RENERGY

RETHINK REPURPOSE REDUCE

Renergy is committed to reducing carbon emissions through the responsible and sustainable use of bioenergy.

Utilizing a process known as Anaerobic Digestion (AD), residual agricultural, food, industrial and municipal waste is repurposed to create renewable electricity, soil nutrients and reclaimed water.

Renergy operates a fleet of CNG trucks to transport materials from clients and recently partnered with IGS CNG Services to open a CNG station at the intersection of 71 N and State Route 61 in Marengo, Ohio.

Renergy Services

- **Environmentally Friendly Waste Management Solutions**
  - Food waste generating businesses
  - Municipal BioSolids
  - Agricultural operations / manure

- **Natural Fertilizer for Land Application**

- **Renewable Energy**
  - Combined heat and power
  - Alternative Fuels
  - Utilities

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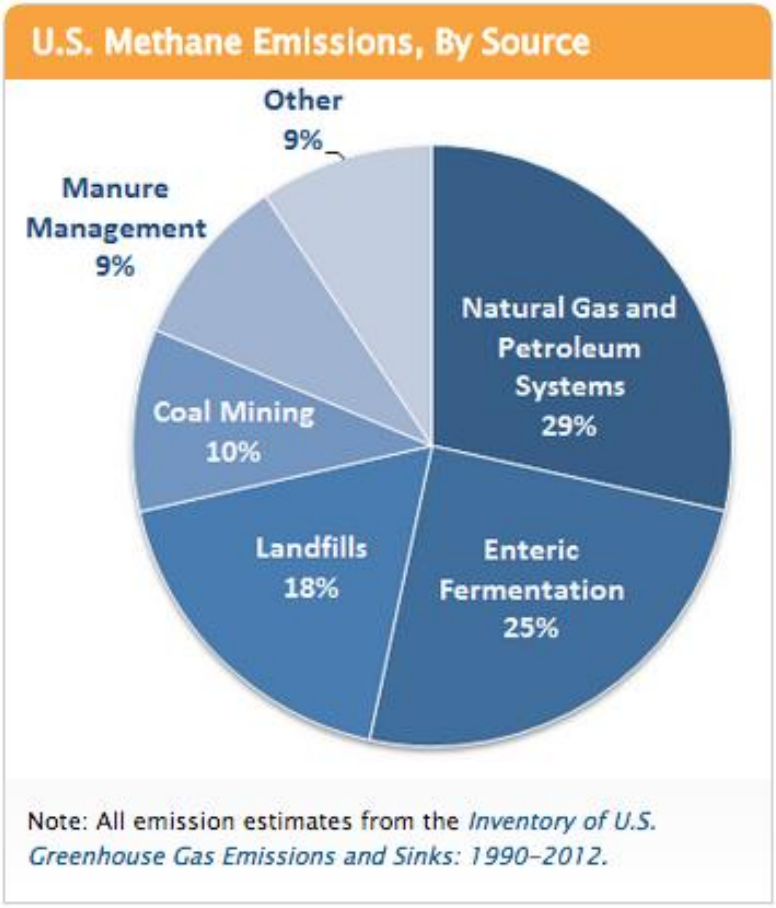
ENVIRONMENTAL IMPACTS OF ORGANIC WASTE DISPOSAL

Almost 20% of all U.S. methane emissions (CH_4) come from organic materials in landfills

Methane is a powerful greenhouse gas with approximately 20 times the global warming potential of CO_2

There is a large effort nationwide to reduce the amount of organics in landfills

Anaerobic Digestion processes organic waste in a zero emission environment



Source: EPA

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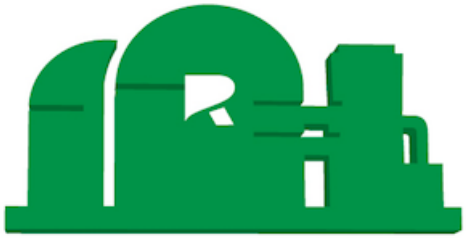
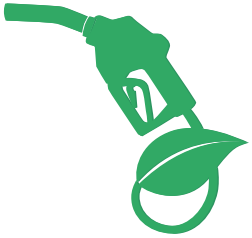
BIOENERGY

The heart of our process is repurposing organic waste into renewable energy through anaerobic digestion (AD).



