

Electronics Recycling in the U.S.

Legislation and Certification

Jason Linnell &
Eric Harris



NERC Fall Conference 2009



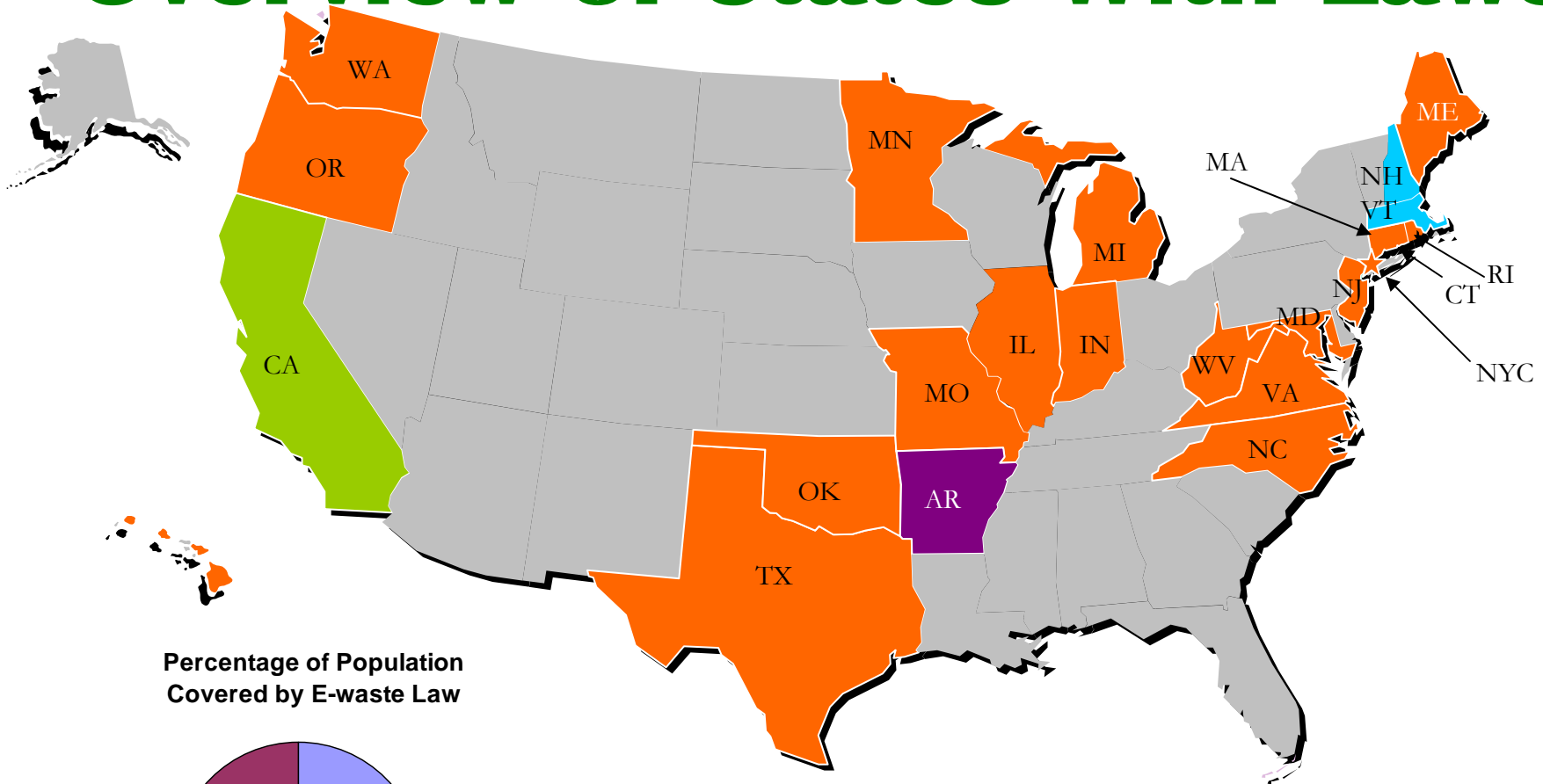
Update on Legislative Programs

Current “State” of States

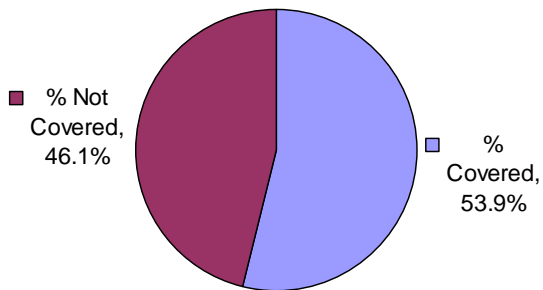






- 20 programs with some type of e-recycling laws
 - CA, CT, IL, **IN**, HI, ME, MD, MN, MO, NC, NJ, NYC, OK, OR, RI, TX, VA, WA, **WI**, WV
