Markets First and Recycle Right

Presentation to CalRecycle, June 4, 2018
Gary Liss, Honorary Board Member
National Recycling Coalition
916-652-7850; gary@garyliss.com; www.nrcrecycles.org
NRC Markets Development Workshops

Forging Ahead
Recycling Markets Development
in the 21st Century

April 4, 2018 → Portland, OR

NRC
National Recycling Coalition
confusion + wishful recycling = contamination
CURBSIDE CONTAMINATION RATE

CURBSIDE CONTAMINATION RATE

% of Tonnage

Multi-stream

Single Stream

Multi-stream: 4%

Single Stream: 10%

RECYCLEBC
Oregon DEQ Recs to Public

- **Continue to recycle whenever possible.**
  Contact your local recycling facility or recycling collection service provider.

- **Recycle it right.** Put only clean items in your recycling containers. If in doubt, find out.

- **Prevent waste from the start.** Buy only what you need and minimize use of unnecessary and disposable packaging.

Source: Oregon DEQ, [Information on China’s Import Restrictions](#)
Addressing the Paper Challenge

- Material that is clean, properly sorted, and contains only accepted material is now more important than ever to ensure we have viable end-markets for our material
- An integrated approach to reducing contamination (currently 6.5% system wide) is important and will include resident education, tagging, and leaving behind not-accepted materials
  - Single-use plastic bags will be a top priority
  - Other problem materials include organics, textiles, wood, and electronics
Addressing the Paper Challenge

• Standards for quality of mixed paper being sent to China set to become more stringent with standard for prohibitive material potentially reduced to as low as .3% as early as mid-year

• We will continue to work with our partners to focus on further diversifying markets for our materials
Domestic Processing of Mixed Plastics: Stakeholder Meeting Summary

January 30, 2018

Lisa Sepanski, King County Solid Waste Division
Findings: Domestic Processing Capacity Exists

There is current domestic processing capacity for mixed plastics load at Merlin in Vancouver BC.
• Cost to transport to Merlin facility from Seattle
• Cost to sort
• Revenue for materials – depending on contents of bales
  – HDPE Natural and Color
  – PP color
  – PET Clear
  – PET green
  – Polycoated fiber
Findings: Interest in Building a Secondary MRF in PNW

Secondary MRF shifts from scrap commodity service to sorting service business model

• Primary MFRs in WA and OR send low volume materials and yield losses to Secondary MRF
  – Aggregates materials from MRFs to achieve critical mass
  – Sort materials into direct-to-mill commodities in truckload quantities

• Aggregated volumes justify investments in automated sorting technologies

• Opens additional domestic markets for materials such as PP, PS/EPS, and PLA
Findings: Interest in Building a Secondary MRF in PNW

• Improves Blue Bin Accountability
  – No need to export mixed loads of materials
  – Commodities sold direct-to-mill are documented

• Requires infrastructure investments in only one facility within a region
  – Allows the facility to quickly adapt to changes in packaging materials

• Manufacturer accountability
  – Manufacturers or brand owners are identified and contacted to see if they want to pay to have their packaging materials recycled
Next Steps: Secondary MRF

- Develop detailed costs and funding scenarios
  - Explore manufacturer funding

- Secure funding and commitment for material volumes
  - Co-op Model
  - General Partner(s) - provide capital investments
  - Limited Partner - primary MRFs provide unsorted materials and pay processing fee. In return receive portion of revenue from sale of materials.

- Facility could be operational within 9 – 12 months of securing material flow, funding and permits
Findings: Demand is Key

Step up the demand for recycled products and use recyclable materials in products and packaging.

• Recycling isn’t recycling until recyclable materials are used to replace virgin feedstocks.

• Local and state governments must require the use of recycled content in products and packaging.

• Manufacturers must use recycled feedstocks in their products and packaging.
Next Steps: Create Demand

• Draft state legislation
  – Require manufacturers to use recycled feedstocks in their products and packaging
  – Coordinate with other states - California SB 168 requires recycled content in all beverage containers sold in the state
  – 2018 HB 2914 – work on new bill for 2019

• Develop local procurement ordinances
  – Require the use of recycled content in products and packaging

• Support national efforts - APR’s Recycling Demand Champions
  – WM, Republic, Recology, Waste Connections, Amazon, Costco, etc.
Report Available at
King County LinkUp Webpage
Consumers Want to Recycle Glass Containers

91% of consumers say that recycling is an important part of conserving natural resources.

90% say that it is important to recycle materials rather than sending them to the landfill.

95% of those who live in a community which recycles glass say glass should continue to be collected by recyclers.

91% say finding ways to avoid wasting our natural resources is important.

