EM TERRA
ENVIRONMENTAL

MRF Performance: Are Tonnes the Most Accurate & Effective Measurement Method for Determining Program Effectiveness & Costs?

May 14, 2015
CORPORATE VISION

To be Canada’s most comprehensive and highly regarded waste to resource company leading the way toward zero waste both in the commercial and municipal sectors.
CORPORATE STRUCTURE

100% Canadian owned

Emterra Group

- Emterra Environmental
- Canadian Liquids Processors
- Emterra Tire Recycling
- Emterra Environmental USA
22 EMTERRA GROUP LOCATIONS

11 IN BC
2 IN SASKATCHEWAN
1 IN MANITOBA
8 IN ONTARIO

EMTERRA SERVES 10+% OF CANADIANS EVERY DAY AND PROCESSES 500,000+ MT RECYCLABLES EACH YEAR

3 LOCATIONS IN MICHIGAN
**Emterra in Numbers**

- **10+%** Percentage of Canadian population serviced by Emterra
- **25** Emterra locations in North America
- **950** Number of employees
- **7** EPR Programs’ Service Provider
- **39** Years in business
- **50+** Communities served by Emterra in Michigan everyday
- **500,000 MT** Recovered commodities marketed
- **450** Trucks & collection vehicles in our fleet
- **84+** Communities serviced by Emterra in Canada everyday
EMTERRA ENVIRONMENTAL

- Total vertical integration in PPP collection, processing & marketing
- Waste & organics collections
- Municipal/residential and industrial, commercial & institutional (ICI)
THE PPP VALUE CHAIN

http://www.napavalleylifemagazine.com/2012/07/01/manufacturers-must-rethink-their-systems-responsibility-needed-for-truly-sustainable-recycling-programs/

Emterra
Shared Goals of Harmonized PPP Programs

Consistency in:

- Obligated materials
- Obligated producers
- Producer de minimis
- Program auditing protocol
- Enforcement and compliance

And...

- Program performance metrics (e.g. terminology, definitions, data sources and calculation methodologies)
Allow producers and importers the **latitude to design and deliver programs** that will meet their regulatory obligations and marketing/sales objectives

+ 

Allow for **program sustainability/viability** because MRF operators are held accountable and compensated for the appropriate unit of measure
HOW SHOULD COST AND PERFORMANCE BE MEASURED?

Then: $/Tonne
Now: $/Piece

WHY?
Reason #1:

Product Light Weighting
**Year Over Year Change by Piece Count**

<table>
<thead>
<tr>
<th>Year</th>
<th>Containers Recycled (MT)</th>
<th>Containers Recycled (pieces)</th>
<th>KG/Piece</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>22,258</td>
<td>838,818,180</td>
<td>0.0265</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>20,503</td>
<td>844,701,394</td>
<td>0.0243</td>
<td>-9%</td>
</tr>
<tr>
<td>2010</td>
<td>19,906</td>
<td>812,554,599</td>
<td>0.0245</td>
<td>1%</td>
</tr>
<tr>
<td>2011</td>
<td>18,096</td>
<td>787,920,243</td>
<td>0.0230</td>
<td>-6%</td>
</tr>
<tr>
<td>2012</td>
<td>18,425</td>
<td>778,287,941</td>
<td>0.0237</td>
<td>3%</td>
</tr>
</tbody>
</table>

*Excluding glass

11% decrease in 6 years or nearly 2% decrease in KG/Piece/Yr

Source: Encorp Pacific Annual Reports
### Year Over Year Change by Weight (MT)

<table>
<thead>
<tr>
<th>Material</th>
<th>2009 to 2010</th>
<th>2010 to 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>0%</td>
<td>-6%</td>
</tr>
<tr>
<td>Steel</td>
<td>-6%</td>
<td>-1%</td>
</tr>
<tr>
<td>Plastics</td>
<td>1%</td>
<td>14%</td>
</tr>
</tbody>
</table>

*WDO Municipal Datacall Province-wide Tonnage Information*
## Year Over Year Change by Weight (MT)

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Printed Paper</strong></td>
<td>508,269</td>
<td>493,966</td>
<td>-2.8%</td>
</tr>
<tr>
<td><strong>Mixed Papers</strong></td>
<td>27,767</td>
<td>22,998</td>
<td>-17.2%</td>
</tr>
<tr>
<td><strong>Paper-Based Packaging</strong></td>
<td>169,413</td>
<td>169,413</td>
<td>1.0%</td>
</tr>
<tr>
<td><strong>Polycoat</strong></td>
<td>4,956</td>
<td>5,567</td>
<td>14.1%</td>
</tr>
<tr>
<td><strong>Aluminum</strong></td>
<td>10,314</td>
<td>11,208</td>
<td>8.7%</td>
</tr>
<tr>
<td><strong>Steel</strong></td>
<td>30,800</td>
<td>30,825</td>
<td>0.1%</td>
</tr>
<tr>
<td><strong>Glass</strong></td>
<td>88,335</td>
<td>87,224</td>
<td>-1.3%</td>
</tr>
<tr>
<td><strong>Plastic</strong></td>
<td>66,720</td>
<td>71,634</td>
<td>7.4%</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>904,850</td>
<td>892,924</td>
<td>-1.3%</td>
</tr>
</tbody>
</table>

*WDO Municipal Datacall of 230 municipal residential blue box programs marketed tonnes*
THE MULTIPLICATIVE EFFECT OF LIGHT WEIGHT PACKAGING

- Quantity of light weight PPP in the PPP stream increasing by weight and piece count
  - Light weighting of packaging
  - Smaller portions
  - Replacement of heavier packaging (e.g. glass, steel)
  - Pouches, plastic bottles, lighter aluminum cans, aseptic and polycoat containers

**Result:**
Much more effort and advanced technology required to recover the same tonne of materials
REASON #2:

Proliferation of Packaging Variety
Packaging Innovation = Recycling Challenges
REASON #3:

Composition changes in standard basket of PPP
ONGOING CHANGES TO BLUE BOX/CART COMPOSITION

- Changes in most abundant stream – fibres
  - Shift to electronic media
  - Yellow Pages to discontinue print directories
  - Online shopping resulting in more OCC
- Increase in new types of packaging
  - Out-of-home and ready-cooked meals growing
  - Shrink wrapped products
  - Multi layered packaging
  - New packaging uses for plastics
- Light weighting
  - Substitution of heavier glass and steel packaging for light weight/multi-layered packaging
  - Smaller portions
WHAT ARE THE SOLUTIONS?

Need new performance and measurement mandates to reflect the realities.
MANDATE #1: INVEST IN TECHNOLOGY

- Reduce manual labour
- Investment in latest technology
  - Optical sorting
  - In the future: robotic sorting
- Frequent upgrades to technology to catch up to changes in packaging and composition
Mandate #2: Invest Often

- Winnipeg Single Stream MRF
  - Commissioned in 2003
  - Upgraded in 2012
- Burlington Single Stream MRF
  - Commissioned in 2008
  - Upgraded in 2013
- Regina Single Stream MRF
  - Commissioned in 2013
  - Optical sorting for plastics and fibres
MANDATE #3: CHANGE THE PERFORMANCE MEASUREMENT METRIC

*Then:* \$/Tonne

*Now:* \$/Piece
How you measure is as important as what you measure
Thank you! Questions?

Paulina Leung, VP Corporate Strategy & Business Development
P. 416.939.7916
E. paulina.leung@emterra.ca