

VILLAGE OF ELLSWORTH

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SPECIAL VILLAGE BOARD MEETING

August 14, 2023

REQUEST:

Public Hearing for a Special Use Permit from Ellsworth Bioenergy, agent, for property owned by the Ellsworth Cooperative Creamery, for an Anaerobic Digester on Parcel Number 121-01152-0500.

BACKGROUND:

Ellsworth Bioenergy (Bigadan, a Danish renewable natural gas company) is proposing to develop an anaerobic digester and nutrient recovery facility. The facility will use anaerobic digestion to produce renewable natural gas from turkey litter, dairy waste, and cheese processing byproducts. The facility will be designed, built, owned, and operated by Bigadan/Ellsworth Bioenergy.

The Plan Commission recommended approval of this request without any specified conditions on July 20, 2023.

DISCUSSION:

General Operations:

- The project will occupy 20-25 acres of the 40-acre site.
- The site will operate 24 hours a day, 7 days a week with continuous monitoring. There will be approximately 8-10 employees at the facility, not including truck drivers.
- Turkey litter, dairy waste, and food processing waste will be trucked to the site; cheese processing byproducts will be pumped to the site. The waste materials will be processed and turned into natural gas and other byproducts. The renewable natural gas will be injected into an existing natural gas pipeline. The byproducts, a high solids product rich in phosphorus and potassium as well as a water high in nutrients readily available for a growing crop, will be sold.
- The site will have approximately 40 structures, the heights are detailed in the chart below.

ID #	Building / Structure	Max. Height (m)	Max. Height (ft)
1-12	Digester	26	85,3
13-15	Mixingtank	6	19,7
16-18	Storage tank	12	39,4
19-20	Pasteurisingtanks	11,5	37,7
21	Mixingtank	12	39,4
22	Pultank	6,5	21,3
23	Separation container	8	26,2

24	Pump container	3	9,8
25	Industrial tanks	16	52,5
26-27	Loading tanks	2,5	8,2
28	Receiving Hall Industrial waste	15	49,2
29	Receiving Hall Turkey litter	15	49,2
30	Receiving Hall Cattle slurry	12	39,4
31	Receiving Hall	15	49,2
32	Biological Air Treatment	7,5	24,6
33	Gas Upgrading / Boiler Building	6,5	21,3
34	Desulphuration	15	49,2
35	Flares	9	29,5
36	Stack Boiler	0	0,0
37	Stack Airtreatment	55 - 65	180 -213
38	Air Coolers	3	9,8
39	Office Building	6	19,7

- FAA regulations may apply to the Stack Airtreatment structure.

Trucks/Traffic:

- There will be approximately 160 total trucks per full working day and approximately 80 on Saturdays. Deliveries will take place primarily Monday through Friday 6am to 6pm and Saturday 8am to 2pm. No transport truck operation will occur on Sundays.
- Biomass will be delivered to the facility on tank trucks. The applicant anticipates that trucks will also take digestate or nutrient water away from the facility.
- The applicant will work to optimize the truck traffic patterns throughout the design phase to prevent off-site truck queuing that may create local traffic issues.
- Traffic routes are detailed on page 28 of the application. Traffic on Highway 10 through the Village is anticipated to be 5-9 trucks per day, when local roads have weight restrictions usage will increase to approximately 25 trucks per day. The majority of the traffic will come the south on County Road C and the East on Highway 10 and/or Highway 72.
- The application materials were sent to the Pierce County Highway Commissioner. He responded that CTH C is currently not posted during spring thaw and is suitable for legally loaded vehicles. He has requested a Traffic Impact Analysis at the intersection of Hwy 10 and County Road C. The full response is included in this packet.

Odor:

- The receiving of biomass will be within enclosed structures. Buildings with odorous air will have negative pressure to keep the air/odor inside. Polluted air will be collected and treated with a biological biofilter treatment system or by UV and active carbon treatment system.

