Key Environmental Attributes for Electronics Acquisition

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PURPOSE

This document outlines some key environmental attributes to consider when acquiring electronics.

ENVIRONMENTAL ATTRIBUTES OF ELECTRONICS

Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance* and the Federal Acquisition Regulation (FAR) both require that federal agencies and facilities engage in sustainable acquisition.

Executive Order 13514 and the FAR, Part 23, *Environment, Energy and Water Efficiency, Renewable Energy Technologies, Occupational Safety, and Drug-Free Workplace* further mandate that federal agencies meet at least 95 percent of acquisition requirements for electronic products with Electronic Product Environmental Assessment Tool (EPEAT®)-registered products, as well as procure ENERGY STAR® qualified products and Federal Energy Management Program (FEMP) designated products.

In addition to acquiring EPEAT-registered, ENERGY STAR qualified, and FEMP designated office electronics - or when acquiring products not covered by these programs - federal agencies and facilities may consider a variety of environmental attributes, as detailed below.

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
- 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

IMPORTANT NOTE: Many of these criteria are met by EPEAT-registered products, and some of these criteria are met by ENERGY STAR qualified and FEMP designated products.

A Product Environmental Information Sheet (PEIS) can facilitate collection of environmental attribute information. A sample PEIS is available on the Federal Electronics Challenge (FEC) website at: http://www2.epa.gov/fec/product-environmental-information-sheet-electronics-6192012.

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, which can pose a threat to human health and the environment if they are not managed appropriately at the end of their useful life.

Federal purchasers can reduce their organization's environmental footprint by specifying 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 their electronic products. Manufacturers often provide information on the use of banned or restricted chemicals in their product environmental declarations. These declarations may also be available on manufacturers' websites.

Recycled or Biobased Content

The production of virgin materials uses more water, energy and natural resources than the utilization of recycled materials. 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). Utilizing recycled content resin in new electronic products provides essential markets for materials recovered in the recycling system. 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 all be made from recycled content. Additionally, many plastic components can be made from biobased content. Federal purchasers can specify electronic products with post-consumer recycled content material to support markets for materials recovered from recycled electronic products. Federal purchasers may also look for electronic products with biobased plastic materials.

Energy Efficiency

Office equipment uses a large portion of the electricity in commercial buildings in the United States. Energy efficient electronic products reduce power consumption, which has both environmental and economic benefits.

ENERGY STAR is government program to help purchasers identify and purchase energy efficient products in more than 60 categories. ENERGY STAR partners with manufacturers, allowing them to use the ENERGY STAR label to identify products that have been verified as meeting the energy efficiency specifications defined by the program. Federal purchasers must require ENERGY STAR qualified electronic products in their specifications, per Executive Order 13514, FAR Subpart 23.2, the Energy Independence and Security Act of 2007, and the Energy Policy Act of 2005.

FEMP is a government program that develops purchasing specifications to help Federal buyers comply with energy efficiency and low standby power procurement requirements. FEMP specifies requirements for both overall energy efficiency of office electronics, as well as low standby power requirements. Federal purchasers must require FEMP designated products in their specifications, per Executive Order 13514, FAR Subpart 23.2, the Energy Independence and Security Act of 2007, and the Energy Policy Act of 2005.

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 specify electronic products that allow double-sided printing and copying (also known as duplexing) and request that these features be enabled when shipped. Executive Order 13514 requires federal agencies to enable duplexing features on imaging equipment.

Federal purchasers can also specify 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 also offer their own take back services for used cartridges, or managed print contracts which monitor and manage ink and toner cartridge use, which federal purchasers may want to consider.

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 specify electronic products that are upgradeable and can request 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," which may have the following features:

- There are some manufacturers that still use glues and specialized 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 equipment.
- It is important for refurbishers and recyclers to understand which components in the product may require special handling, such as batteries or components with hazardous constituents. Manufacturer documentation can provide needed details on the proper removal, and disposal of materials with special handing needs.
- Metal casings may be more easily recyclable than plastic housings, and can reduce the need for halogenated flame retardants.
- Labeling of materials (such as plastic types) used in the electronic products helps make the manual sorting and recovery of these materials more efficient.
- Some adhesives, coatings, paints, finishes, or pigments that are added to plastic parts may make the plastic unsuitable for recycling. Plastic casing parts should not have additives that are incompatible with recycling.

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?
- Where and how is the equipment recycled?
- Is the manufacturer using third party certified electronics recyclers?

- 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.

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

- Packaging that has no (or reduced) toxic constituents.
- Packaging that is reusable and can be returned to the manufacturer for reuse.
- Packaging that contain postconsumer recycled content.
- Packaging that is readily recyclable and can be returned to the manufacturer for recycling.
- Ability to bundle and package multiple units 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 13514 is available at: http://www.fedcenter.gov/programs/eo13514/.

The FAR is available at: https://www.acquisition.gov/far/.

The text of federal legislation, including the Energy Independence and Security Act of 2007 and the Energy Policy Act of 2005, are available at: http://www.gpoaccess.gov/uscode/.

Information about ENERGY STAR is available at their website: http://www.energystar.gov/.

Information about FEMP is available at their website: http://www1.eere.energy.gov/femp/technologies/procuring_eeproducts.html.

For more information about bio-based products, please see the U.S. Department of Agriculture's BioPreferred Web site at http://www.biopreferred.gov/.

Information about EPEAT is available at their website: http://www.epeat.net/.

CONTACT INFORMATION

If you have questions related to this resource or need other assistance with the Federal Electronics Challenge, please contact your Regional Champion: http://www2.epa.gov/fec/technical-assistance.

Visit the FEC online: http://www2.epa.gov/fec/

E-mail the FEC: fec@epa.gov