



July 10, 2020

Mr. Will Seuffert
Executive Secretary
Minnesota Public Utilities Commission
121 East Seventh Place, Suite 350
St. Paul, MN 55101-2147
VIA eFile

Reply Comments RE: CenterPoint Energy's Proposed Renewable Natural Gas Interconnection Service (Docket No. G-008/M-20-434)

Dear Mr. Seuffert:

Thank you for the opportunity to reply to comments already submitted regarding CenterPoint Energy's proposed natural gas interconnection service (petition) and supplementing our original comments submitted June 12, 2020. Since we submitted our original comments, some concerns have been raised about the environmental attributes of biogas and renewable natural gas (RNG) made from biogas. Other commenters, like Energy Vision, RNG Coalition and the Partnership on Waste and Energy, have addressed some of these focusing on the environmental benefits of the use of RNG to displace fossil fuels. Our comments below raise additional points especially about the benefits from the actual production of biogas. Overall, as discussed by our previous comments, the American Biogas Council urges you to approve this petition. We're very pleased to see that virtually all of the other commenters agree.

Our organization, the American Biogas Council(ABC) is the only organization which represents the entire biogas industry in the US (230 companies and over 2,000 individuals including 7 companies based in Minnesota and dozens more interested in doing business in the state). This means that we advocate for more biogas systems to be built and equally encourage those that generate renewable electricity as those that would produce RNG and inject it into the gas pipeline. We would like to point out that CenterPoint Energy's petition does not undermine the use of biogas to generate renewable electricity or any of the variety of other products that can be produced from biogas.

As the Commission evaluates all the comments you have received, we think it's important to emphasize that since this petition is about permission to interconnect, maintaining pipeline safety, how to establish gas quality and conduct the financial transaction, the petition is not about trying to agree on whether RNG will reduce emissions by 30%, 100% or over 100%. Gratefully, every comment we've read correctly agrees that RNG will provide a large number of environmental and economic benefits. Even the comments from Fresh Energy, et al specifically agree, saying "RNG will play important roles in decarbonizing Minnesota's economy."¹ So with regard to whether RNG interconnection should be allowed, the consensus we've seen to date is clearly that it should.

With this in mind we share with you four points about environmental benefits related to the production of biogas and in response to some of the concerns expressed by Fresh Energy, et al.:

1. The connection between biogas systems and the state's need to recycle huge volumes of organic waste cannot be ignored. If not with biogas systems, how will Minnesota manage its 29 million tons of manure, 1.75 million tons of food waste, and 135 billion gallons of wastewater generated each year?
2. No one claims that biogas or RNG will replace all energy use in the US or Minnesota, but the potential environmental and economic benefits are still huge. That's why barriers to developing new projects, like pipeline interconnection, must be removed.
3. Lifecycle analysis to show the carbon impact of renewable energy is important, but doesn't belong in an interconnection agreement

¹ See page 2 of the comments submitted by Fresh Energy, et al:
<https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={E06CED72-0000-C61B-93FA-34A6717F16F8}&documentTitle=20206-164280-01>, accessed July 2020.

4. The viewpoint that biogas systems only support large farms, including concentrated animal feeding operations (CAFOs) is not supported by actual data. In fact less than 10% of on-farm biogas systems are located on large farms.

1. The connection between biogas systems and the state's need to recycle huge volumes of organic waste cannot be ignored. If not with biogas systems, how will Minnesota manage its 29 million tons of manure, 1.75 million tons of food waste, and 135 billion gallons of wastewater generated each year?

By approving this petition, the Commission will enable Minnesota to take advantage of benefits far beyond just producing renewable energy. Critically, if biogas systems are not allowed and encouraged to sell their energy, they will not be built. If biogas systems aren't built, how will Minnesota manage its 29 million tons of manure, 1.75 million tons of food waste, and 135 billion gallons of wastewater generated each year.² It's an enormous volume of material to manage. The only two ways to recycle organic material are compost and biogas systems. Not only can compost systems not handle this volume alone, they don't produce the renewable energy the state needs.

When you build biogas systems, half of the environmental benefits come from the fossil fuels displaced by the renewable biogas or RNG. Many commenters have pointed out these benefits. The other half come from the actual production of biogas from recycling organic material like agricultural waste, food scraps and wastewater. During the production of biogas, you will:

- Recycle organic material
- Eliminate methane emissions from being emitted into the air
- Prevent nutrients from running into waterways which can easily happen when raw manure is spread on bare fields
- Increase soil health by recycling nutrients and reducing imports of synthetic fertilizers
- Reduce odor
- Help make the agriculture and municipal wastewater sectors more sustainable

This is why approving this petition is worth much more than allowing renewable gas to be sold. It will enable several other sectors—agriculture, municipal wastewater, food waste—to become more resilient and sustainable.

2. No one claims that biogas or RNG will replace all energy use in the US or Minnesota, but the potential environmental and economic benefits are still huge. That's why barriers to developing new projects, like pipeline interconnection, must be removed.

