

STATE OF VERMONT  
PUBLIC UTILITY COMMISSION

Case No. \_\_\_\_\_

Petition of Vermont Gas Systems, Inc., for approval of an out-of-state renewable gas purchase contract with a term exceeding 5 years pursuant to 30 V.S.A. § 248(i)	
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**DIRECT TESTIMONY OF  
THOMAS MURRAY  
ON BEHALF OF VERMONT GAS SYSTEMS, INC.**

June 13, 2022

**SUMMARY OF TESTIMONY**

Mr. Murray's testimony describes the various components of VGS's contract for the purchase of RNG with Archaea Energy Marketing LLC and how they align with State and VGS climate goals in a cost-effective manner that benefits VGS customers.

**DIRECT TESTIMONY OF  
THOMAS MURRAY  
ON BEHALF OF VERMONT GAS SYSTEMS, INC.**

1   **Q1.   Please state your name, occupation, and business affiliation.**

2   **A1.**   My name is Thomas Murray. I am the Vice President of Decarbonization Technology at  
3   Vermont Gas Systems, Inc. (“VGS” or the “Company”).  
4

5   **Q2.   Please describe your educational background and pertinent professional experience.**

6   **A2.**   In my role at VGS, I lead the Company’s innovation initiatives, which includes becoming  
7   the first gas utility in the nation to offer a voluntary Renewable Natural Gas (“RNG”) program  
8   and other decarbonization efforts. My responsibilities also include development of low-to-zero  
9   carbon energy projects and work on the state and national level to build a clean energy transition  
10   path for gas utilities. I serve on the board of directors for the American Biogas Council and on  
11   the American Gas Association’s Sustainability Committee (I was the past Committee Chair in  
12   2020), where I am driving the national effort to incorporate RNG into the supply portfolio of the  
13   nation’s gas utilities. My national activities are focused on the growing efforts to decarbonize the  
14   nation’s gas system with RNG, hydrogen, syngas, carbon capture systems, and other rapidly  
15   advancing technologies. In my prior roles at VGS, I oversaw the Company’s Energy Efficiency  
16   program, Sales/Marketing efforts, and External Relations.

17         Before joining VGS, I served as the State of Vermont’s Chief Information Officer and the  
18   Commissioner of Information and Innovation, and also served as the State’s Deputy  
19   Commissioner of Economic Development. I also worked in the telecommunications industry for

1 over fifteen years with TDS Telecom and Rural Cellular Corporation. I have degrees from  
2 Western New England University (BS/BA) and Champlain College (MS).

3  
4 **Q3. Have you previously testified before the Vermont Public Utility Commission**  
5 **(“Commission”)?**

6 **A3.** Yes. I have provided testimony in several Commission proceedings, including Docket  
7 No. 8667, a VGS petition for a Renewable Natural Gas (“RNG”) Program and optional tariff;  
8 Case No. 20-0384-PET, a VGS petition for approval of an out-of-state RNG purchase contract;  
9 and Case No. 21-2524, a VGS filing for approval of tariffs reflecting the option to purchase  
10 locally-sourced renewable natural gas and associated attributes. Most recently, I provided  
11 testimony in Case No. 21-2661-SC, a VGS petition for approval of a special contract with  
12 Middlebury College to provide the College with RNG.

13  
14 **Q4. What is the purpose of your testimony?**

15 **A4.** The purpose of my testimony is to describe certain aspects of VGS’s contract for the  
16 purchase of RNG with Archaea Energy Marketing LLC (the “Contract”), and how the Contract  
17 aligns with State and VGS climate goals in a cost-effective manner that benefits VGS customers.  
18 My testimony describes how the Contract’s option to increase RNG volumes supports VGS’s  
19 Climate Action Plan and works with its Alternative Regulation Plan (“ARP”).<sup>1</sup> It then describes  
20 the option to resell volumes into wholesale markets to minimize VGS gas supply cost impact.

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<sup>1</sup> See Exhibit VGS-JMP-5 filed May 21, 2021, in Case No. 19-3529-PET, approved by Commission Order dated Aug. 11, 2021.

1 This includes a primer on established renewable transportation fuel markets and how a resale  
2 option can be optimized to benefit ratepayers. I also discuss how VGS plans to participate in the  
3 renewable transportation fuel markets and keep regulators informed.

