



Green IT Strategies for Public Agencies: Environmentally Preferable Purchasing, Energy Efficiency, & Responsible End-of- Life Management

10/02/12

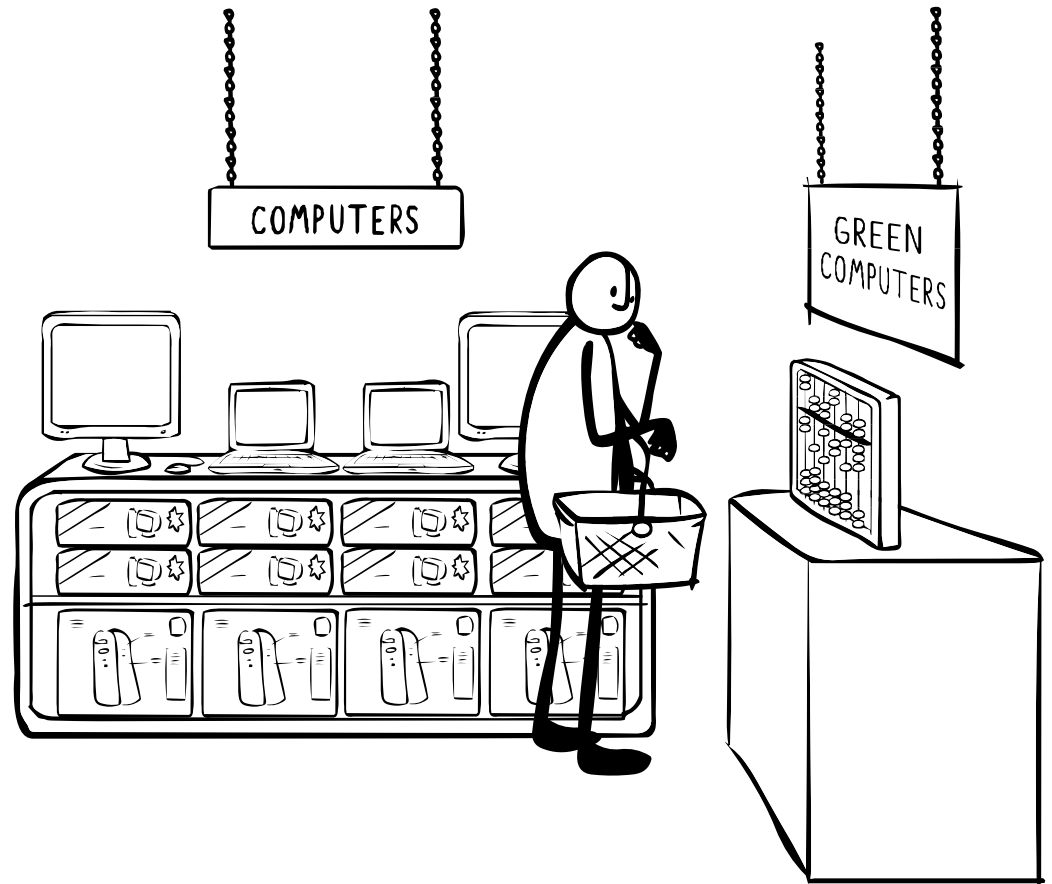
Sue Chiang, MPH, MPP

Presentation Overview

Why Green IT: Quick
overview of problem
(more than just energy)



Tips & Tools for:
Purchasing, Use & EOL



Center for Environmental Health (CEH)

A non-profit organization dedicated to protecting public health from exposures to toxic chemicals.

The Center for Environmental Health's Sustainable Electronics program works with large institutions to promote the sustainable purchase, management and disposal of electronic products.



www.ceh.org



Electronics TakeBack Coalition

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Goal: to protect the health and well being of electronics users, workers, and the communities where electronics are produced and discarded by requiring consumer electronics manufacturers and brand owners to take full responsibility for the life cycle of their products, through effective public policy requirements or enforceable agreements.

www.electronicstakeback.com



Problem Overview

1. **Fastest Growing Portion of Waste Stream** (e-waste = 2 – 5% of US municipal solid waste)
2. **Toxics Throughout Life Cycle**
3. **Vast Resources and Energy Used**
4. **Built for Obsolescence** (avg lifespan of mobile phone = 18 months, personal computer = 2 yrs)
5. **Most Landfilled, Incinerated or Exported**
6. **Manufacturers Bear No Responsibility**



High Tech Impact on the Environment



1.8 tons of raw materials -- including **530 lbs** of fossil fuels, **1.5 tons** of water and **48 lbs** of chemicals -- **to manufacture one desktop PC and monitor** (2004 United Nations University study)



Electronics are Complex and Resource Intensive Products

- 500 to 1,000 components in one mobile phone.
- > 4,300 chemicals identified in making a television set.
- Production of single memory chip uses 600 times the weight of the chip in fossil fuel.
- Overall materials intensity of computer manufacturing is 10 times higher than that of refrigerators or automobiles.



Metals commonly contained in PC's- Hazardous and Precious

Hazardous (RCRA)

- * **Antimony**
- * **Arsenic**
- * **Chromium**
- * **Cadmium**
- * **Cobalt**
- * **Lead**
- * **Mercury**
- * **Selenium**

Precious Metals

- * **Aluminum**
- * **Copper**
- * **Gold**
- * **Palladium**
- * **Platinum**
- * **Silver**



Conflict Minerals: 3 T's and Gold

- Tin
- Tantalum
- Tungsten
- Gold

The mining and trade of these minerals continue to fuel and fund ongoing armed conflict and severe human rights abuses in the Democratic Republic of the Congo (DRC)



Photo Credit: enoughproject.org

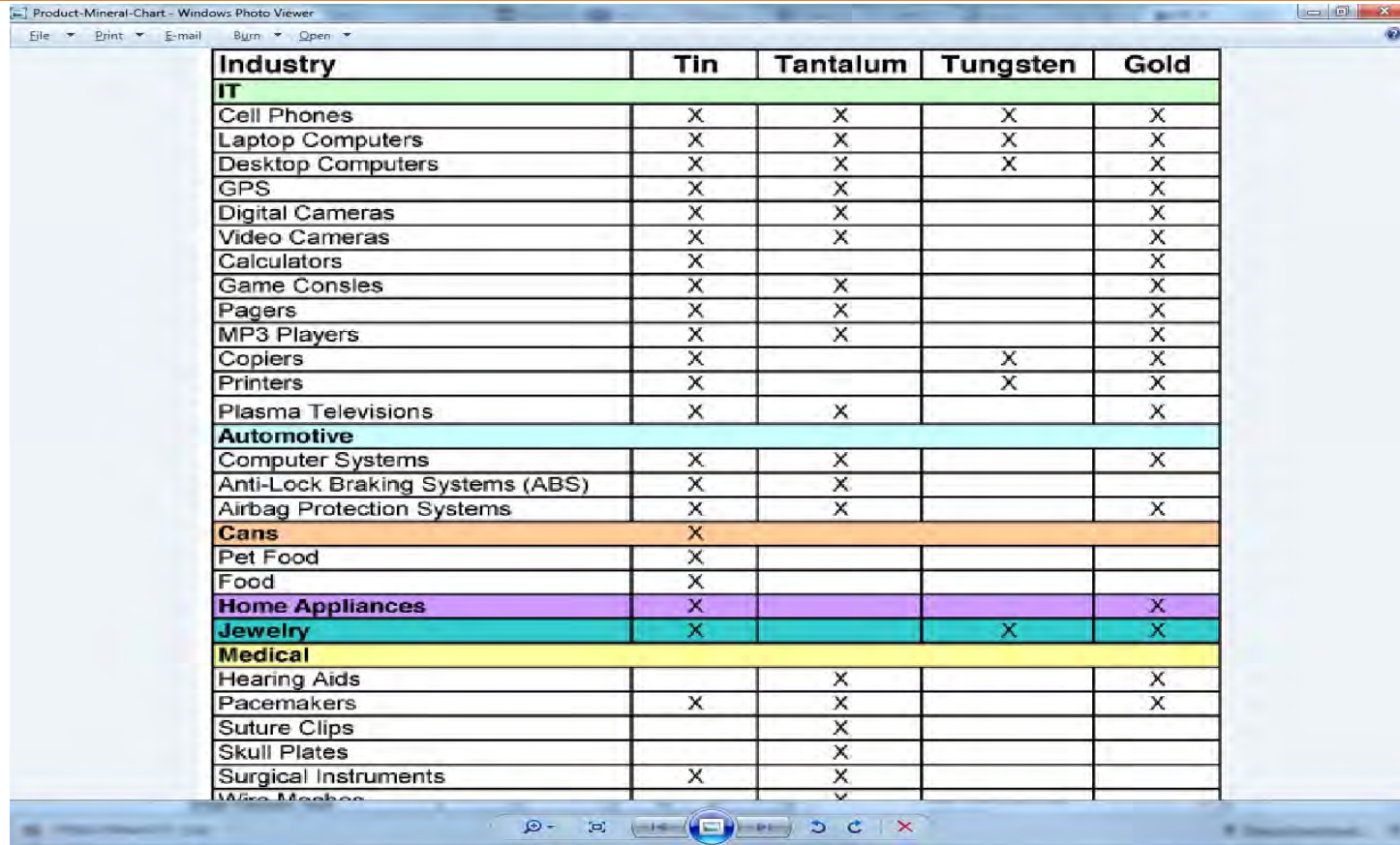
Democratic Republic of Congo: Deadliest War Since WW II

- ~ 5.4 Million have died in DRC since 1998
- Armed groups control the majority of gold and mineral mines.
- One in three women have been raped. Rape, murder and burning of villages are used to intimidate local population.



