

**STATE OF VERMONT
PUBLIC UTILITY COMMISSION**

Petition of Salisbury AD 1, LLC for a certificate	)	
of public good, pursuant to 30 V.S.A. § 231, to	)	
own and operate a renewable natural gas facility in	)	
Salisbury, Vermont, and for <i>de minimis</i> regulation,	)	Case No. 18-3449-PET
and to address motions to transfer and amend the	)	
30 V.S.A. § 248 CPG for the facility that was	)	
issued in Docket 8596	)	

**PREFILED DIRECT TESTIMONY OF
MARIA SOL UCCIANI
ON BEHALF OF SALISBURY AD1, LLC**

August 5, 2020

Summary of Testimony

On July 7, 2020, Salisbury AD1, LLC (“SAD1”) filed a motion to amend its certificate of public good to reflect changes to the approved Salisbury Renewable Natural Gas Facility (the “Project” or “Facility”). The Commission directed SAD1 to file its reply to the Vermont Department of Public Service’s (“Department”) comments and questions and to the Vermont Agency of Natural Resources’ (“ANR”) response. Maria Sol Ucciani provides testimony regarding the Department’s and ANR’s comments.

1 **Q1. Please state your name and occupation.**

2 A1. My name is Maria Sol Ucciani. I am employed by Vanguard Renewables (“Vanguard”) as a
3 Project Manager. My background and qualifications are provided in my affidavit filed earlier
4 in this proceeding (regarding the first request to amend the CPG) on October 4, 2018.

5 **Q2. Have you previously provided affidavits or prefiled testimony to the Public Utility**
6 **Commission (“Commission” or “PUC”)?**

7 A2. Yes, I previously filed affidavits in 2018 and 2019 in this proceeding concerning Salisbury
8 AD1, LLC’s (“SAD1”) motion to amend the Certificate of Public Good (“CPG”) issued in
9 Docket No. 8596 for the Salisbury Renewable Natural Gas Facility. I also filed an affidavit
10 on July 7, 2020 in connection with SAD1’s present request to again amend the CPG.

11 **Q3. What is the purpose of your testimony in this case?**

12 A3. My prefiled testimony responds to the comments submitted by the Vermont Department of
13 Public Service and the Vermont Agency of Natural Resources, each dated July 24, 2020, to
14 SAD1’s July 7, 2020 Motion to Amend the Amended CPG¹ to reflect changes to the
15 approved Salisbury Renewable Natural Gas Facility.

16 **Q4. Have you reviewed the ANR and DPS comments?**

17 A4. Yes, I have.

¹ The Commission issued the Amended CPG on March 14, 2019.

Reply to the Agency of Natural Resources' Comments

1 **Q5. ANR commented that SAD1's proposed changes to the biogas upgrader, combined**
2 **heat and power unit ("CHP"), and emergency generator are "substantial changes"**
3 **that require Commission approval, and that in order for those changes to not cause a**
4 **significant impact on the natural environment, "their approval by the Commission**
5 **should be subject to compliance with the representations made by Salisbury and**
6 **conditioned on Salisbury obtaining and complying with the amended Air Permit and**
7 **developing and implementing the SPCC Plan and other containment measures**
8 **described in its filing." What is your response to ANR's comments?**

9 **A5. First, as reflected in its 7/7/20 filing, SAD1 agrees with ANR's comments that in order to**
10 **address the "substantial changes" to the biogas upgrader, CHP unit, and emergency**
11 **generator, it needs to obtain and comply with the Amended Air Permit. Since the 7/7/20**
12 **filing, SAD1 has received the final Amended Air Permit and is filing it with the PUC as**
13 ***Exhibit SAD1-MTN-6.***

14 Second, SAD1 agrees that due to the proposed changes to the emergency generator,
15 it needs to prepare and comply with a Spill Prevention, Control, and Countermeasure Plan
16 ("SPCC Plan"), consistent with 40 C.F.R. Part 112, as well as comply with the other
17 containment measures reflected in its 7/7/20 filing. SAD1 represents that the SPCC Plan
18 will be in place prior to operation of the emergency generator.

