

**Recommendations to the  
Office of the Governor and the  
Mississippi Legislature on the  
Recycling Electronics and Asset Disposition  
(READ) Services**



**By  
the READ Study Committee**

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## Executive Summary

In the 2009 Regular Session of the Mississippi Legislature, Senate Bill 2796 was adopted to establish a process for developing a policy on the recycling and asset disposition of obsolete or used electronic inventory from state agencies and institutions. The goals of the state policy are to:

- (a) Achieve the maximum possible benefit from use of state agency-owned electronic equipment;
- (b) Ensure a data security process that prevents the inadvertent release of sensitive state-owned electronic information to unauthorized parties during the disposal process;
- (c) Achieve maximum benefit from sale and/or recycling of surplus state agency electronic equipment; and
- (d) Protect the public health, safety and the environment by mandating that steps be taken to address the solid waste management of electronic equipment and solid waste statewide.

The Bill 2796 directed the executive directors of the Department of Finance and Administration (DFA), the Office of the State Auditor (OSA), the Department of Environmental Quality (DEQ), and the Department of Information Technology Services (ITS) to appoint an individual from each agency to comprise a Recycling and Asset Disposition (READ) Study Committee. The Legislature further directed that the Committee develop and provide to the Legislature and the Office of the Governor recommendations regarding a policy for READ Services to the agencies of the state by November 1, 2009. The Legislature required that the policy address, at a minimum, the following information:

- (a) Requirements for certification that any and all data and software have been removed from the electronic equipment in accordance with the State's *Enterprise Security Policy Technical Document* entitled "Disposal of Hardware" (PSG 100-09.14), along with recommendations for contractual services or equipment as related to data security;
- (b) Provisions for extending the useful life of electronic equipment by maximizing reuse of such equipment by other state agencies;
- (c) Provisions for donation of electronic equipment to public schools, local governments or other nonprofit organizations under certain defined circumstances;
- (d) Regulations and recommendations for logistical/inventory support, management and technical support, and a valuation process of READ Services as related to state agency-generated electronic equipment surplus property;
- (e) Recommendations for funding the READ Services for state agency-generated electronic equipment surplus property; and
- (f) Recommendations related to the environmental considerations for the safe disposal of hazardous components contained in obsolete electronic equipment.

After several months of study and review, the Study Committee developed recommendations to address the responsible acquisition, management, and disposal of electronic assets by state agencies, as directed in Senate Bill 2796. These recommendations are grouped into three

categories: (1) the effective acquisition and management of state agency electronic resources; (2) the secure and responsible disposal of electronic devices and storage media containing data; and (3) the appropriate reuse and recycling of electronic equipment, including electronic waste, to maximize asset value. Recommendations for each category are summarized below:

**1. Effective acquisition and management of state agency electronic resources: DFA, with input and review by ITS, DEQ, and OSA, shall develop and distribute a decision making policy and matrix for state agencies and institutions that shall incorporate best practices for purchase and acquisition, use and management, and recycling and disposal requirements and options for electronic wastes;**

- The management options in the policy and matrix shall include extended life or use of the equipment, donations, timely transfer to the Office of Surplus Property (OSP), pre-auction sale to non-profits, and contracted recycling of the electronic product.
- Each state agency and institution shall, where feasible, include extended warranty and additional capacity with the initial purchase, rather than upgrading later in the lifecycle, if these practices meet the business needs of the agency;
- Each state agency and institution shall develop and adhere to the standard policy for the acquisition, use, and disposal of electronic equipment that incorporates applicable best practices and maximizes the benefit from expenditures for this equipment over the entire lifecycle;
- Each state agency and institution shall establish a standard cycle for replacement of agency personal computers (PCs) and peripherals according to that agency's needs;
- Each state agency and institution shall redistribute computers within the agency, from power users to business users, where applicable;
- Each state agency and institution shall plan equipment purchases to minimize unit costs and promote standard configurations across the agency;
- Each state agency and institution shall synchronize hardware replacements with significant software upgrades where possible;
- Each state agency and institution shall develop a protocol for sharing peripherals where practical;
- Each state agency and institution shall establish energy management policies and guidelines for the purchase and use of electronic equipment;

**2. Secure disposal of electronic devices and storage media: ITS shall continue dissemination and promote full implementation of the state's *Enterprise Security Policy*.**

- Each state agency and institution shall develop a policy that facilitates the immediate disposition of electronic equipment no longer needed by the agency.
- Each state agency and institution shall follow the disposal decision matrix and complete the required Letter of Certification of Disposal for any electronic media containing data;
- Each state agency and institution shall review and understand the requirements for disposal in the state's *Enterprise Security Policy*;
- The state contract developed and implemented as recommended in item 3 below shall contain provisions for state contractors to operate in a manner consistent with the state's

*Enterprise Security Policy Technical Document* entitled “Disposal of Hardware” (PSG 100-09.14).

3. **Appropriate reuse and recycling of electronic equipment:** ITS and/or DFA should establish a statewide contract for electronic equipment disposal services that will appropriately address data security, continued use, recycling and maximization of asset recovery.
- The Department of Finance and Administration’s (DFA) Office of Surplus Property (OSP) shall continue to serve as a clearinghouse under the contract for obsolete state agency electronics.
  - Where agencies or institutions generate large amounts of electronics wastes, the state contract should allow for direct collection from that agency or institution by the contractor.
  - The state contract should include provisions that require legitimate recycling of the electronic equipment collected and that prevent overseas shipment of the equipment where such shipment cannot be documented as going to a valid recycling activity or facility.
  - OSP should evaluate the option of providing some disposal services in-house (e.g. hard drive destruction) as opposed to being included in the contractual services.

The basis for these recommendations will be further explained in the contents of this report.

## **Committee Process**

As directed in Senate Bill 2796, 2009 Regular Session, the executive directors of the Department of Finance and Administration (DFA), the Office of the State Auditor (OSA), Department of Environmental Quality (DEQ), and Department of Information Technology Services (ITS) appointed an individual from each agency to comprise the Recycling and Asset Disposition (READ) Study Committee. Other staff members from these agencies also participated in the Committee meetings to provide subject matter expertise as needed.

The Committee's organizational meeting was held in June 2009. The group's activities focused initially on understanding the manner in which obsolete electronic products are currently managed and disposed of by state agencies and institutions. In reviewing this process, the Committee developed a flow chart diagram that reflected the optimum decision-making process in managing such electronic equipment by state agencies and institutions. Upon developing an initial understanding of the existing management conditions, the Committee began to focus on the research of other states' policies and approaches to disposition of state-generated obsolete electronic equipment; the scope of vendor services available for recycling and refurbishing electronics and for removal of data from storage media; and the regulations and policies of each of the participating agencies on the Committee as they relate to disposal of electronic equipment.

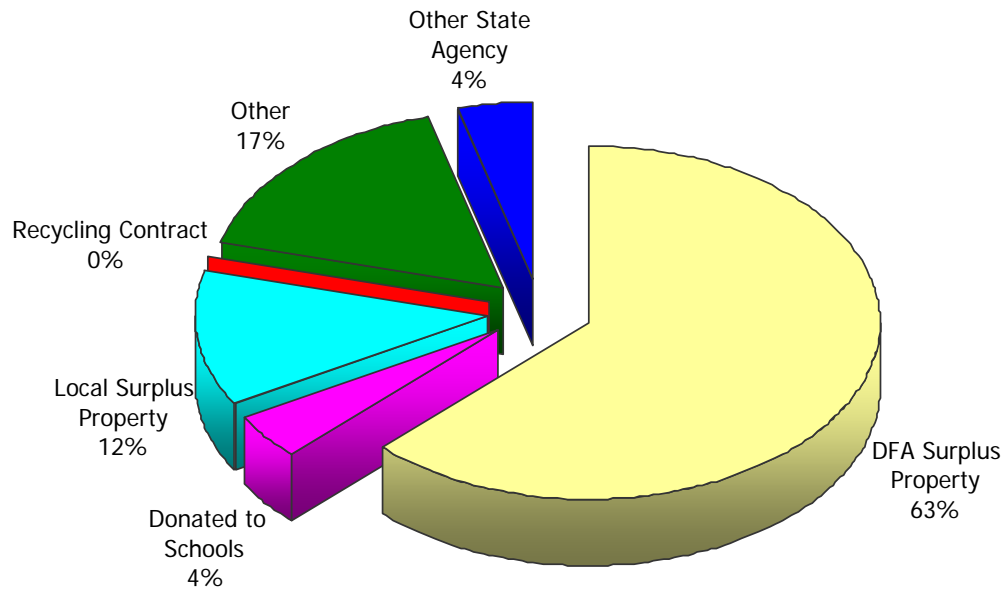
The Committee met several times with representatives from DFA's Office of Surplus Property and toured their facilities to gain an understanding of their processes, procedures, revenue, and overall business model. The Committee talked with Surplus Property representatives about the possibility of new services from Surplus Property or the outsourcing of services to supplement services provided by Surplus Property.

The Committee invited three electronics recycling companies (e-cyclers) to make presentations on the scope of services provided by their companies, including information on their business models and recommendations for best practices related to the disposal of electronic equipment. Following these presentations, a survey was developed and distributed to ascertain both the current policies and practices of state agencies and institutions of higher learning for disposal of electronic equipment and the receptiveness of these entities to the use of a state contract for various types of services offered by E-cycling vendors. The results of that survey are summarized in the next section of this report and are further included in Appendix B.

## **Current Methods of Handling Obsolete Electronics**

A survey was conducted by the Committee to ascertain the predominant method(s) that state agencies and IHLs currently employ to dispose of their obsolete electronics. The survey also addressed options that the agencies may be willing to employ to improve methods of managing obsolete electronic equipment. According to the results of this survey, most state agencies and IHLs appear to utilize the services of DFA's Office of Surplus Property to manage obsolete electronic equipment. Local surplus auction sales, those conducted by the agency or institution, appear to be the next popular method to dispose of obsolete electronics. Donations to schools

and other state agencies and IHLs do not appear to be popular methods of handling obsolete electronics. Some other methods that state agencies and IHLs tend to use include internal salvaging of equipment for parts and disposal through a local recycling center. Figure 1 summarizes the current methods of disposing obsolete electronics as reported through the survey of state agencies and institutions of higher learning.



**Figure 1.** Current Disposal Methods for Obsolete Electronics

To verify the results from the survey, information was gathered from the Office of the State Auditor concerning the disposal of equipment at all state agencies and universities for the months of July, August, and September 2009. The data was collected from the state master inventory database and keyed on the words “computer” and “printer.” The disposal methods of these types of equipment are listed in Table 1 below.

**Table 1.** Disposition of computers and printers July-September 2009

<b>Disposition</b>	<b>Computers</b>	<b>Printers</b>
Salvaged (Local Surplus Auction)	969 (33%)	279 (26%)
Transfer to Other State Agency	104 (4%)	5 (<1%)
Transfer to Local Government	306 (10%)	3 (<1%)
Transfer to University	11 (<1%)	2 (<1%)
Transfer to Surplus Property	879 (30%)	208 (19%)
Other	684 (23%)	579 (54%)
Total	2,953	1,076

As this table shows, the majority of computers and printers being removed from the state inventory are disposed primarily through local surplus property auctions or DFA’s Office of

Surplus Property. The data also demonstrates that state agencies and universities are transferring surplus equipment to local governing authorities, other state agencies, and/or other universities; however, only minimal amounts of the electronics are handled in this manner. The logistics of these transfers have been coordinated between the entities rather than through the Office of Surplus Property. State law prohibits the direct donation of state-owned equipment to private companies or non-profit entities. Equipment should be available for transfer to governmental entities only. However, provisions already exist for non-profit organizations to purchase equipment through DFA's Office of Surplus Property, for a minimal fee, prior to the equipment being made available for sale to the general public at auction.

## **Effective Acquisition and Management of State Agency Electronic Resources**

Senate Bill 2796 directs the Study Committee to consider policy for maximizing the benefit from state-owned electronic equipment and to document provisions for extending the useful life of electronic equipment by maximizing reuse of such equipment by other state agencies. As the majority of obsolete electronic equipment disposed of by state agencies and institutions consists of computers and computer peripherals, and as this equipment typically has the largest potential for reuse, the Committee focused on computer equipment in its research and discussions on maximizing the benefit from the State's equipment expenditures.

The Committee considered best practices for reducing cost and extending the usefulness of computer equipment for the procuring agency as well as for maximizing the lifecycle of the equipment through reuse by other public entities. Because agencies differ significantly in their computing requirements and budgets, not all recommendations are applicable to every agency. The Committee strongly recommends that each agency and institution develop and adhere to a standard policy for the acquisition, use, and disposal of computer equipment that incorporates applicable best practices and maximizes the benefit from expenditures for this equipment over the entire lifecycle.

The Committee recommends that each agency establish a standard cycle for replacement of agency PCs and peripherals, based on the true business requirements of each category of end-user. Based on current technology, the majority of agencies should be able to utilize personal computers for a minimum of four to five years before replacement. Both longer and shorter replacement cycles, either by agency or by category of user within an agency, should be documented with appropriate justification. Each policy should also address standard cycles for global replacement of monitors, as monitors may often have a longer useful life than CPUs (central processing unit).

To obtain the lowest unit cost for computer replacements, agencies that have the budget flexibility to do so should aggregate purchases and replace all units at the same time. Maximizing the quantity per purchase not only minimizes unit costs but also promotes standard configurations across the agency, facilitating support throughout the product lifecycle. Purchasing some number of extra machines in the initial acquisition, based on agency forecasts



of additional needs during the product lifecycle, also reduces unit costs and promotes consistency throughout the agency.

Agencies who cannot replace all computers at once, due either to budget or staff support constraints, should consider establishing a manufacturer standard through a competitive procurement process, as defined in Section 019-030 of the *ITS Procurement Handbook* (Appendix E). Establishing a manufacturer standard promotes consistency across the agency and simplifies support.

Agencies should conduct an adequate needs and cost analysis to determine what to include with the initial purchase. Purchasing extended warranty and additional capacity on the front end, rather than upgrading later in the lifecycle, is always less costly per unit. However, purchasing capacity or support that will not be needed is obviously wasteful. Specifications for devices should be carefully considered, driven by the business needs for each category of user, and should leave room for expansion when appropriate.

When possible, agencies should synchronize the timing of hardware replacements with significant software upgrades to obtain the best performance and to minimize staff support and costs during rollout of new technologies.

Between replacement cycles, agencies can use other mechanisms to extend the life and/or reduce the cost of agency computing. Agencies may consider using shared external devices to meet needs arising from new peripheral formats or niche requirements. For example, one agency extended the lifecycle of its PCs by purchasing a limited number of shared external DVD writers for users who needed this functionality in addition to the CD drives in the standard agency configuration.

Another best management practice followed by several state agencies involves the careful analysis of the needs of “power users,” such as software developers and CADD users, versus standard business users and the internal reuse of the “power” machines to business users as part of the replacement lifecycle. This internal reuse of “power machines” by appropriate business users in an agency can save those resources that would normally be used to acquire new equipment for that same business use.

In addition to internal reassignment of computers to prolong their useful life, agencies should establish a policy for the external disposal of computers that no longer meet the agency’s needs. Recommended options include:

- Donations to other public entities;
- Local auction of equipment, as permitted by statute;
- Transfer to DFA’s Office of Surplus Property;
- Recovery and re-use of computer components in other agency needs

To maximize any residual value or usefulness, agency policy should establish a timeframe for disposal of unneeded equipment. Unless equipment’s only remaining usefulness is for harvest of

useful parts or components, unneeded equipment should not be stockpiled but should be disposed of as soon as possible to maintain the useful life for another agency.

## **Secure Disposal of Electronic Devices and Storage Media**

Senate Bill 2796 included a directive for the Committee to consider measures to prevent the inadvertent release during the disposal process of sensitive information stored on computers and other devices. The appropriate method for disposal of storage media should be based on the classification of data maintained by the agency and/or the specific end user. Agencies should be required to review and adhere to the state's *Enterprise Security Policy Technical Document* entitled "Disposal of Hardware" (PSG 100-09.14) (Appendix A) that specifically addresses proper disposal of equipment and ensures that the agency's disposal process meets policy requirements and protects state information assets.

Agencies pursuing the disposal of computers and other electronic equipment, specifically equipment or devices containing storage media, should follow the disposal decision flow chart (Appendix C) for determining the proper disposal method for the specified electronic device(s) according to its data classification. Agencies should follow these procedures and be required to prepare and submit a Letter of Certification of Disposal (Appendix D) for any computer or other electronic storage media disposals external to the agency. The Letter of Certification places the responsibility for ensuring that data has been removed in the appropriate manner with the agency that acquired and used the equipment. As stated above, the appropriate disposal mechanism is driven by the classification of agency data that was stored (or potentially stored) by the end user. Section 8.0 of the *Enterprise Security Policy* (Appendix A) contains guidelines state agencies should use in classifying information based on the level of confidentiality and sensitivity. While the initial determination regarding the classification of data and the physical overwriting or destruction of media should be performed by the agency's chief information officer, the agency executive director must hold this person accountable and assume ultimate responsibility for the secure disposal of sensitive information on electronic media.

