



Key Environmental Attributes for Electronics Acquisition

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PURPOSE

This document outlines some key environmental attributes to consider when purchasing electronic equipment that is not currently registered by the Electronic Product Environmental Assessment Tool (EPEAT).

ENVIRONMENTAL ATTRIBUTES OF ELECTRONICS

A basic concept behind the Federal Electronics Challenge (FEC) is to consider environmental attributes along with traditional price and performance criteria in the acquisition and procurement of electronics. To that end, the FEC encourages its Partners to purchase EPEAT-registered electronic products, consistent with Executive Order 13423, *Strengthening Federal Environmental, Energy and Transportation Management*, which requires federal agencies to meet at least 95 percent of acquisition requirements for electronic products with an EPEAT-registered electronic product, unless there is no EPEAT standard for such product. As of September 2007, EPEAT has standards for and registers environmentally preferable computer desktops, laptops and monitors.

The FEC recognizes that there are a number of other electronic products that federal purchasers acquire, which do not currently have EPEAT standards. These products include printers, copiers, facsimile machines, multifunction devices, televisions and handheld or mobile electronics. Many of these products are also available with positive environmental attributes, and the FEC encourages federal purchases to specify the following key environmental attributes in their specifications for non-EPEAT registered electronics.

Federal purchasers should note that inclusion of these requirements will meet another requirement of Executive Order 13423 – the use of sustainable environmental practices when acquiring goods and services.

KEY ENVIRONMENTAL ATTRIBUTES

The FEC encourages purchasers to consider and include the following environmental attributes in their specifications for non-EPEAT registered electronics:

- Reduced Toxics Constituents
- Increased Recycled or Biobased Content
- Energy Efficiency
- Reduced Materials Use
- Reduced Consumables Use
- Extendable Product Life
- Designed for Upgrade and Recycling
- Take Back Options
- Environmentally Preferable Packaging
- Positive Corporate Environmental Policy



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Reduced Toxic Constituents

Electronic equipment - especially those with cathode ray tubes, printed wiring boards, mercury switches, capacitors, and batteries – may contain toxic chemicals such as heavy metals and flame retardants, which can pose a threat to the human health and the environment if they are not managed carefully at the end of their useful life.

Federal purchasers can reduce their organization's environmental footprint by buying electronics that do not contain (or contain reduced levels of) toxic substances. Purchasers can request information from the manufacturer on what substances are present in the electronics they are buying. Manufacturers often provide information on the use of banned or restricted chemicals in their product environmental declarations. These declarations may also be available on the manufacturers' Web sites.

Increased Recycled or Biobased Content

The production of virgin and non-recycled materials uses more water, energy and natural resources than the utilization of recycled materials. Utilizing recycled content resin in new electronic products also provides essential markets for materials recovered in the recycling system. Recently, there has also been an increase in the use of biobased plastics – plastics made from biological or renewable resources.

Parts within electronic products such as the displays, housings, and other glass, metal and plastic components can be made from recycled content. Additionally, many plastic components can be made from biobased content. Recycled content is material that has been recovered or diverted from the solid waste stream, either during manufacturing (pre-consumer) or after consumer use (post-consumer). Federal purchasers can specify electronic products with post-consumer recycled content material to support markets for materials recovered from recycled electronic products. Federal purchasers can also specify electronic products with biobased plastic materials.

Energy Efficiency

Office equipment is the fastest-growing use of electricity in commercial buildings in the United States, accounting for 7% of all commercial-sector power consumption.¹ Energy efficient electronic products reduce power consumption, which has both environmental and economic benefits.

ENERGY STAR® is a government-backed program that assists businesses and individuals protect the environment through superior energy efficiency. ENERGY STAR qualifies a wide variety of office equipment and other electronics as meeting specific energy efficiency standards. ENERGY STAR qualified office and imaging products use 30-75% less electricity than standard equipment. Federal purchasers should require ENERGY STAR qualified electronic products in their specifications, and are required to by the Energy Policy Act of 2005.

¹ U.S. Department of Energy, December 2004
(<http://www.eere.energy.gov/buildings/info/components/appliances/officeequipment.html>)



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Reduced Materials Use

Using less material, while delivering the same or superior product performance and features, is a win-win situation. Dematerialization is a general trend in the electronics industry, as smaller and multifunction products deliver more performance with less materials or equipment.

Federal purchasers can consider equipment size and components when comparing electronic products with similar functionality. When purchasing printers, facsimiles or scanners, federal purchasers can consider multiple function devices. Integrated devices can use considerable less energy, material, packaging and space than the sum of the individual pieces of equipment.

Reduced Consumables Use

The consumables utilized by electronic products, including paper and ink and toner cartridges, can also have significant environmental and economic costs. Paper and cartridge waste can be recycled, but reducing their initial use can have a greater impact.

Federal purchasers can require electronic products that allow double-sided printing and copying and request that these features be enabled when shipped. Federal purchasers can also require that ink and toner cartridges be reusable and/or recyclable, and that manufacturer warranties not be voided by the use of reused or remanufactured cartridges. Some manufacturers are also offering their own take back services for used cartridges, or managed print contracts which monitor and manage ink and toner cartridge use.

Extendable Product Life

While product upgradability provides environmental benefits by reducing the need to discard older machines and build new products, it also provides a great benefit to purchasers who want to preserve their investments in existing products while upgrading product performance.

