

Anaerobic Digestion and Renewable Energy Solutions aka
Having Your Cake and Eating it Too

# A World Wide Leader in the Finance, Design, Build, and Operations of Anaerobic Digestors

- 220 + modular biogas plants in Europe, the UK and Japan rated energy capacity, 250,000 MMBtu +
- Proprietary & patented equipment,
- Dedicated microbiology laboratory with 22 years of performance data,
- Guaranteed and insured facility performance injecting in 3 international grids

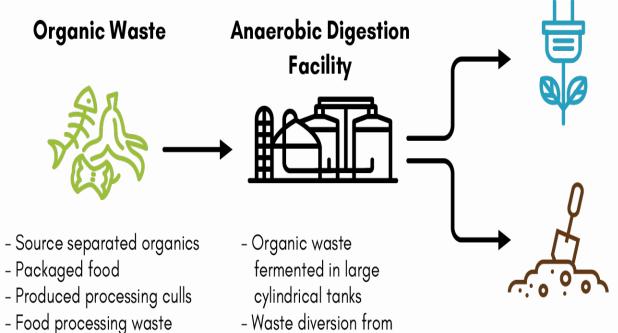








### A Powerful All Natural Technology



landfills and incinerators

- Cost-effective and

sustainable

#### Renewable Energy

- Power purchase agreements
- Cogeneration/combined heat and power
- Renewable natural gas into pipeline
- Compressed RNG for fleet vehicles

#### **Organic Soil Amendment**

- Land applied
- Dewatered
- Dried
- Pelletized

### - Nutrient stripped



- Fats, oils, and grease

- Animal processing waste

- Animal manures

# Delaware's Economic Powerhouse Poultry & Agriculture



Pro's	Cons
A \$3.4 billion + (wholesale value) industry	Waste management: compost, incineration and landfill challenges

- 20,425 direct jobs earning \$784 million in wages
   Nimby: Changing demographics and arable land
- 1,300 plus chicken growers, 244
  million pounds of chickens,
  thousands of delivery trucks
   Excess nutrients, land
  application restrictions,
  transport and pollution
  - 1.1 billion spent on feed He Said/She said

### Reframing the Discussion through Anaerobic Digestion

Transforming these commodities into truly sustainable energy products allows you to reach the State's 25% renewable energy goals Ensuring sustainable economic development.









# Typical Plant 70,000 ton DAF, Poultry and Food wastes

- Creates an estimated 175,000 MMBTU's plus of renewable natural gas (RNG)
  - Compressed natural gas (CNG) for transport,
- A nutrient rich organic soil amendment that can be land applied within the PMT and nutrient management program



# Renewable Natural Gas (RNG) pipeline-quality biomethane produced from biomass.

- Carbon neutral,
- Extremely versatile and
- Fully compatible with the U.S. pipeline infrastructure.

### **Uses:**

- Homes for heating,
- Agriculture in boiler heat and electricity,
  - Manufacturing and heavy industries,
    - As a transportation fuel.



### Making a Choice

- Development companies without a history of well qualified technology are betting on the come.
- If the goal is production of consistent renewable natural gas: consistent feed stocks are key,
- Ensure that the AD provider has a deep knowledge of microbiology as not all bugs are made equal and co-digestion a real opportunity



### Making a Choice

- Make sure the AD is sized right - bigger is not necessarily better. Modularity in construction is key -- with a thorough background and support of the local community,
- Make sure that provider can insure and warranty gas production, minimizing your risk while maximizing your gain,
- Look at standard interconnection agreements where you are authorized to contract for and purchase RNG.



#### Be a Renewable Leader

- Become a solutions provider,
- Set criteria for working together,
- Demand experience - deliver, insure and guarantee performance,
- Take on gas cleaning and distribution,
- Don't let your size get in the way of embracing renewable natural gas.



### **And Finally**

You have the ability to economically address Environmental Justice concerns while bringing truly Renewable Natural Gas solutions to your customers.

Enabling sustainable energy solutions for the State, County and Region.

