

# **Selection of Electronics Recyclers and Purchases of Electronics**

Virginia Recycling Association Conference  
Electronics Recycling Workshop  
May 17, 2010  
Daniel T. Gallo, EPA – Region 3

# What We'll Cover

- Why you want to choose a responsible electronics waste recycler
- What to watch out for
- Information about electronics certification, standards and regulations
- Tools for selecting a recycler
- EPEAT: A tool for purchasing environmentally friendly electronics products

# Why You Want to Choose a Responsible Electronics Recycler

- **“Fake Recycling Events in \_\_\_\_\_ Uncovered”**
- **“EDITORIAL - Shaky deal: A promise to recycle fails to deliver”:**
  - **“Someone in the county or the local humane societies failed to check this deal out before it was promoted in March as a way to be both good to the planet and kind to animals, all for free. Now that the full story is emerging, there's no reason to feel blue over green -- people just need to realize that sometimes doing the right thing, like recycling, comes with a cost.”**
    - » Post-Gazette, June 5, 2009

# E-SCRAP NEWS

## Electronic Newsletter

May 7, 2010



### In This Issue:

NEW RECORD PWB PRICES

*E-SCRAP 2010: EMERGING ECONOMIES, GROWING WASTE STREAM*

NEW CALLS FOR DATA SECURITY IN WEEE DIRECTIVE

COLT REFINING ACQUIRES NY E-SCRAP FIRM

E-WORLD RECYCLERS LATEST TO RECEIVE R2, RIOS CERTIFICATION

NEWSBITS

*E-SCRAP 2010: AIRFARES TO CONFERENCE DROP*

JOBS AVAILABLE & SOUGHT



## 1 | New record PWB prices

The gross value of printed wiring board scrap hit yet another all-time high in April at \$5.64 a pound, up 4.4 percent from March's totals of \$5.39 per pound and 29.9 percent higher than the year-over-year value of \$3.95 per pound.

This data represents the full metallic values of boards over time and are not the recycling values, as those values do not include the costs involved in actually extracting metal from boards, including freight, sampling charges, assay assessments, smelting, refining, process loss, return on investment, and penalties for various elements, including beryllium, bismuth and nickel.

These values are for the estimated intrinsic metal content of recovered PC boards. Some consumers label such material as mid-value. Lower-value scrap includes monitor and television boards. Higher-value scrap includes network and video cards, and motherboards.

The average value of board scrap for the first four months of 2009 is \$5.40 per pound, a 27.7 percent jump over the same period last year.

**Printed wiring board value**



## Printed wiring board value



From E-Scrap News Newsletter, May 7, 2010.

Contact [dylan@resource-recycling.com](mailto:dylan@resource-recycling.com) to get on the mailing list for a free newsletter subscription.

See [www.resource-recycling.com](http://www.resource-recycling.com) for more information.

# How Can You Choose a Good Electronics Recycler?

- Choose a certified electronics recycler
- Use some recommended guidelines, a checklist or an on-site review document to consider and evaluate an electronics recycler

# Why Have the Responsible Recycling Practices (R2 Practices) Certification?

- Electronics recyclers want a way to highlight environmentally sound recyclers.
- Customers want an easy way to find recyclers who use sound practices.
- EPA wants to promote R2 practices to protect human health and the environment.



# What are the R2 Practices?

- Stakeholder effort to develop one set of practices
- Based mostly on environmental, worker safety, and public health practices
- Includes 13 general principles, and specific practices for recyclers to follow
- The R2 Practices are the basis of a voluntary, third-party certification program.

# To Become R2-Certified:

- Electronics Recyclers Must Apply to a Certifying Body (at present, must apply to either SGS or Perry Johnson Registrars, Inc.
- **AND**
- The Electronics Recycler Must Meet the R2 Requirements.

