

Electronics Recycling Overview

Jason Linnell, NCER



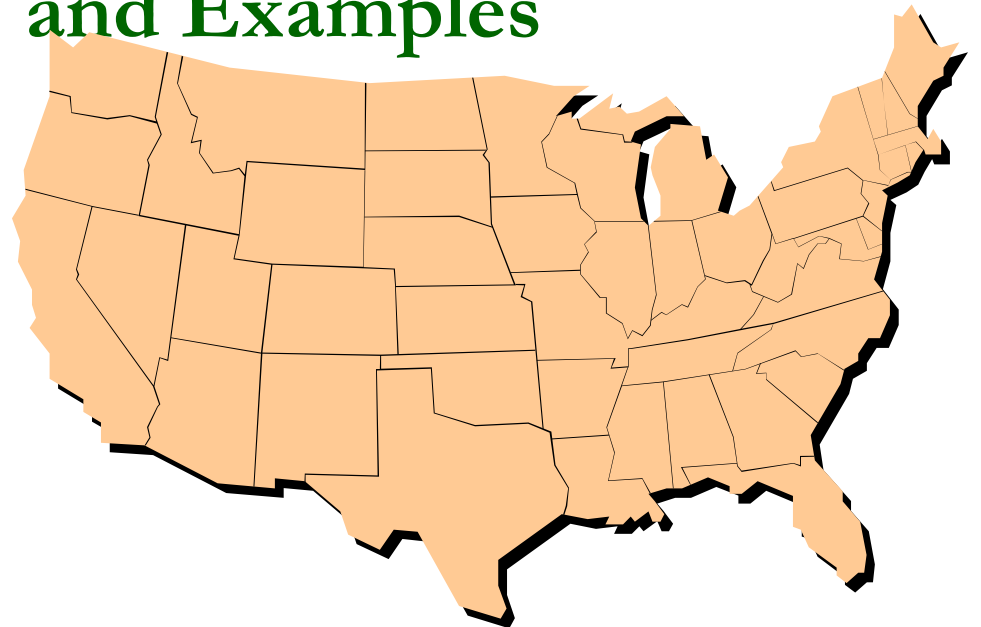
iNEMI Summit - September 23, 2008



Overview



- Roadmap Highlights
- State Action: **Where do we stand?**
- Program Models and Examples
- Results
- Timelines





About Us



- **Non-profit 501c3**
- **Located in Parkersburg, WV area**
 - ❑ **Federal, State, Association Projects**
 - ❑ **Research, Collection Programs**
- **NCER's Mission: Dedicated to the development and enhancement of a national infrastructure for the recycling of used electronics in the U.S.**



Roadmap Highlights



- 2009 Version – Situation Analysis Changes
 - More data on EU Implementation
 - Regulations Expanding across Globe
 - Continued variation at state level in US, nothing imminent at federal
- More manufacturer involvement in recycling
 - Responding to pressure and positive PR