- Tanks that store the anaerobic digestion byproducts will be treated in a pre-filter before entering the main biological treatment filter, where it will be blended with air extracted from the odorous buildings. The pre-filter will treat ammonia and hydrogen sulfide (H₂S) removal.
- Treated air from the biological treatment system will be lifted into a stack to aid dispersion as it is released into the environment. The dispersion stack is anticipated to be 180ft.-213ft. tall.
- The applicants will develop an Odor Management Plan. The Plan will include an existing odor assessment, complaint process and monitoring system, determinations and corrective actions. An outline of the Odor Management Plan is included in the packet.

(An example plan from the Kliplev Plant in Aabernraa, Denmark is included in the application on page 19.)

Water and Wastewater:

- The facility will require approximately 8 million gallons of water a year (22,000 gallons/day).
- Water used in plant operations would be sent to the anaerobic digesters to become product.
- Any water that contacts raw materials would be captured and used in the anaerobic digesters.
- Wash stations for rinsing delivery trucks would be located within the enclosed manure and dry material receiving areas. This wash water would be collected and used as liquid raw material for the anaerobic digesters.
- The facility will send domestic strength wastewater to the Village wastewater treatment facility. It is anticipated that approximately 180,000 gallons per year (500 gallons per day) will need to be treated.
- The Village works with CBS2 for engineering services for the water utility. The Village requested that CBS2 conduct a review of the proposed water usage by Bigadan/Ellsworth Bioenergy. They concluded that wells have adequate capacity for the additional demand. The full response is included in the packet.

Spill Containment:

- The facility will have a containment area with an impermeable berm and lining around the digestors and storage tanks to mitigate the potential for infiltration of the digestate and manure into the ground. The containment area would be capable of holding the full volume of the largest tank. The lining will have a State required separation distance to the groundwater.

- The system controls will monitor the levels within the digestors and storage tanks to provide early detection of any leaks.

Emissions:

- Owners or operators of industrial sources that emit pollutants to the atmosphere need to get an air permit from the DNR. The permit process requires that an application complies with all applicable state and federal air regulations.

Code Requirements:

- Village Zoning Code Sec. 46.045 Special Use Permits. The Village Board, after investigation and public hearing by the Plan Commission, may authorize the location of the uses specified herein in the districts specified, from which they would otherwise be excluded, provided the Village Board shall find the proposed location is appropriate or necessary in order to serve the public health, safety, convenience or general welfare, and provided each such structure or use shall comply with all other regulations for the District in which it is proposed to be located. The Village Board may attach reasonable conditions and safeguards to the Special Use Permit in order to protect the value of neighboring buildings or uses. The conditions set forth at 46.04(3) concerning Conditional Uses shall be used as the minimum standards to be considered by the Village Board in determining the appropriateness of a Special Use Permit.
- Village Zoning Code Sec. 46.04(3) STANDARDS. No permit for a conditional use shall be granted unless it shall be found that, in addition to all other requirements set forth applicable to the proposed use in the District, all of the following conditions are present:
 - (a) That the establishment, maintenance, or operation of the conditional use will not be detrimental to or endanger the public health, safety, morals, comfort or general welfare.
 - (b) That the uses, values and enjoyment of other property in the neighborhood, used for purposes permitted in that portion of the neighborhood located in the District, shall be in no reasonably foreseeable manner substantially impaired, diminished or adversely affected by the establishment, maintenance or operation of the Conditional Use. The Applicant must affirmatively show that the proposed Conditional Use will be consistent with other uses, structures or accessory uses or structures in the neighborhood. The fact a similar proposed Conditional Use already exists in the neighborhood is only one factor to be considered, and the weight given to it shall be negligible if the other existing Conditional Use is not visible from the Lot upon which the Applicant proposes the new Conditional Use. Restrictions may be imposed as a condition of issuing the Conditional Use to reasonably assure that excessive odors, noise and light, shall not be generated by the reasonably anticipated uses of the Conditional Use. Excessive odors, noise and light are those which do not, and which reasonable persons would not expect to, normally emanate from a residential structure or use.
 - (c) That the establishment of the conditional use will not impede the normal and orderly

development and improvement of the neighborhood for uses permitted in the District.

