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	)))	Case No. GW-2022-0060

SNGMO'S RESPONSE TO STAFF'S QUESTIONS

COMES NOW Summit Natural Gas of Missouri, Inc. ("SNGMO" or the "Company") and submits the following comments in response to questions issued by the Staff of the Missouri Public Service Commission ("Staff") on July 26, 2023, regarding Renewable Natural Gas ("RNG") and related matters. For ease of reference, the Company has included a copy of each question posed by Staff, followed by SNGMO's response.

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: SNGMO is supportive of rules and legislation that set clear and reasonable requirements, including gas quality requirements, qualified investments, and prudency for bringing RNG onto its system and making investments in the development of such facilities. It is imperative that such rules adequately ensure safety and cost recovery, while not being so restrictive as to discourage investment. In particular, the Commission should consider outlining specifications that are consistent with upstream pipeline quality, so as to standardize across the delivery system.

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: The development of renewable natural gas and hydrogen in Missouri will provide a plethora of benefits to Missouri, including economic investment, job creation, and energy reliability. In the instance of this statute, one of the most important drivers to capitalizing on these benefits is the law's inclusion of "qualified investments." By allowing utilities to make recoverable capital investments in the development of renewable natural gas or hydrogen facilities, the state is creating a pathway for energy resiliency and reliability by maximizing opportunities for the in-state development of

natural gas. This is particularly poignant for a state like Missouri that does not currently have natural gas development within its borders.

The law allows for utilities to make qualified investments to interconnect to renewable gas facilities or participate directly in the development and ownership of such facilities. Utilities have the opportunity to then retain the RNG attributes created by the gas or sell them to third parties for use in federal or state level programs.

Given the range of potential outcomes or uses, it's critical Missouri develop a flexible framework for developers and utilities so as not to limit the development of one feedstock over the other. In addition, in the absence of a Renewable Fuel Standard or law mandating the purchase of renewable fuels, a Missouri based certification process is unnecessary.

In light of that, the state should forgo a classification program and allow for utilities and developers of projects to opt-in to other state certification programs. Those programs are subject to their stringent review and certification requirements. This will allow utilities ultimate flexibility in selling the attributes to third parties for use toward their emission reduction goals. Because of the difference in how valuable one potential feedstock is over the other, it is imperative Missouri allow for utilities and developers to opt in to state and federal level programs to sell the attributes. Failure to do this may disincentivize investment in certain high-value feedstocks like hog and dairy digesters because it would limit the developer or utility's ability to maximize the economic potential of the digesters and thus limit the potential savings to customers.

3. Section 386.895.2. RSMo states: 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?

RESPONSE: No. This statute does not address or authorize a voluntary customer program. However, it is important to note that, this statute (or any other in Missouri) does not prohibit a utility from developing a customer opt-in Renewable Natural Gas program (also known as a green tariff). A program of that nature would allow customers to voluntarily choose to offset their emissions with RNG. Green tariff programs have largely been adopted in other states across the country through regulatory proceedings – not legislation. In those instances, the prudency of RNG purchased on behalf of participants in the program is determined based on the Company's procurement practices in obtaining the RNG or hydrogen fuel.

    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: Yes. The statute authorizes but does not require that utilities offer a program to generally inject biogas into the gas supply and additionally make "qualified investments" in renewable gas infrastructure projects to further the development of renewable gas, creating jobs, energy reliability and resilience. We believe that utilities should be allowed to generally inject biogas into the gas supply, within reasonable limits around volume and cost, the costs of which would be borne by all customers. As indicated in an article in the Missouri Times, Sen. Jason Bean discussed the intent in proposing his bill: "Bean said he sponsored the bill because it would allow utilities to offset the cost of adopting a renewable natural gas program in the short term and yield more benefits for the state in the future." Bean files bill to establish renewable natural gas program (themissouritimes.com)

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?

