“Redefining Waste”
History of MWP

Early Dirty MRFs:
- Low, inconsistent recovery rates
- Contamination issues
- Presented health and safety concerns
- Essentially manual and semi-automated floor sorting of garbage
- Processed primarily commercial dry waste
- i.e. Just chasing fiber (OCC and paper)
- Floor sorting at transfer stations: areas with high tip fees or lucrative paper markets – Or Both!
- Worked best when input came from homogenous sources like office complexes or retail
Why Mixed Waste Processing?

• Materials Quality
  – Sorting technologies driving the revolution
  – Mixed waste processing facilities now prove the quality of the materials is salable at market prices

• Environmental impacts of landfilling are driving the political revolution
  – State and local legislation driving higher diversion rates – 60% > 75% > 80% > Zero?
  – Communities are responsible for 100% of the waste stream, not just the valuable materials

• Financial impacts and inefficiencies-
  – Voluntary source-separation programs
    • have low participation rates
    • depend on heavy education & outreach efforts
    • Require multiple collections routes
  – One Bin
    • 100% participation rate
    • Is more convenient for the consumer who pays for the programs through residential fees
    • Reduces carbon footprint and costs by removing a second collection route

• Mandatory recycling programs may not be politically, geographically, or financially feasible
THE IREP MODEL

CNG-FUELED TRASH COLLECTION FLEET

WASTE

ADVANCED MIXED MATERIALS RESOURCE FACILITY ("AMMRF")

ORGANIC WASTE

COMMODITIES

ANAEROBIC DIGESTION FACILITY

DEVELOPMENT · MANAGEMENT · FUNDING

ENGINEERED FUEL

INTERNATIONAL MARKETS

RECOVERED MATERIALS

RECOVERED MATERIALS TO LOCAL AND/OR

COMPOST

COMPRESSED NATURAL GAS (CNG)

ELECTRICITY

THE IREP MODEL
The IREP Model

Anaerobic Digestion Facility

Waste to Recovered Materials

Engineered Fuel Development · Management · Funding

Electricity

Compost

Compressed Natural Gas (CNG)

Recovered materials to local and/or international markets

CNG-fueled trash collection fleet

Advanced Mixed Materials Resource Facility ("AMMRF")

Grand Opening – April 14, 2014

Completed Phase I
Acceptance Test

- Conducted by CDG Environmental Engineers selected by the City of Montgomery
- Performed May 5-9, 2014
- Confirmed processing rate of 32.36 tons per hour
- Confirmed overall waste diversion above 60%
- Confirmed recovery rates of:
  - Plastics: 96%
  - Mixed Paper: 95%
  - OCC: 97%
  - Tin/Steel: 94%
  - Aluminum Cans: 90%
Montgomery, Alabama

Before MRF
✓ Failed orange bag recycling program due to lack of participation

After MRF
✓ 100% participation

✓ 100% to landfill

✓ 60% overall waste stream recovery, City-wide
RECYCLABLES – Recovered Fiber
(Actual IREP@Montgomery Photos)
“We find no statistical difference in the IREP material as compared to single stream material.”
-KM Plastics, Buyer
RECYCLABLES – Recovered Metals/Other
(Actual IREP@Montgomery Photos)

Aluminum

Baled Steel

Compost
AMMRF System Advantages

- Bale quality from our AMMRF technology allows us to compete in high quality markets including China.

- New technology for Montgomery sends PET with liquids in the bottle to the PET bin.

- Fiber (mixed paper/OCC) quality is very important during lower demand months such as summer, including no glass in bales.

- Aluminum recovery rates are currently 95+%. 
CHALLENGES

Operating Challenges

• Lack of cardboard in the waste stream (scavenging)
• Mixed waste processing requires aggressive training and labor transitions
• No labor pool for mixed waste processing even at the managerial level
• Changing the mindset of personnel trained in similar environments with other waste companies to understand we are a manufacturing company and process
• City and Private Organization must become a partnership and not adversarial

Industry Challenges

• Opposition from both the paper and metals industry
• Misinformation in the marketplace
• Backlash from the recycling industry and political organizations to maintain source separation (“We are teaching our kids to NOT recycle”)
CHALLENGES

Market Challenges

• Commodity Pricing Drop over a One Year Period
• Market volume challenges for quality material

Temporary Shutdown - IREP and the City currently in negotiations

• Amending Current Feedstock Supply Agreement
  • Profit Sharing Opportunity based on Commodity Pricing Indexes
    (Align Risk/Reward)
  • Relief from Operating losses until markets correct
  • All capital provided by IREP

• City Cooperation on Future Projects
  • Phase II for potential Engineered Fuel technology deployment or other “back-end” technology
  • Phase III for potential anaerobic digestion facility
THANK YOU