- (d) That adequate utilities, access roads, drainage, and other necessary site improvements have been or are being provided.
- (e) That adequate measures have been or will be taken to provide ingress or egress so designed as to minimize traffic congestion and traffic hazards in the public streets. [Ord 659 2/2017]
- (f) The Conditional Use must be affirmatively determined to be consistent with the Purpose of the District in which it is proposed to be located and used. The fact that the use is designated as a Permitted Conditional Use in a District does not mean, nor shall it be so interpreted, that such use shall be automatically permitted unless this affirmative finding is so made by the Village Board.

- The Village of Ellsworth Wellhead Protection Ordinance regulates and restricts land uses to protect the Village's Municipal water supply and well fields, and to promote the health, safety, and general welfare of the residents of the Village of Ellsworth. This ordinance regulates land uses within 1,200 feet of a municipal well.
- The property is currently zoned Agriculture. An application was submitted to change the zoning on the property from Agriculture to Industrial.

The Industrial district is intended to provide an area for manufacturing and industrial activities. They are also intended to provide an area for a variety of uses which require relatively large installations, facilities or land areas; or which would create or tend to create conditions of public or private nuisance, hazard, or other undesirable conditions; of which for these or other reasons may require special safeguards, equipment, processes, barriers or other forms of protection, including spatial distance, in order to reduce, or shield the public from such conditions.

The Agriculture District is intended to preserve productive farmlands and to protect farming operations from conflicting land uses. Further, this District is designed to prevent the inefficient spread of urban development into agricultural areas that are inadequately served by public facilities.

- The Village Comprehensive Plan states that new industrial areas are to be focused on the existing industrial centers within the Village. These areas offer access to existing infrastructure and are in proximity to similar businesses.

One of the goals of the Comprehensive Plan is to support diversified economic development opportunities.

Other Agency Permitting:

Permitting WI DNR /Northern Natural Gas/ Wisconsin Public Service Commission (PSC)

1. Wastewater permits/ Secondary containment
2. General Permit for Industrial Storm Water Discharge - WPDES Permit No. WI-S067857-5

3. Water Reg & Zoning –Mark Harings
4. General &/or Individual Industrial By-Product Permits
5. Construction Air Permit- Registration permit will be in place prior to initiating land disturbing construction activities
6. Wetland Delineation (pipeline to Town Border Station)
7. Corp of Eng permit (if needed) for pipeline routing
8. Northern Natural Gas Interconnect Permitting/Agreement
9. Gas Pipeline: Plans and Manuals Required by State and Federal Pipeline Safety Laws - Operations and Maintenance Manual, Emergency Plan, Transmission Integrity Management Plan, Public Awareness Plan, Operator Qualification Plan
10. Wisconsin Public Service Commission (PSC) - No permit is required. Design and specifications will be submitted for review to ensure compliance with federal and state pipeline safety regulations.
11. Wisconsin Historical Society, State Historic Preservation Office (SHPO)

Air Dispersion Modeling - WIDNR, Air Quality, AERA & Dispersion Modeling Assessment

1. Estimated Truck emissions
2. Total Potential Facility Air Emissions
3. Air Quality Modeling
4. Air Emission Risk Analysis
5. Stack Height Determination
6. Potential Air Receptors Map

Farm Improvements

1. U.S. Department of Agriculture (USDA) NRCS Code 313
2. USDA NRCS Code 634
3. USDA NRCS Code 366
4. Wisconsin Department of Agriculture, Trade, and Consumer Protection (ATCP) § ATCP 33, § ATCP 50, ATCP 51

STAFF ANALYSIS:

- The current uses of the site are agriculture and woodland/vacant. The site has significant slopes on the western portion of the parcel. The sloped portions of the site are wooded. The flatter portions are used for agriculture. The vegetation on the property to the west of the proposed facility will remain on the site.
- Surrounding zoning districts are Industrial and Agricultural. Surrounding land uses are industrial/commercial, utility, agriculture and woodland/vacant. Neighboring structures are the Biosolids Facility and Western Wisconsin Ag Supply.
- The nearest Village residence is approximately 900 feet from and elevated approximately 100 feet above the property.
- The Village water and wastewater systems can support the proposed volumes and usage.