**UN has declared DRC the most dangerous place on earth
to be a woman or girl**

Where are conflict minerals found?



Industry	Tin	Tantalum	Tungsten	Gold
IT				
Cell Phones	X	X	X	X
Laptop Computers	X	X	X	X
Desktop Computers	X	X	X	X
GPS	X	X		X
Digital Cameras	X	X		X
Video Cameras	X	X		X
Calculators	X			X
Game Consoles	X	X		X
Pagers	X	X		X
MP3 Players	X	X		X
Copiers	X		X	X
Printers	X		X	X
Plasma Televisions	X	X		X
Automotive				
Computer Systems	X	X		X
Anti-Lock Braking Systems (ABS)	X	X		
Airbag Protection Systems	X	X		X
Cans				
Pet Food	X			
Food	X			
Home Appliances				
Jewelry	X		X	X
Medical				
Hearing Aids		X		X
Pacemakers	X	X		X
Suture Clips		X		
Skull Plates		X		
Surgical Instruments	X	X		
Wire Meshes	X	X		

Electronics are the largest users of conflict minerals.

The Chart can be found here:

<http://www.triplepundit.com/2012/08/sec-conflict-minerals-ruling/>



Mining: Threats to the Environment

- Land difficult to farm → more dependence on mining
 - Animal populations depleted—habitat loss, hunted
- Eastern lowland gorilla population: decreased by 90% over last 5 yrs

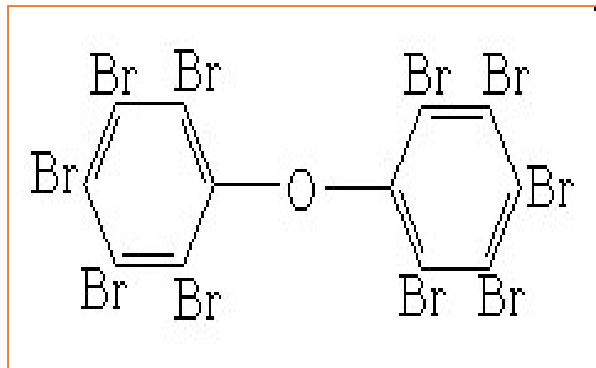


Solutions & What You Can Do

- **System to Trace, Audit, and Certify** products as conflict free (like “Blood Diamonds”)
- **Hold manufacturers accountable**
- **Extend electronics refresh cycle as long as possible**
- **Purchase from “green”-ranked companies**
<http://www.raisehopeforcongo.org/content/conflict-minerals-company-rankings>
- **Ask for disclosure from your suppliers** that use critical minerals in their products of their origins and the measures taken by company (Dodd-Frank Reform Act)
- http://www.enoughproject.org/conflict_areas/eastern_congo



Brominated Flame Retardants



Found to migrate out of electronic products and settle into dust.

- **American women have the highest levels of FRs in their breast milk in the world.**
- **Toddlers have 3x amount in body burden than mothers**
- **Many found to be persistent, bioaccumulative and toxic**
- **Form dioxins/furans upon combustion.**

BFRs in Electronics

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Widespread use of plastics in electronics is main source of Bromine and Chlorine.

- 25-30% by weight of the volume of e-waste generated each year is plastic
- <10% of the plastic is recycled

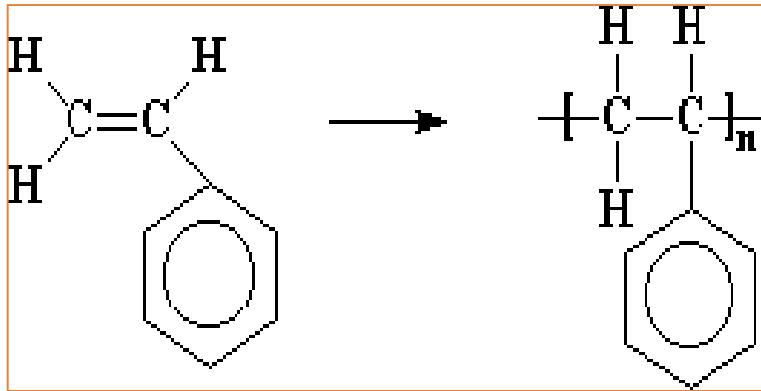
To meet fire safety standards, electronics require a high concentration of BFRs in the plastic ~50,000 to 300,000 ppm (5 to 30%)



From ChemSec/CPA “Greening Consumer Electronics” Report

Problems with Polyvinyl Chloride (PVC)

Lifecycle Examples Include:



Most commonly found in electronics in insulation and coating of wires and cables.

Manufacturing-

- Two primary ingredients are highly explosive, highly toxic and known carcinogens
- Mercury released during production of chlorine gas

Use-

- Requires large amounts of toxic additives which are released during the use of PVC products

End-of-Life-

- Production of Dioxins and Furans
- Not easily recycled

Chemical (FR) Industry Expos 

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Flame Retardant Industry exposed in investigative series (5/5-5/10/12) for using Big Tobacco's disinformation tactics, exposing people to toxic chemicals and then lying about it.

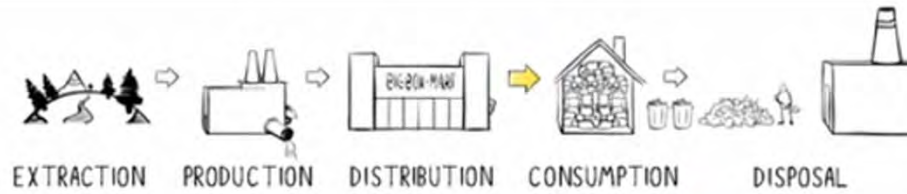


<http://www.toxicfreefiresafety.org/AllThingsCHiTrib5.05-11.12.php>



THE STORY OF STUFF PROJECT PRESENTS
THE STORY OF
ELECTRONICS

WHY 'DESIGNED FOR THE DUMP' IS TOXIC FOR PEOPLE AND THE PLANET



"DESIGNED FOR THE DUMP"



THE STORY OF
STUFF
PROJECT

BLOG

DOWNLOADS

1595

Tweet

23.7K

SHARE

TAKE ACTION!

send a message to
electronics CEOs
demanding that they:

**MAKE 'EM SAFE
MAKE 'EM LAST
TAKE 'EM BACK**

ACTION SPONSORED BY:



Electronics
TakeBack
Coalition

FAQs

[JOIN OUR EMAIL LIST](#)

[ABOUT](#)

[WHAT YOU CAN DO](#)

[DONATE](#)

UPDATE: Lenovo Says They Agree with Us! We say Prove It! ...read more from our blog



www.storyofelectronics.org

What Can Be Done?