# What does R2 Cover?

- E-Waste: electronic equipment includes computers, peripherals, cell phones, televisions
- Materials getting specific “focus” include
  - Cathode Ray Tubes
  - Circuit boards
  - Batteries
  - Items containing mercury/PCBs

# What's in the R2 practices?

- Environmental, Health and Safety Management System Is Needed
- Reuse and Recycling are preferred over disposal
- Comply with all Federal, State, Local Laws and make sure Exports of Focus Materials are legal

# Why Recycle or Reuse Electronics ?

<b>Estimated Environmental Benefits</b>	<b>Recycling 100 Computers and LCD Monitors</b>	<b>Reusing 100 Computers and LCD Monitors</b>
<b>Energy Savings:</b> (Equal to a US household power needs for a year)	<b>2</b>	<b>48</b>
<b>Greenhouse Gas Reduction:</b> (Equal to number of passenger car(s) removed from the road for a year)	<b>1</b>	<b>21</b>

Source: Electronics Environmental Benefits Calculator, <http://www.federalelectronicschallenge.net/resources/bencalc.htm>

# R2 Practices Continued...

- On-Site Health and Safety
- Refurbishing, Testing and Packaging of Materials going to reuse

# R2 Practices Continued...

- Exercise due diligence - ensure that downstream recyclers and processors manage focus materials appropriately throughout the recycling chain
- Ensure that focus materials are not incinerated or landfilled

# R2 Practices Continued...

- Destroy, purge or sanitize data from memory
- Track throughput and recordkeeping;
- Store and transport materials securely and safely; and
- Possess insurance, closure plans and financial mechanisms to cover the potential risks of the facility.



# R2 Practices Continued...

## Details on Export

- Recycler's responsibility extends to conducting due diligence to international markets; and
- Recycler must show documentation that export of any focus material is legal to non-OECD country of import
  - Law or court ruling;
  - Letter from the competent authority; or
  - Request documentation from EPA

# EPA's Assistance

- Open to all recyclers seeking information on exports to foreign countries being legal
- Contact at EPA is Frank McAlister
  - [mcalister.frank@epa.gov](mailto:mcalister.frank@epa.gov)
- Request should include:
  - Name of country/ facility name and address
  - Type of material and form (i.e., whole and shredded circuit boards, used desk top computers, cleaned/processed CRT glass)
  - Manner in which it will be processed (reuse, refurbished, recycled)

# R2 Stakeholder Process

- R2 Document was drafted by neutral facilitator
- Versions were discussed by working group and revised by facilitator
- R2 was reviewed by 4 auditors to assure auditability
- R2 was field tested at 6 recyclers
- EPA's assistance in getting documentation from foreign countries was tested

# Other information

- EPA's website addresses the R2 Practices at:  
<http://www.epa.gov/epawaste/consERVE/materials/recycling/r2practices.htm>
- R2 does not preclude the use of prison labor in electronics recycling
  - Instead it wants anyone who recycles to follow the same practices
- BAN and ETBC have embarked on their own effort to put together a practices and certification program, called the “E-Stewards” certification.