 - Almost 164 million US residents or 56% of US population covered by a law
- Disposal bans no program
 - NH, MA, (AR)

Overview of States With Laws



Percentage of Population Covered by E-waste Law



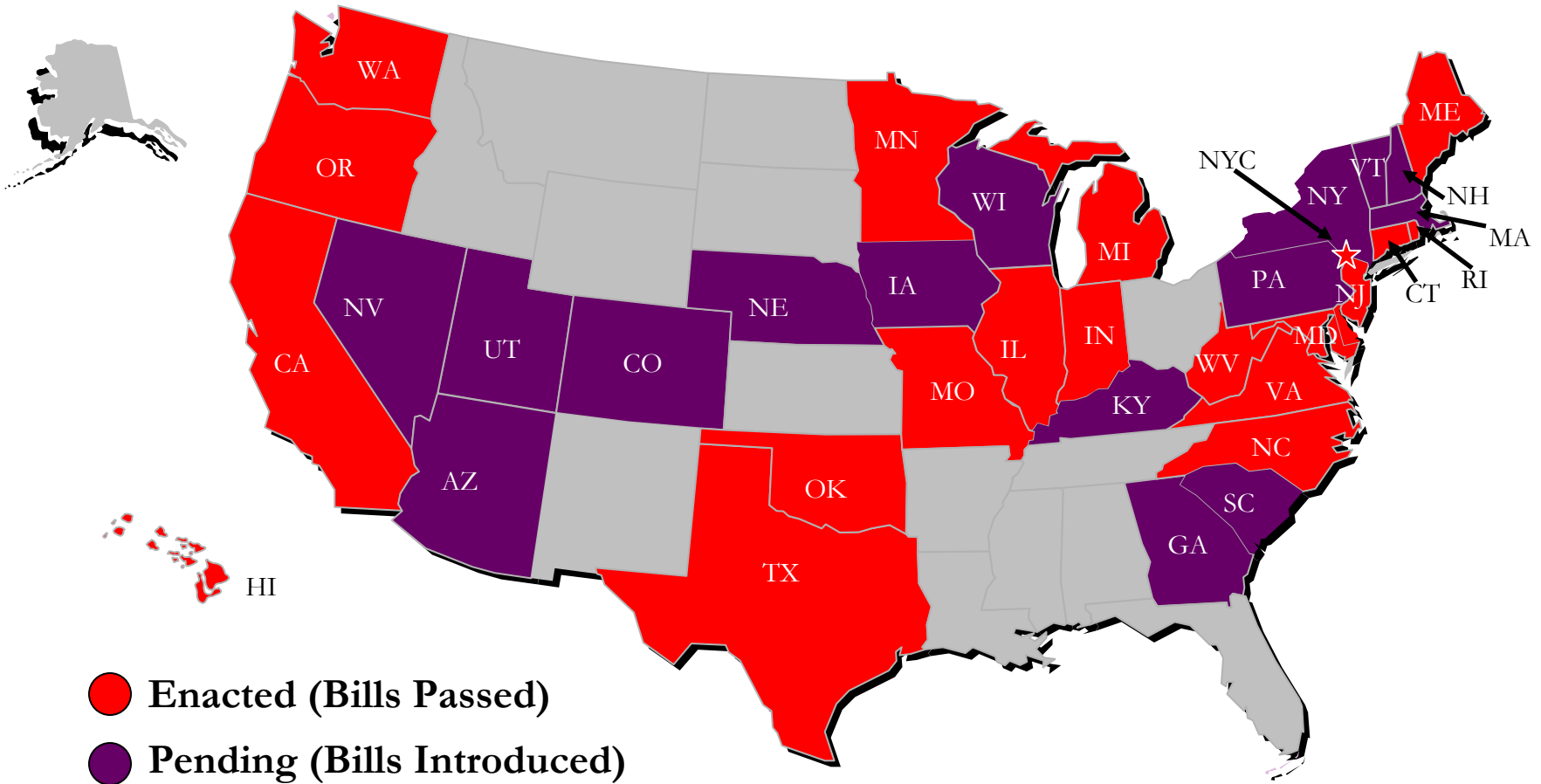
-  States With Producer Responsibility Laws
-  States With ARF (Consumer Fees) Laws
-  States With Landfill Disposal Fee
-  States With Disposal Ban/No E-Waste Law