Roadmap Highlights



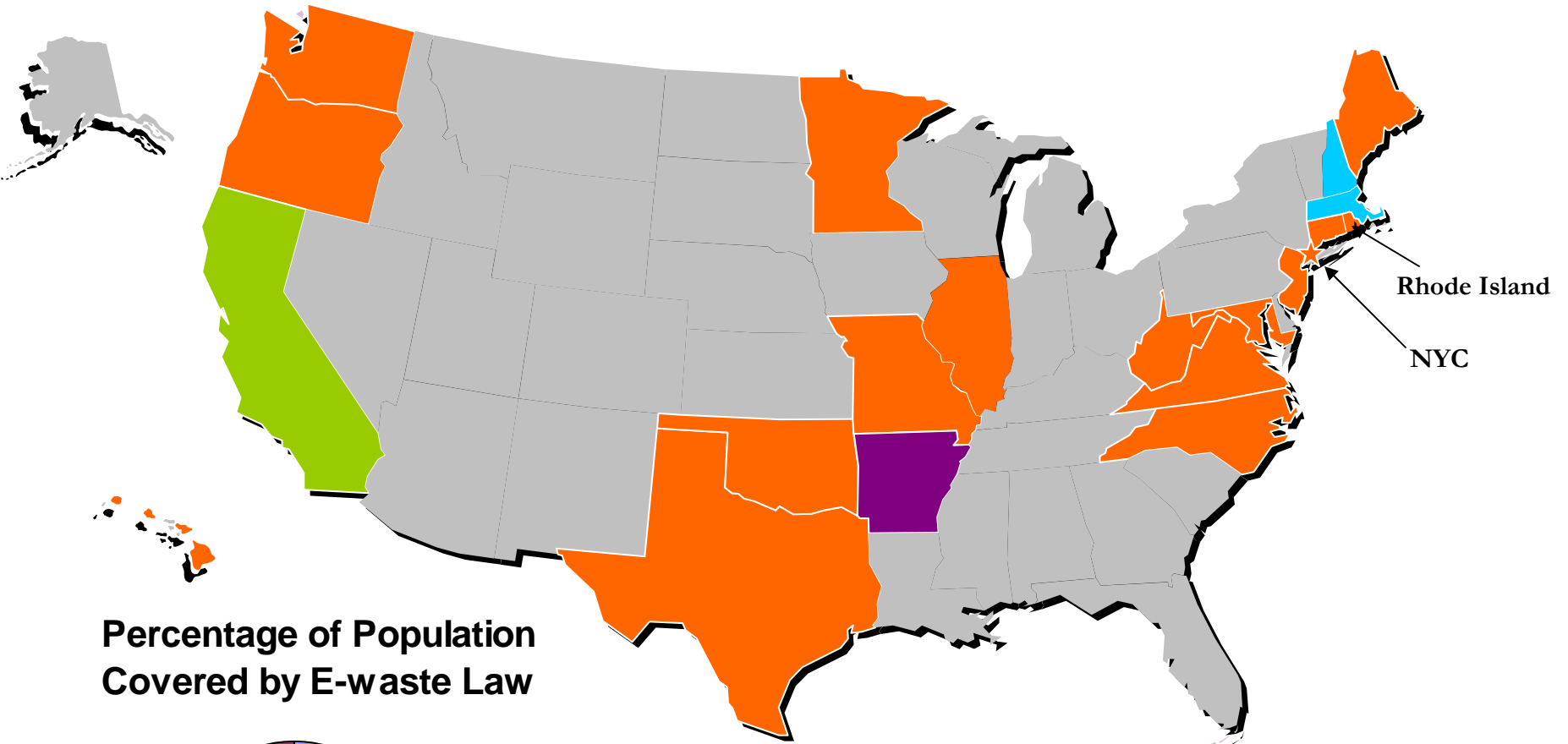
- Other areas continuing previous trends
 - Notes progress in plastics recycling
 - Continued challenges on collection, CRT recycling options
- Less focus on National harmonization
 - Moving to Regional
 - Challenges of compliance
- New highlight on role of reuse
 - Controversial within industry



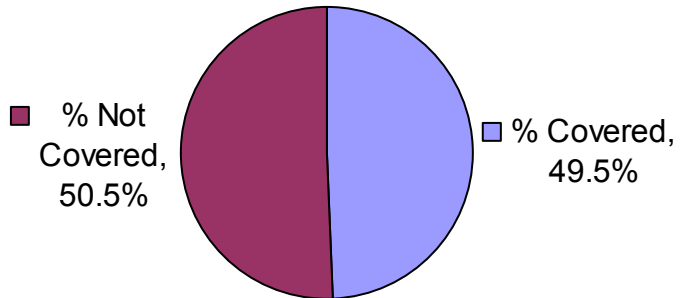
Where Do We Stand in US?

