



**Sales Representative for: Trilogy Financial Group Inc.**

## **Municipal Solid Waste to Energy**

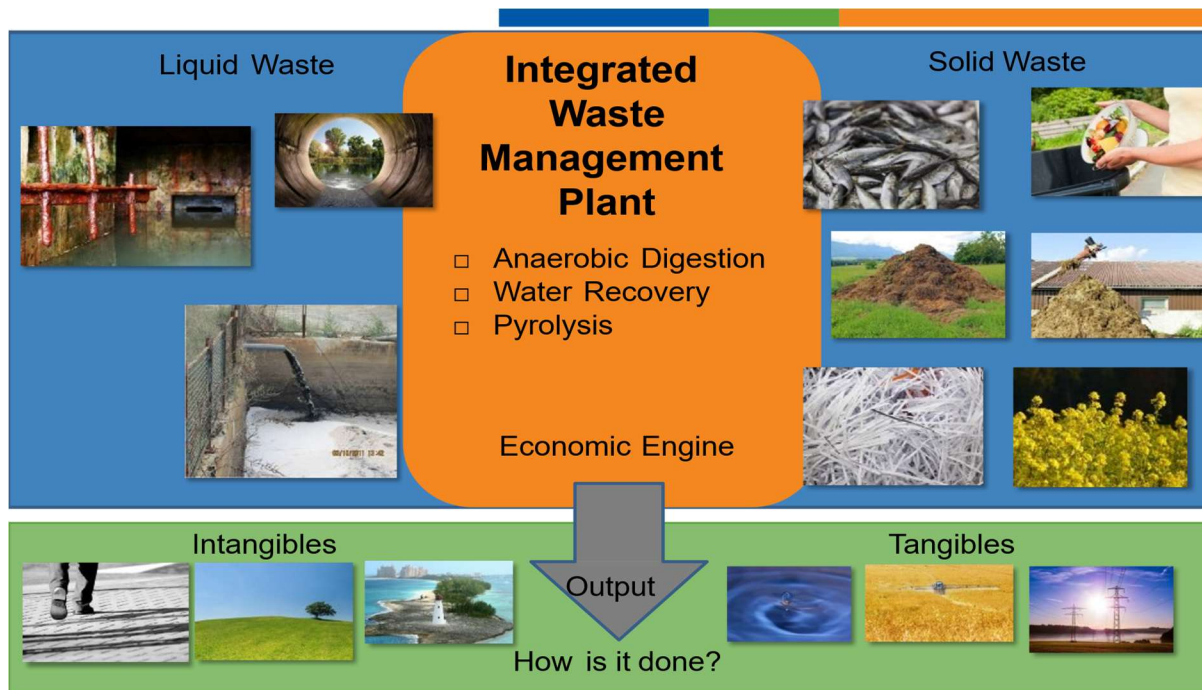


**Convert solid waste to usable energy. Reduce MSW to the landfill by 95%-99% (Based on contents of MSW stream). For a 600 TPD MSW capacity **less than 30 TPD** goes to the landfill.**

