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Testimony

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Reform, House of Representatives

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# FEDERAL ELECTRONICS MANAGEMENT

## Federal Agencies Could Improve Participation in EPA's Initiatives for Environmentally Preferable Electronic Products

Statement of John B. Stephenson, Director  
Natural Resources and Environment



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Highlights of [GAO-10-196T](#), a testimony before the Subcommittee on Government Management, Organization, and Procurement, Committee on Oversight and Government Reform, House of Representatives

## Why GAO Did This Study

Advancing technology has led to increasing sales of new electronic devices. With this increase comes the dilemma of managing them at the end of their useful lives. If discarded with common trash, a number of environmental impacts may result, ranging from the loss of valuable resources to the potential release of toxic substances, such as lead. If recycled, they may be exported to countries with waste management systems that are less protective of human health and the environment than those of the United States.

The federal government is the world's largest purchaser of electronics, spending nearly \$75 billion on electronic products and services in 2009. The Environmental Protection Agency (EPA) has helped implement several product stewardship initiatives to encourage responsible management of electronic products in all three phases of a product's lifecycle—procurement, operation, and end-of-life disposal. In response to a request to provide information on federal procurement and management of electronic products, GAO's testimony describes (1) EPA's electronic product stewardship initiatives, (2) federal agency participation in them, and (3) opportunities for strengthening participation. GAO's testimony is based on its prior work and updated with data from EPA. In our prior report, EPA agreed that increasing federal participation in its initiatives could be encouraged. Agency officials still agree with this finding.

View [GAO-10-196T](#) or key components. For more information, contact John B. Stephenson at (202) 512-3841 or [stephensonj@gao.gov](mailto:stephensonj@gao.gov).

## FEDERAL ELECTRONICS MANAGEMENT

### Federal Agencies Could Improve Participation in EPA's Initiatives for Environmentally Preferable Products

#### What GAO Found

Federal government approaches to ensuring environmentally responsible management of electronic equipment from procurement through disposal rely heavily on two interrelated initiatives. The first initiative, the electronic product environmental assessment tool (EPEAT®), was developed along the lines of EPA's and the Department of Energy's Energy Star program and assists federal procurement officials in comparing and selecting computers and monitors with environmental attributes that also routinely save money through reduced energy usage over the products' lives. The second initiative—the federal electronics challenge (FEC)—helps federal agencies realize the benefits of EPEAT-rated electronics by providing resources to help agencies extend these products' life spans, operate them in an energy efficient way, and expand markets for recovered materials by recycling them at end of life.

The first 5 years of EPA's initiatives have resulted in notable energy savings and environmental benefits reported by participating agencies. According to facilities that reported information to EPA and the Office of the Federal Environmental Executive in 2008, 88 percent of all desktop computers, laptop computers, and monitors the facilities purchased or leased were EPEAT-registered. EPEAT participation reportedly resulted in procurement officials purchasing 95 percent of their monitors with Energy Star power management features enabled and 38 percent of computers with this feature. In addition, 16 federal agencies and 215 federal facilities—representing about one-third of all federal employees—participated in the FEC to some extent in 2008. As a result, participants reported that 50 percent of electronics taken out of service were donated for reuse, 40 percent were recycled, 8 percent were sold, and 2 percent were disposed of. The environmentally responsible choices associated with EPEAT and FEC resulted in a reported \$40.3 million in cost savings for participants.

The EPEAT and FEC accomplishments are steps in the right direction, but opportunities exist to increase the breadth and depth of federal participation. First, agencies and facilities representing about two-thirds of the federal workforce are not participating in these promising initiatives, despite instructions to do so in implementing Executive Order 13423. Second, few participating agencies and facilities maximize these programs' resources and their potential benefits. For some, participation simply means the agency identified its current practices for managing electronic products and set goals to improve them. Moreover, as the FEC aims to support participating agencies and facilities, it does not impose consequences for those that do not meet their goals. In fact, only 34 FEC facility partners showed they managed electronic products in 2008 in accordance with FEC goals for at least one of the three lifecycle phases, and only 2 facilities showed they did so for all phases. For perspective, GAO calculated that if federal agencies replaced 500,000 desktop and laptop computers and monitors with EPEAT-registered products and operated and disposed of them in accordance with FEC goals, they could achieve substantially greater energy reductions and cost savings.

