Recycling as the Cornerstone of EPR

SWANA New York State Chapter
Plastics – Myths & Mysteries

Recycling as the Cornerstone of Extended Producer Responsibility

Dan Lantz, VP Operations
Cascades Recovery Inc.
02 November 2011
Recycling as the Cornerstone of EPR

Cascades Recovery
National Perspective

- Blue Bag
- SS Carts
- Depot
- Two Stream

Plus Cascades is also a packaging producer: Boxboard, PS, PET
Why EPR for Packaging and Printed Materials?

- Environmental benefits
  - Less waste to disposal
  - Lower environmental impact of resource extraction
- Increase in source of materials to promote recycled content
  - Historically a chicken and egg for some materials
- Drive for design change
  - One lever in looking at packaging design
Why EPR for Packaging and Printed Materials?

- An answer for budgetary stresses in local and regional governments...at a cost
  - Ultimately, the user of the product pays one way or the other
  - Moves costs upstream, less visible from downstream (part of the tax bill)
- Can actually result in increased costs overall
  - Increased infrastructure, impact on products currently generated
Recycling as the Cornerstone of EPR

What are the Goals of EPR?

- Promote diversion from disposal
- Promote sustainable packaging choices
- Equitable to all materials
- Cost sustainable system
- Public education on packaging choices
Where Are We Coming From?

- Original recycling programs handled a limited number of materials (9)
  - ONP, OCC, Mixed Paper, PET, HDPE, Steel, Aluminum, Clear and Coloured Glass
- Only about 5-7% of waste stream falls under deposit programs
- Mixed plastics, aseptics, milk cartons...now more than 20 materials typically in a program
  - Shift to single stream....really?
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Trend to Single Stream?

![Bar Chart]

- **2004**: Single Stream: 0.0%, Two+ Stream: 10.0%
- **2009**: Single Stream: 10.0%, Two+ Stream: 40.0%
Review of Program Costs

- Single stream and two stream programs for 2003 and 2010 were compared
- All programs were two stream in 2003; three moved to single stream
  - 2010 represents a minimum of five full years of operating as a single stream program
### Review of Program Costs – 2003

#### Single Stream Programs (Two Stream in 2003)

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Quantity</th>
<th>$/Tonne Net</th>
<th># of HHs</th>
<th>$/HH Net</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program 1</td>
<td>43,516</td>
<td>$141.59</td>
<td>331,000</td>
<td>$24.29</td>
</tr>
<tr>
<td>Program 2</td>
<td>148,798</td>
<td>$126.46</td>
<td>959,000</td>
<td>$19.62</td>
</tr>
<tr>
<td>Program 3</td>
<td>82,231</td>
<td>$147.66</td>
<td>253,700</td>
<td>$36.68</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>91,515</td>
<td><strong>$135.21</strong></td>
<td>514,567</td>
<td><strong>$24.05</strong></td>
</tr>
</tbody>
</table>

#### Two (+) Stream Programs

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Quantity</th>
<th>$/Tonne Net</th>
<th># of HHs</th>
<th>$/HH Net</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program 5</td>
<td>30,780</td>
<td>$162.53</td>
<td>194,200</td>
<td>$25.76</td>
</tr>
<tr>
<td>Program 6</td>
<td>26,977</td>
<td>$91.57</td>
<td>170,500</td>
<td>$14.49</td>
</tr>
<tr>
<td>Program 7</td>
<td>38,491</td>
<td>$90.10</td>
<td>177,700</td>
<td>$19.52</td>
</tr>
<tr>
<td>Program 8</td>
<td>66,798</td>
<td>$138.74</td>
<td>321,700</td>
<td>$28.81</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>40,761</td>
<td><strong>$123.94</strong></td>
<td>216,025</td>
<td><strong>$23.39</strong></td>
</tr>
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All programs two stream in 2003
### Review of Program Costs – 2010

