Stevens Point Wastewater Utility
Stevens Point, WI

Customers Served:	27,500
Type of Treatment:	Activated Sludge (EBPR)
Treatment Capacity:	4.6 MGD
Average Flow:	3.0 MGD

What is Anaerobic Digestion?

- Process by which microorganisms break down biodegradable material in the absence of oxygen.
- Used in the wastewater industry to stabilize biosolids
- Byproduct of anaerobic digestion is biogas (60% CH_4)
  - Natural gas (80-90% CH_4)

Plant Operations Prior to 2012

- Energy Audit by Focus on Energy 2003
- Started Tracking and Understanding Energy consumption
- Set realistic goals for lowering energy consumption
- Operational changes to conserve energy
- Plant equipment upgrades for energy conservation

Which Path to Follow?

- Stay on current path
  - Continue to meet WPDES
  - Continue to operate in as energy efficiently as possible
  - Utilize digester gas and plant capacity when possible

Which Path to Follow?

- Become energy neutral
  - Continue to meet WPDES
  - Continue to operate as energy efficiently as possible
  - Maximize biogas utilization and unused plant capacity

Biogas Utilization 2012-2014

- Biogas Conditioning
  - Unison gas conditioning system
    - Hydrogen Sulfide Removal
    - Siloxane Removal
    - Moisture Removal

- Biogas Generator vs Microturbines
  - MANN Engine supplied by Kraft Power Systems
    - 180 KW (4320 KWh/day)
    - Heat recovery for digester heating and building heating

STEVENS POINT WASTEWATER UTILITY
We keep it clean

High Strength Waste Program

- Currently bring in over 2,000,000 gallons of HSW Annually
  - Dairy waste
  - F.O.G
  - Food Waste
  - Beer Waste
- Utilize two 6,000 gallon retrofitted tanks as HSW receiving tanks
- Currently generates over $30,000 annually in tipping fees

STEVENS POINT WASTEWATER UTILITY
We keep it clean

2015 Improvements

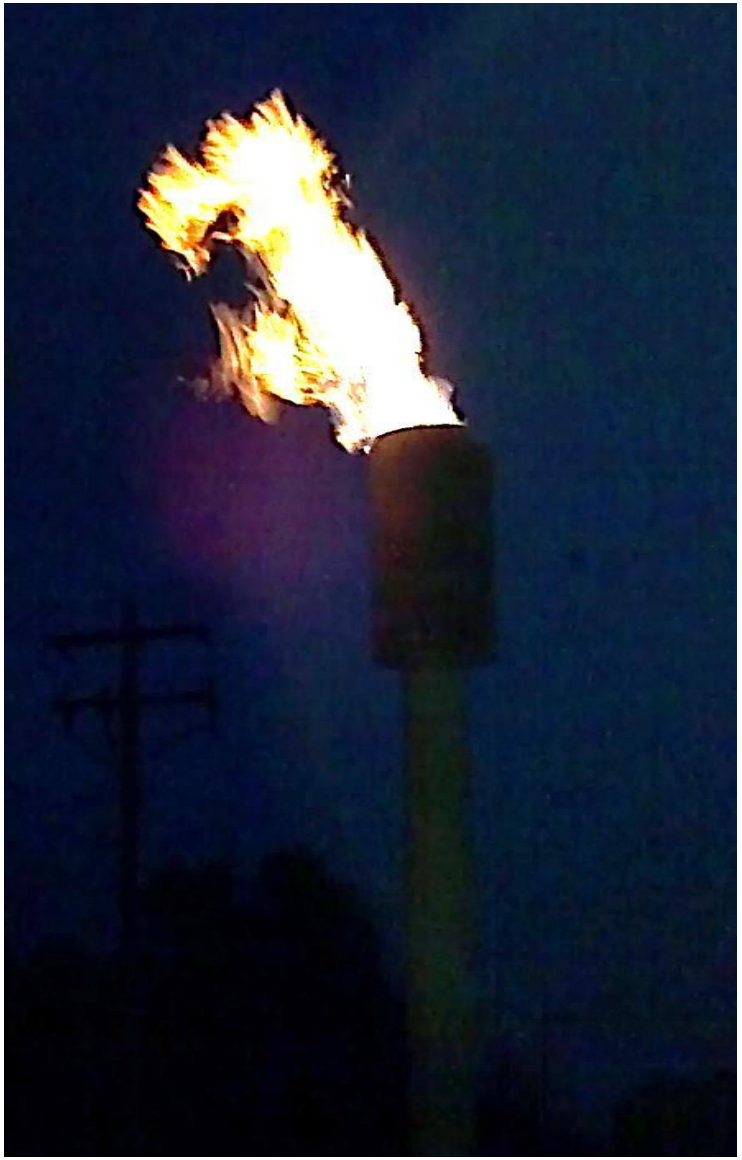
- Partnership with the Stevens Point Brewery to remove waste stream from our influent flow and direct it to the digesters.