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Chairwoman Watson and Members of the Subcommittee:

I am pleased to be here today to discuss findings from our work on federal procurement of environmentally preferable electronic products and ways in which such procurement can lessen the impacts of electronic waste (e-waste) disposal. The federal government is the world's largest purchaser of information technology equipment, annually spending nearly \$75 billion on electronic products and services. Through its purchasing decisions, the federal government has substantial leverage to enhance recycling infrastructures and stimulate markets for environmentally preferable electronic products. Along these lines, the Environmental Protection Agency (EPA) has helped implement several product stewardship initiatives under its Resource Conservation Challenge. These initiatives encourage environmentally responsible management of electronic products from "cradle to grave"—that is, from the initial procurement of environmentally preferable products, to their operation in an energy efficient manner, and finally to their reuse or recycling in an environmentally safe way.

Disposing of e-waste has become an important issue as rapidly advancing technology has led to increasing sales of new electronic products—in particular, computers, monitors, and handheld devices such as cell phones. With this increase comes the dilemma of managing these products at the end of their useful lives. Little information exists, for example, on whether obsolete electronic products are reused, stored, or disposed of in landfills. As we previously reported, if discarded with common trash, a number of adverse environmental impacts may result, ranging from the loss of valuable resources in the electronics such as copper, gold, and aluminum to the potential for harmful substances such as cadmium, lead, and mercury to enter the environment.<sup>1</sup> If donated or recycled, these products may eventually be irresponsibly exported to countries without modern landfills and with waste management systems that are less protective of human health and the environment than those in the United States. In our August 2008 report, we showed that e-waste exported from the United States to developing countries, such as those in Southeast Asia,

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<sup>1</sup>GAO, *Electronic Waste: Strengthening the Role of the Federal Government in Encouraging Recycling and Reuse*, [GAO-06-47](#) (Washington, D.C.: Nov. 10, 2005).

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is often dismantled under dangerous health conditions, using methods like open-air incineration and acid baths to extract precious metals.<sup>2</sup>

Our testimony, which is based on our prior work and updated with data from EPA,<sup>3</sup> provides observations on (1) EPA's electronic product stewardship initiatives, (2) the extent of federal agency participation in them, and (3) opportunities for strengthening participation. Our prior work was conducted in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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## Background

The purchase price of electronic products primarily reflects their technological capabilities; it does not include all of the substantial costs that are incurred throughout the equipment's life. A study by Gartner Research, for example, shows that computers costing less than \$1,000 typically have a total cost of ownership of more than \$5,000 per year when all the energy and maintenance costs are included.<sup>4</sup> Furthermore, the purchase price of electronics does not include the often substantial cost of disposal. Lifecycle costs are high, in part, because electronic products are not always designed to facilitate recycling.

EPA estimates that across the federal government 10,000 computers are disposed of each week. Once such products reach the end of their original useful lives, federal agencies have several options for disposing of them. Agencies generally can donate their reusable equipment to schools or other nonprofit educational institutions; give them to a recycler; exchange them with other federal, state, or local agencies; sometimes trade them

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<sup>2</sup>GAO, *Electronic Waste: EPA Needs to Better Control Harmful U.S. Exports through Stronger Enforcement and More Comprehensive Regulation*, [GAO-08-1044](#) (Washington, D.C.: Aug. 28, 2008).

<sup>3</sup>For updated EPA data, we examined EPA's procedures for accurately entering federal agency- and facility- provided data into its database, synthesizing the data, and using them for any calculations; we also interviewed EPA staff on steps they take to ensure the reliability of the data. We believe the data reported to EPA are sufficiently reliable for the purpose of updating information from our prior work.

<sup>4</sup>"Why is Total Cost of Ownership Important?" John Taylor Baily and Stephen R. Heidt. Darwin Magazine, November 2003.

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with vendors to offset the costs of new products; or sell them through the General Services Administration's (GSA) surplus property program, which sells surplus federal government equipment at public auctions.

