



## Waste not, want not

As E-waste proliferates, **Laurie Wiegler** reports on how the US is greening up its electronics industry

**IN 1992, the Basel convention on the control of transboundary movements of hazardous wastes and their disposal determined that materials such as lead and mercury should neither be dumped into landfills nor moved across boundaries.**

Yet while the agreement sounds good, unscrupulous 'recyclers' and manufacturers have exploited both the world's seemingly insatiable appetite for electronics as well as developing countries' desire to profit from even trace amounts of copper, gold and other precious elements, which are found in these discarded electronics.

The problem, further, is that in gaining these components, computers are oftentimes burned without regard for air pollution or other environmental ills. Countries such as China, India and Ghana have become dumping grounds for the western world's electronic waste habit.

To address the crisis, in January 2005 the United Nations Environment Programme published *E-waste, the hidden side of IT equipment's manufacturing and use*, in which it spelt out that every year 20–50m t of electrical and electronic equipment (e-waste) is generated worldwide.

Since 2005, that number is growing at a frightening rate. David Zimet, president of New Jersey-based electronics recycler Hess Tech says: "Over the course of the last decade, it [the electronics waste dumping problem] has been increasing at an alarming rate, by tens of thousands of tons per month of material that have been shipped through Hong Kong into China. It's just unfathomable."

### EPA's take

In its September 2008 report, *Electronic waste: strengthening the role of the federal government in encouraging recycling and reuse*, the US Environmental Protection Agency (EPA) was sharply criticised by the US Government Accountability Office (GAO). Even so, principals with the EPA defend their work on electronics waste recycling and are keen to discuss the problem.

"Since 1999 the amount of consumer electronics waste generated in the United States has increased 71%," says Clare Lindsay of the EPA's Municipal and Industrial Solid Waste division.

"That's how much has been discarded. Of that, we recycle somewhere between 15–20%. The rest gets disposed in the US, largely in landfills," says Lindsay.

She, and colleague Bob Tonetti, senior environmental scientist with the agency, go on to dispute some of the bad press coming out about illegal dumping sites offshore.

"There are many responsible recyclers overseas, and in many cases they're the only markets for these [electronic components] materials," Tonetti claims. "Yes, there are some bad situations, but a lot of that is generated over there" – though she concedes that some e-waste from the US is contributing to the problem.

### environmental clash

Yet the GAO report criticises the EPA for not having taken strong enough action on the illicit export of electronics to third-world and other countries, even as the world makes obsolete some 100m computers, monitors and televisions annually.

Casey Harrell, an international toxics campaigner for Greenpeace, has co-

authored an extensive analysis of the electronics industry for a second time with *Green electronics: the search continues*. At the annual Consumer Electronics Show in Las Vegas, his colleagues presented their findings, less than a year after the agency's first report was issued.

While Harrell doesn't dispute the EPA's 15–20% figure, he laughs off the notion that the rest of the electronic waste is actually going into landfills at all, and says that even if it did, that's hardly the solution.

Further, while some 80% of electronic waste in the US can be traced, Harrell says this "doesn't mean the other 20% [of electronics] are being dealt with properly – meaning they're not exported, they're not dumped in a landfill or they're not burned. They [the EPA] just know where 20% is going," he says.

This is certainly a point with which at least one recycler, David Zimet of Hess Tech, concurs. He tells *tce* that his company was formed in direct response to problems he saw regarding end-of-life for computers in the US.

Formerly with New Jersey's Department of Environmental Protection, Zimet had the chance to investigate the US' electronics waste stream, which notably included CRT monitors. Zimet spearheaded the Union County Demanufacturing Programme, which exposed key issues surrounding improper disposal of electronic waste, particularly for the commercial sector.

In so doing, he visited electronics-processing facilities, and didn't like what he saw. "I was pretty concerned about the uncontrolled exporting of electronic waste and at the time, didn't really know what was happening to it other than it wasn't being processed here, and there were rumours about

Top: Dell's Studio Hybrid desktop has earned itself a US government 'Energy Star' rating

how it was being processed," Zimet says.

He adds that in establishing Hess Tech and its electronics recycling and reuse programme he wanted to "provide a transparent and accountable downstream programme."

### greening the product

Of course, what Zimet himself called the "international crisis" that is the current electronic waste management problem can be traced back to the manufacturer in large part. Because of this, PCs, mobile phones and other electronics are all going green.

Numerous manufacturers cited by Greenpeace in its reports show solid improvement on this front. One such company, Dell, is drawing praise particularly for its smart, energy-efficient designs, as exemplified by its sleek *Hybrid* notebook.

According to Scott O'Connell, Dell's environmental programme manager, the smaller design is 70% more energy efficient than a standard PC, and the company's web site claims that its *Studio Hybrid* desktop is 80% smaller, fitting either vertically or horizontally on the desktop. With the energy reduction, the computer has earned an 'Energy Star' rating, a US government benchmark established in 1992 for energy-efficient consumer products. In addition, the company sought to eliminate many of the hazardous chemicals cited in the Greenpeace report.