- A Traffic Impact Analysis will be needed to determine if road upgrades are needed, particularly at the Hwy 10 and County Road C intersection as well as the County Road C and East Business Way intersection.
- Current WisDOT daily traffic counts on Hwy 10 near the County Road C intersection are 6,400 Average Daily Trips.
- The proposed location is outside of the Village Well Protection area. Well #3 is approximately 2,400 feet from the proposed site. Uses are regulated within 1,200 feet of a municipal well.
- Current Village Well tests show an acceptable nitrate level.
- DNR Air Dispersion modeling will be required.
- The Pierce County Waste Storage Ordinance does apply within the Village limits. The proposed facility will be required to have a Nutrient Management Plan. The applicant will require all participating farms to also have a Nutrient Management Plan.
- The Pierce County Economic Development Corporation has reviewed Bigadan financial information and does not have any concerns regarding the financial status of the applicant.
- The Village Board may attach reasonable conditions and safeguards to the Special Use Permit in order to protect the value of neighboring buildings or uses.
- Reasonable conditions may be attached to the permit that the Board finds necessary to promote the public health, safety and general welfare of the community, and to secure compliance with the standards specified in 46.04(3).
- Restrictions may be imposed as a condition to reasonably assure that excessive odors, noise and light shall not be generated by the reasonably anticipated uses.

RECOMMENDATION:

Staff recommends that the Village Board determine whether the proposed use at the proposed location will not be detrimental to or endanger the public health, safety, morals, comfort or general welfare.

If the Board approves the request, staff recommends that the following conditions are included:

1. The property is to be owned and the facility is to be operated by Bigadan/Ellsworth Bioenergy. This permit is not transferable.
2. Operations shall be consistent with those presented in the application, unless modified by a condition of this permit. Any proposed change in the scale or intensity of the use shall be reported to the Village. Upon review the Village may require an amendment to the Special Use Permit.

3. The construction and operation of the facility shall be in full compliance with all applicable state, federal and local laws. Upon receipt of any notice of noncompliance Bigadan/Ellsworth Bioenergy shall provide a copy of the notice to the Village.
4. Copies and verification of compliance of the following permits and approvals shall be provided to the Village upon request: Wisconsin Pollution Discharge Elimination System, Wisconsin Department of Natural Resources (WDNR) air quality permit, WDNR stormwater permit, WDNR erosion control permit, Spill Prevention and response plan.
5. No raw material, digestate, or nutrient water may be stored outdoors.
6. The facility shall have alarms to monitor the digester, byproduct storage levels, and any spills 24 hours a day.
7. Gas pressures at the site shall be monitored 24 hours a day. Gas pipelines will be monitored 24 hours a day and will have tracers to facilitate prompt response to any breach or leak from the system.
8. Pipelines delivering food waste shall be monitored 24 hours a day and shall have tracers to facilitate prompt response to any breach or leak.
9. Bigadan/Ellsworth Bioenergy shall be responsible for the cost of any spill and clean-up at the site or during transport of materials.
10. A Traffic Impact Analysis shall be completed for the proposed facility, particularly at the Hwy 10 and County Road C intersection as well as the County Road C and East Business Way intersection. All required and recommended improvements shall be completed with consultation from WisDOT and the Pierce County Highway Department.
11. Any proposed increases to the estimated Village Water and Wastewater Utilities usage shall be approved by the Village Board to ensure the system(s) have the capacity for the increase.
12. The final Odor Management Plan shall be presented to the Village Board for approval.
13. An agreed upon Payment in Lieu of Taxes shall be paid to the Village annually.
14. A fire protection system plan and an emergency response plan for the facility shall be submitted to the Ellsworth Fire Department Chief for review and approval.
15. Waste shall only be received from, and agricultural byproducts shall only be delivered to farms with Nutrient Management Plans.
16. This permit is subject to review at any time at the discretion of the Village Board.