Highlights



- True “Patchwork” of Approaches to common challenge
- How is the program funded?
 - 1 Advanced Fee, 5 Types of Manufacturer Financing
- Which products are covered?
 - 10 different sets of product lists
- Who can use the recycling system?
 - 8 sets of “covered entities”
- Definitions, interpretations vary as well

Pending & Enacted Legislation Map



Producer responsibility and recyclers



- Multiple ways to participate, some with winners/losers
- Get on state list, then start collecting or
- Get contract with manufacturer/group of manufacturers/“program” before collecting
- Limited number of customers?
- Pressure to limit collection volumes or incentive to collect?

What does it mean for collectors?



- **Multiple ways to participate**
 - Get on state list, then start collecting or
 - Get contract with manufacturer/group of manufacturers/“program” before collecting
- **Not guaranteed! Or at the price you want..**
 - Some states allow all, others see competing recyclers
- **Pressure to limit collection volumes or incentive to collect?**

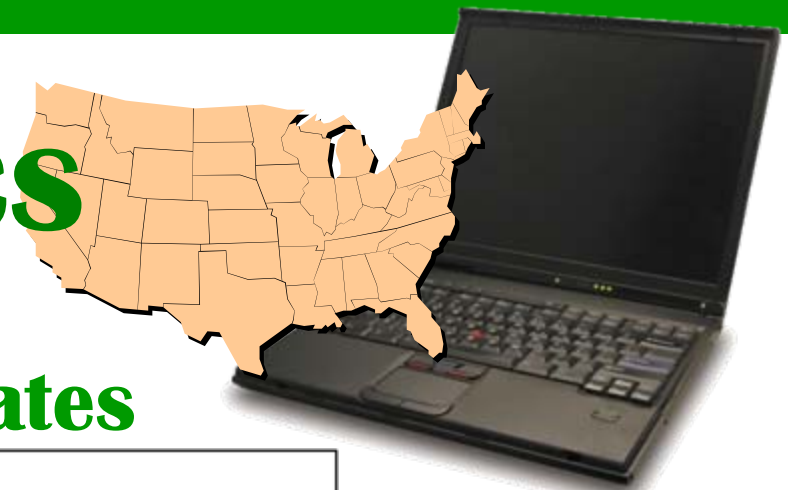
What does it mean for reuse?