Our anaerobic digestion facilities process organic waste, diverting it away from landfills. The digestion process creates and captures methane gas and converts it to renewable energy.

60,000 tons
Amount of organics one Renergy facility diverts from landfills each year



500,000 G.G.E
Potential amount of renewable vehicle fuel produced from one facility

8 million kwh
Amount of renewable electricity generated from one facility

7,500,000 Gallons
Amount of reclaimed water produced from one facility

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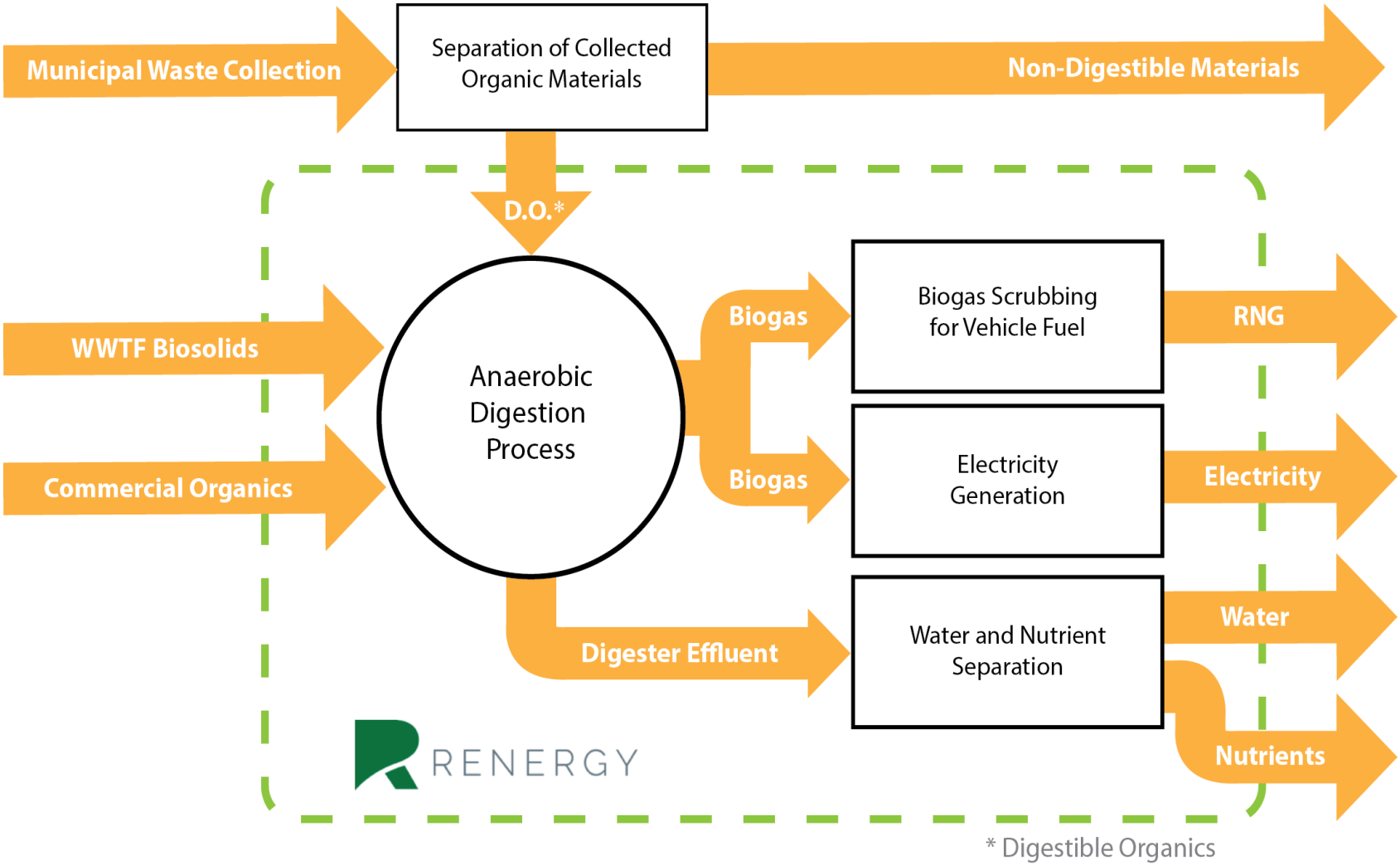
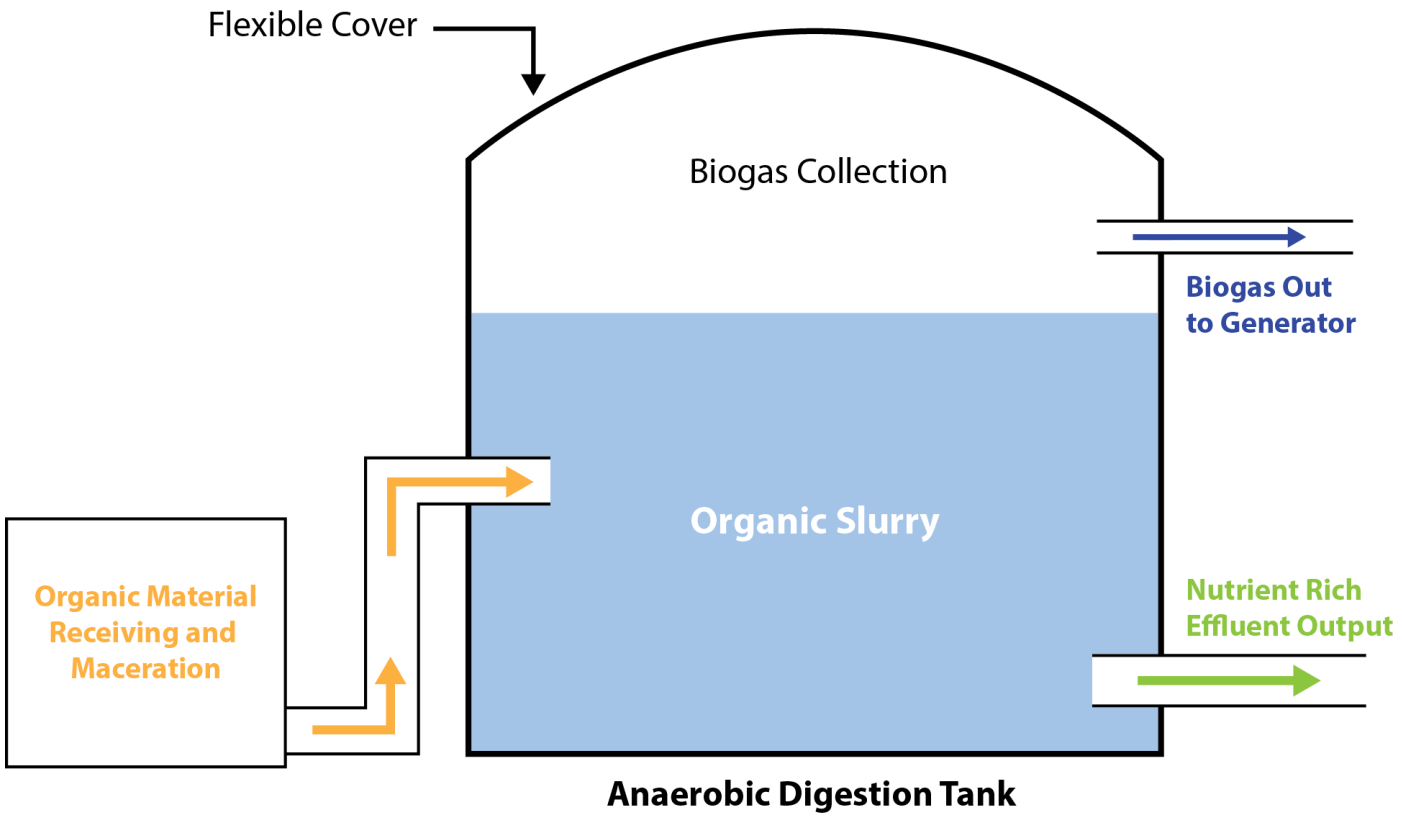
THE ANAEROBIC DIGESTION PROCESS



