

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

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ELECTRONIC TARIFF FILING OF LOUISVILLE	:	CASE NO.
GAS AND ELECTRIC COMPANY TO REVISE ITS	:	2024-00125
LOCAL GAS DELIVERY SERVICE TARIFF	:	

**LOUISVILLE METROPOLITAN SEWER DISTRICT'S VERIFIED RESPONSE TO
LOUISVILLE GAS AND ELECTRIC COMPANY'S
FIRST REQUEST FOR INFORMATION
ENTERED JULY 17, 2024**

Comes now Louisville Metropolitan Sewer District, by counsel, and does hereby tender its Verified Response to Louisville Gas and Electric Company's First Request for Information entered July 17, 2024.

FILED: July 31, 2024

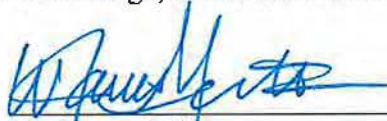
COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the matter of: _____ :
ELECTRONIC TARIFF FILING OF LOUISVILLE : CASE NO.
GAS AND ELECTRIC COMPANY TO REVISE ITS : 2024-00125
LOCAL GAS DELIVERY SERVICE TARIFF : _____

VERIFICATION OF W. JAMES GELLNER, P.E.

STATE OF Ohio)
COUNTY OF Hamilton)

W. James Gellner, P.E., Vice President of Hazen and Sawyer on behalf of Louisville Metropolitan Sewer District, being duly sworn, states that he has supervised the preparation of responses to discovery in the above-referenced case and that the matters and things set forth therein are true and accurate to the best of his knowledge, information and belief, formed after reasonable inquiry.



W. James Gellner

The foregoing Verification was signed, acknowledged and sworn to before me this 31 day of July 2024, by W. James Gellner.

 (Ohio)

Notary Public, State at Large



SHEILA MANES
NOTARY PUBLIC - OHIO
MY COMMISSION EXPIRES
05-31-27

Commission No. 2022-RE-849838
Commission Expiration: 05-31-2027

**LOUISVILLE METROPOLITAN SEWER DISTRICT
RESPONSE TO LOUISVILLE GAS AND ELECTRIC COMPANY'S
FIRST REQUEST FOR INFORMATION
DATED JULY 17, 2024**

1. Please refer to the Direct Testimony of James W. Gellner, P.E. of July 3, 2024 ("Gellner Direct") at page 3, line 27. Please define "imported," as it pertains to propane, including whether "imported" refers to propane suppliers in Kentucky and surrounding states.

Response:

By "imported" we mean that the plant does not produce propane, nor already use it for operations at Morris Forman, so Louisville MSD would be required to purchase large quantities of propane and have it delivered to the site and stored.

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2. Please refer to Gellner Direct at page 3, line 28. Do RNG production facilities that do not use propane present health and safety hazards?
- a. If so, please describe the hazards and how MSD manages them.
 - b. If MSD uses propane to increase the Btu value of its RNG, describe its safety and health concerns, and how will it manage those concerns?

Response:

- a. Most of the health and safety hazards related to RNG production are due to raw digester gas, so these hazards are already present at Morris Forman (i.e., in the absence of an RNG production system) because the existing anaerobic digesters which treat wastewater sludge produce digester gas as a byproduct. Raw digester gas contains hydrogen sulfide which is toxic, and the methane in raw digester gas can form a combustible mixture if oxygen is present. These safety hazards are currently mitigated through contaminant sensing and alarms, proper confined space safety procedures, and classified area designations which require special design of electrical equipment to minimize the risk of combustion. Additionally, infrastructure containing pressurized gas mixtures are designed with the appropriate pressure and vacuum relief valves. Louisville MSD subcontracted a firm to complete a process safety management and risk management plan, or PSM/RMP, application study for the planned RNG project.
- b. If Louisville MSD were to store propane gas on-site, the Facility may become regulated under both 29 CFR 1910.119 - the *OSHA Process Safety Management Standard* and 40 CFR Part 68 *USEPA Chemical Accident Prevention Provisions* as enforced under Regulation 5.15 by the Air Pollution Control District of Jefferson County. Compliance with these regulations could result in significant capital costs to Louisville MSD, especially the "Facility Siting" requirement of 29 CFR 1910.119 which may require explosion venting or other blast resistant design features be incorporated into all existing occupied structures. Risk modeling and compliance under these Regulations may further require that all occupied buildings be reconstructed with appropriate features to protect employees in the event of a release and subsequent explosion. The NFPA 58 – *Liquefied Petroleum Gas Code* tank clearance requirements noted by ENTrust™ in the report shown as "Figure A1" require 13,750 SF of land for a single