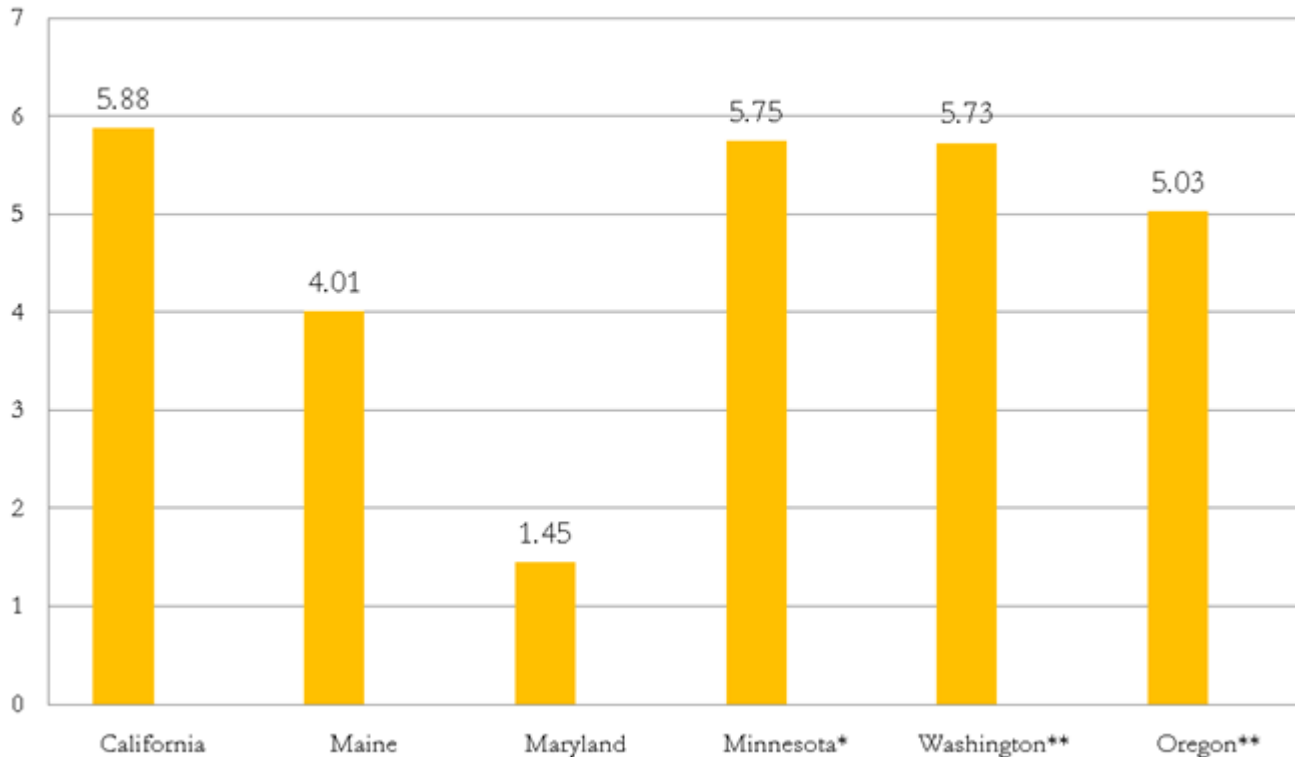
- Definition! Just plug-in or disassembly allowed?
- Still a challenge – particularly w/ manufacturer financing
- Reuse sometimes prohibited – every covered device collected must be sent to recycler
 - Manufacturer could limit as well
- More recent laws – extra “credit” pounds given to manufacturer for reuse
 - IL, IN
- If allowed, how to document appropriate due diligence

Current Metrics

Most Recent Per Capita Rates



Pounds Per Capita



Critical Issues



- **Collector issues**

- Limit non-covered products and non-covered entities?
- Haulers – curbside pickups covered/funded?