The Letter of Certification of Disposal was mutually developed by ITS and DFA and implemented by DFA in Fiscal Year 2008 for delivery of any equipment to the Department of Finance and Administration's Office of Surplus Property. The authorized individual in an agency, preferably someone in an executive management role, must certify that all data media have been securely erased or destroyed prior to disposal, attaching a list of property and serial numbers for each device included in the disposal. Surplus Property will not accept delivery of computer equipment without this Letter of Certification of Disposal signed and dated by the authorized staff within the agency. Agencies should prepare this certification for any equipment with storage media that is disposed of outside the agency and should maintain copies of this certification with their other disposal documentation for audit purposes.

In order to assist agencies with meeting the required removal, disposal, or destruction criteria, a statewide contract for electronic equipment disposal services should be established and made available to state agencies and institutions as well as local governing authorities (i.e. cities, counties, school districts). These contracts should provide competitively priced disposal services

that meet state legal, procedural, and policy requirements and allow the state entities to contract for these services instead of hiring additional resources, training staff, and/or purchasing equipment or software. The Department of Finance and Administration's Office of Surplus Property would continue to serve as a clearinghouse under the contract for the state agency electronics. However, where agencies or institutions generate large amounts of electronics wastes, the state contract should allow for direct collection from that agency or institution by the contractor(s).

The Department of Finance and Administration's Office of Surplus Property should evaluate the option of acquiring equipment to perform certain functions/services that may be required as a result of these recommendations or as required by any of the attached documents. These services should only be sourced in-house if they can be provided at a cost that is competitive to the market place while also generating enough revenue to cover costs for Surplus Property.

## **Appropriate Reuse and Recycling of Electronic Equipment**

Like many solid waste streams in Mississippi, the best manner to handle obsolete electronic devices is through the three R's of waste reduction which, in order of importance are: Reduce, Reuse, and Recycle. While Senate Bill 2796 specifically addresses reuse and recycling of obsolete electronics, the most significant environmental impact can be made when all three R's are implemented.

### ***Reduce***

Reducing electronic equipment waste can include several different opportunities. It may mean lengthening the amount of time between equipment replacement and upgrades. For example, a State agency currently replacing computers once every three years may extend to a five-year rotation, with the associated cost and resource savings. However, extending the rotation time for replacing computers is not the only option. Agencies could also purchase only new CPUs and continue to use older monitors, keyboards, mice, and other peripherals that have negligible impact on computer performance. For agencies with sufficient information technology staff, another option may be to purchase new motherboards, processors, and/or memory as necessary to extend the life of computers instead of purchasing whole CPUs. In all of these examples, each State agency would begin generating less obsolete electronics with each subsequent purchase cycle. Two other methods for reducing the amount of obsolete electronics could be through consolidation of multiple computer servers into a single server through virtualization and reducing the number of printers in individual offices by deploying high capacity network printers over personal printers at each workstation.

However, reducing the amount of waste electronic components generated is not the only area in which best management practices can result in reduction of electronic waste. The reduction of electricity usage by electronic components can also be achieved through best management practices. Many standard household and office appliances use electricity continuously even when turned "off." Many computers and printers when switched "off" can continue to use 5-15 watts per hour. Other electronics such as televisions, microwaves, coffee makers and cell phone chargers continue to use power as well. One method of reducing this power usage is to connect

these types of devices to a power strip that has a “hard-off” switch that will keep electricity from flowing to these devices when not in use. Optimization of power management can save in the range of \$75 to \$90 per year per device, a significant savings when factored across all devices currently in use in state government.

Other methods of controlling the amount of electricity used by state-owned computers and electronics could include a statewide mandate that all agencies deploy and maintain electronics with the highest amount of power-saving features enabled. In addition, further savings could be realized if the State were to purchase computers which were Energy Star certified. It is recommended that state agencies be made better aware of the Federal programs, EPEAT and Energy Star ratings, when selecting electronic products. Energy Star rated products typically consume 20% less electricity than their standard counterpart. In addition, to the Energy Star savings, EPEAT rated computer products must be manufactured and shipped with environmentally friendly practices in mind. EPEAT ratings also indicate that the manufacture of the electronic product is conducted in a manner that reduces heavy metal content in the product, marks plastics in the product for easier resin identification, bans the use of certain flame retardants on the product and indicates the amount of recycled content in the product and the product’s packaging.

### ***Reuse***

A primary component of Senate Bill 2796 appears to be to promote the reuse of state-owned computers within each State agency and from one agency to another. As Table 1 illustrates, a very small percentage of state-owned computers and printers are being reused by other state agencies or local governments. Perhaps the largest driving factor for the small percentage of obsolete electronics being reused by state agencies has been the steady improvements in the manufacturing processes of electronic products, allowing for higher performance computers at lower costs. These cost declines may have allowed many of the smaller state agencies that have not historically had the budget for modern computers and electronics to be able to afford more modern equipment.

Another possible hindrance to the reuse of computers by other agencies through the Surplus Property program could be the inability to determine and/or guarantee that surplus units are fully operational. Currently, Surplus Property does not have the needed resources or the time to test and verify the working condition of the various electronic assets they receive. However, there are several electronic recycling companies that have been built on the principle of testing and/or rebuilding older units for resale. If one or more of these companies were contracted to refurbish state electronics for redeployment at any state agency, it may be possible to provide state agencies with computers and other electronics at a price below retail for comparable units.

From an environmental standpoint, issues may exist with Office of Surplus Property sales of computers and electronics. Perhaps the most significant issue is that selling surplus electronics could be viewed as violating the Resource Conservation and Recovery Act (RCRA) in regards to hazardous waste handling and disposal if the subject electronics are disposed of improperly. Specifically, if nonworking computers are purchased by individuals at the surplus auctions, the individual would be able to discard the computers with his/her household garbage while the state

agency generating the waste would have been required to document, transport, and discard the lot of computers as hazardous waste.

The Committee recommends that the state consider disposal options other than the continued sale of computer equipment through OSP auctions. The Committee also recommends that electronic equipment not purchased by a government entity within the item's shelf life (as defined in Recommended Disposal Process) be transferred to a recycler with the appropriate certifications regarding down-stream recycling or resale of the equipment.

If the State decides to continue the sale of electronics through surplus auctions, then a change in the manner in which the electronics are handled appears necessary. First, the sale of electronics should be restricted to known working units. This will allow OSP to document that the purchasers are receiving working, reusable products and not waste material. Another benefit could be that if the purchasers know that all units are in working order, a higher price could be obtained at the auction. This could be accomplished if Surplus Property is able to hire one or more computer service technicians to inspect, test, and separate the incoming electronics into working and nonworking categories. The working devices would go to auction while the nonworking would be held until a quantity sufficient for processing by an electronics recycler has been collected. Another benefit of this method would be that the computer technician(s) would insure that all hard drives (and other storage media) are either removed or properly cleaned before working computers are sold.

### ***Recycle***

As mentioned in the Reuse section above, the committee recommends that consideration be given to restricting the state's surplus sale of electronics to only working units. This requirement would mean that a system would need to be developed for handling the nonworking units. The Federal Resource Conservation and Recovery Act (RCRA) restricts the disposal of many electronics due to common toxic substances such as lead (4-6 lbs in each modern cathode ray tube), mercury (in many LCD displays), and cadmium (often found in laptop and cell phone batteries), to name a few. However, many of the transportation and documentation requirements of RCRA are waived if these devices are recycled instead of being disposed.

Electronics can contain a significant amount of recyclable metals such as steel (from the cases), aluminum (heat sinks, cases), copper (wires, circuit board traces), silver (circuit board traces, connectors), gold (circuit board traces, connectors, IC chip pins), and platinum (IC chips). Many of these metals are precious and semiprecious metals that are expensive, both monetarily and environmentally, to mine and refine. Bauxite (aluminum ore) and gold mining are almost exclusively restricted to mines in third world countries which are not held to the same environmental standards as domestic mines. In addition to reducing the need to mine metal ores, recycling of each of these metals require a fraction of the energy required to refine its respective ore. For example, recycling aluminum requires about 5% of the energy required to refine bauxite and recycled steel requires about 20% of the energy required to transform iron ore into steel. In addition to the conservation of materials and energy through reclaiming these metals, the metals are extremely valuable with gold and platinum trading for over \$900 and \$1100 per troy ounce, respectively. In 2001, the U.S. Geological Survey estimated that about 0.002% of the weight of electronic scrap is some type of a precious metal. In Table 1, there were 1,848

computers either salvaged or sent to Surplus Property. Using the USGS precious metal weight estimate and gold prices above, these 1,848 computers could contain as much as \$10,000 worth of precious metals. This amount would increase if the value of the steel, aluminum, and copper contained in the computers were included.

Although there is value in some of the recyclable materials and components of electronics, most of these materials in electronic products are not readily recyclable. The most readily recyclable materials in electronics are the metal frames for cases which are often made of steel or aluminum. The plastics used in electronics, while easily separated from other components, are difficult to recycle due to the brominated flame retardants that have historically been applied to the cases. The precious metals in electronics are often found in the thin layers of integrated circuit chips, as the traces on printed circuit boards, and/or thinly plated on connectors of expansion boards and peripheral cables. Because of this construction, most precious metals are removed from the various electronic components through a grinding process. The separation of each material from the grindings is routinely handled by an automated process based on the density of each material. This separation activity requires a large capital investment by the recycler and often requires the processing of thousands of pounds of material in order to recover the costs of collection and processing.

One method that has been employed by some recyclers has been to bypass this expensive separation process in the U.S. and ship the electronic material overseas for processing in more primitive methods such as open burning to retrieve the precious metals. The open burning of electronics has been documented to generate locally high levels of dioxins which are known to cause birth defects and are suspected of being carcinogenic. Because of the capital costs involved in properly recycling electronics, it is recommended that the recycling of state agency generated computers should be contracted out to a qualified electronics recycler as discussed in the next section.

## **Disposal Logistics**

### ***Role of the Office of Surplus Property***

As has been previously stated, the Department of Finance and Administration's Office of Surplus Property (OSP) should serve as a central hub or clearinghouse for all state agency-generated surplus electronic equipment. The Office of Surplus Property appears to have sufficient space for housing the surplus electronic equipment from all state agencies. State agencies will follow all current procedures in the transferring of property to the Office of Surplus Property, including presenting the Letter of Certification of Disposal for any equipment with data storage media. Surplus Property will be responsible for storing, as well as re-selling, the electronic equipment to other state entities as requested. It is recommended that all electronics have a shelf-life of thirty days for business-user class computers, CRT televisions, and CRT monitors to forty-five days for power-user class computers, servers, LCD televisions, and LCD monitors. If an item has not been resold to an agency during its shelf-life, it will be pulled from inventory to be recycled.

The security of state data resources and the protection of state employee information are paramount, and the proper handling of sensitive data is essential in meeting these objectives.

The Office of Surplus Property, in an effort to ensure the proper disposal of media containing sensitive data, is considering the option of purchasing or leasing equipment to destroy the media with sensitive data on site. If purchasing equipment proves unfeasible, the Committee recommends that all state agencies that need to destroy media remove the media and send it to OSP. The Office of Surplus property would then be responsible for securely storing the media until there has been an adequate accumulation to request the destruction services from a third party or to transfer the devices to a certified recycler.

The Office of Surplus Property serving as the central hub for the storing and reselling of surplus electronic equipment will extend the useful life of state electronic equipment, provide a trusted venue for state agencies to dispose and transfer electronic equipment, as well as potentially serve as a revenue generator for the state.

The Office of Surplus Property is currently staffed and equipped to manage the major requirements of this recommendation. OSP is in the process of implementing the property inventory functionality available through DFA's InCircuit software licenses. This implementation will make detailed information available to public entities via a web browser, providing a listing of specific computer equipment "in stock" during the OSP shelf life of transferred equipment. Access to this information will facilitate the acquisition of used equipment by public entities that can still make productive use of another agency's transfers.

### ***Choosing an Electronics Recycler***

In the previous sections, there are various references and recommendations that the recycling of state agency-generated computers be handled by a contractor. The selection of an electronics recycling contractor should be accomplished through a competitive bid process under the purview of ITS and/or DFA. Generally speaking, the best rates for recycling electronics occur when the materials are consolidated in a single location and when as many entities as possible utilize the contract to maximize volume and minimize vendor overhead. As discussed below, the Committee sees advantages to awarding a recycling contract to a single vendor and mandating the use of this contract by all state entities.

As show in Table 1 and Figure 1, many state agencies are currently sending their obsolete electronics to DFA's Office of Surplus Property which could serve as a central hub for the collection of electronics. As mentioned previously, proper recycling of electronics requires significant capital investments. Many electronics recyclers have bypassed the capital investiture by shipping obsolete electronics overseas. While the exportation of scrap electronics is often done legitimately, it is becoming more common for this exportation to be conducted in a manner that is in violation of the receiving country's import laws and/or the United States' export laws. Therefore, before choosing an electronic waste recycler or recyclers, an audit of each bidder's facility(ies) and their downstream vendors should be conducted. Additional audits of the selected contractor's facility(ies) should be conducted at random intervals during each year the recycling contract is in effect. Each of these audits should verify that the recycler is handling the material in the manner specified in their bid/contract.

In addition to conducting audits of the electronics recycler, the Committee recommends that the bid process should require specialty certification of all bidders. One such certification for electronics recyclers is the U.S. EPA's Responsible Recycling (R2) Practices. Some of the requirements of the R2 Practices include the following:

- Verify that each product being sold and/or exported for reuse operates correctly;
- Develop and maintain policies that promotes reuse and material recovery;
- Ensure that all material is exported according to U.S. laws and the laws of the receiving country;
- Comply with all environmental, health, and safety laws and standards;
- Exercise due diligence to ensure that downstream vendors handle materials properly;
- Maintain closure plans, insurance, and adequate financial assurance mechanisms to cover potential risks at each facility.

In addition to the R2 Practices created by the U.S. EPA, the Institute of Scrap Recycling Industries (ISRI) and the Basel Action Network (BAN) have similar certifications – Recycling Industry Operating Standards (RIOS) and E-Stewards Certification, respectively – that include the R2 Practices as well as other requirements such as prohibitions against the use of prison labor, prohibitions against exporting hazardous materials, and/or extra tracking and reporting requirements. It should be noted that while RIOS is designed for any recycling facility, it specifically incorporates EPA's R2 Practices for electronics recyclers plus any other additional requirements associated with RIOS. While each of these certifications requires the processing facility to be audited annually, the certification requirement should not be used in lieu of conducting the recommended audits.

### ***Recommended Disposal Process***

To summarize the above findings and recommendations, the Committee developed the Recommended Disposal Process workflow diagramed in Appendix C. The workflow outlines a process that the Committee believes incorporates best management practices into the disposal of electronic waste as directed by Senate Bill 2796.

The recommended disposal process actually begins prior to equipment acquisition, with the agency developing policy for the purchase, management, and disposal of electronic equipment. The agency then implements the documented policy in developing specifications, implementing, and maintaining equipment to maximize useful life and minimize operational costs. Maximizing useful life of electronics can combine expandability, longer retention, redistribution within the agency, or distribution to other public entities either directly or through the Office of Surplus Property.

Once the equipment has no more useful life for the purchasing agency, the agency enters the disposal phase of the lifecycle for the equipment. Equipment support and insurance for the equipment should at that time be cancelled and the equipment promptly removed from inventory in compliance with all requirements of the Office of the State Auditor.

Prior to any external disposal of equipment, the agency's chief information officer must ensure that all data is removed from any storage media in accordance with the state's *Enterprise*



*Security Policy.* Appropriate methods for sanitizing hardware storage devices are prescribed in this policy according to the agency's classification of the sensitivity of the agency's data. When data is public record and does not contain personal identifiers, media may be overwritten using commercial software that is rated to Department of Defense standards. For sensitive data, either physical destruction through shredding, drilling, or crushing, or degaussing is required.

Once the Letter of Certification of Disposal has been completed for all equipment to be disposed of, the agency may either: (1) locate other public entities who can benefit from the equipment and transfer the devices in accordance with all requirements of the State Auditor; or (2) transfer the property to DFA's Office of Surplus Property. The Committee recommends considering discontinuation of the local auctions of electronic equipment to the public due to the risk of the buyer disposing of the equipment in an inappropriate manner. Risks include illegal overseas exportation of devices whose serial numbers were registered to the State, as well as recycling by vendors who do not manage downstream disposal or management of recyclable components appropriately.