4  
5 **Q5. Please describe the key Contract terms.**

6 **A5.** As Mr. Lawliss describes in more detail in his testimony, the Contract term is 14.5 years  
7 with an option to extend an additional 5 years. Each full contract year has a minimum contracted  
8 volume of 300,000 dekatherm (“DTH”)<sup>2</sup>, which VGS will purchase from Archaea’s Seneca  
9 Landfill RNG plant in Waterloo, New York. The Contract also includes two unique tools: an  
10 option to increase volumes and an option to resell volumes into the renewable transportation fuel  
11 markets, both of which I discuss further below.

12  
13 **Q6. How does this Contract support VGS’s Climate Action Plan and other Vermont**  
14 **climate objectives?**

15 **A6.** In order for VGS to contribute to the State’s Global Warming Solutions Act  
16 requirements<sup>3</sup> and achieve our own climate goals, the Company will need to purchase and sell  
17 upwards of 2 billion cubic feet (“Bcf”)<sup>4</sup> per year of non-fossil gas (such as RNG or Green  
18 Hydrogen) by 2030. This Contract provides a minimum RNG volume of 300,000 DTH per year,  
19 and also provides VGS the option to increase the RNG volume each year. If we exercise this  
20 option, this Contract alone could secure 50% of the non-fossil gas needed to meet our supply

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<sup>2</sup> One dekatherm is equivalent to 1 million British thermal units (“MMBtu”).

<sup>3</sup> See 10 V.S.A. § 578 et. seq.

<sup>4</sup> 1 Bcf is roughly equivalent to 1 million DTH.

1 goal for 2030. With these RNG volumes added to VGS's existing RNG supply under other  
2 contracts, VGS will be on a path to supplying more than 13% of our retail sales with RNG.  
3 Based on actual RNG supply under contract, this is one of the most aggressive RNG portfolios of  
4 any gas utility in the U.S.

5  
6 **Q7. Does this Contract support the climate action goals reflected in VGS's ARP?**

7 **A7.** Yes. VGS's ARP contemplates that VGS may include RNG as a component of its overall  
8 supply, stating that during "each year of this Plan, VGS may incrementally increase the amount  
9 of RNG under the Purchased Gas Adjustment ("PGA") by up to 2% of VGS's overall retail gas  
10 sales."<sup>5</sup> The ARP also contemplates that VGS may increase RNG at a slower rate based on  
11 factors such as the overall impact on rates and VGS's competitive position. This Contract  
12 dovetails nicely with the RNG feature of our ARP. If we exercise the option to increase volumes  
13 by 100,000 DTH per year, that amount will roughly equal 1% of VGS retail sales volumes. This  
14 is well within the ARP allowance, provides a structure that allows us to gradually ramp up RNG  
15 volumes, and offers a pathway for VGS to increase RNG volumes in a stable manner.  
16 Conversely, the option also allows VGS *not* to increase RNG volumes based on the factors set  
17 forth in our ARP. Accordingly, the Contract is precisely the kind of arrangement contemplated  
18 by our ARP.

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<sup>5</sup> ARP at 4.

1 **Q8. Please describe the option VGS has under the Contract to resell RNG into the**  
2 **renewable transportation fuel markets.**

3 **A8.** Under the contract, VGS has the option to elect to take all of the RNG volumes and add  
4 that RNG to its own supply portfolio. Alternatively, VGS may elect to take only a portion of the  
5 available volumes and sell the remainder in the renewable transportation fuel markets. For the  
6 volumes we add to our portfolio, we pay the Contract price. For volumes that are sold in the  
7 renewable transportation fuel markets, we expect the wholesale price to be higher than our costs  
8 under the Contract, resulting in net revenue for VGS.<sup>6</sup> Accordingly, these Contract options  
9 enable VGS to gradually pace the amount of RNG it includes in the VGS supply portfolio.

10  
11 **Q9. Please explain the benefits of VGS's option to sell some RNG volumes under the**  
12 **Contract in the renewable transportation fuel markets rather than adding those volumes to**  
13 **VGS's retail RNG supply.**

14 **A9.** This option has several benefits. First, as discussed above, the option to sell some  
15 volumes under the Contract into the renewable transportation fuel markets gives us the kind of  
16 flexibility to gradually ramp up our own use of RNG that is contemplated in our ARP. Second,  
17 the Contract provides a stable, relatively long-term contract price that we expect to be favorable  
18 over the term of the Contract. This provides us with the opportunity to secure affordable RNG  
19 for our customers, but our customers are also protected under the option to direct Archaea to sell

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<sup>6</sup> Under the contract, Archaea would receive a small percentage of renewable transportation fuel revenues, which would be from the net proceeds above the original cost of the RNG. *See* Confidential Exhibit VGS-TL-2.

