

STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Case No. 22-2230-PET

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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**REBUTTAL TESTIMONY OF
GREGORY MORSE
ON BEHALF OF VERMONT GAS SYSTEMS, INC.**

September 16, 2022

SUMMARY OF TESTIMONY

Mr. Morse's testimony responds to the Department of Public Service's testimony recommending Commission-approval of the proposed Contract and discusses some the Department's related testimony about the cost of avoided carbon under the Contract and how VGS can manage its options under the Contract. Mr. Morse also addresses the claims asserted in Dr. Grubert's testimony, provides some additional information, and corrects some of Dr. Grubert's inferences and assumptions.

**DIRECT TESTIMONY OF
GREGORY MORSE
ON BEHALF OF VERMONT GAS SYSTEMS, INC.**

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

2 **A1.** My name is Gregory Morse. I joined VGS in June 2021 with responsibility for
3 development of alternative and low-carbon supply. My current position is Director of Policy and
4 Planning.

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

7 **A2.** From 2015 to 2021, I held various positions at NG Advantage LLC, culminating as Sr.
8 Director of Product Management, which included oversight of sales, trading, and risk for
9 compressed natural gas products. My work at NG Advantage included assessment of RNG
10 transportation for several landfills in the Northeast. From 2009 to 2015, I held Senior Analyst
11 and Assistant Director positions with Vermont Public Power Supply Authority, where I was
12 responsible for hedging the Authority's power positions and trading renewable energy credits.
13 While at the Authority, I originated several long-term renewable energy contracts, including
14 landfill gas. From 2006 to 2009, I worked in product control for energy trading within the
15 investment bank at J.P. Morgan Chase & Co., where I was responsible for trade control, risk
16 exposure, and position reporting. I hold a Bachelor of Science degree from Wagner College in
17 Business Administration-Finance and am certified as an Energy Risk Professional by the Global
18 Association of Risk Professionals.

1 **Q3. Have you previously testified before the Vermont Public Utility Commission**
2 **(“Commission”)?**

3 **A3. No.**
4

5 **Q4. What is the purpose of your testimony?**

6 **A4.**The purpose of my testimony is two-fold. In the first section, I respond to the August 26,
7 2022 Prefiled Testimony of Adam Jacobs on behalf of the Department of Public Service (“the
8 Department”). In the second part of my testimony, I discuss the testimony submitted on behalf of
9 Intervenor Catherine Bock, including the testimony submitted by Dr. Emily Grubert.
10

11 **RESPONSE TO THE DEPARTMENT OF PUBLIC SERVICE**

12 **Q5. Please summarize your understanding of the Department’s review and**
13 **recommendation regarding the proposed Contract in this case.**

14 **A5.**The Department recommends approval of the Contract with a condition regarding how
15 VGS manages the many options allowed under the Contract. It is evident from Mr. Jacobs’s
16 testimony that the Department has conducted a thorough review and thoughtfully considered the
17 environmental benefits of the proposed Contract.

18 The Department recommends that the Commission approve the Contract, but require that
19 VGS, “to the greatest extent practicable, exercise the contract in a manner where the effective
20 price paid for emissions reductions from volumes of RNG delivered to VGS customers, net of

1 any proceeds from VGS's sales into renewable transportation fuel markets, results in an avoided
2 cost of emissions from the contract that does not exceed the social cost of carbon."¹

3 Mr. Jacobs explains that this proposal is consistent with the Department's support for
4 "keeping the cost paid for emissions reductions below the social cost of carbon as a ceiling on
5 rate impacts."² He further explains that the Department would expect that resources that reduce
6 emissions "above the social cost of carbon" could be offset by "other resources below the cost of
7 carbon."³ Finally, Mr. Jacobs explains that the Department's objective could be achieved by
8 balancing out the social cost of carbon over time; e.g., if some years had higher and other years
9 had lower cost of avoided carbon values.

