



Converting MSW Into Low-Cost, Low-Carbon Fuel

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Fulcrum: Solving Two Global Challenges

Disposal of Municipal Solid Waste (MSW) at Landfills

Decarbonization of Transportation



Fulcrum – MSW to Low-Carbon Fuels

MSW Available Worldwide
Technology Performance Guaranteed
80% Carbon Emissions Reductions



MSW – A Strategic Feedstock

Changing the way Garbage is Handled and Disposed



- Large Volumes, Ideal Locations
- Established Infrastructure
- Carbon-Rich Feedstock Ideal for Biofuel Production
- Predictable Cost
- No Competing Uses
- Resolves Waste Disposal Problems

MSW Feedstock Preparation Overview

- The MSW delivered to Fulcrum is post-recycled waste, i.e., it has already gone through recycling to the extent reasonably practicable, including at the point of collection (curbside) and intermediate sorting facilities
- Fulcrum utilizes state-of-the-art waste handling equipment to manufacture a prepared feedstock from collected MSW for production of renewable fuel at its biorefineries
- MSW separation includes:
 - Floor sort
 - Shredding
 - Screening
 - Density separation
 - Magnet and eddy current separators
 - Optical sensors

Fulcrum MSW Feedstock Preparation

- Fulcrum is interested in the carbon-rich components of the MSW, including paper, cardboard, textiles, and other fibrous materials
 - Inert material (e.g., dirt, rocks, glass) is separated and discarded
 - Metals, both ferrous and non-ferrous (e.g., aluminum cans) are separated and recovered
 - A certain amount of plastics can be separated and recovered (optical sorters can distinguish and separate plastics by type)
- The Fulcrum feedstock process enhances recycling as recovered metals (both ferrous and non-ferrous) and high-value plastics can be sent back into the recycling markets

Sierra BioFuels Plant



- Feedstock Processing Facility In Operations; Construction Completed on Schedule and on Budget
- Converts 350,000 Tons of Raw Waste into 175,000 Tons of Processed Feedstock per Year
- Waste Processing Capacity up to 120 Tons per Hour

Sierra BioFuels Plant



- Biorefinery Under Construction
- 175,000 Tons of Processed MSW Feedstock Converted to 11 Million Gallons of Low-Carbon Transportation Fuel per Year
- Plant Operations Begin in Early 2020

