

# Sustaining the U.S. Electronics Recycling Industry *-New Challenges for a Maturing Market*

*Eric Harris, ISRI*

*14<sup>th</sup> International Electronics Recycling Congress 2015*



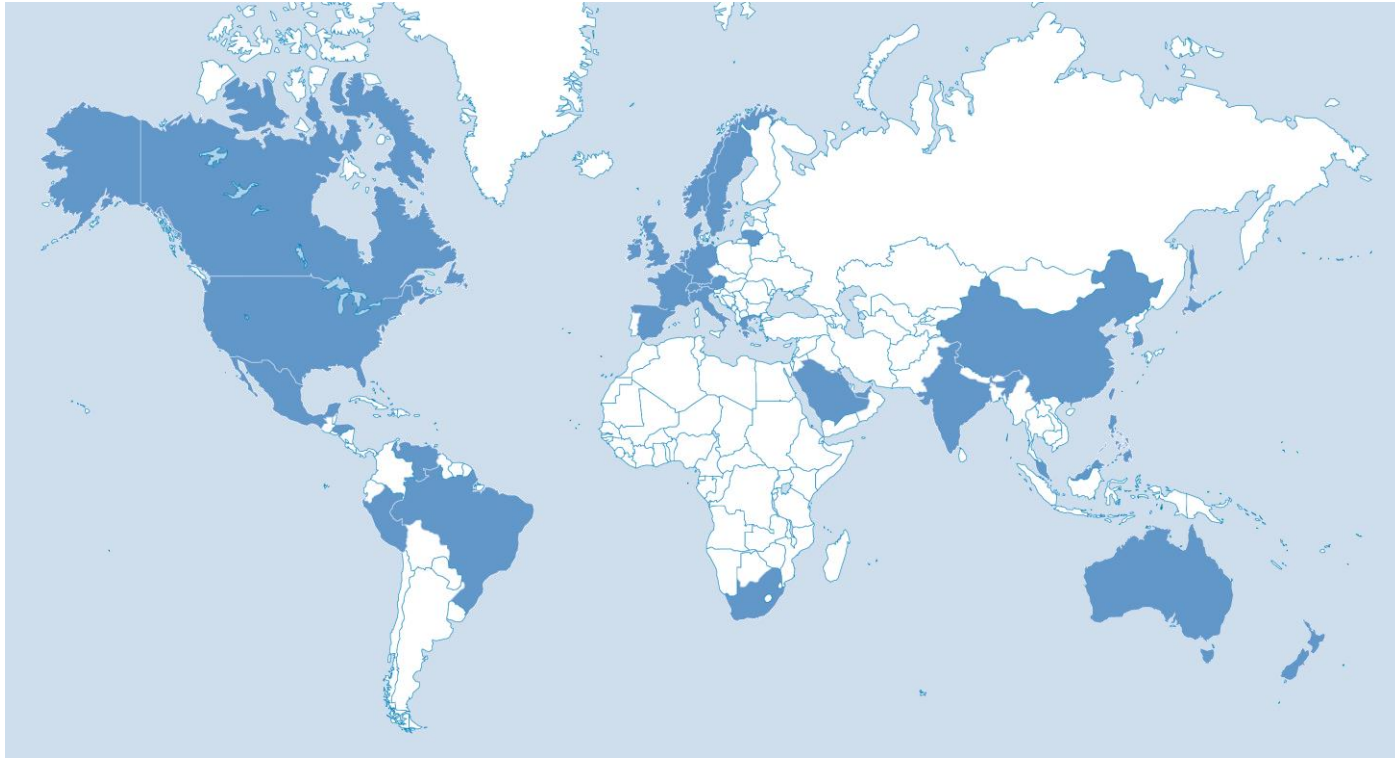
Institute of  
Scrap Recycling  
Industries, Inc.