RESPONSE: The Commission should consider the following factors when determining prudence: where a utility is seeking recovery of capital expenses associated with a qualified investment the Commission should consider economic feasibility, economic benefit, customer benefits, alignment of environmental goals, and long-term viability. For purchases of RNG or hydrogen gas the Commission should consider competitive supply procurement methodologies, market availability, and other nuances that may influence supply cost specific to that utility given its geographic location and customer base.

    b. How will prudence be demonstrated prior to recovery?

RESPONSE: For qualified investments, prudence may be demonstrated prior to recovery through project plans, risk assessments, and cost-benefit analyses. For purchases of RNG and hydrogen gas, prudence may be demonstrated through procurement documentation, and other market analyses and expert testimony regarding the prudency of RNG and hydrogen gas procurement.

    c. Should prudence be determined in the rate adjustment mechanism (RAM) case, rate case, or some other or combination of cases?

RESPONSE: Prudency should be determined as part of the Company's initial application filing for a rate adjustment mechanism (RAM). Any significant cost changes, deviations, or additions to the initial application filing should be subject to prudency review in subsequent RAM proceedings.

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?

RESPONSE: A prudency determination should be inclusive of the standard factors for determining the prudency of any project before the Commission such as whether the costs for the project are reasonable as well as customer impact and economic feasibility. However, the Commission should also consider other benefits – which may include environmental benefits, system resiliency, reliability and sustainability impacts, local and economic growth, education, and system learning opportunities to name a few. Price stability associated with projects of this nature is another relevant factor. During Winter Storm Uri, SNGMO's sister company in Arkansas, Arkansas Oklahoma Gas, utilized landfill gas to help support the system. At a time when the utility was facing serious supply constraints forcing it to curtail certain customers, the landfill gas facility was not only a reliable source of gas supply but also experienced no price volatility at a time when the price of conventional gas sources had increased over 200%. However, there is not a one-size fits all approach as each utility is differently situated in terms of geographic location, customer base and system supply needs.

e. What factors should the Commission consider in determining the justness?

RESPONSE: In applying the "just" standard to incurred costs associated with an RNG program, the Commission should consider overall program benefits in addition to the costs associated with the program. For example, a determination of whether or not the costs incurred for the qualified investment was just and reasonable could involve an examination of the environmental and reliability benefits of a project, the needs for such benefits in a given location, as well as the methods used by the Company to obtain a reasonable price for the materials supporting a qualified infrastructure investment.

f. Should justness be determined prior to recovery?

RESPONSE: To allow for the regulatory certainty intended by the legislation, a determination of justness should be made at the time of project approval.

g. Should justness be determined in the RAM case, rate case, or some other or combination of cases?

RESPONSE: Justness should be determined as part of the RAM application case.

5. What should be included as the minimum filing requirements for an RNG application?

a. Should all applications include a demonstration that each Tartan criteria has been met?

RESPONSE: The minimum filing requirements should include a description of the project plan including timeline for implementation and cost recovery, project costs, projected rate impacts and cost allocation, and economic feasibility. A demonstration of the Tartan criteria should not be required. Tartan criteria should be considered a guide, with the exception of a showing of a "need" for the project, as this criteria will not always be applicable to these types of projects.

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: RNG can be injected into the existing natural gas pipeline network and drawn upon as needed, taking advantage of the large storage capacity and supply flexibility within the pipeline system itself. By sourcing biogas from different feedstocks that have different production peaks throughout the year (e.g., agricultural waste, wastewater treatment plants, landfills, as well as the broader interstate pipeline system), a utility can create a balanced and consistent supply. Securing long-term contracts with various RNG producers can help ensure a consistent supply.

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.

RESPONSE: There are certification processes at the federal level, such as the EPA's Renewable Fuel Standard (RFS) and voluntary markets like Green-e and the M-RETs system.

    b. Please describe the current or proposed certification process, how ownership of credits is derived, and existing markets for RNG credits.

RESPONSE: The current certification process typically involves third-party verification of RNG production, source, quality, and environmental attributes. Credits usually belong to the RNG producer initially and can be sold or transferred to utilities or other entities. RNG credits can be traded in markets that recognize their value, such as Renewable Identification Numbers (RINs) under the RFS program.