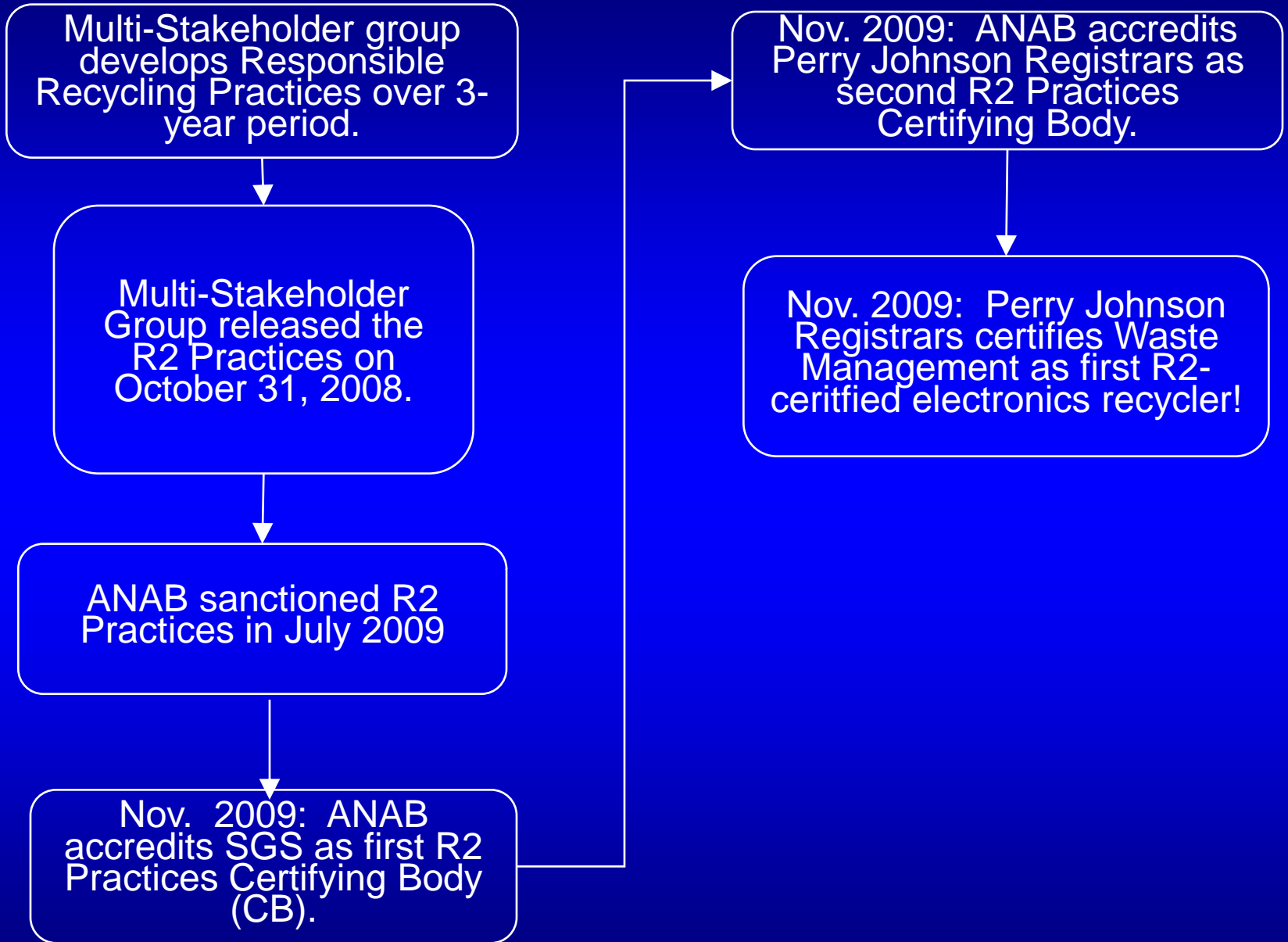
# R2 Information

- The R2 Practices document can be found at:  
<http://www.decideagree.com/R2%20Document.pdf>
- The website for SGS, the first R2 Practices Certifying Body accredited by ANAB, can be found at:  
[http://www.sgs.com/clients/certified\\_clients.htm](http://www.sgs.com/clients/certified_clients.htm)
- The website for Perry Johnson Registrars, the second R2 Practices Certifying Body accredited by ANAB, can be found at:  
<http://www.pjr.com/faq.htm>
- The website for the ANSI-ASQ National Accreditation Board (ANAB) can be found at:  
<http://www.anab.org/>
- The EPA Plug-In to eCycling Website can be found at:  
<http://www.epa.gov/epawaste/partnerships/plugin/index.htm>
- The EPA-Region 3 eCycling Website can be found at:  
<http://www.epa.gov/reg3wcmd/eCycling/index.htm>