Electronics equipped with extra bays and expansion card slots allow for future upgrades. Additionally, many components such as microprocessors and hard disk drives are designed for replacement when new, higher performance components are available. Federal purchasers can require electronic products that are easily upgradeable and can require extended warranties that cover upgraded products.

Designed for Upgrade and Recycling

Some products, like aluminum cans and newspapers, are easily recycled back into similar products, but recycling electronic products is considerably more complicated. In the past, electronic equipment was difficult to upgrade and hard to disassemble for reuse and recycling because it was never designed with these ends in mind. Manufacturers are now designing for the environment, which includes reducing the toxic constituents in products, using more recycled content materials, and designing products to be more easily upgraded and recycled.

Federal purchasers can specify electronics products that are easily upgradeable and “designed for recycling.” There are some manufacturers that still use glues and fasteners, which make repair and upgrade of their products impractical. Electronic products should be designed so that they can be disassembled with universally available tools and with minimal screws, or should use snap-in/snap-out assembly. These features reduce disassembly time when upgrading, repairing or recycling end of life equipment. Some manufacturers use readily recycled metal casings rather than plastic housings, which reduces the need for halogenated flame retardants and increases recyclability. Some manufacturers have reduced the number of material types and parts within their products which not only facilitates product recycling, but reduces manufacture costs as well. Labeling of materials (such as plastic types) used in the electronic products helps make the manual sorting and recovery of secondary materials more efficient. Federal purchasers can also consider requiring extended warranties to cover upgraded products.

Take Back Options

Requiring product take back by the manufacturer provides a good opportunity for reuse and recycling of electronic products. It also can provide a feedback loop to the manufacturer about future product designs, for ease of disassembly and upgradeability.

Many manufacturers and vendors are offering take back services for their products. Some key questions to consider when reviewing these take back services are:

- Are products or parts considered for reuse or refurbished and resold?
- Is the handling and disposition of equipment performed in an environmentally sound manner and in compliance with all applicable laws?
- Where and how is the equipment recycled?
- What are the processes for environmental evaluation of recycling and disposal contractors?
- How do they address issues such as data security, cost, and liability?

Federal purchasers should consider their property regulations and handling procedures, as well as data security procedures, and request product take back if it meets their organization’s needs. Federal purchasers that opt to use manufacturer take back options need to follow due diligence procedures to ensure that equipment is handled in an environmentally sound manner.

Environmentally Preferable Packaging

Although better packaging options are becoming more widely available, electronic equipment may still be packaged in materials that are not reusable, not separable, and not compatible in recycling processes. Glued components and multiple material packaging also impede recycling. Some packaging even contains toxic constituents. Excess packaging is also wasteful, especially since federal purchasers often purchase multiple electronic products at the same time. Paper manuals and disks packaged with each computer often add to this waste.



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Federal purchasers can consider environmentally preferable packaging for electronic products, such as:

- Require that the packaging have no (or reduced) toxic constituents.
- Require that the packaging be reusable and require the manufacturer take back packaging for reuse.
- Require that the packaging use more recycled content.
- Require the packaging to be more readily recyclable and require the manufacturer take back packaging for recycling.
- Require multiple units to be bundled and packaged together (called multipaks) rather than boxed individually.

Federal purchasers can also request that paper manuals and software discs be replaced with online manuals or downloadable software.

Positive Corporate Environmental Policy

The environmental attributes discussed so far pertain directly to a product or product-related service, which is the culmination of many actions taken by a manufacturer. Beyond evaluating the product, federal purchasers can assess the environmental initiatives and performance of manufacturers when selecting a supplier of electronic equipment. This evaluation process can consider a company's overall environmental performance and environmental product performance awards; its worker health and safety record; whether it actively promotes product environmental attributes to federal sector; its in-house programs to measure and track eco-efficiency, emissions, or pollution prevention; and any other innovative environmental or related attribute, such as social responsibility or labor policies.

REFERENCES

The text of Executive Order 13423 and the Implementing Instructions are available at: http://ofee.gov/eo/eo13423_main.asp.

For more information about EPEAT, please see the EPEAT Web site at <http://www.epeat.net/>. The EPEAT Web site includes information about the EPEAT standard, a Product Registry of EPEAT-registered products, and guidance for purchasers and manufacturers.

For non-EPEAT registered electronic products, a Product Environmental Information Sheet (PEIS) can facilitate collection of environmental attribute information. A sample PEIS is available on the FEC Web site at: <http://www.federalelectronicschallenge.net/resources/docs/prodinfo.pdf>.

For more information about bio-based products, please see the U.S. Department of Agriculture's BioPreferred Web site at <http://www.biobased.oce.usda.gov/fb4p/>. The BioPreferred Web site is a resource for producers and purchasers of biobased products.



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For more information about ENERGY STAR, please see the ENERGY STAR Web site at <http://www.energystar.gov/>. The ENERGY STAR Web site includes information about the ENERGY STAR specifications, lists of ENERGY STAR qualified products, and guidance for purchasers and manufacturers.

CONTACT INFORMATION

If you have questions related to this resource or need other assistance with the Federal Electronics Challenge, please contact your Regional Champion. The list of FEC Regional Champions is available at <http://www.federalectronicchallenge.net/champions.htm>.

Partners may also request technical assistance via email to partner@electronicschallenge.net.

FEDERAL ELECTRONICS CHALLENGE

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