



FILED VIA ePUC

February 22, 2023

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

Re: Chittenden Solid Waste District Biosolids Feasibility Study

Dear Ms. Anderson:

By this filing, Vermont Gas Systems, Inc. (“VGS” or the “Company”) provides notice that it intends to conduct a feasibility analysis regarding the potential development of a Renewable Natural Gas (“RNG”) production facility utilizing wastewater sludge (commonly referred to as “biosolids”) discarded from wastewater treatment plants in northeast Vermont.

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. VGS is providing the following notice because spending on the feasibility study described herein is expected to exceed that threshold.

Current State of Biosolids Disposal & The Potential Digester Project

Biosolids are nutrient-rich solid organic matter separated from sewage during wastewater treatment. Such biosolids are generally disposed of through incineration, in landfill, or as a land-applied soil amendment.² Chittenden Solid Waste District (“CSWD”)³ assists with disposal of biosolids generated at municipality Wastewater Treatment Plants (“WWTPs”) within its membership. On an annual basis, CSWD disposes of approximately 25 million pounds of biosolids on behalf of its members. According to the Vermont Department of Conservation, there are 92 operating municipal WWTPs (including those served by CSWD) within the State, processing approximately 15 billion gallons of wastewater annually.⁴

¹ See Exhibit VGS-JMP-5 filed May 21, 2021 in Case No. 19-3529-PET.

² Disposal of biosolids as a land-applied soil amendment involves the spreading of treated biosolids on agricultural land. For further information see <https://www.epa.gov/biosolids/land-application-biosolids>.

³ CSWD is a municipality created to implement solid waste management mandates legislated by the State of Vermont. It is governed by a Board of Commissioners representing the communities of Chittenden County, Vermont.

⁴ See <https://dec.vermont.gov/watershed/wastewater>.

CSWD primarily utilizes out-of-state land-application soil amendment disposal for biosolids generated by its members. While this method is favored by members over landfilling, it is more costly and raises public health concerns. CSWD has historically paid more than \$1 million in disposal charges annually.⁵ As a municipally governed body, these costs are passed directly to member-towns. In addition, there are efforts underway to evaluate the migration of poly- and perfluorinated compounds, such as PFOS and PFAS (which are present in biosolids), to soils and groundwater from land-application disposal.⁶ Due to the tendency of such compounds to persist in the environment, the risk of accumulation within natural systems represents considerable risk to the health of humans and animals. Therefore, the long-term viability of land-application disposal presents both operational and financial risk to CSWD.

However, as a nutrient-rich organic material, biosolids may be used as feedstock for anaerobic digestion processes that could produce Renewable Natural Gas. Biosolids digesters are collocated at hundreds of WWTPs across the country, and at least 36 facilities in the U.S. deliver biogas to local pipelines from such digesters.⁷ The project under consideration here would develop a regional biosolids digester, ideally to be collocated with one of the WWTPs operated by a CSWD member (the “Potential Project” or “Project”). VGS’s primary interest in the Potential Project is the production of renewable alternatives to conventional natural gas for our customers, but the Potential Project likely offers additional benefits to the State by reducing waste disposal costs, mitigating the accumulation of PFAS and PFOA compounds in the environment, and offering a local solution to a problem Vermont currently exports to other jurisdictions.

Description of the CSWD Biosolids Study

By this notice, VGS proposes to commission Forcier Consulting Engineers (“Forcier”) to complete a techno-economic study of the Potential Project. Forcier was founded by John Forcier in 2007 to perform consulting engineering work for the renewable energy industry, focusing on anaerobic digestion and composting facilities. Based in Vermont, Forcier has worked on digester facilities across the state and nation and brings deep techno-economic experience to this project. The proposed CSWD Biosolids Study (the “Feasibility Study” or “Study”) has a defined scope of work including nine primary deliverables, each relevant to the determination of the Potential Project’s viability. They are:

1. Primary feedstock availability: Confirm the volume of sludge/septage available for potential use by the Project.
2. Alternative feedstock availability: Analyze alternative feedstocks, such as food waste, and determine availability and viability for use by the Project.

⁵ See <https://cswd.net/wp-content/uploads/BIOSOLIDS-BUDGET-WORKBOOK-jt.pdf>.

⁶ See <https://www.epa.gov/sites/default/files/2021-02/documents/biosolids-pfoa-pfos-meeting-summary-nov-2020.pdf>; <https://dec.vermont.gov/sites/dec/files/wmp/SolidWaste/Documents/Biosolids-fact-sheet.pdf>.

⁷ See Water Environment Federation (2022) “Water Resource Recovery Facilities Biogas Data,” available at <https://resourcerecoverydata.org>.