The Office of Surplus Property (OSP) would take delivery of both obsolete equipment and removed storage media from the state agency. The equipment will be added to the OSP inventory system and public entities with needs for the equipment would be able to learn the equipment availability and to purchase the devices for a nominal charge. Once the OSP shelf life for the equipment is exceeded without the equipment item being purchased, the equipment will then be collected by the contracted e-cycling vendor for secure disposal, refurbishment, or recycling of components, as appropriate. Destruction of removed data storage devices could either be performed by OSP or could be included in the scope of the e-cycling vendor contract, depending on the cost-benefit for the State.

### ***Funding***

The proper handling of surplus electronic equipment is of great importance and the platforms to do so are rapidly on the rise throughout the public and private sectors. Though this issue has seen a significant increase in attention across the county, most public entities in our state do not have fully implemented policies regarding the collection, reuse, and recycling of surplus electronic equipment. External funding sources and funding initiatives are often limited for these public agencies. Most funding opportunities available for services in this marketplace are geared towards consumer electronics. Some of these models, however, may provide a foundation for funding recycling services at the state agency level. Funding opportunities may include grants from entities such as Electronics Industries Alliance, payment or credits by e-cycling vendors for collected surplus electronics, or an advanced recovery fee (ARF) to be paid by the agency to a designated state fund at the time the electronic product is purchased. This list is not meant to be comprehensive, yet it provides a point of origin for the avenues that might be explored to support the effort of properly handling state agency-generated surplus electronic equipment.

## **Policy Recommendations**

During the course of the meetings, the Committee found that only a few changes in State law may be needed to implement many of the recommendations identified in this report. The Committee found that implementation of existing policies, particularly the state's *Enterprise*

*Security Policy* published by ITS, varied with each state agency. Additionally, there are several public entities, such as community colleges for which neither ITS nor the OSA has oversight authority. The Committee also noticed that only about 15% of electronics purchased by state agencies are donated to other government entities. The Committee was unable to pinpoint the exact reasons for this condition, but theorizes that it could be due to agencies either hoarding the equipment until it is no longer technologically adequate, a lack of knowledge of equipment available from other agencies, and/or a lack of knowledge about equipment available through Surplus Property.

The Committee found that many of the changes that are needed in the current process can be addressed by varying implementations of current policy. Therefore, the Committee believes that each state agency should review their current internal policies and modify them as needed to meet the suggestions that follow. At a minimum the agency's internal policy should implement the requirements found in the state's *Enterprise Security Policy*; establish a standard cycle for replacement of computers, peripherals, and other electronics; and establish a policy that maximizes the use of older electronics within the agency or by another state agency. Other cost saving initiatives that the agency may wish to consider when developing the internal policy could include synchronizing hardware upgrades with major software upgrades when possible; purchase equipment for the whole agency at once to reduce the per unit cost; share peripherals when practical; establish energy management (power saving) policies and guidelines for electronic equipment; purchase more efficient electronics such as Energy Star rated and/or E-PEAT certified equipment; and establish a maximum amount of time that obsolete electronics are stored by the agency before sending them to Surplus Property.

In addition to the changes recommended above for state agencies, the Committee recommends that the Legislature and the Governor consider implementing certain policy changes. The primary factors that control the cost of electronics recycling appear to be the economy of scale and the age of the equipment. Therefore, the Legislature should evaluate and consider the benefit of requiring all public entities, including state agencies, institutions of higher learning, municipalities, counties, local school districts, and community colleges, to dispose of obsolete electronics through DFA's Office of Surplus Property and/or through a statewide recycling contract. By requiring all state-generated electronics to submit to the same uniform process and the same contract and/or facility, the State could obtain more favorable pricing and/or contract terms with a vendor for the recycling of electronics. In addition, if certain cost reduction strategies are employed (i.e. upgrade computer monitors every other or every third refresh cycle), the recycling process may be cost neutral to the State.

The Committee also discovered that while most state agencies are disposing of obsolete electronics through OSP, perhaps the greatest difficulty in disposal of obsolete electronics lies with the businesses and residents of the state. Many larger businesses already contract with electronics recyclers to insure that sensitive data is destroyed; however, for many residents and small businesses the costs of recycling electronics are unexpected and the various options for environmentally friendly disposal are often confusing. Currently, state law and federal regulations allow individual residents and those conditionally exempt small quantity business generators to dispose of obsolete electronics through their normal nonhazardous solid waste collection and disposal services. However, many waste companies refuse to collect these electronics if the items are visible at the time of collection because of the concern for deposit of

heavy metals in the landfill. Several states have enacted legislation that prohibits the disposal of electronics in landfills and that create a statewide recycling program. A few states, most notably California, have taken the approach of requiring an advanced recovery fee (ARF) to be paid at the time the electronic product was purchased. In that state, when a consumer has exhausted the useful life of the electronic product, the consumer is then able to recycle the product at no cost through an authorized electronics recycler who is then paid by the state from the ARF funds collected. Various other states, such as Washington, Minnesota, and Oregon, have taken a producer responsibility approach to establishing statewide recycling programs. In this type of program, each manufacturer and brand owner is required to pay a fee to the state to sell electronic products in the state. Each manufacturer is then required to either create a program for collecting and recycling obsolete electronics in the state or pay an additional fee to use a state-sponsored recycling program. One aspect, which varies state-by-state, is that each manufacturer may be required to recycle a minimum amount of the obsolete electronics according to the percentage of electronics sold in the state by their brand(s). However, these types of programs may not be feasible for Mississippi at this time. In reviewing the electronic recycling contracts available to state and local governments in North Carolina, the Committee noticed that the contract allowed local governments to collect and recycle computers and other consumer electronics from residents through that contract instead of requiring the local government to obtain its own contractor. The Committee recommends that if a state contract is developed for the recycling of electronic equipment from state agencies and institutions, that contract should allow for local governments that operate local electronic waste collection programs for residents to utilize the state contractor for recycling services.

## **Appendix A**

### ***Enterprise Security Policy:***

#### ***❖ 8.0 Agency Data Classification***

#### ***❖ Technical Document: Disposal of Hardware***

**Doc Ref Number:** PSG 100-09

**Published by:** ISD

**Document Type:** Enterprise

**Effective Date:** September 21, 2009

## **Title: Enterprise Security Policy**

### **8. Agency Data Classification**

#### 8.1. Purpose

This data classification policy provides a high-level guideline to state agencies for the purpose of understanding and managing data and information assets with regard to their level of confidentiality and sensitivity. Increased connectivity of computers and databases makes more data available to individuals, businesses and agencies. As a result, the potential for unauthorized disclosure, modification or destruction of personal, financial, medical, business and other types of data also has increased. There may or may not be laws that regulate the use of particular data, and agencies may not be certain how to respond to apparent conflicts between privacy, open records laws and the need to maintain safety and security. Data classification is a process that identifies what information needs to be protected against unauthorized access, use, or abuse.

#### 8.2. Policy

State agencies shall establish a data classification policy and shall serve as a classification authority for the data and information that it collects or maintains in satisfaction of its mission.

8.2.1. The classification of data is a critical tool in defining and implementing the correct level of protection for state information assets. Such classifications are a prerequisite to establishing agency guidelines and system requirements for the secure generation, collection, access, storage, maintenance, transmission, archiving, and disposal of state data.

8.2.2. The confidentiality classification identifies how sensitive the data is with regard to unauthorized disclosure. Data should be assigned one of three classifications for confidentiality:

8.2.2.1. **Public:** The “public” classification includes information that must be released under Mississippi open records law or instances where an agency unconditionally waives an exception to the open records law.

8.2.2.2. **Limited Access:** The “limited-access” classification applies to information that an agency may release if it chooses to waive an exception to the open records law and places conditions or limitations on such a release.

8.2.2.3. **Sensitive:** The “sensitive” classification applies to information, the release of which is prohibited by state or federal law. This classification also applies to records that an agency has discretion to release under open records law exceptions but has chosen to treat the information as highly confidential.

8.2.3. State and federal law may require that certain types of data be classified in a particular manner. Agencies shall determine if there are state or federal legal requirements for classifying the data and shall assign the classification(s) as required by law. (i.e. HIPAA)

8.2.4. Agencies must establish a process to regularly review the appropriateness of the assigned data classifications and to adjust classifications in the event of regulatory changes affecting an agency’s management of information under its control.

8.2.5. The agency shall ensure that data compiled from multiple sources is classified with at least the most secure classification level of any individually classified data.

8.2.6. The agency shall ensure that data shared with other agencies is consistently classified and protected in accordance with a documented agreement detailing, at a minimum, data treatment requirements.

8.2.7. The agency shall ensure that sensitive data is secured in accordance with applicable agency requirements, and federal or state regulations and guidelines, and the enterprise security policy.

8.2.8. The agency shall ensure that data access requirements are incorporated into contractor/vendor service level agreements and contract terms and conditions as they relate to classified data.

**Doc Ref Number:** PSG 100-09.14

**Published by:** ISD

**Document Type:** Enterprise

**Effective Date:** September 21, 2009

## **Title: Enterprise Security: Disposal of Hardware**

1. Before disposal, agencies must determine if the hardware contains any sensitive data
  - 1.1. Agencies must sanitize or remove all data and software from the device.
  - 1.2. Simply erasing and reformatting hard drives is not a permissible method way of sanitizing magnetic media before disposal.
2. Before disposing of old hardware, agencies must use one of the following methods of sanitizing the hardware device:
  - 2.1. Overwriting – This method should be used when the technology still contains usefulness and can be used elsewhere by a third party.
    - 2.1.1. Agencies may sanitize magnetic media (ie. hard disk) by an overwriting process whereby a software utility writes a combination of 0s and 1s over each location on the hard drive multiple times.
    - 2.1.2. This process obscures the previous information, rendering the data unreadable. Agencies must overwrite the disk three times prior to disposal or reuse.
  - 2.2. Physical Destruction – This method should be used when the technology contains no usefulness and will be permanently disposed of (ie. thrown in dumpster) or if the magnetic media contains highly sensitive data.
    - 2.2.1. In this case, the agency should perform a complete and permanent elimination of data and media device.
    - 2.2.2. Physical destruction is done by shredding the entire drive or the drives platters. At minimum the platters must be badly warped or distorted, rendering the drive or any of its components inoperable.
    - 2.2.3. This can generally be achieved by drilling the drive in several locations perpendicular to the platters and penetrating completely through from top to bottom.

- 2.2.4. Hammering or crushing is equally effective but more labor intensive.
- 2.2.5. Simply destroying the logic section of the drive without damaging the platters is insufficient. If a third party vendor is utilized, a certificate of destruction must be obtained.
- 2.3. Degaussing - This method should be used when the technology contains no usefulness and will be permanently disposed of (ie. thrown in dumpster) or if the magnetic media contains highly sensitive data.
  - 2.3.1. Agencies may utilize a degaussing process to erase the magnetic media but it requires specialized equipment designed and approved for the type of media being purged.

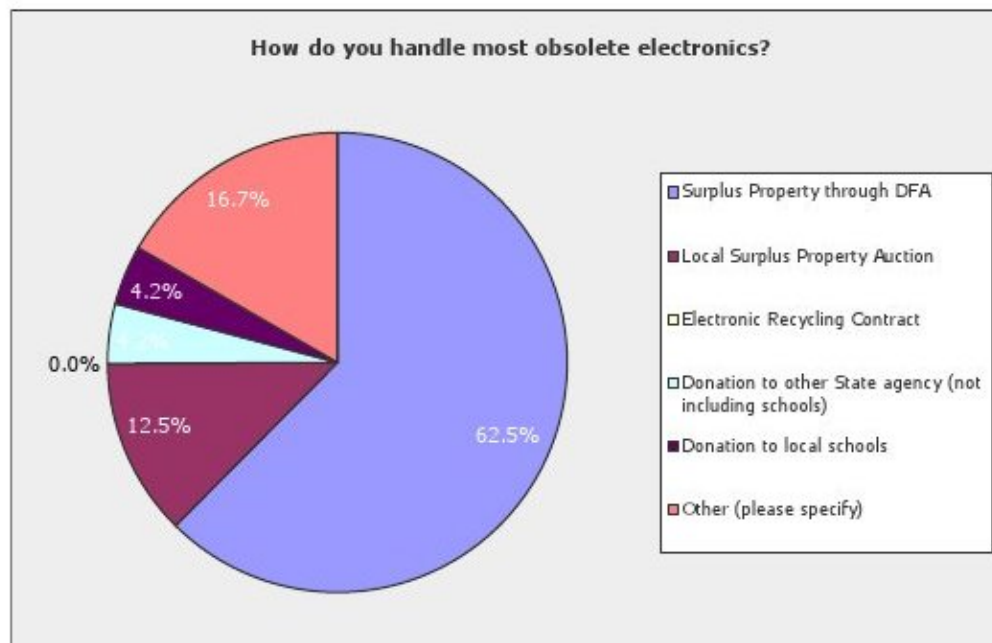


**Appendix B**  
**Survey Results**

## Question 1

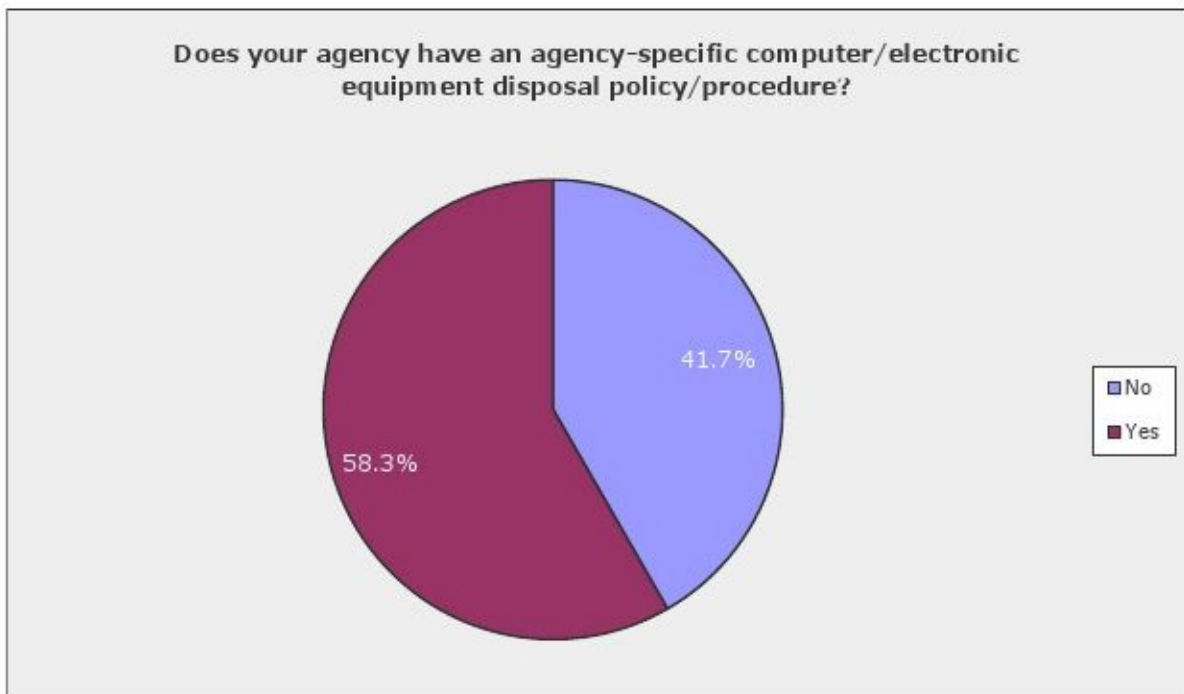
How do you handle most obsolete electronics?		
Answer Options	Response Percent	Response Count
Surplus Property through DFA	62.5%	15
Local Surplus Property Auction	12.5%	3
Electronic Recycling Contract	0.0%	0
Donation to other State agency (not including schools)	4.2%	1
Donation to local schools	4.2%	1
Other (please specify)	16.7%	4
<b>answered question</b>		<b>24</b>
<b>skipped question</b>		<b>0</b>

Number	Response Date	Other (please specify)
1	Oct 6, 2009 2:03 PM	Local recycling center
2	Oct 6, 2009 2:55 PM	Service agreement (not a contract) with electronic recycling company.
3	Oct 9, 2009 4:03 PM	Sell as scrap; also donate to schools and state agencies
4	Oct 12, 2009 2:39 PM	scrap for parts



## Question 2

Does your agency have an agency-specific computer/electronic equipment disposal policy/procedure?		
Answer Options	Response Percent	Response Count
No	41.7%	10
Yes	58.3%	14
<i>answered question</i>		<b>24</b>
<i>skipped question</i>		<b>0</b>



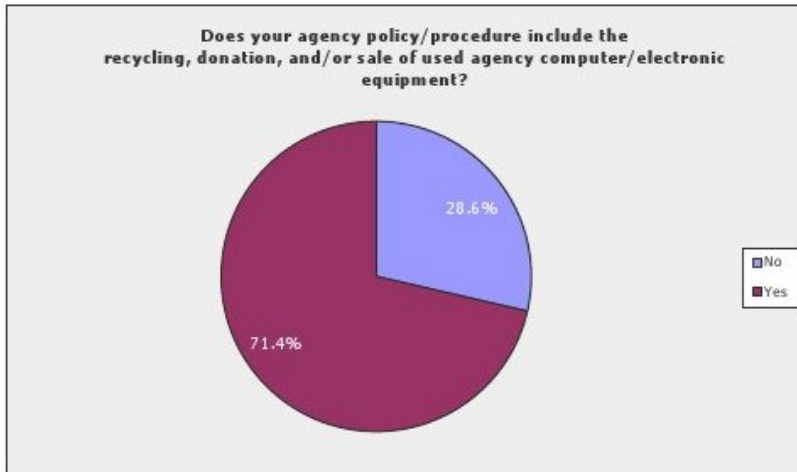
### Question 3

Does your agency policy/procedure include the recycling, donation, and/or sale of used agency computer/electronic equipment?

