

**BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MISSOURI**

In the Matter of the Establishment of a Working Case for the Review and Consideration of Promulgating a Rule Consistent with Section 386.895 )  
File No. GW-2022-0060 )

**RESPONSE TO COMMISSION ORDER**

COME NOW The Empire District Gas Company and Liberty Utilities (Midstates Natural Gas Corp. (collectively, “Liberty” or the “Company”) and respectfully submit this Response to Commission Order.

**Introduction**

1. On September 1, 2023, the Missouri Public Service Commission (“Commission”) opened this working file to assist the Staff of the Commission (“Staff”) in its review and consideration of a potential rule regarding RSMo. §386.895.

2. On August 2, 2023, the Commission issued its *Order Requesting Comments*, requesting responses by September 18, 2023, to a list of 15 questions.

3. Liberty appreciates the opportunity to provide these comments and otherwise participate in this docket and looks forward to providing more specific comments on the actual proposed rule language once developed.

4. Contained below are Liberty’s initial comments on the questions presented by the *Order Requesting Comments*.

**Questions and Liberty’s Responses**

**Renewable Natural Gas Program**

1. Should the Commission adopt separate rules regarding renewable natural gas (RNG) for biogas, hydrogen, and gas derived from waste CO2? Please explain your reasoning.

**Response:** The Commission should adopt RNG standards for safety, reliability, and system

integrity to be met by these sources before they are delivered to utility infrastructure, but separate rules among RNG types should not be necessary. Liberty recommends that gas quality standards and emerging fuels be modernized for this classification of supply in accordance with the Northeast Gas Association/GTI Energy Interconnect Guide for Emerging Fuels into Energy Delivery Networks, December 2022 Revision.

2. Are there, or should there be, separate classifications of RNG facilities based upon feed stock (i.e. agricultural applications, landfill collection, etc.)? If so, how should those be defined?

**Response:** No additional comments from Liberty on this question.

3. Subsection 386.895.2, RSMo, states, in part: The commission shall adopt rules for gas corporations to offer a voluntary renewable natural gas program.

- a. Does this statute authorize, but not require, a program applicable to customers who volunteer to participate?
- b. Does this statute authorize, but not require, that utilities offer a program to generally inject biogas into the gas supply, the costs of which are borne by all customers of that utility whether or not a given customer volunteers to participate?

**Response:** (a) No. In Liberty's view, the statute does not address customer direct purchase of RNG. The statute addresses the Commission developing rules that enable utilities to have an RNG program, but not require utilities to offer such. (b) Yes. The Commission should implement rules that allow utilities to have a program.

4. Subsection 386.895.5, RSMo, allows recovery of prudent, just, and reasonable qualified investment costs.

- a. What factors should the Commission consider in determining prudence?
- b. How will prudence be demonstrated prior to recovery?
- c. Should prudence be determined in the rate adjustment mechanism (RAM) case, rate case, or some other or combination of cases?
- d. How will prudence be determined for a voluntary program that is likely more costly than the traditional alternative and without a state or federal supply mandate?

- e. What factors should the Commission consider in determining the justness?
- f. Should justness be determined prior to recovery?
- g. Should justness be determined in the RAM case, rate case, or some other or combination of cases?

**Response:** (a) and (b) Liberty does not believe that the statute changes the current definition of prudence or the prudence standard. The Commission should consider the relevant factors, with determinations being made on a case by case basis. (c) At this time, it appears prudence should be determined at the time of first cost recovery from customers. Liberty believes this will work similar to the interaction between the ISRS and rate cases. (d)-(f) No comment from Liberty on these questions at this time. (g) Cost recovery cannot be implemented without cost allocation to customers. Therefore, justness should be determined at the time of recovery from customers regardless of the mechanism.

- 5. What should be included as the minimum filing requirements for a RNG application?
  - a. Should all applications include a demonstration that each Tartan criteria has been met?

**Response:** Liberty does not currently have an opinion on what the Commission should require as minimum filing requirements for a RNG application or if the *Tartan* factors may be applicable. Liberty submits that the rules should not be overly prescriptive.

6. In the workshop discussion, it was noted that some biogas facilities would generate the most biogas in summer months. However, much of the energy consumption would occur in winter months, especially for residential customers. How would a hypothetical RNG program match fuel consumption with actual fuel production?

**Response:** Liberty believes this should be addressed with program design and supply contract agreements, on a case-by-case basis. Capacity, storage, pipeline supply purchases, RNG purchased, and demand are all factors to be considered on a case-by-case basis.

