

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

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	:	

TESTIMONY OF
W. JAMES GELLNER, P.E.
VICE PRESIDENT OF HAZEN AND SAWYER
ON BEHALF OF THE LOUISVILLE METROPOLITAN SEWER DISTRICT
(“Louisville MSD”)

FILED: July 3, 2024

INTRODUCTION

1
2
3 **Q. Please state your name and business address.**

4
5 A. My name is W. James Gellner, and my business address is 7870 East Kemper Road, Suite
6 300, Cincinnati OH 45249.

7
8 **Q. By who are you employed?**

9
10 A. I am a Vice President and serve as Midwest Regional Manager for Hazen and Sawyer
11 (Hazen). Hazen is one of the largest consulting firms focused solely on professional
12 services related to water. Headquartered in New York City, NY, the company has over
13 1800 employees and over 70 offices across the United States and central America. Since
14 our founding in 1951, Hazen has been focused solely on providing professional services
15 related to water, wastewater, and stormwater.

16
17 **Q. Please describe your background.**

18
19 A. I have 27 years of experience in water and wastewater consulting, with most of that time
20 focused on wastewater planning, design, and construction. I have a B.S. in Civil
21 Engineering from West Virginia University and a M.S. in Environmental Engineering from
22 Michigan State University. I have been at Hazen and Sawyer for 20 years, based in
23 Cincinnati, OH, but working across Hazen's Midwest Region, which includes our
24 Louisville, KY office. Hazen has worked with Louisville Metropolitan Sewer District
25 ("Louisville MSD") for over 10 years, and for over 7 years at the Morris Forman Water
26 Quality Treatment Center ("Morris Forman"). I, along with our local team in Louisville
27 and national experts in biosolids treatment, drying, and energy, have been working directly
28 with Louisville MSD on the Morris Forman Biosolids Processing Solution Project ("Morris
29 Forman BPS Project") in an Owner's Advisor role since 2017.

30
31 **Q. Please describe Morris Forman Water Treatment Quality Center ("Morris
32 Forman"), the Biosolids Processing Solution Project, and the proposed RNG project
33 at Morris Forman.**

34
35 Morris Forman, owned and operated by Louisville MSD, is the largest wastewater
36 treatment facility in the Commonwealth of Kentucky¹ and has a rated average capacity of
37 120 million gallons per day (MGD), a peak flow capacity of 350 MGD, and a peak
38 secondary treatment capacity of 180 MGD. Morris Forman is located at 4522 Algonquin
39 Parkway in Louisville, Kentucky. Secondary treatment processes were installed during
40 plant upgrades in 1970, and subsequent plant upgrades in the late 1990s and early 2000s
41 improved performance and increased liquid and solids treatment capacity to the current
42 design capacity. Louisville MSD is now implementing its largest facility related capital
43 investment at the plant to enhance and upgrade its solids treatment capacity.² The Morris
44 Forman BPS Project includes upgrades to the facilities existing anaerobic digesters and
45 dewatering centrifuges, addition of thermal hydrolysis pretreatment (THP), and
46 enhancements to gas handling, odor control, and related support systems. The project is
47 an investment of over \$250M and is intended to eliminate landfilling of biosolids, to reduce
48 the quantity of residual solids, to increase renewable gas production, to reduce odors, and
49 to produce exceptional quality Class A biosolids. The proposed Renewable Natural Gas

1 Project (“RNG Project”) is being implemented as a separate project to the Morris Forman
2 BPS Project and is intended to condition the digester gas produced in the anaerobic
3 digesters to pipeline quality and sell the gas as renewable vehicle fuel to generate
4 Renewable Identification Number (RIN) credits. The RNG Project is anticipated to be an
5 investment of over \$30M and is an important component of Louisville MSD’s commitment
6 to sustainability and recovery and beneficial reuse of resources. Hazen is serving as
7 Owner’s Representative during implementation of both the Morris Forman BPS Project
8 and proposed RNG Project.
9

10 **Q. What specific issues are you addressing?**

11
12 A. I will address the following: 1) the ability of Louisville MSD to comply with the proposed
13 tariff change, 2) the ability of any other RNG provider to comply with the proposed tariff
14 change, 3) alternatives to the proposed tariff change, and 4) the financial impact of the
15 proposed tariff change on Louisville MSD.
16
17