- Install a 40,000 gallon in-ground High Strength Waste receiving tank

- High Strength Waste lift station and forcemain

2016 and Beyond

- Become an Energy Producer
- Class A Biosolid
- Add Digestion Capacity
- Become a Regional Biosolids Facility



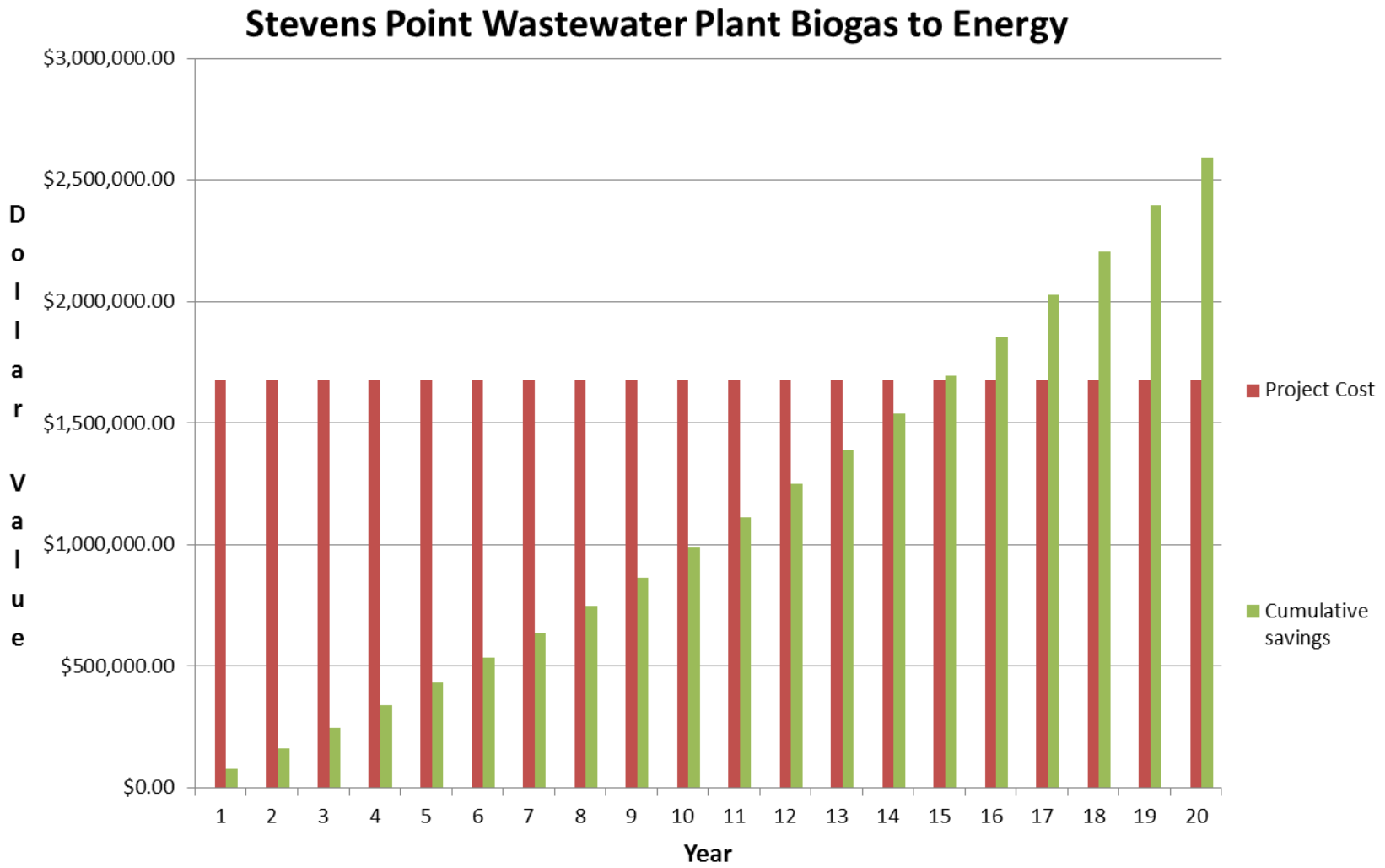
Mountains to Climb

Mountains to Climb

- Data Collection and Analysis
  - Quantity of Biogas
  - Quality of Biogas
- Trial and Error
  - How much Biogas can we produce?
  - New substrates
- Prove a payback on investment
  - Unforeseen costs?
    - Biogas Utilization system maintenance costs $19,500/yr plus labor
  - Available Grants?
    - Biogas project received a Focus on Energy Grant for $225,640
