STATE OF VERMONT
PUBLIC UTILTY COMMISSION

Case No. 22A-4238

Vermont Gas Systems, Inc. Rutland Regional Medical Center Geothermal Project	

VERMONT GAS SYSTEMS, INC.'S RESPONSE TO THE PUBLIC UTILITY COMMISSION REQUESTS FOR INFORMATION

On September 27, 2022, Vermont Gas Systems, Inc. ("VGS") filed notice of a geothermal project on the Rutland Regional Medical Center ("RRMC") campus for the RRMC Diabetes & Endocrinology Center (the "Project"). This is VGS's response to the Commission's Requests for Information issued by Order dated October 21, 2022.

1. RRMC is not a current customer of VGS. Please clarify how a project targeting a non-customer meets paragraph 5(a), which states, "VGS shall pursue and consider projects, programs, and services that support Vermont's statewide energy goals by advancing promising technologies to facilitate efficient, lower carbon energy choices *for its customers*." (Emphasis added.)

VGS Response: As discussed in our September 27, 2022, filing, VGS is well positioned to enable widespread adoption of geothermal energy in Vermont. Small, single customer commercial installations like this Project will advance VGS's nascent geothermal program by providing VGS with geothermal design, financial modelling, and construction/implementation experience at a relatively low cost. This experience and proof of concept will advance geothermal as a viable option for our current and future customers. We currently have potential geothermal projects at different pre-development stages that will be informed by the success of this Project. For example, one new construction project planned to provide low- and moderate-income housing is located within reach of our natural gas infrastructure. The developers are working with VGS to analyze two thermal options: natural gas and geothermal. A completed geothermal pilot under VGS's belt will weigh in favor of the carbon-free option.

Moreover, while RRMC is not a natural gas customer, if the Project is approved, they will be a *VGS* customer. Pursuing services that advance lower carbon energy choices for Vermonters – both gas customers and non-gas customers – will support Vermont's statewide energy goals most effectively.

2. VGS has provided a description and quantification of the carbon savings. Please also address the following:

a. How the RRMC Geothermal Project supports Vermont's energy goals and advances Vermont's Comprehensive Energy Plan, pursuant to paragraph 5(e)(ii) of the ARP.

VGS Response: Section 6.4.2 of Vermont's Comprehensive Energy Plan ("CEP") establishes the importance of pursuing cleaner technology and fuels. In particular, 6.4.2.1 recognizes VGS's efforts to deploy ground source heat pumps and states that "Vermont should continue to explore

and encourage the appropriate use of this technology*"*. This Project will achieve the objectives of Section 6.4.2 by encouraging a clean energy technology, promoting the electrification of thermal loads, and advancing the buildout of ground-source heat pumps. Meeting CEP targets and Global Warming Solutions Act mandates will not be achieved in large leaps, but rather incrementally as individual buildings and processes are converted to renewable energy sources. In this case, installing geothermal heating at the RRMC Diabetes & Endocrinology Center will entirely replace fossil fuel use for space heat with a cleaner technology, while eliminating approximately six metric tonnes of CO2e emissions annually.

More broadly, VGS's strategic priorities were developed to align with Vermont's CEP. The companywide Climate Plan VGS has adopted utilizes three pathways to reach Net Zero by 2050: (1) increasing access to weatherization services for Vermonters; (2) offering new products that reduce fossil fuel use and cut greenhouse gas emissions in customers' homes; and (3) developing alternative low- or no-carbon renewable supply sources to displace fossil gas. Depending on scale, geothermal projects fall into the latter two pathways, with pilot-scale projects such as this Project constituting a new, single property solution VGS can provide to reduce fossil fuel use and achieve carbon savings.

b. How the RRMC Geothermal Project would enhance and complement the efficiency work undertaken by VGS as part of its energy efficiency utility (EEU) appointment, pursuant to paragraph 5(e)(iii) of the ARP.

VGS Response: The VGS EEU provides comprehensive guidance for customers to consider both natural gas and non-natural gas technologies when assessing the cost effectiveness of consumer end uses. In general, overcoming the cost barriers to achieving cost-effective geothermal solutions will rely on accurate building modelling, advanced thermal shell performance, and critical design elements such as implementing controls, monitoring, hybrid solutions that utilize auxiliary heat, and expanded end-use opportunities.

