

STATE OF VERMONT  
PUBLIC UTILITY COMMISSION

CASE NO. 22-2230-PET

VGS/REQUEST FOR APPROVAL OF OUT-OF-  
STATE RENEWABLE GAS PURCHASE CONTRACT

August 11, 2022  
1 p.m.

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Via GoToMeeting

Workshop held before the Vermont Public  
Utility Commission, via videoconference, on August 11,  
2022, beginning at 1 p.m.

P R E S E N T

COMMISSION MEMBERS: Anthony Z. Roisman, Chairman  
J. Riley Allen, Commissioner

HEARING OFFICER: Dan Burke, Staff Attorney

STAFF: Joan White, Utilities Analyst  
Andrea Poppiti, Utilities Analyst

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Eric Guzman, Esq.  
Adam Jacobs, DPS  
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Catherine Bock  
Annette Smith, Vermonters for a Clean Environment  
Geoffrey Gardner  
Michael Swain, DPS  
Chase Whiting, CLF

1 MR. BURKE: Good afternoon everyone. I  
2 see we have a pretty large group here today. That's  
3 good.

4 This is a workshop in Case No. 22-2230-  
5 PET which involves a petition from Vermont Gas  
6 Systems, Incorporated, pursuant to 30 V.S.A. Section  
7 248 for approval of an out-of-state renewable gas  
8 purchase contract with a term exceeding five years.

9 For those of you who do not know me, my  
10 name is Daniel Burke. I'm a staff attorney and  
11 hearing officer with the Public Utility Commission,  
12 and I have been appointed to serve as a hearing  
13 officer in this case. With me today is Andrea  
14 Poppiti who is a utilities analyst and also a hearing  
15 officer with the commission.

16 And I also see Commissioner Riley Allen  
17 has joined us today. I do not believe we are going  
18 to see Chair Roisman, or, excuse me, Commissioner  
19 Cheney today. But one of them may appear at some  
20 point during the workshop.

21 Before we get started today I want to  
22 make sure that all participants, members of the  
23 public that are observing, understand that the  
24 purpose of today's workshop is to assist the  
25 commission and staff in understanding Vermont Gas's

1 proposed renewable gas contract and issues that the  
2 proposed contract may present.

3 Today's workshop including VGS's  
4 presentation and any responses to questions during  
5 the workshop will not be a part of the evidentiary  
6 record for this case unless the commission by its own  
7 motion or on the request of a party specifically  
8 enters them in the evidentiary record.

9 In other words, this is an  
10 informational session, it is not going to be used for  
11 preparing evidence --

12 (Noise interruption)

13 MR. BURKE: Yes. We are not here to  
14 collect evidence that will be used by the commission  
15 to consider the outcome of this case.

16 And in light of what Kim, our court  
17 reporter just mentioned, if you -- I see someone by  
18 the name of Sandy H. Your microphone is green on my  
19 screen. So if you could press the mute button I  
20 think -- thank you very much. I think that was the  
21 background noise that we had.

22 And as we are all aware, we are meeting  
23 today remotely for today's workshop, and we do have a  
24 court reporter present. And Kim is going to be  
25 transcribing the entirety of this workshop. And a

1 transcript of the workshop will be available in the  
2 near future on ePUC. But if anyone here intends to  
3 record the hearing either via video or audio, could  
4 you please let us know now or when you provide your  
5 name for the reporter.

6 I think we will start today by taking  
7 appearances. And I see that the Department is  
8 present, so can we start with the Department first.

9 MR. GUZMAN: This is Eric Guzman on  
10 behalf of the Department of Public Service. Also  
11 joining me on the call is Adam Jacobs, Utilities  
12 Analyst with the Department and Michael Swain.