Answer Options	Response Percent	Response Count
No	28.6%	4
Yes	71.4%	10
<b>answered question</b>		<b>14</b>
<b>skipped question</b>		<b>10</b>

That have a policy

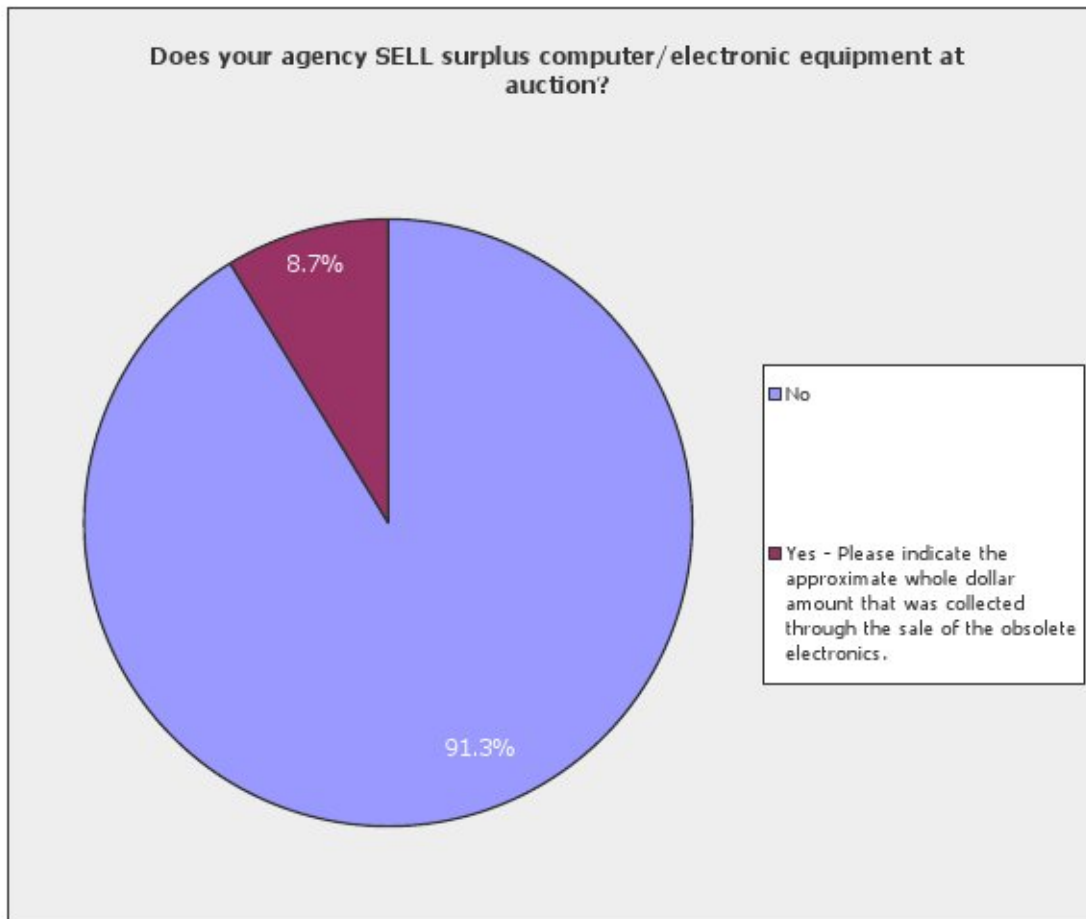
This is OK - These are those without a policy and not counted



### Question 4

Does your agency SELL surplus computer/electronic equipment at auction?		
Answer Options	Response Percent	Response Count
No	91.3%	21
Yes - Please indicate the approximate whole dollar	8.7%	2
<i>answered question</i>		<b>23</b>
<i>skipped question</i>		<b>1</b>

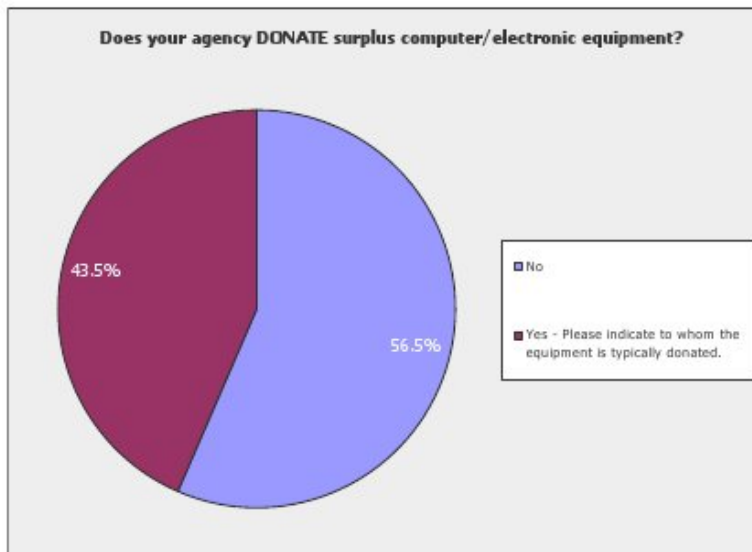
Number	Response Date	Yes - Please indicate the approximate whole dollar amount that was collected through the sale of the obsolete electronics.
1	Oct 8, 2009 8:56 PM	\$18,000.00
2	Oct 12, 2009 2:08 PM	that varies per auction .. we hold a couple a year



## Question 5

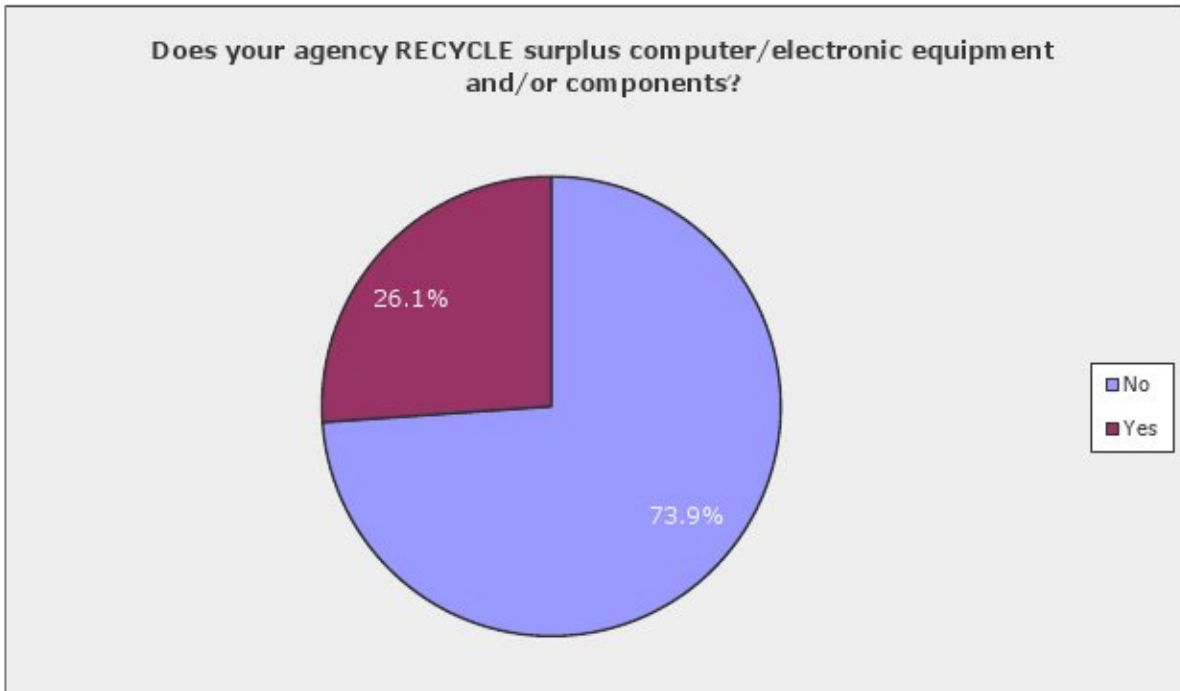
Does your agency DONATE surplus computer/electronic equipment?		
Answer Options	Response Percent	Response Count
No	56.5%	13
Yes - Please indicate to whom the equipment is	43.5%	10
<b>answered question</b>		<b>23</b>
<b>skipped question</b>		<b>1</b>

Number	Response Date	Yes - Please indicate to whom the equipment is typically donated.
1	Oct 6, 2009 3:37 PM	public school systems, law enforcement agencies, fire depts, etc.
2	Oct 6, 2009 3:53 PM	Other State Agencies or schools
3	Oct 8, 2009 8:56 PM	Law Enforcement
4	Oct 9, 2009 4:05 PM	publics schools as well as government agencies (state and local)
5	Oct 12, 2009 2:31 PM	State and City Government & Education
6	Oct 12, 2009 2:41 PM	schools
7	Oct 13, 2009 12:23 PM	Other State Agencies, Schools and Sheriffs
8	Oct 14, 2009 2:13 PM	other stae agencies and universities
9	Oct 14, 2009 7:56 PM	School Districts
10	Oct 16, 2009 6:27 PM	Mostly to Office of Surplus Property, but occasionally to school systems or other governmental entities



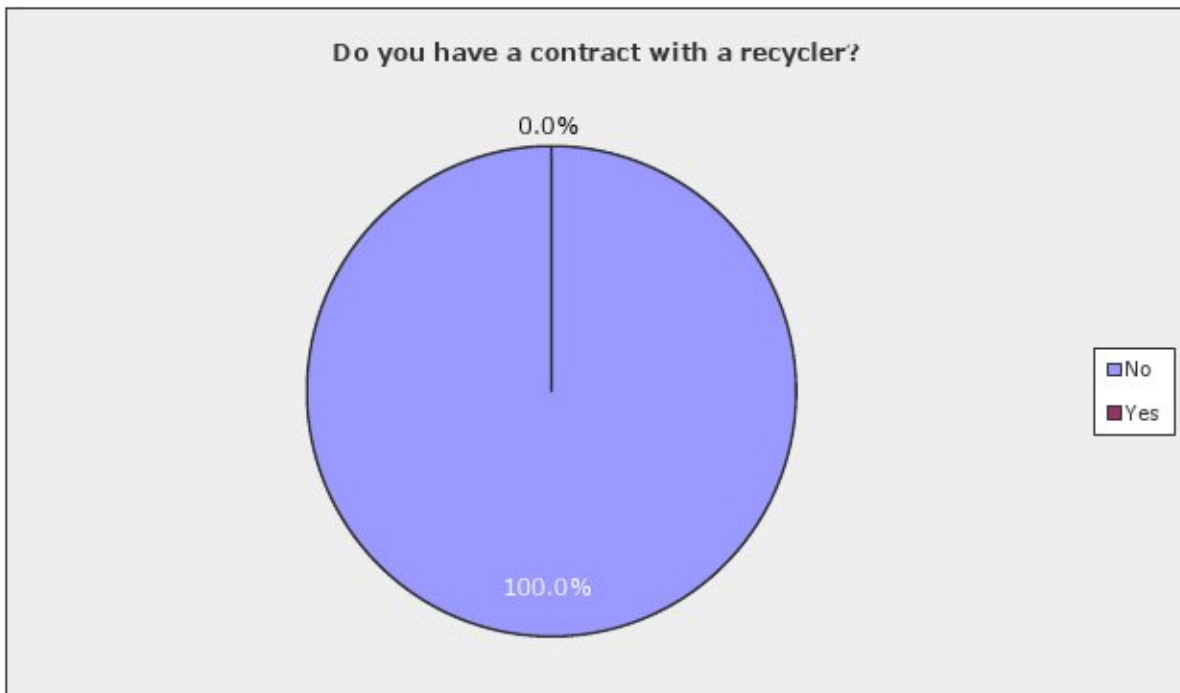
### Question 6

Does your agency RECYCLE surplus computer/electronic equipment and/or components?		
Answer Options	Response Percent	Response Count
No	73.9%	17
Yes	26.1%	6
<i>answered question</i>		<b>23</b>
<i>skipped question</i>		<b>1</b>



### Question 7

Do you have a contract with a recycler?		
Answer Options	Response Percent	Response Count
No	100.0%	16
Yes	0.0%	0
<i>answered question</i>		<b>16</b>
<i>skipped question</i>		<b>8</b>



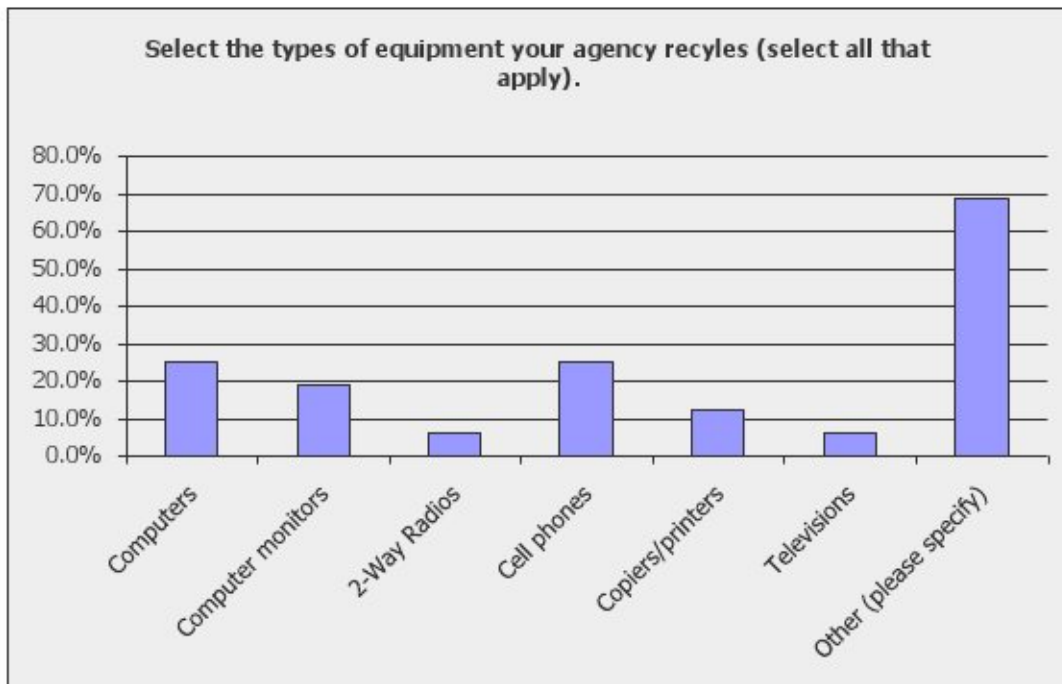


### Question 8

Select the types of equipment your agency recycles (select all that apply).

Answer Options	Response Percent	Response Count
Computers	25.0%	4
Computer monitors	18.8%	3
2-Way Radios	6.3%	1
Cell phones	25.0%	4
Copiers/printers	12.5%	2
Televisions	6.3%	1
Other (please specify)	68.8%	11
<i>answered question</i>		<b>16</b>
<i>skipped question</i>		<b>8</b>

Number	Response Date	Other (please specify)
1	Oct 6, 2009 2:20 PM	We do not recycle equipment
2	Oct 6, 2009 5:41 PM	none
3	Oct 6, 2009 5:56 PM	We transfer equipment to Surplus Property
4	Oct 8, 2009 7:11 PM	We transfer our equipment to Surplus Property
5	Oct 8, 2009 8:56 PM	none
6	Oct 8, 2009 8:56 PM	NA
7	Oct 12, 2009 2:09 PM	no contract for recycles
8	Oct 12, 2009 2:32 PM	We donate Computers, monitors, printers
9	Oct 12, 2009 2:41 PM	none
10	Oct 12, 2009 5:00 PM	transfer to surplus property through DFA
11	Oct 14, 2009 2:13 PM	none

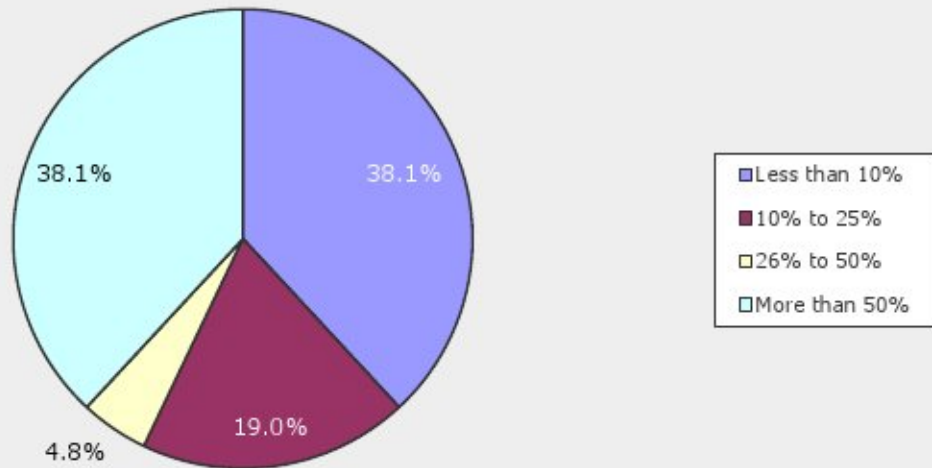


### Question 9

What percentage of electronic equipment owned by your agency (including computers) is sent to DFA Office of Surplus Property?