tank installation and clearance zones. This land area nearly exceeds the entire amount of land on-site available for the entire RNG Facility. As a result, Louisville MSD could not comply with the tank clearance requirements of NFPA 58 should on-site Propane blending and storage be required.

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3. Please refer to Gellner Direct at page 3. Please provide MSD's financial analyses regarding (1) the cost of the RNG Project at Morris Forman; (2) the anticipated revenues, including tax credits; and (3) the costs to increase the Btu value of its RNG with propane.

Response:

1. A capital cost of \$29M was estimated for the RNG facility, including costs for gas cleanup, compression, odorization, quality monitoring and metering.
2. Gross revenues from the sale of D3 RIN credits and wholesale methane were estimated at \$7.0M/year and \$0.8M/year, respectively, O&M costs were estimated at (\$2.2M/year). Therefore, net revenue was projected to be \$5.6M/yr.
3. We estimate that compliance with the proposed lower limit of 1,035 BTU/SCF would increase O&M costs by \$0.7M/yr. This estimate of increased O&M is based on the amount of propane required to increase the BTU content of RNG from 970 BTU/SCF to 1,035 BTU/SCF, average propane cost in KY of \$2.68/gallon, propane's heating value of 91,540 BTU/gallon, and a contingency of 10% ([United States Propane Prices \(consultenergy.org\)](https://www.consultenergy.org)). Additionally, propane blending would increase the project's capital cost because Louisville MSD would be required to build facilities to store large amounts of propane on-site and inject it into the RNG gas stream. The cost to construct a propane facility was not priced because the associated safety and site constraints discussed A2(b) above would preclude propane blending.

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4. Please refer to Gellner Direct at page 3, line 49. With respect to the tax credits:
- a. Please identify and describe each credit (tax and other) MSD expects to receive and the value of each credit per MMBtu of RNG produced.
 - b. Will the addition of propane to increase the Btu value of RNG change the type or amount of tax credits received by MSD? If yes, please explain.

Response:

- a. Louisville MSD expects to earn D3 Renewable Identification Number (RIN) credits from the sale of RNG as renewable vehicle fuel to a customer in the transportation sector. The RIN market originated as a compliance mechanism by the EPA's Renewable Fuel Standard, which requires transportation fuel sold in the United States to contain minimum volumes of renewable fuels. Over the last 11 years, D3 RIN credits have traded at an average of \$2.19/RIN, or \$28.50/MMBTU of RNG produced. Additionally, Louisville MSD expects that an RNG project would make their Anaerobic Digestion Facilities improvement project eligible for a federal Investment Tax Credit (ITC) worth 6% of that project's cost, or approximately \$2M.
- b. In theory, addition of propane would not affect these RIN credits or the ITC; however, in practice, Louisville MSD would forfeit these financial benefits because propane injection would make the project non-feasible due to the safety hazards, infeasible site constraints, and additional costs associated with propane injection.

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5. Please refer to Gellner Direct at page 4, lines 9 – 10. Please provide a detailed description of the “other contaminants” that must be removed from MSD’s RNG production.

Response:

Other contaminants that are removed from raw anaerobic digester gas to produce RNG include particulates, moisture, hydrogen sulfide, reduced sulfur compounds, siloxanes, and volatile organic compounds.

