Transforming Communities

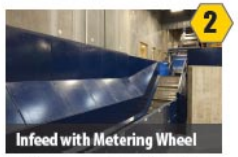
What's the Future of Mixed Waste Process

RePower South Montgomery, Al

RePower South Berkley, SC

REPOWER SOUTH

Sizes material for system



Provides an even, steady flow of material into the system.

Opens bags without damaging material

Separates cardboard from paper, containers and fines

Removes fines, including glass, from paper and containers

Separates heavier material from lighter, high-value recyclables

Separates into 3 streams: mixed paper, containers, fines

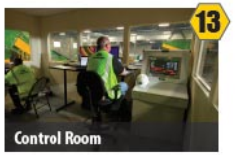
Removes small contaminants from mixed paper

Optically detects and ejects plastic film from mixed paper

Captures ferrous metals

Uses optical technologies to separate recyclable plastics

Captures aluminum cans from material stream



Monitors and controls system including motors, electricity levels & speed

Removes PVC & metals from low quality paper & non-recyclable plastics to create ReEngineered Feedstock™

Sizes ReEngineered Feedstock™ for final baling & wrapping

Compresses ReEngineered Feedstock™ into wrapped bales for final product

Compresses recyclables into bales

Residue and compost load out

REPOWER SOUTH

45-tph Mixed Material System
Montgomery, Alabama

BHS
What's next.

RePower South Business Model

RPS has bought licenses for advanced recycling technologies including fuel manufacturing from Accordant Energy for nine states in the South-Eastern US.

Using these modern technologies, RPS has started two advanced recycling facilities; one close to Charleston SC (Green-Field Project – start-up March 2019) and another in Montgomery AL (Brown-Field Project: start-up January 2019). Other projects are in the development stage.

These plants will consist of two main departments. The first is called Multi-Material-Processing-Platform (MMPP) and the second is called Advanced-Product-Manufacturing (APM).

In the MMPP the following process steps are performed:

a) removal of undesirable materials like organics as well as inert and wet materials, which is residue, and will be sent to a landfill
b) extraction of valuable commodities like Aluminum, Steel, Card-Board, Mixed-Paper, and certain Plastics, which will be sold to the commodity market
c) additional sorting in to high quality feedstock for fuel (ReEF), mainly reasonably dry paper and card-board and certain plastics (w/o PVC)
and more residue, some more organics & inert, wet paper, and PVC, which will be landfilled.

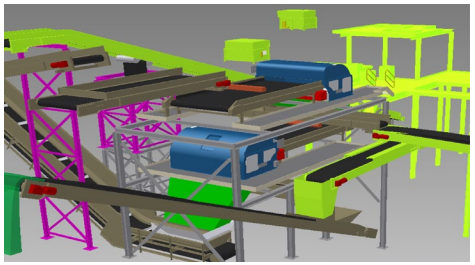
In order to achieve the above, state of the art technologies are integrated in a way, which has not been done before; e.g. mechanical & pneumatic screens, optical sorting, robots combined with cameras and artificial intelligence systems, etc..

The high-quality fuel-feedstock is then transferred to the APM. The core piece of equipment is the Rocket-Mill (Loesch / A-TEC), which grinds, dries, cleans, and homogenizes the material to a fluff. This fluff is then densified in to bales (approx. 1 ton-metric each, 1.1m x 1.1m x 1.3m). Then the bales are completely cross-wrapped with stretch film, which allows for longer term outside storage. The ReEF-bales will be sold at a very significant discount compared to coal. Potential users are coal-fired Power Plants, Cement Plants, Paper-Mills, Light-Weight-Aggregate Plant, Steel-Mills, etc..

Future of Mixed Waste Processing

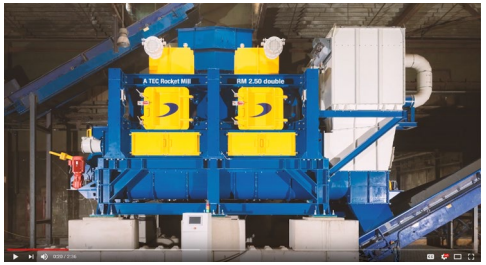
- **Data**
  - Vision Neural Networks
  - Artificial Intelligence
- Controlled manufacturing
- Automated, efficient recovery = <u>Consistent Quality</u>
- Enhanced economics

In-Flight Eddy-Current and Optical sorting utilizing ultra-fast ejection-nozzles and Artificial Intelligence.



A Dual Fuel-Filter is being used for the Montgomery facility; which is a world's first.

Max AI -High-Tech Robotic Sorting utilizing Artificial Intelligence Berkley, SC Plant



LOESCHE – A TEC Rocket-Mill
- Quality Improvement of Fuel
- Reduction of Inorganics (ash)
- Reduction of Moisture (Drying)
- Higher Specific Surface (Shredding)

The future of recycling…

What We Do:

RPS transforms waste into two products:

1. Recycled commodities, such as cardboard, paper, plastic bottles, metals/cans, etc. are baled and sold into established commodity markets.

2. ReEF™ fuel is created from non-recyclable papers and plastics and is sold as a substitute for coal to industrial customers, cement plants and energy utilities for energy generation.

What is not recovered is residue sent to landfill and is primary composed of organic and inert wastes such as food, dirt, rocks, glass, etc. We are constantly seeking economically viable alternative uses of these materials to divert from the landfill.

Items we cannot process at RPSM:

a) *Refrigerant/fluorocarbons (CFC) containing appliances.*
b) *Appliances such as refrigerators, freezers, air conditioners, ovens, dish washers, stoves, grills and other appliances.*
c) *Textile material*
d) *Computers, printers, copiers, televisions and other electronics.*
e) *Sludge of any type.*
f) *Partial or whole automotive, truck and heavy equipment tires, brake drums and rotors*
g) *Lead acid storage batteries.*
h) *Regulated asbestos containing material (RACM).*
i) *Waste containing polychlorinated biphenyls (PCBs).*
j) *Medical waste of any type.*
k) *Propane and other gas cylinders, tanks or vessels.*
l) *Construction & demolition (C&D) waste.*
m) *Liquid waste of any type including do-it-yourself motor oil.*
n) *Power and utility poles.*
o) *Street sweeping debris.*
p) *Yard waste of any kind*

Enhanced Recycling & Reuse

MSW into Mixed Waste Recovery

- MSW waste bound for landfill
- Sorted utilizing best-in-class technologies

Recover Recyclables

- Full mixed waste stream recovery
- Sold into commodity markets
- Proven excellent quality from SOP

Recover Nonrecyclable Papers & Plastics

- Converted into ReEF™ Fuel
- Low carbon, clean energy
- Replace coal

Residue to Landfill

Continuously mine residue for new product opportunities / more landfill diversion

REPOWER SOUTH

ReEF™ Fuel EPA Approved

Certified “Non-Waste” Fuel

(Allows for coal substitution)

Allows Industry and Utilities to Meet Carbon and Clean Energy Goals

Partners

BHS

LOESCHE ENERGY SYSTEMS LTD

BARNHILL CONTRACTING COMPANY

RePower South Community Benefits

- **Increased Recycling**
  - Total waste stream recycling
    - 2X+ recycling recovery at less cost
  - Reuse of non-recyclable materials into clean, low carbon fuel
- **Enhanced landfill diversion** – conserve airspace
- **$0 capital cost** for local community
- **Delivered at the cost of landfilling**
- **Support local business sustainability goals**
- **Community investment and local job creation**

Thank You!

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