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<tr>
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<tr>
<td><strong>Single Stream Programs (Two Stream in 2003)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program 1</td>
<td>78,494</td>
<td>$183.90</td>
<td>315,130</td>
<td>$45.81</td>
</tr>
<tr>
<td>Program 2</td>
<td>155,010</td>
<td>$273.69</td>
<td>894,100</td>
<td>$47.45</td>
</tr>
<tr>
<td>Program 3</td>
<td>90,367</td>
<td>$245.49</td>
<td>404,000</td>
<td>$54.91</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>90,367</td>
<td>$244.06</td>
<td>404,000</td>
<td>$49.00</td>
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</table>

| **Two (+) Stream Programs** |           |         |          |      |
| Program 5                | 41,735   | $178.18 | 208,170  | $35.72 |
| Program 6                | 35,265   | $161.54 | 162,830  | $34.99 |
| Program 7                | 45,162   | $184.60 | 207,660  | $40.15 |
| Program 8                | 63,213   | $147.61 | 377,100  | $24.74 |
| **Average**              | 46,344   | $166.15 | 238,940  | $32.23 |

**Single Stream increase - $109/te**

**Two Stream increase - $42/te**
# 2003 vs 2010 Results

## Single Stream Programs

<table>
<thead>
<tr>
<th>Parameter</th>
<th>2003</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td>91,515 Tonnes</td>
<td>107,957 Tonnes</td>
</tr>
<tr>
<td>$/Tonne</td>
<td>$135.21 Net</td>
<td>$244.06 Net</td>
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<td>$24.05 Net</td>
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<tr>
<td>Average</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost Increase 2003 to 2010 (1)</td>
<td>$88.75 $21.38</td>
<td>57.1% 77.4%</td>
</tr>
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## Two Stream Programs

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<th>Parameter</th>
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<td>Average</td>
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<tr>
<td>Cost Increase 2003 to 2010 (1)</td>
<td>$23.78 $5.36</td>
<td>16.7% 20.0%</td>
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### 2010 SS to 2S Difference

- $77.90
- $16.77

### 2S %’age less than SS

- -31.9%
- -34.2%

(1) Accounting for 2% inflation per year, compounded from 2003 to 2010.
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Impact on Diversion Rates

- Typically all programs report an increase in the quantity received as a result of moving to single stream.
- Results may not be due to single stream:
  - Public education
  - A change reminds people about the program
  - Introduction of bag limits
  - Introduction of user pay
## Impact on Diversion Rates

### Single Stream Programs

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Households 2003</th>
<th>Households 2010</th>
<th>Quantity/HH (kg) 2003</th>
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<tr>
<td>Program 1</td>
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<td>315,130</td>
<td>171.5</td>
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<td>45.2%</td>
</tr>
<tr>
<td>Program 2</td>
<td>959,000</td>
<td>894,100</td>
<td>155.2</td>
<td>173.4</td>
<td>11.7%</td>
</tr>
<tr>
<td>Program 3</td>
<td>331,000</td>
<td>404,000</td>
<td>248.4</td>
<td>223.7</td>
<td>-10.0%</td>
</tr>
<tr>
<td><strong>Weighted Avg</strong></td>
<td><strong>177.8</strong></td>
<td><strong>200.8</strong></td>
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<td></td>
<td><strong>12.9%</strong></td>
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<td>158.5</td>
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<td>26.5%</td>
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<tr>
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<td>377,100</td>
<td>207.6</td>
<td>167.6</td>
<td>-19.3%</td>
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<tr>
<td><strong>Weighted Avg</strong></td>
<td><strong>188.7</strong></td>
<td><strong>194.0</strong></td>
<td></td>
<td></td>
<td><strong>2.8%</strong></td>
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- 2S programs recover approximately 3% less per household
- 20% more newspaper in single stream programs – effect of large dailies
## Impact on Diversion Rates

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- Removing programs with negative growth, two stream programs recovering 18kg (9.3%) more per household
- Similar growth over seven years for both programs
- No apparent link between quantities recovered and single stream
Seven Years of EPR Later...