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6. Please refer to Gellner Direct at page 4, lines 12 – 14. With respect to the statement “RNG systems have been widely adopted in numerous states and have been proven to reliably produce pipeline quality gas”:
- a. Please provide all documents, studies and information that supports this statement, along with any information regarding how long those RNG systems have been in operation.
 - b. How many of the RNG systems identified in part a are connected to local gas distribution companies? Please provide a specific list of these facilities.

Response:

- a. The US Department of Energy and American Gas Foundation state that RNG is fully interchangeable with conventional natural gas ([Renewable Sources of Natural Gas: Supply and Emissions Reduction Assessment](#); [DOE Alternative Fuels Data Center](#)). RNG is widely adopted with 406 RNG facilities currently operational in the U.S.; approximately 90% of these facilities are injecting into shared pipeline infrastructure, both at the transmission and distribution levels ([CA Council on Science & Technology: Biomethane in California Common Carrier Pipelines](#)). The map below from the Coalition for Renewable Natural Gas shows the total number of RNG systems operational, in-construction, and planned in the U.S. and Canada as of July 2024.



[Renewable Natural Gas Projects & Policy | RNG Coalition](#)

The Atmos Pipeline in Texas has been accepting substantial amounts of RNG since 1999. An Atmos business development manager has testified that since 1999 they are unaware of any issues related to delivery of RNG to downstream residential, commercial, and industrial customers ([CA Council on Science & Technology: Biomethane in California Common Carrier Pipelines](#)).

- b. The majority of operational RNG facilities inject gas into local gas distribution systems. There are less systems connected to gas transmission systems; however, we do not know the exact proportions.

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7. Please refer to Gellner Direct at page 4, line 18 and page 6, line 19. Please confirm that LG&E's customers located in the zone of influence of MSD's RNG injection site will use more gas if the Btu content of the RNG is 969.5 Btu/Scf instead of 1,035 Btu/Scf? If MSD cannot confirm this, please explain why not.

Response:

We cannot confirm whether customers in the zone of influence of the RNG injection point will use more gas without detailed knowledge of LG&E's system and geographical variations of heating values within their territory. For example: other gas utilities, such as PG&E and SoCalGas, have shown that heating values vary geographically and temporally within their territories. Heating values range from 869 to 1,115 BTU/SCF in PG&E's territory and from 1,011 to 1140 BTU/SCF in SoCalGas's territory (see figure below). They apply billing adjustments based on reported heating values to prevent customers from overpaying or underpaying for gas.

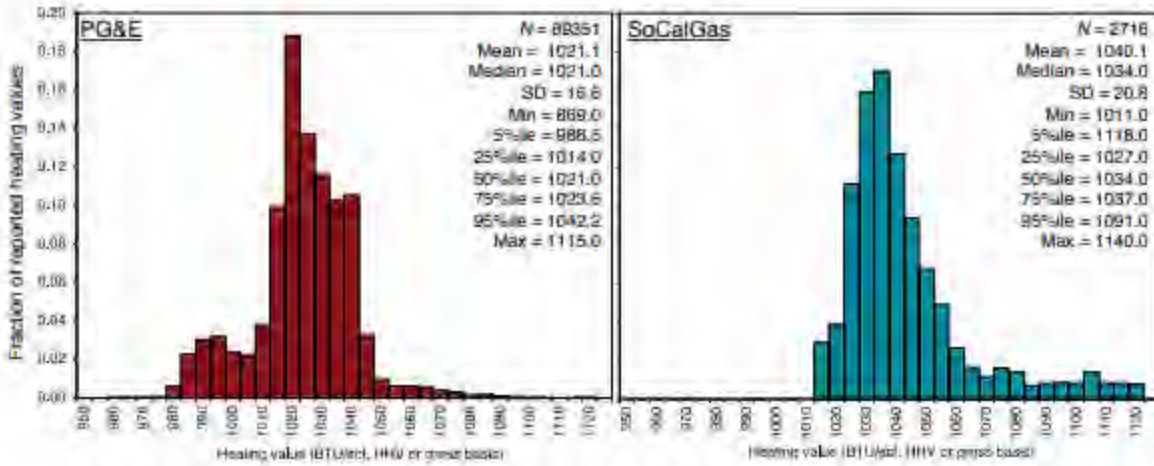


Figure 6. Historical HVs in PG&E BTU districts during the period November 2007 to November 2017 (Left). Distribution of HV in SoCalGas service territory during the period June 2012 to March 2017.