    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.

RESPONSE: Except as provided in 40 CFR § 80.1427(a)(7), under the Federal RIN program a RIN is valid for compliance during the calendar year in which it was generated, or the following calendar year. Any RIN that is not used for compliance purposes for the calendar year in which it was generated, or for the following calendar year, will be considered an expired RIN. Pursuant to § 80.1431(a), an expired RIN will be considered an invalid RIN and cannot be used for compliance purposes.

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?

RESPONSE: Typically, producers or initial investors are credited with renewable attributes. Within an Investor-Owned Utility ("IOU") RNG program, utilities may hold or sell credits. Credits will be transferrable and can be sold or traded, with the ultimate credit for the attribute resting with the final purchaser.

e. What entity will be responsible for running and tracking the RNG credit system?

RESPONSE: A third-party organization might oversee the tracking or utilities could be charged with tracking the purchasing and selling of the attributes themselves.

f. How should sales/transfers of RNG credits be handled?

RESPONSE: Please see the Company's responses to question 7e and question 7i for information responsive to this request**.**

i. What mechanism is appropriate to return those revenues to ratepayers or participants?

RESPONSE: If the utility purchases RNG on behalf of customers and retires the attributes on their behalf, there is no new revenue associated with them. If a utility makes a qualified investment in an RNG facility but chooses to sell the renewable gas attributes to a third party for use in the RFS program or any state level renewable fuels program, to the extent there is any excess revenue above the utility's revenue requirement for the qualified RNG investment that revenue could be returned through a rider on their bill, through the rate adjustment mechanism process, or as a decrease in the cost of gas through the Company's PGA. This would reduce costs for customers while incentivizing investment in qualified facilities.

g. Should RNG credits expire? If so, when?

RESPONSE: We do not recommend Missouri create a separate certification program for

RNG. Instead, Missouri should allow flexibility for utilities and developers to participate in federal and state level certification programs. In this instance, utilities would follow the expiration requirements of those programs, which is typically a year.

8. Please provide detailed explanations of the economics of current RNG facilities.

RESPONSE: The economics of RNG facilities are complex and multifaceted, influenced by various factors including technology, feedstock, regulations, and market dynamics.

a. What are the primary revenue streams that support these facilities?

RESPONSE: The preliminary revenue streams for RNG facilities are the sales of blue gas (no attribute, just the CH4 molecule) and the sales of attributes at the federal and state levels, or sales of attributes to voluntary buyers.

i. Please provide detailed estimates, with citations to the extent possible, of the market value of various products.

RESPONSE: RNG prices vary based on quality, location, and end use. RINs, for example, can vary significantly based on type, ranging from $10 to $70 per credit depending on the feedstock.

b. What equipment is necessary to construct a RNG facility by fuel source type?

RESPONSE: (1) Biogas from Landfills or Agriculture: Anaerobic digesters, gas cleaning systems, compressors. (2) Hydrogen Production: Electrolyzers for water splitting, purification systems, compressors. (3) Gas from Waste CO2: Specialized reactors, capture and separation technologies.

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.

RESPONSE: Much like a conventional natural gas facility, ongoing costs will vary based on fuel type and may include feedstock procurement, ongoing maintenance, and energy costs. Equipment such as digesters, pumps, or cleaning systems may need to be replaced or upgraded over time.

d. What are the approximate costs for constructing a RNG facility by fuel source

type?

RESPONSE: Costs vary by fuel source, location, and size, but generally are tens of millions of dollars to design and build.

e. Is RNG typically stored on-site, and if so, what is a typical storage amount based upon peak monthly production?

RESPONSE: No. RNG is generally injected directly into the gas pipeline system, although there are systems that transport the gas from the site to a pipeline system.

f. Provide estimates for the cost of pipeline or distribution system interconnection based upon various distances from RNG facilities.

