MRF Technology & Future Economics

Nathiel G. Egosi, P.E., President

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RRT Design & Construction
Melville, NY- Baltimore, NY -Orlando, FL
Vestal, NY- Philadelphia, PA
www.rrtenvio.com
MRF Technology & Future Economics
• We are known for MRFs
• 30 years, 400 plants including 80+ complete greenfield operations
• Experts in MRF plant operations, equipment engineering, plant construction

Ocean County, NJ
Single Stream MRF

New York, NY
Container & Paper MRF
Lines of Business

- Engineering and Design
- Equipment Supply
- Design/Build Construction
- MRF Operations Support Consulting
Business Theory

Generator → Curb → Collect → Process → Ship → Market → End User

RRT
Pressure of Contamination

Generator → Curb → Collect → Process → Ship → Market → End User
Pressure of Markets
Where are going?

Single Stream
What is it? Collection Method

Why?
Significant savings in collection; result
  – $ saved
  – Kept costs down for program
  – More households have access
Allows automated collection; result
  – $ saved is more
  – Safety, reduced fatalities and injuries
Convenience/People Like It
  – Increased participation
  – Contamination
Single Stream: Where/How Much?

• Are all served? No
• More than half of the US is DS or drop-off
• Does DS & Dropoff have contamination?
Inbound

• Contamination
• Lack of education
• Evolving ton
• Light weighting
• Packaging more complex
• Adding more materials
• Wish recycling
• Economy
Inbound

INBOUND TON FORECAST

TONS

JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC

2018

2022
Outbound

• Old Cardboard Containers (OCC)
• Newsprint (ONP)
• Mixed Fiber (MP)
• Ferrous Metal
• UBC
• Non-Ferrous Metal
• #1 PET
• #2 HDPE-N
• #2 HDPE-C
• #1-7 Plastics
• Film
• Glass
• Asceptics/Cartons
• Trash

• Sorted MP
• Sorted News
US Mixed Paper Market
(ooo’s metric tons)

• 2016 – base year
  – Domestic mill demand – 3,380
  – Export demand – 3,607

• 2017
  – Domestic mill demand – 3,622
  – Export demand – 3,518

• 2018 projection
  – Domestic mill demand – 3,985
  – Export demand – 1,985
  – 500 (500,000) tonnes of baled Mixed Paper collected for recycling in the US will be landfilled at a minimum

Source-Moore & Associates 10/18
What’s Happening with MP

Source: Susan Robinson, WM
Outbound

• Mills
• Landfills
Outbound

- Old Cardboard Containers (OCC)
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The MRF of Tomorrow

- MRFs today are not built to handle what they handle.
- Labor
The MRF of Tomorrow
Current Developments
OCC SCREEN
The MRF of Tomorrow
Current Developments

AUGER SCREEN
The MRF of Tomorrow
Current Developments

SCREENS
The MRF of Tomorrow
Current Developments

OPTICAL SORTERS
The MRF of Tomorrow
Current Developments

BALLISTIC SEPARATORS
The MRF of Tomorrow
Current Developments

ROBOTICS/AI
The MRF of Tomorrow
Current Developments

MAGNETIC SEPARATORS
Industry Observations

• Equipment vendors
• Consultants
• Haulers
• Independent MRF operator
• Private vs public
• New plants, why
• Consolidation
• Waiting
Final Thoughts...we have lots to do

• Huge Investments need to be spent
• Heavy reliance on revenues to offsets costs
  confused a fee based business
• Commodity markets reacting to the evolving ton
• Domestic markets are reacting to the global markets
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