- Cleaner Designs that Use Less Toxics
- Upgradeable Products
- Easier to Recycle
- Built to Last
- Extended Producer Responsibility
- Globally Responsible Recycling
- Environmentally Preferable Purchasing
- Power Management

What you can do as an Employee and Individual Consumer

1. Extend product life (uses 5-20 x less energy)
2. Choose environmentally preferable products (EPEAT & Energy Star)
3. Utilize power management options
4. Recycle responsibly
5. Reduce paper use and use duplex printing



Electronic Product Environmental Assessment Tool (EPEAT) www.epeat.net

- Global registry for environmentally preferable electronics (Covers desktop computers, notebooks & monitors)
- >3,200 products • 45 manufacturers • 41 countries
- 3 tiers of environmental performance

Bronze



Silver



Gold



EPEAT IEEE-1680

8 Main Performance Categories

1. Environmentally Sensitive Materials
2. Material Selection
3. Design for End-of-Life
4. Product Longevity
5. Energy Use
6. End-of-Life Management
7. Corporate Performance
8. Packaging
9. Indoor Air Quality (Imaging Equipment)
10. Consumables (Imaging Equipment)



Limitations of EPEAT (computers)

- Limited requirements to eliminate certain hazardous materials
- No requirement to enact occupational health and safety to protect workers
- Weak requirements for responsible recycling
- Weak packaging requirements

Some independent verification of manufacturer claims after registration (spot checks of items on registry)

Environmentally Preferable Purchasing:

a. All desktop computers, laptops, and computer monitors purchased by [Organization] are required to have achieved Bronze registration or higher under the **Electronic Products Environmental Assessment Tool (EPEAT)**.


b. Additional consideration will be provided for electronics products that have achieved **EPEAT Silver** or **EPEAT Gold** registration. The registration criteria and a list of all registered equipment are provided at <http://www.epeat.net>.



Apple & EPEAT

- Apple removed all of their products from the EPEAT registry in late June 2012 with little explanation (<http://blogs.wsj.com/cio/2012/07/06/apple-removes-green-electronics-certification-from-products/>)
- Apple rejoins EPEAT registry 2 weeks later and admits mistake (http://www.huffingtonpost.com/2012/07/13/apple-rejoins-epeat_n_1671770.html)

Concern over design direction of thinner, lighter products known as “ultrabooks”: <http://www.electronicstakeback.com/wp-content/uploads/Ultrabook-report-Aug-2012.pdf>



ULTRA-INCONVENIENT
With Most New “Ultrabook” Laptops
Users Can’t Change the Battery Themselves

Electronics
TakeBack
Coalition

Photo: Apple/Thinkpad

What’s an Ultrabook?
The term “ultrabook” is trademarked by Intel to mean a new breed of very thin, very light, powerful laptops (not tablets or “netbooks”) that use 2nd or 3rd generation Intel chips, solid state disks, and has a longer battery life. The ultrabook is basically the PC manufacturers’ response to the MacBook Air notebook.

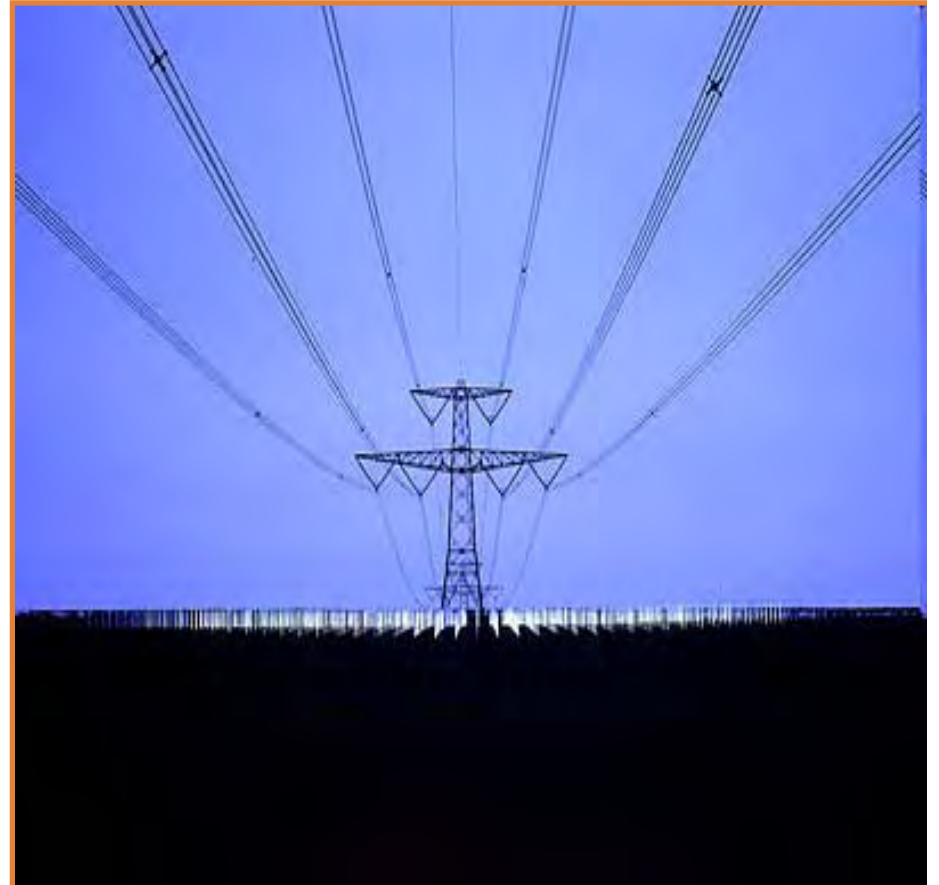
Batteries That Users Can’t Replace
Following a trend first set by Apple, most (but not all) of these ultrabooks are designed so that consumers are not supposed to change the battery themselves. These batteries, sometimes called “integrated” or “embedded” batteries, are not the ones with the hard plastic casings that pass safety specs for users to handle and typically snap into place in the bot-

tom of your laptop. Non-user replaceable batteries have more of a stiff paper cover and are secured into the laptop with a fastener (usually screws) or, in the worst case, glue. They require the laptop enclosure to be removed, something the manufacturers don’t generally want users to do themselves.

Why It Matters
We like the thin, sleek, light ultrabooks, so why does it matter whether we can change the battery in our laptops? Here’s why:
Ultra inconvenient. It’s consumer unfriendly (perhaps consumer hostile?) to require us to ship off our laptops for several days to the service facility just to change a battery. A new battery shouldn’t be a repair – it should be something we can purchase and install ourselves.

ENERGY USE

- PRODUCTION
- USE



Energy Use During Manufacturing

~80% of a PC's total fossil fuel consumption has already happened before the computer is ever switched on.



RESOURCE INTENSIVE

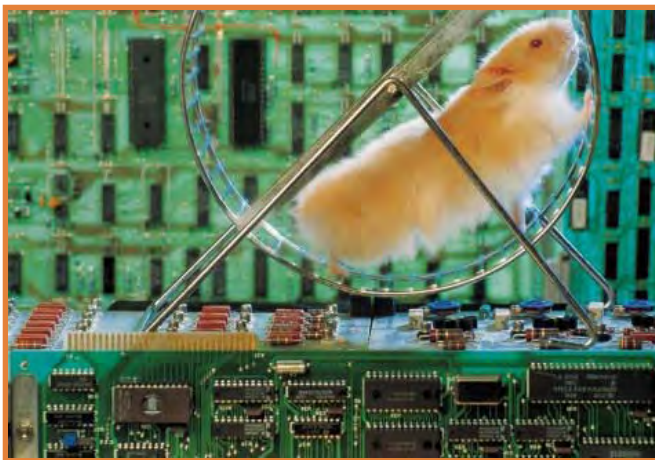
Energy Use During Consumption

Computers:

- U.S. organizations waste \$2.8 billion/yr powering 108 million unused PCs. (IE 2009 PC Energy Report)
- Consume ~2% of nation's electricity

Other Equipment:

- Overnight, a photocopier wastes enough energy to produce over 1,500 copies.
- Energy consumed by servers/data centers (US) : ~100 billion kWh (\$7.4 b)



Power Management Saves Energy, Money and Reduces Impact on the Environment

Monitor Power Management

Monitors are set to enter sleep mode after _____ minutes (5-20 minutes is recommended)

Computer Power Management

Computers are set to hibernate or standby mode after _____ minutes of inactivity (30-60 minutes is recommended)

You can potentially save \$20-\$100/PC/yr

The lower the settings, the more energy you save



What Just 50% Computer Power Management Would Accomplish



Reduce 6 million tons
of CO₂

Remove 1 million cars
from the road



Electricity to light 8
million homes



Energy Star: Free Consultation

Vendor-neutral technical consultations for saving energy

- ▣ Power managing networked computers
- ▣ Data centers
- ▣ Misc. IT & plug load

Public domain software solutions for CPM

Savings estimates

Power metering studies

Public recognition



Free Consultation (30-60 minutes)

Additional information:

- www.energystar.gov/lowcarbonit

http://www.energystar.gov/index.cfm?c=power_mgt.pr_power_mgt_techie_tips

- ▣ Mike Walker, Beacon Consultants Network Inc.
(EPA Technical Support Contractor): 617-921-8445,
mwalker@beaconconsultants.com
- ▣ Steve Ryan, US EPA ENERGY STAR Program
Manager: 202-343-9123,
Ryan.Steven@epamail.epa.gov