13 MR. BURKE: Thank you. And for VGS?

14 MR. MURRAY: This is Tom Murray from  
15 Vermont Gas. I'm the Vice President of  
16 Decarbonization Technology, and joining me today for  
17 the discussion part of it will be Greg Morse our  
18 Director of Policy and Planning, and Todd Lawliss may  
19 add some additional information. He's our Manager of  
20 Gas Supply. We have also got Jill Pfenning, our VP  
21 of Regulatory and Finance. And Owen McClain is our  
22 counsel for this proceeding.

23 MR. BURKE: Thank you. And I see  
24 Catherine Bock. I see your name is here. I know you  
25 have filed a motion to intervene which remains

1 pending in this case. Would you introduce yourself?

2 MS. BOCK: Yes. I was just going to  
3 ask if the motion had been approved. Catherine Bock.  
4 I live in Burlington. I'm a VGS customer, and I just  
5 have a lot of questions.

6 MR. BURKE: Thank you, Ms. Bock. And  
7 we will hopefully have an order on your motion in the  
8 near term future. I apologize it was not finalized  
9 before the workshop today, but you should feel free  
10 to participate today in the workshop.

11 MS. BOCK: Thank you.

12 MR. BURKE: And since we have a large  
13 group here, many of whom may not routinely  
14 participate in Public Utility Commission proceedings,  
15 we have a transcript we read in advance of our remote  
16 hearings, and I'm going to read through that today.  
17 So bear with me. This is basically instructions for  
18 how we are going to conduct the hearing hopefully as  
19 seamlessly as possible.

20 So due to the COVID-19 pandemic, we are  
21 at the commission still limiting in-person contact.  
22 As a result today's workshop is being conducted  
23 remotely. We are using the platform GoToMeeting.  
24 During this workshop we will be using special  
25 procedures uniquely related to using a web-based

1 platform. I will read them now for the benefit of  
2 the parties to ensure we have them on the record.

3 Parties may raise concerns about these  
4 procedures either now or at any point during the  
5 workshop if the platform is not performing as  
6 expected or if you are having difficulties. I expect  
7 that this workshop will proceed a bit more slowly  
8 than usual, and we may need to stop along the way to  
9 resolve technical issues.

10 I also recognize that because we are  
11 all in remote locations such as our homes there may  
12 be unexpected interruptions at those locations.  
13 Anyone who anticipates speaking during the workshop  
14 should keep their cameras on during the entire  
15 hearing. It is very helpful for us to see you  
16 particularly when you are speaking. If you plan to  
17 listen throughout the hearing, it is helpful if you  
18 turn your camera off. Even with your own camera  
19 turned off you will be able to see everyone who has  
20 their camera turned on and hear whoever is speaking.

21 Commission staff may choose whether to  
22 leave their camera on or off. My preference is that  
23 people who are not actively participating in the  
24 proceeding leave their cameras off so the pictures of  
25 active participants can be larger.

1 I do not plan to mute anyone's  
2 microphone today whether a party or a member of the  
3 public who may be attending. This means that you  
4 should keep yourself on mute unless you are speaking.  
5 That way we can minimize background noises which can  
6 be disruptive.

7 To indicate that you want to speak, or  
8 would like to speak, please either raise your hand or  
9 unmute your microphone. I will hopefully see that  
10 the microphone icon has turned from red to green, and  
11 we will know that you want to speak. If you are  
12 participating by phone, and I do see we have at least  
13 one individual on the phone, I will ask whether  
14 anybody on the phone would like to speak.

15 If you are a party on the phone and I  
16 forget to include you, please wait until there is a  
17 period when no one is speaking and ask to be heard.  
18 And of course, number one rule, it's very important  
19 that we avoid talking over one another. And if  
20 possible since we have a court reporter, each time  
21 you begin talking, please identify yourself by name  
22 which will assist the court reporter greatly in  
23 putting together our transcript.

24 And if you're participating and your  
25 internet connection cuts out, please try to rejoin

1 the GoToMeeting link or GoToMeeting using the link  
2 provided in the Notice for today's hearing or call  
3 into the workshop using the GoToMeeting telephone  
4 number that was also provided in the Notice of  
5 today's conference.