10
11 **Q6. Please summarize your response to the Department's analysis and proposal in this**
12 **case.**

13 **A6.** As discussed in more detail below, we generally agree with the Department's assessment
14 of the Contract and my testimony offers some additional considerations related to the proposal to
15 manage the cost of avoided carbon under the contract using the Social Cost of Carbon ("SCC")
16 as a benchmark.

17 First, I explain that we have evaluated the extent to which this Contract provides a cost-
18 effective way to avoid carbon emissions, including the cost of avoided emissions under a variety
19 of scenarios compared to the SCC.

¹ Adams pf. at 10–11.

² *Id.*

³ *Id.*

1 Second, I explain why we believe some level of flexibility around how we manage the
2 Contract is appropriate so that we can consider factors in addition to the cost of avoided carbon
3 during the term of the Contract. I also discuss why we also think some flexibility is warranted as
4 we anticipate emerging regulatory policies that could change the way we prioritize and measure
5 our climate action initiatives.

6 Third, I explain why we believe some flexibility is also needed around the specific metric
7 of the SCC because the current value of \$128/ton is based on certain assumptions and parameters
8 that may change over time. I also discuss possible policy implications of some of the valuation
9 assumptions.

10 Finally, I explain why we believe the Department's proposed condition in this case
11 provides for the kind of flexibility we expect to be important going forward, discuss how we can
12 manage the Contract in a manner that is consistent with the Department's recommendation, and
13 propose some specific conditional language that we think captures the intent of the Department's
14 recommendation.

15
16 **Q7. How does VGS assess whether a Contract or other climate initiative provides a cost-**
17 **effective method to reduce carbon emissions?**

18 **A7.** We evaluate a variety of factors, but one of the more valuable tools, as discussed by the
19 Department, is the overall cost of avoided carbon. As such, we evaluate potential investments
20 with reference to how much it will cost to provide carbon reductions under those initiatives. As
21 explained by Mr. Jacobs, the SCC can be a good reference point in this analysis as it provides a
22 general tool that can help us "understand the value of the avoided emissions" achieved with a

1 contract like the one proposed in this case. How cost-effective a particular initiative may be can
2 also be assessed in other ways, including by comparison to the cost of other climate action
3 efforts, current RNG contracts, and emerging information about new opportunities in the RNG
4 market and other innovations.

5
6 **Q8. What are the other factors that should be considered as VGS manages its options**
7 **under this Contract?**

8 **A8.** We specifically negotiated this Contract with an eye toward optionality under the terms
9 so that we can consider a variety of factors as we manage our options going forward. As we
10 previously testified and explained in discovery, VGS intends to manage its options under the
11 Contract in a manner that includes annual consideration of (1) VGS's progress toward our
12 climate goals; (2) the rate impact of gas supply costs; (3) the price of our RNG adder; (4) the
13 proceeds available from the renewable transportation fuel ("RTF") markets; (5) the status of the
14 overall natural gas markets; and (6) other factors that will benefit our customers.

15 Our current climate action strategies are informed by Vermont policy goals and
16 regulatory mandates specific to VGS; we are also broadly mindful of evolving policy that could
17 govern thermal energy emissions in the future. We believe the proposed Contract is consistent
18 with our Alternative Regulation Plan, which contemplates that VGS will begin including RNG as
19 a percentage of its general supply portfolio, not to exceed a 2% increase in each year. It is
20 similarly consistent with our most recently approved Integrated Resource Plan, which also
21 contemplated increasing amounts of alternative supply in our overall retail portfolio over time.

1 Over the term of the Contract, however, we anticipate that other emerging regulatory policies are
2 likely to influence how we should manage our options under the proposed Contract.
3 Accordingly, we think some regulatory flexibility at this time is appropriate so that we can
4 manage the evolution in the regulatory landscape over the term of the Contract.

5
6 **Q9. Please explain why you would also like to see some flexibility around the concept of**
7 **managing the Contract in a manner that achieves an avoided cost of carbon equal to or**
8 **lower than the \$128/ton value cited by the Department.**

9 **A9.** First, it should be noted that the Department supports this valuation for the SCC, but also
10 acknowledges that the “value could change in the future” based on updates to the methodology
11 or policy-maker decisions. This is an important point that deserves some additional attention.
12 Not only can the SCC value change, but there are also assumptions that underlie the
13 Department’s preferred value that heavily influence the resulting dollar figure.