E-Waste Recycling

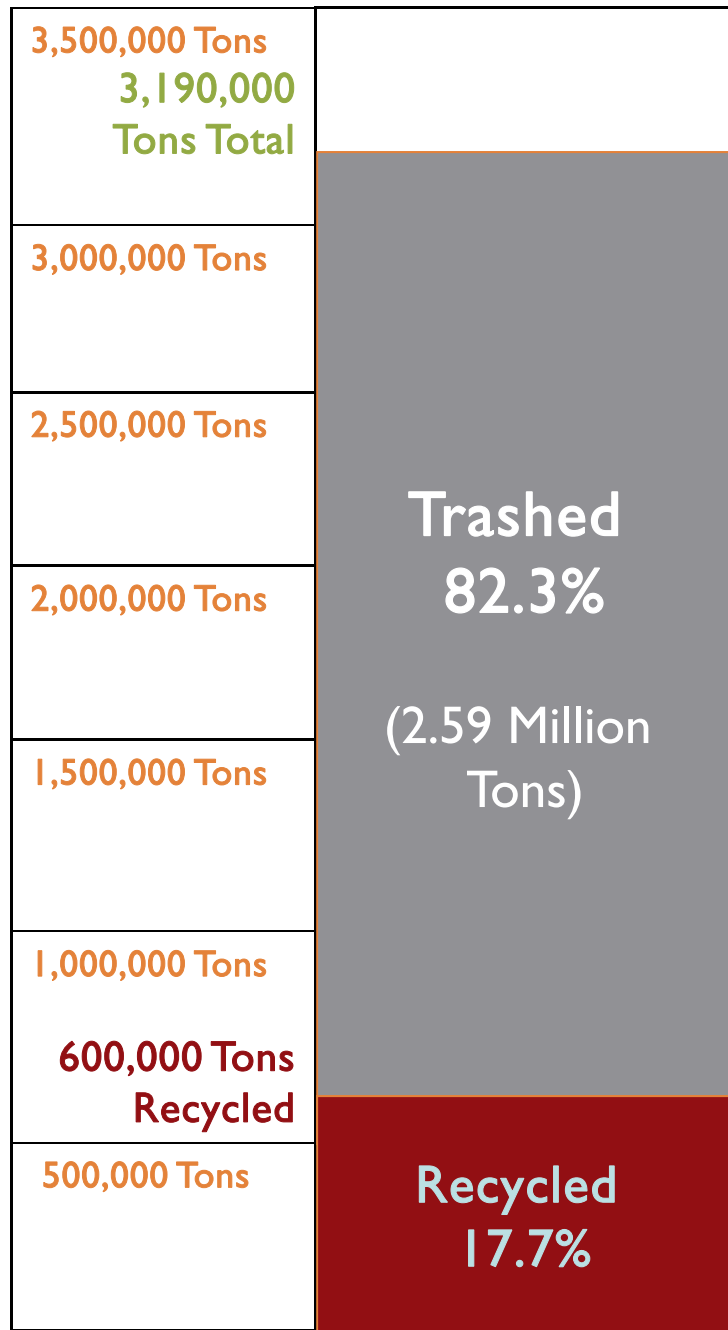


In the first 15 minutes of this presentation, over 11,400 units of e-waste have been thrown away in the US (over 760 thrown away per minute)

Imagine a one mile high pile of e-waste that covers the entire city of Los Angeles (472 mi²).



This is the amount in the U.S. alone!



TOTAL US E-WASTE:
3.19 Million Tons
 (2009) Televisions,
 computer products,
 cell phones

TRASHED: 82.3%
2.59 Million Tons
 in landfills or
 incinerators

Source:
 EPA
 2010

“RECYCLED”: 17.7%
600,000 Tons

http://www.electronicstakeback.com/wp-content/uploads/Facts_and_Figures_on_EWaste_and_Recycling.pdf

Where Does Our E-Waste Go?

Estimated that out of the 17.7% collected for recycling, 50-80% of that ends up exported for processing abroad

Known and Suspected Routes of e-waste Dumping



There is currently no system for tracking legal or illegal (under international law) shipments of electronic waste, and therefore, there is no quantitative data on volumes or even all of the true destinations. Some electronic waste is shipped as "working equipment" only to end-up as waste upon arrival. This map indicates information collected through investigations by organizations such as the Basel Action Network, Silicon Valley Toxics Coalition, Toxics Link India, SCOPE (in

<http://www.wellcorps.com/files/SystemErrorStudentActivitiesEnvironmentalJustice.pdf>

Guiyu, China

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(2001 Basel Action Network "Exporting Harm" film, www.ban.org)

“Exporting Harm” (Guiyu, China)



DVD available at www.ban.org

Guiyu, China (2008)

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Burn houses were constructed to avoid “open burning,” but this results in less ventilation.

(Basel Action Network)

Guiyu, China (2008)

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“Digital Dump” (Lagos, Nigeria)



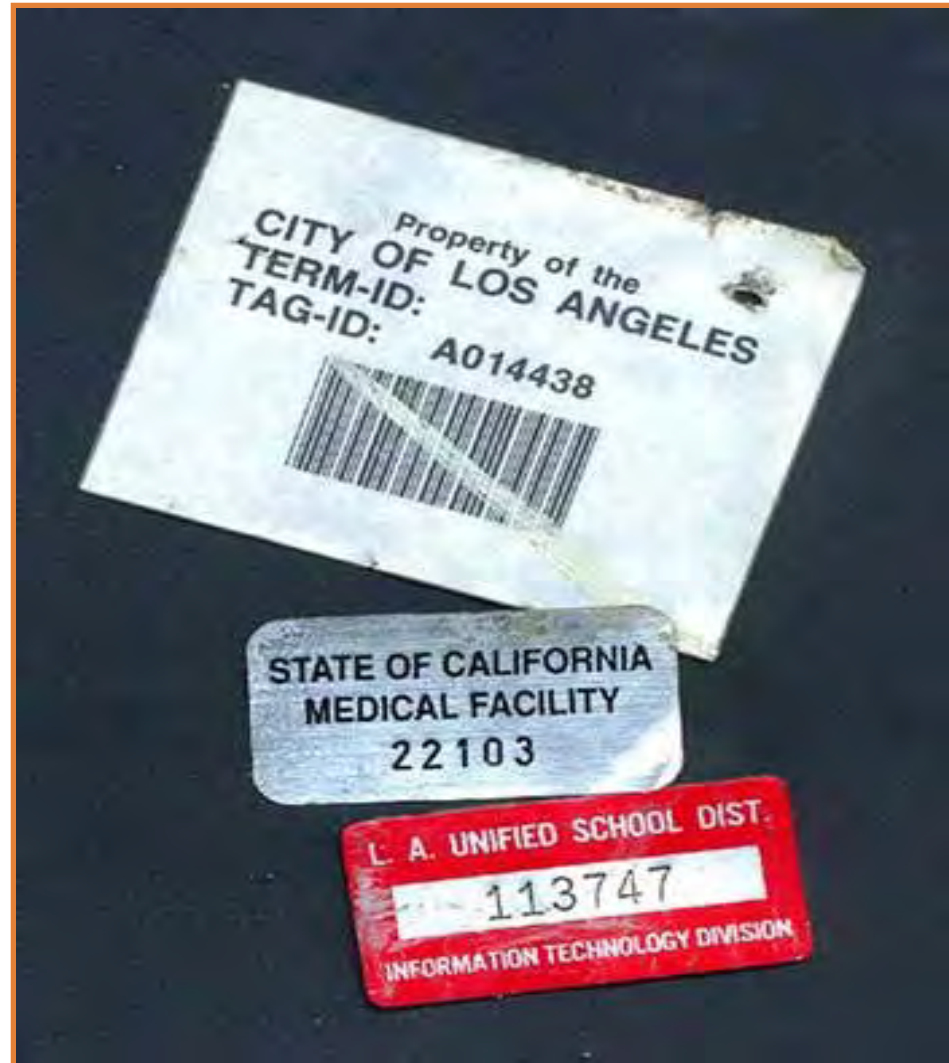
DVD available at www.ban.org

“Citizens at Risk” (Delhi, India) - 2008



DVD available at: www.svtc.org

Whose e-Waste is Exported?



