

# E-Waste

## Developing a disposal strategy.



Vernon Delivers Green.

Vernon is committed to the environment. We can dispose of your E-waste according to industry standards and provincial regulations.

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# Triple Bottom Line Objective

1. Environmental Stewardship
2. Data Security
3. Economic Recovery

# E-Waste

## What's the Problem?

- The electronics we buy don't last very long.
- Electronic equipment contains many toxic materials.
- More e-waste is thrown in the trash than recycled.
- Toxic components and poor design make e-waste hard to recycle.
- Many recyclers export the products to developing countries with no worker safety or environmental protections.

# E-Waste Is Toxic Waste

- E-waste contains toxic materials harmful to humans and our environment. Over 1,000 materials, including chlorinated solvents, brominated flame retardants, PVC, heavy metals, plastics and gases, are used to make electronic products and their components - semiconductor chips, circuit boards, and disk drives. About 40% of the heavy metals, including lead, mercury and cadmium, found in landfills come from electronic equipment discards.
- CRT monitors and TVs contain between four to eight pounds of lead. As they break down in a landfill, they can leach toxic chemicals into groundwater.
- LCD now dominate computer & TV market, we face mercury contamination problems, since LCD use mercury lamps to light their screens. Milligrams of mercury are used in each LCD, but it is so toxic that as little as one gram of airborne mercury deposited per year to a 20-acre lake is enough to maintain mercury contamination at a level where the fish are unsafe to eat.

# E-Waste Is Toxic Waste

- Lead:
  - The health effects of lead are well known; lead exposure causes brain damage in children and has already been banned from many consumer products.
- Mercury:
  - Mercury is toxic in very low doses, and causes brain and kidney damage. It can be passed on through breast milk. In a 2000 report, the National Academy of Sciences estimated that over 60,000 babies are born each year at risk for neuro developmental (nervous system) defects associated with high exposure to methyl mercury in the womb.
- Cadmium:
  - Cadmium is a known cancer-causing substance. It accumulates in the body and can cause kidney damage.
- BFRs:
  - Brominated flame retardants (BFRs) may seriously affect hormonal functions critical for normal development. A recent study of dust on computers in workplaces and homes found BFRs in every sample taken. One group of BFRs has been found in alarming rates in the breast milk of women in Sweden and the U.S. Incineration of plastics containing BFRs generates toxic brominated dioxins and furans.
- Plastics:
  - Plastics, including PVC, make up to 13.8 pounds of an average computer. Plastics are used in printed circuit boards, in connectors, plastic covers & cables. Hazardous chemical additives (like phthalates) can leach when PVC components of electronic products are land filled, and burning PVC produces dioxins, a group of the most potent synthetic chemicals ever tested, which can harm the immune and reproductive systems, and some of which are known to cause cancer.
- Beryllium:
  - Beryllium is commonly found on motherboards and connectors. Beryllium is a human carcinogen.

# E-Waste = Global Problem

## 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 Pakistan), Greenpeace and others.

# Canadian E-waste Legislation - Provincial Comparison

Although efforts are taken to harmonize policies between provinces, regulations vary by province.

## **BC**

- Regulation passed in October 2004 requires producers to either develop product stewardship plans or comply with a product stewardship program.

## **Alberta**

- Since 2004, producers are required to register with Electronics Recycling Alberta.
- Retailers, wholesalers, distributors and manufacturers pay fees to The Alberta Recycling Management Authority (ARMA) that manages the scheme. Fees are raised by end-users of electronic products who pay a one time fee upon purchase.

## **Saskatchewan**

- Regulation passed in February 2006 approved the Saskatchewan Waste Electronic Equipment Program (SWEEP), as the official industry-managed collection system funded through Advance Recycling Fees (ARF).

# Canadian E-waste Legislation - Provincial Comparison for 2008

## **Manitoba**

- Household Hazardous Waste Stewardship Regulation forbids the sale of regulated products if they are not covered by a stewardship program.

## **Nova Scotia**

- Regulation for WEEE recovery passed in January 2006 where manufacturers are required to provide for collection or enter into a stewardship agreement.

## **Ontario**

- WEEE designated under the Waste Diversion Act (2004) and established an industry funded organization (Ontario Electronic Stewardship (OES)) , to implement a stewardship program.
- The WEEE diversion program began in April 2009 and is financed completely by those firms who created and brought in the electronic products via fees on new purchases. The consumer pays!

# OES Designated Materials

## Phase 1 Products

- Desktop computers
- Portable computers
- Computer peripherals
- Monitors
- Televisions
- Printing devices

# OES Designated Materials

## Phase 2 Products

- Computer peripherals will include modems
- Printing devices will include copiers, scanners, typewriters.
- Telephones (physical and accessories)
- Cellular phones
- PDA's and pagers
- Audio and video players
- Cameras
- Equalizers, (pre)amplifiers
- Radios
- Receivers
- Speakers
- Tuner
- Turntable
- Video players/projectors
- Video recorder
- Personal hand held computers

# Environmental Stewardship

- Downstream audit/awareness is essential.
- Free disposal could be very expensive!
- “Donation Stream” has risks & requires diligence.
- Provincial programs vary and not inclusive of all E-Waste materials.

# Data Security

- Care. Custody. Control.
- Adversarial risk.
- Compliance. PIPDA
- Economic recovery = risk/reward.
- Internal vs. external resources.
- Media – off the network = risk.

# Economic Recovery

## ■ Maximize Asset Value

- Proper disposal techniques can provide revenue vs. cost.
- Balance: "useful life" with "cost of retention".
- Implement formal re-fresh cycle.
- Don't stock pile. IT asset's lose value monthly after decommissioning.
- Partner with technology expert vs. scrap merchant.

# Questions to Ask About Your Company

1. Do you have an environmental policy statement? If so is E-Waste included?
2. Is this policy understood by employees and supported by management?
3. Do you have a recycling strategy that address data security?
4. Does your IT department have a recycling process that maximizes value?
5. What are you recycling, and what are you not recycling, do any opportunities to improve exist?

# Links to Useful Resources

- Ontario Electronic Stewardship:  
[www.ontarioelectronicstewardship.ca](http://www.ontarioelectronicstewardship.ca)
- NAID Canada (National Association of Information Destruction)  
[www.naidonline.org](http://www.naidonline.org)
- Nymity Privacy Resource  
[www.nymity.com](http://www.nymity.com)

# E-Waste A Disposal Strategy

## Q & A



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