SIERRA CLUB
IOWA CHAPTER

Factory Farm Biogas and Methane Digesters Won't Solve Iowa's Factory Farm Manure Problem

Encouraging factory farm biogas and methane digesters (also called manure digesters) for factory farms is a horrible idea for Iowa's factory farm manure problem.

A digester is a closed oxygen-free tank that is filled with organic waste such as manure. As microorganisms eat the waste, they produce a gas called methane and leave behind solid waste called digestate. The whole process is called anaerobic digestion. The digesters capture the methane to create biogas. The biogas can be used on-site for heating or moved through natural gas pipelines where it can be used for electricity, heating buildings, or cooking. Methane is a potent greenhouse gas.

Factory farm methane digesters create significant environmental problems.

Factory farm methane digesters do not address issues related to factory farms.

- Digesters do not reduce air pollutants or odors that are so familiar with factory farms. Unfortunately, the digesters leak methane. A 2019 study looked at agricultural biodigesters and found that on average 2.4 percent of the total methane leaked from their systems.[1]
- In order to support the costs of building and maintaining a biodigester, the operator/owner will be encouraged to raise even larger numbers of animals, leading to additional extremely large factory farms across Iowa. In fact, a bill was introduced in the 2021 legislature that would have permitted manure digesters for factory farms with 13,500 hogs or with 8,500 cattle.[2]

- You might hear that factory farm methane digesters will not work with hog manure. However, the pork industry is advertising that hog manure can be used for methane digesters[3] as well as for dairy and beef cattle. During hearings about methane digesters in the 2021 legislature, several speakers testified that organic waste, such as chicken byproducts, restaurant waste, leftovers from soy diesel and corn ethanol production, along with the manure, can be tossed into the methane digesters. That allows the digester to work with hog manure.
- Although biogesters will reduce the pathogens within the final solid waste removed from the digester, they do not stop antibiotic resistant bacteria developing throughout the confinement. Further, the

[1] Charlotte Scheutz, Anders M. Fredenslund, "Total methane emission rates and losses from 23 biogas plants", Waste Management, Volume 97, 2019, Pages 38-46, ISSN 0956-053X, https://doi.org/10.1016/j.wasman.2019.07.029,www.sciencedirect.com/science/article/pii/S0956053X19304842
; also see https://pubmed.ncbi.nlm.nih.gov/31447025/

[2] Bill HF287 has changes to the confinement regulations to allow the largest factory farms to have digesters – hogs as well as cattle.

[3] https://porkgateway.org/resource/what-every-pork-producer-should-know-about-anaerobic-digestion

digestate is laden with antibiotics which can lead to antibiotic resistant bacteria. The digestate is also laden with heavy metals and biological toxins.

- Methane digesters are an indicator of a much larger problem. A better, more sustainable model to raise animals is by using managed grazing or deep-bedded housing with benefits of being more humane to the animals, not relying on sub-therapeutic doses of antibiotics to promote growth and to prevent illnesses, allowing animals enough room to exercise which results in better tasting meat and eggs, and eliminating the need for massive manure pits in the first place.

Iowa has too much manure. With over 10,000 factory farms in Iowa, the amount of manure produced is more than the industry can handle. Dr. Chris Jones from the University of Iowa estimates that the waste produced by Iowa's chickens, pigs, turkeys and cattle would be equivalent to the amount of waste produced by 134 million people - about as many people living in Bangladesh.[4] Incenting larger factory farms moves us in the wrong direction, by adding even more waste and pollution to Iowa's landscape.

- The digestors concentrate levels of nitrate and phosphorus in the digestate. When other materials are added to the digester, the levels of nutrients in the digestate can vary from the content of manure. The inconsistent levels of nutrients could result in over-application of nutrients on farm fields. Those excess nutrients travel through tile lines and through the groundwater which pollutes our rivers, streams, lakes, and wells. Excess nutrients causes smelly water, algae and bacteria on beaches, and the Dead Zone in the Gulf of Mexico.
- Unfortunately in some parts of Iowa, factory farmers are running out of land to apply their manure, which means they are raising too many animals for the carrying capacity of the land. The solid waste in digested manure could be economically hauled longer distances than the current water-logged manure from hogs. That spreads the stench, excess nutrients, and toxic chemicals found in manure to an even larger portion of the state.

Manure digesters are expensive.

Digesters have high infrastructure costs necessary to capture, transport, and process animal waste. These projects cannot move forward without massive ratepayer or taxpayer subsidies.

A large beef confinement operation housing over 11,000 cattle, called Supreme Beef, that was originally designed for a manure digester.

- Methane digesters are incredibly expensive to build and operate, an additional burden for farmers. A manure digester can cost hundreds of thousands of dollars to millions of dollars to construct. The pipelines to transport biogas can cost millions of dollars per mile.
- Maintaining an anaerobic digester on an ongoing basis requires knowledge in wastewater and electrical generation, a skill that the factory farm owners would need to acquire. Otherwise, the owner would need to hire or contract with an expert which would significantly increase production costs.

[4] Dr. Chris Jones, "Iowa's Real Population", March 14, 2019, https://www.iihr.uiowa.edu/cjones/iowas-real-population

- Taxpayers have already been asked to support digesters, through revolving loan programs and beginning farmer tax credits.[5] We want to help beginning farmers get started, but taxpayer money should be used for farming practices that protect our soil and farms for future generations. We already use taxpayer subsidies to prop up the factory farm industry; we can't keep relying on taxpayers to prop up an industry that has so many negative impacts on our communities. Instead we should use taxpayer money for wind and solar projects and regenerative agriculture.

Industry advocates are suggesting laws should change to allow centralized manure digesters.

Lately some industry advocates are suggesting that Iowa laws should be changed to allow several confinement operations to be connected via pipelines to one centralized digester. Among the most expensive processes are those that remove contaminants from the methane gas before it is moved onto a natural gas pipeline. The advocates are using the high operational costs as the reason for centralized processing, and indicating that it is beneficial to spread those costs among several confinement operations. They have even suggested using the road ditches for their pipelines. They will need an easement to run their pipelines in the road ditches.

Manure digesters are not a solution to our confinement problems.

It is abundantly clear that factory farm biogas is not a solution to Iowa's manure problem. The purpose of encouraging factory farm biogas is to pretend to address Iowa's manure problem while continuing business as usual in Iowa and even expanding the industry. We need to stop doubling down on the factory farm industry and start transitioning away from it. We need a moratorium on new and expanding factory farms, not false solutions like this that allow the industry to keep expanding while putting a band-aid on the manure problem.

[5] The 2021 legislature saw several bills that included biodigesters in economic development packages - HSB193, HSB233, and SSB1197. Also beginning farmer tax credits - HF484 and SF360 – could support biodigesters.