Federal agencies, however, are not required to track the ultimate destination of their donated or recycled e-waste. Instead, agency officials generally consider this to be the recipient organization's responsibility. Consequently, they often have little assurance that their e-waste is ultimately disposed of in an environmentally responsible manner. In our prior work, we found that some U.S. electronics recyclers—including ones that publicly tout their exemplary environmental practices—were apparently willing to circumvent U.S. hazardous waste export laws and export e-waste to developing countries. Specifically, we posed as foreign buyers of broken cathode-ray tube computer monitors—which are considered hazardous waste and illegal to export without a permit—in Hong Kong, India, Pakistan, and other countries; and 43 U.S. companies expressed willingness to export these items. Some of the companies were willing to export this equipment in apparent violation of U.S. law. As we showed in our August 2008 report,<sup>5</sup> equipment exported to developing countries may be handled in a way that threatens human health and the environment.

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## Two Promising Initiatives Assist Federal Agencies in Procuring, Operating, and Disposing of Electronic Products in an Environmentally Preferable Manner

As we reported in November 2005,<sup>6</sup> existing federal government approaches to ensuring environmentally responsible management of electronic equipment from procurement through disposal rely heavily on two interrelated EPA electronic product stewardship initiatives. The first, the electronic product environmental assessment tool (EPEAT®), assists federal procurement officials in comparing and selecting laptop computers, desktop computers, and monitors with environmentally preferable attributes. The second, the federal electronics challenge (FEC), helps federal agencies fully utilize the benefits of EPEAT-rated electronics by providing resources to help agencies extend these products' life spans, operate them in an energy efficient way, and expand markets for recycling and recovered materials by recycling them at end of life.<sup>7</sup>

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<sup>5</sup>GAO-08-1044.

<sup>6</sup>GAO-06-47.

<sup>7</sup>FEC is sponsored by EPA and the White House Office of the Federal Environmental Executive.

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EPEAT was developed along the lines of EPA's and the Department of Energy's (DOE) Energy Star program in which the federal government rewards manufacturers of energy-efficient products that ultimately save money and protect the environment by providing them with a label for their products that certifies these benefits. EPEAT-registered products are awarded a bronze, silver, or gold certification for increasing levels of energy efficiency and environmental performance. Using EPEAT, an on-line tool, federal procurement officials can evaluate the design of an electronic product for energy conservation, reduced toxicity, extended lifespan, and end of life recycling, among other things. For example, EPEAT can help agency procurement officials choose electronic products with attributes that make the products easier to upgrade. Some computers are now being built with modular features so that hard drives, processors, memory cards, and other components can be upgraded rather than replaced—thus extending their lifecycles. Agency procurement officials can also use EPEAT to choose among products that are designed to make recycling less expensive, such as those without glues or adhesives, with common fasteners and “snap-in” features, and with easily separable plastic and metal components—making their disassembly easier and recycling less costly. Finally, EPEAT can help procurement officials identify electronic products that contain less hazardous materials, which can also lessen their disposal and recycling costs.

Products with these attributes can, in many cases, save agencies money over the products' lifecycles when compared to those with similar technological characteristics but without environmental attributes. For example, according to one computer vendor, a particular desktop computer with energy-saving attributes cost \$35 more than a similar model that one federal program office had been buying; however, it will save \$15 per year in energy costs. Thus, after slightly more than 2 years of use, the EPEAT-rated desktop computer can save more money in energy savings than the additional increase in purchase price and result in measurable environmental benefits.

Currently, in the electronic products industry, purchasers can choose from 170 desktop computers, 637 laptop computers, and 487 monitors that meet one of the three EPEAT levels of environmental performance. The breadth of EPEAT products provides procurement officials with a range of devices to meet their technology and budgetary needs. For example, agencies have the flexibility to choose liquid crystal display monitors that meet all the required EPEAT criteria as well as numerous optional criteria, such as the lower levels of mercury in light switches and a reduced number of different types of plastics—attributes that can make recycling easier and

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less costly. Agencies can also choose other monitors that meet these and other criteria, including additional reductions in toxic materials, along with end-of-life services such as a take-back and reuse program for packaging material. Of note, these different types of monitors can meet different technology needs, as there are some differences in display characteristics and power consumption.