[CA Council on Science & Technology: Biomethane in California Common Carrier Pipelines](#)

Furthermore, we expect that the amount of gas that Louisville MSD will withdraw from the pipeline to fuel on-site gas loads would be nearly equal to the amount of RNG that Louisville MSD would inject into the pipeline.

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8. Please refer to Gellner Direct at page 4, line 28. Has a customer connected to LG&E's system agreed or been identified to purchase MSD's RNG? If yes, please identify the customer and how they would purchase gas from MSD.

Response:

No. We initiated the process of soliciting third parties who would manage RNG transactions but have been waiting for the LGDS Tariff's requirements to be finalized before a decision is made on implementation. As we have stated previously, the proposed tariff heating values and Wobbe Index range would make the project infeasible for Louisville MSD.

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9. Please refer to Gellner Direct at page 5, line 15. In your experience, please provide the average timeline from start (initial request for site approval presented to pipeline system) to finish ("start implementation") for an RNG project. How many projects are included in the average timeline?

Response:

The span between initial interconnection study to the implementation phase (injection of RNG into pipeline) can vary widely depending on the permitting requirements, design schedule, equipment delivery times, funding availability and project delivery method. We have observed typical RNG projects in the range of 2-5 years. This estimate is based on our general knowledge of RNG project development and delivery and the schedule for two recent RNG projects.

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10. Please refer to Gellner Direct at page 6, line 24.
- a. What is MSD's definition of a "negligible" impact?
 - b. What reduction in heating value would constitute an impact that is greater than "negligible"?
 - c. Provide all analyses performed to determine the impact on nearby LG&E customers resulting from the injection of MSD's RNG onto LG&E's gas distribution system.

Response:

- a. We consider "negligible" to mean within the range of expected variability after considering effects of mixing with conventional gas flow near the injection point, such that there would not be a noticeable impact to nearby customers. Hundreds of RNG systems have been injecting RNG into distribution systems around the U.S. without adverse or noticeable effects to gas supplied to customers (please refer to MSD Response to LG&E DR No. 1, Question No. 6(a) above).
- b. See response (a) above. We consider this to be dependent on the variability inherent to the local gas system where RNG would be injected.
- c. We cannot complete an analysis of LG&E's gas system without data for baseline natural gas flows, detailed information on the distribution pipe network, and data on the variability of heating values within the zone. Calculations can be performed if necessary data is made available from LG&E. However, typically the local gas utility is responsible for this analysis during the process of determining the nearest feasible RNG injection point.

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11. Please refer to Gellner Direct at page 7, lines 13 – 15. Please provide MSD's calculation or analysis of the percentage of MSD's RNG to LG&E's gas flow near the injection site.

Response:

As discussed in response to LG&E's DR Set No. 1, Question No. 10(a), we cannot perform this analysis. The data for this analysis has not been provided by LG&E. This is the type of analysis we would expect the local gas utility to perform when assessing the nearest feasible RNG injection point.

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12. Please verify projected LG&E natural gas requirements (usage) and RNG production delivered to LG&E at the MSD Morris Foreman RNG site by average hourly usage/production and max hourly usage/production after the RNG plant is at full capacity.

Response:

The average hourly usage at Morris Forman is 40 MMBTU/HR, based on projected consumption of thermal sludge dryers, process boilers, and other heating demands. Hourly gas consumption will decrease when thermal sludge dryers are down for maintenance and increase during normal operations. Process boilers will provide a steady gas demand of approximately 21 MMBTU/HR. Max hourly gas usage is 83 MMBTU/HR based on connected loads. The expected average RNG production is 37 MMBTU/HR, and the maximum RNG production is 60 MMBTU/HR.