## U.S. Electronics Recycling Industry Overview

### Challenges

- Laws of the Land
- Producer Responsibility Gone Wild
- CRT Glass Extravaganza
- Who owns it?
- Waste v. non-Waste
- Defining Free and “Fair” Trade
- Global Environmentally Sound Electronics Recycling

### Conclusions



**1,700**

Member  
companies

**7,000+**

Recycling facilities  
worldwide

**38**

Countries



Ferrous &  
non-ferrous  
metals



Paper



Plastics



Glass



Rubber



Textiles



Electronics

# 130,000,000

Tons processed annually

# \$87B

Economic activity

## U.S. Scrap Exports

# 42.8

Total exported  
(million metric tons)

# \$23.7

Value of materials  
exported

# 160

Number of countries  
exported to

- US ITC Report: *Used Electronics Products (UEP): An Examination of U.S. Exports*, February 2013
- MIT-NCER US Used Electronics Flows Report - December 2013
- International Data Corporation *Inside the US Electronics Recycling Industry*, September 2011, IDC #229786, Volume: 1

# \$20+B

Industry in U.S. (Value)

# 4+M

Tons processed annually in the U.S. (Volume)

# 45,000+

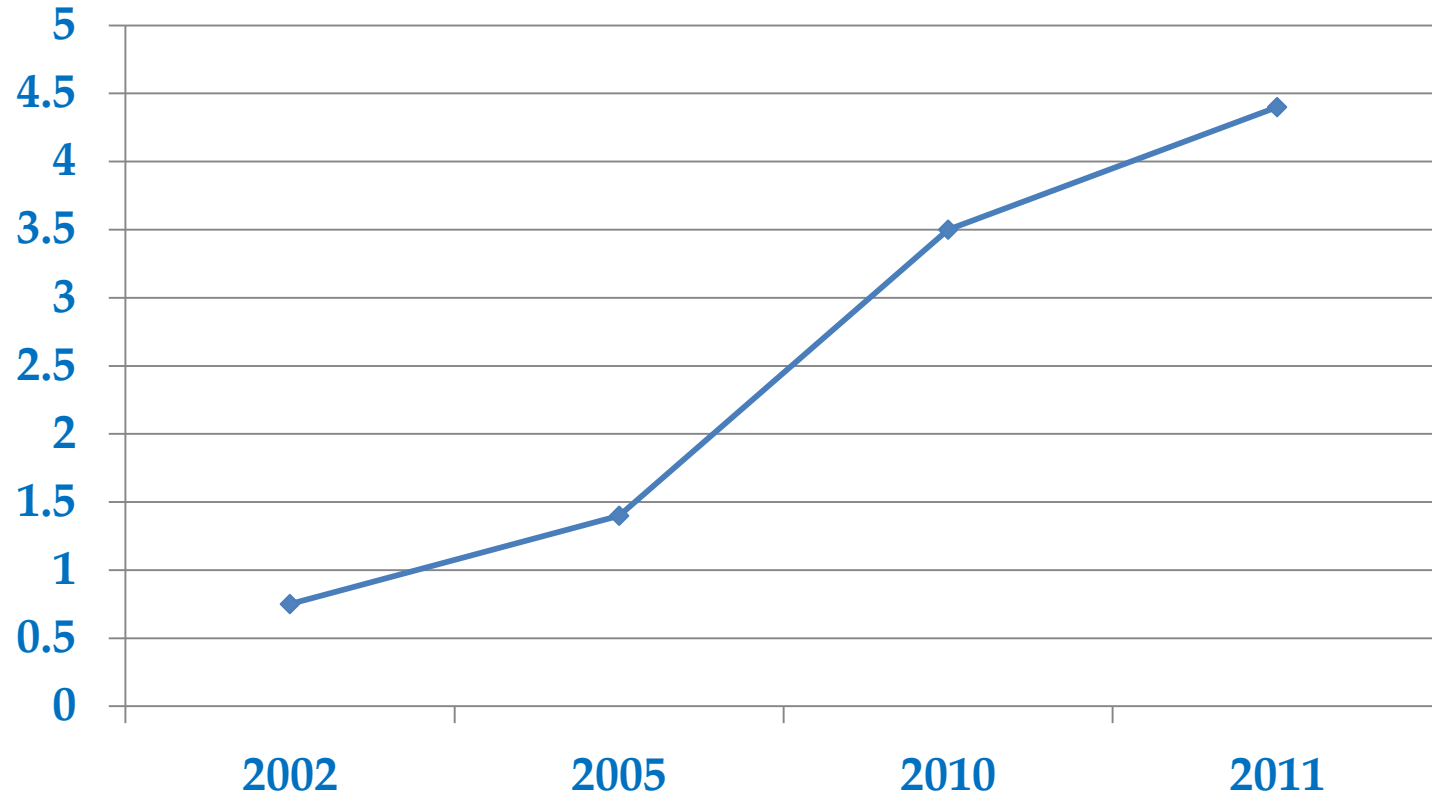
Direct and Indirect (Employees)

# Total Electronics Recycled (U.S.)



Institute of  
Scrap Recycling  
Industries, Inc.