RESPONSE: Costs depend on distance, capacity, and regulations, potentially ranging from a few hundred thousand to several million dollars, in line with the build for any other interconnection to the system from other sources of supply.

g. Provide detailed explanations for RNG production quantities by feed stock type.

RESPONSE: Each technology can scale depending on the feedstock amounts available at a specific location. Biogas from Agriculture is dependent on animal numbers, waste management practices, and digestion technology. Landfill gas depends on waste volume and composition, and landfill operation. Hydrogen and waste CO2 is dependent on technologies used, electrolyzer size, and electricity used.

i. How does production from RNG facilities for various feed stock types based on variations from normal weather (i.e. colder than normal, warmer than normal, various precipitation levels, etc.)?

RESPONSE: Weather can affect feedstock availability and processing efficiency, though generally project controls can adjust for external impacts.

ii. What is the typical variation for gas production (upper bound, lower bound, and confidence intervals if available).

RESPONSE: SNGMO has no response at this time.

iii. How do various agricultural feedstocks impact RNG production (i.e. poultry, cattle, swine, vegetative, combination, etc.)?

RESPONSE: Different feedstocks have varying methane potentials.

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?

RESPONSE: The safety and integrity of a pipeline operator's system is its foremost priority. Safety equipment, gas quality and other monitoring systems, alarms, and containment structures are all required security measures. Costs would vary based on the size of the facility.

i. Should a RAM include any tax incentives? Why or why not?

RESPONSE: Any tax incentives received by the Company pertaining to the project should be used to offset costs that are collected through the RAM, so that the project earns at its allowed rate of return.

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: Depending on the pipeline serving a particular service area, heating values range from 967 to 1200 on the ANR system and a system wide average of not less than 950 for Southern Star.

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: SNGMO proposes a heating value between 965 and 1150 Btu/SCF dry gas at sixty degrees Fahrenheit (60°F) and an atmospheric pressure of 14.73 pounds per square inch (psi).

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: 7 pounds per million standard cubic feet (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: Water vapor content should be limited to no more than 7 pounds per million standard cubic feet (MMscf).

c. Impurities

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

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:

1. Hydrogen sulfide: The gas shall contain not more than one grain of hydrogen sulfide per one hundred (100) cubic feet
2. Total Sulfur: not more than twenty (20) grains total sulfur per one hundred
   (100) cubic feet
3. Oxygen : not more than 1% by volume
4. Liquid hydrocarbons: The gas shall be free from hydrocarbons in their liquid state and shall not have a hydrocarbon dew point in excess of 40 deg F
5. Carbon dioxide: The gas shall contain not more than two percent (2%) by volume of carbon dioxide
6. Hydrogen: NA
7. Active bacteria or bacterial agents: NA
8. Hazardous or toxic substances: NA
9. Other: NA

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: SNGMO currently receives gas from more than one upstream supplier. Therefore, to create the suggested statewide RNG gas quality specifications below, we have taken the more conservative requirements between the suppliers. For any specific RNG project, gas quality specifications should be reviewed and potentially revised to align with specifications and customer needs on the impacted system(s), along with any constituents unique to the particular RNG feedstock.

1. Hydrogen sulfide: The gas shall contain not more than one quarter grain of hydrogen sulfide per one hundred (100) cubic feet
2. Total Sulfur: not more than twenty (20) grains total sulfur per one hundred
   (100) cubic feet
3. Oxygen : not more than 0.2% by volume
4. Liquid hydrocarbons: The gas shall be free from hydrocarbons in their liquid state and shall not have a hydrocarbon dew point in excess of 15 deg F
5. Carbon dioxide: The gas shall contain not more than one percent (1%) by volume of carbon dioxide
6. Hydrogen: NA
7. Active bacteria or bacterial agents: The gas shall not contain, either in the gas or in any liquids within the gas, any microbiological organism, active bacteria or bacterial agent capable of contributing to or causing corrosion and/or operational and/or other problems. Microbiological organisms, bacteria or bacterial agents include, but are not limited to, sulfate reducing bacteria (SRB) and acid producing bacteria (APB). Tests for bacteria or bacterial agents shall be conducted using quantitative PCR (DNA) test methods in accordance with NACE International Test Method (TM0212-2018) or any other test method acceptable to Summit which is currently available or may become available at any time.
8. Hazardous or toxic substances: NA
9. Other

