Environmentally Preferable Procurement for Electronics

Health Care Without Harm

&

The Computer Take Back Campaign’s Guidelines

Santa Clara University
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Mamta Khanna
The Center for Environmental Health (CEH) is a non-profit organization dedicated to protecting the public from environmental health hazards and toxic exposures by directly influencing corporate behavior.

Health Care Without Harm’s (HCWH) mission is to transform the health care industry worldwide, without compromising patient safety or care, so that it is ecologically sustainable and no longer a source of harm to public health and the environment.
CEH & HCWH

- With a wide range of constituents
- Committed to environmental and social justice
- Minimize the amount and toxicity of all waste generated
- Promote the use of safer materials and practices
- Promote the phase out of Persistent Bioaccumulative Toxicants (Mercury, Dioxins, Brominated Flame Retardants)
Why Electronics & Healthcare?

- Concern with environmental compliance
- Concern with privacy protection (HIPAA)
- Huge dependence on electronics in medical diagnostics and IT
- Largely centralized procurement
- Large turn-over of equipment: $$ to store, $$ to dispose
- High $$ amount of purchase
- Original Equipment Manufacturers (OEMs), vendors pay attention

Universities not very different in their needs and procurement practices.
Environmentally Preferable Procurement
Basic Principles

1) End-of-Life Management
2) Upgradeability
3) Design for the Environment and Public Health
4) Manufacturing
5) Energy Efficiency
Total Cost of Ownership

Incorporate disposal cost into cost of purchase

- Minimize overall costs

Currently OEMs bear little or none of the costs of responsible disposal. Tax payers, local governments and end users pay for real costs:

- Degraded environment
- Degraded health
- Cost of actual disposal as hazardous waste
Why Take-Backs?

Take-backs will ensure OEMs:

- Help alleviate costs
- Encourage design of less toxic alternative products
- Innovation!
End-of-Life Management

A) Provide take-back and management services

B) Info-labels with take-back information

C) Ensure that vendors sign Electronic Recycler’s Pledge of Stewardship:
   - www.svtc.org
   - Pledge to meet strict standards for managing e-waste
D) Certify that hazardous waste is not exported to developing countries
- Lower wages
- Weaker environmental laws
- Weak infrastructure to handle
- Environmental exposures to highly toxic chemicals

*Guiyu, China: Woman about to smash a cathode ray tube from a computer monitor in order to remove copper.*

End-of-Life Management (Cont...)

E) Provide documentation on processes for end-of-life management

F) Provide certification & documentation of recycling practices
G) Protect recycling workers from hazardous exposures

- Enable workers to take actions to protect their own health

This excludes prison workers:

- not considered employees by the Federal government
- do not receive full protections, rights and remedies.

Example:

- State of CA has moved away from using prisoners as computer recycling workers.
End-of-Life Management (Cont...)

H) Ensure recycling or reuse of old equipment

-Minimum, demonstrate (by posting to company website) that more than half of old equipment will be recycled or reused by 2006¹

¹ As per the Waste Electrical and Electronic Equipment Directive passed by the EU Jan 03 www.informinc.org has good information.
Upgradeability

Provide guarantees and options to upgrade product:

– Memory, speed, capacity of machines

Why?

– Extends life of equipment

– Conserves resources used in manufacture and disposal
Design for the Environment & Public Health

A) Disclose toxic materials contained in the product on the company website

- Right to know of consumer to make informed choices
- Gives opportunity for companies to compete positively
- Today HP, tomorrow Dell??
Design for the Environment & Public Health (Cont...)

B) Demonstrate plans and timelines to eliminate or minimize toxic and hazardous constituents
Hazardous Constituents of IT Equipment

Phosphor
- Phosphor is applied as a coat to the interior of the CRT face plate.
- The hazards of phosphor are not well known, but the Navy warns this substance is "extremely toxic."

Barium
- Barium is used in the front panel of the CRT to protect users from radiation.
- Studies show that short-term exposure to barium can cause brain swelling, muscle weakness, and damage to the heart, liver, and spleen.