**EXTEND LANDFILL LIFE !**

**RECOVER ENERGY & RECYCLABLES !**

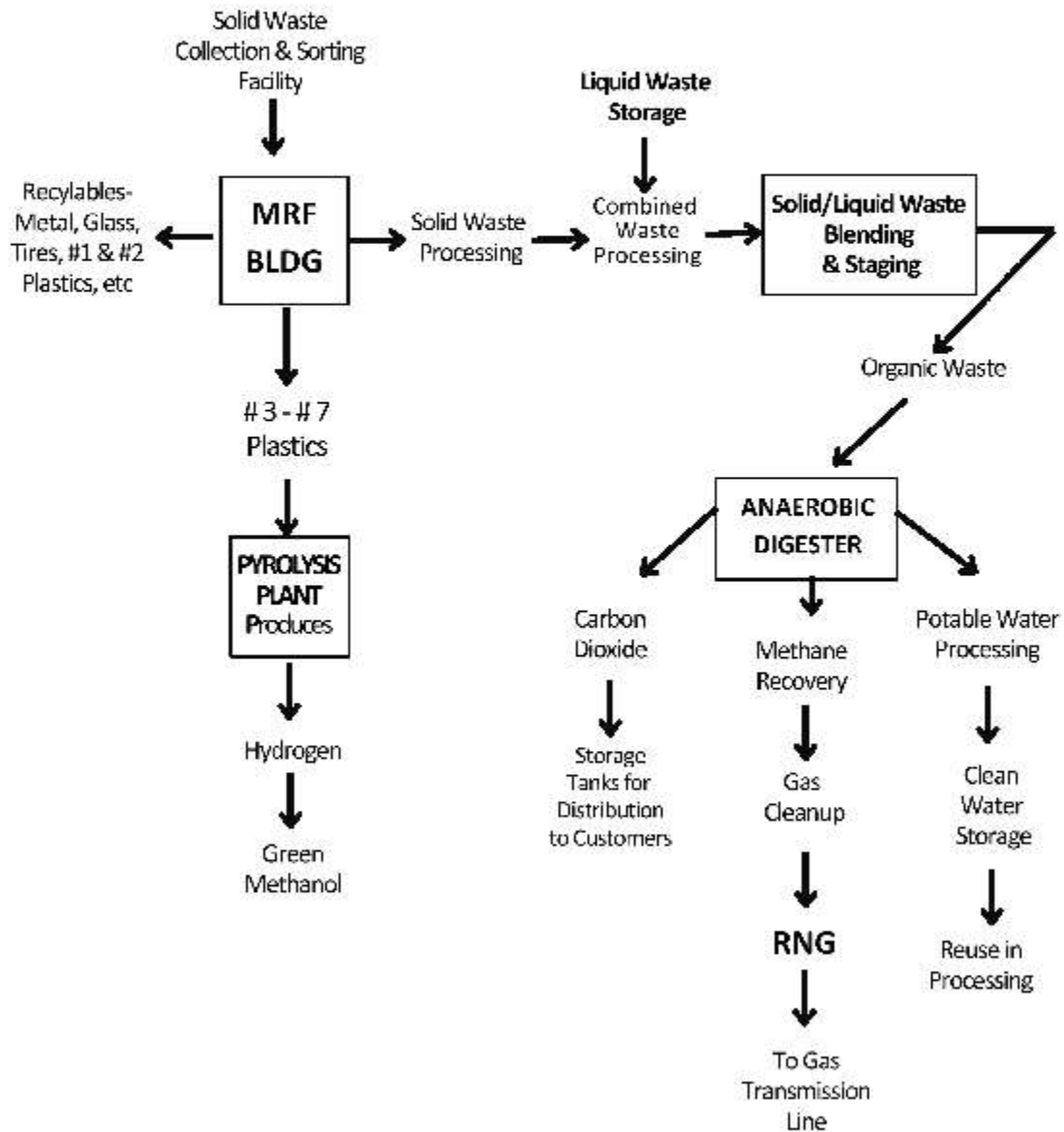
## INTEGRATED WASTE-TO-ENERGY (WTE) PLANT



1. 50% higher carbon to biogas (renewable natural gas) conversion.
2. 30%-50% higher biogas energy content than other commercially available digesters.
3. Sequestering nitrogen, sulfur, and phosphorous in the biosolids.
4. Ability to efficiently process liquid (municipal wastewater) sludge and solid waste (MSW), while increasing the life of a wastewater treatment plant (WWTP) and landfills.
5. #1 & #2 Plastics are sold to after-market customers. #3-#7 Plastics produces hydrogen which is converted into green methanol.
6. Tires are sold to after-market customers who produce consumer products.
7. Turning the operation costs of WWTP's and landfill into income from energy, recoverable (metals, glass, etc.) and carbon dioxide sales.
8. The organics are processed in our digester to produce methane (renewable natural gas) which alleviates the methane pollutant produced by organic dumped in landfills.
9. Carbon dioxide is produced as a by-product in the digester for use in greenhouses and other commercial and industrial uses

## TRILOGY

### WTE GENERAL FLOW



## **Project Goal**

1. Recycle larger portion of mixed residue
2. **95-99% of the waste is reclaimed** in recoverable and energy. Only 1 to 5% non-recoverable waste (ash) to landfill. The ash is inert with silica, concrete fines, and traces of inert material and when heated it can be used as cover for the landfill.
3. #3-#7 Plastics produces green methanol.
4. Organics to energy and carbon dioxide

**600 TPD MSW** converts to:

**375 TPD organics** which are converted to:

**2,740,000 CU FT per Day** of Renewable Natural Gas to the

Interstate pipeline for use in the transportation industry

**Carbon Dioxide** (for Industrial and Commercial use)

## **PROJECT DEVELOPMENT**

The typical timeframe for the complete project development from start to commissioning is 16-18 months and will involve the following milestones:

