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Electronic Equipment Recycling



Electronic Equipment Recycling

- Why we Recycle
 - What's inside the computer
 - What's inside a CRT monitor
- Choosing an electronics recycler
- De-manufacturing
 - Computers / Monitors
 - Data Destruction

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What's in the Box...

Typical "older" PC 1 ton = 95 computers

MATERIAL	LBS/TON MATERIAL
• CADMIUM	0.79
• TANTALUM	0.38
• MOLYBDENUM	0.31
• PALLADIUM	0.25
• BERYLLIUM	0.18
• COBALT	0.17
• PLASTICS	600
• COPPER	286
• IRON	90
• BROMINE	56
• LEAD	54
• TIN	44
• NICKEL	40
• ANTIMONY	22
• ZINC	9
• GOLD	1
• SILVER	1

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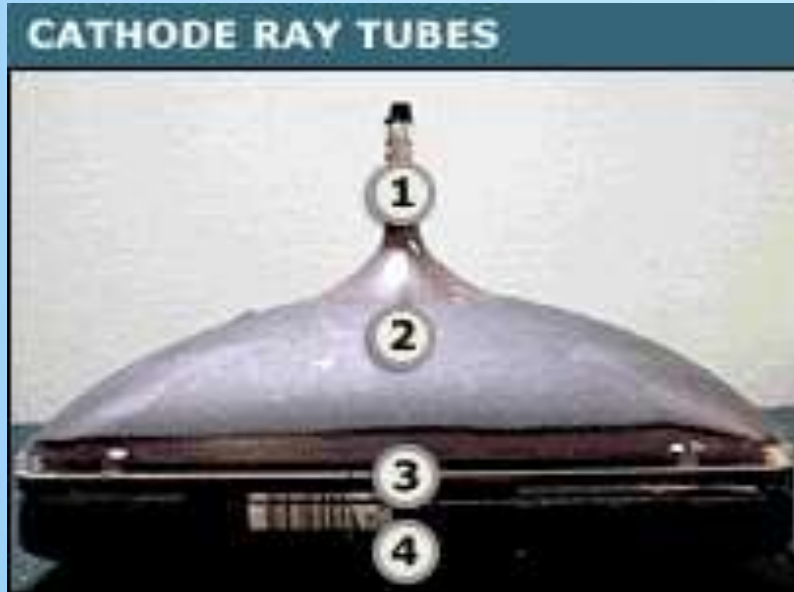
What's in a CRT monitor

- ▶ The biggest health risk with monitors is Lead. The average cathode ray tube (CRT) monitor contains from five to seven pounds of lead oxide powder embedded in the glass. The lead acts as a radiation shield (x-rays) otherwise using a CRT monitor would pose an unacceptable health risk.

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What's in a CRT monitor



- 1 - Neck (c. 30% lead)
- 2 - Funnel glass (c. 25% lead)
- 3 - Frit line (c. 75% lead)
- 4 - Panel glass (c. 0% lead)

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What's in a CRT monitor

- ▶ Also...
- ▶ The internal face of the monitor funnel is coated with rare earth phosphors, as the name suggests, these are phosphorescent substances that coat the interior of the tube and fluoresce when they are scanned by an electron beam and light up the tube. These materials may promote DNA rearrangements in cells.

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Choosing your recycler...



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Choosing your recycler...

- ▶ Please consider:
- ▶ The key point in vetting a US recycler is down stream due diligence and being comfortable that the recycler understands...
- ▶ Your specific industry Regulatory Guidelines & Compliance Procedures & Data Destruction to the highest standard EX: (Sox 404 & HIPPA)
- ▶ **MOST IMPORTANT THAT THEY ARE STEWARDS OF TRUE GREEN IT RECYCLING!!**

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De-manufacturing CPUs...

- ▶ First, the hard drives are removed, then the box is disassembled and separated into 3 streams (Plastic, Metal, & Circuit Boards).
- ▶ 1. Plastic: Most of the plastic in older systems is a fire retardant ABS and not recyclable and is disposed of as regulated by the local DEP.
- ▶ 2. Metal: The metal is divided into two streams (Ferris and Non-Ferris) and sold as scrap.

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De-manufacturing CPUs...

3. Printed Circuits Boards:

- ▶ The printed circuit boards are classified as “High Value” and “Low Value”
- ▶ The high value boards are processed to reclaim precious metals
- ▶ The low value boards are “scavenged for chips”, then processed for metal recovery.

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De-manufacturing, CRT Monitors

- ▶ Destroying a CRT tube poses extreme air quality risks and risks to the workers who destroy and process the tubes.
- ▶ The destruction of CRTs should only be conducted in certified plants whose business revolves around working with these specific materials.
- ▶ Note:
 - ▶ CRT's are still being manufactured and the high lead content frit that bonds the funnel to the front panel can be recovered. So the frit is mechanically separated and reused.
 - ▶ The rest of the Monitor follows the same de-manufacturing process as the CPU.

