Who Pays for e-Junk?

When faced with the mounting tide of cast-off and potentially toxic computers and other electronic products in the United States, most would agree that it is a problem in need of a solution. But as industry, government, and environmental organizations debate how best to fashion a sensible response to this new threat, one question looms large: Who should pay?

Despite significant quantities of lead, mercury, cadmium, and other hazardous substances in computers and television sets, large quantities of electronic waste are ending up in the nation's landfills or storage. According to the EPA, electronic waste may comprise as much as 5% of the nation's municipal solid waste stream. As the equipment piles up in landfills, so does the environmental risk. Some experts believe that one billion pounds of lead from computers and other electronic machinery will enter the waste stream in the next decade, posing what many believe is a serious threat of toxic runoff. Although the federal Resource Conservation and Recovery Act prohibits large companies from shipping their old computer monitors to landfills, there is nothing to stop the vast majority of individuals and many small businesses from simply putting their outdated electronic equipment out with the rest of the trash. Furthermore, people seldom have any incentive to do otherwise—usually only disincentives. Environmentally conscious owners who want to do the right thing in disposing of their outdated electronics usually must reach into their own pockets to make sure that these machines either find new homes or are recycled properly.

Christopher G. Reuther/EHP

As the piles of electronic waste continue to mount, a growing chorus of voices has arisen to call for reform. "It's reaching crisis proportions," says Ted Smith, executive director of the Silicon Valley Toxics Coalition (SVTC), a nongovernmental organization based in San Jose, California. "The result has been an emerging movement and a synergy of initiatives around the country."

In California, the SVTC has joined forces with several other groups to mount a campaign to bring attention to the problem of electronic waste. Besides looking at the environmental dangers, the group has examined the costs associated with managing electronic waste. In a report released last year titled *Poison PCs/Toxic TVs*, the group estimated that even if recycling rates were to double from current levels, the total cost of managing the waste would range from $25 million to $42 million annually. Adding an estimated $500 million for cleanup of electronic waste already in landfills, and the price tag for e-waste management in California alone in the next 5 years could exceed $1 billion.

Electronic Hot Potato

Only two states in the nation, Massachusetts and California, have banned cathode ray tubes (CRTs) from landfills. But according to Smith, electronics recycling is mostly a patchwork. Although large commercial customers typically arrange various collection schemes for outdated equipment, little is known about whether or not they are actually recycled. Individuals wanting to properly dispose of a home computer have few options. And those that exist typically come with a price tag of $10 to $30 per unit. Meanwhile, the financial burden for handling the mounting flow of electronic waste is falling on financially strapped local governments that often don't have the money to do it.

As local governments around the nation have seen this new waste-disposal problem emerging, they have begun to raise red flags. Michael Alexander, a senior research associate with the National Recycling Coalition of Alexandria, Virginia, points out, "The question being raised everywhere is: Should local government be straddled with this cost? And shouldn't manufacturers be involved? The question of manufacturer responsibility is now coming to the forefront."

Following Massachusetts's 2000 ban on CRTs from the state's landfills and combustion facilities, the state's municipalities began calling for manufacturers to provide part of the financial answer. Scott Cassel, former director of waste policy and planning for the Massachusetts Executive Office of Environmental Affairs, who now heads the Products Stewardship Institute at the University of Massachusetts at Lowell, says that about 30 Massachusetts municipalities have passed resolutions calling for manufacturers to be responsible for taking back their products that have reached the ends of their life spans. Similar municipal resolutions, he says, are emerging around the country.

Today, Cassel represents some 20 states and 24 local agencies in a national effort, the National Electronics Product Stewardship Initiative (NEPSI), that is trying to come up with an answer for what a national electronics recycling system should look like, including development of a "viable financing mechanism." NEPSI, which includes stakeholders from government, manufacturers, retailers, recyclers, and environmental organizations, has held a series of meetings and intends to have a final recommendation ready by this fall.