MISLEADING CLAIMS

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- We are “EPA Permitted/EPA Certified”
- We have a “State Permit”
- We provide a “Certificate of Destruction/ Recycling”
- We follow all applicable state and federal laws
- We don't export any e-waste
- We process everything in the U.S. and only export “commodities” for recycling



e-WASTE RECYCLING STANDARDS

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□ E-Stewards



□ R2 (“Responsible Recycling Practices”)

EPA supports both certification programs

- ❑ Created by the Basel Action Network (BAN) in conjunction with leading recyclers and occupational health experts
- ❑ Certification bodies are accredited by ANSI-ASQ National Accreditation Board
- ❑ ISO 14001 EMS embedded in e-Stewards standard (and R2 is also embedded as of March 2012)
- ❑ High environmental and health standards
- ❑ Endorsed by over 70 environmental organizations around the world



e-Stewards
THE GLOBALLY RESPONSIBLE WAY
TO RECYCLE YOUR ELECTRONICS

Certified E-Stewards are recyclers who are committed to:

- **No** export of hazardous waste to developing countries
- **No** landfill or incineration
- **No** use of prison labor
- **No** release of private data
- **Protection** of worker health



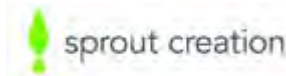
CEH

For a list of e-Stewards: <http://www.e-stewards.org/>

e-Stewards Enterprises*



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Santa Clara & Santa Cruz Counties (CA), King County (WA); Cities of San Jose, San Francisco and Placentia, CA.

***Organizations recognized for their commitment to making best efforts to using e-Stewards recyclers for all of their recycling services.**



R2

“Responsible Recycling Practices”

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- ❑ Certification bodies are accredited by ANSI-ASQ National Accreditation Board
- ❑ Written in a multi-stakeholder process facilitated by the EPA; however...
- ❑ Finalized without support from the environmental groups due to weak export, environmental and human health protections
- ❑ Significant loopholes in criteria

Does the Program Allow for Export to Developing Countries?

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R2 Yes- Allowed under a number of circumstances (partial list)	e-Stewards No-Prohibited
<ul style="list-style-type: none">▪ R2 definition of hazardous (restricted materials) more limited than Basel Convention definition▪ R2 vendors allowed to determine what is legal for another country to import. Does not require permission from importing countries▪ Non-working untested equipment may be sent for refurbishment which almost always result in waste	<ul style="list-style-type: none">▪ All exports of hazardous waste as defined by the Basel Convention are forbidden from going to developing countries for recycling or disposal throughout the entire recycling chain▪ Non-working untested equipment may not be sent to developing countries.



Does Program Allow for Landfill or Incineration?

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R2 Yes Discouraged but allowed	e-Stewards No
Toxic e-waste allowed to be disposed of in solid waste landfills and incinerators, if undefined “circumstances beyond the control of the R2 recycler disrupt its normal management” of a toxic material.	Hazardous waste may not be disposed of in solid waste landfills and may not be incinerated, including waste-to-energy incinerators.

Protection of Worker Health

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R2 No-Weak worker protection	e-Stewards Yes-Stringent worker protection
<ul style="list-style-type: none">-Left up to recyclers to identify the toxic chemicals or potential hazards-Does not require any specific toxins be addressed-No baseline requirements for what tests needed to monitor worker exposure or frequency	<ul style="list-style-type: none">-Specifies which hazards must be tested for if using specific processing technologies-Requires specific air and work space testing and monitoring of specific toxins every 6 months if utilizing specific processes

Other Issues: Handling of Mercury and Use of Prison Labor

R2	e-Stewards
<p>Mercury: Allows mercury devices to go into shredders if they are “too small to remove safely at reasonable cost and if workers are protected....”</p>	<p>Mercury: e-Stewards may not shred mercury containing devices.</p>
<p>Prison Labor: Allowed despite objections of US recyclers. Prisons may be certified to R2 standards.</p>	<p>Prison Labor: Prohibited for all processing of hazardous e-waste.</p>



EPEAT Env. Benefits Calculator (EEBC)

Provides estimated savings in:

- 🌍 Energy use (kWh)
- 🌍 CO₂/GHG emissions (kg CE & MTCE)
- 🌍 Virgin material use (recycled content) (kg)
- 🌍 Toxic materials (kg)
- 🌍 Hazardous waste generation (kg)
- 🌍 Municipal solid waste generation (kg)
- 🌍 Air & water emissions (kg)
- 🌍 **Cost, where feasible** *Grand total is currently product and life cycle energy cost savings*



<http://www.epeat.net/FastBenefits.aspx>



- Purchased 336,180 EPEAT gold or silver registered products (2006-early 2010)

Using EPP and an e-Steward Recycler:

- Saved enough energy to power close to 118,000 US households for one year
- Reduced GHG emissions equivalent to removing over 55,000 cars from the road for one year
- Reduced the equivalent weight of 322,000 bricks of hazardous waste and 515 mercury thermometers
- *Saved more than \$13.5 million of energy*



cost savings.

Recycle & Reuse Diversions

E-Recycle

Reuse

E-Waste Recycling		Merchandise Sale		Redeployment	
Units	Weight	Units	Weight	Units	Weight
5,274	67,894	1,479	34,453	--	--



E-Waste Metals

Steel	Aluminum	Copper	Brass	Br w/Au	Stainless
39,419	3,478	987	100	21	227
Elect Brds	Plastic	CRT	Glass	Bulb	Battery
7,391	14,992	940	0	0.03	24



Carbon Offset & Landfill Credit

Demand Reduction	Recycle	Resale	Redeploy	Units
Energy	104,215	4,245,668	--	Kwh
Crude	296	11,904	--	Barrel (55 gals)
Landfill Space	346	69	--	Cubic Yards



Environmental, Landfill Natural Resource Reductions

Less CO ₂	794.18	Tons
Air contamination prevented	21,543	Tons
Landfill diversion	102,347	Pounds
Virgin Materials	96,435	Pounds
Water pollution prevented	333,713	Gallons



Green Benefits of Recycle & Reuse

Energy Savings



Electricity to power 791 houses/yr

Greenhouse Gas Reduction



Removing 223.71 cars from road/yr

Hazardous Waste Reduction



Weight of 954 bricks

*Includes computers, monitors and cell phones only

Consolidate Office Equipment

Reduce the number of devices in your printer fleet
Ensure that remaining devices are more cost effective to own & operate:

- ❑ Eliminate inkjet or other high-cost printers
- ❑ Share “workgroup” printers
- ❑ Use multi-function devices

Benefits:

- ❑ Cut hardware costs
- ❑ Cut paper, ink, and toner costs
- ❑ Reduce electricity use
- ❑ Reduce maintenance expenses



Representative savings run between 30 and 40 percent and can range as high as 60 percent



Other tips:

- **Office Equipment:** activate sleep settings; Energy Star models; double-sided printing
- **Thin Clients/Desktop virtualization**
- **Server Rooms/Data Centers:** Consolidation; Virtualization; Data Storage; Energy Star models; Airflow management
- **New EPEAT Imaging Equipment** (printers, copiers, scanners, multifunction devices) **and TV standards** will be out by late 2012/early 2013.
- EPEAT piloting consumer facing label (**Ecosense**)
http://www.sustainablebrands.com/news_and_views/articles/office-depot-debuts-epeat-labeling-portland-store



CEH's online resources: "What you can do" at home, work or school

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The screenshot shows the CEH website's 'Story of Electronics' page. The browser address bar displays www.ceh.org/index.php?option=com_content&task=view&id=465&Itemid=294. The website has a green and white color scheme. The main navigation menu includes 'About Us', 'Making News', 'Get Involved', 'What We Do', and 'Contact Us'. A secondary menu on the right includes 'Sign Up', 'Blog', and 'DONATE'. The CEH logo is prominently displayed at the top left. The page content is organized into several sections: a sidebar on the left with links like 'Eliminating Toxics', 'Supporting Communities', and 'Greening Industries'; a central 'Story of Electronics' section featuring a video player titled 'WATCH THE VIDEO' and text explaining the benefits of greener electronics; a 'GET PLUGGED IN!' section with three icons for 'at Home', 'at Work', and 'at School'; and a right sidebar with a search bar and a 'TAKE ACTION IN UNDER 30 SECONDS!' section with bullet points for legislative and manufacturer actions. The footer contains the copyright notice: '© 2008 center for environmental health | About Us | Making News | Get Involved | What We Do | Support Us | Contact Us'.

