

Plug into Electronics Reuse



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Institute for Local Self-Reliance

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Introduction

Electronics become obsolete and are discarded at a frightening rate. For example, only 10% of the 6 to 13 million computers taken out of service each year in the U.S. are reused or recycled.¹ About 15% are landfilled and a whopping 75% are stockpiled.² An estimated 10 million more are sitting in storage somewhere, gathering dust.³ A tremendous amount of other electronics (such as audio equipment, televisions, telecommunications equipment, and electronic appliances) are discarded too; figures are not available.

Until recently, only a weak infrastructure existed in the U.S. to capture electronic waste. Today, savvy individuals and organizations have begun to realize the enormous potential of the discarded electronics. Many of these items are in good working condition and can be adapted for owners whose capacity needs are different from those of the previous owners. Other items need repair work, and those that cannot be repaired to full use often contain valuable parts. These parts can be used to rebuild other computers or sometimes utilized to construct lower-tech products. For instance, video games can be built from the integrated circuits of salvaged computers.

Computer recycling has increased more precipitously than the recycling of other electronic goods. Computer needs vary so broadly that what does not suit one individual could very well suit the next. Because computers become obsolete so swiftly, they are often discarded with many or all working components. Many American corporations replace one-third of their personal computer inventory each year! The higher the original value of the item, the more feasible from a financial standpoint it becomes to restore or recycle it. This is one reason why computer recycling is at the forefront of the electronics reuse industry.

An unusable computer has many recoverable materials and parts that can be utilized in other computers and electronic goods. Recoverable components include: printed circuit boards, chips, print heads, disc drives, and keyboards. Although other computer parts cannot be salvaged for their original intended use, these items can be broken down by material type for eventual recycling into new goods. The printed circuit boards contain metals; lead, copper, platinum, palladium, and gold. Demand for these precious metals is high, and the market for circuit boards is strong. Other valuable recoverable materials are lead from CRT's; copper from wires; and thermoplastic, steel, and aluminum from casings.

This booklet presents information on 22 electronics reuse operations, who responded to our survey soliciting information on their businesses, jobs sustained, and interest in expanding and replicating. (See Appendix A.) It also profiles in detail 13 of these operations. Only a sample of the numerous electronics reuse operations in the United States are represented. (See Appendix B for a list of those we identified.)

Our intent in producing this booklet is to help expand the reuse infrastructure throughout the country. It is oriented toward the lay person, recycling and solid waste professionals, economic development officials, and community-based organizations. The operations documented are all replicable. Many are interested in starting similar enterprises in other cities. If the computers now landfilled and stockpiled each year were reclaimed through the types of electronics reuse operations profiled here, between 1,000 and 2,250 new jobs could be created in this industry alone. Reclamation of previously stockpiled computers as well as other types of electronics could sustain many additional jobs.

This report is one in a series of four booklets, funded by the U.S. EPA, on product reuse as an important economic development and waste reduction strategy.

The other three are:

- *Sustaining Businesses & Jobs through Pallet Reuse & Repair*
- *Creating Wealth from Everyday Items*
- *Weaving Textile Reuse into Waste Reduction*

Definitions

- Electronic items process and display information and possess complex circuitry, circuit boards, or signal processing. Electronic items include televisions, computers, stereo receivers, CD players, tape decks, cameras, and appliances with information displays (such as timers).
- Electric items use electricity to operate but do not display or process information. Electric items include power tools, blenders, toasters, and coffee makers without timers.

1. Eustace, Hilary et al., "A Business Assessment of Electronics Recycling for the Gordon Institute," thesis presented to Tufts University, August 1, 1995; Carnegie Mellon University Dept. of Engineering & Public Policy, the H. John Heinz III School of Public Policy and Management, and the Dept. of Social and Decision Sciences, *Design Issues in Waste Avoidance*, Pittsburgh, PA, 1991; personal communication, Steven Wyatt, the Computer Recycling Center, Santa Clara, CA, January 31, 1997; and personal communication, Vincent Torres, University of Texas, Austin, February 3, 1997.

2. Eustace, Hilary et al., "A Business Assessment of Electronics Recycling for the Gordon Institute."

3. Carnegie Mellon University, *Design Issues in Waste Avoidance*.