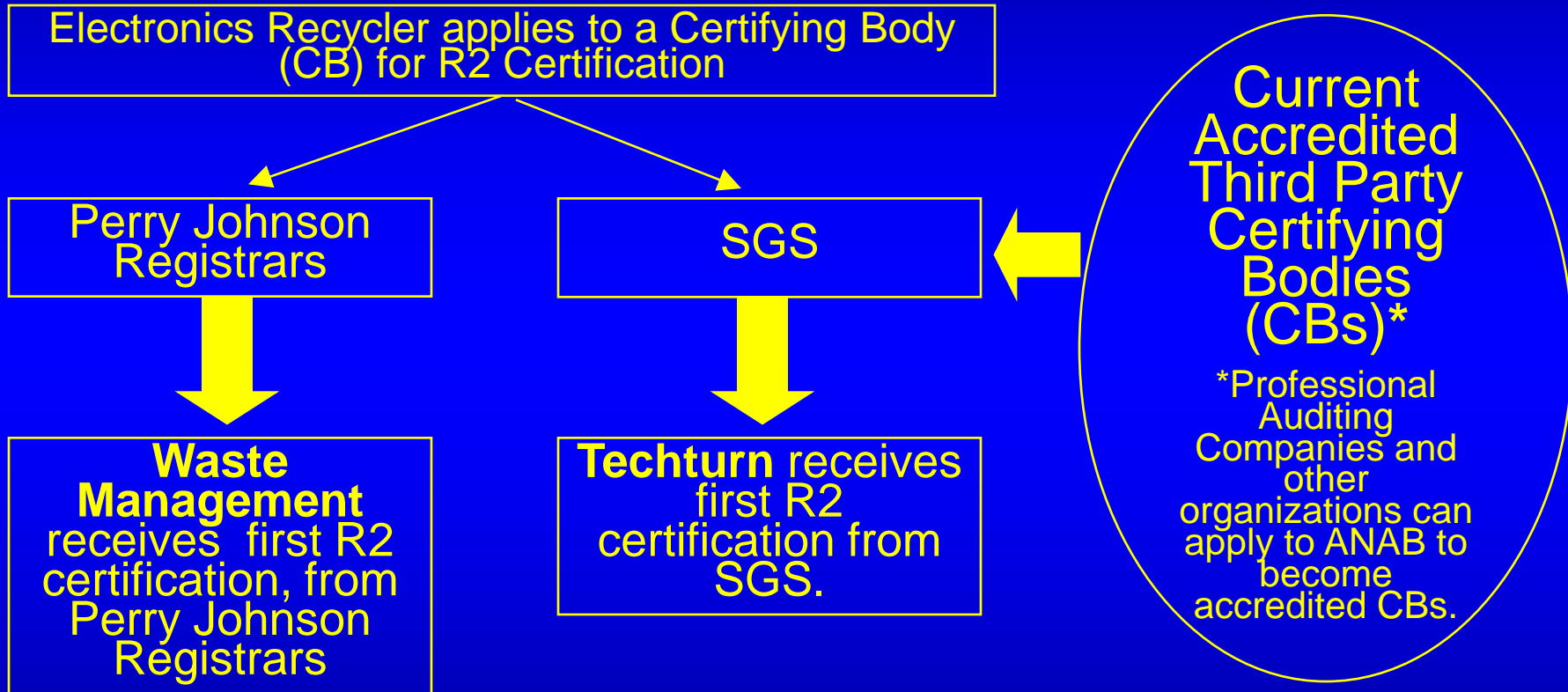
# What is the Status of R2?

- It is posted on the internet at <http://www.decideagree.com> or go to [www.epa.gov/epawaste/consERVE/materials/Recycling/r2practices.htm](http://www.epa.gov/epawaste/consERVE/materials/Recycling/r2practices.htm) for a summary of the document.
- EPA is encouraging recyclers to conform their practices to the document.
- There are currently two Certifying Bodies (CBs)

# R2 Practices Development and Implementation



# R2 Certification Process





# To Become R2-Certified:

- Electronics Recyclers Must Apply to a Certifying Body (at present, must apply to either SGS or Perry Johnson Registrars, Inc.)

**AND**

- The Electronics Recycler Must Meet the R2 Requirements.

