U.S. DEPARTMENT OF ENERGY | Office of the Chief Information Officer

HSS Office of Health, Safety and Security

Green IT 2012: Sustainable Electronics

DOE Sustainability Assistance Network

July 19, 2012

Cate Berard

Federal Electronics Challenge and EPA

Jeff Eagan

Office of Sustainability Support (HS-21)

Outline

- Electronics Life Cycle Stage Management Strategies: Drivers, Goals, Best Practices
  - Procurement
  - Operations and Management (O&M)
  - Disposition
- Reporting
- Environmental Benefits of Best Practices
- Next Steps

U.S. DEPARTMENT OF ENERGY | Office of the Chief Information Officer

HSS Office of Health, Safety and Security

Procurement Goals

- **EPEAT ® (Electronic Product Environmental Assessment Tool):** At least 95% desktop computers, laptops, thin clients, and monitors must be EPEAT-registered
- **Energy Star®:** All office electronics must be Energy Star qualified
- **Federal Energy Management Program (FEMP) Designation:** All office electronics must meet energy efficiency and low stand-by power consumption requirements
- EPEAT, Energy Star and FEMP procurements required by the Federal Acquisition Regulation (FAR), Executive Order 13514 and other federal drivers

Procurement: EPEAT

- EPEAT registers environmentally preferable office electronics like computers and monitors
- EPEAT registration reflects categories of required and optional environmental /energy attributes:
  - Reduction/elimination of environmentally sensitive materials
  - Energy Star/energy conservation
  - Packaging and material selection
  - Design for end of life
  - Product longevity
  - End-of-life management
  - Corporate performance

Procurement: EPEAT

- Thousands of electronic products are registered with EPEAT from almost 30 manufacturers in the U.S.

United States				Total
Desktops	2	79	136	217
Displays	0	359	424	783
Integrated Desktop Computers	0	21	44	65
Notebooks	34	156	688	878
Thin Clients	0	21	10	31
Workstation Desktops	0	2	36	38
Workstation Notebooks	0	1	4	5
Totals	36	639	1342	2017

Procurement: EPEAT

- EPEAT plans to add imaging equipment like printers, copiers, and multifunction devices, and wide screens and televisions in early 2013.

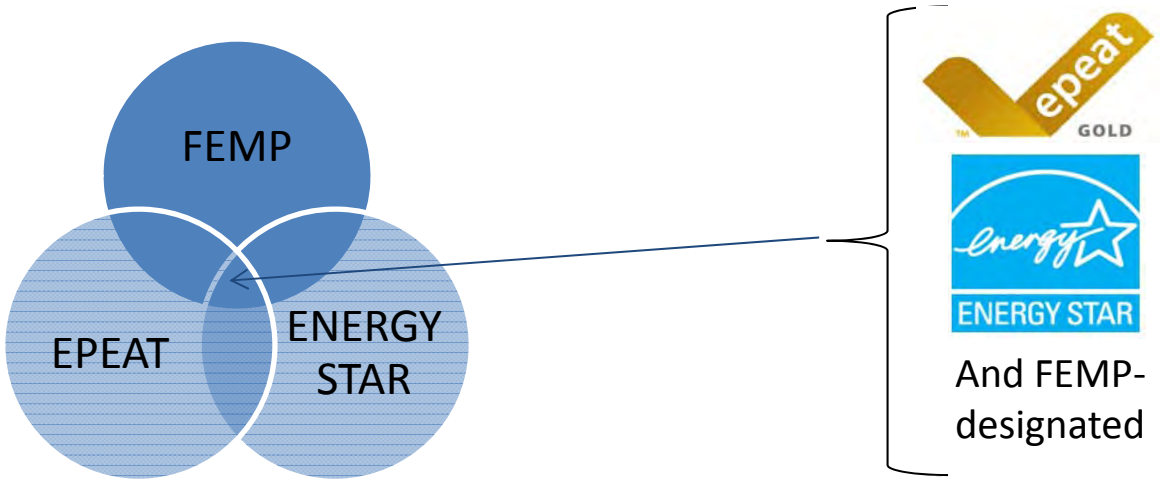
- Facilities will be required to buy and report these EPEAT-registered products as well

Overlapping Procurement Goals

- EPEAT registered products
  - Must meet the current Energy Star specification for the products
  - All EPEAT-registered displays and laptops meet FEMP requirements due to meeting Energy Star requirements
  - EPEAT-registered desktops meet FEMP energy efficiency requirements but *may not meet low standby power consumption requirements*
- ENERGY STAR qualified products
  - Must meet FEMP energy efficiency requirements and *may meet FEMP low standby power requirements*
  - Many Energy Star qualified office electronics meet all FEMP requirements

Procurement Solutions

- Procurement efforts should specify computers and displays in the “sweet spot” that are Energy Star qualified, EPEAT-registered and that meet FEMP requirements
- Vendors can be required to help with tracking
- Sites can verify with checks