Glass is made from natural resources:
- Sand
- Soda ash
- Limestone

*Source: Glass Packaging Institute 2016 Survey USA poll, GlassrRecycles.org
Myth - Glass Cannot Be Captured Effectively or Costs Too Much to Capture at a MRF

Reality - Small or large investments yield big improvements

• Many MRFs capture well over 90% of the glass generated in the curbside program (Rumpke, Resource Management)
• Small investments with good ROIs possible - Glass Recycling Coalition website has best practices
Myth- Glass greatly contaminates paper

Reality- Glass is only a small part of the contamination of paper and can be cleaned effectively

• Only 5-6% of all paper contamination comes from glass when measured - this is a consistent number
• **Food and garbage are by far the bigger issue**
• No export issues with glass reported by major shippers (downgrades or rejections)
Refillable bottles: A unique opportunity

- Opportunity for beverage industry leadership
  - An “Oregon” story about industry stewardship

- Market and timing are right
  - Consumers value craft and sustainable
  - 500mL and 12oz bottles are replacing 22oz

- OBRC uniquely positioned to implement
  - Nearly all empty beer bottles already pass through our facilities already
Can we change our lens and focus?

Minal Mistry | Oregon Department of Environmental Quality
Focus on Materials Management

- Prevention ("Reduce")
- Rescue ("Reuse")
- Recovery ("Recycle")
- Dispose

Source: Oregon DEQ 2017
Focus on Materials Management

- Design intelligently
- Collect materials selectively
- Communicate clearly
- Share materials responsibility with upstream actors

Minal Mistry | Oregon Department of Environmental Quality
Circular Economy Principles

1. THOUGHTFUL DESIGN
   - REFILLABLES
   - RIGHT-WEIGHTING

2. KEEP PRODUCTS AND MATERIALS IN USE
   - REFILLABLES
   - INFINITELY RECYCLABLE

3. REGENERATE NATURAL SYSTEMS
   - WATER AND ENERGY
   - RESPONSIBLE OPERATIONS

Source: Jim Nordmeyer, VP, Global Sustainability, O-I,
<table>
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<tr>
<th>PROJECT FINANCE</th>
<th>GROWTH EQUITY</th>
<th>RESEARCH &amp; DEVELOPMENT</th>
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<td><strong>CLOSED LOOP fund</strong></td>
<td><strong>CLOSED LOOP ventures</strong></td>
<td><strong>CLOSED LOOP foundation</strong></td>
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<td>Invest in large scale recycling and circular economy infrastructure with below market rate loans.</td>
<td>Invest in growth of leading companies with equity that can catalyze circular supply chain solutions in apparel, food, electronics, and materials.</td>
<td>Identify and incubate early stage solutions with no-return grants, builds the investment field through funded research.</td>
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**Investors Include**

- Coca-Cola
- PEPSICO
- Procter & Gamble
- Walmart
- Unilever
- KEURIG GREEN MOUNTAIN
- 3M
- DR PEPPER SNAPPLE
- Johnson & Johnson
- COLGATE-PALMOLIVE

**Investors Include**

- Family offices, institutions, individuals interested in strong financial returns and measurable social impact.

**Partners Include**

- Goldman Sachs
- Walmart Foundation
- Heineken
- Johnson & Johnson A Foundation
- The Berry and Jesse Eisch Foundation
- NEW BELGIAN FOUNDATION
- IMPACT FIRST INVESTMENTS
- tónico
Institutional capital is waiting on the sidelines

- $10 billion/year in investment capital is currently supporting linear models
- Private capital lacks sightlines across the system
- Supply side controlled by few players
- Volatility in commodities markets
- Lack of offtake agreements
- Innovative, but unproven, technologies
More catalytic capital is needed to unlock mainstream investment in end-market development

Catalytic capital would:
✓ De-risk
✓ Prove business models
✓ Stimulate investment

Other supports needed:
+ Subsidized R&D
+ Long-term offtake agreements, price floors
+ Loan guarantees
+ Green procurement & code
Capital Landscape: $800 Million/yr
In public & private concessionary capital is available

Grants and other concessionary capital, by region
*Total amount shown is most recent year data available from each source*

Closed Loop Fund project
Recycling Markets Development in the 21st Century
Jan Rayman, CEO, The ReWall Company
“ReWallution”

• High performance packaging upcycled into high performance building materials – durable, inherently moisture and mold resistant

• Turn locally collected waste into locally distributed building materials
Healthy Building Materials

Exterior Applications:
- Structural Sheathing
- Stucco Substrate
- Utility Boards

Interior Applications:
- Pre-finished Wallboard
- Moisture & Mold Resistant Wallboard
- Ceiling Tiles

OEM and Flooring Systems:
- Roof Cover Board
- Sound Insulating Floor Underlayment
- Tile Backer

All ReWall Products Deliver:

✓ Superior Performance
✓ Unparalleled Eco-friendliness
✓ LOWER PRICE
   (No Green Premium)
Now Proven at Flagship Projects

- Tesla® Gigafactory One, Sparks NV
- VA Medical Center, Omaha, NE
- Iowa State University Campus, Ames, IA
- Microsoft® Las Colinas 2, Irving TX
- YMCA Southwest Omaha, NE
- Highland High School, Highland, IL
Easy Swap - Big Impact

Each 100,000 sf roof project recycles 100 tons of cartons (better performance, better price, made from their waste)
Power of Partnerships

- Develop collection infrastructure
- Accelerate new product acceptance (close the loop)
- Public education
- Promote Design for Recyclability/Compostability