

Bioenergy Development Company, LLC (BDC) in Seaford, Sussex County, Delaware

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To: HearingComments, DNREC (MailBox Resources) <DNRECHearingComments@delaware.gov>

I have listened to the both open forums given for the digesters by Bioenergy Development Company, LLC (BDC) in Seaford, Sussex County, Delaware. I teach anaerobic digestion at the University of Maryland and have conducted research in the arena for 20 years. I was astonished at the false information that were part of the public comments that I heard.

There seems to be misunderstanding on the role of digesters and their safety issues by the environmental community being stated at these meetings. I wanted to address some of these comments and add clarification about what digesters do and do not do.

I will only quote from publicly accessible documents located at the EPA's AgSTAR website: <https://www.epa.gov/agstar>

"Implementing manure digesters on livestock facilities can:

- Improve soil health by converting the nutrients in manure to a more accessible form for plants to use.
- Help protect the local water resources by reducing nutrient run-off and destroying pathogens."

Digesters do not contribute to greenhouse gas emissions, in fact they greatly reduce GHG emissions. Again from EPA, "Reduce greenhouse gas emissions by capturing methane gas that may otherwise have been lost to the atmosphere and by displacing fossil fuel energy use."

"farm-based AD/biogas systems reduced GHG emissions by 4.63 million metric tons of CO₂ equivalent (MMTCO_{2e}) in 2019 by reducing on-farm direct GHG emissions and the emissions avoided by replacing fossil fuels. This is equivalent to the CO₂ emissions produced by over 1,000,000 passenger cars in one year."

From EPA's 'An Overview of renewable natural gas from biogas,' which is available here: https://www.epa.gov/sites/default/files/2020-07/documents/lmop_rng_document.pdf, "ycle assessment that estimates the GHG emissions associated with producing and consuming the fuel. Argonne National Laboratory's AFLEET tool estimates that natural gas vehicles operating on fuel derived from RNG can yield GHG emission reductions of up to 75 percent, compared to gasoline or diesel vehicles.²¹ The California Air Resources Board (CARB) uses similar life cycle assessment tools to estimate the GHG emissions associated with vehicle fuels for implementation of the state's Low Carbon Fuel Standard (LCFS). Natural gas in any form (fossil or RNG) is less carbon-intensive than the other fossil fuels it typically replaces, including conventional transportation fuels (e.g., gasoline, diesel) in most cases and coal or petroleum for generating electricity.^{22,23} RNG provides an additional benefit over fossil natural gas because it generally has a lower total carbon footprint, after accounting for emissions from fuel production, transport and use.^{24,25,26} RNG's carbon footprint is even lower if a project can also take into account directly reducing CH₄ emissions from the organic waste used to produce the fuel. Fuels from some RNG feedstocks can achieve negative carbon footprints by reducing CH₄ emissions through avoiding "business-as-usual" disposal pathways, such as projects that involve AD of manure and organic wastes."

The implementation of the digesters will reduce odors associated with the waste sources that are already being composted on-site, and the RNG will reduce emissions for the State of Delaware, as shown in the EPA documents and GHG reduction tools available for digestion.

Finally, traffic is a concern through any community, and a traffic study was deemed to be unnecessary based on DE regulations. The air permit study showed what I have known as a digestion researcher that digestion implementation improves overall air quality. Finally, the notion that driving biogas or renewable natural gas (RNG) down a street is like "driving a bomb through a neighborhood" as one commenter suggested is absurd. Yes, it is a fuel, but there is not greater risk than the gasoline truck that drives down the street to fill gas tanks. There are safety precautions in place for transporting natural gas, which will be upheld. Finally, the notion that digester release CH₄ into the environment is not true. Digesters produce CH₄ but is it within a closed environment, which is then used, just as gasoline is used in your car, for power. When it is used, just as the gasoline in your car is combusted to CO₂, the CH₄ is combusted to CO₂. None of the CH₄ is released into the atmosphere is when utilized. And the CO₂ that is released is considered biogenic, since the CO₂ was first brought into the plant biomass through photosynthesis, and this plant matter (carbohydrates and proteins) is broken down in the digester to form CH₄. When utilized that CH₄ is turned into CO₂, but it is considered biogenic CO₂, since it came from plants within one generation. It is not CO₂ that is new CO₂ to the atmosphere, as fossil-fuel based natural gas is. RNG replaces this natural gas, which does release 'new CO₂' to the atmosphere when utilized, not biogenic CO₂ from the same photosynthetic cycle.

I hope this information helps. I strongly encourage the reviewers to thoroughly study the EPA rules and regulations on digester, which clearly state they increase sustainability and reduce GHG emissions.

Sincerely,
Stephanie Lansing

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