6 If the audio or video from the  
7 conference has cut out, let me know when you are able  
8 to rejoin, and I will summarize what happened. If  
9 you are unable to call in or rejoin, please notify me  
10 immediately by email at Dan.burke@Vermont.gov or the  
11 clerk of the commission's office immediately via  
12 email or phone, and we will pause the hearing to try  
13 to resolve the issue.

14 Similarly, if at any point you become  
15 aware of another party or a member of the public  
16 having trouble accessing the video or audio feeds of  
17 this remote workshop, please let us know immediately.  
18 We will pause the workshop and try to resolve this  
19 issue.

20 So, is there anybody who is here today  
21 that has any questions or concerns about the  
22 procedures that I just read?

23 (No response)

24 MR. BURKE: Great. So what I would  
25 like to do is to move forward. As I mentioned

1 earlier, Vermont Gas has filed a slide deck that I  
2 expect they will present to us today. So Mr. Murray,  
3 are you responsible for presenting that slide deck  
4 today?

5 MR. MURRAY: No. Actually if you could  
6 give Jill Pfenning the control to present the slides,  
7 that will be great. I'm at a location with okay  
8 broadband, so might be helpful to have Jill do it and  
9 she will advance the slides as we present them.

10 MR. BURKE: And Ms. Pfenning, you're  
11 okay with sharing the screen and presenting a PDF if  
12 I make you a presenter?

13 MS. PFENNING: Yes. Thank you.

14 MR. BURKE: So you should be the  
15 presenter now. In terms of proceeding with the  
16 workshop, Ms. Pfenning, I would ask you to work  
17 through the slide deck that you have. I may have  
18 questions along the way. I know Ms. Poppiti might as  
19 well. And I'm sure Commissioner Allen will have  
20 questions knowing Commissioner Allen. We will try to  
21 let you go forward, but if there are any members of  
22 the public or other parties to this proceeding that  
23 would like to ask questions, I would ask that you try  
24 to hold those questions until the end of the  
25 presentation.

1 MS. PFENNING: Are you able to see my  
2 screen?

3 MR. BURKE: I can see it. If there is  
4 anybody who is having issues seeing the presentation  
5 or getting it from ePUC, please let us know. Feel  
6 free to go ahead, Ms. Pfenning.

7 MR. MURRAY: Okay. Well first of all,  
8 I'll kick things off here. Thank you folks for  
9 everybody that's participating today. Certainly  
10 thank the commission and the staff for their interest  
11 in the program.

12 This is an exciting time for Vermont  
13 Gas as we look to transform our company from a  
14 traditional gas utility to a company that's focused  
15 on climate change as well as our traditional service  
16 of providing safe, affordable service to our  
17 customers. As we have -- with the help of  
18 regulators, and I'll get into the program history, we  
19 have been really leaders in the nation in renewable  
20 gas, so certainly that will be the topic of today.

21 Our agenda is going to start out with a  
22 little bit of high level discussion about our goals  
23 and how we hope to achieve them and how they align  
24 with the state goals. Greg Morse, who joined our  
25 team last year, has got a strong background in both

1 the gas and electric industry, is going to talk about  
2 renewable gas markets. What's going on out there in  
3 the country and around North America.

4 Then I'm going to give a little program  
5 history for those who aren't familiar with how the  
6 program has worked. And then Greg will come back and  
7 talk about this contract specifically with Archaea  
8 that's the subject of this docket, and we think it  
9 will be a good discussion.

10 As you alluded to, folks can chime in  
11 with questions along the way related to certain  
12 slides and other questions. Then we will hopefully  
13 have a discussion at the end to answer broader  
14 questions and things like that.

15 Again, I'll get started. You know, as  
16 we look to achieve our goals as well as the state  
17 goals which are the 40 percent reduction of  
18 greenhouse gases by 2030 and obviously the 2050 goal,  
19 this 2030 goal is looming. And we are trying to find  
20 strategies that move us forward really across the  
21 broad spectrum.

