



Florida Department of Environmental Protection

Waste Reduction & Recycling

Challenges and Solutions for Recycling Electronics in Florida

Florida DEP

February 26, 2016





Housekeeping

50% by 2015
60% by 2017
70% by 2018
75% by 2020

- All attendees are in “listen-only” mode
- Please use the “Questions” tab to submit a question
- Questions will be answered at the end of the presentation
- The presentation and other material are available in the “Handouts” tab
- This session is being recorded and will be available on the DEP website for sharing
- Please complete the survey after the webinar



Agenda

50% by 2015
60% by 2017
70% by 2018
75% by 2020

- E-Waste reuse and recycling
 - Jennifer Nelson
 - Goodwill Industries
- Data Destruction and IT Security
 - Danielle Alvarez, Chief Information Security Officer
 - Agency For State Technology
- Best Practices for Safe & Sustainable e-Cycling
 - Steve Craig
 - Technology Conservation Group
- State Electronics Challenge
 - Lynn Rubinstein
 - Program Manager



Florida Department of Environmental Protection

Waste Reduction/Recycling

Jennifer Nelson

Goodwill Industries





E-WASTE REUSE AND RECYCLING



AGENDA

- Mission
- 2015 Facts
- E-waste reuse
- Salvage
- E-waste recycling
- Results
- Challenges



2015 AT A GLANCE

- Served more than 50,000 in Charlotte, Collier, Glades, Hendry, and Lee counties.
- We collected more than 780,000 donations.
- We diverted more than 40,000,000 million pounds from our landfills.
- 29 retail stores, 1 Outlet, 11 attended donation sites.



MISSION

Goodwill Industries of Southwest Florida helps people with disabilities and disadvantages overcome their barriers to employment and independence.



WHEN YOU DONATE ELECTRONICS TO GOODWILL...

- Donations are:
 - Sorted
 - Graded
 - Processed
- **SOLD**
 - online at shopgoodwill.com
 - Stores
 - Dell Reconnect
 - E-scrap



E-WASTE REUSE

Goodwill
Southwest Florida



POST RETAIL SALES

SALVAGE COMMODITIES

- When items do not meet our customers' expectations, we sell the items our Outlet store by the pound.
- When items do not sell in our Outlet store, we sell the items on the commodities market.
- Our Salvage revenue streams include:
 - Books
 - Shoes
 - Purses
 - Housewares
 - Clothing
 - Stuffed animals



POST RETAIL SALES

RECYCLABLE COMMODITIES

- E-waste:
 - Computers
 - Monitors
 - Printers
 - Fax machines
 - Power supplies
 - Cell phones
 - small appliances



RESULTS

	2010	2011	2012	2013	2014	2015
Sales	\$1,402,676	\$1,789,479	\$2,186,106	\$2,333,000	\$1,678,483	\$1,323,226
Pounds	6,707,429	9,115,920	10,138,114	11,354,687	9,080,765	16,555,174

Recycling

Increase revenues:

2010- \$73,095

2011- \$142,301

2012- \$187,833

2013- \$198,321

2014- \$212,579

2015- \$92,179

Electronics Refurbishing

Revenues:

2012- \$120,000

2013- \$170,00

2014- \$200,000

2015- \$175,024



Microsoft®



Goodwill
Southwest Florida

CHALLENGES

- Commodities market
- Loss of revenue
- Increase in trash cost
- Lower diversion rate

Thank you





Florida Department of Environmental Protection

Waste Reduction/Recycling

Danielle Alvarez

**Florida Agency for State
Technology**





Data Destruction & IT Security

February 26, 2016



- Agency for State Technology Overview
- Importance of IT Security
- IT Security & Proper Disposal of Electronics



Security & Proper Disposal of Electronics

➤ What To Do Before Donating

- What is my organization's IT security policy?
- What is my organization's inventory policy?
- Does my organization have a contract for devices with data?
- Is there sensitive and personally identifiable information on this device? (i.e. social security numbers, bank account numbers, passwords, etc.)