Answer Options	Response Percent	Response Count
Less than 10%	38.1%	8
10% to 25%	19.0%	4
26% to 50%	4.8%	1
More than 50%	38.1%	8
<i>answered question</i>		<b>21</b>
<i>skipped question</i>		<b>3</b>

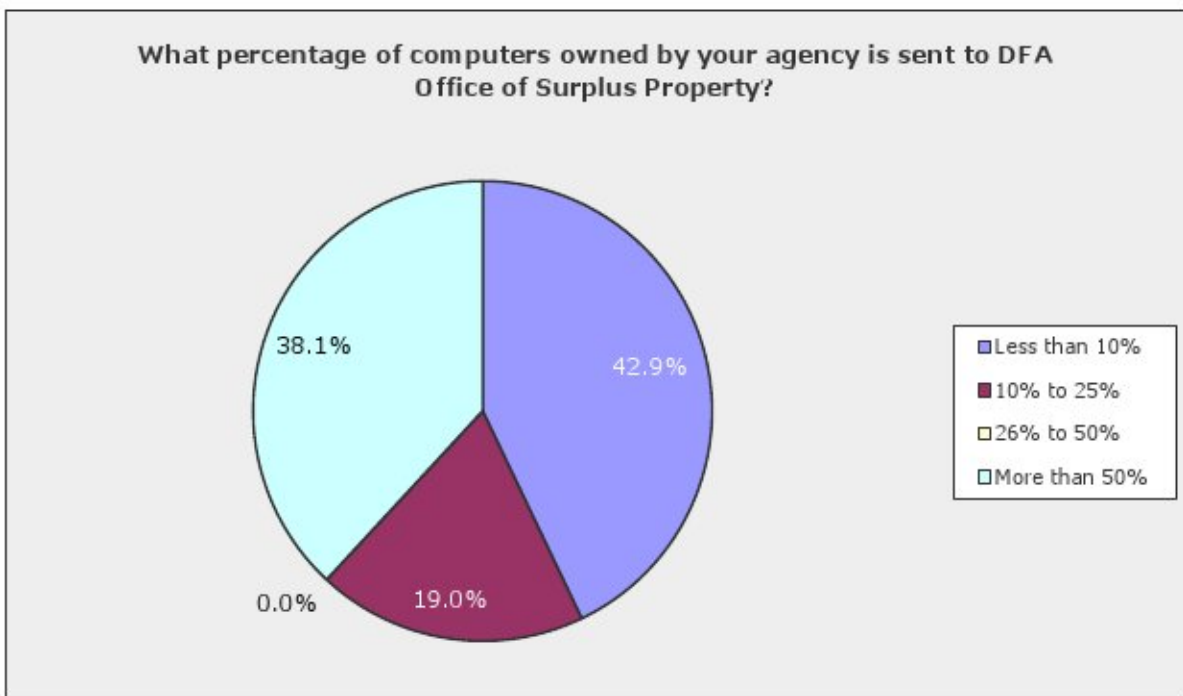
What percentage of electronic equipment owned by your agency (including computers) is sent to DFA Office of Surplus Property?



### Question 10

What percentage of computers owned by your agency is sent to DFA Office of Surplus Property?

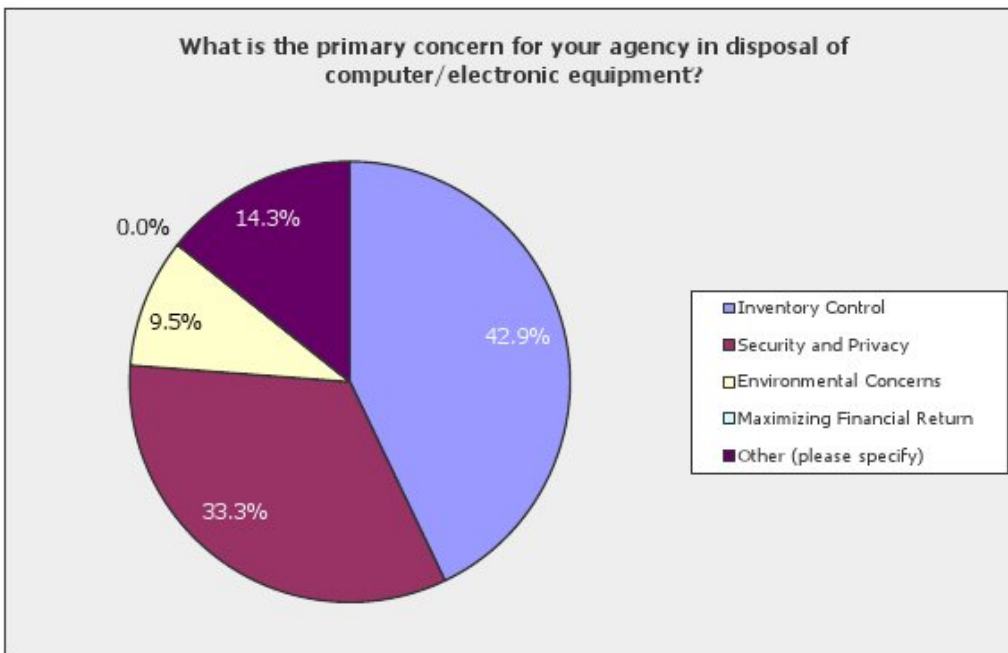
Answer Options	Response Percent	Response Count
Less than 10%	42.9%	9
10% to 25%	19.0%	4
26% to 50%	0.0%	0
More than 50%	38.1%	8
<i>answered question</i>		<b>21</b>
<i>skipped question</i>		<b>3</b>



### Question 11

What is the primary concern for your agency in disposal of computer/electronic equipment?		
Answer Options	Response Percent	Response Count
Inventory Control	42.9%	9
Security and Privacy	33.3%	7
Environmental Concerns	9.5%	2
Maximizing Financial Return	0.0%	0
Other (please specify)	14.3%	3
<i>answered question</i>		<b>21</b>
<i>skipped question</i>		<b>3</b>

Number	Response Date	Other (please specify)
1	Oct 12, 2009 2:11 PM	top 3
2	Oct 12, 2009 2:14 PM	Equally inventory control and security
3	Oct 13, 2009 12:43 PM	No Concerns. They are scrubbed before they leave the Agency

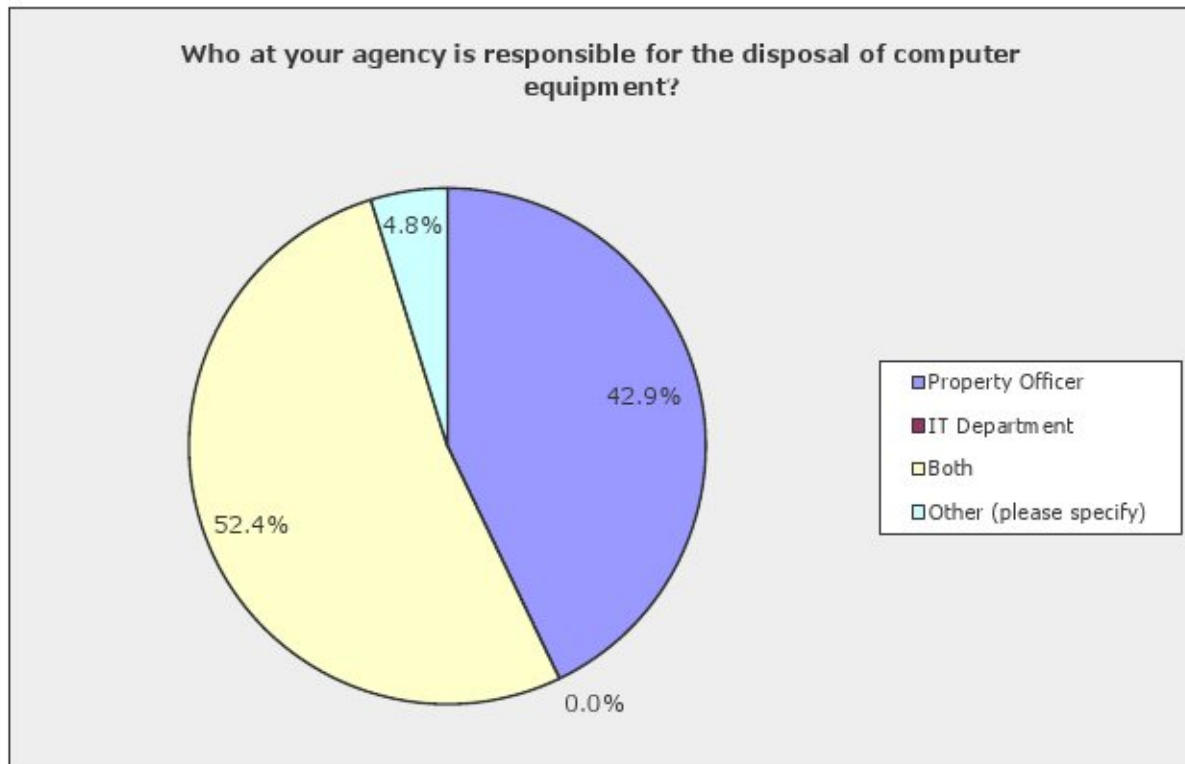


## Question 12

Who at your agency is responsible for the disposal of computer equipment?

Answer Options	Response Percent	Response Count
Property Officer	42.9%	9
IT Department	0.0%	0
Both	52.4%	11
Other (please specify)	4.8%	1
<i>answered question</i>		<b>21</b>
<i>skipped question</i>		<b>3</b>

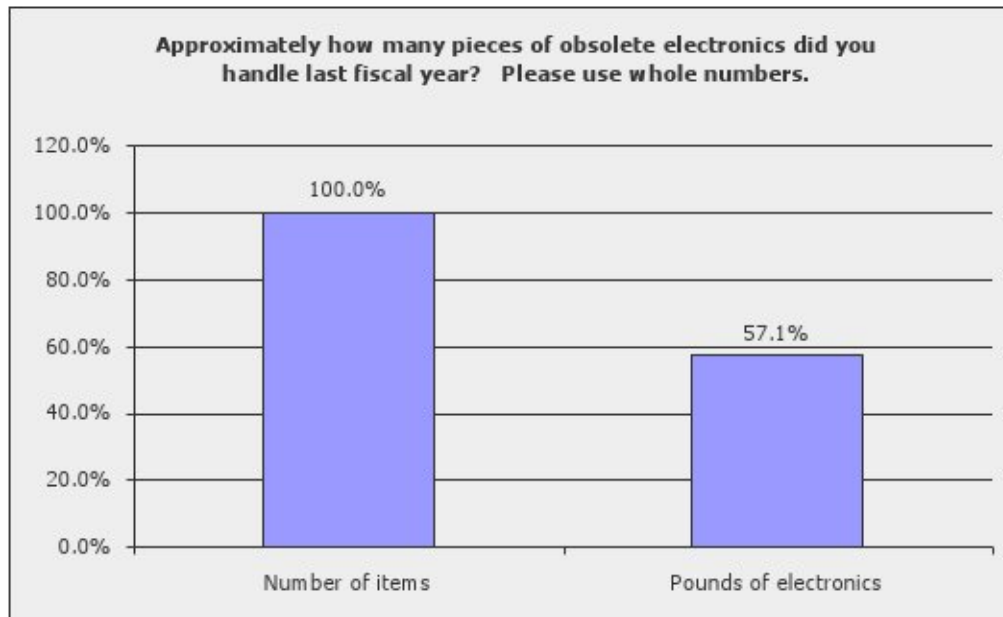
Number	Response Date	Other (please specify)
1	Oct 8, 2009 8:56 PM	Property Accounting



### Question 13

Approximately how many pieces of obsolete electronics did you handle last fiscal year? Please use whole numbers.		
Answer Options	Response Percent	Response Count
Number of items	100.0%	21
Pounds of electronics	57.1%	12
<i>answered question</i>		<b>21</b>
<i>skipped question</i>		<b>3</b>

Number	Response Date	Number of items	Pounds of electronics
1	Oct 6, 2009 2:05 PM	200	
2	Oct 6, 2009 3:48 PM	3494	190000
3	Oct 6, 2009 3:58 PM	100	1500
4	Oct 6, 2009 5:56 PM	2000	
5	Oct 6, 2009 7:28 PM	150	
6	Oct 8, 2009 7:13 PM	200	
7	Oct 8, 2009 8:56 PM	3000	
8	Oct 8, 2009 8:59 PM	Not available	Not available
9	Oct 9, 2009 4:10 PM	6,000 (approxim ately)	60,000 (estim ated)
10	Oct 9, 2009 8:18 PM	200	3000
11	Oct 12, 2009 2:11 PM	3500	
12	Oct 12, 2009 2:14 PM	100 (approxim ately)	
13	Oct 12, 2009 2:35 PM	200	
14	Oct 12, 2009 2:43 PM	100	200
15	Oct 12, 2009 5:02 PM	0	
16	Oct 13, 2009 12:43 PM	70 ?	
17	Oct 13, 2009 11:59 PM	n/a	n/a
18	Oct 14, 2009 2:15 PM	not sure	not sure
19	Oct 14, 2009 2:15 PM	100	2000
20	Oct 14, 2009 8:00 PM	300	0
21	Oct 16, 2009 6:28 PM	795	Undeterminable

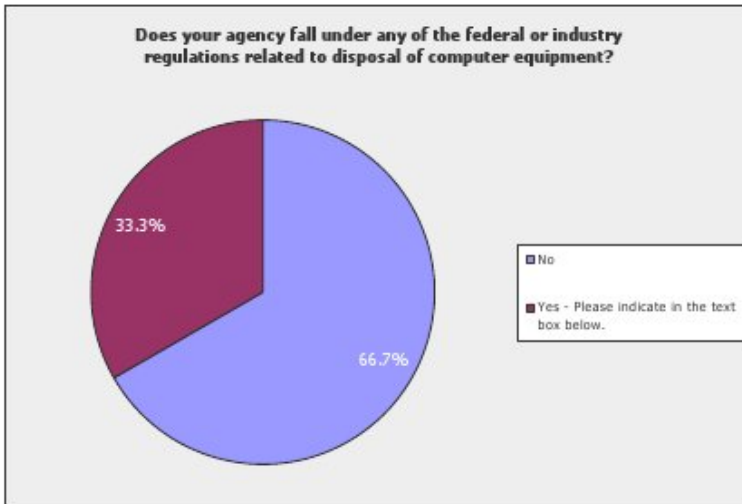


## Question 14

**Does your agency fall under any of the federal or industry regulations related to disposal of computer equipment?**

Answer Options	Response Percent	Response Count
No	66.7%	14
Yes - Please indicate in the text box below.	33.3%	7
<b>answered question</b>		<b>21</b>
<b>skipped question</b>		<b>3</b>