7. What credits or certificates should be used to track volumes of RNG generated?
  - a. Are there current certification/crediting processes already in use, or should a certification specific to Missouri be developed? Please provide as much detailed information as possible regarding the certification/crediting process currently in use.
  - b. Please describe the current or proposed certification process, how ownership of credits is derived, and existing markets for RNG credits.
  - c. Do RNG credits expire? If so, please provide citations to regulations of the various credits including timeline from development of a credit to expiration.
  - d. Which entities will be credited with the renewable attributes (i.e. credits) of RNG within an Investor Owned Utility RNG program? Will those renewable attributes be transferrable?
  - e. What entity will be responsible for running and tracking the RNG credit system?
  - f. How should sales/transfers of RNG credits be handled?
    - i. What mechanism is appropriate to return those revenues to ratepayers or participants?
  - g. Should RNG credits expire? If so, when?

**Response:** Liberty does not currently have the experience or expertise to express an opinion on credit generation or transactions. In Liberty's view, any actual monetary gain or loss of a derivative instrument would follow the cost or credit of those paying for the originating gas.

8. Please provide detailed explanations of the economics of current RNG facilities.
  - a. What are the primary revenue streams that support these facilities?
    - i. Please provide detailed estimates, with citations to the extent possible, of the market value of various products.
  - b. What equipment is necessary to construct a RNG facility by fuel source type?
  - c. What are the ongoing costs of processing RNG to natural gas (NG) pipeline quality by fuel type?
    - i. Are there incremental investments/replacements necessary over the life of the facility? Please provide detailed explanations, timelines, and cost estimates for those investments.

- d. What are the approximate costs for constructing a RNG facility by fuel source type?
- e. Is RNG typically stored on-site, and if so, what is a typical storage amount based upon peak monthly production?
- f. Provide estimates for the cost of pipeline or distribution system interconnection based upon various distances from RNG facilities.
- g. Provide detailed explanations for RNG production quantities by feed stock type.
  - i. How does production from RNG facilities change based on variations from normal weather (i.e. colder than normal, warmer than normal, various precipitation levels, etc.)? Do those changes vary by feed stock?
  - ii. What is the typical variation for gas production (upper bound, lower bound, and confidence intervals if available)?
  - iii. How do various agricultural feed stocks impact RNG production (i.e. poultry, cattle, swine, vegetative, combination, etc.)?
- h. What safety/security measures need to be installed at RNG facilities and what are the approximate costs for each measure based on facility size?
- i. Should a RAM include any tax incentives? Why or why not?

**Response:** Liberty is not a producer or operator of a RNG facility and has not independently evaluated the business model.

9. Pipeline quality limits - questions for operators of natural gas transmission and distribution systems:

- a. Heating Value
  - i. What is the range of heating values of the natural gas your system currently receives? Please provide numerical values and specify the units (e.g. 950 to 1,200 BTU/dry standard cubic foot, at STP).

**Response:** Liberty understands the current norms are between 970-1110 BTU/SCF.

- ii. In your opinion, what is an acceptable range of heating values if renewable natural gas is substituted for or blended with the natural gas delivered to your system? (If different from the range for the natural gas your system currently receives, please explain the reason(s) for the differences.)

**Response:** Liberty maintains a gas quality standard for its systems (attached).

b. Water Vapor

- i. What is the maximum limit for water vapor in the natural gas currently delivered to your system? Please provide a numerical value and specify the units (e.g. 7 pounds of water vapor per MMcf).

**Response:** Liberty understands the current norms are between 7Lb./MMscf

- ii. In your opinion, what is a reasonable maximum limit for water vapor content if renewable natural gas is substituted for or blended with the natural gas delivered to your system? (If different from the limit for the natural gas your system currently receives, please explain the reason(s) for the differences.)

**Response:** Liberty maintains a gas quality standard for its systems (attached).

c. Impurities

- i. What are the maximum limits for the following listed impurities in the gas currently delivered to your system? Please provide a numerical value and specify the units (e.g. 1.0 grain of hydrogen sulfide per 100 cf).

1. Hydrogen sulfide

**Response:** 4PPM

2. Total Sulfur

**Response:** 16.5 PPM

3. Oxygen

**Response:** 0.1 – 0.4% Vol

4. Liquid hydrocarbons

**Response:** 1-2 PPM

5. Carbon dioxide

**Response:** 2% Volume

6. Hydrogen

**Response:** 0.1 – 0.3% Volume

7. Active bacteria or bacterial agents

**Response:** Technically Free

8. Hazardous or toxic substances

**Response:** Technically Free

9. Other

**Response:** Siloxanes 0.5 PPM, Ammonia 10 PPM, Total Inerts %Volume

- WOBBE Index 1270-1400 BTU/SCF, Temperature depending on piping materials.

- ii. In your opinion, what are reasonable maximum limits for impurities if renewable natural gas is substituted for or blended with the natural gas delivered to your system? (If different from the limits for impurities in the

natural gas your system currently receives, please explain the reason(s) for the differences.)