1 all or a portion of the VGS volumes into the renewable transportation fuel market.<sup>7</sup> This option  
2 enables VGS to mitigate costs for our customers and use any revenue margin from renewable  
3 transportation fuel market transactions to reduce overall costs, as discussed more below.  
4

5 **Q10. Are there well-established interstate renewable transportation fuel markets that will**  
6 **enable VGS to exercise the option to sell some volumes at wholesale?**

7 **A10.** Yes. Both federal and certain state policies have created renewable transportation fuel  
8 markets into which RNG can be sold.

9 The Federal Renewable Fuel Standard<sup>8</sup> is a program administered by the Environmental  
10 Protection Agency that requires transportation fuel refiners and producers to provide renewable  
11 fuels for a certain percentage of their annual volumes. These companies can either produce the  
12 renewable fuel directly, purchase RINs associated with other renewable fuel production, or pay a  
13 penalty (i.e., an Alternative Compliance Payment). Each year the EPA sets the obligations  
14 (known as Renewable Volume Obligations or “RVOs”) for these large transportation fuel  
15 producers. This program has created a marketplace<sup>9</sup> for the sale of RINs, which these companies  
16 can use to satisfy their annual Renewable Volume Obligations.

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<sup>7</sup> These markets include the Federal Renewable Fuels Standard (“RFS”) market, which transfers the Renewable Identification Numbers (“RINs”) associated with the RNG, and other markets like California’s Low Carbon Fuel Standard (“LCFS”). For more information, see <https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard>.

<sup>8</sup> For more information, see <https://www.epa.gov/renewable-fuel-standard-program/overview-renewable-fuel-standard>.

<sup>9</sup> For more information, see <https://www.epa.gov/fuels-registration-reporting-and-compliance-help/rin-trades-and-price-information>.

1 The Low Carbon Fuel Standards are state-level programs in California, Washington, and Oregon  
2 that create an additional marketplace for RNG in the transportation fuel space. California's  
3 program has been in place for several years, while Washington's and Oregon's are just coming  
4 into existence. Under LCFS programs, RNG is assigned a Carbon Intensity ("CI")<sup>10</sup> value based  
5 on the lifecycle carbon benefits from the production and use of RNG as a transportation fuel. The  
6 CI value translates into a ton of carbon avoided, and this carbon value is then traded in the  
7 various states' cap and trade carbon markets. Entities in those states that need to purchase carbon  
8 credits can purchase RNG-associated credits, thereby generating the RNG value stream. The  
9 same molecule of RNG can generate both RINs, to satisfy the federal RFS obligations, and state-  
10 level LCFS credits, so long as it is used to fuel compressed natural gas ("CNG") vehicles.<sup>11</sup>

11  
12 **Q11. Are there risks associated with the renewable transportation fuel markets?**

13 **A11.** Yes, while the existing markets are well established federal and state programs, there is  
14 always a risk that shifts in policy and regulation could alter these programs. However, we are  
15 seeing an increase in these programs in other jurisdictions (including, for example, in Colorado,  
16 New York, and Massachusetts), which suggests that while current markets could shift or  
17 contract, new states will be creating additional markets. In Canada, we are even seeing RNG  
18 being shipped to Europe (as Liquefied Natural Gas). Thus, we believe that even if these  
19 particular programs are altered, there will be new wholesale markets accessible to VGS through  
20 this Contract.

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<sup>10</sup> For more information, see <https://ww2.arb.ca.gov/resources/documents/lcfs-pathway-certified-carbon-intensities>.

<sup>11</sup> Archaea, through their renewable transportation fuel market brokers, will be responsible for ensuring that any volumes sold into these markets meet the criteria and that the volumes were used to fuel CNG vehicles.