Security & Proper Disposal of Electronics

➤ What To Do Before Donating

- Where do deleted files go? Can you erase files by reformatting?
- Physical destruction and or “wipe programs”
 - Degaussing, drilling or shredding
 - DBAN, Active KillDisk and Softpedia DP Wiper are free and meet government security standards.



Thank You

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Florida Department of Environmental Protection

Waste Reduction/Recycling

Steve Craig

Technology Conservation Group





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***Best Practices for Safe & Sustainable e-Cycling:
Processing, Downstream Markets, and
3rd Party Certification Programs***

Steve Craig, Corporate Compliance Director



Recovery Potential

Americans generated 3.14 million tons of obsolete electronic products in 2013 (about 1% of municipal solid waste stream).

- Only 40% was recycled
- Recycling one million laptops saves the energy equivalent to the electricity used by 3,657 U.S. homes in a year.
- One metric ton of circuit boards can contain 40 to 800 times the amount of gold and 30 to 40 times the amount of copper mined from one metric ton of ore in the United States.

(EPA Sustainable Materials Management 2013 Fact Report).



Important considerations for managing your used electronics

Profit vs. Risk

- Is your data being securely protected?
 - 2015 study by *Blanco Technology Group & Kroll Ontrack*
 - 2015 study by *IBM & the Ponemon Institute*
- Are best environmental, health and safety practices followed?
- Is there downstream tracking and accountability throughout the recycling chain?
- Are laws and regulations being followed?



When Profits are placed over Risk





General e-Recycling Processes

Types of Processing:

- **Resell/Reuse**- The recycler places a strong focus on finding the value in the material through testing, repair, refurbishing and data management. This can be on whole units such as laptops, desktops, cell phones or parted such as a full functioning LCD screen, memory, motherboards and so on.
- **Manual Processing** - Removal of hazardous components typically done with air actuated, electrical and/or hand tools.
- **Safe Automated Processing** - Shredders with automated separation equipment typically sort commodities into roughly 6 different material types.



Tracking

- Shipment Arrival
- Receiving Incoming pallets/boxes
- In-process
- Process Completion

430 NORTH SUNCOAST BLVD
CRYSTAL RIVER, FL 34429

TECH
CONSERVATION GROUP

430 NORTH SUNCOAST BLVD
CRYSTAL RIVER, FL 34429

PHONE: 352.564.1102
FAX: 352.564.1096

CERTIFICATE OF DESTRUCTION

Date: MM/DD/YY

To: ENTER NAME OF COMPANY

This document certifies that all manufacturers' proprietary material included in the shipment(s) listed below has been processed for component recovery and precious metals only. This is to be accomplished through a process of disassembly, separation and disposition into proper recycling and waste streams.

DATE RECEIVED	INCOMING ISPF #	QUANTITY

TCG recycles or destroys all manufacturers' material employing several recycling or destruction procedures, which comply with all EPA and governmental guidelines.

Thank you for choosing Technology Conservation Group Inc. to process your electronic scrap, by-products, and other material.

By: Florence Robinson, Business Development Assistant

FINDING THE ECOLOGY IN TECHNOLOGY



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Downstream Markets



Materials of Concern (Focus Materials)

- **CRTs** — Ceramic tiles, glass to glass mftg., road aggregate, fiberglass insulation, fluxing agent for smelters. (Non-recycling options are landfilling as Alternative Daily Cover and Mineable cells.)
- **Mercury** — Retort Process used to recover impure mercury from devices and lamps by heating, vaporizing, cooling and distilling to recover 99.9% pure mercury
- **PCBs**- E-Recyclers can handle and store PCBs if
 - They are small devices containing under 50 ppm (lighting ballasts, small capacitors)
 - They send to TSCA permitted facilities that can safely dispose of material (hazardous waste landfills; TSCA permitted incineration facility).