As we said earlier, federal agencies also have the opportunity to participate in FEC—a program that first relies heavily on EPEAT for procurement considerations and then provides guidance to participants on how to extend electronic product life spans, operate them in an energy-efficient way, and reuse or recycle them at end-of-life. FEC differs from EPEAT in that where EPEAT assists officials in procuring environmentally preferable products, FEC provides participating agencies and facilities with resources to help ensure that electronic products are operated and disposed of in a manner that fully utilizes the environmental attributes of the EPEAT product.<sup>8</sup> FEC has two partner levels: agency and facility. To participate, executive branch agencies or their subcomponents must register.

According to EPA documents, participation can provide agency officials greater assurance that the e-waste they donate to schools, or send for recycling, is ultimately disposed of in an environmentally responsible manner.<sup>9</sup> For instance, in following FEC guidance, participants are to provide recipients of donated equipment with instructions on how to have the equipment recycled responsibly and how to verify that responsible recycling occurs—procedures known as “downstream auditing.” When donating equipment, FEC instructs agencies and facilities to ensure that recipients contact local or state environmental or solid waste agencies to obtain a database of vendors who recycle e-waste once the equipment is no longer useful to the recipient organization.

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<sup>8</sup>Resources include instruction sheets, tips, and checklists, among other things, which participants can choose to use.

<sup>9</sup>If a federal agency or facility chooses to achieve gold-level participation in FEC, it must document that for all electronics recycling it used EPA-preferred recyclers, such as the recycling electronics and asset disposition services, federal prison industries (UNICOR), a manufacturer’s take-back service for EPEAT-registered electronics, or an electronics recycler that the participating agency or facility has conducted a physical on-site review of in the last 3 years.

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FEC also recommends that participating agencies and facilities instruct recipients to avoid arrangements with recyclers that are unable or unwilling to share references and cannot explain the final destination of the e-waste they collect. When recycling equipment, participants are to determine how much electronic equipment the recyclers actually recycle, versus the amount they sell to other parties. If the majority of the incoming e-waste is sold, the recycling facility may be sending a significant amount of e-waste into landfills or for export overseas. In addition, FEC instructs participants to physically inspect potential recycler's facilities. E-waste in trash containers, for example, may indicate that the facility is not recycling it, and the presence of shipping containers may indicate that the facility exports it.

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## Federal Agencies and Facilities Have Increased Participation in EPEAT and FEC in Recent Years

As of December 31, 2008, EPA reported that 16 federal agencies and 215 federal facilities—representing slightly more than one-third of all federal employees—participated in the FEC to some extent. In addition, according to the 128 facilities that reported data to EPA, a majority of electronic products purchased during 2008 were EPEAT-registered. This is a sizeable increase from 2005, when we reported that 12 federal agencies and 61 individual federal facilities participated in FEC. Participating agencies include the Departments of Agriculture, Commerce, Defense, Energy, Health and Human Services, Homeland Security, Interior, Justice, Labor, Treasury, Transportation, and Veterans Affairs, as well as the Environmental Protection Agency, Executive Office of the President, General Services Administration, and the United States Postal Service.<sup>10</sup>

The benefits of federal agency and facility participation in EPEAT and FEC offer a glimpse of what can be attained through greater federal involvement. For instance, in 2008 FEC participants reported to EPA and the Office of the Federal Environmental Executive that 88 percent of all desktop computers, laptop computers, and monitors they purchased or leased were EPEAT registered. In addition, FEC participants reported that they extended computer life spans so that 63 percent of computers had at least a 4-year useful life. Procurement officials reported purchasing 95 percent of their monitors with energy-efficient power management features enabled and 38 percent of computers with this feature. Finally, participants reported that 50

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<sup>10</sup>Some facilities within the Department of State, the Social Security Administration, and the National Aeronautical and Space Administration participate in the FEC, but these agencies have not registered with the FEC signifying participation.