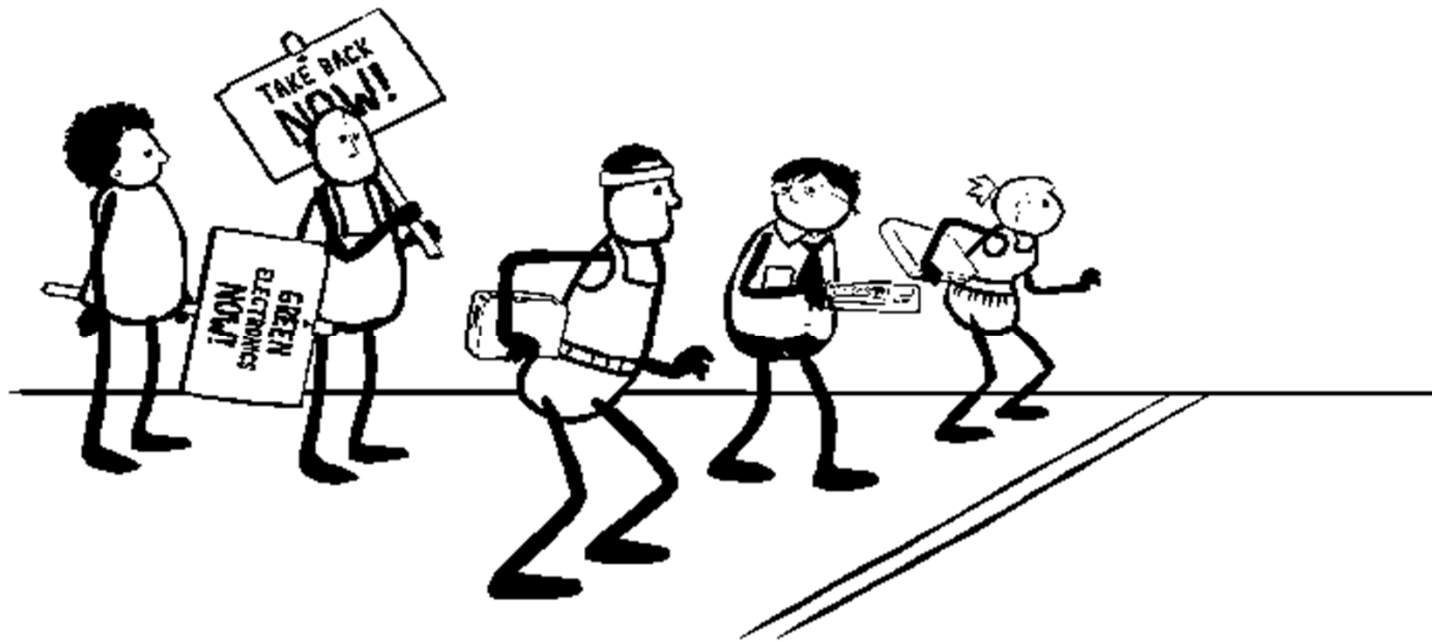


www.ceh.org/electronics

“...we are starting a race to the top...So let's get our brains working on sending that old design for the dump mentality to the dump where it belongs and instead building an electronics industry and a global society that's designed to last.”

- Annie Leonard, Story of Electronics

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www.ceh.org/electronics



CENTER FOR ENVIRONMENTAL HEALTH

2201 Broadway, Suite 302 Oakland, CA 94612 Tel: 510-655-3900 www.ceh.org

Green Purchasing Roundtable: Computers and Multi-Function Devices

October 2, 2012

Meeting Presentation and Notes

Presented and Compiled by Karen Cook



Edited for Posting
2/25/2013

This document has been edited for public posting online.

Agenda

- Introductions
- Presentation: Sue Chiang, CEH
- Presentation: Steve Myli, EBRPD
- Discussion/Announcements/Updates
- Future Topics/Next Meeting Scheduling



Attendees:

Name, Organization

Khanh Vo, Fremont
Billi Romain, Berkeley
Steve Pappa, Dublin
Martha Aja, Dublin
Jen Feeley, Piedmont
David P. Darlington, LVJ Unified School District
Nancy Deming, Oakland Unified Schools
Steven Myli, EBRPD
Byron Fisher, Alameda County
Dorian Makres, Alameda County
Nicole Powell, Alameda County
Karen Cook, Alameda County
Ceil Scandone, ABAG
Mike Cohen, StopWaste.Org
Debra Kaufman, StopWaste.Org
Rachel Balsley, StopWaste.Org
Delyn Kies, Kies Strategies

Green IT Guidelines Overview

Problem: 20 agencies with 20 different standards for managing technology

Solution: Convene cross-agency team under auspices of Climate Action Plan

Mission: Standardize Green IT process across agencies countywide

Keys to Success: Board and Agency Directors support; Reporting requirements on implementation



As part of the County's Government Operations Climate Action Plan implementation, the County convened a green IT team made up from IT managers from 6 of our 20 departments. They have drafted IT guidelines that were vetted and approved by department heads and the Board of Supervisors. The team members are now going to each County department introducing the guidelines, collecting baseline data on the department's compliance with it, and providing them with implementation assistance. They will then revisit the departments twice in the next year to monitor and track progress in complying with the guidelines. Ultimately, they will report back to the Board of Supervisors, highlighting the environmental benefits and fiscal efficiencies that implementation of the guidelines has achieved.

Green IT Guidelines

Computers

- Energy Efficient Operation
 - Monitors enter sleep mode at 15 min
 - PC's enter sleep mode at 30 min
 - Equipment shut off at end of business day
- Equipment Reduction
 - PC or laptop, not both
 - Business justification for dual monitors
 - Repurpose flat screen monitors
- Procurement and End-of-Life



The Green IT guidelines include eight specific strategies related to Computers as listed in the slide above.

Energy Efficient Operation: Generally, sleep mode will be automated through central network control. Employees will be trained and encouraged to shut down personal equipment at close of business.

Equipment Reduction: Departments will develop their own justification rules regarding dual equipment (PC & laptop) and dual monitors. While this has the potential to allow for a large loophole, implementation will be driven by the fact that each department's success in reducing redundancy will be reported to the Board.

Procurement and End-of-Life: These guidelines will be discussed in detail in future slides in this presentation

Green IT Guidelines

Printers

- Equipment Reduction
 - Eliminate desktop printers
 - Eliminate redundant network printers
- Default Settings for Network Equipment
 - Duplex for printing/copying
 - Black & white, even on color machines
- Procurement and End-of-Life



The Green IT guidelines include six specific strategies related to Printers as listed in the slide above.

Equipment Reduction: Departments will report on the total number desktop and network printers at the beginning and end of the implementation periods. As with computers, departments will develop their own justification rules, but implementation will be driven by reporting requirement. Detail information about one agencies pilot implementation of the desktop printer elimination guideline follows near the end of this presentation.

Default Settings: All network equipment with the relevant capabilities will have printing and copying defaults set for duplex and black and white printing. Instructions sheets for how to change these settings as needed were developed and made available to departments to post at the equipment.

Procurement and End-of-Life guidelines will be discussed in detail in future slides in this presentation

Procurement Computers

- EPEAT Gold
- Block non-EPEAT equipment
- Reporting requirements

Minimum Environmental Standard

EPEAT® Gold Registration

All desktops, laptops, and computer monitors provided under this contract are required to have achieved Gold registration in the EPEAT® system in the United States as revised in 2009.

Block non-EPEAT registered products

The County reserves the right to require Contractors to block from purchase non-EPEAT registered products that are initiated under any contract or purchase order created as a result of this solicitation. This includes, but is not limited to, purchasing activity conducted as a result of this solicitation through a customer specific electronic catalog or web portal, if available.

Reporting Requirements

Contractors shall provide electronic detailed quarterly usage reports to the County of Alameda Purchasing and Sustainability Departments. The reports shall be provided to the County at no charge at designated intervals, as well as by request, and shall include all purchases made as a result of this

In Alameda County, each department purchases their own technology equipment. There is no standardization on brand, functionality, etc. To help promote the purchase of green equipment, we have developed drop-in environmental language that departments can put into their solicitations. The language requires the vendor to provide products that are EPEAT Gold registered, to block the purchase of non-EPEAT products, and to report on the registration level of desktop, laptop, and monitor purchased. The document also includes FAQs that explain what EPEAT is and provides links to the product registration list from EPEAT (so users can assure themselves of product availability). It also explains that because EPEAT is a leadership standard, it is periodically updated to become more stringent. At such time, the County environmental standard will be revised to require EPEAT registration at the highest level for which equipment is available. A copy of this document will be included with the meetings notes or can be requested by emailing greenpurchasing@acgov.org.

Procurement

MFD Bid Green Specifications

- Installed with energy and resource efficient settings set as default
- Vendor to provide training on features
- Energy Star compliant
- RoHS compliant - one year after contract start
- Meet Ecologo or Blue Angel criteria for VOC, dust, and ozone
- EPEAT Bronze - six months after standard publication



Alameda County currently has over 400 MFDs on individual leases from 3 different vendors. However, the pricing structure varies from lease to lease, and there are very few performance requirements, environmental or otherwise.

