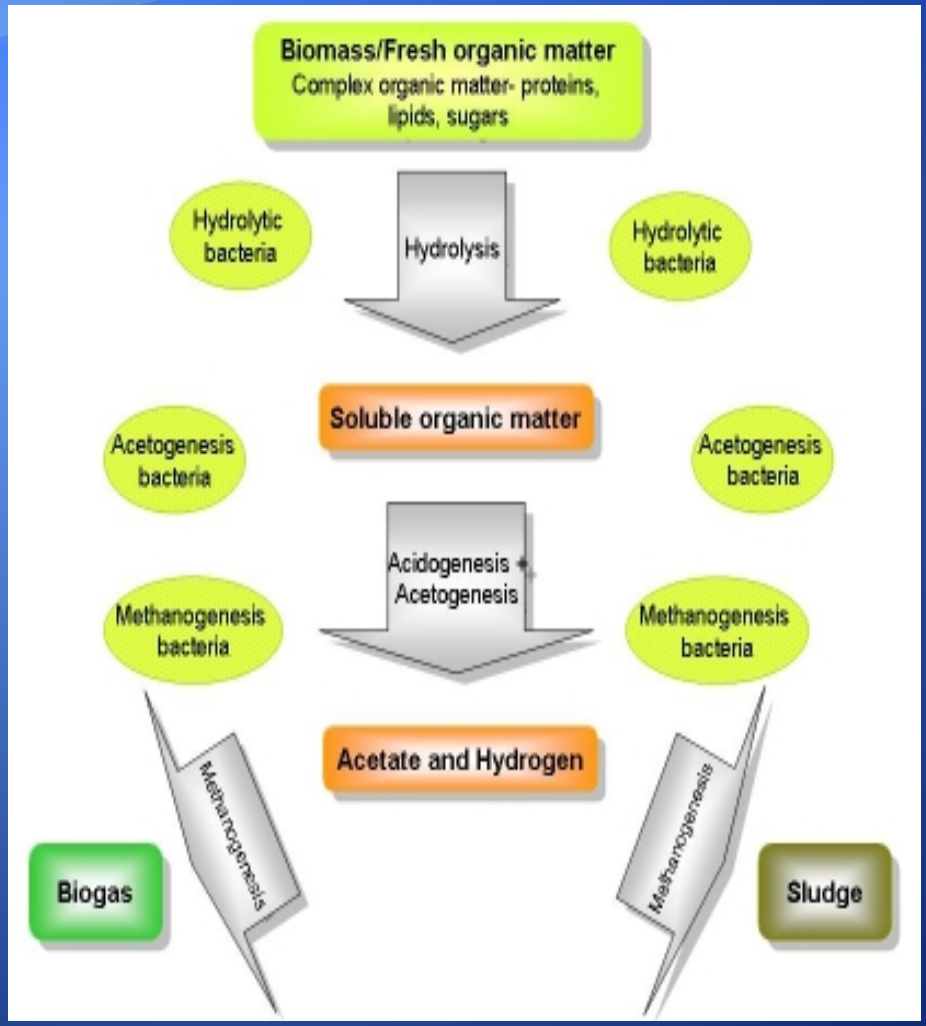
BIOGAS

New name for an old standard – Natural Gas

Breaking the paradigm

Complicated Biology



Methanogens

"Fresh Natural Gas"

- Methane with carbon dioxide
  - Landfills 20-40 % Methane
  - Most digesters 40-50% Methane
  - High yield digesters 75% Methane
- Balance of gas is carbon dioxide
- Contaminants based on raw materials
  - H2S (Odor), Siloxanes (municipal sources), Water Vapor

Digesters

- Two Types
  - Mesophilic – Below 104 degrees
  - Thermophilic – above 104 degrees (heated)
- Inputs
  - Almost everything / anything organic
  - Water
  - Lack of Air (has been consumed)
  - Naturally occurring Bacteria

Typical Digesters

BioGas Potential

- Legally mandated in Key States
  - Organic residuals must be digested not land filled

Federal considerations to cover all waste ponds

  - Reduce greenhouse gasses at staggering volumes

Obstacles

  - Pipeline quality Biogas
  - Need to have assistance/incentives or mandates

CHP has a tremendous opportunity

“If it smells, it burns”

Questions ?

CHP Combined Heat & Power in Kentucky

Kentucky CHP Program Workshop –November, 2014

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