This Project will provide valuable insights and data into ground source heat pump performance, specifically enabling the correlation of GSHP performance relative to the thermal shell characteristics of the building, the type of terminal equipment, and the distribution characteristics of the internal hydronic distribution system. It may also provide discovery opportunities around linking geothermal and domestic hot water. Thus, the Project provides an innovative learning opportunity for the VGS EEU to collaborate with Efficiency Vermont, supporting the State's goals by promoting sustainable building design and all forms of energy efficiency.

c. The cost of the RRMC Geothermal Project to non-participating VGS customers, including: (1) expected Base Rate impacts; (2) how much of the $78,500 would be paid back each year during the 15-year term; (3) whether, when, and how much additional fees (such as cost of debt or return on equity) would be collected on the $78,500; (4) whether the full $78,500 would be counted against the $2 million limit on annual spending for the Climate Action and Innovation Budget; (5) how and whether VGS plans to use the $78,500 once it is collected from RRMC; (6) the proposed accounting treatment of the $78,500 as it is loaned

to RRMC and as it is returned to VGS; and (7) all relevant assumptions utilized for this analysis, pursuant to paragraph 5(e)(iv) of the ARP.

VGS Response: VGS proposes to fund this Project using Innovation Capital within the scope of the $2M budget under our Alternative Regulation Plan (of which $1.5M is dedicated to capital investments like this Project). VGS will recover the full $78,500 from RRMC along with our weighted average cost of capital, operating and maintenance expenses, and property taxes over the 15-year period. Like installations that provide natural gas service to a new customer, VGS will treat the $78,500 as a capital investment that depreciates over the useful life of the asset. The funds received from RRMC will be treated as revenue at the time service is rendered. As the $78,500 cost will come from our existing Innovation Capital budget, this amount is already included in rate base. Revenue received from RRMC under this Project will be applied as a reduction to the cost of service, which will incrementally *reduce* base rates for customers. Annual and monthly payments are detailed in **Confidential Attachment 1** and all relevant assumptions are shown in **Confidential Attachment 2**.

d. The terms of the agreement with RRMC, pursuant to paragraph 5(e)(vi) of the ARP. Please provide a complete copy of any agreement proposed or executed between VGS and RRMC.

VGS Response: The Geothermal Energy Service Agreement entered by VGS and RRMC is attached hereto as **Confidential Attachment 1**.

e. A description of outreach and education that would be used by VGS in conjunction with geothermal heating and cooling projects, pursuant to paragraph 5(e)(vii) of the ARP.

VGS Response: The Diabetes & Endocrinology Center Project represents an opportunity to actively engage with customers, developers, community partners, and a wide variety of stakeholders as VGS develops its working knowledge of constructing and operating geothermal energy systems. The Project will allow VGS to advance beyond the conceptual discussions of a utility geothermal offering and concretely demonstrate our commitment to finding scalable decarbonized thermal solutions for Vermonters. On a more technical level, VGS will use this Project to convene residential and commercial property developers, architects, and mechanical engineers to discuss where current baseline energy system designs fall short of the benefits that a geothermal system can provide.

This Project will also directly support the recently formed Energy Action Network team focused on studying and recommending scalable models to spur geothermal system deployment in Vermont. This group includes a variety of clean energy stakeholders, including VGS and community participants. The group will regularly meet in 2022 and 2023. It is expected the effort will include convening conversations to solicit community input as geothermal models are reviewed. VGS intends to share its experience developing the Diabetes & Endocrinology Center Project as part of this broader conversation, providing a key educational opportunity for Vermonters and other interested parties.

Lastly, as it relates to workforce barriers to deploying geothermal, the Project will provide VGS personnel with invaluable hands-on experience in the design, installation, and maintenance of the system - a working geothermal system. As VGS imagines and considers the transformation of its legacy natural gas business model, we must be intentional about how we also develop the skills and inspire change with our greatest intangible asset, our people. This Project, albeit small relative to our aspirations, will provide our staff with the opportunity to consider as a practical matter their role and growth as part of our company effort to decarbonize. Through the education provided by this Project, we can start to solve the workforce barriers within our own staff.

3. Please confirm whether the RRMC Geothermal Project will be assessed based on Category 3 Climate Action and Innovation Performance Metrics.

VGS Response: Confirmed. The Diabetes & Endocrinology Center Project will be assessed based on Category 3, R&D/Electrification.