As part of an effort to reduce costs and improve performance, the General Services Agency (GSA) issued a request for proposal to contract with a limited number of vendors. The finalization of the contract is in process, but three vendors were selected for award, pending finalization of negotiations and approval by our Board.

In addition to the environmental requirements summarized above, key features of this solicitation include:

- Contract required to provide proactive preventative maintenance
- Includes service response time requirements
- Includes uptime performance requirements
- Includes installation/transition plan

An excerpt of the environmental requirements from the bid will be made available on www.acsustain.org once the contract is finalized. Agencies may request information before then by emailing greenpurchasing@acgov.org.

End-of-Life E-Waste Policy

- Departments must transfer surplus equipment to General Services Agency (GSA)
- Departments must clean data from hard drives
- GSA tests equipment and reuses whenever possible
- E-waste recycled with E-Stewards recycler



The Alameda County General Services Agency (GSA) is currently working with internal stakeholders to draft a resolution that will formalize our current e-waste handling practices as summarized in the slide above. We will ask the Board to adopt a resolution directing GSA to develop guidance for departments. This guidance document will define e-waste, spell out the roles and responsibilities of each party, and require the use of a recycler certified to the e-Stewards standard or equivalent as defined in the document.

Use of an e-Stewards recycler will also be required for any agency that handles e-waste that is collected from the public, for instance illegally dumped equipment that is collected by public works while maintaining the County roads. We will publish the final documents on our website at www.acsustain.org after Board adoption.

Desktop Printer Reduction Business Case

- Cost reduction: 10-15 cents/page
- Waste reduction: ink cartridges, paper*
- Energy savings: eliminate redundancies
- Health benefits: get employees moving

*Complimentary duplexing campaign completed in conjunction with this effort

For a full case study and templates, visit our [website](#)



Website is at <http://www.acgov.org/sustain/what/wastereduction/print.htm>

10-2-2012 Notes:

- IT staff noted that employees responded much better to environmental messaging than cost reduction messaging.
- Desk-to-desk instruction helped address employee concerns
- Need strong leadership to limit the number of exceptions that are granted for employees wanting to keep their personal desktop printer

Desktop Printer Reduction Project Implementation

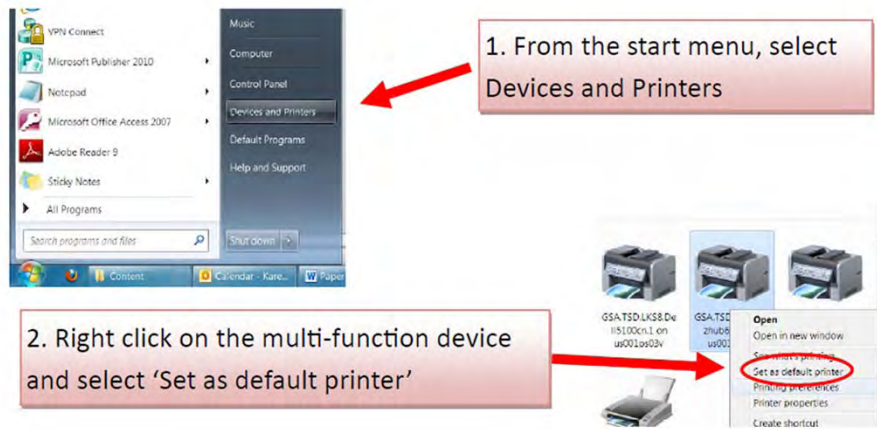
- Executive mandate and leadership
 - Email to employees, lead by example
- Provide employees notice and training
 - Technology staff visited employees to address concerns and train them on key MFD features like scanning, secure printing, etc.
- Highlight positive project impacts
 - Congratulate employees on environmental and fiscal savings

Project implementation details can be found at
www.acsustain.org



Here are the steps we took to implement our printer reduction campaign. More details can be found at <http://www.acgov.org/sustain/what/wastereduction/print.htm>.

Set Your Default Printer To the Multi-Function Device (MFD)



This is one example of the type of materials we make available to employees to empower them to make voluntary changes. This visual instructional flyer is posted at each of our copiers.

Announcements

Alameda County Green Bids

- Bids on the Street:
 - Multi-Function Device – Lease Agreement
 - OEM and Remanufactured Toner and Ink
 - Tree Trimming Services
 - Trash Can Liners
 - Regional Renewable Energy Procurement Consultants (R-REP) Consultants - Technical and Financial



Below is a summary of the green features of the bids listed here. (Listing does not guarantee a contract will be executed.) Please contact Karen Cook at 510-208-9754 with questions about any of these bids, except where noted.

Multi-Function Device Lease Agreements: See slide 13 for details of this bid

Toner & Ink Cartridges: Remanufactured cartridge quality control, packaging requirements, take-back of used cartridge provision. Contract will likely be awarded to three vendors to ensure customers (County departments) have the option to change vendors if they are not satisfied with the quality of product or the customer service. Sustainability outreach goal will be to provide customers with environmental and cost information about green options – remanufactured and high-yield cartridges.

Tree Trimming Services: Highlight landfill ban on green waste; no idling; addresses Sudden Oak Death and Light Brown Apple Moth

Trash Can Liners: Required to meet state minimum recycled content mandate; price preference for evaluation purposes for having double the amount of recycled content

Regional Renewable Energy Procurement Consultants (R-REP) Consultants: Technical and Financial consultants for the R-REP project. Contact Thomas Stretton at (510) 208-9773

Announcements

Waste Reduction Stickers



- Template available at www.acsustain/what/wastereduction

Alameda County produced this sticker to use on multi-fold paper towel dispensers in bathrooms encouraging employees to take fewer paper towels. Our pilot showed a 5-10% decrease in use. Campaign information and a sticker template can be found at <http://www.acgov.org/sustain/what/wastereduction/towels.htm>.

Future Topic Ideas

- Green Cleaning – Chemicals, Papers, and Liners
- Carpet & Flooring
- Landscaping, Tree Maintenance, Compost and Mulch
- Road Building Materials
- Eco-labels: LCA, Leadership Standards, and Single-Attribute Standards



Please hold the date for our next meeting Wed 1/30/13. Topic will be Green Cleaning.

Model Contract Language for Buying Computers, Laptops, and Monitors

Provided by Alameda County GSA Sustainability Program
Contact: greenpurchasing@acgov.org or 510-208-9754

Purpose

The purpose of this document is to provide guidance to agencies/departments who are managing their own procurement for computers, laptops and monitors. It provides specific language to drop into the request for quotation/bid so that all vendors provide bids on equipment and related services that meets the County's minimum environmental standard.

Minimum Environmental Standard

EPEAT® Gold Registration

All desktops, laptops, and computer monitors provided under this contract are required to have achieved Gold registration in the EPEAT® system in the United States as revised in 2009.

Block non-EPEAT registered products

The County reserves the right to require Contractors to block from purchase non-EPEAT registered products that are initiated under any contract or purchase order created as a result of this solicitation.

Reporting Requirements

Contractors shall provide electronic detailed quarterly usage reports to the County of Alameda Purchasing and Sustainability Departments. The reports shall be provided to the County at no charge at designated intervals, as well as by request, and shall include all purchases made as a result of this contract. These reports shall be submitted in Microsoft Excel soft copy with all data on one spreadsheet with no breaks or subtitles within the data set. Each line shall contain the required data for a single transaction. The total shall be per line, not a running total. The report shall include the following information, at minimum:

- (1) Order Date
- (2) Purchasing organization (department/agency)
- (3) Delivery location
- (4) Date order delivered
- (5) Item part number and description
- (6) Item description
- (7) Unit cost
- (8) Units purchased
- (9) Total order cost
- (10) EPEAT Registration Status (i.e. Bronze, Silver, Gold or Unregistered)

The County reserves the right to make changes to the report and to request additional information, if deemed necessary.

Frequently Asked Questions

What is EPEAT?

EPEAT® is a procurement tool designed to help large volume purchasers evaluate, compare, and select electronic products based upon their environmental attributes as specified in the consensus-based IEEE Standard for the Environmental Assessment of Personal Computer Products (IEEE 1680.1).

Are there products available at the Gold level?

As of July 20, 2012, there are almost 2000 products in these three categories available at the gold level on the EPEAT registry. See a summary at: <http://ww2.epeat.net/searchoptions.aspx>

How does it maintain its ability to identify leaders in green electronics?

The EPEAT standard periodically undergoes revisions in order to encourage continuous improvement by manufacturers and to allow purchasers to identify leading edge environmentally preferable technology equipment.

When the standard is revised, there will likely be no manufacturers who can meet Gold. Will the County change its purchasing requirement?