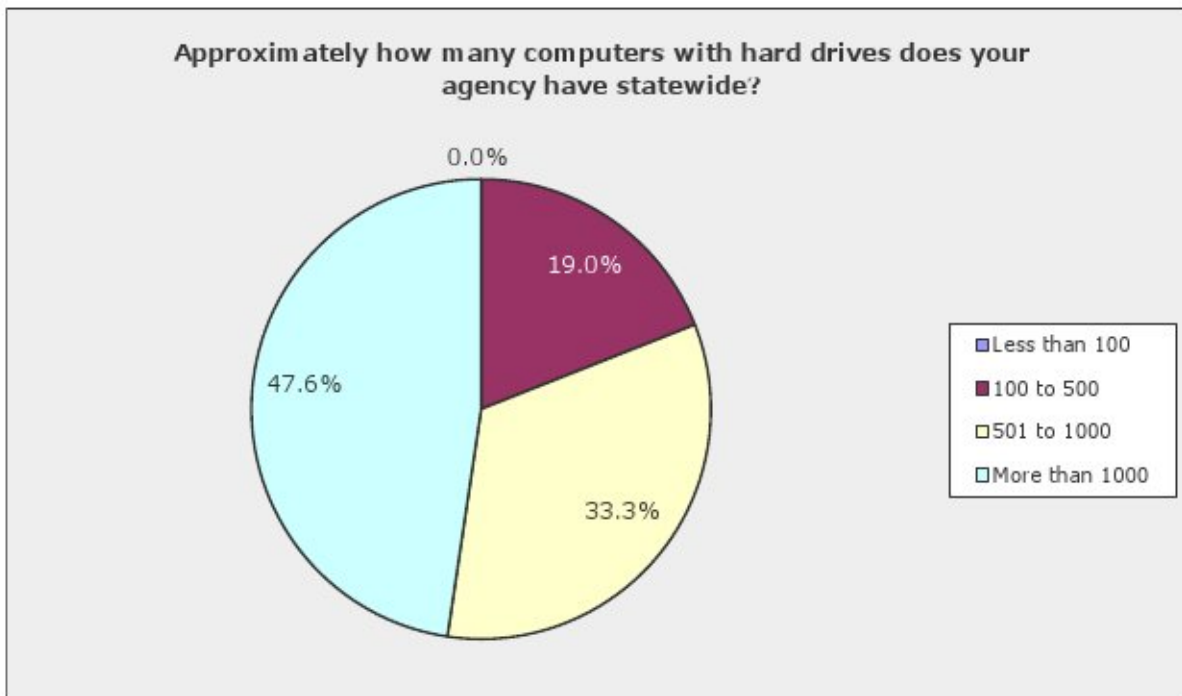
Number	Response Date	Yes - Please indicate in the text box below.
1	Oct 6, 2009 3:48 PM	EPA, DEQ
2	Oct 6, 2009 3:58 PM	Federal equipment has to go to schools, if it is still working. They all have to be wiped by DCD standards.
3	Oct 9, 2009 4:10 PM	Departments are responsible for following guidelines related to federal grants, as applicable.
4	Oct 12, 2009 2:11 PM	hazard waste
5	Oct 12, 2009 2:43 PM	Social Security Administration regulations regarding disposal of computer equipment
6	Oct 13, 2009 12:43 PM	Computers that are paid for 100% by FSIS are returned to them when replaced. Not over 10 Computers
7	Oct 14, 2009 8:00 PM	Several different regulations based on the equipment and/or program





### Question 15

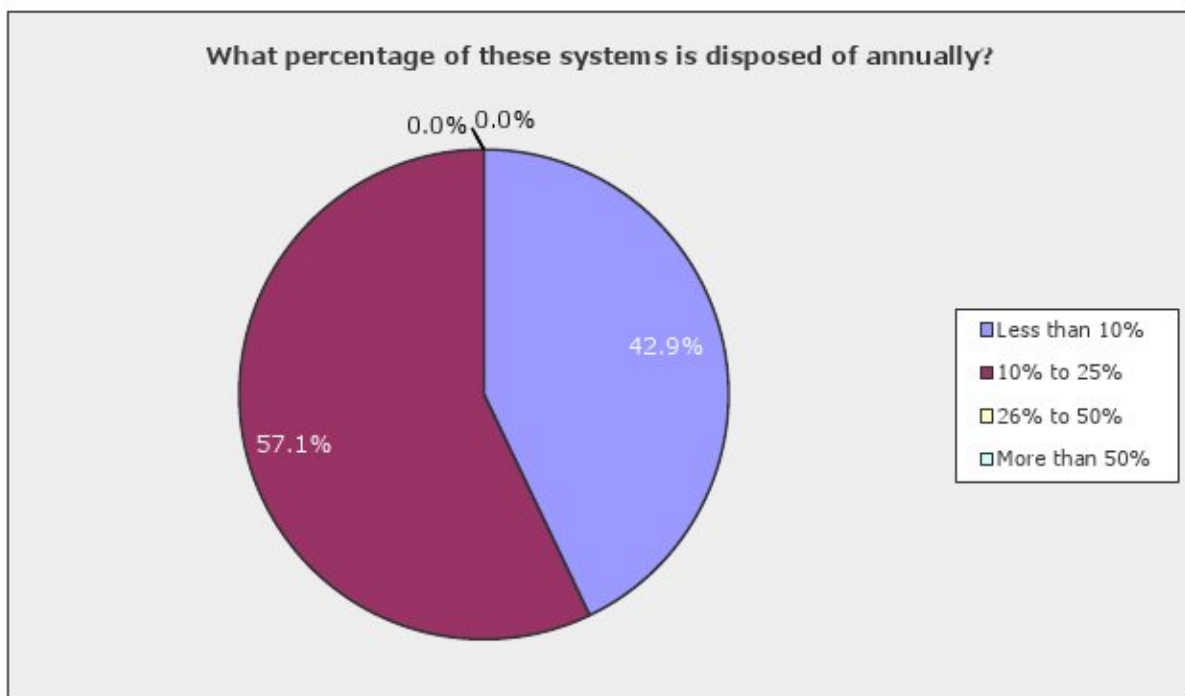
Approximately how many computers with hard drives does your agency have statewide?		
Answer Options	Response Percent	Response Count
Less than 100	0.0%	0
100 to 500	19.0%	4
501 to 1000	33.3%	7
More than 1000	47.6%	10
<i>answered question</i>		<b>21</b>
<i>skipped question</i>		<b>3</b>





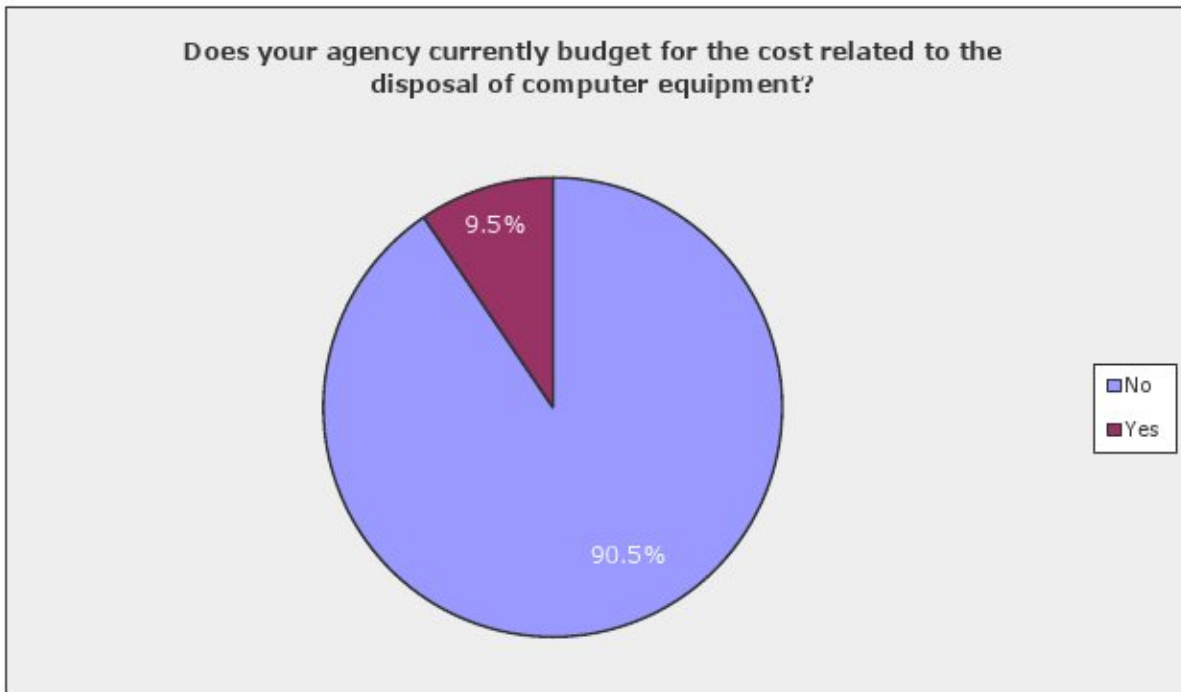
### Question 16

What percentage of these systems is disposed of annually?		
Answer Options	Response Percent	Response Count
Less than 10%	42.9%	9
10% to 25%	57.1%	12
26% to 50%	0.0%	0
More than 50%	0.0%	0
<i>answered question</i>		<b>21</b>
<i>skipped question</i>		<b>3</b>



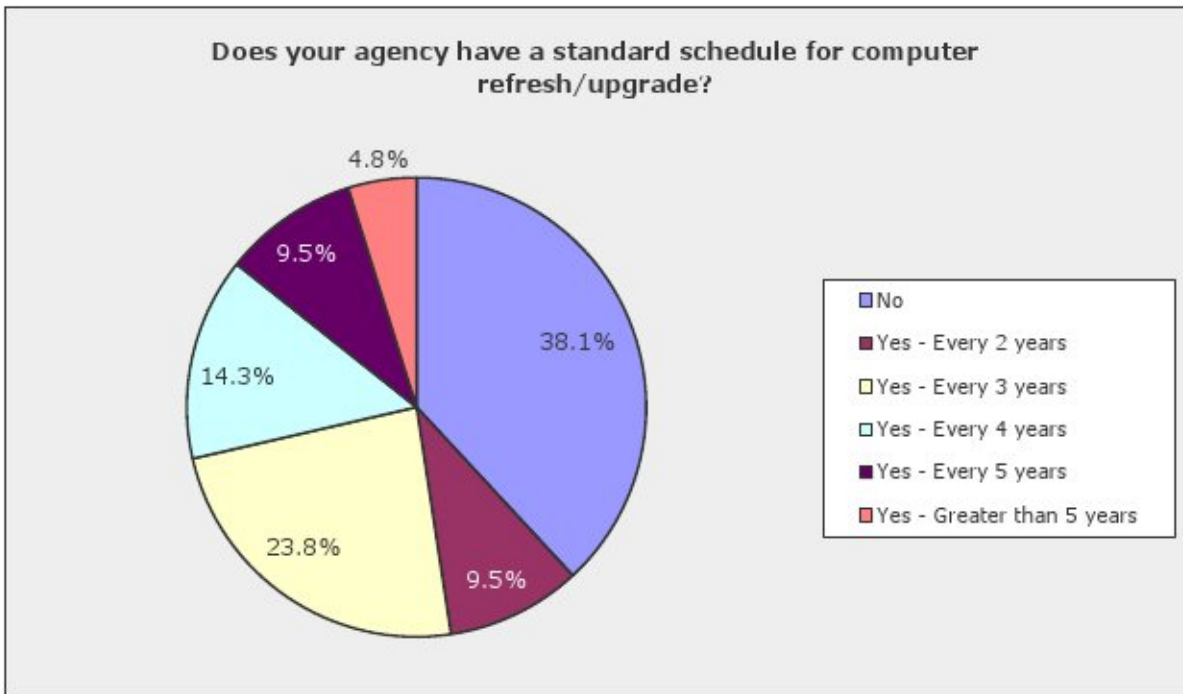
### Question 17

Does your agency currently budget for the cost related to the disposal of computer equipment?		
Answer Options	Response Percent	Response Count
No	90.5%	19
Yes	9.5%	2
<i>answered question</i>		<b>21</b>
<i>skipped question</i>		<b>3</b>



### Question 18

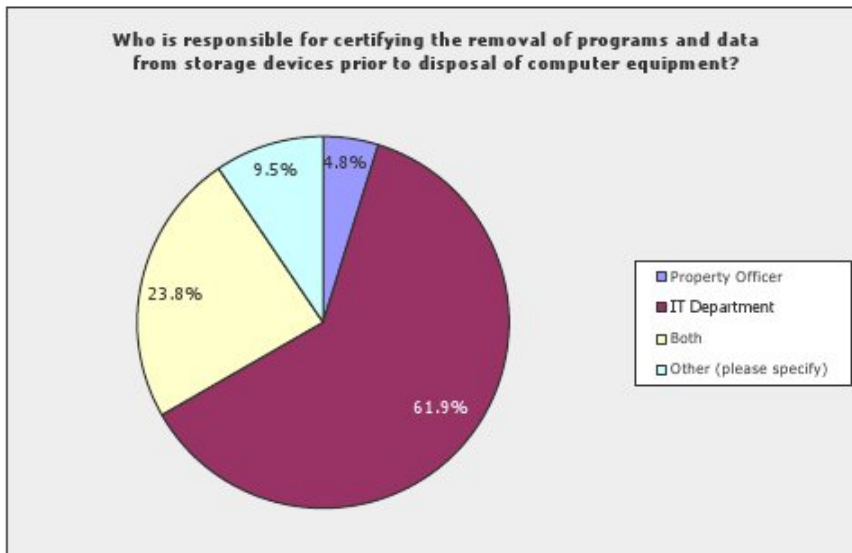
Does your agency have a standard schedule for computer refresh/upgrade?		
Answer Options	Response Percent	Response Count
No	38.1%	8
Yes - Every 2 years	9.5%	2
Yes - Every 3 years	23.8%	5
Yes - Every 4 years	14.3%	3
Yes - Every 5 years	9.5%	2
Yes - Greater than 5 years	4.8%	1
<i>answered question</i>		<b>21</b>
<i>skipped question</i>		<b>3</b>



## Question 19

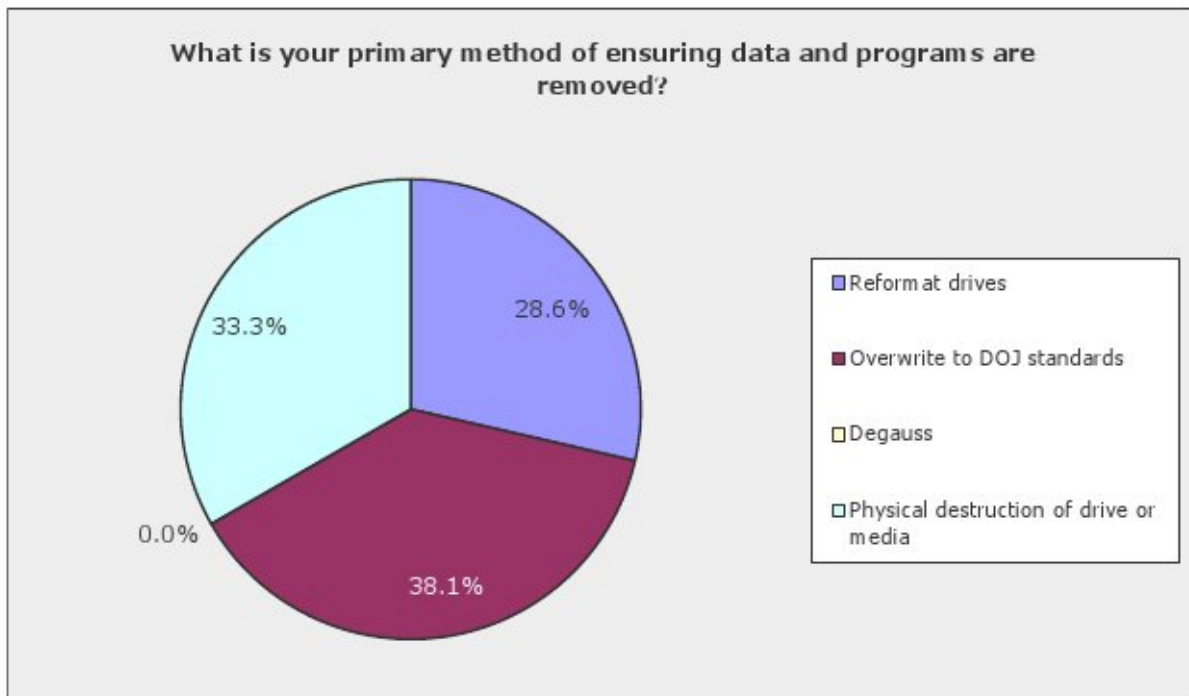
Who is responsible for certifying the removal of programs and data from storage devices prior to disposal of computer equipment?		
Answer Options	Response Percent	Response Count
Property Officer	4.8%	1
IT Department	61.9%	13
Both	23.8%	5
Other (please specify)	9.5%	2
<b>answered question</b>		<b>21</b>
<b>skipped question</b>		<b>3</b>

Number	Response Date	Other (please specify)
1	Oct 6, 2009 4:26 PM	Dept; Sensitive Information Removal Form must be provided prior to disposal of equip.
2	Oct 16, 2009 6:29 PM	District/Division Property Officers' designees and IT.



