



Infinitus
ENERGY



IREP
INFINITUS RENEWABLE ENERGY PARK

“Redefining Waste”



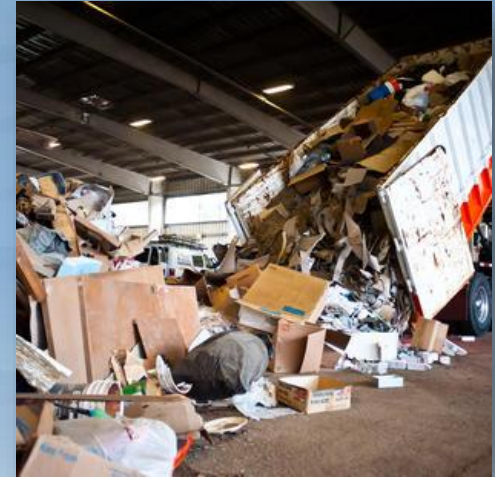
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INFINITUS ENERGY, LLC

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**



IREP
@ MONTGOMERY

**CNG-FUELED TRASH
COLLECTION FLEET**



ADVANCED MIXED MATERIALS RESOURCE FACILITY ("AMMRF")



ANAEROBIC DIGESTION FACILITY



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DEVELOPMENT • MANAGEMENT • FUNDING



RECOVERED MATERIALS



ENGINEERED FUEL



**RECOVERED MATERIALS TO LOCAL AND/OR
INTERNATIONAL MARKETS**



COMPOST



**COMPRESSED
NATURAL GAS (CNG)**



ELECTRICITY



THE IREP MODEL

GRAND OPENING – APRIL 14, 2014



CNG-FUELED TRASH
COLLECTION FLEET



ADVANCED MIXED MATERIALS RESOURCE FACILITY ("AMMRF")



COMPLETED PHASE I

ANAEROBIC DIGESTION



RECYCLED MATERIALS



COMPOST



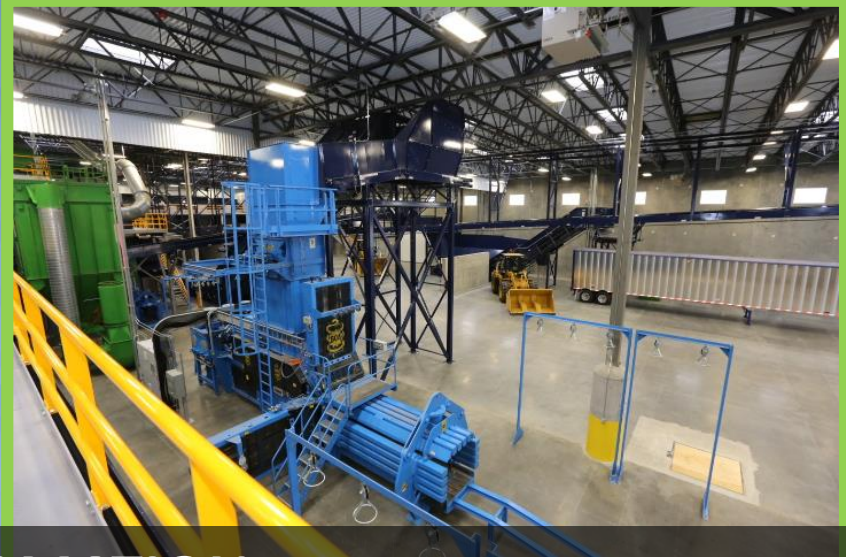
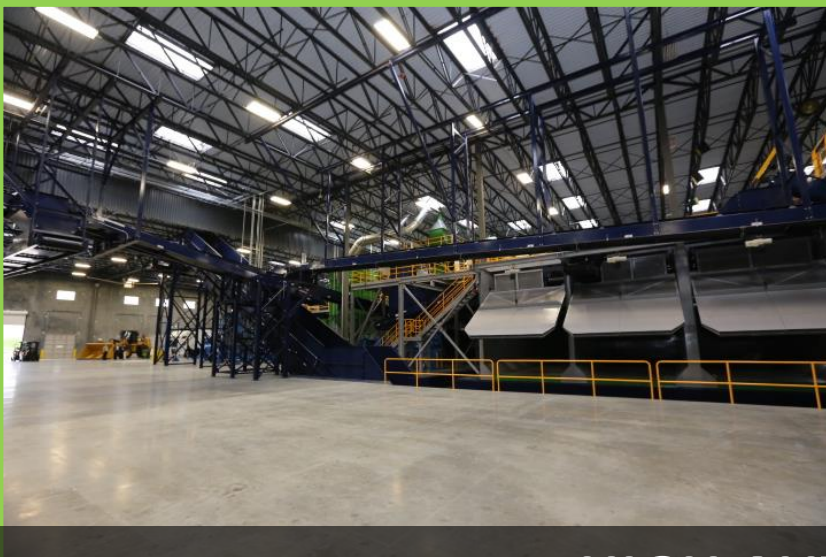
COMPRESSED
NATURAL GAS



MATERIALS TO LOCAL AND/OR
NATIONAL MARKETS



THE IREP MODEL



HIGH AUTOMATION



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)



RECYCLABLES – Recovered Plastics

(Actual IREP@Montgomery Photos)



HDPE Natural



Mixed Plastics



PET



HDPE Color



Film

“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 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