22 We look at them in three kind of large  
23 buckets. In-home and business solutions which are  
24 basically -- a lot of them are embracing strategic  
25 electrification. How do we electrify loads that make

1 sense and take advantage of that clean renewable  
2 grid, and then figure out our place in that  
3 marketplace. Hybrid heating, and things like that.  
4 Alternative supply, which is renewable gas. Green  
5 hydrogen, we will talk about that as well. And then  
6 all these things start with efficiency and  
7 weatherization. And you in the room certainly know  
8 this very well.

9 VGS has a long history in the  
10 weatherization and efficiency space. We are an EEU.  
11 We spend a lot of money trying to reduce bills for  
12 our customers. And that's certainly a flagship  
13 product for us in terms of moving forward. So those  
14 are kind of the three clusters of things.

15 And then, Jill, next slide. So  
16 specifically around alternative supply. We set a  
17 goal back in 2019 to try to get to 20 percent of our  
18 supply provided by alternative supply, renewable gas,  
19 green hydrogen and things like that, as we move  
20 forward. You know renewable gas is interesting to us  
21 from a number of levels, but one of the most  
22 attractive things is it leverages our system. It  
23 allows us to deliver renewable fuel. Customers don't  
24 have to change out their equipment. This has been  
25 attractive to commercial customers, we will talk

1 about that later, and residential customers. And we  
2 see this as a big opportunity as we look to this  
3 energy transition to leverage our system to help  
4 support the electrification of certain loads and what  
5 have you.

6 And then we are piloting nongas  
7 alternatives. So you may know a little bit about the  
8 Burlington District Energy Project. We have been  
9 working with BED for several years and several other  
10 key customers to get a district energy system built  
11 up for the McNeil plant. That project is still  
12 advancing. We are doing some more analysis on that  
13 and working with the various customers we are working  
14 with.

15 And geothermal. We had a -- recently  
16 had a filing. We are going to have more filings on  
17 that as well too. We have got some exciting projects  
18 queued up there. We think geothermal is something  
19 that really leverages our skill in basically  
20 underground piping, and we think there is an  
21 opportunity for us to diversify in that field.

22 And, as I mentioned, you know, in  
23 addition to the kind of the renewable gas which today  
24 is kind of focused on biomethane which is what you  
25 get from digesters and landfills, and Greg will touch

1 a little on that, to green hydrogen. So we have got  
2 a pilot project that we are working on with some key  
3 customers in Vermont to showcase how green hydrogen  
4 can help convert excess or even curtail renewable  
5 electricity to a gaseous fuel that will either help  
6 our system or potentially be converted back to  
7 electricity. So it's a storage option.

8 Right on the heels of that, and some of  
9 you are familiar with this concept, synthesized gas  
10 where you can take green hydrogen and captured carbon  
11 and create CH<sub>4</sub>. So you're basically -- you would  
12 capture carbon from a variety of sources, capture  
13 them off a stack from some commercial customer and  
14 basically create another renewable gas. So that's  
15 another form of renewable gas.

16 And carbon capture sequestration, we  
17 will talk a little bit about that today because this  
18 one project has an element of that in this. That's a  
19 field that we think is going to be growing in the  
20 years to come.

21 So that's my kind of stage setting at  
22 the high level. Greg is going to take us through a  
23 little bit more of the blocking and tackling around  
24 what RNG is and what have you, and also specifically  
25 what's going on in the marketplace. The marketplace

1 it's interesting. As I mentioned, we got in this in  
2 2018. We were the first gas utility to get a retail  
3 RNG tariff. And the excitement -- the potential is  
4 growing exponentially. So we are really excited  
5 about that. And like I said, VGS has been a leader  
6 in this. We are talking to other gas utilities and  
7 developers and what have you, very engaged in the  
8 industry. And Greg will touch on that too.