### Question 20

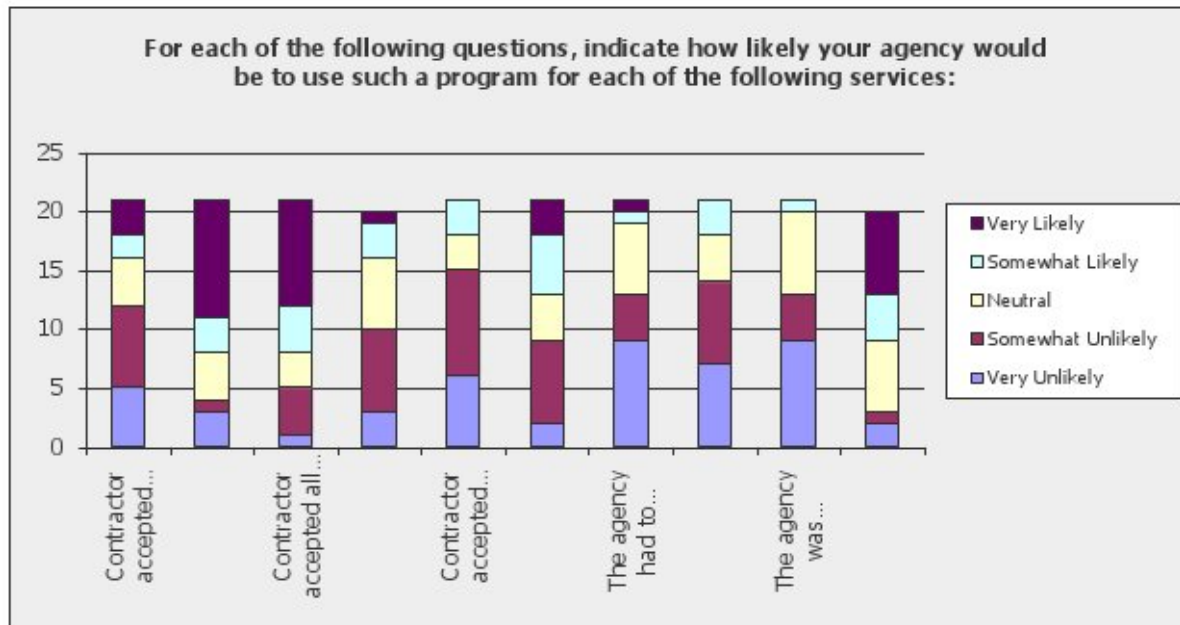
What is your primary method of ensuring data and programs are removed?		
Answer Options	Response Percent	Response Count
Reformat drives	28.6%	6
Overwrite to DOJ standards	38.1%	8
Degauss	0.0%	0
Physical destruction of drive or media	33.3%	7
<i>answered question</i>		<b>21</b>
<i>skipped question</i>		<b>3</b>



### Question 21

For each of the following questions, indicate how likely your agency would be to use such a program for each of the following services:

Answer Options	Very Likely	Somewhat Likely	Neutral	Somewhat Unlikely	Very Unlikely	Response Count
Contractor accepted responsibility for data security.	3	2	4	7	5	21
The agency had to remove hard drives with sensitive	10	3	4	1	3	21
Contractor accepted all electronics for no fee.	9	4	3	4	1	21
Contractor accepted most electronics for no fee, but	1	3	6	7	3	20
Contractor accepted most electronics for no fee, but	0	3	3	9	6	21
Contractor paid agency for some electronics, but	3	5	4	7	2	21
The agency had to stockpile a minimum of 2,000 lbs of	1	1	6	4	9	21
The agency was charged a pickup fee for loads under	0	3	4	7	7	21
The agency was charged a pickup fee for any size load.	0	1	7	4	9	21
The agency use of the state-wide contract was optional.	7	4	6	1	2	20
<i>answered question</i>						<b>21</b>
<i>skipped question</i>						<b>3</b>

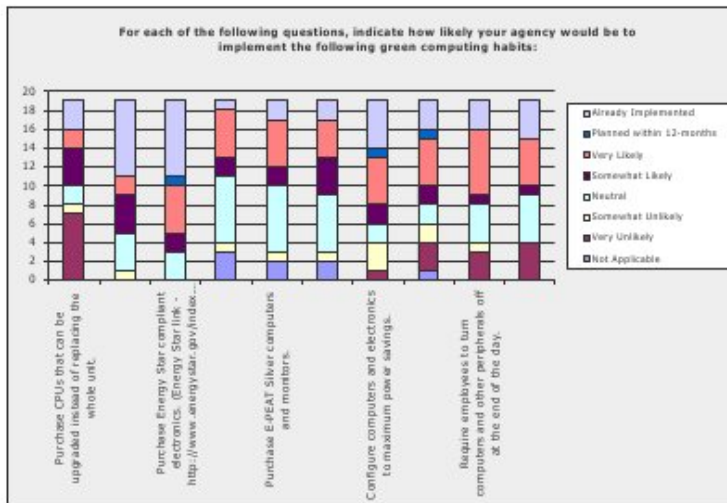


## Question 22

For each of the following questions, indicate how likely your agency would be to implement the following green computing habits:

Answer Options	Already Implemented	Planned within 12-	Very Likely	Somewhat Likely	Neutral	Somewhat Unlikely	Very Unlikely	Not Applicable	Response Count
Purchase CPUs that can be upgraded instead of replacing the whole unit.	3	0	2	4	2	1	7	0	19
Purchase Energy Star compliant electronics. (Energy Star link - <a href="http://www.energystar.gov/index">http://www.energystar.gov/index</a> .)	8	0	2	4	4	1	0	0	19
Purchase E-PEAT Bronze computers and monitors. (E-PEAT link - <a href="http://www.epeat.com">http://www.epeat.com</a> .)	1	0	5	2	3	0	0	0	19
Purchase E-PEAT Silver computers and monitors.	2	0	5	2	7	1	0	3	19
Purchase E-PEAT Gold computers and monitors.	2	0	4	4	7	1	0	2	19
Configure computers and electronics to maximum power savings.	5	1	5	2	2	3	1	0	19
Require employees to maintain computer settings with power strips to turn off at the end of the day.	3	1	5	2	2	2	3	1	19
Require employees to turn computers and other peripherals off at the end of the day.	3	0	7	1	4	1	3	0	19
Require employees to use power strips to turn off computers and other peripherals off at the end of the day.	4	0	5	1	5	0	4	0	19
** Please indicate other "Green" computing initiatives that your agency has implemented or is likely to implement.									4
									<i>answered question</i> 19
									<i>skipped question</i> 5

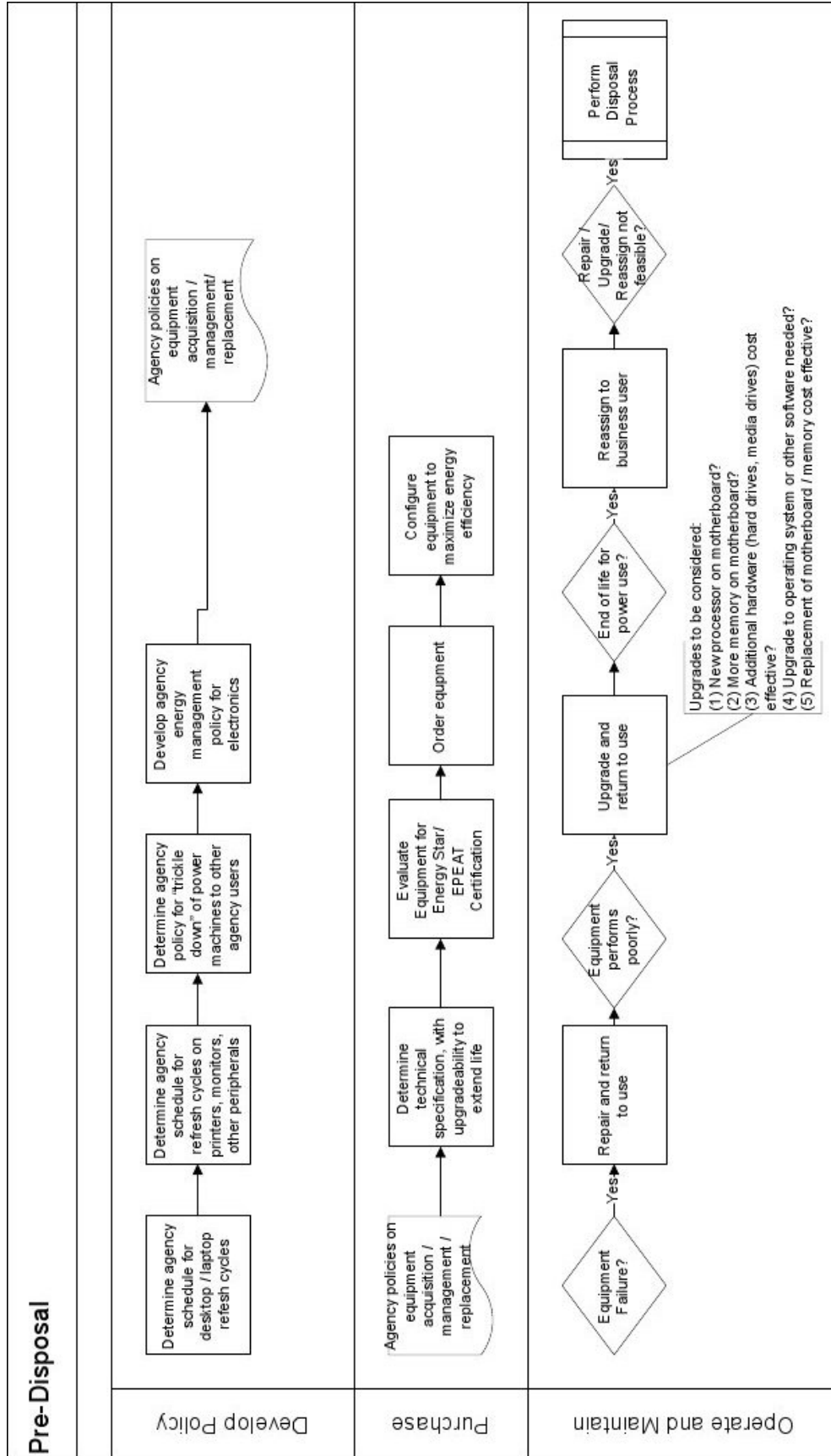
Number	Response Date	** Please indicate other "Green" computing initiatives that your agency has implemented or is likely to implement.
1	Oct 6, 2009 4:07 PM	As we move computers into the domain, we are setting up a script that automatically turns off their computer for them at night after updates have been run. Every employee has a power strip with their computer. Not sure what PEAT means.
2	Oct 12, 2009 2:44 PM	We implemented power save on all printers and copiers when not in use for 10 minutes.
3	Oct 13, 2009 1:36 PM	We are in the process of virtualizing servers and workstation to further aid our "Green" initiative.
4	Oct 16, 2009 6:34 PM	Reutilizing high-performance CADD computers as office automation PCs at the end of their lifecycle. This extends the life of the CADD computer to six years' usage. Comments regarding power saving initiatives: Turning off computers at night will prevent the Operations Group from performing night processing of data backups and Operating System and/or antivirus updates. We are open to the idea of powering off monitors, printers, scanners, and other peripherals via power strips or automatic means. However, the CPU hard drives need to remain active in order for us to perform data backup and critical software updates.



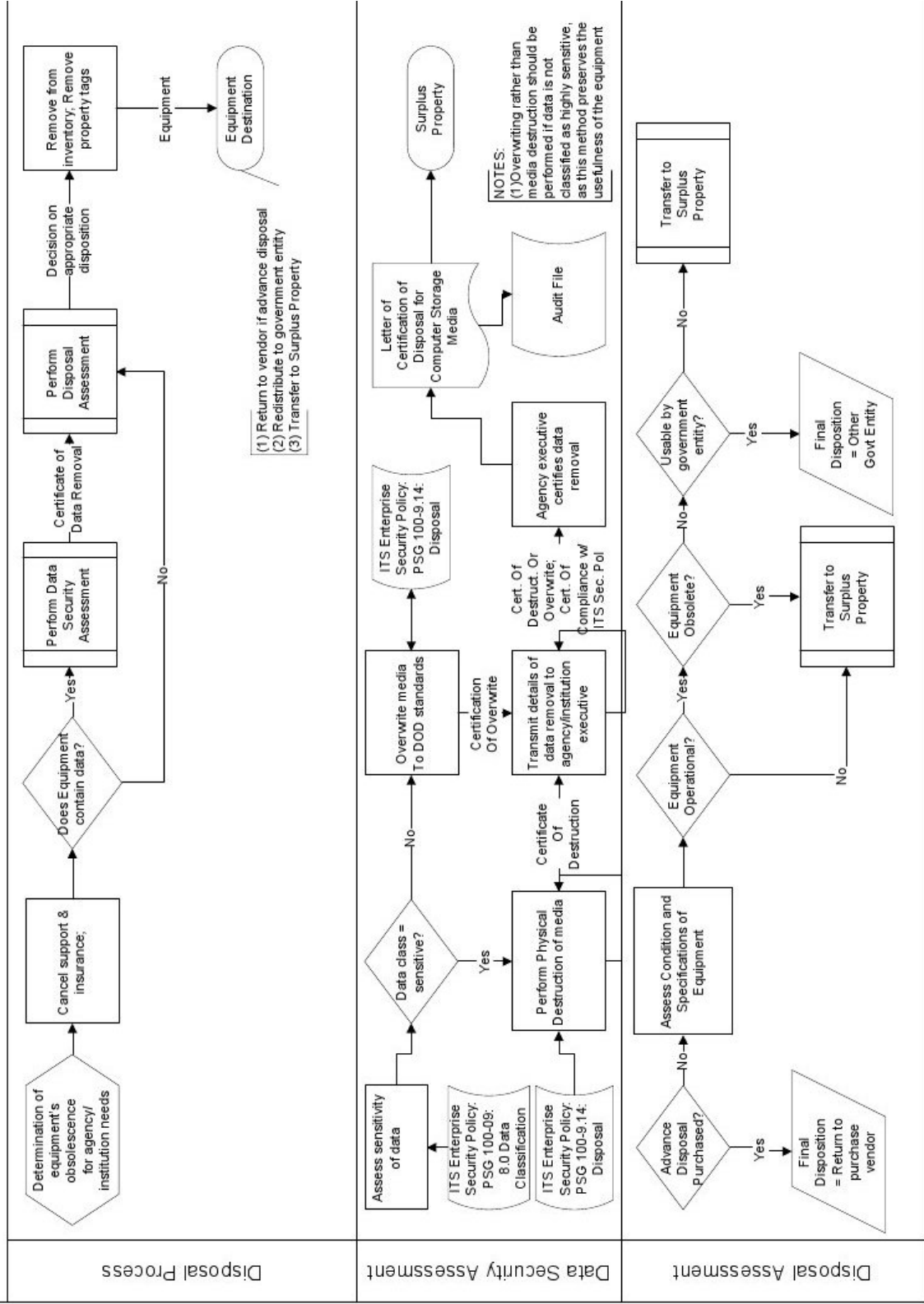
## **Appendix C**

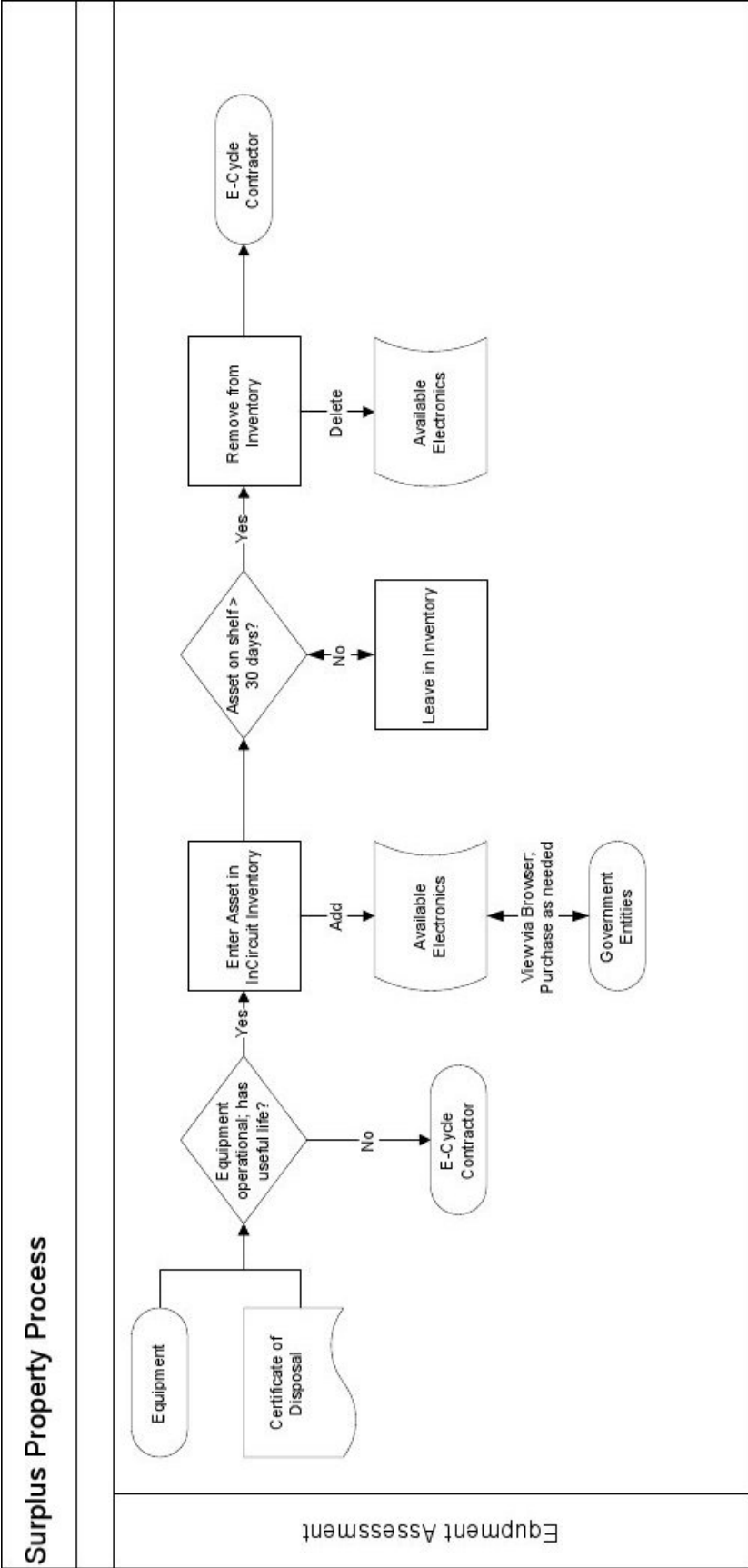
### **Recommended Disposal Process Flow**