    - Brewery HSW project received a Focus on Energy Grant for $114,000

Utilizing Biogas = More Work

- Increases responsibilities
  - Wastewater Treatment Plants are designed to treat wastewater
    - Biosolids
    - Biogas
- Change in Priorities
  - WWTF to RRF
- Coordination
  - High Strength Waste Receiving
- Air Permitting
  - Tracking Data



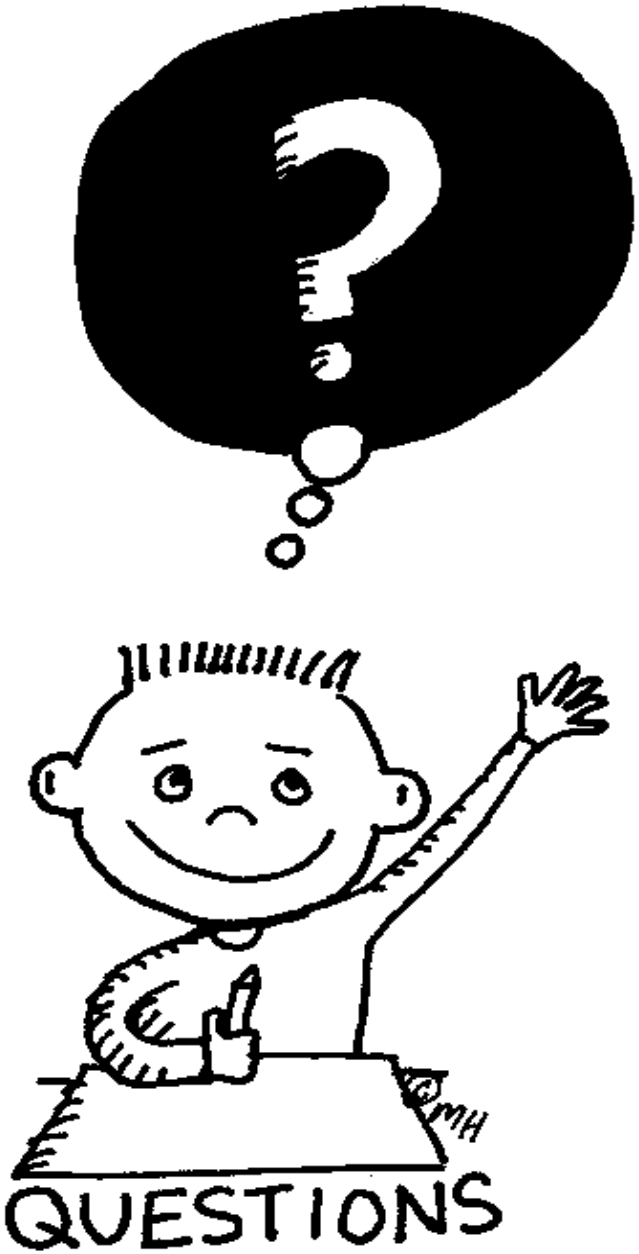
Payback graph assumes a final project cost with Principal and Interest to be

$1,677,406

Cost without Focus Grant $2,005,567

The Future of Biogas Utilization

- Most Cost Effective Approach
  - Centralized locations
- Competition
  - Private vs Municipal


QUESTIONS