According to our analysis of biogas potential in each state, Minnesota ranks 8th out of 50 states for its biogas production potential: 73.3 billion cubic feet of biogas.³ Currently, Minnesota has 38 operational biogas systems, but the potential to build at least 730 new ones. If this potential is realized, Minnesota can use biogas or renewable natural gas to meet the fuel needs of 1.3 million light duty vehicles⁴ which is more than half of the 2.081 million cars⁵ in the state. Alternatively, if electricity is produced, Minnesota could power 23%⁶ of all 1.9 million households.⁷ It would also catalyze at least \$2.2 billion in new capital investments and create nearly 20,000 new short term and long term jobs.⁸ In terms of air emissions, realizing Minnesota's biogas potential would reduce greenhouse emissions equivalent to growing 2 billion coniferous tree seedlings for 10 years or removing 4.6 million cars from the road.⁹

3. Lifecycle analysis to show the carbon impact of renewable energy is important, but doesn't belong in an interconnection agreement

² American Biogas Council, *Minnesota Biogas State Profile*, <https://americanbiogasCouncil.org/resources/state-profiles/>, accessed July 2020.

³ Id.

⁴ Assuming 64% methane in biogas, 1000 BTU/cuft in methane, 77,000 BTU/gallon gasoline (EPA), 475 gallons of gasoline per vehicle per year (EIA)

⁵ M.J. Bradley and Assoc., *Electric Vehicle Cost-Benefit Analysis*, <https://www.mjbradley.com/sites/default/files/MN%20PEV%20CB%20Analysis%20FINAL%2015aug18.pdf>, accessed July 2020

⁶ Assuming 3.928 billion kWh produced from biogas (ABC), 750kWh.mo electricity consumption per household (mnpower.com), and 1,895,127 households in MN (Minnesota Census).

⁷ Minnesota Census Data: 2000 Census, <https://www.census-charts.com/HF/Minnesota.html>, accessed July 2020

⁸ American Biogas Council, *Minnesota Biogas State Profile*, <https://americanbiogasCouncil.org/resources/state-profiles/>, accessed July 2020.

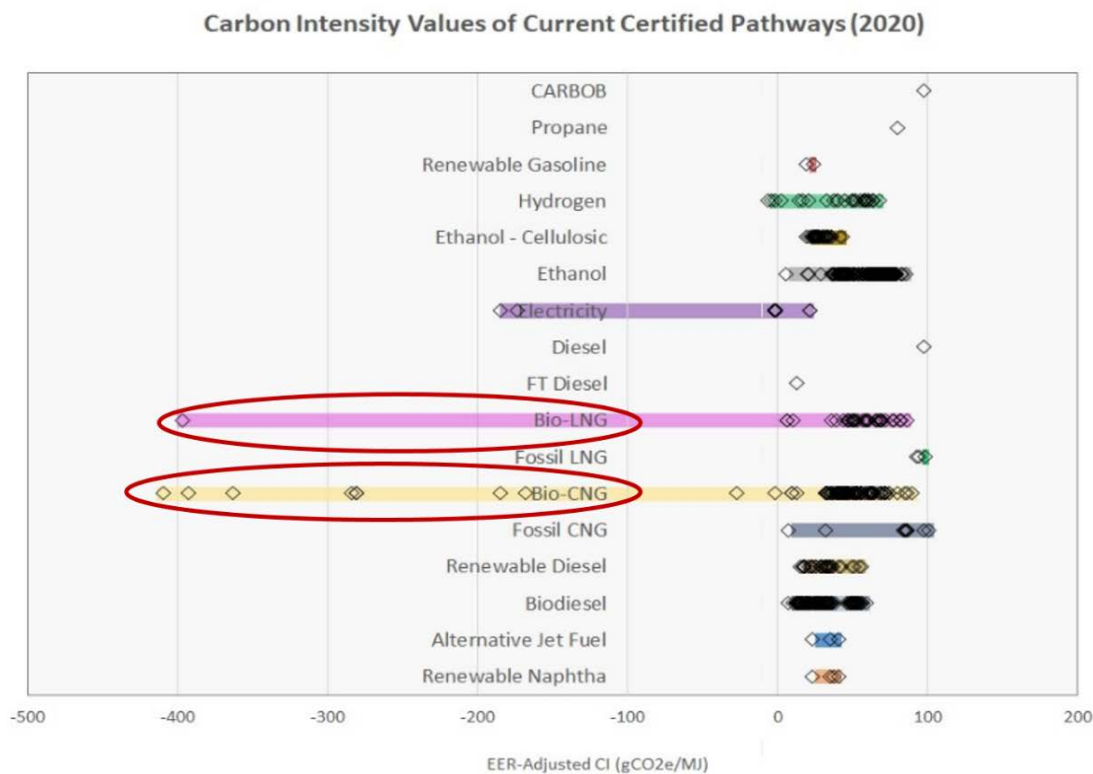
⁹ Id.