14 For example, as noted in the 2021 Avoided Energy Supply Components Report (2021
15 AESC Report) cited by the Department in Case No. 21-2436-PET as the basis for valuation of
16 the SCC, the discount rate can dramatically change the \$/ton of avoided carbon. This is
17 important because the discount rate essentially stands in as a proxy for how we value the urgency
18 of action to avoid carbon. A higher discount rate typically used in normal markets, for example,
19 could result in low SCC values that will not be sufficient to incent action at all. Likewise, lower
20 discount rates essentially increase the value. As shown on the following table excerpted from the
21 2021 AESC Report, the SCC value not only changes in future years, it is dramatically higher or
22 lower with a 1% change in the discount rate.

Table 78. Comparison of social costs of carbon at varying discount rates from NYS SCC Guideline and federal IWG (2021 dollars per short ton)

	3.0%	2.0%	1.0%
2020	\$49	\$116	\$390
2021	\$49	\$118	\$391
2022	\$51	\$119	\$394
2023	\$52	\$120	\$396
2024	\$53	\$122	\$399
2025	\$55	\$124	\$401
2026	\$56	\$125	\$403
2027	\$56	\$127	\$405
2028	\$57	\$129	\$408
2029	\$57	\$130	\$410
2030	\$59	\$131	\$413
2031	\$60	\$133	\$415
2032	\$61	\$135	\$416
2033	\$62	\$136	\$419
2034	\$64	\$138	\$421
2035	\$65	\$140	\$424

While the authors of the 2021 AESC Report advocate for a 2% discount rate “based in part on an ethical consideration of the value of future generations of humanity,” they also explain that the “other values described in Table 78 may be useful to examine in sensitivity testing of program or measure cost-effectiveness.”

We agree with this assessment, which is why we think some flexibility around the precise valuation we put on the SCC is worthwhile. While not all projects or climate action initiatives can achieve a cost of avoided carbon that is equal to or lower than \$128/ton, the use of this benchmark as a more flexible assessment tool to perform sensitivity analysis and assess cost-effectiveness can, in turn, inform our decision-making, help evaluate projects or investments, and aid in establishing priorities for climate investment.

Q10. What are some of the policy implications associated with using the SCC as a regulatory benchmark?

A10. As you can see from the above table, valuation of the SCC is based on policy-based judgments that go into the underlying assumptions. The Department primarily discussed the “damage cost” approach, but the authors of the AESC describe a variety of other approaches,

1 including the New England marginal abatement cost, which is valued at \$493 per short ton of
2 CO₂ (approximately \$542 per metric ton) and “may be useful for policymakers who are
3 considering more ambitious carbon reduction targets (e.g., 90 percent or 100 percent reductions
4 by 2050)”.

5 We do not advocate for a specific methodology here, but it is worth noting that different
6 methodologies can further different policy objectives. For example, if an alternative compliance
7 payment (“ACP”) is being considered in connection with an environmental mandate, setting the
8 ACP at the same value as the SCC is the equivalent of a policy preference that is essentially
9 agnostic as to whether compliance will be obtained by taking the desired environmental action or
10 paying the ACP. In contrast, if the ACP is substantially more expensive than performing the
11 environmental compliance, such a policy places more value on compliance with the
12 environmental mandate than payment of the ACP.

13 We have one such example here in Vermont. Vermont’s initial ACP under the Tier III
14 Renewable Energy Standard was \$60 per Megawatt Hour, which is the equivalent of spending
15 over \$330 per metric ton of avoided carbon when traditional natural gas use is displaced.⁴ This
16 translates into a regulatory policy that provides an incentive to take measures to displace carbon
17 emissions as long as those measures can be achieved at less than \$330 per ton of avoided carbon
18 when displacing traditional natural gas.