Yes, when EPEAT® computer standard is revised to become more stringent, the County minimum standard will be revised to require EPEAT® at the highest level for which equipment is available.

Where can I find more information about EPEAT?

The EPEAT® registration criteria and a database of all registered products are provided at <http://www.epeat.net>.

Questions?

Contact GSA Sustainability Program at greenpurchasing@acgov.org, or 510-208-9754.

2004 OFFICE PAPER WASTE PREVENTION CASE STUDY UPDATE



10-2-12 Green Purchasing Roundtable Meeting

Presented by:

Steve Myli, EBRPD, smyli@ebparks.org, (510) 544-2102

StopWaste Partnership Grant

- The StopWaste Partnership researched the technology required for the East Bay Regional Park District to switch from paper to electronic documents and provided \$18,000 in grant funding.
- These funds helped the Park District purchase Adobe Acrobat and organize staff training.

10-2-12 Notes:

Their expectations for Adobe were high in 2004 but the product did not meet their need.

It is not the best for collecting data – data has to hand transferred to Excel, for example.

But it is great for posting/sharing information/documents and the public popularity of PDF forms on-line has been a benefit.

Challenges

- The East Bay Regional Park District sought to reduce office paper waste while improving the quality of public services and cutting costs
- The Park District wanted to move away from paper and toward digital forms and documents



10-2-12 Notes:

The ongoing transition/improvements have also included the following:

- Staff training.
- 2006 – move away from desktop printers to multi-function devices and B&W copies to save money.
- 2008 – availability of newer multi-function devices with color to reduce the purchase of colored paper.

Solutions

- Switch to duplex copying, high-volume printers, and electronic document distribution to cut costs, reduce waste, increase staff efficiencies, and improve public services.

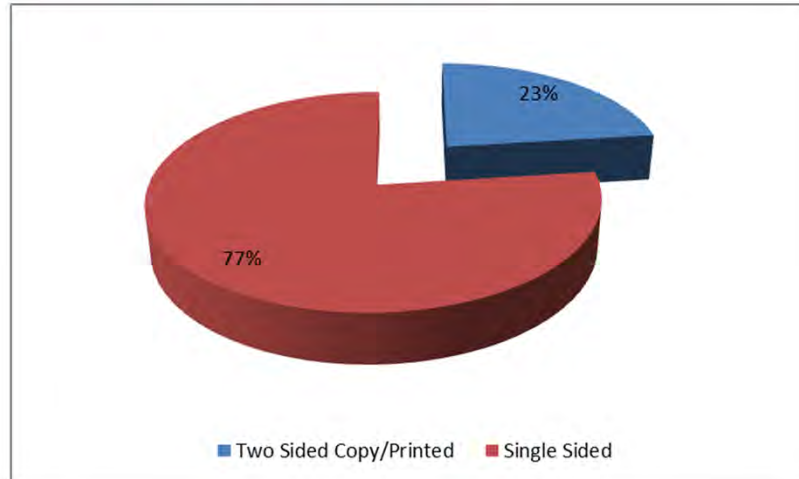


10-2-12 Notes:

Results:

- 16% reduction in cost in last year due to greater availability of color printing and on-line internal document submittals. Overall paper use has decreased (see Slide 8) and in particular, the use of color paper stock has dropped with color printers. This has reduced paper purchases and allowed increased purchasing of white copy paper which is more recyclable and can have higher post-consumer recycled content.
- New leases include better terms for longer life.
- The system/networking support they can get is a key factor in choosing their vendor.
- Auto-duplex, B&W defaults are not typically over-ridden by staff.

Types of Images Printed



Usage Data Starting November 2011

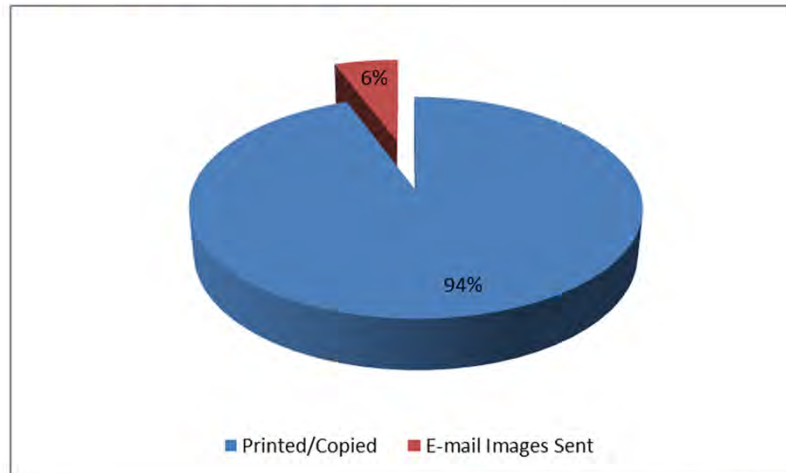
Slide Notes:

Two Sided Copy/Printed 274,496 (2011/2012 Avg. - 22,875) (2004/2005 Avg. - 15,512) Total Impressions 917,589 (2011/2012 Avg. - 119,209)

10-2-12 Notes:

- Many copy and print jobs are for 1-page documents where duplexing is not an option.
- Agency has a policy to send large documents to in-house printing department, so not many large documents generated at multi-function device.

Email Images Sent Versus Copying or Printing



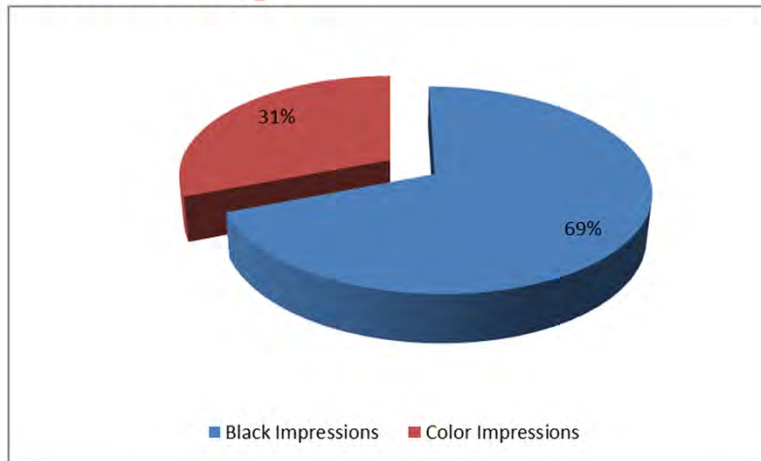
Usage Data Starting November 2011

E-mail Images Sent 67,096

10-2-12 Notes:

- 6% may not seem like a lot, but these represent documents that used to be copied and distributed via hard copy to numerous employees. So it is likely displacing a large volume of paper use.

Comparison of Black & White to Color Usage



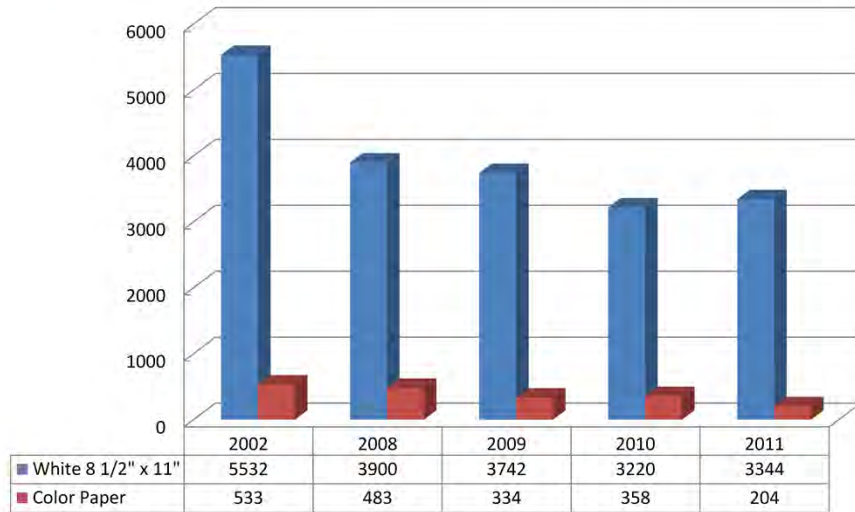
Usage Data Starting November 2011

Black Impressions 621,031 - Color Impressions 276,704

10-2-12 Notes:

- Transition to color capable multi-function devices has allowed reduced use of colored paper and for a reduction in desktop color printers.

Paper Reduction Results* Since 2002



*Measured by reams of paper used

10-2-12 Notes:

- The agency has seen a consistent reduction in paper use.
- Note: Color paper data is all colors of paper grouped together.