Materials of Concern (Focus Materials)

- **Circuit Boards**
 - Primary copper smelters: Canada, Germany, Belgium, Japan
 - Secondary Smelters - Several throughout the world
 - Chemical refining - a chemical process to strip the circuit board. Several throughout the world
- **Batteries**
 - Battery smelters - Process typically consists of freezing the battery, shredding, ball milling, and high temperature melting to recover metals for reuse in the battery industry and remelt alloys for the stainless steel industry.



Other Commodities

- **Ferrous & Non-Ferrous Metals -**
Typically consists of various grades of steel, copper, and aluminum
- **Plastic –**
Various grades and types of plastics
- **Glass –**
Non hazardous glass from printers, copiers, faxes, FPD screens and cell phones.
- **Packaging materials –**
Cardboard, foams, plastic & bubble wrap, pallets



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3rd Party certifications



R2:2013 and E-Stewards

Both certifications provide the following benefits:

- Advances best management practices within the e-Recycling Industry
- Offers a way to assess the environmental, worker health, and security practices of entities managing used electronics
- Are based on strong environmental standards that maximize reuse and recycling,
- Strict adherence to import/export laws
- Minimize exposure to human health and the environment,
- Ensures safe materials management by the e-Recyclers and downstream processors,
- Requires destruction and verification of all data on used electronics



TCG Points of Contact

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TECHNOLOGY CONSERVATION G R O U P

Thank You



Florida Department of Environmental Protection

Waste Reduction/Recycling

Lynn Rubinstein

State Electronics Challenge





Greening the Lifecycle of Office Equipment: The State Electronics Challenge

www.stateelectronicschallenge.net

***Challenges & Solutions for
Recycling Electronics in Florida***

February 26, 2016

Lynn Rubinstein, Program Manager



State Electronics Challenge

- *Free* program targeted to municipal, regional, state, & tribal governments **plus** schools, colleges & universities, non-profits
- Promotes lifecycle stewardship of computers & imaging equipment
 - Buying green
 - Operating efficiently:
 - Reducing energy & paper usage
 - Extending product life
 - **Managing responsibly at end of life**
- Awarding organizations for success!





Background

- Adapted from the Federal Electronics Challenge
- Initiated with funding from EPA regions
- Now funded by private sector sponsors
 - Samsung, Panasonic & R2/RIOS
- Managed & staffed by the Northeast Recycling Council (NERC)



Why Focus on Electronics?

Significant environmental impacts - mining through end-of-life

- Toxic constituents – e.g., lead, mercury, cadmium
- Valuable resources – e.g., copper, precious metals, rare earths, conflict minerals, steel, aluminum
- Rapidly growing waste stream
- Energy consumption – use & embedded energy
 - Production ~80% of lifecycle energy of computers due to complex components



Greening lifecycle saves energy & resources,
reduces toxics, & minimizes pollution



Environmental Benefits

For every 1,000 “green” computer systems purchased, power managed, & recycled after 5 yrs.:

- ↓ **Energy use** = to power 100 homes/year
- ↓ **Greenhouse gases** = 177 fewer cars/year
- ↓ **Municipal solid waste** by 49 tons =
24 households/year
- ↓ **Hazardous waste** by 15 tons =
112 refrigerators
- ↓ **Toxic materials** by 193 pounds, incl. lead &
mercury (= 13 fewer thermometers)



