We’re all in this bin together
Overview

• Recyclable Materials Markets - Big Picture
• Why Blended Value of Commingled Ton Matters
• Factors Impacting Blended Value
• Material Specific Look at Markets
  • Paper
  • Plastics
  • Metals
  • Glass
• Why Contamination Matters
The Big Picture

- Recyclable materials are commodities
- Wide range of factors impact prices of individual materials
- Public recycling programs manage a “portfolio” of commodities
- Community recycling programs = first link in supply chain delivering materials to the recycling economy
- Citizen consumption and generation of recyclables not sensitive to recyclable market factors
Single-Family Home Generation of Recyclable Materials
### MRF Material Costs and Values

<table>
<thead>
<tr>
<th>Commodity</th>
<th>% of Outbound Materials</th>
<th>Price*</th>
<th>Weighted Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardboard</td>
<td>17.00%</td>
<td>$58.75</td>
<td>$9.99</td>
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<tr>
<td>Mixed paper</td>
<td>38.00%</td>
<td>$28.44</td>
<td>$10.81</td>
</tr>
<tr>
<td>Cartons/aseptics</td>
<td>0.20%</td>
<td>$22.50</td>
<td>$0.05</td>
</tr>
<tr>
<td>Aluminum cans</td>
<td>1.50%</td>
<td>$916.20</td>
<td>$13.74</td>
</tr>
<tr>
<td>Steel cans</td>
<td>1.80%</td>
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<td>Glass</td>
<td>16.00%</td>
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<td>PET</td>
<td>4.80%</td>
<td>$126.80</td>
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<tr>
<td>HDPE Natural</td>
<td>1.20%</td>
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<td>HDPE Colored</td>
<td>1.00%</td>
<td>$317.60</td>
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*Processing Cost: $90.00  Profit (Loss): ($42.54)*

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**The Commingled Ton**
- Composite of materials
- Value changes every month
- Value of ton typically doesn’t cover cost of sorting
- Communities pay processing charges

**Blended Value**

*Pricing as of Nov 2020, RecyclingMarkets.net US Average*
The Commingled Ton Over Time

Blended Value $/Ton
Factors That May Help Blended Values

New Domestic Paper Capacity and Demand

- Rise/stabilization of OCC and Mixed Paper prices

Domestic demand for polypropylene

- Stabilizing/rekindling of market;
- Switchover from 3-7s

Brand post-consumer content commitments

- Increased demand for recycled material, especially plastics
Factors That May Hurt Blended Values

Changes in domestic aluminum industry
  Soft UBC prices

Cheap petrochemicals
  Cheap virgin plastics

Low capture rates of highest value materials
  Affecting PET and aluminum

Contamination
  Unwanted materials in the stream
Paper

- Two paper grades most important to community recycling programs:
  - Corrugated Cardboard (OCC)
  - Residential Mixed Paper

- Paper pricing experienced big impact from loss of China market

- Domestic markets have responded and export patterns have shifted

- U.S. paper still need some export outlet

- New kinds of export are helping resiliency of domestic markets - e.g., pulp, finished containerboard

Source: Moore & Associates
US Domestic and Export RCP Demand
(million tons)

Long term Trend in US Exports (000's of tons)

India’s Share of US Mixed Paper Exports

Source: Moore & Associates
Over $4.4 BN in investments
+ 8 MM tons of annual consumption
+ over 3,800 jobs created or maintained
Reduced Exports of Recovered Plastic

Exports of Postconsumer Bottles From the United States
2018

Percentage of Collected Bottles Exported

0% 10% 20% 30% 40% 50%

Association of Plastics Recyclers and American Chemistry Council
$633 MM in investments + over 625,000 tons of annual consumption + 849 jobs created or maintained
PET Overview

- Domestic markets strong, capacity growing
- Prices low, reflecting cheap virgin competition
- COVID disruptions in both demand and supply
- General demand high and expected to grow, especially from Brand commitments

PET Reclaimer in Recycling Today, 8/10/2020: “Demand continues to remain robust. Both brands and retailers are holding steadfast in their sustainability commitments. Sustainability is no longer an option but a requirement for companies as consumers demand products that are sustainably sourced and made.”

NAPCOR 2018 PET Recycling Report
HDPE Overview

- Divided into two main grades:
  - Natural and Colored
- Natural prices very robust – very easy to use back into packaging
- Colored prices less robust but strong
- General demand expected to grow because of Brand goals


Association of Plastics Recyclers and American Chemistry Council
PP Overview

- Historically connected to 3-7 plastics grade
- Affected by export impacts to 3-7s, but more viable now as separated resin
- Largest markets include automotive, building products, paint buckets
- Increasingly common resin for consumer packaging
- Strong interest in advancing packaging end-uses
- Polypropylene Coalition building access and MRF capacity

COMPOSITION OF 3-7 BALE

- PP 55%
- HDPE 8%
- PET 20%
- PS 4%
- PVC 2%
- Other 11%
- Other 11%
Aluminum and Steel Cans

- Steady, domestic demand
- Aluminum prices affected by global glut and changes in U.S. industry
- Steel cans follow general ferrous prices
Glass

• Steady, domestic demand in many regions
• MRF glass recyclability dependent on access to beneficiator (sorting plant)
• Low virgin material prices and necessary secondary processing “cap” the value of glass
• Big tonnage; strong household capture behavior
• High degree of circularity in packaging
• Very positive GHG benefits from potential use in concrete
Contaminants are a negatively priced “commodity” - reducing them improves blended value

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Thank You!

Contact Info:

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• 919-777-3964