# R2 – Certified Recyclers

## Certified by SGS Systems

- Techtturn Austin, Texas facility
- IMS Electronics Recycling, Inc Poway, CA & Vancouver, WA facilities
- Intechra Group LLC Columbus, OH facility
- Creative Recycling Systems, LLC Morrisville, NC & Tampa, FL facilities
- Materials Processing Corporation Mendota Heights, MN facility
- E-World Recyclers Vista, CA facility

## Certified by Perry Johnson Registrars

- E-Structors, Inc Maryland facility
- Waste Management Recycle America Minnesota facility

# Selecting an Electronics Recycler

# Selecting a Recycler

- There are several steps to shopping for recycling services
  - Identifying what you need
  - Learn what recyclers can provide
  - Verifying their performance
  - Select the recycler



# Identifying your needs

- Data security
  - Where does material end up
  - Requirements on reuse or resale
  - Logistics and support
    - Packing
    - Shipping
  - Budget
- Learn more about the e-waste recycling industry
- EPA's [e-waste web site](#)
  - Earth911.org [e-waste site](#)
  - Institute of Scrap Recycling Industries [e-waste site](#)

# Where to find recyclers

- Recycling association membership lists
- State environmental agency lists
- IT manufacturers and vendors
- Phone book/internet
- Other groups you network with
- Certifying groups (Perry Johnson Registrars, SGS) who certify companies under the Responsible Recycling (R2) practices.

# Learn what recyclers can provide

- Due Diligence – The amount of care and attention that a reasonable person would exercise in order to make an informed decision on the selection of an electronics recycler to have reasonable assurance that the company was reputable and responsible.
- Identifying if recyclers meet your needs is a two step process
  - Learning what services they can provide
  - Onsite reviews to understand and verify
- Begin with a broad search
  - Marketing materials
  - References from others
  - Phone book/internet
  - Due diligence reviews others have done
  - Recycling association membership lists
  - State environmental agency lists
  - IT manufactures and vendors
  - Certifying groups, ex. ANAB
  - Manufacturers/retailer programs
- Make contact with recyclers to learn about their business

# Learn what recyclers can provide

- Resources - <http://www.decideagree.com> or go to [www.epa.gov/epawaste/conserva/materials/ecycling/r2practices.htm](http://www.epa.gov/epawaste/conserva/materials/ecycling/r2practices.htm)
- For materials that will be recycled
  - Are reuse, refurbishment, and recycling techniques used to the fullest extent possible?
  - Is incineration and land disposal minimized?
  - Are legal requirements pertaining to transport, processing, and management complied with?
  - If exporting are US and importing countries requirements complied with?
  - Is attention paid to materials of concern?



# Learn what recyclers can provide

- For materials that will be reused or refurbished:
  - Are materials screened for legitimate reuse?
- For materials that will be recycled:
  - Do business records demonstrate downstream processing?
  - Are facilities licensed and have an environmental management system?
- For the facility and others they use
  - Does the facility have a plan for occupational and environmental health and safety?
  - Is there an emergency release plan
  - Do they track key parameters, such as input/output and releases?
  - Is there an adequate plan for closure?

# Learn what recyclers can provide

- Resources – The Federal Electronics Challenge ‘[Checklist for the Selection of Electronic Recycling Services](#)’
- Can be used to ask the recycler questions, or evaluate information you’ve gathered.
- Covers:
  - Basic business information
  - Services provided
  - Regulations that apply, and compliance history
  - Procedures for environmental management, and recycling processes
  - Information on down stream processors, and export
  - Disposal practices
  - References that have used their services
  - Fees
- Then evaluate who you might want to work further with. Do they:
  - Provide the services you need
  - Claim responsible management
  - Have a pricing structure that fits your budget
  - Meet other needs that are important to you

# On-Site Review

- FEC onsite review tool -  
[http://www.federalelectronicschallenge.net/resources/docs/onsite\\_review.pdf](http://www.federalelectronicschallenge.net/resources/docs/onsite_review.pdf)
- Can guide a visit to a recycler by providing information on
  - Suggested topics to talk about
  - What to look for
  - Programs they may participate in
  - Links to other resources that can support your review

# On-Site Review

- What to look for during a review
  - General facility facts:
    - Is the facility as they described it?
    - Does the balance of material going in compare with the material going out?
    - Do they have or need an EPA ID number?
    - Do they have certifications? Recyclers can provide good services without these certifications.
    - Is the facility clean and orderly, is material stored and managed to protect it's value?
  - Processing:
    - Does the facility strive to maximize reuse and refurbishment, and minimize incineration and landfilling, with in the facility?
    - Do they need permits? Electronics are not necessarily hazardous waste, and they may not need a permit for there work.
    - How is data security managed? Sanitization and disposal are different.