19 In contrast, when a regulatory mandate requires that greenhouse gas (“GHG”) reductions
20 be obtained at or below a SCC of \$128 per short ton, the policy effectively mandates that GHG

⁴ 3,412 Btu per kWh, converted based on burner-tip CO₂ emissions for natural gas and assuming electrical energy is 100% emissions-free. The value of avoided carbon would decline when upstream emissions for natural gas are included and increase when replacement electrical energy is not carbon-free.

1 reductions be obtained as cheaply as possible. In the absence of an ACP, the alternative is to do
2 nothing at all at no cost and no carbon reduction. The issue could also be thought of this way:
3 When a policy restrains GHG reduction investments to the social cost of carbon “damages”, it
4 establishes an incentive that places no incremental value on avoiding that damage prospectively
5 over fixing it retrospectively. We expect that, over time, such an incentive will not effectively
6 promote the investment needed to obtain serious carbon reductions, especially if climate impacts
7 reach an irreversible tipping point as many have suggested.

8
9 **Q11. How does the proposed Contract align with the Department’s preferred SCC of**
10 **\$128 per short ton?**

11 **A11.** The Contract in this case aligns well with the Department’s favored \$128/short ton SCC,
12 which uses a discount rate of 2%, particularly after Seneca commissions a planned Carbon
13 Capture and Sequestration (“CCS”) facility. Even without CCS, however, the volumes under this
14 Contract are well below the higher range of SCC discussed above. Additionally, as noted by Mr.
15 Jacobs, VGS’s ability to nominate some volumes into the RTF provides the opportunity to
16 reduce the cost of the RNG we use in our portfolio, which in turn, brings down the effective SCC
17 for VGS customers.

1 **Q12. Does the Department's proposed condition provide the kind of flexibility VGS needs**
2 **to manage the Contract?**

3 **A12.** Yes. Although we think there are many other factors that we will consider, as discussed
4 above, the Department's proposal provides flexibility, and we are confident that we could
5 manage the Contract in the manner they describe for several reasons.

6 First, the Contract offers a great deal of flexibility around how we manage the volume
7 over the 14-year term. We can exercise our right to additional volumes under the Contract or
8 decline to increase the volumes we take under the Contract. Additionally, we can nominate some
9 or all of our volumes under the Contract to be sold in RTF markets. This provides flexibility
10 around both the amount that we use in our own portfolio, as well as the overall cost of those
11 volumes because any RTF market revenues, if available, would decrease the cost per MMBtu for
12 VGS customers. This results in reducing the effective cost of avoided carbon under this Contract,
13 as discussed by Mr. Jacobs.

14 Second, once CCS is installed at Seneca Meadows, the Contract will meet the
15 Department's SCC threshold even without the use of our other options under the Contract. In the
16 intervening period, we expect to apply revenues from the RTF market in such a manner that the
17 effective cost of carbon will also be below the Department's threshold.

18 Third, the Department not only acknowledges that the SCC may change over time, its
19 proposal in this case provides that we would manage the Contract to the "greatest extent
20 practicable" so that cost of avoided emissions from the Contract do not exceed the social cost of
21 carbon. This provides sufficient regulatory flexibility for us to manage the Contract to meet the
22 Department's condition. This is because the proposed condition acknowledges that, as a practical

1 matter, there may be reasons that require some deviation from that goal during the life of the
2 Contract. These could include such issues as changing RTF market revenues, fluctuations in the
3 cost of natural gas, and other market-based or regulatory matters that are beyond our control.
4 Deviations could also arise based on how we exercise our options under the Contract over time
5 because we expect to increase the volumes we commit to purchasing under the Contract.