9 So Greg, why don't you take it from  
10 here. Thank you.

11 MR. MORSE: Sure. Thanks, Tom. Great.  
12 So I thought I would transition by discussing a  
13 little bit about what RNG is, where it comes from,  
14 how that impacts the marketplace.

15 So to start with you can see on the  
16 left-hand side that there are four primary feed  
17 stocks for RNG in the North American marketplace.  
18 That's like the food waste that's generally  
19 industrial food waste, the kind of waste that's  
20 produced through processed foods that you might find  
21 in the grocery store.

22 Second category is waste water.  
23 Generally derived from municipal sewage systems. You  
24 might see this referred to as biosolids.

25 The third category, which is a growing

1 category, is the agricultural waste sector. That's  
2 usually manure processed in an anaerobic digester,  
3 and that generally is derived from bovine waste,  
4 swine waste and poultry waste.

5 And finally, you'll see the largest  
6 category is landfill gas. And the reason it's the  
7 largest category is because there is a lot of  
8 landfills out there. And landfills are required to  
9 capture methane and destroy it under federal law. So  
10 half of the RNG development has already taken place.  
11 The only things that remain are cleaning up that gas  
12 and moving it down the pipe.

13 RNG is important to VGS because it  
14 displaces traditional gas on a one-to-one basis. For  
15 every molecule of RNG put into the North American  
16 system, somewhere else a molecule of traditional gas  
17 is no longer needed.

18 It really is a North American system.  
19 The pipeline grid in North America doesn't have  
20 regional separation like you find in electric  
21 markets. There is no regional transmission authority  
22 like we have in ISO New England. And all of the  
23 pipeline operators work on the same schedule. They  
24 all submit their schedules for transmission and  
25 distribution of gas at the same time every day. So

1       it's a national -- it's an international North  
2       American marketplace.

3               And that marketplace for thermal RNG is  
4       unlike anything -- any other commodity that trades in  
5       the space. In fact, RNG doesn't have the  
6       characteristics of a commodity at all. Each project  
7       has unique feed stocks, unique operational  
8       characteristics, unique carbon reduction, and that  
9       means that RNG isn't fungible like other commodities.  
10      And because of the size, the varying size and  
11      location, there are no liquid trading hubs for RNG,  
12      and there is no price curve -- forward price curve  
13      that we can refer to.

14              So RNG is much different than  
15      traditional commodities, and the way you procure it  
16      is much different as a result.

17              Can we move one slide?

18              MR. MURRAY: Greg, just pause for a  
19      quick second. Commissioner Allen, I saw you had a  
20      question. Missed the hand up there. I've got to get  
21      used to that format. If you want me to answer that  
22      question now or save it for later. Whatever is your  
23      pleasure.

24              COMMISSIONER ALLEN: I had some  
25      questions for you, but I think I'll come back to

1 those at the end. Greg has triggered a couple  
2 questions in his last comment so I don't mind using  
3 this space to kind of raise those.

4 One question relates to -- I mean the  
5 Vermont Gas objective is 20 percent alternative  
6 supply by 2030. But this is in the context of the,  
7 you know, the carbon reduction objectives for the  
8 state or at least that was on the second slide.

9 I'm just trying to understand as you  
10 talk about the lack of fungibility of RNG whether  
11 there is a way of -- well whether we should view RNG  
12 as, you know, essentially having a similar carbon  
13 reduction potential in different -- through different  
14 sources or landfills. Is there a way of kind of  
15 calibrating it to the goals that we are trying to  
16 pursue relative to carbon reduction? That's one  
17 question.

18 MR. MORSE: Sure. One way of  
19 differentiating between feed stocks and locations is  
20 by reviewing carbon intensity. Carbon intensity is  
21 usually calculated with a model like GREET. That's  
22 what's used in the California low carbon fuel  
23 standards program that we will touch on in a few  
24 slides. But that's just one way of looking at RNG.

