for business too. ●

### Recycling Saves Energy

The statistics tell the story.



Source: U.S. EPA Durable Goods Calculator, WARM Calculator



Scrap accounts for 40% of the world’s raw materials needs.

To advertise in our Electronic Recycling sections, contact Jordan Hyman at 212.522.8467. For reprints, call Jo Mattern at 212.522.2582.



# DELL RECYCLING GOES FURTHER



Why limit yourself to paper and glass? Dell helps expand your recycling efforts by offering Global Asset Recovery services for businesses and the first free worldwide recycling program for consumers. By recycling unwanted computer equipment securely and responsibly, you can free up space, protect confidential data, and help minimize what goes into landfills. With extensive end-of-life take-back options, Dell makes recycling easy and convenient.

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