M Short Tons





# Three Primary Revenue Streams



Institute of  
Scrap Recycling  
Industries, Inc.

## – **Service**

- Freight, data destruction, reporting, serial numbers, auditing

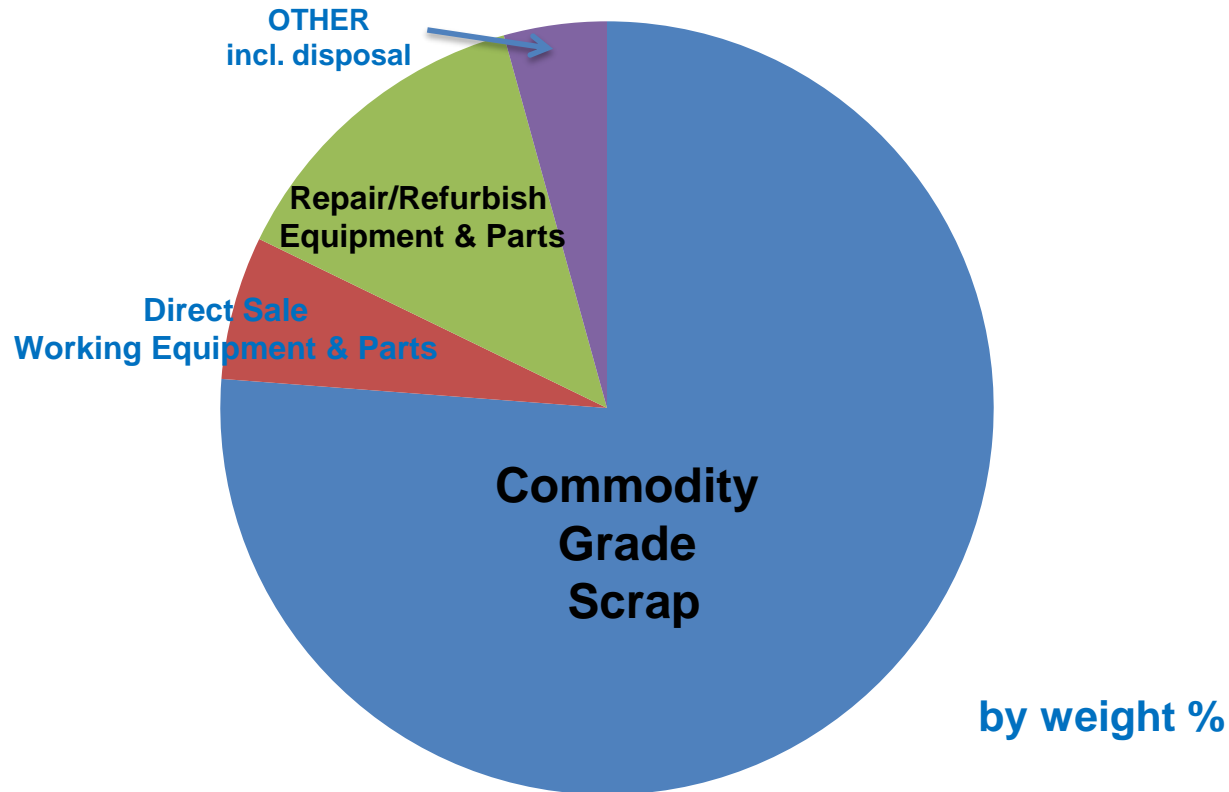
## – **Reuse/Asset Disposition**

- Refurbish, repair, remanufacture

## – **Recycling/Processing for commodities**

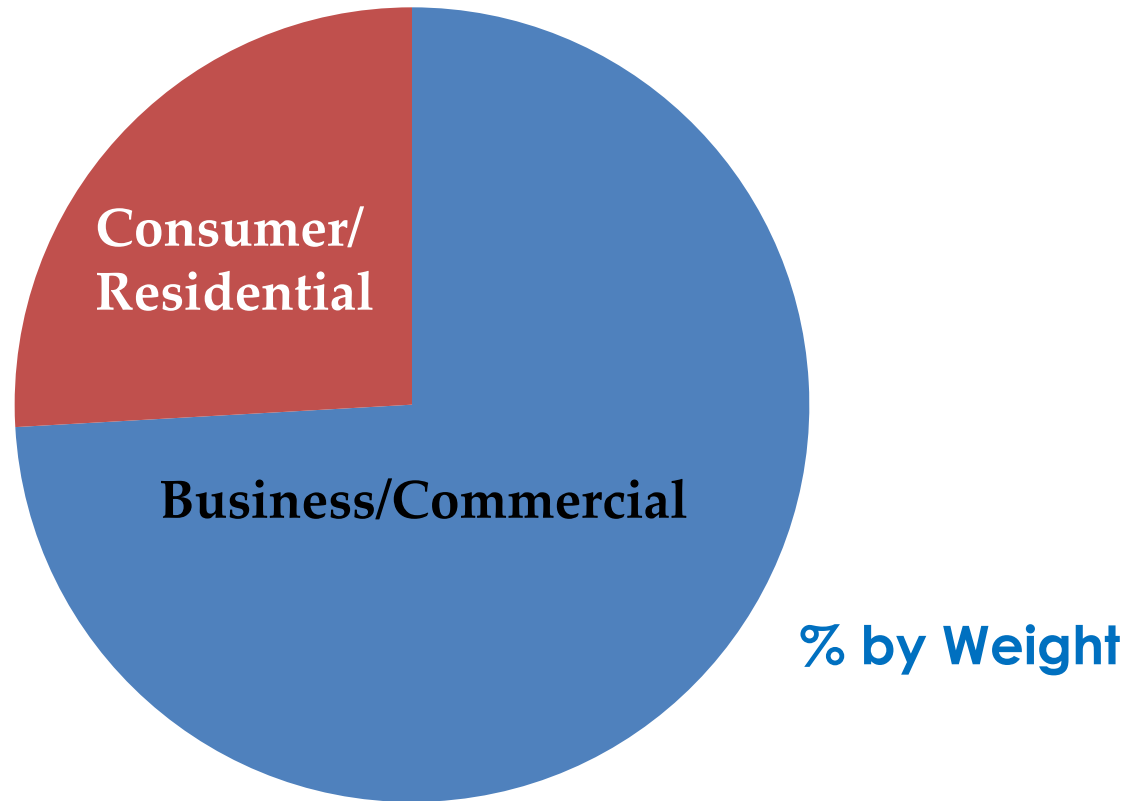
- Steel, aluminum, copper, precious metals, plastic, glass

# Outputs in the U.S.



Over 70% of the volume processed by the electronics recycling industry ultimately becomes commodity grade scrap

# Sources of Equipment



**Almost 75% of the equipment handled by the electronics recycling industry comes from the business/commercial sector**

# Recycled in America



Institute of  
Scrap Recycling  
Industries, Inc.

Of the Used Electronic Products (UEPs) collected in the US each year,

**80+%**

Recycled, reused or  
refurbished  
domestically

**17.2%**

Exported  
(by weight)

March 2013: US International Trade Council (ITC) reported on significant positive changes in US & int'l e-recycling since initial NGO reports on the informal sector more than 10 yrs ago

Of the UEPs exported from the US each year,

Of the  
17.2%  
exports

70.2%

Exported as

- Testing & working UEPs
- Working UEPs
- Commodity grade scrap
- Repair through warranty programs

29.8%

Recycling/disposal at export  
destination

Final disposal

Unknown

**Only 5.1% of total  
collected UEPs**

- 25 states in US mandate take back of e-scrap
- Highly regulated (RCRA, OSHA, CAA, CWA, transportation, federal CRT rule)
- Obama's National Framework Strategy
  - 1) design for easier upgrade/repair/recovery
  - 2) increasing capacity for safe management of e-scrap at home and abroad
  - 3) use of certified recyclers

# Federal export ban in US?

HR 2791 remains unlikely

- Relies on Outdated Data
- Violates U.S. Trade Obligations
- Regulates as Hazardous Waste
- Politically Unachievable

What about the Basel Convention?

- U.S. not a party
- HR 2791 more restrictive
- Exports for reuse and repair not hazardous



# Extended Producer Responsibility



Institute of  
Scrap Recycling  
Industries, Inc.

