ELECTRONICS RECYCLING:
OVERVIEW OF PUBLIC ELECTRONICS IN NC
&
TIPS FOR MAKING PUBLIC PROGRAMS WORK IN TOUGH TIMES
PRESENTATION OVERVIEW:

- Public Recycling in NC
  - State Law
  - NC Stats
  - Materials and Quantities
  - Recovery Rates

- Program Planning

- Public Program Best Management Practices
SESSION LAW 2010-67, CREATED NC ELECTRONICS MANAGEMENT PROGRAM

• Manufacturer Responsibility Law

• Computer and Television Manufacturers subjected to different requirements

• Banned the disposal of computer equipment and televisions effective July 1, 2011
PROVISIONS IN SESSION LAW 2010-67

• Requires Computer and TV equipment manufacturers to register with state and pay annual fee

• Creates private and public infrastructure to manage collection and recycling

• Offers financial support to local governments through Electronics Management Fund
MANUFACTURER REQUIREMENTS

• Computer Equipment Manufacturers must offer take-back program and may pay smaller fee if they build additional private collection infrastructure

• Requires TV Manufacturers to fund recycling efforts equal to their market share (quota)
# PUBLIC ELECTRONICS RECYCLING PROGRAMS IN NC

FY 2014-15: 109 Programs (93 county, 16 municipal)
PUBLIC ELECTRONICS RECYCLING PROGRAMS IN NC

Ramp up to Implementation

FY 2014-15: 109 Programs (93 county, 16 municipal)
ELECTRONICS RECYCLING BY NC LOCAL GOVERNMENTS (TONS)
ELECTRONICS RECYCLING BY NC LOCAL GOVERNMENTS (TONS)

Disposal Ban
July 1, 2011
<table>
<thead>
<tr>
<th>County and Municipal Collection Programs</th>
<th>FY 2009-10 (tons)</th>
<th>FY 2010-11 (tons)</th>
<th>FY 2011-12 (tons)</th>
<th>FY 2012-13 (tons)</th>
<th>FY 2013-14 (tons)</th>
<th>FY 2014-15 (tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Televisions</td>
<td>993</td>
<td>3,019</td>
<td>8,265</td>
<td>8,739</td>
<td>9,315</td>
<td>10,026</td>
</tr>
<tr>
<td>Other Electronics</td>
<td>3,580</td>
<td>4,448</td>
<td>6,424</td>
<td>5,420</td>
<td>5,471</td>
<td>5,051</td>
</tr>
<tr>
<td>Total</td>
<td>4,574</td>
<td>7,452</td>
<td>14,688</td>
<td>14,160</td>
<td>14,786</td>
<td>15,076</td>
</tr>
<tr>
<td>Percent TVs</td>
<td>22%</td>
<td>41%</td>
<td>56%</td>
<td>62%</td>
<td>63%</td>
<td>66%</td>
</tr>
</tbody>
</table>
TELEVISION TYPES

• Cathode Ray Tube (CRT)

• Flat Panel Display (FPD)
  • CCFL Back Light
  • LED Back Light
### Televisions Recycled by Local Governments

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>CRT TVs Percentage</th>
<th>FPD TVs Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014-15</td>
<td>93.2%</td>
<td>6.8%</td>
</tr>
<tr>
<td>2015-16 YTD</td>
<td>93.0%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Two Year Average</td>
<td>93.1%</td>
<td>6.9%</td>
</tr>
</tbody>
</table>

Anticipate gradual decline proportion of CRT Televisions
<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>FY 2014-15 Percentage</th>
<th>FY 2015-16 YTD Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT Televisions</td>
<td>55.0%</td>
<td>56.8%</td>
</tr>
<tr>
<td>FPD Televisions</td>
<td>4.0%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Computer Monitors</td>
<td>10.7%</td>
<td>11.3%</td>
</tr>
<tr>
<td>Other Covered Devices</td>
<td>10.3%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Non-Covered Devices</td>
<td>20.0%</td>
<td>20.6%</td>
</tr>
<tr>
<td>Total</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
### NC Program Data