# On-Site Review

- Electronic waste outputs:
  - Does it go to recipients that maximize reuse and refurbishment, and minimize incineration and landfilling?
  - Is equipment sent for reuse tested? If not are recipients able to test and refurbish non-working equipment?
  - Do they know who their downstream processors are, and what their practices are?
- Documentation and Records:
  - Documentation will vary depending on the recycler and their practices.
  - Recyclers that directly export CRTs should have records of their notification to EPA, as well as records for their shipments. If downstream vendors are exporting CRTs, ask for their information.
  - Processed CRT glass does not require notification.
  - Ask about the legality of other materials such as equipment containing mercury, PCBs, batteries, or circuit boards.
  - If they are can't provide the documentation during the visit ask them to send it to you as soon as possible

# On Site Review

- Resources
  - FEC onsite review tool -  
[http://www.federalelectronicschallenge.net/resources/docs/onsite\\_review.pdf](http://www.federalelectronicschallenge.net/resources/docs/onsite_review.pdf)
  - State specific examples
    - Wisconsin -  
<http://dnr.wi.gov/org/aw/wm/publications/aneupub/wa615.pdf>
    - Georgia –  
[http://www.gasustainability.org/files\\_pdf/audit\\_e-scrap\\_recyclers.pdf](http://www.gasustainability.org/files_pdf/audit_e-scrap_recyclers.pdf)
    - State recycling programs may have specific requirements
      - Check with your state environmental agency

# Select Recycler




- Select the recycler:
  - Use the review results
  - Lists of services provided
  - Price
  - Remember free is not always the best value
  - Manufacturer programs are available
  - Other factors?
- Set up your contract
  - Specify services
  - Any cost off-sets from reuse
- Monitor for performance

# Purchasing Green Electronics

- Will help to manage future waste:
  - Made from less materials and less toxic materials
  - Extends the life of electronics, thus reducing the frequency and amount of electronics you need to replace or dispose of
  - Option to Purchasing: Leasing from companies that take back the electronics at the end of their useful life
  - Purchasing with EPEAT – Electronic Product Environmental Assessment Tool – [www.epeat.net](http://www.epeat.net)
    - Manufacturers can increase the ratings by offering take-back of equipment
  - Add life-cycle management as an item in your purchasing contracts
  - Add EPEAT purchases as requirement in contracts



**EPEAT Quick Search Tool**  
 For Products Registered in United States

	 BRONZE	 SILVER	 GOLD	Totals
Desktops	<a href="#">1</a>	<a href="#">54</a>	<a href="#">83</a>	<a href="#">138</a>
Displays	<a href="#">1</a>	<a href="#">180</a>	<a href="#">104</a>	<a href="#">285</a>
Integrated Desktop Computers	<a href="#">1</a>	<a href="#">37</a>	<a href="#">11</a>	<a href="#">49</a>
Notebooks	<a href="#">40</a>	<a href="#">578</a>	<a href="#">471</a>	<a href="#">1089</a>
Thin Clients	<a href="#">0</a>	<a href="#">9</a>	<a href="#">0</a>	<a href="#">9</a>
Workstation Desktops	<a href="#">1</a>	<a href="#">1</a>	<a href="#">12</a>	<a href="#">14</a>
Workstation Notebooks	<a href="#">0</a>	<a href="#">1</a>	<a href="#">6</a>	<a href="#">7</a>
<b>Total:</b>	<b><a href="#">44</a></b>	<b><a href="#">860</a></b>	<b><a href="#">687</a></b>	<b><a href="#">1591</a></b>

\* Integrated System is a desktop and integrated monitor as one product

## Updates

- [Verification Round 4 is now complete](#)
- [Conformity Assessment Protocols: Version 1.2](#)  
 Guidance for IEEE 1680 Environmental Performance Verification
- [New: Revised Verification Protocols version 1.3 available for comment](#)