Hexavalent Chromium
- Used for corrosion protection of untreated & galvanized steel, plates & hardener for steel housing.
- It can cause DNA damage & asthmatic bronchitis.

Lead
- Cathode Ray Tubes (CRT) displays contain 4-8 lbs of lead & most solder used in circuit boards is leaded. CRTs are banned from landfills in Calif. & Mass., since US EPA determined possibility for lead to leach from equipment in landfills.
- Lead is toxic to the kidneys, nervous & reproductive systems & inhibits mental development of young children and fetuses.

Beryllium
- Beryllium is commonly found on motherboards and connectors. Beryllium has recently been classified as a human carcinogen.

Mercury
- Lightbulbs in flat panel displays, switches, & printed wiring boards all contain mercury. High levels of exposure contribute to brain & kidney damage, harm the developing fetus & can be passed down through breast milk. A recently issued fish advisory warns young children & pregnant women to two meals of fish caught in San Francisco Bay because of high levels of mercury found in San Francisco Bay fish. Mercury is stored in the fat of animals.

Cadmium
- Surface Mount Device (SMD) chip resistors, infrared detectors, semiconductors and older types of cathode ray tubes contain cadmium. Furthermore, cadmium is used as a plastic stabilizer. It concentrates in the body & can cause kidney damage & harm to fragile bones.

Plastics
- Plastics, including PVC make up to 13.8 pounds of an average computer. Dioxin can be formed when PVC is burned within a certain temperature range. Combinations of plastics are used in printed circuit boards, in components such as connectors, plastic covers & cables. Recyclers have difficult identifying and separating different types of plastic.

Brominated Flame Retardants
- Polybrominated Diphenyl Ethers (PBDE) are frequently used flame retardants & are likely endocrine disrupters. Research has revealed that levels of PBDEs in human breast milk are doubling every five years. PBDEs, like many halogenated organics, reduce levels of the hormone thyroid in exposed animals & can potentially harm the developing fetus.
- Thyroxin is an essential hormone needed to regulate the normal development of all animal species, including humans.
Priority list for elimination:
i) Lead
ii) Cadmium
iii) Mercury
iv) Hexavalent Chromium
v) Brominated Flame Retardants
vi) Chlorinated Plastics

WHY?
Most toxic, persist in the environment and our bodies and accumulate up the food chain
Design for the Environment & Public Health (Cont...)

Closing the loop:

Design and Manufacture has an impact on end-of-life disposal options:

- Costs to society
- Environmental (our air, water and soil)
- Public health (increased cancers, reproductive harm)
Manufacturing

Provide documentation:

i) Corporate policy on OHS

ii) Results of routine industrial monitoring

iii) Results of medical monitoring of employees globally (protecting privacy)

iv) Occupational Safety & Health Administration Injury report Log 300

Our goal: Protect occupational health and safety (OHS) of employees in manufacturing

Courtesy CAFOD²

²: http://www.cafod.org.uk/
Energy Efficiency

– Meet Energy Star requirements
Resources

- Silicon Valley Toxics Coalition [www.svtc.org](http://www.svtc.org)

- Computer Take Back Campaign [www.computertakeback.com](http://www.computertakeback.com)

- Clean Production Action [www.cleanproduction.org](http://www.cleanproduction.org)

- Inform [www.informinc.org](http://www.informinc.org)

- Health Care Without Harm [www.hcwh.org](http://www.hcwh.org)
Contributing Organizations

– Silicon Valley Toxics Coalition
– Clean Production Action
– Anne Peters
– Grassroots Recycling Network
– Inform
– Clean Water Action
– Basel Action Network
– Center for a New American Dream
– Center for Environmental Health
– Health Care Without Harm
– Hospitals for a Healthy Environment
– Catholic Healthcare West
– Kaiser Permanente
– Institute for a Sustainable Future
– The Ecology Center
– Physicians for Social Responsibility
Thank you!

Mamta Khanna
510-594-9864
mamta@cehca.org
www.cehca.org