19 Third, SAD1 agrees that the Amended CPG should require that it otherwise comply
20 with the representations made in SAD1's 7/7/20 filing, as well as comply with the
21 conditions of the existing Amended CPG to the extent they are not otherwise amended in
22 the current proceeding.

1 Finally, SAD1 has revised ***Exhibit SAD1-MTN-1*** in response to ANR's comments
2 concerning how that table describes the potential impacts of the substantial changes noted
3 above. See ***Exhibit SAD1-MTN-1 (Rev.)***.

4 **Q6. ANR comments that changes to the location of certain equipment from the**
5 **previously-approved plans and evidence creates the potential for confusion when**
6 **state agencies such as the Agency of Agriculture, Food and Markets conduct**
7 **inspections of the Project (see CPG Condition 42 from 3/14/19 Amended CPG).**
8 **Because of this, ANR reasons, the changes in locations of Project infrastructure are**
9 **“material changes” which must be approved by the Commission and made a part of**
10 **the record evidence in this matter. How do you respond?**

11 **A6. SAD1 understands ANR's concern that the correct site plan be part of the official record so**
12 **that there is no confusion by any party, including AAFM, as to the location of the Project's**
13 **infrastructure. This is precisely why SAD1 filed the revised plans as part of the 7/7/20 filing**
14 **as *Exhibit SAD1-MTN-2*. While SAD1 believes that the changes to equipment locations,**
15 **as reflected in *Exhibit SAD1-MTN-2*, do not have the potential, individually or collectively,**
16 **to cause significant impacts under the section 248(b)(5) criteria, for the avoidance of any**
17 **doubt SAD1 is formally requesting that the Commission approve the revised plan, make it**
18 **part of the record, and require SAD1's compliance with it.**

Reply to the Vermont Department of Public Service's Comments

1 **Q7.** The Department commented: “*Regarding the combined heat and power unit*
2 *(“CHP”) and the emergency back-up generator, please clarify whether any output*
3 *from either the CHP unit or the emergency back-up generator would, under any*
4 *scenario, be exported to the Green Mountain power electric system or whether all of*
5 *the power will be used solely for Project consumption (i.e., behind the meter).”* How
6 does SAD1 respond to this request for clarification?

7 **A7.** Under no scenario would any output of either the CHP unit or the emergency generator be
8 exported to the GMP electric system. SAD1’s Project is not interconnected to GMP and
9 thus has no ability to do so.

10 **Q8.** The Department commented: “*The amended CPG approved on March 14, 2019*
11 *provided that the Project’s output gas would contain less than 4 ppm of hydrogen*
12 *sulfide (“H₂S”). Exhibit SAD1-13 – DMT 11.20.2018 Memo and Attachments, Table*
13 *at 4. Conversely, the documentation for the proposed PSA system is inconsistent*
14 *regarding the levels of H₂S in output gas. Exhibit SAD1-MTN-5 – Updated*
15 *Equipment Specifications provides that H₂S output is less than 4 ppm at Table 4.1 on*
16 *page 3, but then states that the cleaned biogas will have H₂S levels of less than 10*
17 *ppm at Step 3 on page 5 (marked page 11 in the text, it is page 5 of the digital copy).*
18 *Please explain this discrepancy and provide the maximum concentration of H₂S*
19 *allowed in the renewable gas that is exported into the pipeline of Vermont Gas*
20 *Systems, Inc. (“VGS”).”* How does SAD1 explain the discrepancy?

21 **A8.** As shown on Table 4.1 of *Exhibit SAD1-MTN-5* (page 3 of the PDF), the guaranteed H₂S
22 content of the Renewable Natural Gas (“RNG”) being produced by the Upgrader is less

1 than 4 ppm. The Department's reference to Step 3 on page 5 of the PDF shows an *interim*
2 stage for removal of H₂S, NH₃, and volatile organic compounds ("VOCs"). This interim
3 step will bring H₂S concentration from approximately 500 ppm in the output of the
4 biodigester, to approximately 10 ppm in the biogas going into the Upgrader. After this, the
5 Upgrader will lower the H₂S from 10 ppm to 4 ppm. The stages shown on PDF page 5,
6 together with the Process Flow Diagram on page 4, show the different steps in the process
7 that will ultimately lead to the H₂S content in the gas being less than 4 ppm.