18 **THE ABILITY OF LOUISVILLE MSD TO COMPLY WITH THE**
19 **PROPOSED TARIFF CHANGE**
20

21 **Q. Could Louisville MSD provide RNG within the parameters of the proposed LGDS**
22 **tariff?**
23

24 A. The minimum heating value required by the proposed LGDS tariff is higher than the gross
25 heating value of renewable natural gas produced by treating biogas from anaerobic
26 digestion of wastewater solids. Achieving the proposed LGDS heating value would require
27 Louisville MSD to enrich RNG with an imported fossil fuel, like propane. Importation of
28 propane would require storage of significant quantities on site. Delivery, storage, and
29 injection of propane or other fossil fuel would pose a significant health and safety hazard
30 which is undesirable to Louisville MSD. Importation of a fossil fuel would also increase
31 operating costs beyond cost feasibility for the project. Therefore, Louisville MSD cannot
32 provide RNG within the parameters of the proposed LGDS tariff.
33

34 **Q. Please describe digesters and what they do.**

35
36 A. Digesters are large, sealed tanks that process the sludge that is formed during wastewater
37 treatment. Digesters operate in oxygen-free conditions which facilitate the transformation
38 of sludge solids into biogas, consisting primarily of methane and carbon dioxide. We refer
39 to this biogas as anaerobic digester gas to distinguish it from biogas derived from other
40 sources, like landfill gas.
41

42 **Q. Please explain the scope of the RNG Project at Morris Forman and what is left to**
43 **complete on the project.**
44

45 A. The proposed RNG Project is intended to be a design, build, finance, operate and maintain
46 (including revenue generation) project through a public-private partnership agreement with
47 Louisville MSD. The RNG Project will include upgrading the digester gas to natural gas
48 pipeline quality, injection into the nearby LG&E natural gas pipeline, and sale as a
49 renewable fuel, which Louisville MSD anticipates will be eligible for certain tax credits
50 and environmental credit programs. The RNG Project will be the primary use of the

1 anaerobic digester gas originated at Morris Forman. The Request for Proposals for the
2 RNG Project has not been advertised yet as Louisville MSD waits on a decision for the
3 proposed LGDS tariff changes.
4

5 **Q. Please explain how Louisville MSD would create RNG at Morris Forman and the**
6 **heating values of that RNG.**
7

8 A. Anaerobic digester gas is produced by municipal wastewater digesters is 60-65% methane
9 and 30-35% carbon dioxide with trace amounts of nitrogen, oxygen, and other
10 contaminants. Anaerobic digester gas can be converted to RNG by processing the gas to
11 remove carbon dioxide and contaminants, adding odorant compounds, and pressurizing the
12 gas such that it is compatible for injection into a local pipeline. RNG systems have been
13 widely adopted in numerous states and have been proven to reliably produce pipeline-
14 quality gas. The heating value of RNG originates solely from its methane content because
15 anaerobic digester gas does not naturally contain other hydrocarbons. The proposed
16 minimum heating value required by LG&E is higher than that of pure (100%) methane gas.
17 RNG produced at Morris Forman would contain at least 95.8% methane corresponding to
18 a gross heating value of 969.5 BTU/SCF after processing the digester gas with a typical
19 commercial system designed to meet LG&E's limits for carbon dioxide, nitrogen, oxygen,
20 and contaminants. Prior to LG&E's proposed changes to the LGDS tariff, this heating value
21 would have been sufficient for pipeline injection.
22

23 **Q. Please explain how Louisville MSD intended to use the RNG it would produce under**
24 **the current LGDS tariff.**
25

26 A. Louisville MSD intends to inject the RNG produced at Morris Forman into LG&E's
27 pipeline and sell the RNG to a customer who would use it as renewable fuel for
28 Compressed-Gas (CNG) Vehicles, making the gas eligible for RIN credits. This strategy
29 would have the environmental benefit of offsetting fossil fuels in the Natural Gas Pipeline
30 and would provide an additional revenue stream for Louisville MSD that could be used to
31 advance other clean water and sustainability initiatives and reduce financial burdens on
32 Louisville MSD rate payers.
33

34 **Q. Please explain how much RNG will likely be produced at Morris Forman on an**
35 **annual basis.**
36

37 A. The RNG production is anticipated to be 320,000 MMBTU/year initially, which may grow
38 slowly as wastewater flows to Morris Forman increase.
39