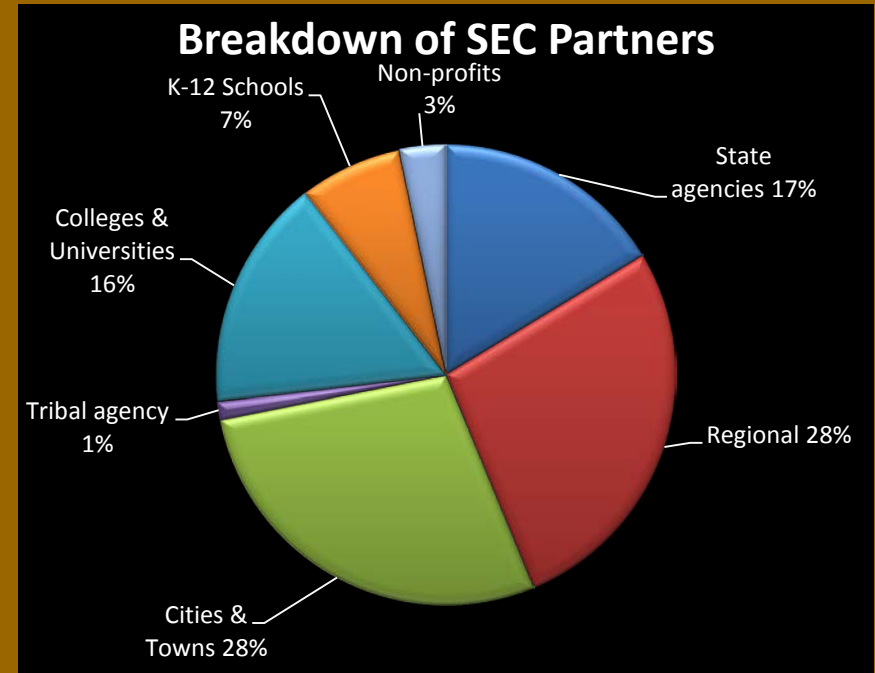
Why Challenge You?

- Institutional purchasers can impact marketplace
- Demonstrate leadership in sustainability, stewardship & responsible recycling
- Energy & cost savings
 - Office computers are “on” 76% of the time, even when used only 16% of the day!
 - Activating power management features
 - \$10 - \$100 per computer system/year, plus \$3 - 30 in cooling loads
 - \$35 - \$60 for imaging equipment/year



Who is Eligible to Participate?

- State & Tribal agencies
- Cities & towns
- Counties
- K-12 schools
- Colleges & universities
- Public utilities
- Public libraries
- Municipal solid waste authorities & districts
- Non-profit organizations





Current SEC Partners



155 Partners,
37 states,
212,500
end users

*Only 1 Partner in
Florida . . . so far*



How Does the Challenge Work?

- **Best practices**
 - Purchasing, use & end-of-life phases
- **Resources**
 - Free technical assistance & webinars
 - Web-based resources
- **Results**
 - Tools to track progress & measure results
 - Individualized sustainability reports
- **Award success!**
 - For new & existing activities

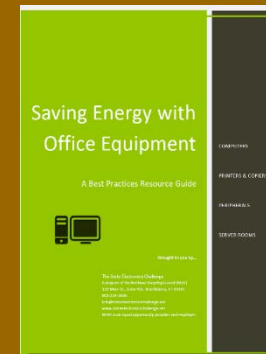


Resources to Get the Job Done

- Online resources for each lifecycle phase

www.StateElectronicsChallenge.net

- Free one-on-one technical assistance
- Partner-only webinars
- Partner-only listserv





Track Progress & Measure Results

SEC annually:

- Calculates environmental benefits of Partner's activities
- Prepares customized sustainability report

Based on Partner's Annual Reporting Form



Sustainability Report



ENVIRONMENTAL SUSTAINABILITY REPORT CY2013
 Partner: DuPage County, Illinois
 Date: March 20, 2013



ENVIRONMENTAL BENEFITS						
		PURCHASING	USE	REUSE & RECYCLING	TOTAL BENEFITS	
	Reduction in:		HOW M			TO
	Energy use	66,949 kWh	4.47 million			OWER
	Greenhouse gas emissions	11 metric tons of carbon equivalents	850 metric tons of carbon equivalent			cars
	Toxic materials, including lead & mercury	14 lbs.	215 lbs.			year
	Municipal solid waste	2,168 lbs.	54,071 lbs.	7,539 lbs.	63,778 lbs.	Waste generated by 15 households/year
	Hazardous waste	396 lbs.	5,905 lbs.	879 lbs.	7,180 lbs.	