**Including Manufacturer Efforts**

<table>
<thead>
<tr>
<th>Overall Recycling of Electronics in NC</th>
<th>FY 2009-10 (tons)</th>
<th>FY 2010-11 (tons)</th>
<th>FY 2011-12 (tons)</th>
<th>FY 2012-13 (tons)</th>
<th>FY 2013-14 (tons)</th>
<th>FY 2014-15 (tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer Televisions (non-local gov) (tons)</td>
<td>N/A</td>
<td>1,754.23</td>
<td>2,732.96</td>
<td>1,623.54</td>
<td>2,460.26</td>
<td>2,834.12</td>
</tr>
<tr>
<td>Manufacturer Computer Equipment (non-local gov) (tons)</td>
<td>N/A</td>
<td>2,895.82</td>
<td>3,996.03</td>
<td>2,098.88</td>
<td>1,843.43</td>
<td>1,193.37</td>
</tr>
<tr>
<td>Local Government Televisions (tons)</td>
<td>993.48</td>
<td>3,019.39</td>
<td>8,264.91</td>
<td>8,739.47</td>
<td>9,314.94</td>
<td>10,025.66</td>
</tr>
<tr>
<td>Local Government Other Electronics (tons)</td>
<td>3,580.15</td>
<td>4,432.15</td>
<td>6,423.58</td>
<td>5,419.81</td>
<td>5,470.99</td>
<td>5,050.77</td>
</tr>
<tr>
<td>TOTAL (tons)</td>
<td>4,573.63</td>
<td>12,101.59</td>
<td>21,417.48</td>
<td>17,881.70</td>
<td>19,089.62</td>
<td>19,103.92</td>
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<tr>
<td>Total Pounds Per Capita</td>
<td>0.98</td>
<td>2.50</td>
<td>4.43</td>
<td>3.66</td>
<td>3.87</td>
<td>3.84</td>
</tr>
</tbody>
</table>
MEANWHILE

The commodity values that underpin the electronics recycling industry are down substantially from 2011 peaks, but up over the last 4 months.

Dawning understanding that operating a public electronics program costs money.

NC’s law in question and under pressure.
MARKETS

- Public programs “compete” with scrap yards and scavengers for materials with value and are default for materials without value.
- Robust legitimate electronics recycling marketplace.
- Responsible end-use markets for CRT Glass exist but have processing costs.
THOUGHTS ABOUT PUBLIC PROGRAMS

Remember:

• Citizens want recycling options

• Public programs exist to provide public services

• Legitimate reasons that electronics don’t belong in landfills:
  • Commodity rich
  • Toxicity
PROGRAM PLANNING: RECOVERY RATES & PROGRAM COSTS

NC State Program: 3.84 pounds per person

4 pounds per capita is a reasonable target for planning purposes (actual results will vary)

Program Costs ~ $0.25/pound

Do the math: contract cost $1/person/year
PICKING A RECYCLER

Choosing a qualified and responsible recycler has never been easier or more important.

Don’t allow financial pressures to cause irresponsible shortcuts.

Perform Due Diligence:
- Verify certifications
- Visit vendor’s facility and apply “sniff test”
- Ask about and obtain written assurance re data management practices
- Check with peers for references
IMPLEMENTING ELECTRONICS RECYCLING BMPS

1. Build program infrastructure for efficient handling
2. Keep materials secure & prevent scavenging
3. Incorporate materials with more value into program
ELECTRONICS RECYCLING BMPS, CONT.

Make citizens aware of other options
- Retailer programs: Best Buy, Staples
- Local charities
- Manufacturer take-back programs

Pick a qualified vendor and work with them to implement cost-saving strategies
ATTRIBUTES OF SUCCESSFUL PROGRAM

Permanent with multiple locations and easy access for residents including weekends

“Free” for participants

Event-based collections can complement or be an alternative to a permanent system
Integrate materials from local governments and school systems into program to increase the value of your mix

Partner with other governments. Why? - Creates regional consistency the and possibility of complimentary services, for example:

- Municipalities can collect and deliver to county; or
- Municipal public works yard can be a drop-off location
MATERIALS HANDLING

Discourage scavenging

Create a secure area where material is consolidated, sorted, and prepared for shipment
  ▪ Covered areas at convenience centers, or
  ▪ Central depot where material is consolidated from multiple locations
  ▪ Accumulate full truck-load quantities

Pack effectively to reduce shipping costs (20,000 lbs)
TRAILERS PREVENT DOUBLE HANDLING
MATERIALS HANDLING, CONT.

If your vendor does the handling, don’t count on this being free

Work with your vendor to explore options that maximize value and reduce program cost

Resale / reuse matters a lot, handle materials accordingly

Prevent workplace injuries
- Avoid double-handling
- Temp labor as “helper”
DON’T FORGET DATA

Track televisions separately from other materials and by type

Require reports with details from your vendor

Use data to monitor program performance

Use data to plan future budgets
FOR MORE INFORMATION:

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