8 **Q9. The Department commented: "*When comparing the levels of output ammonia***
9 ***("NH₃") in the as-approved system and the present amendment, it appears the***
10 ***output NH₃ levels have risen from < 4 ppm to < 10 ppm. Compare Exhibit SAD1-13***
11 ***– DMT 11.20.2018 Memo and Attachments, Table on page 4 with Exhibit SAD1-***
12 ***MTN-5 – Updated Equipment Specifications at Table 4.1 on page 3. Please explain***
13 ***the impacts, if any, the increased NH₃ levels will have on internal corrosion within***
14 ***the VGS pipeline."* (Emphasis original.) How does SAD1 respond?**

15 A9. SAD1 consulted with VGS, who provided the following information: ammonia levels of 10
16 ppm are consistent with the VGS RNG Pipeline Gas Quality Specifications and therefore
17 are not expected to affect VGS' pipeline. The VGS RNG Pipeline Gas Quality
18 Specifications allow ammonia concentration in RNG of 0.001% Mole percent or up to 10
19 ppm. If ammonia levels were to exceed 10 ppm, the presence of ammonia could form
20 nitrogen oxides and potentially have an impact on VGS' downstream gas equipment and
21 odorization of pipeline gas.

22 SAD1's Upgrader will have levels under 10 ppm, so this potential impact will not
23 arise.

1 **Q10.** The Department commented: *“In response to the Department’s discovery question*
2 *Q.DPS:PET.1-4, filed on January 23, 2019, SAD1 stated: ‘Vermont Gas Systems (VGS)*
3 *will be monitoring the gas quality remotely at VGS’s Gas Control Center located in*
4 *South Burlington, Vermont. The Gas Control Center will have the ability to remotely*
5 *shut off the input valve from the Project to the VGS pipeline system if the RNG falls*
6 *outside the quality parameters.’ For each stream component identified in Table 4.1,*
7 *on page 3 of Exhibit SAD1-MTN-5 – Updated Equipment Specifications, please*
8 *provide the parameter values which will result in remote shut off by VGS. Please add*
9 *a value for volatile organic compounds (“VOC”) to this list of components, as it was*
10 *provided in Exhibit SAD1-13 at 4, but not in Exhibit SAD1- MTN-5 at 3.”* How does
11 **SAD1 respond?**

12 **A10.** SAD1 consulted with VGS, who provided the following information:

13 The parameter values which will result in shut off by VGS are provided in the table
14 below. For each parameter, we have indicated whether the testing is completed in real-time
15 at the VGS gate station or by sending a sample to a laboratory.

Parameter	Value Resulting in Shut Off	Testing
Methane	None, although there is a minimum Heating Value of 967 BTU and a minimum Wobbe Number of 1,268 BTU/scf.	Real-time Testing
Carbon Dioxide	2.0%	Real-time Testing
Nitrogen	Total Inerts of 4.0% to include CO ₂ , O ₂ , N ₂ , and H ₂	Real-time Testing
Oxygen	0.4% by volume	Real-time Testing
Hydrogen Sulfide	0.5 grains/100 scf or 8 ppm	Real-time Testing
Siloxanes	0.5 mg Si/m ³ (please note the unit difference between Table 4.1 and the VGS Standards). Siloxane is a combination of silicon, oxygen, hydrogen, and carbon. Each species of Siloxane has a different level of silicon, which is the item of concern in siloxanes. In all cases, the mg of silicon within siloxane is less than half of the total mg siloxanes. Give that, it is clear that 1.0	Lab Testing

Parameter	Value Resulting in Shut Off	Testing
	mg of siloxanes will contain less than 0.5 mg silicon.	
Ammonia	0.001 Mole % or 10 ppm	Lab Testing
Water	4.0 lbs/mmscf ²	Real-time Testing
Fluorine Total	10 mg/m ³	Lab Testing
Chlorine Total	1 mg /m ³	Lab Testing

Halocarbons are organic compounds containing carbon, hydrogen, and chlorine, fluorine, or bromine. They are also considered volatile organic compounds. Biogas produced from landfill and wastewater treatment biomass may contain a wide variety of VOCs. Cleaned renewable natural gas may possess trace amounts of numerous VOCs, depending upon biomass source and conditions of biogas production. For the VGS pipeline network, the allowable concentration of halocarbons and organochlorinated compounds, total (sum), is 10 mg/m³ for fluorinated compounds and 1.0 mg/m³ for chlorinated compounds.