New hire will oversee Verification, Quality Assurance programs

### [EPEAT Expands to Singapore](#)

Next step in continuing international expansion

### [Amazon.com Features EPEAT to Help Consumers Choose Green](#)

Online retailer provides EPEAT guidance at point of purchase

### [EPEAT's Latest Verification Round Complete](#)

Investigations focused on recycled content claims, replacements parts availability, ENERGY STAR conformance and exceptions,field

			Category		Pts	Version	Type	Size	Date	
<input type="checkbox"/>	<a href="#">NEC EA221WMe-WH</a>	United States	Displays	Silver	19	5.0	Flat Panel	22 W	5/8/2009	Active
<input type="checkbox"/>	<a href="#">HP LE1851w Widescreen LCD Monitor</a>	United States	Displays	Silver	19	5.0	Flat Panel	18.5"	7/1/2009	Active
<input type="checkbox"/>	<a href="#">HP LE1901wm Widescreen LCD Monitor</a>	United States	Displays	Silver	19	5.0	Flat Panel	19 W	6/10/2009	Active
<input type="checkbox"/>	<a href="#">HP LE1901w Widescreen LCD Monitor</a>	United States	Displays	Silver	19	5.0	Flat Panel	19 in	6/12/2009	Active
<input type="checkbox"/>	<a href="#">HP LE2201w Widescreen LCD Monitor</a>	United States	Displays	Silver	19	5.0			6/18/2009	Active
<input type="checkbox"/>	<a href="#">HP Compaq LE1711 LCD Monitor</a>	United States	Displays	Silver	19	5.0			11/2/2009	Active
<input type="checkbox"/>	<a href="#">HP Compaq LE1911i LCD Monitor</a>	United States	Displays	Silver	19	5.0			11/2/2009	Active
<input type="checkbox"/>	<a href="#">Hyundai X93W</a>	United States	Displays	Silver	18	5.0	Flat Panel	19 in	3/10/2008	Active
<input type="checkbox"/>	<a href="#">Hyundai K93W</a>	United States	Displays	Silver	18	5.0	Flat Panel	19 W	3/10/2008	Active
<input type="checkbox"/>	<a href="#">Hyundai K224W</a>	United States	Displays	Silver	18	5.0	Flat Panel	22 W	3/10/2008	Active
<input type="checkbox"/>	<a href="#">NEC EA261WM-BK(Rev1a)</a>	United States	Displays	Silver	18	5.0	Flat Panel	26 W	9/29/2008	Active
<input type="checkbox"/>	<a href="#">LG W2252TE</a>	United States	Displays	Silver	18	5.0	Flat Panel	22 W	1/5/2010	Active
<input type="checkbox"/>	<a href="#">HP 1859m Flat Panel Monitor</a>	United States	Displays	Silver	18	5.0	Flat Panel	18.5"	9/11/2009	Active
<input type="checkbox"/>	<a href="#">Compaq Q1859 Flat Panel Monitor</a>	United States	Displays	Silver	18	5.0	Flat Panel	18.5"	6/26/2009	Active
<input type="checkbox"/>	<a href="#">HP LE2001w 20-inch Widescreen LCD Monitor</a>	United States	Displays	Silver	18	5.0	Flat Panel	20 in	6/17/2009	Active

**SOURCES**

- Buyers
- Manufacturers
- Sellers
- Individual Consumers
- Small Business

**BACKGROUND**

- Background
- Background and Energy
- Reference Documents and
- Qs

# Current List of R2 – Certified Recyclers

- NOTE: Many recyclers have more than one facility that recycle electronics. **R2 requires that if a company has more than one facility, each facility must independently attain certification.**
- Perry Johnson expects that within the next 6 to 8 weeks, their list should grow significantly with new R2 certified recyclers. SGS expects to continue to grow their list of certified recyclers as well.
- To find R2 certified recyclers go to the following two lists respectively for Perry Johnson Registrars and SGS:
  - For Perry Johnson: click on the weblink: [http://www.pjview.com/Clients/PJRreports/r2\\_cert.cfm](http://www.pjview.com/Clients/PJRreports/r2_cert.cfm) for a listing of the companies that Perry Johnson has R2-certified.
  - For SGS: click on weblink: <http://www.us.sgs.com/sgs-r2-certified-clients-en-10.pdf> for a listing of the companies that SGS has R2-certified.