Operations and Maintenance Goals

- Enable power management on 100% of computers and displays
  - Exempt equipment: special mission critical applications such as security monitoring, science experiments, etc.
- Implement print management strategies to reduce costs and cut paper usage
  - Default “duplexing” or two sided printing on printers/copiers
  - “Draft” quality printing for non-essential materials
  - Toner efficient fonts
  - Transition from personal to networked printers
- Establish four year equipment refresh cycle in contracts

Operations and Maintenance Best Practices

- Establish power management and print management programs
- Conduct a robust equipment census that includes eligible units, exempt units, and equipment under power and print management
- Utilize power and print management software for comprehensive solutions
- Require suppliers to enable power and print management settings upon purchase
- Review power and print management settings to ensure they have not been modified or tampered

A New Disposition Driver from GSA

- General Services Administration (GSA) Federal Management Regulation (FMR) Bulletin B-34 "Disposal of Federal Electronic Assets" on February 29, 2012, defining federal assets as:
  - Copiers
  - Telephones, fax machines, and communication equipment
  - Electrical and electronic measuring and testing instruments
  - Digital cameras
  - Desktop and laptop/portable computers, computer monitors, displays, printers, peripherals, and electronic components
  - Televisions and other displays

New GSA Disposition Guidance

- Prohibits disposal of electronic waste in landfills or by incineration
- Encourages maximum reuse of electronics within the Federal government and state/local donation customers
- Limits agencies to sell only functional assets to the public
- Non-functional equipment must be disposed through certified recyclers
- Only use manufacturer take-back services that use certified recyclers
- Requires advising and educating down-stream recipients to dispose of end of life electronics with certified recyclers

Certified Recyclers

- About 150 private sector recyclers currently certified under the Responsible Recycling (R2) Standard: http://www.r2solutions.org/
  - All UNICOR facilities are R2 certified http://www.unicor.gov/recycling/
- About 53 private sector recyclers certified under e-Stewards Standard: http://e-stewards.org/

Disposition Best Practices

- Sell only functional assets to the public, auctions of non-functional equipment are banned
- Non-functional assets must go to certified recyclers
- Do not send electronics for incineration or landfill disposal under any circumstance
- Provide recycling information to non-profits, schools with donations of electronics
- Track items donated, sold, and recycled internally or via vendor contract
- Periodically review third party certifications or audit recyclers
  - Ensure specific recycler locations are certified

Reporting Requirements

- The DOE Sustainability Performance Office reports annual agency electronics stewardship performance to Office of Management and Budget and the White House Council on Environmental Quality
- The Office of the Chief Information Officer collects the data with the assistance of the Office of Sustainability Support (HS-21)
- The data covers DOE life cycle management of its electronics assets:
  - Procurement
  - Operations and Management
  - Disposition

DOE 2012 Procurement Reporting

- Report purchases of EPEAT-registered and non-EPEAT-registered desktops, notebooks and displays
- Report purchases of printers, multifunction devices, TVs, servers, cellular/mobile telephones
  - EPEAT will cover these in near future
- Confirm whether the facility Environmental Management System (EMS) addresses electronics stewardship
    - Note that DOE reporting mirrors Federal Electronic Challenge reporting: http://www.federalelectronicschallenge.net/

U.S. DEPARTMENT OF ENERGY | Office of the Chief Information Officer

HSS Office of Health, Safety and Security

DOE 2012 O&M Reporting

- Conduct a census of the total number of computers and displays in use
- Review the number and function of computers and displays exempt from power management because of mission-critical exemptions
- Count the non-exempt computers and displays under power management
- Evaluate the average lifespan of computers
- Calculate the percentage of eligible printing equipment placed under print management

DOE 2012 Disposition Reporting

- Count and report numbers of computers, displays, printers, TVs, servers, cell phones, and mixed electronic products (MEPs) sent off-site at end of life:
  - Reused
  - Sent to recycling
  - Unknown disposition (including sales)
  - Sent to landfill/incinerator
- For mixed electronics products not individually counted, report the weight of products disposed of by the categories above

U.S. DEPARTMENT OF ENERGY | Office of the Chief Information Officer

HSS Office of Health, Safety and Security

DOE 2012 Disposition Reporting

- Identify your equipment recycler:
  - R2 or e-Stewards Certified Recycler
  - UNICOR
  - Manufacturer Take-Back Program for EPEAT registered products
  - Manufacturer Take-Back Program for Non-EPEAT registered products
  - Other, such as a local non-certified recycler. Report due diligence activities for these recyclers such as on-site review, third party verifiers, or other activities

