



Recycling End-of-Life Electronics: Factors to Consider in Choosing a Recycling Option

FACT SHEET

BACKGROUND

When recycling CRTs and electronic discards, it is important to choose a reputable recycling market or recycling vendor. Make sure that the company recycling the equipment emphasizes environmentally sound procedures and that it will provide documentation of the materials handled.

The export of whole electronic products has become particularly controversial with recent documentation of harmful recycling techniques in some countries. Exporting is not necessarily a harmful practice, but generators should ask for as much detail as possible from market vendors on the precise disposition of materials.

The following are things to look for in an electronics recycler. When contracting for these services, or looking for a place to take your old gear, use this checklist to assist in making an informed decision.

RECYCLER CHECKLIST

- Maintenance of appropriate permits/licenses and compliance with applicable laws and regulations.
- Recyclers should have necessary and appropriate authorizations consistent with federal, state and local environmental laws.
 - Permits
 - References
 - Compliance history
- Documented auditing of downstream facilities, documented tracking of all downstream materials, and documentation and/or restriction of exports, especially those that are hazardous.
- Recyclers should perform due diligence and have documentation regarding end-use markets.
 - Descriptions of material handling process (how materials flow through facility)
 - List of material end-markets
 - Information on brokers
- If desired, further scrutiny can include the following:
 - Evidence of end-market audits
 - Evidence of shipping papers for exported materials (bill of lading)
 - Requirement that vendors process, sort or technically assess materials domestically
- Use of management systems that address the key elements of environment, health, safety and quality. Recyclers should take sufficient measures to safeguard workers and the environment.
 - Meet OSHA requirements
 - Have an appropriate and adequate training program for personnel

For small firms, procedures should be simplified – flexibility may be necessary. Large firms may be better suited to a structured environmental management system (EMS). Some things to look for include:

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- EMS certification
- Documented environment, health, safety and quality management programs
- EHS training
- Documentation that current emergency plans are in place at receiving facilities.
- Hazmat management plan

THINGS TO KNOW ABOUT MATERIAL HANDLING

- **Remove tags from electronic equipment before transferring, recycling or donating.** This will assure that electronic discards transferred to a recycler are no longer tagged as property of the previous owner.
- **Remove data from hard drives, overwriting to U.S. Department of Defense standards before transferring, recycling or donating.** Some asset recovery companies may provide these services, but be sure to ask.
- **Sorted vs. mixed collection.** You may save money by sorting your gear before it's collected.
- **Truckload only vs. regular pickup.** If storage space is a problem, be sure to check that regular pickups are available. You may need (or want) to provide storage space for a truckload amount of material. This bulk collection will save money in transportation costs associated with the collection of your electronic discards.
- **Billing by weight or by piece.** Ask the recycling vendor to provide proposals with both pricing options. Compare the two and see what works best with the volume and type of electronic discards you produce.
- **Does vendor destroy everything or is there reuse?** Component reuse is standard operating procedure for most vendors. It is a good way to prolong the life of computer parts, and creates products to be sold in the retail and wholesale markets, adding value to the recycling process. Depending on your requirements, check to see if reuse is part of your recycler's material handling process. If you require destruction or de-construction of your discards, be sure the vendor is made aware of this before processing your gear.
- **Any credit for valuable material?** Some e-waste recyclers provide a credit for valuable materials that can be recovered. Usually, this will depend on the vendor's ability to track and weigh your material. This may be possible only with large volumes of electronic discards, or those that are not considered obsolete.
- **What physically happens to the equipment?** A standard e-waste material flow includes: transport to recycler, separation by equipment type, marketable equipment is tested, non-marketable equipment is disassembled, loose pieces are separated by material content, materials are transported to a specific handler, loose material is shredded and cleaned to obtain virgin raw materials, virgin material is smelted/refined for manufacturing.
- **Where does the material go?** Material is separated into more than 20 different categories – not including re-marketable parts. Plastics can be used for manufacturing and fuels, metal for manufacturing, precious metals for electronics, copper for cables and CRTs, aluminum for manufacturing, and leaded glass returned to leaded glass manufacturing (CRT glass or other uses).
- **Export markets.** Export markets for working equipment exist. Material that may be obsolete in the United States are in demand in other parts of the world. Some of this working equipment includes: low-end PCs, smaller sized monitors (CRTs), printers and televisions.



The N.C. Division of Pollution Prevention and Environmental Assistance (DPPEA) provides free, non-regulatory technical assistance and education on methods to eliminate, reduce, or recycle wastes before they become pollutants or require disposal. Telephone DPPEA at (919) 715-6500 or (800) 763-0136 for assistance with issues in this fact sheet or any of your waste reduction concerns.

DPPEA-FY02-35