- 19 programs with mandatory financing
 - ❑ AR, CA, CT IL, HI, ME, MD, MN, MO, NC, NJ, NYC, OK, OR, RI, TX, VA, WA, WV
 - ❑ 149 million US residents or 49.5% of US population
- Disposal bans
 - ❑ NH, RI, AR

States With E-Waste 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



Model #1

Producer Pays Returns

New England



Existing Laws:

- Maine, Connecticut**

Key Differences:

- Product scope and orphan financing**

Similar Pending Legislation:

- MA?**



Example: Maine



- State designates consolidators
- Consolidators count/weigh each CED and choose recycling plan method of payment:
 - Pay consolidator count of claimed brands + orphans
 - Pick up representative pile of return share weight + orphans
 - OR, have branded product separated + orphans for pickup by chosen recycler
- ME does not cover desktop computers (but CT does + printers)



Model #2 Producer Managed with Default and Convenience Goals



Existing Laws:

- Washington, Oregon, Rhode Island

Key Differences:

- Financing basis split between TVs and IT, use of producer-run Authority/state agency/designated entity



Oregon



- Like WA, manufacturers participate in default State Contractor Program or Manufacturer Program (5% return share limit)
- In contractor program, IT based on return share, TV manufacturer payments based on market share
- No separate authority, state DEQ runs/outsources Contractor Program (NCER awarded contract July 2)
- Annual cost for Contractor Program due Sept 1 (total cost for year)
- 4 plans submitted
- Manufacturers register and pay fee annually



Model #3 Producer Managed no Default or Geographic Goals



Existing Laws:

- Minnesota, (New York City), Hawaii

Key Differences:

- Collection goals, convenience requirements

Similar Pending Legislation:

- NY



Minnesota



- Manufacturers must recycle or purchase rights to pounds for volume equal to 60% of weight sold in MN (Jul 07 – Jun 08)
 - ❑ Increases to 80% in FY 08
 - ❑ Annual report and penalties per pound for any shortfall, excess can be converted to “credits”
- Retailer may not sell covered products if manufacturer is not registered
- Retailer must report to manufacturer on its brand(s) sales by July 1 annually



Model #4 Producer Program Required



Existing Laws:

- MD, WV, VA, TX, OK, MO

Key Differences:

- Registration fee required if no program, product scope (TVs or not)

Similar Pending Legislation:

- MI, PA, (MA?)



TX, MO, VA, OK



- **Manufacturers must adopt and implement recovery plans**
- **Recovery must offer cost-free recycling opportunity for its products from consumers through methods such as: mailback, collection events, physical collection sites, etc.**
- **Annual reports from manufacturer**
- **Retailers must ensure brands sold on our state compliance list**



Model #5 Advanced Recycling Fee



Existing Laws:

California

Key Differences:

N/A

Similar Pending Legislation:

PA



California

- **Manufacturers collect/remit ARF on direct sales, retain 3%**
 - ❑ \$6, \$8, \$10 depending on screen size
 - ❑ Proposed to increase to \$8-\$16-\$25
 - ❑ 20,000+ retailers with 30,000+ retail locations (300 large = 90%)
- **Recyclers and collectors approved by state, submit bills to CIWMB**
 - Rates decreasing from .48/lb to .39/lb



Timelines/ Deadlines



- **September 1, 2008:** Manufacturers submit report to MN PCA on pounds collected, pay penalties for under-collection; TX recovery plans enforced
- **January 1, 2009:** First registration submitted in WV
- **January 1, 2009:** Plans must be fully operational in WA, OR, RI and WV
- **July 1, 2009:** Plans must be fully operational in CT, NYC, VA
- **January 1, 2010:** Plans must be fully operational in NJ, NC, HI



How Are They Faring?