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Data Destruction

- ▶ Depending on what's on your old hard drives, you may be interested in insuring and documenting that no recoverable data exists after your electronic waste leaves your plant.
- ▶ Your legal department should know if you need to ensure compliance with Federal Rules of Civil Procedure – Rule 37(d), (3), (e), which addresses how electronically stored information (ESI) may be destroyed, at which point you will also want your electronic waste recycler to be certified by NAID
- ▶ Learn more @ The National Association For Information Destruction (NAID)

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Many IT departments want to undertake Green IT initiatives, but don't know where to start. It is important to use this research note and begin by understanding Green IT as an umbrella term, with many initiatives falling underneath. Next, learn the difference between victory projects, which IT can complete autonomously, and leadership projects, which require business collaboration but often result in greater cost savings and environmental benefit.

Craft and execute a Green IT Action Plan by learning to:

- » Set the IT department's goals, timelines, and major projects, taking organizational realities into account.
- » Baseline energy and consumables use for the IT assets affected by projects.
- » Execute and measure the results of initial projects which can demonstrate success and quantifiable impact to the business.
- » Market IT efforts to the senior management, and build business cases for leadership projects that require unified management, cross-department buy-in, and aligned monetary incentives.
- The environmental benefits and cost savings that result from initial projects will help prove that more extensive projects are both feasible and necessary.



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Crafting a Green IT Action Plan for Your Organization



Partners in A Green World

► Why Zero To Landfill ?

Landfills are one of the most widely used methods of waste disposal. However, it is common knowledge that all landfills leak. The leachate often contains heavy metals and other toxic substances which can contaminate ground and water resources. Even state-of-the-art landfills which are sealed to prevent toxins from entering the ground are not completely tight in the long-term. Older landfill sites and uncontrolled waste sites pose a much greater danger of releasing hazardous emissions.

Mercury, Cadmium and Lead are among the most toxic leachates. Mercury, for example, will leach when certain electronic devices such as circuit breakers are destroyed. Lead has been found to leach from broken lead-containing glass, such as the cone glass of cathode ray tubes from TVs and monitors. When brominated flame retarded plastics or plastics containing cadmium are land filled, both PBDE and cadmium may leach into soil and groundwater. Similarly, land filled condensers emit hazardous PCB's.

Besides leaching, vaporization is also of concern in landfills. For example, volatile compounds such as mercury or a frequent modification of it, dimethylene mercury can be released.

Significant impacts from land filling could be avoided by Initiating a Proper End of Life Resale or Recycling Program.



E – Waste – The Truth & Regulation

- ▶ More than ever before, companies are clearing out the storage closets that have turned into electronics graveyards.
- ▶ The steady mechanisms of social consciousness have been pressing the movement toward a **Green** environment. Input about e-waste regulations are coming from a number of fronts, including grassroots organizations, governing bodies and industrial leaders.
- ▶ Many organizations have recognized the potential for e-waste dangers for years. However, the issue came to the forefront of media in 2002, when **Basel Action Network's (BAN)** documentary "Exporting Harm" was released. BAN works to reduce the harmful effects of **exporting e-waste** and promotes sustainable solutions to worldwide waste issues. So-called recyclers and scrap brokers were buying e-waste from developed regions throughout the world and dumping it in developing nations. In some parts of these countries, people were dismantling electronics on street corners, instead of in recycling facilities.
- ▶ Mountains of discarded Servers, Desktops, and Computer Monitors tower above the rutted streets of a low-income urban community. In order to make a living, hundreds of people work in the shadow of this heap of e-waste. Some people tend fires which burn and remove the plastic from copper wires, putting out billows of noxious smoke. Other workers swirl circuit boards in tubs of nitric and hydrochloric acid to release the solder and precious metals -- at the same time releasing gas that stings their eyes. Plastic chips, obtained from smashing devices like keyboards and computer casings, are broken into tiny pieces and carefully sorted before they too are burned and melted together into a sellable chunk. And at the end of the day, all the byproducts that have no further useful purposes, like charred circuit boards and used acid compounds, usually are dumped in open fields and rivers or are burned.

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Financial Services Regulation

- ▶ If you are a Financial Services company, data security ranks as the most important consideration when choosing an asset disposal and recovery partner. Our Recycling Solutions will guarantee your client confidentiality and minimize your risk and future liability by utilizing advanced processes via shredding or data erasure. Additionally, our intimate knowledge of current legislation such as the Gramm–Leach–Bliley Act and FACTA ensures that you are protected from exposure.

Data Security

- ▶ Whether you require DOD 5220.22–M compliance via secured shredding destruction of hard drives to data erasure that meets the NIST SP 800–88 Guidelines for Media Sanitization, we ensure confidential information on your hard drives is never compromised.