By most accounts, NEPSI will not be calling for any sort of large-scale, tax-funded governmental response. Instead, according to people involved in those discussions, the model they're looking at is one in which all the stakeholders, including industry, will have a role in how electronic waste should be managed. And the funding device that apparently is drawing the most attention is the front-end fee, a set amount that consumers would pay as part of the cost of new products. That money would be placed in a fund that would finance the safe recycling and disposal of electronic products.

"The basic question we're trying to answer is how to allocate the costs fairly," says Clare Lindsay, project director of the U.S. Environmental Protection Agency's (EPA) Extended Product Responsibility project in the Office of Solid Waste and one of the NEPSI participants. One of the developments influencing the discussions, she says, has been the steps taken in Europe to place strong responsibility for electronics recycling in the hands of manufacturers. In 2000, the European Union proposed the Waste Electrical and Electronic Equipment directive that requires manufacturers to be responsible for recovering and recycling 60–80% of electronic equipment by 2006. A second directive called the Restriction on Hazardous Substances would phase out the use of various chemicals in electronic products sold in Europe by 2008. Both proposals are expected to be passed within the next 2 years. American industry is deeply concerned by the European actions, says Lindsay. "A lot of [U.S.] products are designed for the world market, and they've got to meet the toughest standards."

An Industrial Response

Whether or not international pressure is the primary cause, Lindsay says that in the United States, "industry is taking steps to show that they're serious about doing the right thing."

The Electronic Industries Alliance (EIA), a high-tech manufacturers' trade organization based in Arlington, Virginia, that represents 4,300 member companies, has been very active in the national process to develop an electronics-recycling model. The EIA not only represents industry stakeholders in the NEPSI dialogue but also has embarked on a 1-year recycling project that it hopes will generate data useful in developing ideas for an effective national electronics-recycling plan. The EIA, in conjunction with a group of electronics manufacturers, awarded grants last October for recycling projects of the EPA's Region III, the state of Florida, and the Northeast Recycling Council.

Industry's position is that it wants to have a strong hand in electronics recycling, but in a voluntary capacity. As EIA spokeswoman Kerry Fennelly says, "We believe in a shared-responsibility model."

PhotoDisc

In fact, electronics manufacturers and retailers have been taking more and more steps to promote the recycling of the products they sell. Over a 3-month period in 1999, the Minnesota Office of Environmental Assistance (OEA) managed a project that included the participation of Sony Electronics, Panasonic, the American Plastics Council, and the Waste Management-Asset Recovery Group to provide statewide electronics recycling opportunities and measure the marketability of the products collected. According to OEA senior policy analyst Maureen Hickman, the effort was the first large-scale, multi-stakeholder project to divert used electronic products from municipal waste. The project included one designated recycling company, Waste Management-Asset Recovery Group, which collected the material and broke it down. The revenue from sale of recovered material totaled $43,000. The total cost of the project was $135,000.

The outcome of the project provided several useful lessons, Hickman says. For instance, they found that recycling old CRT glass into new CRT glass is less expensive than smelting it down to recover the lead. They also found that the public was far more responsive than expected. "Each partner estimated that there would be about 300 tons collected," Hickman says. "In the end, the figure was 575 tons."

In addition to providing a means of measuring marketability of recycled products, another purpose of the project was to study how best to collect electronic products. Various methods were examined—curbside pickups, single-day and multiple-day events—and according to Hickman, the most successful method was retail drop-off, which resulted in the largest collections and the lowest cost. Although it wasn't involved in retail collections during the pilot project in 1999, the Minneapolis-based electronics retailer Best Buy has subsequently launched a nationwide electronics-recovery program. According to Tricia Conroy, a principal in the Minneapolis environmental consulting firm e4 Partners, which works with Best Buy, the retailer completed its first phase of electronics collections last fall, with 10 events in seven states, with a tally of 128 tons of electronics collected from 2,800 participants. For collection, Best Buy uses three recycling companies which send their own people to the Best Buy sites to receive the equipment. Generally, says Conroy, people are charged $10 for computer monitors and $15 for television sets, whereas other equipment is accepted for free. She says Best Buy is planning to greatly expand its program this year to at least 20 events. Meanwhile, Sony has embarked on a plan in Minnesota to pay for recycling any of its products collected in the state.