1 **Q12. What will VGS do with any margin generated by sales in the renewable**  
2 **transportation fuel markets and how will this benefit ratepayers?**

3 **A12.** VGS is proposing that net proceeds, or margin we receive from these sales, would be  
4 applied to the overall cost of RNG in VGS's supply, effectively reducing the price of RNG for  
5 customers. The concept of VGS selling RNG into the renewable transportation fuel markets was  
6 discussed briefly in Docket 8667.<sup>12</sup> In some ways, these wholesale transactions are similar to the  
7 sale of Renewable Electric Credits in the electricity sector. In our case, if we purchase some  
8 RNG and sell some of these volumes at a higher price, it effectively reduces the cost of the RNG  
9 we purchase for our own use. This is also similar to how VGS uses asset management to offset  
10 gas supply costs currently. In these agreements, we enable marketers to sell unused VGS  
11 upstream pipeline capacity and we share in the profits of those transactions. Any profits made on  
12 asset management are flowed back through the PGA to lower gas costs for customers. Likewise,  
13 any revenue from the renewable transportation fuel markets will be flowed back to customers to  
14 offset the price of RNG. As with all commodity costs, VGS customers pay what VGS pays to  
15 procure supply, no more and no less.

16  
17 **Q13. How will VGS determine how much of the RNG under this Contract to nominate**  
18 **into the renewable transportation fuel markets in any given year?**

19 **A13.** VGS will assess the renewable transportation fuel market prices and decide what volumes  
20 to nominate. Each year, VGS will determine what RNG volume to receive for our in-state  
21 portfolio taking several factors into account, including but not limited to: VGS's progress toward

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<sup>12</sup> See Supplemental Testimony of Thomas Murray, Docket No. 8667, at 10.

1 our climate goals, the rate impact of gas supply costs, the price of our RNG adder, the proceeds  
2 available from the renewable transportation fuel markets, the status of the overall natural gas  
3 markets, and other factors that will benefit our customers. We are confident that we can evaluate  
4 these factors and appropriately weigh them in a manner that generates the best outcome for  
5 customers. In many regards, these decisions are similar to how we have successfully managed  
6 our supply and upstream capacity for years, where we sell excess capacity for revenue in the  
7 wholesale markets. As with most decisions of this nature that VGS makes today, customer rate  
8 impact will be our primary focus. We intend to be fully transparent in this process and welcome  
9 the Department and Commission to review our application of these criteria in the various filings  
10 discussed below.

11  
12 **Q14. Will VGS be claiming the RNG volumes sold in the renewable transportation fuel**  
13 **markets as a component of its in-state RNG portfolio?**

14 **A14.** No, volumes sold in the federal or out-of-state renewable transportation fuel markets will  
15 not be counted towards the Company's in-state RNG portfolio, supporting its climate goals, or  
16 the State GHG reduction commitments. But VGS expects that by 2030, we will bring most, if not  
17 all, of the Archaea RNG volumes into our Vermont portfolio, rather than selling them externally.  
18 However, there may be scenarios based on market and policy conditions, among other factors,  
19 under which we would continue to sell into these markets.

1 **Q15. What is VGS's overall strategy as it relates to participating in the renewable**  
2 **transportation fuel markets?**

3 **A15.** VGS plans to take advantage of these markets while they are attractive to reduce RNG  
4 costs, but based on our rate modeling scenarios, we are prepared to bring this RNG into our  
5 portfolio if the renewable transportation fuel markets do not generate significant margins.  
6 Additionally, if there were a significant change in these markets, VGS may choose not to  
7 exercise the annual increase or delay these increases to a later year. We intend to be balanced and  
8 cautious in our approach to these markets and ensure that at any given time we could fold all of  
9 the RNG under contract into our portfolio.

10  
11 **Q16. How does VGS plan to keep regulators informed of its annual plans to increase the**  
12 **RNG supply it takes under this Contract and the volumes VGS plans to sell in the**  
13 **renewable transportation fuel markets?**

14 **A16.** Each quarter, VGS submits our Purchased Gas Adjustment filing to set the natural gas  
15 charge we bill to customers, which includes overall gas costs changes and our RNG volumes that  
16 will be blended into the portfolio. The PGA tool provides a real-time view of VGS's plans and  
17 the specific rate impacts associated with those plans. In addition, each July, VGS files our annual  
18 Gas Supply Plan, which includes an RNG section. This will provide a forecast for the coming  
19 year and our RNG plans, including under this Contract. We can also update the Department upon  
20 filing our November PGA each year with a forecast of volumes to be sold into the renewable  
21 transportation fuel markets that will coincide with this Contract's "gas year," which begins in  
22 November. Lastly, in VGS's Integrated Resource Plan, which will be updated in January 2024,

1 VGS will outline our medium-to-longer term RNG supply plans. We believe these reports and  
2 our ongoing dialogue with the Department will keep the Commission and Department well  
3 informed.

4

5 **Q17. Does this conclude your testimony?**

6 **A17. Yes.**