- In 2004, Ontario diverted 823,000 te of material... 16.1% of generated
- In 2010, Ontario diverted 900,000 te of material.... 16.9% of generated
  - 9.4% growth
- In 2004, gross cost of recycling in Ontario was $244 per tonne
- In 2010, gross cost of recycling in Ontario was $317 per tonne
  - 30% increase
Impact on Packaging

- Lightweighting of PET bottles
  - 13.2 g Aquafina bottle now 10.9 g
- Move to more multi-laminated films
Recycling as the Cornerstone of EPR

2011 Stewards’ Fees

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<tr>
<th>Category</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic Packaging</td>
<td></td>
</tr>
<tr>
<td>PET Bottles</td>
<td>13.78¢/kg</td>
</tr>
<tr>
<td>HDPE Bottles</td>
<td>13.27¢/kg</td>
</tr>
<tr>
<td>Polystyrene</td>
<td>28.16¢/kg</td>
</tr>
<tr>
<td>Other Rigid Plastics</td>
<td>28.16¢/kg</td>
</tr>
<tr>
<td>LDPE/HDPE Film</td>
<td>28.16¢/kg</td>
</tr>
<tr>
<td>Plastic Laminants</td>
<td>28.16¢/kg</td>
</tr>
<tr>
<td>Biodegradable Plastic Film</td>
<td>28.16¢/kg</td>
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<tr>
<td>Biodegradable Rigid Plastics</td>
<td>28.16¢/kg</td>
</tr>
<tr>
<td>Textiles</td>
<td>28.16¢/kg</td>
</tr>
<tr>
<td>Steel Packaging</td>
<td></td>
</tr>
<tr>
<td>All Steel Pkg, Paint, Aerosols inc.</td>
<td>6.26¢/kg</td>
</tr>
<tr>
<td>Aluminum Packaging</td>
<td></td>
</tr>
<tr>
<td>Food and Beverage Cans</td>
<td>0.52¢/kg</td>
</tr>
<tr>
<td>Foil and All Other Al Pkg</td>
<td>7.50¢/kg</td>
</tr>
</tbody>
</table>
# Recycling as the Cornerstone of EPR

## 2011 Stewards’ Fees

### Printed Materials
- Newsprint (CNA/OCNA Members): 0.29¢/kg
- Newsprint (Non-Members): 1.12¢/kg
- Magazines and Catalogues: 2.48¢/kg
- Telephone Directories: 2.48¢/kg
- Other Printed Materials: 2.48¢/kg

### Paper Packaging
- Gabletop/Aseptics: 23.75¢/kg
- Paper Laminants: 23.75¢/kg
- Corrugated Containers: 7.70¢/kg
- Boxboard/Other Paper Pkg: 7.70¢/kg

### Glass Packaging
- Clear Glass: 3.69¢/kg
- Coloured Glass: 5.35¢/kg
Fairness

- PET yields at end markets 70-75% today, down from over 90% ten years ago
  - Full bottle jackets
  - Lightweighting changing closure to bottle ratio
  - Thermoforms – 25%+ of available PET in marketplace

- Why does a bottle with a full jacket pay the same as a bottle with a minimal paper label?
  - What is the impact on market value of that full jacket?

- How much should a degradable PET bottle user pay?
So....

- Looking at the fee structure...
- And looking at EPR program structure and the focus on recycling...

*Where’s the incentive to innovate packaging?*
EPR = Recycling

- EPR is equated with only recycling
  - Do not give credit for reduction or recycled content
- Always speak of “goals” as recovery goals
  - e.g., BC – 75%; Vermont – 60%
  - European countries more concerns with quantities per capital to disposal
- Financial responsibility only for the recycling fraction
What’s to be Expected?

- 100% funding of the programs by stewards will come with expectations
  - “If I’m paying for the system, I expect to have my material managed”
- No shift in the definition of EPR will mean the recycling industry will have to do more
  - Of course, it will be expected to do it with less
A Path to Sustainability

- 35-45% total possibly recyclable today
  - Could increase to over 50% with advances for more rigid and films
  - How many categories do we need to separate?

