



FILED VIA ePUC

September 29, 2023

Holly R. Anderson
Clerk of the Commission
112 State Street
Montpelier, VT 05620-2701

Re: Vermont Green Hydrogen Pilot Project

Dear Ms. Anderson:

By this filing, Vermont Gas Systems, Inc. (“VGS” or the “Company”) provides notice that it intends to use a portion of its innovation capital budget to complete engineering site layout and environmental evaluations needed to prepare permitting applications for the Vermont Green Hydrogen Project (the “Project” or “GHP”).

Section 5 of the Company’s Alternative Regulation Plan provides that VGS shall pursue “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.”¹ Section 5(d) requires VGS to provide 30 days’ advance notice to the Commission and the Department of Public Service (“Department”) before commencing any spending on a project, program, or service under the Climate Action and Innovation Budget that exceeds \$25,000. As detailed below, spending on this component of the Project is expected to exceed that threshold. Accordingly, VGS is providing the following notice.

Vermont Green Hydrogen Project Background and Implementation Plan

In January 2022, VGS announced a partnership with GlobalFoundries and the University of Vermont to develop the Vermont Green Hydrogen Pilot Project.² This project will be among the first of its kind in the nation, where Green Hydrogen³ will be created and used to displace natural gas as a combustion fuel through blending on the GlobalFoundries campus. UVM is engaged in the partnership to expand the University’s research and curriculum in the emerging Green Hydrogen field. VGS will own and operate the electrolyzer and associated equipment necessary to deliver the blended fuel to GlobalFoundries’ central utility plant, putting into practice the conversion of and use of electrical energy as a thermal fuel.

¹ See Exhibit VGS-JMP-5 filed May 21, 2021 in Case No. 19-3529-PET. A new version of VGS’s Alternative Regulation Plan was approved by the Commission in Case No. 22-5085-PET, to be effective October 1, 2023 and carrying substantially the same requirements around our Climate Action and Innovation Programs (in Section 9 of the new plan).

² See *Vermont Partnership Advances Use of Green Hydrogen as Clean Fuel of the Future*, Jan. 20, 2022, available at <https://www.uvm.edu/news/story/vermont-partnership-advances-use-green-hydrogen-clean-fuel-future>.

³ “Green Hydrogen” is hydrogen produced from renewable electricity.

Prior to the announcement, in 2021, VGS and GlobalFoundries began preliminary feasibility evaluation on the Project. VGS enlisted Sanborn, Head & Associates, Inc. (“Sanborn”) to propose an initial design and high-level cost estimate for the Project.⁴ This work evaluated several critical Project elements: technical feasibility for hydrogen combustion using existing equipment; site feasibility through basic engineering design; initial financial assessments; potential contract structure evaluation; and assessment of the research value for engineering students. Sanborn’s preliminary work resulted in a Project plan for a one-megawatt electrolyzer on the GlobalFoundries campus that would deliver hydrogen to a blending station near GlobalFoundries’s heating plant.

In May 2022, VGS submitted an innovation notice filing under Section 5 of VGS’s Alternative Regulation Plan detailing plans to further retain Sanborn to act on VGS’s behalf as lead engineer during the next phase of design and contracting.⁵ The May 2022 filing summarized the scope of work that Sanborn has since completed, which included five specific deliverables: final site selection; updated design basis; bidder qualification; preparation of a request for proposals (“RFP”) for engineering and construction bids; and RFP issuance and support. The RFP process identified a preferred vendor and a sequential process by which VGS would initially contract for work related to completing engineering, environmental evaluations, and permitting support, prior to making commitments to fully develop the Project.

Going forward, we envision two phases of work to complete the GHP. First, we expect to finalize engineering documentation and environmental evaluations to apply for permits under Act 250. Second, upon successfully securing permits, we expect to award contracts for procurement and construction. These phases follow the sequential process that was recommended in earlier work to reduce risk for the Project by ensuring the Project meets necessary financial, construction, and permitting milestones prior to incurring significant construction costs. The notice provided herein is specific to the first phase described in this paragraph.

Current Investment: Description

As noted above, the next step toward GHP development requires engineering documentation, environmental evaluations, and permitting support. Engineering work will advance the design to provide documentation and support necessary for Act 250 permitting. This will include adjustments to design basis related to utility connections, controls, and communications; schematic designs showing major process flows, system pressures, and pipe sizes; site plans and elevations; and support throughout the permitting process. Environmental work will include site testing and measurements in support of the Act 250 permitting criteria, and interactions with State agencies. Specifically, this is expected to include: coordination with the Vermont Department of Environmental Conservation Air Quality and Climate Division; coordination with the District 4 Environmental Coordinator; aesthetic assessment and report; sound measurement, modeling, and reporting; and coordination of materials across the multiple Act 250 permits already in place on the GlobalFoundries campus.