As many commenters have pointed out, knowing the carbon impact of different renewable energy projects of all kinds is important to make sure that we're working towards decarbonizing our economy. We, along with other groups like the RNG Coalition, support lifecycle analysis (LCA) of greenhouse gas or carbon emissions. However, those requirements don't belong in an interconnection agreement. As other states and the federal government have shown, LCA and carbon cased programs work best when coupled with a driver for use of renewable fuels. For example, California's Low Carbon Fuel Standard (LCFS) requires all participating renewable fuel producers to complete an LCA analysis using Argonne National Laboratory's GREET model. But it also allows the lowest carbon emitting fuel producers to produce the most revenue from that program. Such a program would work well in Minnesota, but is outside the scope of this petition.

Commissioners can have solace in the fact that even without specific accounting, at a minimum, RNG achieves emissions savings of 30% compared to geologic gas.¹⁰ And many projects will be net carbon zero and even deeply carbon negative in the case of many dairy and swine farm projects. See the graph below of all renewable fuels evaluated by California's LCFS using the Argonne GREET model (CARBOB/gasoline and diesel are both noted for comparison). There is no reason for the Commission to have any concerns for the environmental benefits of biogas and RNG.

LCFS Pathway Certified Carbon Intensities

Last updated: January 27, 2020



4. The viewpoint that biogas systems only support large farms, including concentrated animal feeding operations (CAFOs) is not supported by actual data. In fact, only 10% of on-farm biogas systems are located on large farms.

Among some environmental groups that oppose large farms, we hear the perspective that because the economics of a biogas system usually improve with size, they can only be placed on large farms. Specifically, Fresh Energy, et al. say "Because economic use of anaerobic digesters relies on the enormous manure lagoons that only large industrial farms can

¹⁰ See carbon intensity scores submitted by the Partnership on Waste and Energy in their reply comments dated July 10, 2020. <https://www.edockets.state.mn.us/EFiling/verification/viewServedDocument.do?method=showSubmissionInfo&reqFrom=viewServedDocuments&selectedId=144221&docketNumber=G008/M-20-434&showList=true#>

produce, this interconnection charge incentivizes existing large industrial farms and risks promoting the coalescing of waste streams from multiple farms in order to make the most of economies of scale. Coalescing waste streams increases the carbon intensity of resulting fuels as a direct result of the emissions incurred through the transportation of those waste streams.” In reality, looking at the data of currently operational biogas systems in the US and the way biogas systems are actually designed, these statements are either not true or the systems would not be built as described. Currently, 90% of on-farm biogas systems are located on small- or medium sized farms; and if you had multiple farms networked, you would not move the manure to a central location (unless the distance was extremely short), you would move the biogas to a central location. These operations are some of the mostly deeply carbon negative projects in the country.

Regarding how many currently operational biogas systems are located on farms, the AgSTAR program at the US Environmental Protection agency tracks these data.¹¹ Currently, the US has 255 operational biogas systems located on farms. Of those, 222 are located on dairies. Only 1 is located on a dairy with more than 20,000 head, 6 with 10,000-20,000 head, and 16 with 5,000-10,000 head. Together, these account for only 10% of all on-farm dairy digesters. There are too few swine and poultry digesters today to draw meaningful conclusions from those sectors, although that is changing. This leaves 90% of biogas systems located on small or medium sized farms.

Networking small and medium farms together is most likely to create excellent environmental benefits. One way to help the economics of constructing a biogas system on small and medium sized farms is to network the farms together so the capital cost of some equipment, like biogas to RNG upgrading equipment, can be spread among several systems. Projects do exist where networked farms move manure to a central location, but they are rare and only exist when the farms are located very close to one another. This is because manure is mostly water; water is heavy; and heavy things are expensive to move. Instead, it is much more common to network digesters together using the biogas. In this case, each farm would construct its own digester and distribute the biogas to a central location to upgrade the biogas to RNG and inject it into the pipeline. A few networks of swine farms are currently in development around the US and they have told the ABC that they have received carbon intensity scores from California’s LCFS of -320 to -340 compared to conventional natural gas which scores at +79 or gasoline/diesel which score +100. These networked projects reduce emissions more than almost any other renewable fuel—many times more than solar/wind to battery electric vehicles, for example (see the previous chart).

In conclusion, the environmental profile of the biogas industry is incredibly strong, whether you look at the energy or non-energy benefits, at the point of production or use. Approving this petition with some small changes we expect CenterPoint Energy to agree to is one of the best things the Commission can do to position Minnesota to improve its environment and economy.

Sincerely,

A handwritten signature in black ink, appearing to read "Patrick Serfass". The signature is stylized with a large, flowing "P" and "S".

Patrick Serfass, Executive Director

¹¹ USEPA AgSTAR Program, “Livestock Anaerobic Digester Database,” <https://www.epa.gov/agstar/livestock-anaerobic-digester-database>, accessed July 2020