- Newspaper
- Old Corrugated Containers
- Mixed Paper
- Aseptics, Polycoated Cartons
- Aluminum cans
- Aluminum foil
- Steel cans
- Clear glass
- Coloured glass
- PET (bottles and thermoforms)
- HDPE bottles (natural and coloured)
- PP (emerging plastic)
- Tubs and Lids (PET, HDPE, LDPE, PP(?), PS)
- Plastic Film (monomer)
- Plastic Film (composite)
- EPS
- Hot drink cups (paper based)
- Cold drink cups (paper based); Cold drink cups (PET, PP, PS, PLA)
- PLA bottles, thermoforms
Recycling as the Cornerstone of EPR

Build From What We Know

- Packaging changes/evolution constantly occurring
- Any sustainable infrastructure must be designed to ensure:
  - Systems are up to date and continuously improving
  - Efficient low cost delivery
  - Flexibility to change as required
  - Participation is high
Take it ALL!

- Recover and sort *ALL* printed and packaging materials
- If we recover *ALL* materials, will they come?
- End markets will find more options for materials once they realize the volume
- If end markets don’t exist packaging producers and users will pay until an opportunity is found or change is made
Can We Sort Everything?

- Short answer...Yes!
- Long answer
  - How much do you want to spend?
    - $50 million to do all materials on list for 150,000 tpy
    - Would increase recycling costs 1.5 to 2.0 times over current costs
  - If we recover it, will they come?
    - What do we do with all the recovered materials?
    - What do we do with incompatible materials?
Using only Recycling...

- Is the single system the best single choice for EPR of printed and packaging materials?
  - Gross costs can be conservatively estimated at upwards of $500 per tonne and beyond in order to manage the full list of potential materials
  - Even at that, does not account for ALL costs of managing all materials, i.e., industry not fully paying for the management of their materials
Examining the Materials

- Printed and Packaging Materials encompass a myriad of materials
  - Reduced but not recyclable
    - Multi-laminate plastic films
  - Compostable AND/OR recyclable?
    - Boxboard, degradable PET
  - Compostable but not recyclable
    - Degradable films (e.g., Sunchips)
  - Good for Energy from Waste
    - Composite packaging (e.g., pet food bags)
Using only Recycling...

- No cost recovery for materials manageable only through composting, energy recovery and landfill
  - In so doing are we indirectly supporting move to non-recyclables/degradables
  - Is that fair? Do non-recyclables/degradables end up not having to pay for management?
Using only Recycling...

- Are we stifling evolution/revolution?
  - Forcing packaging into the “recycling” stream may not be beneficial over longterm
  - Maybe degradables from biogenic sources are better in longterm
Recycling as the Cornerstone of EPR

EPR = Fairness/Level Playing Field

- Is recycling through curbside the answer for all materials?
- Should industry ONLY pay for recycling?
- Should industry pay for EFW, composting, landfilling?
  - Particularly in light of new PLA, PHA, DPET packaging....composting no longer for food and limited non-food items
EPR = Sustainability

- IFOs must also focus on what is not being diverted
  - If not recyclable, then disposal costs to be included in management of product Alternatives?
  - Design for recyclability limitations
  - Punitive fees targeting hard to manage materials

- Building models suitable to the current municipal recycling landscape will not meet what is required

- System should not differentiate between private and public sector, the best option is to be considered
  - lowest cost, highest recovery
Sustainability = Responsibility

- Stewardship agencies should identify the destiny and let the industry find its way there.
- The packaging producers and brand owners now realize they carry the control of discarded materials.
  - The package/printed material and its management need to be considered right at the point of design.
  - Real work is being done and strong investment is being made by industry.
Conclusions

- We CAN’T rely on JUST Recycling
  - Recycling alone DOES NOT EQUAL EPR
- Recycling is just one means of managing materials
- Packaging changes/evolution exceeding ability of facilities to adapt (product cycles < MRF cycles)
- Controlling costs more difficult when forcing materials into a fixed system
Conclusions

- To truly be EPR...
  - there **MUST** be consideration given to more than recycling
  - there **MUST** be preferred options that manage **ANY** material placed into the system
  - there **MUST** be consideration given to reduction, reuse
Thank You

- I would like to thank the New York Chapter of the Solid Waste Association of North America for this opportunity to speak to you today.

- If you have any questions please contact me at:
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  Scarborough, ON M1B 5P5
  416-292-5149 x164 (o) 416-986-7733 (c)
  dlantz@recoverycascades.com