- 2003: California  
2004: Maine  
2005: Maryland  
2006: Washington  
2007: Connecticut, Minnesota, Oregon, Texas, North Carolina  
2008: New Jersey, Oklahoma, Virginia, West Virginia, Missouri, Hawaii, Rhode Island, Illinois and Michigan  
2009: Indiana, Wisconsin  
2010: Vermont, South Carolina, New York, Pennsylvania  
2011: Utah
- In most states, Original Equipment Manufacturers are required to pay for the collection and recycling of certain used electronics products



# Producer Responsibility Gone Wild?



Institute of  
Scrap Recycling  
Industries, Inc.

- Sector-by-sector evaluation is needed
- Flexibility for different product lines
  - CRT glass v. laptops, desktops and game consoles
  - Sunset clause
- Are we creating mini-monopolies?
- PRO's should not compete in the regulated market
- Transparency and competition
- Distorting CRT market conditions

# U.S. CRT Market

As of 2014, approximately 44% of households reported disposing a CRT TV within the past five years,

- 45% indicating they donated or gave it away,
- 41% reported they recycled
- 20% threw it in the trash\*

As of 2014, 46% of households still have at least one CRT, which equals an estimated 7 billion lbs\*

Landfill bans for CRTs across the country

\*Consumer Electronics Association 2014 study



- Bulk “Unlocking” or Circumvention
  - Copyright law should not impede legitimate reuse
  - Recyclers must be allowed to “unlock” devices for reuse
  - ISRI filed for an exemption to the Digital Millennium Copyright Act claiming “adverse impacts”
  
- “Kill Switch”
  - Find My I-phone
  - Recyclers need convenient and reasonable access necessary to turn off or disengage activation locks
  - Kill switch kills reuse!

# Waste vs. Non-Waste



Institute of  
Scrap Recycling  
Industries, Inc.

- Recycling and recovery is covered by Basel Convention
- Reuse is less defined by the Basel Convention
- Is it a waste?
  - Warrantied goods
  - Diagnostic Testing
  - Leased Equipment
  - Used equipment for repair, refurbishment
- It's all about triggering Basel controls, or not
- **Basel Convention TBM Document: 26(b)**
  - *Draft technical guidelines on transboundary movements of e-waste, used electrical and electronic equipment, and the distinction between waste and non-waste under the Basel Convention*

# Free and “Fair” Trade?



Institute of  
Scrap Recycling  
Industries, Inc.

- Disguised Trade Barriers
  - Critical Metals, Rare Earth Metals, Strategic Metals, Conflict Metals...
- Barriers to imports
  - AQSIQ and beyond...
  - Cargo Container Theft
- Waste v. non-Waste
  - Balancing the WTO with Basel Convention
- What is “fair”?
  - Defining ESM
  - Rise in certifications

# ESM for Recycling Facilities



Institute of  
Scrap Recycling  
Industries, Inc.

1. Establish a reuse and recovery hierarchy of responsible materials management
2. Comply with all legal requirements, including imports and exports
3. Protect worker health and safety and the environment
4. Manage Focus Materials (FMs) on site and through selected downstream processors
5. Refurbish and properly test reusable equipment and components
6. Implement accepted data destruction procedures
7. Maintain security measures in all parts of the facility
8. Possess adequate insurance and facility closure plan

Various combinations and partnerships, choosing from:

- Management System Standards

- ISO 9000
- ISO 14001
- OHSAS 18001
- RIOS™
- EMAS

- Electronics Specific

- R2:2013
- e-Stewards
- WEEELABEX
- Electronics Product Stewardship Canada
- Australian and New Zealand standard