2012 OMB Scorecard Electronics Stewardship

- OMB ranks federal agencies on electronic stewardship practices twice a year on a Sustainability Scorecard
- Agencies score “red”, “yellow”, or “green” based upon five criteria:
  1. Purchasing EPEAT-registered products
     - Has the agency purchased 95% EPEAT-registered products?
     - Do IT contracts include EPEAT clauses?
     - Report number of EPEAT and non-EPEAT-registered monitors, PCs, and laptops purchased
  2. Purchasing Energy Star-qualified and FEMP-designated products
     - Number of contracts that require Energy Star and/or FEMP designated products and total number of contracts reviewed

2012 OMB Scorecard Electronics Stewardship (Continued)

3. Enabling power management on 100% computers and displays
   - Total number of computers and monitors in agency-wide census
   - Number of enabled and exempt computers and monitors
   - 100% power management for eligible computers and monitors
4. Reporting environmentally preferable features
   - Percentage of automatic duplexing (two sided printing) printers
   - Number of applicable contracts that include clauses addressing duplexing
5. Documenting environmentally sound disposition
   - Report Agency use of GSAXcess, CFL, UNICOR, R2 and/or e-Steward certified recyclers
   - Percentage of end of life electronics reused and recycled

U.S. DEPARTMENT OF ENERGY | Office of the Chief Information Officer

HSS Office of Health, Safety and Security

Calculating Environmental Benefits of Green IT

Tools to assist in calculating the environmental benefits of best electronic stewardship practices:

- Environmental benefits of all life cycle best practices: http://www.federalelectronicschallenge.net/resources/bencalc.htm
- Monitor energy savings: www.energystar.gov/ia/business/bulk_purchasing/bpsavings_calc/Calc_monitorsBulk.xls
- Desktop CPU energy savings: www.energystar.gov/ia/business/bulk_purchasing/bpsavings_calc/Calc_Computer_product.xls

U.S. DEPARTMENT OF ENERGY | Office of the Chief Information Officer

HSS Office of Health, Safety and Security

FY11 Environmental Benefits of DOE EPEAT Purchasing and Green O&M

- **Energy Savings:**
  - **50,000,000 kilowatt-hours**
- **Green House Gas Emissions Savings:**
  - **9,610,000 kg of CO2 Equivalent**
- **Projected Dollar Savings:**
  - **$4,810,000**

Calculation estimates made from FY11 DOE procurement and O&M data, using EPA Electronics Environmental Benefits Calculator

U.S. DEPARTMENT OF ENERGY | Office of the Chief Information Officer

HSS Office of Health, Safety and Security

FY11 Environmental Benefits of DOE Recycling and Reuse

- **Energy Savings:**
  - **120,000,000 kilowatt-hours**
- **Green House Gas Emissions Savings:**
  - **15,600,000 kg of CO2 Equivalent**
- **Projected Dollar Savings:**
  - **$ 11,210,000**

Calculation estimates made from FY11 DOE procurement and O&M data, using EPA Electronics Environmental Benefits Calculator

Next Steps

- Two new EPEAT standards will be implemented by next winter:
  - IEEE 1680.2 Standard for Imaging Equipment
  - IEEE 1680.3 Standard for Televisions and Wide Screens.
- EPEAT Computer Standard IEEE1680.1 is being updated
- Energy Star Version 6 is under development; may include slate computers like iPads
- New 2012 Energy Star standards will include Uninterrupted Power Sources, Data Storage, Imaging, TVs, Computers, Displays, Battery Chargers

Next Steps (Continued)

- New federal print management requirements will promote default duplexing and the transition from personal printers to networked, duplex-capable printers
- Support for increased procurement of thin clients (vs. computers) and slates (vs. laptops) to reduce energy usage
- GSA interagency efforts for federal sustainable procurement requirements will recognize more product standards and eco-labels

Next Steps (Continued)

- Previously optional reporting will become required reporting: eg tracking disposition of all electronic assets
- 2013 FEMP updates will reflect changes in DOE standards, ENERGY STAR specifications, and market. Short term: Link standby power requirements with Federal Supply Source databases like GSA Advantage. Mid term: Integrate standby power attributes for computers + laptops into Energy Star and EPEAT
- Guidance principles in GSA Bulletin FMR B-34 will be converted into regulations within the next 18-24 months.

Summary

- Electronic stewardship involves a full life-cycle approach: procurement, operations and maintenance, and disposition
- Green IT best practices involve active collaboration among procurement, IT, property, and environmental and safety staffs
- Electronic stewardship practices have major benefits: cost and energy savings, reduced GHGs and other environmental benefits, and “Green” agency scorecard rankings by OMB

U.S. DEPARTMENT OF ENERGY | Office of the Chief Information Officer

HSS Office of Health, Safety and Security

Contact Information

Jeff Eagan

Electronics Stewardship Coordinator

DOE Office of Sustainability Support (HS-21)

Jeff.eagan@hq.doe.gov

202-586-4598