6 Finally, the Department's proposal also provides some flexibility with respect to how we
7 would gauge success. Namely, the Department contemplates management of the Contract to the
8 SCC⁵ either over time⁶ or as part of a broader portfolio.⁷ This kind of flexibility would be
9 important if the Commission adopts this condition because VGS aims to pursue a variety of
10 innovations to advance carbon reduction technologies. Some are expected to exceed the SCC,
11 while others may come in substantially below. While various initiatives may differ in cost, we
12 believe in a technology-neutral "all-of-the-above" approach and will want to be able to pursue
13 multiple pathways to achieve State goals. Considering our carbon reduction portfolio as a whole
14 package, or evaluating those efforts over time, provides the kind of flexibility we think will be
15 needed while also providing a benchmark to gauge how cost-effectively we are achieving
16 significant carbon reductions.

⁵ The equivalent value for the cited \$128/ton in metric tons is \$141.

⁶ Jacob's pf at 11 ("The same general principle could also be exercised temporally where a specific resource or portfolio of resources deliver emissions reductions for a price at or below the social cost of carbon over time. For example, if VGS were to achieve emissions at a lower or even negative cost (return) to their ratepayers in one year, then deliver greater emissions reductions in subsequent years balancing out to the social cost of carbon over time, that could be a viable option.").

⁷ *Id.* ("If any given resource, as part of a broader strategy in a portfolio of resources that reduce emissions, delivers emissions above the social cost of carbon, the Department would expect commensurate offset from other resources below the cost of carbon to deliver emissions reductions at a price no greater than the social cost of carbon.")

1 In the event the Commission conditions approval of the Contract, we would propose the
2 following language, which we think reflects the Department’s proposal:

To the greatest extent practicable, VGS shall manage its options under the Contract so that the price paid for emissions reductions from volumes of RNG delivered to VGS customers (net of any proceeds from VGS's sales into renewable transportation fuel market) does not exceed the social cost of carbon. The management of options may consider the price paid per ton of carbon over multiple years and in connection with other parts of the alternative supply portfolio. Nothing in this condition removes the obligation to consider rate impacts of the individual contract within the alternative supply portfolio to balance societal and ratepayer interests.

3 **RESPONSE TO CATHERINE BOCK AND DR. EMILY GRUBERT**

4 **Q13. When VGS determined cost of avoided carbon for this Contract, how did it**
5 **determine carbon intensity?**

6 **A13.** VGS relied on assessments made under the GREET model, as modified by the California
7 Air Resources Board, to value carbon intensity. We rely on GREET because Vermont has not
8 passed legislation that establishes a Vermont-specific model under which the Contract can be
9 evaluated. The GREET model was developed by Argonne National Laboratory and is widely
10 relied upon. Clean fuels programs in California, Oregon, and Washington each specify the use of
11 modified versions of the GREET model to measure the difference in carbon emissions for
12 various fuels. We note that the Vermont General Assembly identified the GREET model as a
13 permissible “transparent and accurate emissions accounting” methodology to assess lifecycle
14 emissions for clean heat measures under *An Act Relating to the Clean Heat Standard* (H.715).
15 However, in the absence of an enacted methodology in Vermont, we relied on assessments under
16 California’s GREET 3.0 model because it has undergone a public approval process and has a
17 robust history of use.

1 **Q14. How do you respond to Dr. Grubert’s assertion that GREET is not applicable to use**
2 **of RNG in Vermont that comes from Seneca Meadows?**

3 **A14.** We believe that it is appropriate to rely upon GREET to evaluate RNG under this
4 Contract. Specifically, we relied upon the assessment of Seneca Meadows RNG under
5 California’s GREET 3.0 model, and we similarly relied on California’s estimate for the carbon
6 intensity of traditional compressed natural gas. We do not claim the GREET 3.0 model used in
7 California is a perfect representation of exact conditions for every resource. Given the pace of
8 change, the number of possible scenarios, and the challenges of direct measurement for many
9 characteristics, development of such a precise model would be impractical. However,
10 California’s model offers reasonable calculations for carbon intensity that facilitate the
11 comparison of two resources. In the absence of an approved Vermont-specific calculation, the
12 California model provides a transparent model that has been evaluated through a public process
13 that includes many points of view.
14

15 **Q15. Dr. Grubert testifies that the proposed Contract does not contribute to reducing**
16 **GHG emissions at the “pace of statewide reductions required by the State’s 2020 Global**
17 **Warming Solutions Act.” Do you agree with this assessment?**