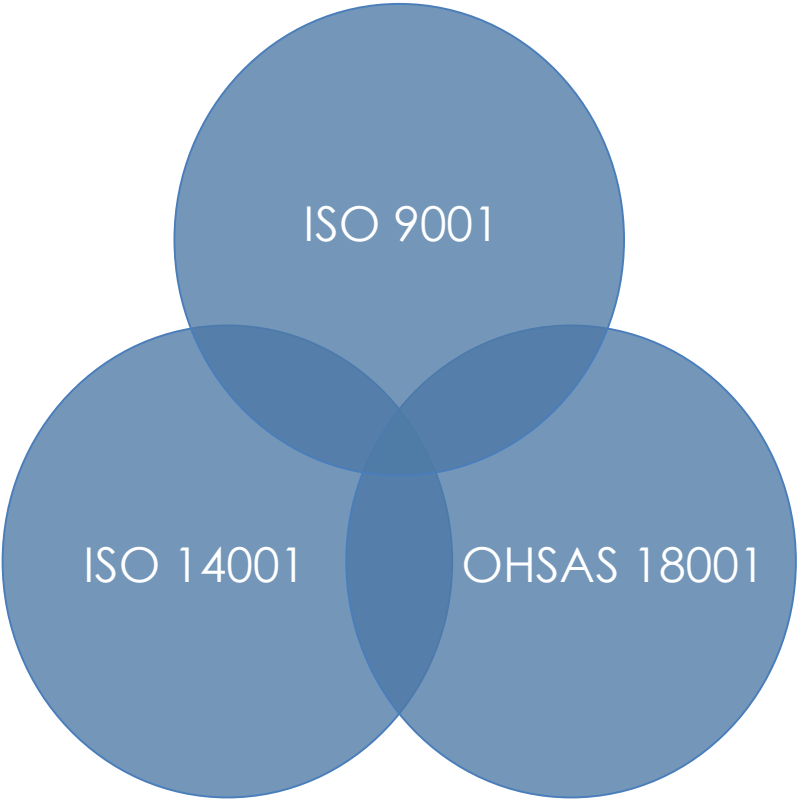


ANSI-ASQ National Accreditation Board (ANAB) supported

QEH&S management system

Third-party certification

Voluntary



**RIOS**  
CERTIFIED RECYCLER

The logo features the letters 'RI' and 'S' in a bold, black, sans-serif font. Between 'RI' and 'S' is a stylized blue circular icon composed of three interlocking curved segments. Below the main text, the words 'CERTIFIED RECYCLER' are written in a smaller, blue, sans-serif font. The background of the logo area is filled with a pattern of light blue recycling icons, including bottles, cans, and paper products.



# R2:2013 Certification

549+ certified facilities globally,  
including facilities in:

- Singapore, Malaysia, China, Hong Kong, India, as well as UK, Mexico and the US

R2 offers:

- Highest level of performance
- Most operational flexibility
- International applicability
- Focus on developing as well as developed countries



# RIOS™

CERTIFIED ELECTRONICS RECYCLER

**95**

R2/RIOS™ certified facilities

**205**

Facilities in certification process

a global standard

China, India,  
Malaysia,  
Mexico, Brazil...



The process of evaluating a prospective downstream vendor that processes or recycles equipment and components containing FMs for compliance.

## Key components:

- Focus Material Management Plan
- A documented and implemented EHSMS
- A list of its environmental permits and copies
- Tested, Key Functions for Reuse
- Legal Requirements, e.g., legality of import and export
- Tracking FMs until final disposition

# Focus Material Tracking



Batteries



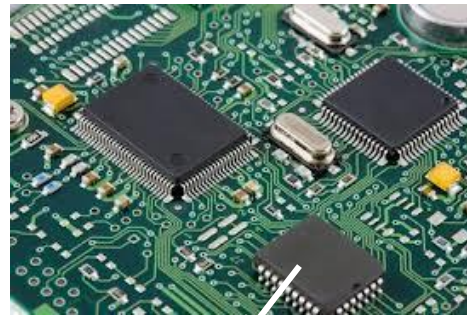
Disassembly and Sorting



PCB's



Mercury



Circuit Boards



CRT's

# Certifying ESM Recycling Facilities

How can government(s) and stakeholders have confidence in voluntary certification schemes?

## Accreditation Bodies (AB)

-throughout the world provide oversight to Certification Bodies

[www.iaf.nu/](http://www.iaf.nu/)

-**R2:2013**, **RIOS** and **e-steward** are all accredited with ANAB (ANSI-ASQ National Accreditation Board)