40 **Q. Please address the heating values within the current LGDS tariff compared to the**
41 **proposed LGDS tariff.**
42

43 A. The heating value range within the current LGDS tariff is 967-1,110/SCF, which is
44 significantly lower and more reasonable than the proposed LGDS tariff requirement of
45 1,035-1,070 BTU/SCF.
46

47 **Q. Assuming an inability to comply with the proposed LGDS tariff, will Louisville MSD**
48 **continue with its RNG project?**
49

1 A. No, Louisville MSD would not proceed with an RNG project because implementation
2 would require importation of a higher heating value fossil fuel, which would pose
3 significant health and safety risks at Morris Forman. Operating costs associated with the
4 project would also be unfavorable for implementation.

5
6 **Q. Does Louisville MSD have the ability to utilize the RNG it will produce barring
7 involvement of LG&E.**

8
9 A. Louisville MSD would not have a financially viable way to fully utilize RNG if the LGDS
10 tariff prevents Louisville MSD from being able to inject RNG into LG&E's pipeline.

11
12 **Q. Can you address the federal benefits available to Louisville MSD provided by this
13 RNG project?**

14
15 A. In addition to the financial and environmental benefits provided by RNG, the project also
16 makes Louisville MSD potentially eligible for federal Investment Tax Credits worth up to
17 30% of the qualified anaerobic digestion process and RNG costs, which can be as high as
18 \$50M. These federal benefits would help Louisville MSD pay for crucial clean water
19 infrastructure projects and minimize financial impacts to ratepayers within the community.
20
21

22 **THE ABILITY OF ANY OTHER RNG PROVIDER TO COMPLY**
23 **WITH THE PROPOSED LGDS TARIFF CHANGES**

24
25 **Q. Please describe the practical result of the proposed LGDS tariff change sought by
26 LG&E to any RNG provider.**

27
28 A. Other developers desiring to generate renewable fuel (RNG) from fugitive methane
29 emissions and organic waste materials, such as agricultural waste, landfill gas, or
30 wastewater sludge, and transport RNG to customers using the existing natural gas network
31 would be prevented from doing so because the minimum heating value required by the
32 proposed LGDS tariff is above the heating value of RNG gas produced from any renewable
33 sources. Any such facility would be required to import and inject a fossil fuel with higher
34 heating value to meet the proposed LGDS tariff.
35

36 **Q. Why is the proposed LGDS tariff unfair to Louisville MSD?**

37
38 A. The proposed LGDS tariff change was drafted well after Louisville MSD first engaged
39 LG&E back in November 2022 regarding pipeline injection of RNG into LG&E's system.
40 Specifically, Louisville MSD made application for approval and acceptance of customer
41 supplied RNG through submittal of a Rate LGDS service request form to LG&E on or
42 about November 13, 2022. Louisville MSD further responded to questions provided by
43 LG&E regarding Louisville MSD's application specific to uptime and expected gas
44 production variability on January 12, 2023. LG&E thereafter informed Louisville MSD
45 via a meeting on March 17, 2023 that it had hired an independent consultant to help develop
46 best practices for customer supplied RNG and to evaluate gas quality considerations.
47 Louisville MSD has invested significant time and money into advancement of the RNG
48 Project with the understanding that the specifications required by LG&E would be fair and
49 reasonable. Louisville MSD's understanding that pipeline injection specifications would
50 be fair and reasonable was informed by discussions with LG&E throughout the project

1 development process and the published LGDS tariff that stated 967-1,110 BTU/SCF would
2 be required for pipeline injection. The proposed LGDS tariff change to increase the
3 required heating value would reverse Louisville MSD's progress towards beneficial reuse
4 of a renewable resource and increase the long-term costs of treatment at Morris Forman.
5
6
7
8

9 ALTERNATIVES TO THE PROPOSED TARIFF CHANGE

10 **Q. What damage is done to LG&E infrastructure to keep the current LGDS tariff?**

11
12
13 A. RNG has been demonstrated in numerous states in the U.S. not to negatively affect quality
14 of gas supplies or pipeline infrastructure, so RNG injection would not pose a risk to LG&Es
15 infrastructure.
16