1. Hydrogen sulfide
2. Total Sulfur
3. Oxygen
4. Liquid hydrocarbons
5. Carbon dioxide
6. Hydrogen
7. Active bacteria or bacterial agents
8. Hazardous or toxic substances
9. Other

**Response:** No comments from Liberty at this time.

- d. Do you have any additional suggestions related to gas quality limits if renewable natural gas is substituted for or blended with the natural gas delivered to your system?

**Response:** Liberty does not have any additional comments at this time.

10. Pipeline quality measurement questions for operators of natural gas transmission and distribution systems:

- a. What are your current capabilities for monitoring gas quality of the natural gas transported in your pipeline system?
- b. If renewable natural gas is substituted for or blended with the natural gas delivered to your system, which entities(s) should be responsible for monitoring gas quality:
  - i. The entity delivering the renewable natural gas to your system?
  - ii. The operator of the natural gas system?
  - iii. Other?

**Response:** (a) The quality is monitored by the pipelines delivering to Liberty and is reported to Liberty by the pipelines. (b) Liberty will require that the gas being delivered to the system meet the systems standards. Both Liberty and the supplier will monitor the quality using a combination of Liberty and supplier equipment either through direct placement by Liberty or direct data exchange.

11. What differences exist between interconnection at the LDC level versus interstate pipeline level?

**Response:** Pressure, diameter, and regulation are all factors and may vary company to company and among pipelines.

12. Do you have any further comments regarding specific topics that should be considered in the context of a RNG rule? Please provide as much information as possible and citations for supportive information, if available.

**Response:** Liberty does not have any additional comments at this time.

## **Hydrogen**

1. Is your company or city currently considering projects that would include the use of hydrogen as a fuel?

- a. If “yes”, what type(s) of projects are being considered?
- b. If “yes”, is your city or company considering using a hydrogen blended with natural gas, 100% hydrogen, or other?
- c. If “yes”, are you considering transporting hydrogen in existing natural gas pipelines?
- d. If “yes”, are you considering building a dedicated pipeline network for purposes of transporting the hydrogen or hydrogen/natural gas blend?
- e. If “no”, is the use of hydrogen as a fuel something that your company or city may consider using as a fuel in the future?

**Response:** (a) Yes, Liberty is currently considering hydrogen as a fuel in various operating jurisdictions. Liberty is evaluating hydrogen for electric and natural gas utilities. As such, both electrolytic and methane derived hydrogen are being considered. Liberty is a member of the Northeast Hydrogen Hub initiative as well as the Hydrogen Fuel Cell Partnership. Projects include blending into the natural gas system, dedicated hydrogen pipelines for mobility (on-road & off-road), stationary fuel cells, and microgrids.



(b) Yes, Liberty is considering blending hydrogen into the natural gas network. Liberty is also exploring short and intermediate distance 100% hydrogen distribution for dedicated hydrogen customers.

(c) The Company is considering blending hydrogen into existing natural gas pipelines but not converting existing pipelines to operate on 100% hydrogen at this time.

(d) Yes, Liberty is working with an end use customer to evaluate the potential for a dedicated 100% hydrogen network with multiple uses/meters.

### **PGA Recovery**

1. Is a LDC's purchased gas adjustment (PGA) mechanism impacted by the RNG statute/rule? Why or why not?

**Response:** No. As Liberty conceives of possible RNG projects, the PGA structure and tariff would not be directly affected by the RNG statute/rule. Liberty would likely contract to purchase RNG from a supplier, and the cost of that RNG would flow through the PGA with other gas costs with rates subject to Commission approval. Liberty's qualified investments recoverable under the RNG statute would primarily be in interconnection and distribution facilities which are not within the PGA.

2. What are the issues related to PGA sales versus transportation customers (buying their own gas) with regard to RNG injections to the distribution system?

**Response:** Gas purchased by Liberty for its customers is treated as PGA gas. Transportation and PGA tariffs do not address whether transportation customers may source natural gas or RNG. It appears a transportation customer could already source RNG and deliver it to a utility over an interstate pipeline. If, in the future, a transportation customer sought to directly inject RNG into the distribution system; quality, measurement, operational, and current transportation tariffs would need to be evaluated for the circumstances and any deliveries to Liberty's system from transport customers. The existing PGA tariff could manage transportation customer nominations and imbalances.

**WHEREFORE**, Liberty respectfully submits this Response to Commission Order and requests such relief as is just and proper under the circumstances.

Respectfully submitted,

/s/ Diana C. Carter

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### **CERTIFICATE OF SERVICE**

I hereby certify that the above document was filed in EFIS on this 18<sup>th</sup> day of September, 2023, and sent by electronic transmission to the Staff of the Commission and the Office of the Public Counsel.