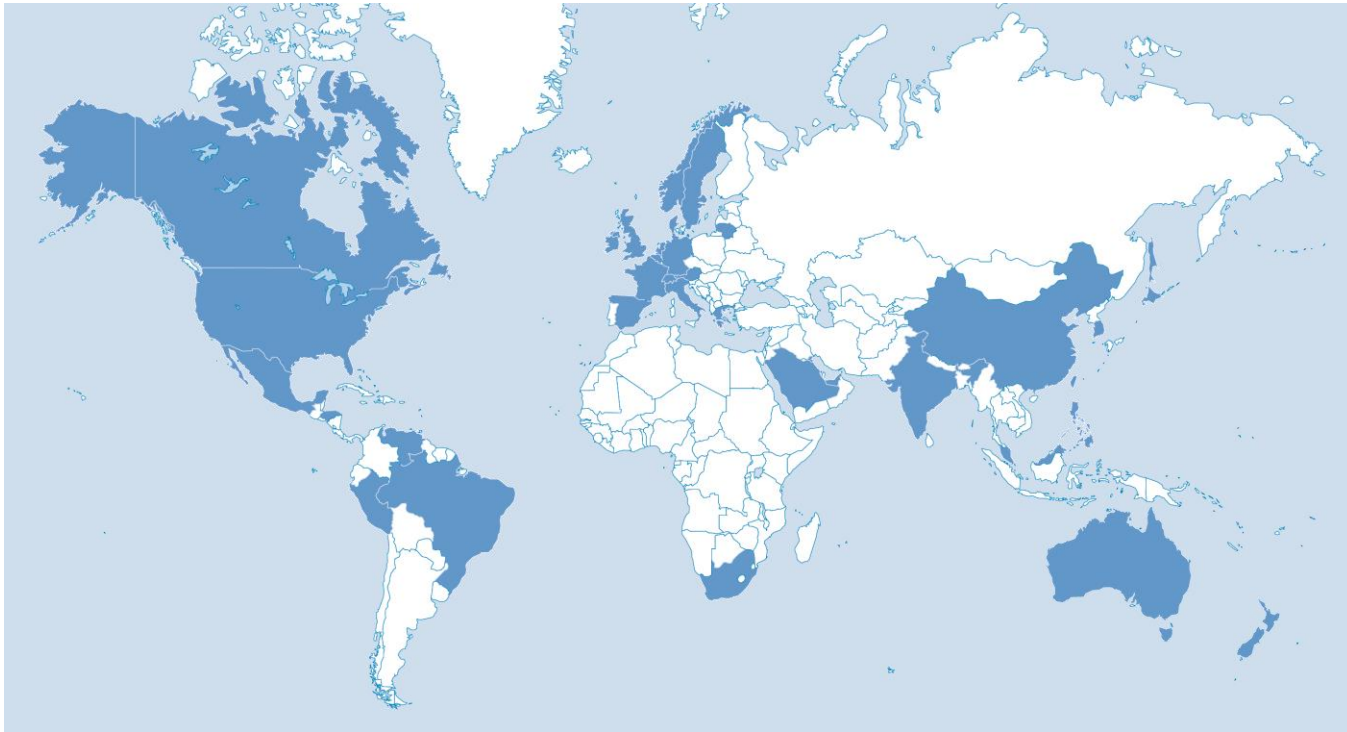
-Expand ABs geographically around the world, such as the *Organismo Argentino de Acreditacion*, and *Japan Accreditation Board (JAB)*

**Certification Bodies** evaluates the organization (facility) for conformance to the standard, grant certification and employ auditors



# Global Benefits

- Allows environmentally sound facilities to compete in the global marketplace
- Bridging the digital divide



# Partnerships to Conserve Resources

## R2/RIOS™ facility

Asset disposition  
company provides  
services, reuse and  
repair to businesses in  
**Texas.**



## R2 facility

**IT Asset Partners**, works with global partners to use parts and components from used electronics in non-competing industries

Partner facility in **China** prepares used cell phone screens for reuse in electronic toys.





## R2 facility

Employees of AER Worldwide at their Guadalajara, **Mexico** facility are trained to safely test, dismantle and harvest valuable commodities as required by their R2 certification.



Computer dealer in **New Delhi** sells laptop and desktop computers from R2 certified vendor



*“Everyone has the right to access technology. By providing low cost hardware to people in my country, I can help them be connected to the world.”*