# Electronics Disposal





## **Appendix D**

### **Letter of Certification of Disposal**



STATE OF MISSISSIPPI  
HALEY BARBOUR, GOVERNOR

DEPARTMENT OF FINANCE AND ADMINISTRATION  
KEVIN J. UPCHURCH  
EXECUTIVE DIRECTOR

## Memorandum

**To:** Agency Heads, IT Directors

**From:** Kevin J. Upchurch, Executive Director DFA

*KJU*

**Date:** January 6, 2009

**Re:** Proper Disposal of Computer Storage Media

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In an effort to ensure that proper procedures are being followed in the disposal of computer equipment, specifically equipment or devices containing storage media, the Department of Finance and Administration, is issuing the attached Letter of Certification of Disposal for use by the Agencies. Agencies are to complete the requirements identified in the letter prior to disposing of computer equipment containing any storage media. If your agency is submitting equipment to Surplus Property for disposal, the signed certification letter will be required with delivery of the equipment. For any disposal, your agency should retain a copy of the certification in its files along with all other required paperwork for the property's disposition.

Mississippi Department of Information Technology Services (ITS) is in the process of updating the state's Enterprise Security Policy. The revised policy contains a new section that specifically addresses proper disposal of equipment. Once the new policy has been finalized and published, this section of the policy can be referenced for details regarding the proper disposal requirements.

We understand there may be costs associated with the purchase of overwrite software, the destruction of media, or the personnel time associated with these processes, but this cost pales in comparison to potential cost of allowing sensitive or confidential information to be distributed into the wrong hands because the proper disposal methods were not followed.

Effective immediately, this process and the attached form must be used for any computer disposals by state agencies and by any agency or entity submitting devices/media to Surplus Property for disposal. Surplus Property will no longer accept delivery of computer equipment without this Letter of Certification of Disposal signed and dated by the executive head or his designee of the agency transferring equipment. As a further reminder, please ensure all property tags are removed from equipment prior to any transfer or other disposal.



## Letter of Certification of Disposal For Computer Storage Media

Citizen and Agency data is to be securely erased or the media destroyed prior to disposal, in accordance with the criteria outlined below from the State of Mississippi's Enterprise Security Policy. The Agency head must certify that any device/media submitted for disposal meets or exceeds these overwrite requirements or has been removed and destroyed. Devices/media submitted for disposal will not be accepted by Surplus Property without this signed Letter of Certification. For any disposal, a copy of this signed letter must be retained in the files of the transferring agency.

Agency must sanitize or remove all data and software from the device. Simply erasing and reformatting hard drives is not a permissible way of sanitizing magnetic media before disposal.

Agency must use one of the following methods of sanitizing or destroying the device/media in preparation for disposal:

- 1) **Overwriting** – This method should be used when the technology does not contain sensitive or confidential information and still maintains usefulness. Agencies may sanitize magnetic media (i.e. hard disk) by an overwriting process whereby a software utility writes a combination of 0s and 1s over each location on the hard drive multiple times. This process obscures the previous information under multiple layers of magnetic flux, rendering the data unreadable. Agencies must, in accordance with Department of Defense Directive 5220.22, "DoD Industrial Security Program," overwrite the disk three times prior to disposal or reuse.
- 2) **Physical Destruction** – This method should be used when the technology contains no usefulness and will be permanently disposed of (i.e. thrown in dumpster) or if the magnetic media contains highly sensitive data. In this case, the agency should perform a complete and permanent elimination of data and media device. Physical destruction is done by shredding the entire drive or the drives platters. At minimum the platters must be badly warped or distorted, rendering the drive or any of its components inoperable. This can generally be achieved by drilling the drive in several locations perpendicular to the platters and penetrating completely through from top to bottom. Hammering or crushing is equally effective but more labor intensive. Simply destroying the logic section of the drive without damaging the platters is insufficient.
- 3) **Degaussing** - This method should be used when the technology contains no usefulness and will be permanently disposed of (i.e. thrown in dumpster) or if the magnetic media contains highly sensitive data. Agencies may use degaussing to erase the magnetic media but it requires specialized equipment (as per Department of Defense Directive 5220.22) designed and approved for the type of media being purged.

I hereby certify that the devices/media submitted herein for disposal (property and serial numbers listed and attached) have been properly cleaned or removed and destroyed in accordance with the requirements stated above.

Agency Name \_\_\_\_\_

Authorized Person (Print Name) \_\_\_\_\_

Authorized Signature \_\_\_\_\_

Date Submitted \_\_\_\_\_

## **Appendix E**

### ***ITS Procurement Handbook: Setting a Manufacturer Standard***

## 019-030 Setting a Manufacturer Standard

### Content:

Sections 25-53-5 (o) and 25-53-123 (1) of the Mississippi Code of 1972 require that all acquisitions of computer and telecommunications equipment and services costing in excess of \$50,000 (\$25,000 for projects funded by the American Recovery and Reinvestment Act) be based upon competitive and open specifications. ITS makes every effort to work with customers to ensure that both the statutory requirement for competitive and open specifications and the customer's business needs are met through the procurement process.

In certain situations, the most advantageous and cost-effective approach for the State may be to identify the brand of hardware or software in the specifications. If the requested product has significant features that are not available in similar products, if these features can be certified as business requirements for the requesting agency, and if the product is not competitively available from multiple resellers, the Sole Source process should be used. (See <sup>(1)</sup>[013-030 Sole Source](#))

When there are other products available in the open market that would meet the customer's business objectives, the need to issue brand-name specifications must be well documented by the customer and closely examined and approved by ITS. To specify a brand name that is not a sole source, the State or the customer must have established an agency/institution "manufacturer standard" for the requested brand name product. It is important for the customer and ITS to work closely together on the process of establishing a manufacturer standard. Once the standard has been established, the requesting agency, in submitting a brand-name request to ITS, must provide documentation of the product as an agency/institution standard, including how the standard was established, the length of time the standard has been in place, any relevant volume information concerning the number of devices currently installed at customer site(s), and the timeframe in which the standard will be recompeted.

For an agency or institution, or a major facility within an agency or institution, to establish a brand-name (manufacturer) standard, all or most of the following guidelines must be met:

(1) The manufacturer standard must be established through a competitive procurement. It is highly desirable that the specifications used in this competitive process explicitly state that the results of the procurement will establish a manufacturer standard for the procuring entity.

(2) The competitive procurement for establishing a standard must be for the majority of like devices owned by the procuring entity. If the initial purchase to be made under the competitive procurement is for fewer than the majority of like devices, the intent should be to replace the majority of devices with the established standard during the defined life of the standard (see (4) below).

(3) The requesting entity should identify the practical benefits of setting a manufacturer standard. These benefits should be documented in terms of specific technical benefits related to interoperability/consistency or in terms of business benefits, possibly related to staff expertise and institutional knowledge base, parts inventories if maintenance is performed in-house, and/or the ability to leverage volumes for better discounts over a product lifecycle. Technical synchronization with peer governmental, educational, or research entities could be another valid justification for setting a standard.

(4) The standard must be set for a defined period of time and be reexamined periodically. For example, it is expected that many agencies and institutions will replace most desktop devices on an n-year cycle. The length of the refresh cycle should be specified in the competitive procurement. The replacement procurement must be open to other manufacturers and to the potential of establishing a new standard for



the next several years. Organizations that procure desktop devices on a staggered cycle should also recompute on a reasonable timeframe, approximately every three to five years, and should specify this timeframe in the competitive procurement. Different types of equipment or products will have different lifecycles. While a competitive procurement for desktops would reasonably be conducted on a three to five year cycle, a router standard might only be competed on an eight to ten year basis. There are no hard and fast rules for these timeframes. The agency or institution should regularly examine the relative competitiveness of the product pricing and the cost-benefit of remaining with the standard, as long as the standard is in place.

The following criteria are **not** appropriate for consideration in establishing or requesting a brand-name standard:

- (1) The original procurement was made directly from the Express Products List rather than via a formal competitive process.
- (2) The original procurement was for a lower-end, less expensive technology, and the request asks that the standard be applied to a higher-end, more expensive technology (e.g., LAN switches cannot establish a standard for large enterprise network switches or routers). Standards are, within reasonable limits, device-specific.
- (3) The current procurement is a replacement for the majority of the organization's devices/products of this type.
- (4) The "brand" requirement is specified in terms of a reseller rather than a manufacturer. Standards must be at the manufacturer level.

## **Appendix F**

### **Senate Bill 2796**

By: Senator(s) Moffatt

To: Environment Prot, Cons  
and Water ResCOMMITTEE SUBSTITUTE  
FOR  
SENATE BILL NO. 2796

1 AN ACT TO ESTABLISH STATE POLICY FOR THE RECYCLING AND ASSET  
2 DISPOSITION OF STATE AGENCY-GENERATED OBSOLETE ELECTRONIC  
3 EQUIPMENT; TO CREATE A COMMITTEE TO STUDY AND RECOMMEND  
4 REQUIREMENTS FOR RECYCLING OBSOLETE ELECTRONIC EQUIPMENT; AND FOR  
5 RELATED PURPOSES.

6 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MISSISSIPPI:

7 **SECTION 1.** (1) The Legislature finds that electronic  
8 equipment waste is among the fastest growing segment of  
9 Mississippi's solid waste stream. The state must frequently  
10 upgrade and replace computers, telecommunication devices and other  
11 technologically sophisticated equipment necessary to the efficient  
12 operation of state government. The necessary purchase of  
13 up-to-date computers, telecommunications devices and other  
14 technological equipment for state government use often results in  
15 a surplus of property that, while unfit for state government  
16 purposes, is still useful and marketable or transferable to other  
17 public or nonprofit entities for less complex and less high-speed  
18 dependent use. In addition, due to the sensitive information  
19 contained in almost all electronic equipment memory components, a  
20 stringent data management process is required to ensure that  
21 sensitive data is not inadvertently compromised. By the time the  
22 surplus property is delivered to the Office of Surplus Property of  
23 the Department of Finance and Administration, it is generally  
24 technologically obsolete and has lost considerable value resulting  
25 in a significant waste of potential revenue to the State of  
26 Mississippi.

27 (2) The purpose of this act is to establish a process for  
28 the development of state policy for Recycling and Asset



29 Disposition (READ) Services targeting state agency-generated  
30 obsolete electronic equipment in order to:

31 (a) Achieve the maximum possible benefit from use of  
32 state agency-owned electronic equipment;

33 (b) Ensure a data security process that prevents the  
34 inadvertent release of sensitive state-owned electronic  
35 information to unauthorized parties during the disposal process;

36 (c) Achieve maximum benefit from sale and/or recycling  
37 of surplus state agency electronic equipment; and

38 (d) Protect the public health, safety and the  
39 environment by mandating that steps be taken to address the solid  
40 waste management of electronic equipment and solid waste  
41 statewide.

42 **SECTION 2.** For the purposes of this act, the following words  
43 and phrases shall have the meanings ascribed to them in this  
44 section:

45 (a) "Agency" means every department, division, office,  
46 board, commission and institution of this state, including  
47 state-supported institutions of higher education.

48 (b) "Electronic Equipment" means a personal computer,  
49 computer component, audio player, videocassette player, facsimile  
50 machine, copy machine, cellular telephone, wireless paging device,  
51 or any electronic item containing an intact or broken cathode ray  
52 tube. An electronic item containing a cathode ray tube includes a  
53 television, computer monitor, or any other cathode ray tube  
54 monitor or display device.

55 (c) "Data Security" means the removal of sensitive  
56 information contained in almost all electronic memory and data  
57 storage components, using a stringent data management process to  
58 ensure that sensitive data is not inadvertently compromised.

59 (d) "Enterprise Security Policy" means the document  
60 published by ITS in accordance with the Mississippi Administrative  
61 Procedures Act to establish standards for the creation of a



62 technology environment within the State of Mississippi agencies  
63 that maintains system security, data integrity and privacy by  
64 preventing unauthorized access to data and by preventing misuse  
65 of, damage to or loss of data.

66 (e) "Logistical/Inventory Support" means coordinating  
67 electronic equipment pick-up, transportation of items to a central  
68 location for testing, auditing, and redistributing items depending  
69 on the item's condition. Of the equipment collected, the process  
70 will also determine which items will be donated or redeployed,  
71 which items will be upgraded, remarketed, and resold, and which  
72 items will be dismantled, reclaimed and recycled.

73 (f) "Management and Technical Support" means to provide  
74 management and technical advice to ensure that electronic items  
75 are recycled if possible and not merely sent to landfills for  
76 disposal. The management process at a minimum includes:  
77 overseeing the testing, demanufacture, and reclamation process;  
78 determining the feasibility of redeployment and remarketing;  
79 reporting on the destination of major components; and certifying  
80 that usable items are reduced to reusable components and/or  
81 recycled.

82 (g) "Recycling" means the use, reuse or reclamation of  
83 obsolete electronic equipment and associated materials.

84 (h) "Recycling Electronics and Asset Disposition (READ)  
85 Services" means recycling and otherwise disposing of obsolete  
86 electronic equipment generated by state government in an  
87 environmentally responsible manner, that ensures the data security  
88 of the asset and that maximizes the state's return on investment.

89 (i) "Surplus Property" means obsolete electronic  
90 equipment no longer in use in an agency or entity and which may  
91 have residual market value in reuse or in recyclable materials.

92 (j) "Valuation Process" means to determine the current  
93 market conditions and identify equipment that can be resold at a  
94 fair and reasonable price. Part of the validation process



95 includes a determination on what type of a return on investment  
96 can be achieved.

97       **SECTION 3.** (1) There is hereby created a committee for the  
98 review of issues, existing regulations and potential solutions to  
99 address READ Services to the agencies of the state. The committee  
100 shall be composed of one (1) member from each of the following  
101 state agencies appointed by the executive director of the agency:

102               (a) Mississippi Department of Finance and  
103 Administration (DFA);

104               (b) Mississippi Office of the State Auditor (OSA);

105               (c) Mississippi Department of Environmental Quality  
106 (MDEQ); and

107               (d) Mississippi Department of Information Technology  
108 Services (ITS).

109       (2) It is the intent of the Legislature that the committee,  
110 no later than November 1, 2009, develop and provide to the  
111 Legislature and the Office of the Governor recommendations  
112 regarding a policy for READ Services to the agencies of the state.  
113 Such policy should address, but not be limited to:

114               (a) Requirements for certification that any and all  
115 data and software have been removed from the electronic equipment  
116 in accordance with the State's Enterprise Security Policy, along  
117 with recommendations for contractual services or equipment as  
118 related to data security;

119               (b) Provisions for extending the useful life of  
120 electronic equipment by maximizing reuse of such equipment by  
121 other state agencies;

122               (c) Provisions for donation of electronic equipment to  
123 public schools, local governments or other nonprofit organizations  
124 under certain defined circumstances;

125               (d) Regulations and recommendations for  
126 logistical/inventory support, management and technical support,



127 and a valuation process of READ Services as related to state  
128 agency-generated electronic equipment surplus property;  
129           (e) Recommendations for funding the READ Services for  
130 state agency-generated electronic equipment surplus property; and  
131           (f) Recommendations related to the environmental  
132 considerations for the safe disposal of hazardous components  
133 contained in obsolete electronic equipment.  
134       **SECTION 4.** This act shall take effect and be in force from  
135 and after its passage.