18 **A15.** Dr. Grubert appears to be asserting that this Contract is not enough—on its own—to
19 achieve the emissions reductions contemplated by the GWSA. We agree and never sought to
20 make that claim. The proposed Contract is just one part of VGS’s larger climate action and
21 innovation effort. It is one part of a set of initiatives that will contribute to Vermont achieving its
22 statewide reduction requirements over the term of the GWSA. It is worth noting that the GWSA

1 does not set a pace at which the required targets should be achieved, but rather three milestone
2 markers in 2025, 2030, and 2050. Accordingly, evaluating each potential solution on a stand-
3 alone straight-line basis offers only limited insight into our progress toward those targets.

4 Our broader strategy at this stage, and in the absence of a regulatory mandate that
5 provides more specific guidance for the thermal sector, is to promote a regulatory structure that
6 enables the Company to meaningfully advance a multi-pronged strategy that will reduce carbon
7 emissions consistent with State policy, including the GWSA. This involves at least three main
8 strategies: (1) Weatherization and energy efficiency, which involve accelerating access to
9 affordable weatherization services to reduce demand; (2) In-Home Innovation, which involves
10 the installation of heat pump water heaters, cold-climate heat pumps, hybrid heating systems, and
11 geothermal systems; and (3) alternative supply, which involves the potential of adding new
12 sources of low- and zero-carbon alternative energy, RNG, hydrogen, and district energy systems
13 to displace traditional natural gas.

14 This Contract represents one part of the third strategy regarding alternative supply.
15 Within the ambit of alternative supply, VGS is not just evaluating in-state and out-of-state RNG
16 as “drop-in” supply to displace traditional natural gas, we are also exploring non-gas alternatives
17 like district energy systems, networked geothermal systems, green hydrogen, synthesis gas, and
18 carbon capture and sequestration. We believe this kind of ambitious, multi-pronged approach is
19 precisely the kind of strategy that is needed to meet the ambitious emission reduction
20 requirements established under the GWSA.

1 **Q16. How do you respond to Dr. Grubert’s assertion that natural gas is not displacing**
2 **more emission-intensive fuels on an “absolute basis” because petroleum-related CO2**
3 **emissions have remained flat while natural gas emissions have “doubled since 2012”?**

4 **A16.** We disagree with Dr. Grubert’s evaluation of the EIA CO₂ emissions, but it really has no
5 bearing on the proposed Contract in this case because we are not aiming to displace petroleum
6 and other more emission-intensive fuels here. Instead, the purpose of the Contract is to provide a
7 lower-carbon alternative to our natural gas customers. Since Dr. Grubert appears to acknowledge
8 that the RNG under the Contract has a lower carbon intensity than the traditional gas in our
9 portfolio, it seems undisputed that this Contract will reduce emissions.

10 Moreover, deep, local understanding of energy use would help inform the EIA data,
11 which is otherwise challenging to interpret. We believe the data is strongly indicative of
12 displacement of petroleum because we know our customers and our system. VGS has
13 experienced a significant increase in firm customers across the timeframe considered, increasing
14 from a winter-average of just over 30,000 to over 50,000 customers, and we have deployed
15 millions of dollars in energy efficiency work through our Energy Efficiency Utility. We work
16 with large commercial and industrial customers one by one, so we know their businesses, their
17 usage patterns, and their fuel alternatives. The data trends are sector-specific and heavily
18 influenced by changes in growth and industry-specific changes in a small state. Dr. Grubert,
19 meanwhile, explained in discovery that she “did not review sector-specific documentation”
20 because she does not think it was “relevant” to absolute emissions. Accordingly, Dr. Grubert’s
21 analysis does not reflect what is happening in Vermont.