THE ANAEROBIC DIGESTION PROCESS



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Emerald Facility
Cardington, OH

Dovetail Facility
Fairborn, OH

Renergy AD

One Renergy facility
PROCESSES

3000

trash cans of organic waste each day

TO POWER

820 households

with green energy

Diverting these materials from landfills is like taking

440 CARS

off the road per day

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Renergy CNG

14 Renergy CNG Vehicles

- 10 dedicated CNG Semi Trucks
- 1 Dual Fuel Semi Truck
- 2 Bi Fuel Pickup Trucks
- 1 Dedicated CNG Car

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CNG Fueling Station

Renergy and IGS CNG Services operate a Compressed Natural Gas (CNG) station located at the intersection of 71 N and State Route 61 in Marengo, Ohio

Renergy's transportation division anchors the station with a fleet of CNG vehicles used to transport materials from customers – food manufacturers, municipalities and farmers.

These efforts are all just a part of our companywide initiative to create closed-loop sustainable systems for waste management, alternative fuels, renewable energy and environmental preservation.

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Renergy's History

RINGLER FEEDLOTS

RINGLER LIVESTOCK

RENERGY

Renergy's History

Renergy evolved from the Ringler Family's progressive agriculture operations in Ohio. Our animal nutrition business established relationships with regional food manufacturers and continues to source high-quality organics. Many of these relationships have resulted in feedstock contracts for Renergy.

GREEN IS THE NEW BLACK

Our Partners Include:

Bob Evans FARMS®

Tyson®

Koch Foods
America's Chicken Specialist

SugarCreek
Brandworthy Food Solutions
Since 1966

IGS CNG SERVICES

meijer®

MARS

CleanFuels Ohio

OHIO ADVANCED ENERGY ECONOMY
A COALITION FOR INNOVATIVE, SECURE, AND AFFORDABLE ENERGY

MORROW COUNTY
Love life. Live rural.

OHIO FARM BUREAU®

OH PORK
ohio pork council

Renergy's History

RINGLER LIVESTOCK

Our livestock business provides manure feedstock for Renergy digesters. Manure is a key organic component supporting high quality Biogas production.

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Renergy Today

Emerald Facility
Cardington, OH

Dovetail Facility
Fairborn, OH

Mixed Feedstocks

- 15% Manure
- 40% Biosolids
- 45% Food Waste

Single-Stage Digestion

- Mesophilic (100 deg F)
- 50% - 60% volatile solid reduction
- 15 – 20 day retention in digester

Process Outputs

- 2 MWh Renewable electricity
- EPA Class B crop nutrition in liquid form (6.5% solids)
- Biogas 450+ CFM (65% methane)

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Renergy Tomorrow

Mixed Feedstocks

- 15% Manure
- 40% Municipal BioSolids
- 45% Food Waste

Two-Stage Digestion

- Thermophilic (150 deg F) Pre
- Mesophilic (100 deg F) Main
- 70% - 80% volatile solid reduction

Process Outputs

- 2 MWh Renewable electricity
- EPA Class A exceptional quality crop nutrition in cake form (26% solids)
- 30% boost in Biogas production to 600+ CFM