"...[Greenpeace] is very focused [in the report] on brominated flame retardants (BFRs) and PVC, so within the *Studio Hybrid* all of the chassis plastics are BFR- and PVC-free, as [is] the motherboard laminate inside," says O'Connell.

The company aims to phase out all mercury from its notebooks and PCs by 2010.

And Dell is not alone on phasing out the bad chemicals. Sony, for example, is earning some of the highest Greenpeace marks for its products, such as the Sony *Vaio TZ* notebook and *T650* mobile phone. Fujitsu is also performing fairly well with a green product line.

Fujitsu spokesperson Scott Ikeda points out that the company has long been keen to implement green solutions and has found, for example, that barcoding its products leads to a higher return rate by consumers.

Asked how the company could guard against illegal exportation of the units stripped of their bar codes, Ikeda was unclear. In fairness, the company is not unique on this front, as all computer and electronics manufacturers can only do so much with their take-back and reusability programmes.

### is it enough?

US and other computer manufacturers just cannot keep up with the enormous growth of electronics erupting worldwide. Even responsible management of the problem means monitoring a ship so tightly that one can even prepare for the unforeseeable – that new technology or variation on a technology, such as an iPod, which will spring up tomorrow and create yet another set of disposal challenges.

Greenpeace is doing its part by staking out parts of the world where illegal dumping could be going on, by monitoring sites closely and staging protests around the globe. Consensus is rising worldwide – especially with the turn of a new page in US democracy – that environmental problems such as climate change and electronics waste disposal are imperative to the health of our planet.

In Greenpeace's second annual report, 15 of the major electronics manufacturers submitted 50 of their most popular, greenest products for analysis. Results show that fewer products on the market contain PVC plastic, and in general, fewer hazardous chemicals are being used. Energy-saving displays such as LEDs, which replace mercury, are more prevalent. Manufacturers are using more recycled plastic in televisions, and monitors and companies have established more pervasive take-back and recycling programmes.

Even so, according to the report, no product scored high enough across all areas to deserve the accolade of a truly 'green product.' And again, not every computer and other electronic manufacturer opted to participate. Apple and Microsoft remain high-profile non-participants (see link below for overall rankings).

Recyclers such as M&K Recovery in Boston are doing their part by collecting and disseminating the bad from the good, hazardous waste from precious metals, either on- or off-site. According to the company's vice-president, William Rockett, the most hazardous parts of a PC are the mercury and lead it contains. Those components would go to smelters for proper handling.

Rockett is skeptical about attention paid to illegal dump sites. While he concurs that illegal dumping is certainly a problem, he doubts that it's as severe as indicated. "I have a hard time believing that all this waste going overseas just gets dumped: it wouldn't make much sense to me."

### continuing oversight

In its report, the GAO points out that the problem won't get better in the US until the average consumer has incentives to recycle their electronics. Currently, only some individual states are addressing the problem. Without federal guidelines that encourage Americans to recycle their electronics, it remains far cheaper to dispose of one's television in the waste bin, and evidence suggests that at least presently, many US consumers need a financial incentive.

Further, without careful controls as to how the computers and electronics are exported, companies and so-called recyclers will continue shipping units to Africa, China, India and elsewhere. **tce**

### further information

1. *Electronic waste: strengthening the role of the federal government in encouraging recycling and reuse:*

[www.gao.gov/new.items/d081044.pdf](http://www.gao.gov/new.items/d081044.pdf)

2. *Greenpeace ranking of electronics' greenness:*

[www.greenpeace.org/international/campaigns/toxics/electronics/how-the-companies-line-up](http://www.greenpeace.org/international/campaigns/toxics/electronics/how-the-companies-line-up)

3. *Extended Producer Responsibility, Environment Canada:* [www.ec.gc.ca/epr/default.asp?lang=En&n=EEBCC813-1](http://www.ec.gc.ca/epr/default.asp?lang=En&n=EEBCC813-1)



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## Northern neighbour effects change

Environment Canada is working to make sure that hazardous chemicals are not exported in its computers and electronics. To do this, the agency is following the dictates of the Basel Convention, says Josée Lanctôt, manager of waste policy and reduction. It is also part of a Canadian movement to ensure that the manufacturer is held environmentally responsible not only in the hitherto traditional ways -- such as eliminating toxic releases during production -- but also at the post-consumer end.

A Canadian programme called *Extended producer responsibility and stewardship* is reinventing the notion of where the onus for computer pollution lies. The US may not have an official programme of this sort, but individual manufacturers such as Dell and Fujitsu are certainly, through their take-back initiatives, encouraging a holistic approach.

Even so, curtailing the overall problem requires aggressive monitoring of electronic waste as well as keen communication with the Basel Convention participants.

Lanctôt says: "If we found hazardous characteristics within the electronic equipment then it will be definitely controlled, and if a country, like China, said they ban certain electronic equipment or they don't want specific products that are used, through our regulations those would be controlled as well. We work very closely with [other countries] to make that happen."

Specifically, Lanctôt says that while control is still at provincial level — just as it remains a state-level-driven movement in the US — the country as a whole works on communicating with countries such as Malaysia and Indonesia to ensure they don't become the next dumping ground.