⁴ VGS did not file notice of this preliminary work with the Commission and Department because the work was initiated prior to approval of the Company’s current Alternative Regulation Plan.

⁵ See Case No. 22A-1621.

Current Investment: Cost and Timeline

VGS has received quotes for the expected cost for engineering and environmental work contemplated under this filing, totaling \$177,450. In addition, VGS anticipates that it will incur costs for work directly related to the permitting process, such as small project or scope adjustments for which VGS would like to allow up to \$20,000. In aggregate, the anticipated spend for this phase of the Project is \$199,450 from the capital portion of our FY24 Climate Action and Innovation Programs budget to be integrated into base rates through our innovation capital budget, impacting all customers equally. These funds will be a capital expenditure because VGS intends to own and operate the electrolyzer.

VGS is currently competing for partial Project funding through the U.S. Department of Energy (“DOE”) that would fund a significant portion of development costs for the Project. We expect to receive notice regarding such grant during fall 2023. Advancement of engineering is contingent upon final design basis, which itself will be influenced by the grant decision. Therefore, VGS does not plan to incur the expenses contemplated herein until DOE funding determinations have been made and a final design basis can be confirmed. Nevertheless, we consider it prudent to initiate this notice in the interim such that both funding sources may be established concurrently, and we can be ready to proceed upon decisions from both the DOE and Public Utility Commission. If funding is secured, the engineering and environmental work would be awarded promptly, and the work, once commenced, would likely take three to six months to complete. If the DOE funding request is not successful, VGS will reassess plans for the Project and update the Commission accordingly, pursuant to our Alternative Regulation Plan.

Vermont Energy Goals and Greenhouse Gas Emissions

Vermont’s 2022 Comprehensive Energy Plan directs the reduction of greenhouse gas emissions by 90% and fossil fuel consumption by 80-95% below 1990 levels, by 2050. Hydrogen from this pilot will be generated using electrolyzer technology, which will produce zero carbon onsite emissions. As discussed in our May 2022 filing, energy for the electrolyzer will be supplied by 100% carbon-free and increasingly renewable sources.⁶ As a zero-carbon fuel, hydrogen from the proposed project will help VGS meet the requirements specified in the Comprehensive Energy Plan by directly displacing conventional natural gas that would otherwise be consumed at GlobalFoundries. The volume of natural gas offset by the Project in the pilot phase is expected to be approximately 20,000 MMBtu annually, which represents a life-cycle emissions equivalent of 1,670 metric tons of carbon dioxide.⁷

Moreover, recently enacted Act 18 establishes the framework to implement a compliance standard known as the Clean Heat Standard, mandating the reduction of carbon emissions from thermal fuels. Notably, Act 18 expressly identified the supply of green hydrogen as an eligible

⁶ All of the hydrogen produced by the GHP will be zero carbon. As GlobalFoundries transitions to 100% renewable electricity, the hydrogen will be fully renewable as well.

⁷ This assumes a life cycle carbon intensity for natural gas of 79.21 g CO₂e/MJ and zero emissions for the hydrogen produced.

clean heat measure, thus, pursuing this pilot supports Vermont's current and developing energy goals.

Efficiency and EEU

This filing contemplates only engineering, environmental, and permitting work for the Project, and as such has no direct impact on VGS's Energy Efficiency Utility. Because GlobalFoundries is enrolled in the Self-Managed Energy Efficiency Program, it manages its own energy efficiency efforts.

Variance from Tariffed Services

This filing only contemplates engineering and environmental work related to permitting for the Project; it does not include direct service to a customer and does not require variance from any of VGS's tariffed services. We anticipate this criterion to be applicable at later stages in the Project when the hydrogen produced will be sold to GlobalFoundries.

Customer Outreach

VGS has worked closely with GlobalFoundries during the initial GHP planning phase and will continue to do so throughout the permitting phase. Upon completion, VGS would include the Project in customer communication regarding in-state development of low-, zero-, and negative-carbon supply projects.

Conclusion

In-state development of renewable thermal fuels is of paramount importance to Vermont's energy reliability and ability to meet its obligations under the GWSA and to VGS's ability to meet obligations consistent with recently enacted Act 18. The federal government is devoting billions of dollars to hydrogen development and is targeting a significant reduction in the cost of hydrogen fuel. This Project will demonstrate hydrogen technologies locally and prepare Vermont's utility and industry participants for the anticipated future hydrogen economy. Accordingly, this Project supports Vermont's established and developing energy goals and advances promising technologies that could facilitate efficient, lower carbon energy choices for Vermonters.

We are available to the Commission and the Department to answer any questions about this filing.

Respectfully submitted,



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