SAD1 and VGS will be meeting in the coming months, before any renewable natural gas flows into the VGS system, to further discuss gas quality standards, given recent clarifying changes that have occurred in the industry. SAD1 and VGS will be developing a plan for when the first gas is injected into the VGS system.

Q11. The Department asked, “Has SAD1 discussed these gas quality changes with VGS? If not, why not? If so, what was VGS’s response?” What are SAD1’s replies to these questions?

A11. Because the new Upgrader was specified and guaranteed to provide RNG with quality within the VGS quality standards, VGS was not consulted in advance about the change in the

² The value for water was incorrectly listed as 5.0 lbs/mmscf in Table 4.1 of *Exhibit SAD1-MTN-5*. VGS provided the correct value in the above table.

1 vendor for the Upgrader. SAD1 did, however, verify with VGS that the quality of the RNG
2 being produced by the PSA system is acceptable to VGS. In addition, the answers to the
3 previous questions above reflect VGS's input.

Recommended CPG Conditions

4 **Q12. Can you provide the language of any new or revised CPG Conditions that SAD1 is**
5 **proposing?**

6 A12. Yes, SAD1 is proposing the following conditions, consistent with my testimony above.

- 7 • CPG Condition 9 is replaced in its entirety as follows: *The CPG Holder shall ensure that*
8 *the flaring equipment will include a protective shield to conceal the flame and prevent blowout. The*
9 *flare's ignition system will be gas-powered. The flaring capacity will meet the specifications of the*
10 *required VTDEC air permit.*
- 11 • CPG Condition 48 is new and is as follows: *The CPG Holder shall prepare a Spill*
12 *Prevention, Control and Countermeasure Plan ("SPCC Plan"), compliant with 40 C.F.R. Part*
13 *112, prior to use of the emergency generator.*
- 14 • CPG Condition 49 is new and is as follows: *The CPG Holder shall comply with Exh.*
15 *SAD1-MTN-6 – Air Pollution Control Permit to Construct and Operate (AOP-20-024),*
16 *issued by the Vermont Department of Environmental Conservation on July 27, 2020.*
- 17 • CPG Condition 50 is new and is as follows: *Construction, operation, and maintenance of*
18 *the Project shall be in accordance with the plans and evidence submitted in SAD1's July 7, 2020*
19 *and August 5, 2020 filings, including but not limited to the Revised Site Plan, Exhibit SAD1-*
20 *MTN-1 (Rev.). The CPG Holder shall also comply with the conditions of the Amended CPG*
21 *(March 14, 2019) to the extent they are not otherwise amended herein.*

1 **Q13. Is there any other information you wish to provide to the Commission and other**
2 **parties at this time?**

3 A13. Yes. Due to the ongoing construction of the Project and the need to begin placing manure
4 in the biodigester in August, SAD1 is seeking a decision from the Commission as soon as
5 possible. Based upon the experience of SAD1's parent, Vanguard Renewables, in
6 commissioning its five other facilities, the process takes between three and five months.
7 Once a digester is filled with manure, it is heated to 104 F at increments of less than 2 F per
8 day while monitoring the biology closely. During the following few months, very small
9 amounts of food waste are added into the digester to establish the methanogens colony
10 which will ultimately produce methane in the digester. Thus, beginning to fill the digester in
11 August will allow sufficient time for the facility to become fully operational in early 2021.

12 I would also like to clarify for the Commission that while the CHP unit is needed to
13 begin filling the biodigester, the Biogas Upgrader is not needed for that purpose and is not
14 scheduled for installation until late in the construction process (late Fall 2020).

15 **Q14. Does this conclude your testimony at this time?**

16 A14. Yes, it does.