a. N-nitroso-di-npropylamine: less than 0.004 ppmv

b. Siloxanes: less than 0.1 mg Si/m3

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: Yes. The Company urges the Commission to establish rules that will allow flexibility on gas quality standards based on system needs and risks. SNGMO has researched the gas quality requirements of various FERC regulated pipelines in Missouri and has found that there are certain pipelines in Missouri with exceedingly strict gas quality requirements. These strict standards do not provide any significant advantages to the pipeline operator, and therefore, simply referencing the closest FERC-regulated pipeline could also discourage investment in RNG infrastructure in Missouri. As an example, several pipelines in Missouri set oxygen content requirements around 0.2% to maintain pipeline safety and integrity. Several other FERC regulated pipelines in Missouri set a much stricter oxygen content requirement of 0.001%; to achieve that level, an RNG facility would require additional gas upgrading equipment at a cost of close to $1 million, even if the RNG would never end up on that FERC regulated pipeline. This substantial additional cost would likely discourage investment in Missouri without meaningfully improving pipeline safety.

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?

RESPONSE: We primarily rely on readily available gas quality reports from our upstream pipeline supplier.

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: The operator of the natural gas system is responsible for making sure gas quality on the system allows for safe and reliable operations. However, the system operator should have commercial agreements in place to require that the gas delivered to their system meets their gas quality standards. Currently, affiliated LDC companies in Arkansas and Maine are interconnected to RNG facilities. At each facility we have in place sensors that monitor the gas quality to ensure it meets our specifications. The sensors allow for remote shut-off in the event the gas quality delivered to the utility does not meet the quality standards we have in place.

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

RESPONSE: N/A

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: None at this time.

HYDROGEN

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

RESPONSE: Yes. SNGMO's parent company, Summit Utilities, Inc. ("Summit"), has been a leader in supporting RNG and hydrogen technology and legislation in its states of operation. Support and consideration of these projects continue to be an important objective for Summit, SNGMO, and Summit's other subsidiaries.

a. If "yes", what type(s) of projects are being considered?

RESPONSE: Blending projects as well as direct feed projects are being considered.

b. If "yes", is your city or company considering using a hydrogen blended with natural gas, 100% hydrogen, or other?

RESPONSE: If Summit were to pursue a hydrogen project, it would likely be blended with natural gas.

c. If "yes", are you considering transporting hydrogen in existing natural gas pipelines?

RESPONSE: Yes.

d. If "yes", are you considering building a dedicated pipeline network for purposes of transporting the hydrogen or hydrogen/natural gas blend?

RESPONSE: No.

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: N/A

PGA RECOVERY

1. Is a LDC's purchased gas adjustment (PGA) mechanism impacted by the RNG

statute/rule? Why or why not?

RESPONSE: It can be as the cost of RNG could flow through the PGA mechanism as a cost of gas.

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: Transportation customers purchase gas on their own behalf and it is delivered by the utility, as such there is nothing prohibiting transportation customers from purchasing RNG as part of their gas supply portfolio today. In the event a utility purchases RNG as part of its gas supply to deliver to its customers, it would not impact transport customers given their supply is purchased independent from the utility. Furthermore, any RNG injected onto the system would meet gas quality requirements and therefore not pose any issues to transportation customers.

In the event a utility makes a qualified investment in an RNG facility and a transportation customer then chooses to purchase renewable attributes from that facility to meet its climate goals, the sale of those attributes should be treated like the sale of any other attributes.

Respectfully submitted,

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COUNSEL FOR
SUMMIT NATURAL GAS OF
MISSOURI

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing was served electronically to all parties of record on this 18th day of September, 2023.

/s/ Goldie Bockstruck
Goldie Bockstruck
Director of Regulatory Affair