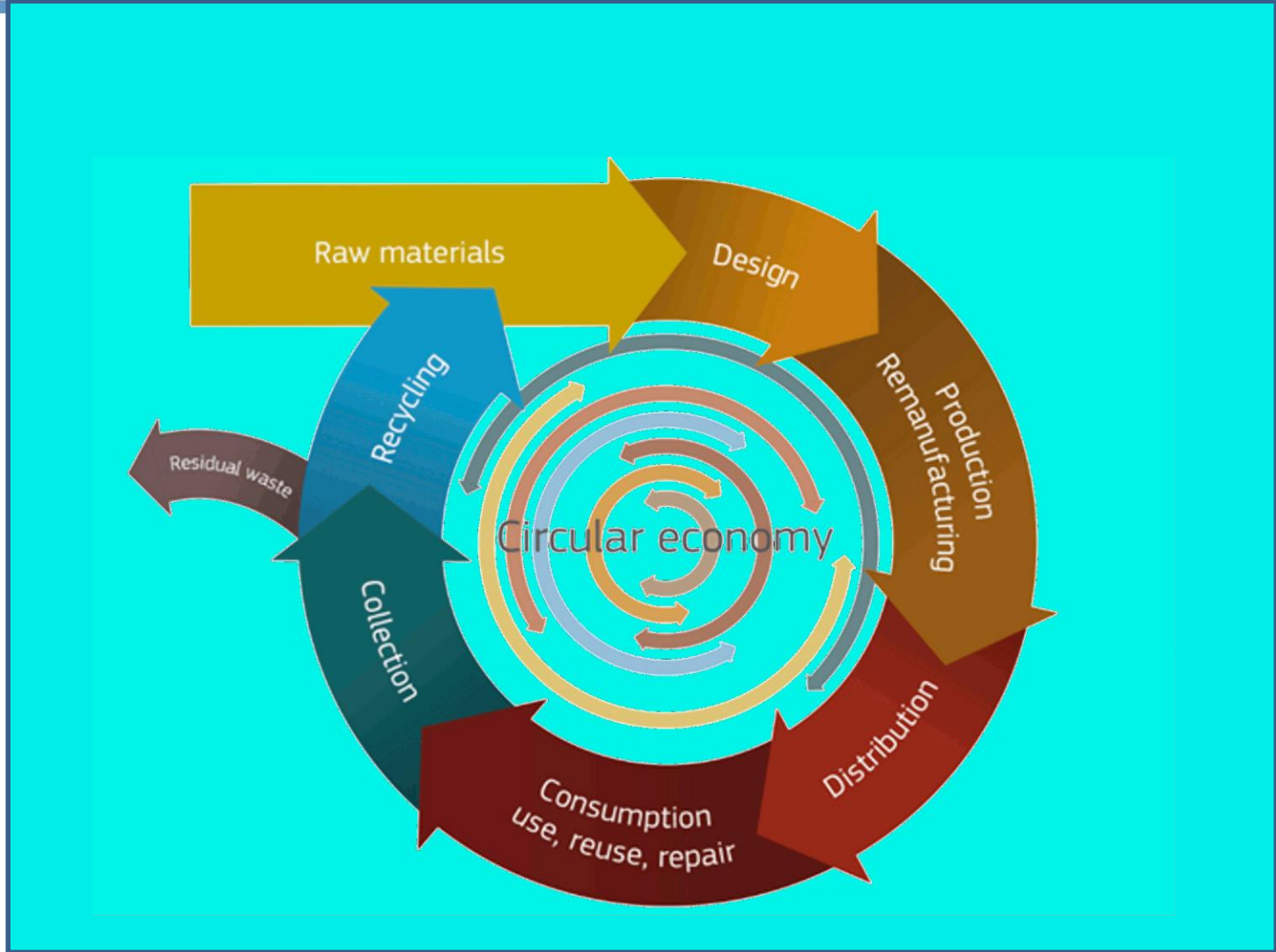
# Conclusions and Trends



Institute of  
Scrap Recycling  
Industries, Inc.

- Tremendous growth over the past 10 years...
  - and more growth
- Ample domestic capacity...
  - over capacity?
- Over 80% recycled domestically, not “dumped” into developing world
  - large global market for commodity-grade scrap and tested, functional UEPs
- Biggest volume opportunity: residential/household
  - (~3.5 million tons)
- Big short term challenge: CRT glass
- Long term challenge: sunset EPR laws?
  - Rapidly changing electronic devices
- Certification is the price of doing business
- Transportation and transboundary movement big challenge

# Global Circular Economy



# A competitive Circular Economy needs global competition



Institute of  
Scrap Recycling  
Industries, Inc.



# Thank You



Institute of  
Scrap Recycling  
Industries, Inc.

Eric Harris

Associate Counsel, Director of Government and  
International Affairs

Institute of Scrap Recycling Industries, Inc.

[EricHarris@ISRI.org](mailto:EricHarris@ISRI.org) +1 202 662 8514

