TRANSFORMING THE WORLD AND WASTED ORGANIC MATERIALS

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Why transform the World

Make beneficial use of resources considered to be waste products, lessen harmful greenhouse gas emissions due to landfilling of organics and reduce the need for fossil fuels. Creating a carbon-neutral fuel that has a long-term future.

Building facilities that convert organic materials into pipeline-grade biogas and other sustainable energy products. Feedstock varies from manure, industrial and food processing byproducts, and other agricultural waste.
How Can a Project benefit your community?

Benefits to farmers and producers:

- Reduce waste use in animal feeds
- Odor reduction
- Reduced methane emissions
- Reduced subsurface injection of liquid waste
- Reduced landfill waste
- Reduced land application of solids
- Reduced groundwater contamination and run-off
- Reduced waste incineration
Why Build Projects?

Projects will meet 12 of 17 Sustainable Development Goals set by United Nations

1. No Poverty
2. Zero Hunger
3. Good Health and Well-Being
4. Clean Water and Sanitation
5. Affordable and Clean Energy
6. Decent Work and Economic Growth
7. Industry, Innovation and Infrastructure
8. Reduced Inequalities
9. Sustainable Cities and Communities
10. Responsible Consumption and Production
11. Climate Action
12. Life on Land

Our projects:

- Produce sustainable fuel, providing a broad set of benefits and direct climate change impact
- Match key sustainability objectives of customers (we’re not viewed as just a fuel producer)
- Provide long-term positive impacts to regions around projects, ensuring longevity
Why Build Projects?

Projects create **Meaningful Positive Environmental Impact**

**Viable Alternative to Landfills:** Americans wasted 130 billion pounds of food in 2015, most of which sits in landfills. Food companies and their stakeholders want to do something beneficial with their waste and do not want exposure to future liabilities that landfills create.

**Meaningful Impact:** Will make a meaningful environmental impact by displacing petroleum-based fuels from the supply each and every year.
Opportunity

This is the leading edge of a *Changing Landscape in renewables*

- Shift underway to **make beneficial use of organics**
- Pressure to divert organics away from **ineffective disposal in landfills**

Build state-of-the art anaerobic digestion facilities to provide **economically sustainable pathways** for responsible conversion of organic waste into **renewable energy**.

**Convert organic waste (biomass) into several renewable energy products**
The Bio-refinery

**ORGANIC WASTE**
- Agricultural (manure, other)
- Food Processing & Production
  - Institutional
  - Post-Consumer
  - Expired Food

**DIAGRAM**
- **Digestion**
- **Raw Biogas**
- **Gas Purification**
- **5. Pure Biomethane**
- **Pipeline**
What can be Processed?

- Animal manure/waste
- Food Production waste
- Post-Consumer waste
- Nearly anything organic
Benefits to Local Suppliers

Facilities that send their recyclable organics to a Plant will realize:

• Steady and reliable processing service
• Competitive alternative to landfills, rendering, composting and land application
• Access to sustainable co-products
• Local sustainable green jobs
• Elimination of legacy remediation exposure
Proven Digestion Technologies

• To **eliminate technology risk** choose a proven, best-of-breed, market-leading vendors

• Choosing the proper platform that offers the most **flexibility** in feedstock recipe management, process optimization, and general operation

• Two-stage Continuous Stir Tank Reactor (CSTR) anaerobic digester

• Two-stage Mixed Plug Flow digester
Gas Purification Technologies

- Use a proven gas purification technology
- Increase pressure from ambient to gas pipeline transmission requirements
Questions

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