- **System Leakage**

- Prices may be better on the “open market”

- **Payment issues**

- Recyclers compete for contracts, but markets may change



Certification Programs

For Electronics Recyclers

The Good News ... and Bad News



- **Certification is on its way!**
 - Highlight good actors, an answer to “who should I work with?”
- **But, 3 separate certifications to choose from:**
 - Recycling Industry Operating Standard (RIOS)
 - Responsible Recycling Practices (“R2”) and
 - R2/RIOS
 - Basel Action Network’s “E-Stewards”
- **No one certified yet!**
 - Expect to see certified recyclers in 2010 (likely R2/RIOS Certified Electronics Recyclers in 2009)



State Law Standards



- **State laws also have guidelines:**
 - Maine ESM Guidelines
 - Oregon Environmental Management Practices
 - Washington ESM and P standards, plus voluntary “Preferred” level
 - Connecticut’s pending regulations
- **But, not “certifications systems”**
 - Third party audit doesn’t = certification
- **What will happen when R2 and E-Stewards available?**

RIOS and R2/RIOS



RIOS

- Recycling Industry Operating Standard)
- Comprehensive, Integrated QEHSMS
(Quality, Environment, Health and
Safety Management System).
- ANAB Accreditation Program

R2/RIOS

Provides a “one-stop-shop” for electronics recyclers: Combines R2 requirements with RIOS management system.



R2 Development Process



- R2 was a consensus-based process convened by EPA
- NOT an EPA standard, nor will be run by EPA
- Used facilitator
- Process took almost 3 years and 25+ drafts, an auditor review phase, and a field testing phase

R2 Stakeholders



- Recyclers, Reuse and Refurbishers
- OEMs
- Environmental and Environmental Justice Groups (withdrew prior to finalization)
- USEPA (conferred with NIST, Commerce Dept. and OSHA on ongoing basis throughout process)
- States

An EPA generated facilitator managed the process and discussions, and developed the drafts of the document

R2 and Export



- **The EH&S system:**
 - Shall “identify and document the legality” of all international shipments
 - Copy of relevant information from USEPA
 - Statement from country “Competent Authority” or
 - Copy of law or court ruling demonstrating legality
 - Exemptions for reuse – tested for functionality, one-time transaction of <15 units, new equipment
 - Auditable detail
 - Must have enough information to “demonstrate” legality (an e-mail from recipient is **NOT** demonstration)
 - Both recycler **AND** auditor must be able to understand documentation (print out in Chinese is **NOT** demonstration)
 - Must document legality of “shipment,” which includes transport countries

R2 Focus Materials



- **R2 Focus Materials (from Definitions)**
 - Items containing polychlorinated biphenyls
 - Items containing mercury
 - CRTs and CRT glass
 - Batteries
 - Whole and shredded circuit boards
 - Except those without lead solder that have undergone safe and effective processing to remove mercury lights and batteries
- **Toner and cartridges**
 - Not an FM, but must be recycled

R2 Downstream Due Diligence

(for FMs and equipment with FMs)



- **Recyclers must ensure downstream vendors:**
 - Comply with the recycler's FM management plan
 - Have their own documented EH&S systems
 - Have a list of applicable and necessary permits
 - Have ability to ensure that *their* downstream vendors meet these R2 requirements
 - Follow reuse requirements
 - Comply with all applicable laws (including export)
 - Tracks throughput of facility
- **Track compliance through audits or similarly effective means**

R2 and Reuse



- **Prior to shipping equipment containing FMs for reuse, repair, refurbishment, or remanufacturing, recycler must do one of:**
 - Test to ensure key functions are working properly
 - Determine recipient is R2 certified vendor
 - Establish through contract, auditing and records that:
 - Equipment meets the specifications of recipient
 - The recipient is selling with key functions working
 - The recipient manages residual FMs in conformity to R2

R2 Maintenance/Hosting



- R2 ad-hoc “Very Small” working group is reviewing bids for housing organization
- The plan:
 - Make recommendation to R2 small group
 - R2 will be implemented and “held” for approximately 18 months with no changes
 - After implementation, “housing” body will review at least annually and determine need for updates
 - Housing entity will develop roadmap for next steps (implementation, education, outreach)

