E-Waste: Beyond the Poison PC's and Toxic TV's The Future of E-Waste

Evan Edgar, Edgar & Associates
1822 21st Street
Sacramento, CA 95814
916.739.1200

UVA
May 21, 2007

International Shift in Environmental Regulations

The European Union (EU) is leading a change in environmental regulations affecting the electrical and electronic equipment (EEE) industry internationally, through both RoHS and WEEE legislation. Because manufacturers cannot produce different models of the same product for different global markets, the restrictions are affecting end-of-life policies for E-waste internationally.

What is RoHS? Restriction of Hazardous Substances

Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS), EU Directive (2002/95/EC), restricts six hazardous chemicals and heavy metals used in the production of EEE:

- Cadmium (Cd)
- Hexavalent Chromium (Cr6+)
- Mercury (Hg)
- Lead (Pb)
- Polybrominatedbiphenyl (PBB)
- Polybrominateddiphenylether (PBDE)

California, however, does not restrict PBB's and PBDE's.

What is RoHS? Restriction of Hazardous Substances

- DTSC Regulation states that on or after January 1, 2007, no person shall sell or offer for sale in California a Covered Electronic Device (CED) if the device is prohibited from being sold or offered for sale in the EU. Applies only to CED's manufactured on or after that date.
- **Proposed—AB48 (Saldana 2007)**—will require manufacturers to phase out the use of hazardous materials by the year 2010, **running parallel to the EU RoHS directive—this measure will change the definition of Covered Electronic Device to include all toxic electronic devices sold in California.** (Referred to Appropriations Committee on April 24.)

Product Stewardship/Extended Producer Responsibility

- **WEEE—Waste Electrical and Electronic Equipment**
- The EU WEEE Directive, enacted in 2002 and enforceable in 2005, addresses the rapid increase in waste generation associated with EEE products.
- WEEE legislation regulates end-of-product-life procedures.
- WEEE-type restrictions make EEE product manufacturers responsible for bearing the costs of product life cycle management.
- **Based upon WEEE directives, these Bills were adopted:**
- **AB 2901 (Pavley/Kehoe 2004): Cell Phone Recycling Act:** Retailers of cell phones must take back their customers' old cell phones for proper disposal and recycling at no cost to the consumer.
- **AB 1125 (Pavley 2005): Rechargeable Battery Recycling Act**: Retailers of rechargeable batteries must take back their consumers' used rechargeable batteries for proper disposal and recycling at no cost to the consumer. Retailers and grocery stores with less than $1 million annual revenue are exempt.

Current E-Waste Legislation

- **Proposed—AB1535 (Huffman 2007)—**SB 20 established a $6-10 advanced recycling fee on all Covered Electronic Devices (CEDs). Under current CED definition, only CRT-containing devices, including computers monitors, LCD televisions and monitors, plasma TVs, and laptop computers are covered. **AB 1535 will extend this law to include all personal computers that contain Computer Processing Units (CPUs), which consumers will pay a $6 recycling fee.** (Referred to Appropriations Committee on April 24.)
- **Proposed—AB546 (Brownley 2007**)—will expand the existing e-waste law to include a CPU tower for a total charge of $10. (Referred to Appropriations Committee on April 24.)
- **Proposed—HR233 (Thompson 2007)—** "National Computer Recycling Act", was introduced January 2007 by Congressman Mike Thompson, D-California. HR 233 would establish an advanced recycling fee of up to $10 on computers, monitors, laptops and other products as designated by the EPA. EPA would grant the money collected to organizations or individuals (including local governments) for collection, recycling, and reuse of products.

"How many Legislators does it take to change a light bulb?"