/s/ Diana C. Carter



# Renewable Natural Gas (RNG) Pipeline Gas Quality Specifications

## Purpose

This document outlines gas quality specifications for the composition of renewable natural gas (RNG) for injection into the Liberty Utilities gas distribution system. These specifications ensure that RNG to be injected into the system is within expected operating parameters and interchangeable with natural gas.

This document is intended to be used as a guide for evaluating RNG business opportunities or contracting new RNG supply.

## Scope

This document covers the pipeline gas quality specifications for RNG for injection into the Liberty Utilities gas distribution system, without respect to biogas sources.

It does not include procedures or standards for designing, constructing or operating biogas or biomethane facilities.

## Specifications

RNG composition must meet the specifications outlined in Table 1. The values shown in Table 1 represent maximum levels, unless a range of values is indicated. Minimum and maximum pressures will be set for each RNG facility on a case-by-case basis.



In summary, in order to be injected into the Liberty Utilities gas distribution system, RNG must:

- Not contain any contaminants, particles, or other impurities at a concentration that are known as a threat to the integrity of the system, human health, or the environment.
- Have an energy content no lower than 970 btu/scf and no higher than 1110 btu/scf.
- Have a Wobbe Index during normal operation no lower than 1270 and no higher than 1400 btu/scf.
- Not contain more than 2% by volume of carbon dioxide.
- Not contain more than 0.1% - 0.4% by volume of oxygen.
- Not contain more than 4% by volume of total inerts.
- Not contain more than 7lbs / million scf of water content.
- Not contain more than 0.1% - 0.3% by volume of hydrogen.
- Not contain more than .25 grains / 100scf (4.000 ppm) of hydrogen sulfide.
- Not contain more than 1 grain / 100scf (16.5 ppm) of total sulfur.
- Not contain more than 10ppm of ammonia.
- Not contain more than 0.5ppm of total siloxanes (depending on molecular weight).
- Not contain more than 1-2ppm of halocarbons and organochlorinated compounds (depending on molecular weight).
- Be technically free of volatile organic compound, bacteria, particles, and dust.
- Not form liquid hydrocarbons at temperatures of 15°F or higher at the delivery pressure.
- Be delivered at a maximum temperature of 86°F.

**Table 1: Renewable Natural Gas – Pipeline Gas Quality Specifications**

		Value	Unit	Monitoring Frequency*	Recommended Test
Heating Value	HV	970 - 1110	BTU/scf	Continuous	D1945 / D7164
Wobbe Index	WN	1270 – 1400	BTU/scf	Continuous	D1945 / D7164
Carbon Dioxide	CO <sub>2</sub>	2	% vol	Continuous	D1945
Oxygen	O <sub>2</sub>	0.1 - 0.4	% vol	Continuous	D1945
Total Inerts		4	% vol	Continuous	D1945
Water Content	H <sub>2</sub> O	7	Lbs/Mscf	Continuous	D1142 / D5454 / D3588
Hydrogen	H <sub>2</sub>	0.1 – 0.3	% vol	Periodic	D1945
Hydrogen Sulfide	H <sub>2</sub> S	4.00	ppm	Continuous	D4084 / D6228 / D4468 / D5504 / D7166
Total Sulfur	S	16.5	ppm	Periodic	D4084 / D6228 / D4468 / D5504 / D7166
Ammonia	NH <sub>3</sub>	10	ppm	Periodic	D1945
Siloxanes	Si	0.5	ppm	Periodic	E.g., Gas Chromatography (ELCD, AED, MS)
Halocarbons and organochlorinated compounds		1 - 2	ppm	Periodic	E.g., Gas Chromatography / Electrolytic Conductivity Detector
Volatile organic compound	VOCs	Technically free of		Periodic	E.g., Gas Chromatography / Mass Spectrometry (GC/MS)
Bacteria		Technically free of		Periodic	E.g., Most Probable Number Determination of Total Live Bacteria (MPN), others
Particles, dust, etc.		Technically free of		Continuous	E.g., Environmental recommendations 0.1µm filters
Hydrocarbon Dew Point		15 / -9	°F / C°	Continuous	D5504 / D1142
Delivery Temperature (plastic pipe)		86 / 30	°F / C°	Continuous	

\* In this document, continuous monitoring means real-time or near-real time. Periodic monitoring could be seasonal, semi-annually, or annually. Final monitoring frequency will be defined for each RNG facility

## Control and Maintenance

For document control and maintenance purposes, the following table captures important information related to this document.

Review: Annually or as needed
Distribution: Liberty Utilities employees
Regulations: N/A
Related Documents: N/A