Status of R2 Certification Process



- **ANAB Accreditation Program up and running**
 - accredits management systems certification bodies (CBs) for ISO 9001, ISO 14001, and national/international standards
- **Certifying Bodies (CBs) getting accredited to the R2 standard in progress to be complete Q4 2009**
 - 2 CBs have applied to ANAB for accreditation to the R2 standard
- **CB's are responsible for training their auditors using the R2 Check List as basis (Check List available, no charge, at www.decideagree.com)**
- **Content ownership / housing for R2 Standard in progress to be complete Q4 2009**
- **Housing body will set goals for industry adoption once that group is identified**

e-Stewards



- Uses ISO 14001 environmental mgmt systems:
- All certified e-Stewards will be certified to both ISO 14000 and the e-Stewards performance requirements
- The e-Stewards Standard is currently applicable to electronics recyclers, refurbishers, asset managers, processors and refiners
- Collectors, brokers, and transportation companies are currently not eligible for e-Stewards certification
- Specific Definitions

e-Stewards Hazardous Waste Definitions



“Hazardous electronic equipment”:

- a) Anything (circuit bds, lamps, switches, etc.) with intentional mercury inputs
- b) Circuit boards, lamps, switches or any other parts containing the following above specific limits (based on existing TLCP) for antimony, arsenic, beryllium, barium, cadmium, chromium, lead, selenium, and polychlorinated biphenyls (PCBs)

e-Stewards Hazardous Waste Definitions



“Hazardous electronic equipment” (con’t):

- c) Cathode Ray Tubes, CRT glass, cullet, phosphors and frit;
- d) Leaded display glass of any kind (e.g. some plasma screens);
- e) Batteries with intentional inputs of lead, cadmium, or beryllium;
- f) Unsorted batteries, or batteries with unknown contents;
- g) Lithium ion batteries or battery packs, or other batteries containing flammable organic solvents;
- h) Printer or copier drums containing selenium and/or arsenic;
- i) Radioactive substances (e.g. from medical equipment)

Also: “Problematic Components and Materials”

e-Stewards & Reuse and Refurbishment



- Only donate or sell for Reuse, equipment which contains or consists of Hazardous Electronic Equipment that are Fully Functional
- and only after specified requirements for testing, data eradication, labeling, packaging, and assurance of intended use have been met
- Mass Balance Accounting for all materials and equipment processed is required.

e-Stewards & Due Diligence



Accountability for downstream recycling chain

- Be fully accountable for management of Hazardous e-Waste throughout the entire Recycling Chain to Final Disposition, and verify that all entities within the Recycling Chain operate in accordance with the specified requirements in this Standard
- Establish, implement and maintain a documented system of direct accountability for the Recycling Chain

e-Stewards & Export



Exportation of hazardous electronic wastes

- Only permit exports of Hazardous Electronic Wastes that are consistent with:
 - The decisions and agreements of the OECD,
 - The Basel Convention and Basel Ban Amendment,
 - Other applicable national and international laws
- This requirement applies throughout the entire Recycling Chain, including all Intermediaries

Maintenance and Update of e-Stewards Standard



BAN is currently responsible for the maintenance and update of the standard

- To protect integrity of the ‘Will balance need for amendments with industry need for consistent expectations’
 - Will provide ‘sanctioned interpretation’ in between formal updates of standard (Appendix A)
 - One more slight revision of standard once pilot verification phase is complete

What Should Collectors/Programs Do?



- **Waiting game – nothing available yet**
- **But, ask your recycler which certification program they are pursuing**
 - If not, why not?
- **No need to choose at this point between programs**
 - Will know more about uptake by recyclers by end of 2010

Thank You



Eric Harris (ISRI)

202-662-8514

EricHarris@ISRI.org



Jason Linnell (NCER)

304-699-1008

jlinnell@electronicsrecycling.org