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percent of electronics taken out of service were donated for reuse; 40 percent were recycled; 8 percent were sold; and 2 percent were disposed of. Of those recycled, 95 percent were reportedly done so in an environmentally sound manner. These environmentally preferable choices from “cradle to grave” resulted in \$40.3 million in cost savings reported by participating agencies and facilities, energy savings that EPA found to be equivalent to electric power for more than 35,000 U.S. households for 1 year, and emissions savings equivalent to removing nearly 21,000 passenger cars from the road for 1 year.<sup>11</sup>

Through participation in the FEC, numerous federal facilities have purchased greener electronic products, reduced the environmental impacts of electronic products during use, and managed obsolete electronics in an environmentally safe way. For example, officials with the Bonneville Power Administration within DOE reported to EPA that they adopted several environmentally responsible practices associated with the procurement and operation of electronic equipment. First, administration officials extended the lifespan of agency computers from 3 to 4 years. With over 500 computers procured each year at an annual cost of more than \$500,000, an administration official said that extending computer life spans generated substantial savings. Additionally, Bonneville Power Administration officials procured new flat-screen monitors instead of cathode-ray tube monitors, reducing both hazardous waste tonnage and end of life recycling costs. According to Bonneville Power Administration officials, they expect to save at least \$153 per unit over the life of each new monitor.

EPA’s region 9 facility in San Francisco, California—a 20-story office building that houses nearly 900 EPA employees—also reported achieving substantial environmental benefits through participation in the FEC. The facility’s energy subcommittee recommended an audit, which found that enabling computer and monitor power management features, such as those configuring computer monitors to the “sleep” mode instead of the screen saver mode, could save about 10 percent in total energy usage at no cost. In addition, with funding eliminated for new electronics purchases, region 9 staff reported that they reused 30 percent to 40 percent of existing electronics and extended the average lifespan of computers to 5 years. Finally, region 9 staff stated that they successfully recycled more than 10 tons of electronics that had been

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<sup>11</sup>EPA generated these results using agency- and facility- reported data entered into the agency’s environmental benefits calculator, which was developed to assist organizations in estimating the environmental and economic benefits of “greening” their purchase, use, and disposal of electronics. EPA posted these results on its FEC Web site.

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stored in an offsite warehouse. Although the cost of safely recycling the large quantity of electronics was high and regional staff found it difficult to locate a reputable recycler, EPA headquarters provided funds for the recycling costs and helped find a qualified vendor.

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## Opportunities Exist for More Federal Agencies and Facilities to Join EPA's Initiatives, and Current Participants Can Significantly Strengthen Their Participation

The EPEAT and FEC accomplishments achieved to date are steps in the right direction, but opportunities exist to significantly increase the breadth and depth of federal agency and facility participation. First, agencies and facilities representing almost two-thirds of the federal workforce are not yet participating in these promising initiatives, despite Executive Order 13423.<sup>12</sup> This executive order, signed by the President on January 24, 2007, generally requires that each agency (1) meets at least 95 percent of its requirements with EPEAT-registered products; (2) enables the energy saving features on agency computers and monitors; (3) establishes and implements policies to extend the useful life of agency electronic equipment; and (4) uses environmentally sound practices with respect to disposition of agency electronic equipment that has reached the end of its useful life. To implement these requirements, the Office of Management and Budget directed each agency and its facilities to either become a partner in the FEC or to implement an equivalent electronics stewardship program that addresses purchase, operation and maintenance, and end-of-life management strategies for electronic assets consistent with FEC's recommended practices and guidelines.

Second, most of agencies and facilities that participate do not fully maximize these programs' resources or the environmental benefits that can be achieved. While we acknowledge the efforts of FEC participants, the FEC statistics on participation may overstate these participants' adherence to the goals of the program, and their successes must be taken in context. Participation by 16 agencies and 215 facilities (representing slightly more than one-third of federal employees), for example, does not mean that all electronic products they purchase are procured, operated, and recycled or reused at end of life in an environmentally preferable fashion. Instead, participation simply means these agencies have identified their current practices for managing electronic products and set goals to improve them. Moreover, as the FEC is an initiative aimed to encourage

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<sup>12</sup>Executive Order 13514, "Federal Leadership in Environmental, Energy, and Economic performance," Oct. 5, 2009, reiterates the requirement that agencies purchase EPEAT-registered electronics.