17 **Q. Please explain suggested alternatives to the proposed LGDS tariff?**

18
19 A. We acknowledge that in extreme cases RNG injection could reduce the heating value of
20 nearby customers' natural gas. For example, if a large RNG producer were located at the
21 end of a small, low-flow distribution pipe, a downstream customer could receive a
22 significant amount of RNG at a lower heating value than the fossil natural gas supply.
23 However, in many cases, the flow of RNG in the distribution would be a fraction of the
24 overall gas flow and would rapidly mix with the gas supply, resulting in negligible impacts
25 to nearby gas heating values. For these reasons, we suggest that the LGDS tariff's required
26 heating value should be left at the original 967-1,110 BTU/SCF range for standard RNG
27 interconnections where the projected flow of RNG injected on the system would be a
28 fraction of the average natural gas flow and, therefore, would have minimal impacts to
29 downstream gas customers. LG&E could then add provisions to the LGDS tariff to allow
30 RNG interconnection in circumstances where RNG flow is significant relative to overall
31 gas flow if a more stringent heating value were to be met, such as a minimum 1,000
32 BTU/SCF.
33
34

35 THE FINANCIAL IMPACT OF THE PROPOSED LGDS TARIFF 36 CHANGE ON LOUISVILLE MSD

37
38 **Q. Can you quantify in dollars the annual impact to Louisville MSD if Louisville MSD**
39 **lacks the ability to use Rate LGDS from LG&E?**

40
41 A. If the LGDS tariff heating value requirements are changed as proposed, Louisville MSD
42 would not implement the proposed RNG facility. Under this scenario, Louisville MSD
43 would see an adverse financial impact of \$2M per year over the next 20-years relative to
44 implementation of the RNG facility.
45

46 **Q. Can you quantify the loss of federal benefits to Louisville MSD from the proposed**
47 **Rate LGDS?**

48
49 A. In addition to the financial and environmental benefits provided by RNG, the RNG Project
50 also makes Louisville MSD potentially eligible for federal Investment Tax Credits worth

1 up to 30% of qualified anaerobic digestion process and RNG costs, which can be as high
2 as \$50M. These federal benefits would help Louisville MSD pay for crucial clean water
3 infrastructure projects and minimize financial impacts to ratepayers within the community.
4 These further benefits have not been currently included in the evaluation of the project
5 because they require start implementation of the RNG facilities by end of calendar year
6 2024. This schedule was conveyed to LG&E early in conversations regarding the
7 requirements for the RNG facility, starting in November 2022.
8

9 **Q. Please summarize your recommendations.**

10
11 A. Louisville MSD and Hazen recommend the following to the LGDS tariff:
12

- 13 1. Leave the LGDS tariff's required heating value at the original 967-1,110 BTU/SCF
14 range for standard RNG interconnections where the projected flow of RNG injected
15 on the system would be a fraction of the average natural gas.
16
- 17 2. Add provisions to the LGDS tariff to allow LG&E the ability to evaluate RNG
18 interconnections in circumstances where RNG flow would be significant relative
19 to average natural gas flow through the system, if a more stringent minimum
20 heating value were met, such as 1,000 BTU/SCF.
21

22 **Q. Does this conclude your testimony?**

23
24 A. Yes.

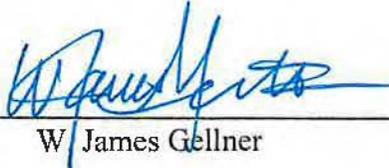
VERIFICATION

STATE OF OHIO

COUNTY OF HAMILTON

BEFORE ME, the undersigned authority, duly commissioned and qualified in and for the State and County aforesaid, personally came and appeared, W. James Gellner, who, being by me first duly sworn deposed and said that:

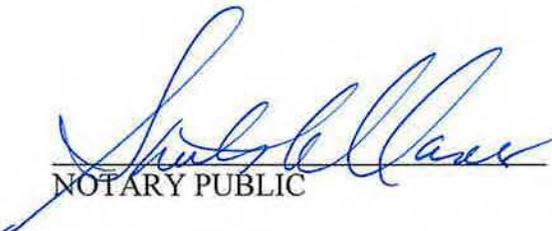
He is appearing as a witness on the behalf of the Louisville Metropolitan Sewer District before the Kentucky Public Service Commission in an Application filed by Louisville Gas & Electric Company, and if present before the Commission and duly sworn, his testimony would be set forth in the annexed testimony.



W. James Gellner

SWORN TO AND SUBSCRIBED BEFORE ME this

3rd day of July, 2024



NOTARY PUBLIC



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