1 **Q17. Dr. Grubert argues that the reduction in emissions from this Contract cannot be**
2 **relied upon because the permit for the Seneca facility expires in 2025. Is this true, and how**
3 **does it impact VGS's expectations under the Contract?**

4 **A17.** I believe Dr. Grubert is referring to the permit for the landfill, not the RNG facility. The
5 RNG facility and the landfill operate under separate permits. I cannot speculate about the extent
6 to which the landfill will continue to be permitted as a landfill, however, even if no new landfill
7 material is added, the facility would be expected to produce gas for decades. In my experience,
8 landfills in the Northeast have produced studies that show gas production peaking several years
9 after closure.

10 In any event, Archaea's obligation under the Contract is firm, and they must provide
11 RNG supply from another source if necessary to meet VGS's contractual volumes. Accordingly,
12 the landfill permit is not expected to have impacts under the Contract—even if it does expire.

13
14 **Q18. Dr. Grubert takes issue with VGS's claim that a proposed carbon capture and**
15 **sequestration facility for the Seneca RNG facility would further increase the carbon**
16 **reduction potential under the Contract because, based on the documentation she reviewed,**
17 **VGS does not appear to have any rights to the environmental attributes. Is this true?**

18 **A18.** No. This apparent inference is wrong. We filed a publicly available version of the long-
19 term transaction confirmation, or Contract (see Redacted Confidential Exhibit VGS-TL-2) which
20 expressly addresses VGS's right to all environmental attributes. That term is defined under the
21 Contract as "all environmental and other attributes, characteristics, benefits, reporting rights,
22 credits, reductions, offsets, allowances, green tags and all other benefits attributable to the

1 production, delivery, or use of Gas sold pursuant to this Contract.” The “Biogas” or RNG
2 purchased under the Contract includes the RNG and “the Environmental Attributes associated
3 therewith.”

4 From a practical standpoint, the project is expected to submit a modified pathway
5 certification in order to update the assigned CI score upon commissioning of the CCS system.
6 The environmental benefit of the CO₂ captured by a CCS facility will be included in the CI score
7 attached to the RNG, and therefore accrues to the owner of the RNG.

8 Accordingly, Dr. Grubert’s testimony that we will have no right to the environmental
9 attributes under the Contract is false. All Environmental Attributes, including those associated
10 with CCS, are transferred to VGS under the Contract.

11
12 **Q19. How do you respond to Dr. Grubert’s opinion that “emissions reduction strategies”**
13 **should be constrained to those that can deliver “zero emissions’ systems” and the proposed**
14 **Contract is not an “effective use of ratepayer fund for climate mitigation”?**

15 **A19.** At VGS we believe in an all-of-the-above, technology neutral approach to emission
16 reduction. As I explained above, the team at VGS is working on a variety of initiatives, and this
17 Contract is one of the many tools we plan to deploy to reduce carbon emissions for customers
18 and for Vermont.

19 While we appreciate Ms. Bock’s and Dr. Grubert’s interest and opinions in this case, the
20 fact is that Dr. Grubert has “not modeled the relative cost effectiveness of various paths to
21 Vermont’s stated goal of net zero emissions.” We asked Dr. Grubert in discovery how Vermont
22 could achieve the goals set forth in the GWSA, because we have spent a lot of time thinking

1 about that question at VGS. Dr. Grubert objected to the question as “irrelevant” and stated that
2 she “[has] not modelled compliance pathways for Vermont” under the GWSA.

3 In my opinion, this case is about a real-world problem that needs practical solutions. Do
4 we propose that landfill RNG is the sole pathway to achieve our GWSA goals? We do not. But
5 we also have taken a hard look at how difficult the challenge of reducing emissions in the
6 thermal sector will be, especially for our 55,000 customers, many of whom are also focused on
7 affordability and other economic challenges. We know that both shovel ready, drop-in solutions
8 are needed in the short-term as well as creative and groundbreaking innovations in the mid- and
9 long-term. Vermont cannot afford to “constrain” progress on climate, and therefore should not
10 constrain its climate solutions. Instead, we need to begin reducing emissions today, and this
11 Contract does that by reducing our customers’ carbon emissions in an affordable manner.

12
13 **Q20. Does this conclude your testimony?**

14 **A20. Yes.**