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and support participating agencies and facilities, it does not impose consequences on those agencies who do not meet their goals. As a practical matter, only 34 FEC facility participants (16 percent of participants) reported to EPA that they managed electronic products in accordance with FEC goals for at least one of the three lifecycle phases—procurement, operation, or disposal—with only 2 facilities showing they did this for all three phases in 2008.<sup>13</sup>

The need for increased federal participation in these initiatives—in both breadth and depth—is further underscored by the federal government e-waste that continues to appear in online auctions and may subsequently end up overseas. As we reported in August 2008,<sup>14</sup> significant demand exists for used electronics from the United States. We observed thousands of requests for such items on e-commerce Web sites—mostly from Asian countries, such as China and India, but also from some African countries. In our prior work, we showed that these countries often lack the capacity to safely handle and dispose of e-waste, as disassembly practices in these countries often involve the open-air burning of wire to recover copper and open acid baths for separating metals. These practices expose people to lead and other hazardous materials. In the several weeks leading up to this hearing, we monitored an e-commerce Web site where surplus federal government equipment is auctioned and found nearly 450,000 pounds of cathode-ray tube monitors for sale—items that, based on our prior work, have a high likelihood of being exported.

For perspective, using EPA’s environmental benefits calculator<sup>15</sup> we calculated the benefits that would result under a hypothetical scenario in which federal agencies replaced 500,000 desktop and laptop computers and computer monitors using EPEAT procurement criteria for each tier of environmental performance—bronze, silver, and gold. As part of this calculation, we added the environmental benefits attained if federal agencies operated all EPEAT units in an energy efficient manner (i.e., enabled Energy Star features) and reused and recycled the end-of-life

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<sup>13</sup>Two facility participants from two agencies received an FEC gold award; 10 facility participants from five agencies received an FEC silver award, and 18 facility participants from seven agencies received an FEC bronze award.

<sup>14</sup>[GAO-08-1044](#).

<sup>15</sup>EPA’s environmental benefits calculator was developed to assist organizations in estimating the environmental and economic benefits of “greening” their purchase, use, and disposal of electronics.

electronics they replaced in accordance with FEC goals. We found that substantial energy savings and environmental benefits would result at all three EPEAT tiers. Specifically, greater participation could lead to environmental benefits 5- to 10-times greater than the accomplishments of FEC participants in 2008 described earlier. Additionally, if federal agencies were to purchase EPEAT-bronze, silver, or gold products, according to the EPA environmental benefits calculator, they would save approximately \$207 million at each level of EPEAT performance in energy usage and realize other cost, waste, and emissions reductions over the useful lives of these products. Table 1 shows the net energy savings and reductions in raw material extraction, greenhouse gas emissions, and toxic materials that would result if agencies and facilities recycled electronic products and replaced them with EPEAT-rated units, as compared to non-EPEAT computers and monitors.<sup>16</sup>

**Table 1: Environmental Benefits of Agencies Procuring Computers and Monitors that Meet EPEAT’s Bronze, Silver, or Gold Level of Environmental Performance and Operating and Disposing of Them in Accordance with FEC Goals**