# Electronics Recycling Resources

- “Managing Unwanted Electronics Parts and Components”:  
<http://dnr.wi.gov/org/aw/wm/publications/aneupub/WA1307.pdf>
- For information on disposing of single or small numbers of units, go to:  
<http://www.epa.gov/reg3wcmd/eCycling/index.htm> or  
[Earth911.org](http://Earth911.org)
- Perry Johnson Registrars: [http://www.pjview.com/Clients/PJRreports/r2\\_cert.cfm](http://www.pjview.com/Clients/PJRreports/r2_cert.cfm)
- SGS: <http://www.us.sgs.com/sgs-r2-certified-clients-en-10.pdf>
- For more information on Responsible Recycling go to:  
<http://www.epa.gov/osw/inforesources/news/2009news/08-r2.htm>.
- Contact [dylan@resource-recycling.com](mailto:dylan@resource-recycling.com) to get on the mailing list for a free subscription to the E-Scrap News newsletter.
- See [www.resource-recycling.com](http://www.resource-recycling.com) for more information.

# Electronics Recycling Resources

- For the lists of R2 Certified Electronics Recyclers:
  - Perry Johnson Registrars: [http://www.pjview.com/Clients/PJRreports/r2\\_cert.cfm](http://www.pjview.com/Clients/PJRreports/r2_cert.cfm)
  - SGS: <http://www.us.sgs.com/sgs-r2-certified-clients-en-10.pdf>
- Checklist for selection of Electronics Recycling Services:  
<http://www.federalelectronicschallenge.net/resources/docs/select.pdf>
- Guidelines for On-site Review of Electronics Recyclers:
  - [http://www.federalelectronicschallenge.net/resources/docs/onsite\\_review.pdf](http://www.federalelectronicschallenge.net/resources/docs/onsite_review.pdf)
- Copy of the Responsible Recycling (R2) Practices:
  - <http://www.decideagree.com> or go to [www.epa.gov/epawaste/conserves/materials/ecycling/r2practices.htm](http://www.epa.gov/epawaste/conserves/materials/ecycling/r2practices.htm)
- Region 3 eCycling Web Page:
  - <http://www.epa.gov/reg3wcmd/eCycling/index.htm>
- The EPA Plug-In to eCycling web page is also a good source of information:
  - <http://www.epa.gov/epawaste/partnerships/plugin/index.htm>

# Electronics Resources

- To purchase the "greenest" computers, the EPEAT website is a neat website to use and it now has over 1500 products registered:
  - <http://www.epeat.net/>
- and for businesses that have green electronic products they want to put on EPEAT: [www.epeat.net/smallbusiness.aspx](http://www.epeat.net/smallbusiness.aspx)
- For more information on Responsible Recycling go to:  
<http://www.epa.gov/osw/inforesources/news/2009news/08-r2.htm>
- Recycling Sources by Zip Code: [www.Earth911.org](http://www.Earth911.org) Then enter your zip code and what you want to recycle at the top of the page.
- Cathode Ray Tube Rule:
  - <http://www.epa.gov/epawaste/hazard/recycling/electron/index.htm#crt>
- To request documentation from EPA about exports to foreign countries:  
(Open to all recyclers seeking information on exports to foreign countries being legal)
  - Contact at EPA is Frank McAlister
  - [mcalister.frank@epa.gov](mailto:mcalister.frank@epa.gov)
  - Request should include:
    - Name of country/ facility name and address-Manner in which it will be processed (reuse, refurbished, recycled)

# Contact Information

- Dan Gallo  
Electronics Recycling  
US EPA - Region III  
Land and Chemicals Division/  
Office of Materials Management (3LC40)  
1650 Arch Street  
Philadelphia, PA 19103-2029  
Phone: 215-814-2091: Fax: 215-814-3114  
Email: [gallo.dan@epa.gov](mailto:gallo.dan@epa.gov)