Nationwide, other manufacturers, such as Hewlett Packard and IBM, are offering voluntary takebacks—but as critics point out, there is little incentive other than environmental altruism for customers to take advantage of these offers. They must properly package their old equipment for shipping and pay a fee—$29.99 for IBM and amounts ranging from $9 to $30 per component plus a $4 service charge for Hewlett Packard. Another national retailer, Staples, held a 2-day event in February to take in used computer equipment, offering a $100 credit on the purchase of any new Pentium IV computer to people who wanted to "trade in" a complete system. Staples had an arrangement with a philanthropic organization, Gifts in Kind International, which seeks to provide computers to needy organizations. The agreement further stipulated that the equipment that couldn't be reused be properly recycled.

Many groups are pushing for greater industry responsibility in paying for electronics recycling. Last year, the SVTC launched a campaign called "Electronics Take It Back!" which would make manufacturers responsible for what happens to their products that become obsolete. Says Hickman, who is also part of the NEPSI group, "We'd like to see the cost of recycling internalized into the cost of the product."

Collecting Ideas

Questions remain about how built-in recycling fees would best be administered. "I don't think that government wants to be responsible for those funds," says Lindsay. And industry is reluctant to be in charge of them because whenever companies talk about prearranged prices, they run the risk of price-fixing allegations and antitrust violations.

Hickman says that one idea receiving serious consideration would be to use the funding from the built-in fee (no matter who administers it) to provide "a certain base level of collection" for municipalities around the United States. Then, beyond that, a town or city might decide to use tax money to provide further service such as curbside pickup. In fact, some are providing it now. One of the oldest such programs in the country is in Hennepin County, Minnesota, where Minneapolis is located. The program there has been collecting used electronic products since 1992. Since its inception, that program has increased its annual collections from 11 tons to some 900 tons. Hennepin County provides several drop-off points, and in 1997 it began curbside pickup in the city of Minneapolis, where residents can put out their old equipment on specified days. The waste goes to a nonprofit organization that trains people in how to break it down. The glass and some other materials go to a smelter who is paid to to take it. Plastics and wood are shipped to a trash-to-energy facility operated by Northern States Power Co. Hazardous materials are disposed of as state and federal regulations require. The program is diverting a large mass of electronic waste out of the waste stream, but it is doing so at a cost that would make many governmental entities balk: this year it's expected to cost taxpayers in that county about $1 million.

Cassel believes that a national electronics recycling funding system would open up new opportunities for entrepreneurs. When Massachusetts made shipping CRTs to landfills illegal in 2000, it contracted with one specialized recycling company, ElectroniCycle, Inc., located in Gardner, Massachusetts, as the designated state recycler. As the designated contractor, ElectroniCycle was contractually bound to seek the highest use of the products it receives—meaning repair and reuse is the first priority. According to Robin Ingenthron of ElectroniCycle, the company recycled six million pounds of electronic material in 2001. Five percent of it was tested and reused or resold in the United States, including about $100,000 worth of refurbished televisions placed in Goodwill and Salvation Army stores. Another 20–25% was reparable, he says, "but we didn't have a market for it here" because even though the equipment works, it's outdated. ElectroniCycle has been shipping outdated but usable products to other countries, such as India, where "the techs are not as picky."

As the volume of electronic waste continues to grow, answers on what to do about it grow increasingly necessary. Some state and local governments are demonstrating leadership on the issue, and the electronics industry is showing that it's willing to be part of an effective answer. The NEPSI hopes to have a workable proposal—agreeable to all stakeholders—on the table soon. This would be a good start. Failure to act now will only increase the price that users—and the environment—will pay in the future.

Richard Dahl