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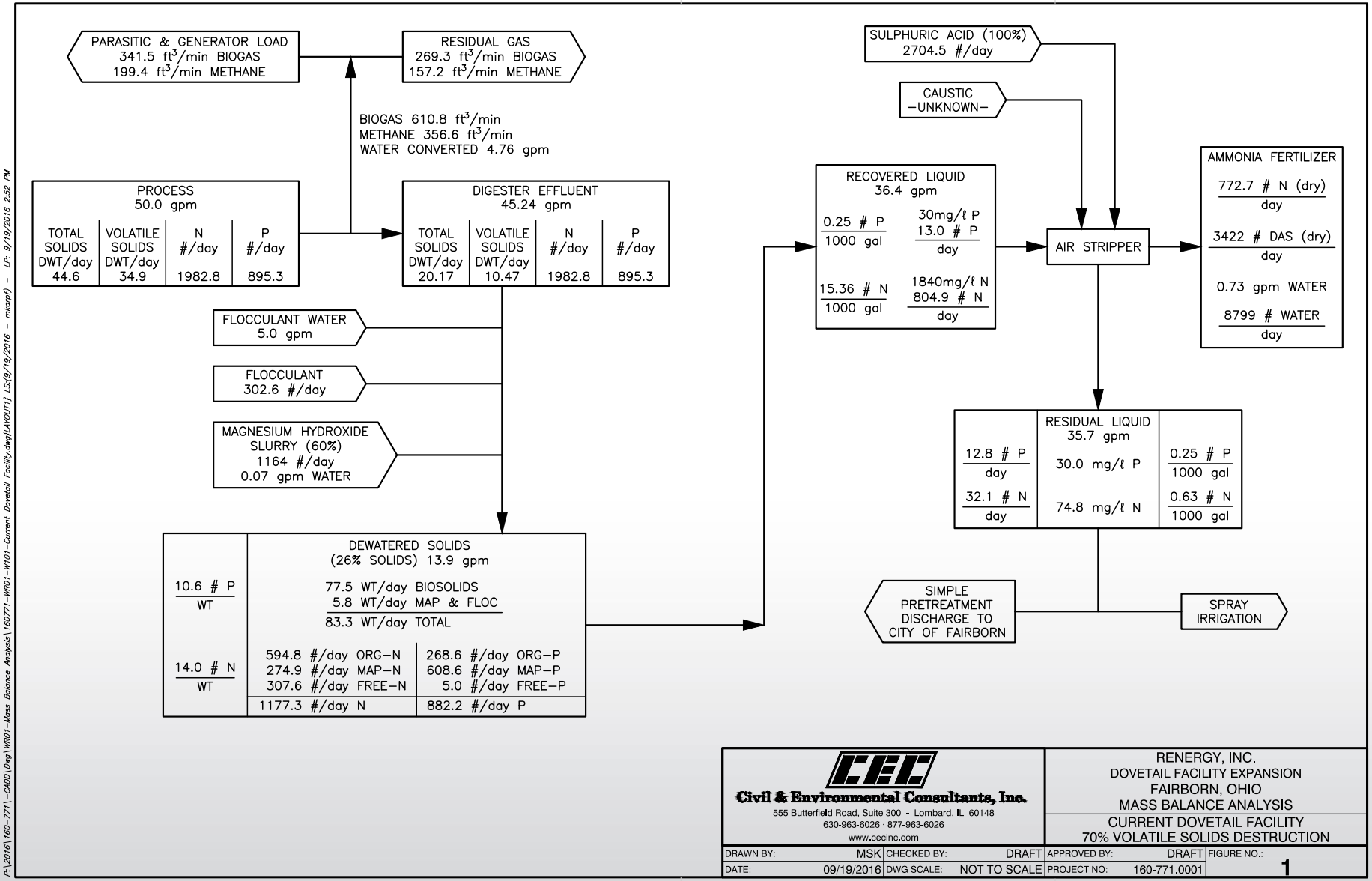
Renergy Tomorrow



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Biosolids as Feedstock

Relatively Low Energy Content

- Biosolids COD = 30,000 – 40,000
- Food Waste COD = 250,000 – 650,000
- Manure COD = 10,000 – 20,000

Requires Dilution to Process

- Averages 450 gallons per ton
- Need 1.50 – 2.00 tons of liquid (< 5% solid) for each ton of Biosolids

Variation from WWTP to WWTP

- % solids varies from 18% - 30%
- Dilution requirements vary from 350 to 500 + gallons per ton
- Flocculants and Polymers used influence flow-ability and dilution needs
- Mechanical separation technology variation
    - Belt Press, Centrifuge, Screw Press, Drying Beds

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Renergy is committed to creating environmental and economic sustainability with our partners.

Thank You

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