3. RNG production: Estimate the volume and composition of biogas production with and without alternative feedstock(s); estimate the Carbon Intensity score, based on similar facilities; identify necessary equipment to upgrade biogas to RNG.⁸
4. Digestate disposal or reuse: Identify cost-effective disposal or reuse applications for digestate, including evaluation of technologies capable of managing PFOA and PFAS.
5. Project siting: Identify possible development locations and evaluate under several criteria, including proximity to existing WWTPs, VGS infrastructure, and sensitive areas (such as residential housing).
6. Regulatory process: Identify anticipated regulatory requirements for the Project.
7. Cost: Deliver an opinion of probable cost to develop the Project, including design, permitting, construction, and operation.
8. Revenue: Determine anticipated and possible revenues from the Project.
9. Return: Determine simple payback period for the Project.

How the Study Supports Vermont's Energy Goals

The 2022 Vermont Comprehensive Energy Plan encourages the development of RNG as a thermal and transportation fuel. In addition, consistent with Vermont's Global Warming Solutions Act, it directs meeting 90% of energy needs from renewable sources by 2050, and the reduction of greenhouse gas ("GHG") emissions by 80% below 1990 levels by 2050.⁹ As a renewable fuel, RNG from the Project would help VGS contribute to reaching these goals by directly displacing traditional natural gas that would otherwise be consumed by customers. The Study proposed herein is the first step toward developing the Potential Project.

RNG projects are frequently evaluated by their carbon intensity ("CI") scores, which is a method by which the greenhouse gas ("GHG") emissions of various fuels can be compared. For the purposes of this Study, VGS expects to evaluate CI under the standard used by the California Air Resources Board ("CARB") for their Low Carbon Fuel Standard ("LCFS") program, which incentivizes use of fuel with reduced GHG emissions. Based on review of similar project pathways approved under the CARB LCFS program,¹⁰ we expect a CI score less than 20 g/MJ will be readily achievable by the Potential Project. This represents a reduction of at least 75% of GHGs associated with traditional natural gas. Upon completion of the Study, we anticipate the

⁸ Upgrading equipment for each RNG project is unique. Components and technologies will be selected to address the specific composition of biogas produced by the Potential Project.

⁹ See *Vermont Department of Public Service, 2022 Vermont Comprehensive Energy Plan* at 11, 19, 22; 10 V.S.A. § 578(a)(3).

¹⁰ See https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/fuelpathways/current-pathways_all.xlsx.

ability to make more accurate CI estimates by identifying components that are candidates for efficiency improvements, which could drive incrementally lower carbon emissions.

Relationship to Energy Efficiency

While energy efficiency is not the primary target for the Potential Project, the opportunity to work closely with WWTPs around the region may allow us to identify candidates for VGS's Energy Efficiency Utility ("EEU") services that have not previously been considered. This filing contemplates only the Feasibility Study for the Potential Project, and as such has no direct impact on the EEU.

Feasibility Study Cost and Timeline

The Study has been estimated to cost \$40,000 by Forcier, as a fixed lump sum for the defined scope of work described above. VGS may seek to have Forcier undertake additional work to form a more complete evaluation of the Potential Project, but expects additional costs would not exceed \$10,000. Therefore, VGS anticipates total costs will not exceed \$50,000 in aggregate. Accordingly, VGS plans to contribute up to \$50,000 from our FY23 Climate Action and Innovation Budget to fund the Study. The expense will be integrated in base rates through our innovation expense budget, impacting all customers equally.

VGS anticipates Forcier would commence work approximately one month after our notice to proceed, and the Study itself would require approximately five months to complete. Therefore, if allowed, we hope to complete the Study in Fall 2023.

Variance from Tariffed Services

This innovation filing contemplates only the Feasibility Study for the Potential Project, and therefore includes no direct service to customers. However, if the Study led to developing a regional biosolids digester for RNG production, VGS anticipates RNG from the Project would be available to all VGS customers under our existing RNG programs.

Customer Outreach

No customer outreach is anticipated for the Feasibility Study. If VGS were to proceed with the Project, and it were approved by the Commission, VGS would include information about it in customer communications regarding development of in-state RNG supply projects.

Conclusion

Innovative projects that solve several problems simultaneously provide a circular benefit to the community and therefore provide significantly wider impact for each dollar invested. The Potential Project contemplated by the Study proposed herein not only addresses the need for renewable thermal fuels, but would also provide numerous non-energy benefits to the local community, including local disposal of local solid waste, risk mitigation for CSWD and water

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districts across northern Vermont, and containment of so-called “forever chemicals” like PFOA and PFAS.

VGS has committed to reducing carbon emissions through our Climate Action Plan. Increased RNG is critical to achieving our aggressive climate goals, and the greatest benefit to the state comes from in-state RNG projects that present benefits beyond solely production of RNG. This Feasibility Study will help VGS evaluate and promote a new type of in-state RNG project, enabling us to engage potential partners in developing Vermont’s first biosolids digester. VGS is eager to move more Vermont-based projects forward, and the CSWD Biosolids Study will build intelligence necessary to forge new possibilities in in-state RNG production.

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

Respectfully submitted,

/s/ Mary G. Bouchard

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