1. Customer is to provide land, waste, & gas connection to the gas transmission line or gathering line

Trilogy to provide:

2. Assignment of project and TPD feedstock
3. Permitting
4. Financing
5. Finalize design
6. Output contracts
7. Construction & commissioning

## **THE BENEFITS**

### **Organic Energy Process**

- Carbon neutral organic process in a controlled environment
- Substitutes for and displaces methane production in landfills

### **Green**

- Renewable energy produced from organics in MSW
- Substitutes for and displaces fossil fuel sources

### **Single Process**

- One process handles all organic waste types
- Recovers recyclable material in the solid waste stream
- Water used in our process is recycled and reused in our process resulting in minimal water make-up

### **Scalable**

- Integrated digestion allows for cost effective modularization
- Each facility can be scaled to an appropriate size, based on feedstock using 90% common, not customized components

### **Energy**

- More renewable green energy per pound of source material
- Renewable natural gas produced is a direct replacement for natural gas

### **Cost Effective**

- Uses virtually any organic sources of material (wet or dry)
- Eliminate costly treatment steps associated with other waste processes
- Offset operating costs (for landfills, etc.) with revenue generation

### **Economic Impact**

- Add two jobs for each 10 TPD of MSW processed
- Turn waste into revenue
- Increase tax revenue

## **MSW and OTHER SORTING PROJECTS**

Project and Location	Waste type	Completed	Capacity Tons/hour
Smiles Sunderland, UK	MSW, C&I and C&D	2008	40
Transwaste Hull, UK	MSW and C&I	2009	60
Inashco	Inc. Ash	2012	100
Umicore Be	WEEE	2013	8
Weser Metal	Car batteries	2013	10
DSALytus, Lithuania	MSW	2014	25
MSW sorting, Middle East	MSW and C&I	2014	10
MSW Panevezys, Lithuania	MSW	2015	30
Telsiai, Lithuania	MSW	2015	25
Daugavpils, Latvia	MSW	2015	20
Van Hapen	C&I	2015	25
Utena	MSW	2015	20
Marijampole	MSW	2016	25
Turkey (Bitlis)	MSW	2016	35
EBMUD (US)	SSO	2017	50
Honduras	MSW	2017	40
Mallorca	MSW	2018	40
Leamington CA	Sludge	2018	35
Nexen CA	Oil sands	2019	40
Kootstertille, The Netherlands	MSW	2019	30

## **RECENT WTE PLANT PROJECTS**

<b>Biogas Leeuwarden, WTE Plant Netherlands</b>	Manure/Green Waste	36,000 tons/year	1.4 Mwe	15M
<b>Westkern BV, WTE Plant Netherlands</b>	MSW Organics/ Manure	75,000 t/yr	10 million m <sup>3</sup> of Pipeline Grade Quality Gas/yr or 5 MW of Electricity	22M
<b>Stadskanaal, WTE Plant Netherlands</b>	MSW	60,000 t/yr	3.0 Mwe	16.2M
<b>Atlanta Airport WTE Plant, USA</b>	MSW Organics, Human Waste, Waste Tires	100,000 t/yr	14.3 million m <sup>3</sup> of Pipeline Grade Quality Gas or 7 MW of Electricity & 14,000m <sup>3</sup> /yr diesel	45M
<b>Astarta – WTE Power Plant Globino, Ukraine</b>	Beet Pulp, Maize Silage, MSW organics	185,000 t/yr	15 MWe equivalent/ production of 7,000m <sup>3</sup> biogas/hour	75M

**Trilogy Financial Group Inc. is working with Senator Joe Manchin and the U.S. Department of Energy on a project for West Virginia which is being funded by the Department of Energy's National Energy Technology Laboratory as part of the Coal Communities Regional Innovation Cluster (CCRIC). Construction will begin in late 2024 or early 2025. Trilogy is also currently working on developing WTE projects in Los Angeles and Baltimore.**

## **WHY US**

1. One of the most knowledgeable and experienced teams with expertise ranging from:
  - Financing
  - Design
  - Procurement
  - Construction
  - Power Generation
  - Operation
2. More than 20 years' experience will insure a successful project through all phases: feasibility, testing, design, construction, commissioning, and operations.
3. Commercial scale plants are in operation for proven design and operation.
4. Proprietary and patented processes.

**WASTEK** would appreciate the opportunity to work with you on your particular waste to energy needs. Please contact us at:

### **Wastek Energy Solutions LLC**

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