394 metric tons of carbon

Calculations for office equipment were made using the Electronic Environmental Benefits Calculator, Version 3.1, dated July 2012, available at www.epa.gov/fec/publications.html#calculator. Calculations for paper reduction were made using the WARM model conversion factors, www.epa.gov/climatechange/wyed/waste/downloads/paper%20products.pdf, February 2012.

Partner Commitments to Green Electronics

<p>EPEAT® PURCHASING: DuPage County included Electronic Product Environmental Assessment Tool (EPEAT®) registered computer products as a required or preferred standard in bids, contracts, and/or leases for IT equipment in calendar 2012.</p>	<p>Certified Recyclers: DuPage County used a recycler that was certified to R2, Re/RIOS, or e-Stewards in this calendar year.</p>
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Annual Awards

Eligible for:

- Gold: **All three** lifecycle phases
- Silver: **Two of three** lifecycle phases
- Bronze: **One of three** lifecycle phases



Recognition

- Award
- The media
- SEC website
- Build internal support for activities





Best Practices *Purchasing*

- Modify procurement practices to require/give preference to “green” equipment – defined by the Electronic Products Environmental Assessment Tool (EPEAT[®]) standard
- **Ensure 95%** of desktops, laptops, monitors, printers, copiers, & multifunction devices purchased are **EPEAT registered** (www.epeat.net)



Best Practices *Use*

- Establish & promote policy/directive for power management & paper use reduction
- Ensure ENERGY STAR “sleep” function enabled on all computers & monitors
 - Power down features imaging equipment
- Extend life of equipment
- Ensure double-sided printing features used on 75% of printers, copiers, & multifunction devices





Best Practices

End-of-Life Management

- Establish policy/directive:
 - Promote reuse & donation
 - Require environmentally sound management
- Track units redeployed internally, donated for reuse, & recycled
- Use recycler that has earned 3rd party certification: e-Stewards, R2, or R2/RIOS



Certified Facilities in the U.S.

~ 600 certified facilities in U.S. plus many more in process of certification

- e-Stewards: 1 in Florida

<http://e-stewards.org/find-a-recycler/>

- R2, R2/RIOS: 23 in Florida

<https://sustainableelectronics.org/recyclers>



How to Participate?

- Join

<http://stateelectronicschallenge.net/join.aspx>

- Implement best practices
 - Purchasing
 - Use
 - End-of-life
- Report annual progress
- Apply for award (optional)



How Much will this Cost?

- “Nothing!” The program is free:
 - No cost to join
 - No cost for technical assistance & support
 - No obligation on your part
- *Does not* pay for the cost of implementation., e.g., paying for recycling



How Much Work will it Take?

It depends on:

- Goals - what you choose to work on
- Partner preparation - how much progress you've already made
- People
 - Who's on the team (or is there a team?)
 - Who you need to enlist to help out

It's up to you!



Contact Information

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Join: <http://www.stateelectronicschallenge.net/join.aspx>

Prepared with support from
Samsung, Panasonic, & R2/RIOS

NERC is an equal opportunity provider & employer.



Thank You



Questions

- Please use the “Questions” tab in in the attendee panel to submit a question
- Use the “Raise Hand” option to be identified for follow up



FDEP Waste Reduction Staff

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- ***Shannan Reynolds***
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 - Shannan.Reynolds@dep.state.fl.us or 850-245-8716
- ***Laurie Tenace***
 - Special Wastes Management: electronics, mercury, batteries, household hazardous waste, pesticides, pharmaceuticals
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- ***Henry Garrigo***
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