The Gramm–Leach–Bliley Act (GLBA)

- ▶ The Safeguards Rule helps to implement Section 501 of the Gramm–Leach–Bliley Act (GLBA) by requiring financial institutions to assess their risks and design safeguards to protect against the risks. This risk assessment must consider all areas of operation, including the disposal of personal information. GLBA applies to financial institutions and includes any or all organizations or individuals who use or receive customer's personal financial information.

Fair and Accurate Credit Transaction Act (FACTA)

- ▶ FACTA of 2003, a new section added to FCRA, 15 U.S.C. 1681 et seq, was designed to prevent consumer fraud and related crimes, including Identity Theft. Under this act, it is the responsibility of your company to ensure that client records that may contain personal financial information are properly destroyed before being discarded.

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Health Care Regulation

- ▶ Our Recycling Solutions are uniquely qualified to provide comprehensive equipment recycling services to the Health Care industry.

IT Equipment Assets

- ▶ Our Recycling Solutions ensures that you meet the federal HIPAA guidelines for your patients confidential information stored on your IT assets. Utilizing advanced shredding and data erasure processes, Our Recycling Solutions will protect you from unauthorized data exposure.
- ▶ Equipment is evaluated for resale or destroyed, based on your requirements. When resale is authorized, hard drives are cleansed in accord with NIST SP 800-88 Guidelines for Media Sanitization. For clients requiring destruction services, equipment is completely recycled through our state-of-the-art shredding and recycling system.
- ▶ Resale options present an opportunity to regain value from your assets through revenue sharing. Our professional staff can supply comprehensive reporting for your disposed of IT assets, providing the tracking and accountability you require.

Laboratory Equipment Assets

- ▶ Our highly qualified personnel can be mobilized to your site for on-site removal services or equipment can be received directly at our facility. While all potentially infectious materials require decontamination prior to shipping, we offer a variety of secondary decontamination processes that renders the equipment ready for recycling.
- ▶ OSHA Blood Borne Pathogen Exposure Standards are strictly adhered to in our fully documented process. Incoming equipment is evaluated to determine the existence of invasive probes or any surfaces that may have had contact with bodily fluids. The subsequent decontamination process involves application of a disinfectant solution in a controlled environment for elimination of all pathogenic microorganisms from surfaces.

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Today we offer all of our Clients a **ZERO – WASTE to Landfill** solution in which their End of Life, un Wanted/un–usable IT Assets will be resold, or recycled into the secondary markets or transformed into raw material or another usable product. We help our clients become stewards of a **GREENER WORLD..**

- The best part of this model currently offers this service at low cost to our clients.
- In some cases we have generated a profit for our clients. * **DEPENDS ON TYPE OF ASSET***

As an end–of–life technology waste solution provider, we help our clients dispose of their end of life technology Assets in a safe, secure and responsible manner. We effectively dispose of IT Assets while mitigating our client's exposure and risks for SOX404, HIPAA, and EPA requirements.

We provide our clients with a consistent and controlled process that takes into consideration diverse corporate cultures and locations.

We accomplish this in the most cost–effective manor and transport your companies assets to numerous sites in The United States, using in house transportation methods.

With an acute awareness of the financial, logistical and legal burdens associated with disposing of large quantities of retired IT assets, we offer compliance with Federal, State and Local regulations as well as secure data destruction for your electronic data drives.

We deliver a complete audit report, certificate of destruction, and letter of indemnification. We offer Onsite Data onsite destruction of hard drives is not warranted, we Punch the Drives on site (Ship in Lock Box) an offer Photo & Video, verification that the shredding and destruction of your data has been performed and disposal of remaining content is compliant with all of your company's Industry, Federal, State, Local, or Regulator Guidelines.



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- ▶ Our Liquidation/Recycling Partners are Members or Associated with:
- ▶ NAID– National Association of Information Destruction www.naidonline.org
- ▶ IAER– International Association of Electronics Recyclers www.iaer.org
- ▶ Member of SWANA–Solid Waste Association of North America www.swana.org
- ▶ Member of CHWMEG– an independent auditor used by many Fortune 500 customers www.chwmeg.org
- ▶ Member of ANJR– Association of New Jersey Recyclers www.anjr.com

As we look into the future for our children and grandchildren, we are committed to a **Green World** by helping clients in proper end-of-life management of assets containing sensitive data and components hazardous to our environment.

We will remain committed to maintaining a Zero-Waste-to-Landfill Policy, while ensuring that all Federal, State and EPA compliance issues relevant to proper electronics management are met or exceeded by our dedicated highly trained and motivated partners.

We look forward to helping your company with all of your End-Of -Life IT Asset Management, and disposal needs.



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**Turn Your End-of-Life IT Equipment Into
Account Credits for Funding:**

- + IT Staffing
- + IT Projects
- + IT Job Reqs

Mark Simmering

Consultant

GreenIT@InterMarketGlobal.com

Atlanta GA USA

