Brown County Community Digester Update

creating a better future...Today
• 75 Years of Combined Experience in:
  – Consulting & Engineering
  – Systems Integration of Organic Waste
  – Creating Renewable Energy, Organic Fertilizer, Clean Water
  – Operations & Maintenance Services
DYNAMIC: How Do We Do It?

**Off take Contracts**
- Biogas
- Electricity
- Diesel Fuel
- Fiber/Phosphorus
- Nutrients
- Liquids

**Site Specific**
- Land Purchase/Lease
- Regulations and Restrictions
- Rezoning
- Neighbors

**Regulatory**
- DNR
- EPA
- Town Board
- County

**Construction & Operations**
- Turnkey Construction
- Daily Operations and Maintenance
- Long term Maintenance
- Management and paperwork

**Technology**
- Feedstock evaluation and delivery
- Biogas production and utilization
- Nutrient separation and utilization

**Financial**
- Internal Rate of Return
- Grants
- Tax Implications
- Other Stakeholder

**Feedstock Contracts**
- Farmers
- Contract Haulers
- Crop Growers

**Community**
- Water Quality Groups
- Pro/Anti Groups
- Air Quality Groups

**Other Stakeholder**
- Grants
- Water Quality Groups
- Pro/Anti Groups
- Air Quality Groups
Feasibility Studies

- 70 Methane Recovery
  - 21 Community Digester Projects
- Nutrient Management
  - Dane County Community Nutrient Concentration
  - 2,500 Cow Dairy SD Waste to Irrigation Water
  - 8,000 Sow Farm Waste to Drinkable Water

Involved in Design & Installation

- 12 Single Digester Systems
- 2 Community Digester Systems
- 1 Nutrient Concentration System
- 2 Solids Separation & Drying Systems
- Management & Operations
  - Springfield Clean Water LLC (Coming online 2018)
  - Generate Fremont Digester LLC
- Management Consulting
  - Waste No Energy LLC
Brown County Study Purpose:

• “To explore the feasibility and sustainability of the construction of one to three Community waste treatment facilities with possible partnerships with Outagamie and Kewaunee counties designed primarily to receive manures from nearby dairy farms and harvest marketable byproducts to sell or return at no cost to farmers and also produce purified clean water from the waste stream.”
The Feasibility Study Must Address:

1. Anaerobic digestion.
2. Biogas captured and used for generation of electricity, direct use in an industrial application, condition for natural gas pipeline injection, or compressed into CNG for onsite vehicle fueling or shipment to a nearby CNG fueling station to serve markets.
4. Agglomeration of captured nutrients.
5. Redistribution of captured nutrients through markets identified by collaborators and other unknown outlets and as renewable livestock bedding material.
6. Separate P and N formulations would be returned to the cooperating farmers to be used as a fertilizer product.
7. Consideration to remediate the effluent to the point the water can be discharged to the "waters of the state".
8. Cost to implement proposal system/facility.
Brown & Surrounding County Hubs

- Over 7,000 AU in 5 Mile Radius
- Over 3,900 AU in 3.2 Mile Radius
- Over 7,800 AU in 5.5 Mile Radius
- Over 29,739 AU in 5 Mile Radius
- Over 9,000 AU 4.32 Radius
- Over 12,000 AU in 5.5 Mile Radius

Map showing locations with various activity units (AU) within different radius distances.
Initial Steps

• Held meeting with Brown County farms in January, 2017
• Majority of attendees were from southern Brown County
• Discussed options for manure management
• Set up meetings with individual farms to discuss interest in participating in a project
Initial Steps

• Selected farm group centered in Town of Holland as potential digester site
  – Highest number of animal units in area
  – Progressive group of farms with high level of interest in potential project
  – Close proximity to an interstate natural gas pipeline
  – Possible synergies with future landfill
Initial Steps

• In late January, PSC, DNR, DATCP announced $20 million grant program for digester projects in Lake Michigan watershed

• Created a consortium of farms, technology suppliers, renewable natural gas buyer, fertilizer buyer, and investor to create a project that would qualify for the grant program

• Submitted the grant application on July 3rd

• Received $15 million grant award on Sept 27

• Still in the process of negotiating the incentive agreement with the PSC
We have formed the BC Organics Consortium to build, operate, and maintain the Green Pastures Bio Energy Center

**Dairy Producers** with **over 20,000** animal units
- 2 major dairy producers; Combined 15,600 animal units
- 7 additional dairy producers; 100 – 2,700 animal units each

**Dynamic Group**, a designer, engineer, construction manager and operator of multiple digester facilities in the United States, **including two community systems right here in Wisconsin**.

**BioStar Organics**, a leader in renewable energy, **water treatment**, and waste management projects, as well as a **leading manufacturer and marketer of liquid organic fertilizers**.

**WEC Energy Group**, **Wisconsin’s largest utility holding company** and owner of WPS serving Brown and Kewaunee counties. Primary financial backer of this project **through a non-utility affiliate**.
Green Pastures Bio Energy Center and its hub and spoke design will generate significant **annual** benefits

- Eliminate land application of 189,000,000 gallons of manure in Brown County
- Remove 578,000 pounds of phosphorus from the watershed
- Produce over 162,000,000 gallons of clean water
- Eliminate over 88,000 tons of greenhouse gas emissions (16,863 passenger vehicle equivalent)
- Produce about 500,000 MMBtu of renewable biogas
- Reduce county road truck trips by ~20,000 with farmers saving $3,000,000 in hauling costs
- Provide 10 – 20 new permanent full time jobs

The facility will have an “open door” policy to allow smaller farms to deliver manure for processing when they run out of storage space or shouldn’t spread due to weather conditions.

Site located south of the proposed Brown County landfill complex.
Primary goal is to protect surface and ground water in Northeastern Wisconsin

**Surface Water**
- Phosphorus from agricultural runoff is a leading cause of algae in the Fox River and Green Bay portions of the Lake Michigan watershed.
- The selected project site can accept massive amounts of manure from an area with already high soil phosphorus levels.

**Ground Water**
- The practice of applying manure to land with karst soils and bedrock fracture provides a potential pathway for pathogens and other contaminants to groundwater supplies and wells.
- The proposed project site is located a few miles west of a significant amount of land with this geography.
- Solution significantly reduces or eliminates the need to apply manure in these areas, greatly reducing the risk of unintended contamination of local drinking water supplies.
Next Steps

- Continue to work through PSC grant process
- Move towards long-term commitments by project partners
- Continue project engineering design
- Work through the permitting process
- Continue community outreach
Questions?

creating a better future...Today

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