California:

- ❑ 1.79 lbs/capita in 2005, 65 million lbs
- ❑ 3.5 lbs/capita in 2006, 128 million lbs
- ❑ 5.1 lbs/capita in 2007, 185 million lbs

Maine:

- ❑ 3.1 lbs/capita in 2006, 3.85 million lbs
- ❑ 3.51 lbs/capita in 2007, 4.63 million lbs

Minnesota:

- ❑ 6-6.5 lbs/capita from Jul 2007- Jun 08

Maryland:

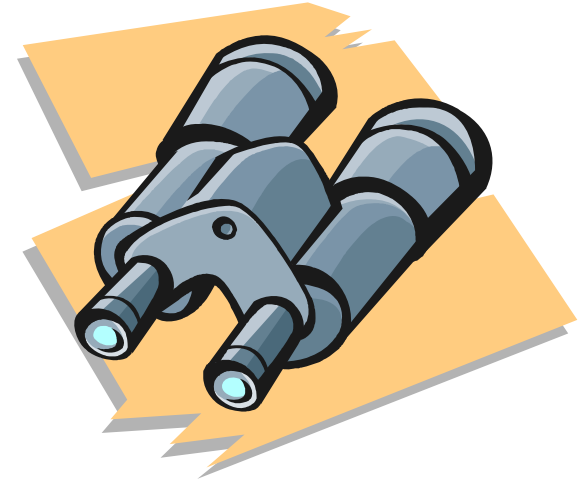
- ❑ 1.2 lbs/capita in 2006, 6.2 million lbs *[not program stats]*
- ❑ 1.5 lbs/capita in 2007, 8.7 million lbs *[not program stats]*



Conclusions/ Outlook



- More to learn in 2009
 - 5 states with results
 - Many more programs online
- Even more state programs?
 - 5 in 2007, 8 (so far) in 2008, more in 2009?
 - Stepped up efforts at harmonization?
- Will Congress move on legislation?
- Will increasing state differences lead to more national action?



What is Closing the Loop?



- An EPA grant to the Green Electronics Council
 - To close the communications loop between electronic product designers and recyclers/refurbishers
 - To influence future EPEAT standards through better product criteria that will benefit EOL
- Done in collaboration with the NCER

What Questions Did The Project Explore?



- What are greatest challenges and obstacles facing electronics refurbishers and recyclers, caused by consumer electronic product design?
- How could the design of these products be changed to enhance EOL value proposition?
- What kind of information from manufacturers, and in what form, would expedite the most efficient EOL management of electronics?



What will be done with the findings of this research?



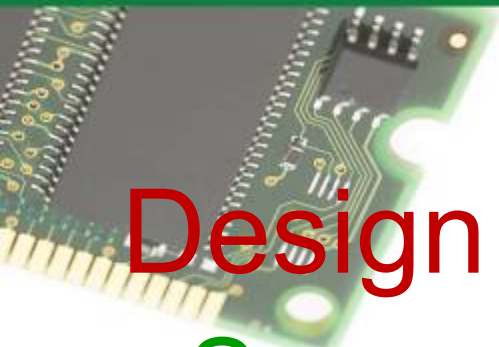
1. **Design for EOL recommendations** will be given to future EPEAT working groups for consideration (Project Outcome #1)
2. Recommendations for **formation of industry work groups** for harmonization and standardization of certain design elements (Project Outcome #2)
3. Build out of the **Close-the-Loop Registry** for information exchange (Project Outcome #3)

Design for Two EOL Scenarios?



Current Challenges:

- Product distinctiveness and uniqueness is increasing
- The race for faster and smaller processing power shows no sign of letting up
- Increasingly unique external case designs
- Incoming EOL equipment increasingly is arriving at recyclers' docks without storage devices (due to data security concerns)
- Incompatible power supplies across product and category types further hinders ease of reuse



Design for Two EOL Scenarios?

- Scenario#1 – Design for Disassembly
- Scenario #2 – Design for Mechanical Processing
- Draft Report Available at NCER website:
 - www.electronicsrecycling.org



Thank You!



Jason Linnell, NCER

Phone: (304) 699-1008

jlinnell@electronicsrecycling.org

Visit us on the web:

www.electronicsrecycling.org

And www.ecyclingresource.org