|                     | Reduction in Energy Usage (kWh) | Reduction in Raw Material Extraction (kg) | Reduction in Greenhouse Gas Emissions (kg) | Reduction in Toxic Materials (kg) |
|---------------------|---------------------------------|---|--|-----------------------------------|
| <b>EPEAT-Bronze</b> |                                 |   |  |                                   |
| Procurement         | 383,000,000                     | 685,000,000                               | 72,800,000                                 | 41,500                            |
| Operation           | 1,010,000,000                   | 1,750,000,000                             | 192,000,000                                | 2,540                             |
| Disposal            | 794,000,000                     | 10,800,000                                | 42,400,000                                 | 8,310                             |
| <b>Bronze Total</b> | <b>2,187,000,000</b>            | <b>2,445,800,000</b>                      | <b>307,200,000</b>                         | <b>52,350</b>                     |
| <b>EPEAT-Silver</b> |                                 |   |  |                                   |
| Procurement         | 388,000,000                     | 686,000,000                               | 73,000,000                                 | 41,500                            |
| Operation           | 1,010,000,000                   | 1,750,000,000                             | 192,000,000                                | 2,540                             |
| Disposal            | 794,000,000                     | 10,800,000                                | 42,400,000                                 | 8,310                             |
| <b>Silver Total</b> | <b>2,192,000,000</b>            | <b>2,446,800,000</b>                      | <b>307,400,000</b>                         | <b>52,350</b>                     |
| <b>EPEAT-Gold</b>   |                                 |   |  |                                   |
| Procurement         | 393,000,000                     | 687,000,000                               | 73,300,000                                 | 41,500                            |
| Operation           | 1,010,000,000                   | 1,750,000,000                             | 192,000,000                                | 2,540                             |
| Disposal            | 794,000,000                     | 10,800,000                                | 42,400,000                                 | 8,310                             |
| <b>Gold Total</b>   | <b>2,197,000,000</b>            | <b>2,447,800,000</b>                      | <b>307,700,000</b>                         | <b>52,350</b>                     |

Source: EPA environmental benefits calculator.

<sup>16</sup>In addition, procurement using EPEAT criteria would lead to substantial reductions in emissions to air and water, as well as to the solid waste stream.

To help agency officials put in context the environmental and economic benefits that can result from using environmentally preferable electronic products, the EPA environmental benefits calculator also shows the benefits of procurement, operation, and disposal in accordance with FEC goals using common equivalents. Table 2 shows the environmental benefits of these practices when measured as the amount of household energy usage saved annually and the volume of automobile emissions saved annually.

**Table 2: Common Equivalents to the Environmental Benefits of Procuring, Operating, and Disposing of Computers and Monitors in Accordance with FEC Goals**

|              | Number of U.S. Households' Energy Usage Saved | Number of Passenger Cars Off Roadways |
|--------------|---|---------------------------------------|
| EPEAT-Bronze | 182,796                                       | 206,257                               |
| EPEAT-Silver | 183,151                                       | 206,349                               |
| EPEAT-Gold   | 183,570                                       | 206,543                               |

Source: EPA environmental benefits calculator.

## Concluding Observations

Understandably, when procuring electronics in a challenging fiscal environment, agency officials may give greater weight to price than environmental attributes. However, many of the environmental and human health problems associated with e-waste disposal can be averted through environmentally preferable procurement. Using EPEAT to purchase environmentally-friendly products, agency purchasers can often simultaneously meet their technology needs, benefit the environment, and realize dollar savings over the products' life. Using the success of the Energy Star program as a precedent, the federal government has taken steps to encourage environmentally preferable choices. We also applaud federal agency and facility donation and recycling practices for providing valuable learning tools to thousands of school children while, at the same time, providing at least some protection against their equipment ending up in landfills or overseas. Such programs have also demonstrated that relatively simple and inexpensive steps can help ensure that donated and recycled e-waste is ultimately managed in a responsible manner. In particular, the FEC provides a framework through which participants can help ensure responsible recycling through downstream auditing of recipient organizations' disposal practices and by following guidance on how to select responsible recyclers. The federal government has the opportunity to lead by example and to leverage its substantial market power by broadening and deepening agency and facility participation in

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EPA electronic product stewardship initiatives, but meaningful results will only occur if federal agencies and facilities fully participate and utilize these promising initiatives' resources.

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Ms. Chairwoman, this concludes my prepared statement. I would be happy to respond to any questions that you or other Members of the Subcommittee may have at this time.

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## Contact and Staff Acknowledgements

Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. For further information about this testimony, please contact John Stephenson, Director, Natural Resources and Environment at (202) 512-3841 or [stephensonj@gao.gov](mailto:stephensonj@gao.gov). Key contributors to this statement were Steve Elstein (Assistant Director), Nathan Anderson, Elizabeth Beardsley, Alison O'Neill, and Vasiliki Theodoropoulos.

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## Public Affairs

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