- **Proposed Legislation AB722 (Levine)**—Would ban the sale of incandescent light bulbs in California by the year 2012. While the life of one 75-watt incandescent bulb is roughly 750 hours, the life of a compact fluorescent (CFL) is 10,000 hours—incandescent bulbs also only use 750 kWh over 10,000 hours while CFL's use only 180 kWh. **Replacing one 75-incadescent bulb with a 20-watt CFL saves 1,300 pounds of carbon dioxide.**[1] **If every American home changes just one light bulb to an ENERGY STAR bulb, greenhouse gas emissions equivalent to nearly 800,000 cars would be removed from the atmosphere.**[2]
- However, CFL's contain mercury, just as incancdescent's, and there must be policy for appropriate take-back and recycling provisions—if legislation is not in place, CFL's will be thrown out with the trash and the mercury will seep into landfills. If recycled correctly, the overall mercury footprint of CFL's is drastically smaller than an incandescent, as power plants emit 13.6 milligrams of mercury to produce the electricity required to use an incandescent, compared to a mere 3.3 for a CFL.
- [1] Rocky Mountain Institute
- [2] "Change a light bulb to save energy and money—and save our environment, US Environmental Protection Agency

U-Waste

- As of February 9, 2006, all "universal-waste" items were banned from the trash: fluorescent tubes, batteries, computer and T.V. monitors, and other electrical equipment, mercury containing items, paints and solvents.
- The ban came before the plan, necessitating a focus in grant funds from the CIWMB for the 15th and 16th Cycles for HHW collection infrastructure and regional coordination. California's Take-It-Back programs have been successful in collecting batteries, cell-phones and fluorescent tubes.

Sharps/Household Syringes

- **Adopted—SB1305 (Figueroa 2006) Medical Waste** —prohibits disposal of household syringes (sharps) in household trash. Will take effect September, 2008, directing local governments to implement disposal solutions for their residents.
- **Proposed—AB501 (Swanson 2007)** –Would require pharmaceutical companies whose product is dispensed through pre-filled syringes to provide each person under prescription a specified method to safely dispose of syringes—it seems that those companies that dispense syringes that are not pre-filled would be exempt from this requirement. (The bill we bill heard next in the Health Committee on 5/1/07).
- The CIWMB HHW 16th Grant Cycle of 2007 will focus on sharps collection, and those regions that propose innovative ways to collect sharps on a long-term basis will receive priority for funding.

Basel Convention/Ban

- The Basel Ban effectively banned as of 1 January 1998, all forms of hazardous waste exports from the 29 wealthiest most industrialized countries of the Organization of Economic Cooperation and Development (OECD) to all non-OECD countries.
- The Ban was largely opposed by the U.S. and others and has therefore not been made part of the Basel Convention through Amendment. Despite this, 169 other world nations have adopted the language and classifications of HHW export, thus making the U.S. liable for any hazardous waste it exports to any of those 169 nations that acknowledge the Ban.
- The Basel Ban Amendment is not legally binding yet, but this is the decision of the Basel Convention which now has been ratified by 63 countries, and is already implemented by the member states of the E.U.
- The U.S. government has de-listed many wastes from being considered solid or hazardous when they are recycled, allowing these wastes to be exported under U.S. law, without following the strictures of the Basel Convention and/or the Basel Ban Amendment. However, regardless of the legality of U.S. law, these exports violate the laws of importing and transit countries that are Basel parties.

StEP
"Solving the E-Waste Problem"

Who:

- A new global public-private initiative made up of major high-tech manufacturers, including HP, Microsoft, Dell, Ericsson, Philips and Cisco Systems join UN, governmental, NGO and academic institutions along with recycling/refurbishing companies as charter members of the initiative. Officially launched March 7.

StEP
"Solving the E-Waste Problem"

Why?

- Recognition of the need for sustainable use of resources as well as the importance of optimizing the supply chain of electronic equipment by "closing the loop" globally.
- Awareness of the global environmental, social and employment effects of processing e-waste.
- Concern about disparities, such as the digital divide.
- Awareness of the importance of public perception for realizing a sustainable solution to the e-waste problem.
- Recognition of t the importance of local, regional and global partnerships between companies, governmental, nongovernmental organizations and academic institutions (public-private-partnerships).

StEP

"Solving the E-Waste Problem

What & How?

- Form an initiative in an arena offered by UN organizations.
- Enhance and synthesize efforts around the world to optimize the "reverse supply chain" for electronics and e-waste.
- Focus of the five Task Forces are: Policy & Legislation, Re-Design, Re-Use, Re-Cycle and Knowledge Management.
- Implement concrete practical projects within these Task Forces with scientific inputs guidance.
- Increase public, scientific and business knowledge.