



Brown County Community Digester Update



creating a better future...Today



DYNAMIC: Who Are We?

- 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?



DYNAMIC Proven Track Record

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

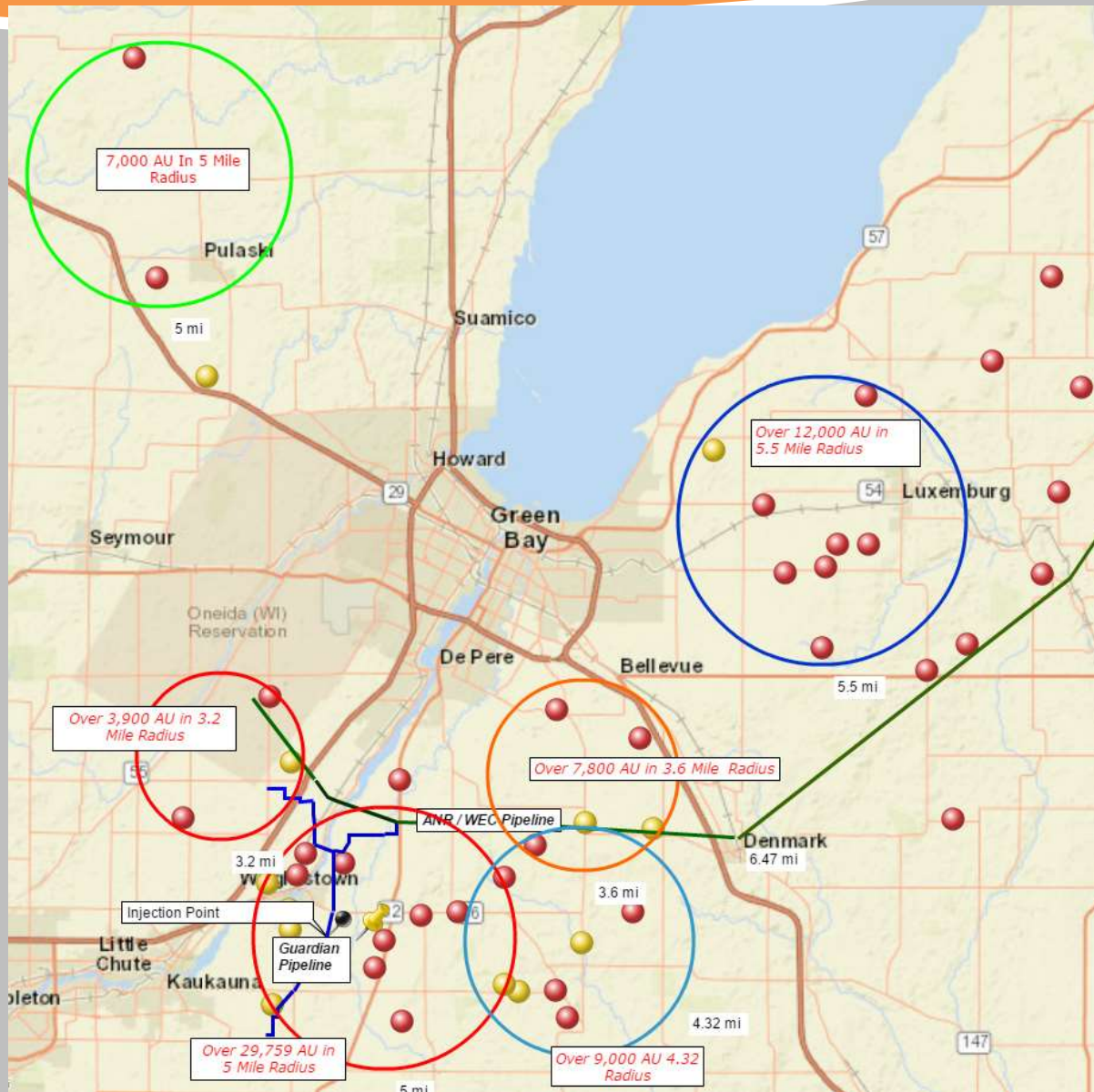
Brown County Study Purpose:

- “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.
3. Nutrient Recovery specifically targeting phosphorous.
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



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

Green Pastures Bio Energy Center



Property of Dynamic Group

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

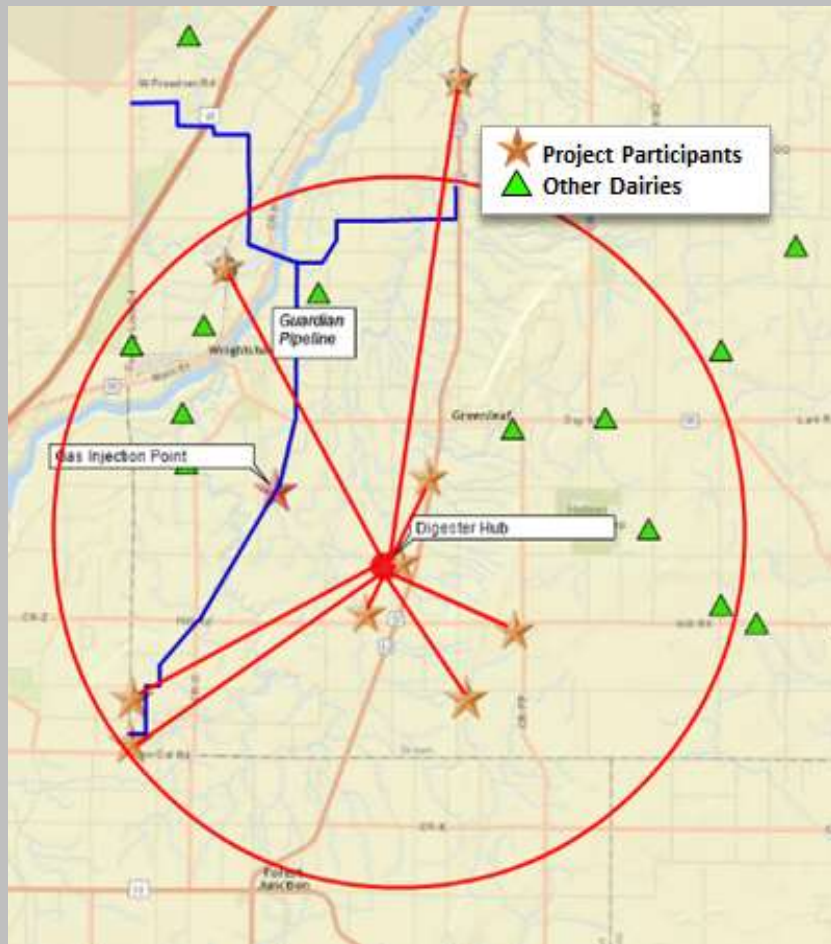
- 2 major dairy producers; Combined 15,600 animal units
- 7 additional dairy producers; 100 – 2,700 animal units each

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.

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.

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

Site located south of the proposed Brown County landfill complex.

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.

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?



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