25 All of the RNG sources here are still

1 renewable. And they are still displacing traditional  
2 gas that would be put on the system. And the carbon  
3 intensity can be impacted by any number of factors.  
4 Of course, feed stock, as I mentioned, but also  
5 location, existing practices and prior practices at a  
6 facility. It's really sort of a but for standard.

7 So to the extent that you want to  
8 calculate carbon under the but for methodology,  
9 carbon intensity works, but there are other ways to  
10 calculate that as well.

11 COMMISSIONER ALLEN: Thanks. And I  
12 have a second question that occurred to me. And this  
13 might be for either you or Tom. But it really  
14 relates to the issue of fungibility.

15 In my mind, there might be a way  
16 potentially to create or -- creating an opportunity  
17 for fungibility through certificates or  
18 certifications of different LNG feed stocks and the  
19 sort.

20 Is there anything like that being  
21 considered or underway that you're aware of?

22 MR. MURRAY: I can take that. Yeah,  
23 thank you for that, Commissioner.

24 One of the things that has kind of come  
25 along with the evolution of RNG is a national system

1 which mirrors the NEPOOL GIS, that would be the  
2 analogy for you basically, in terms of so it's an  
3 M-RETS system. So it's the midwest REC  
4 clearinghouse.

5 And I reached out to them probably back  
6 in 2017 and said we need a system like this that does  
7 this. And at my prompting and some other prompting,  
8 they built that system. So that's a tool we see very  
9 valuable. We have done some piloting of that  
10 platform. That is one of the exciting developments  
11 that we are seeing in the marketplace to help to --  
12 and that system has different ways that -- it can  
13 track at the renewable level. You can trade  
14 certificates, you can trade molecules, and retire  
15 them as well.

16 And then also they built carbon  
17 intensity modules in there as well. So, you know, if  
18 we had the clean heat standard in place, in fact we  
19 had some discussions with the Department about, you  
20 know, something like that would be a way to track  
21 those kinds of certificates. And so if that comes  
22 back around, that could be an opportunity, but yeah,  
23 M-RETS is doing that, and we were as -- we are  
24 piloting it right now so we may use that. We kind of  
25 paused on that because we wanted to see where the

1 clean heat standard was headed. But that's one way  
2 of doing it.

3 And Greg will talk about some other  
4 market mechanisms that are out there and driving the  
5 different tracking and what have you in the industry.

6 COMMISSIONER ALLEN: Thank you very  
7 much, Mr. Murray.

8 MR. MORSE: Thanks, Jill. Can you  
9 advance one slide, please? Great.

10 So for a couple of good reasons we just  
11 discussed and a few more we will touch on here, the  
12 development of RNG projects has accelerated of late.  
13 So I wanted to talk through the kind of primary  
14 markets and the primary participants in those  
15 markets. But as you can see on the right-hand side  
16 that graph represents the number of projects that  
17 have been built or are being built in North America  
18 over the last 10 years or so. Primarily those RNG  
19 projects are addressing the transportation fuel  
20 markets, and that market in and of itself is driven  
21 by the federal renewable fuel standard. In the RFS  
22 program, the federal RFS program, the use of RNG as a  
23 vehicle fuel creates a RIN, a renewable  
24 identification number. And those numbers can be  
25 retired by fuel blenders to evidence compliance with

1 the renewable fuel content requirements. This is the  
2 largest use of RNG in the market today.

3 Now on top of that there are state  
4 level LCFS programs, low carbon fuel standard  
5 programs. I touched on that briefly before. The  
6 largest market you're probably familiar with is  
7 California, but there are other states entering this  
8 marketplace as well; Oregon and Washington, New  
9 Mexico, and there is a federal program underway in  
10 Canada.

11 And in those programs you're given a  
12 credit for bringing low carbon renewable fuels into  
13 the jurisdiction that governs the renewable fuel. So  
14 for example, if you bring renewable fuel into  
15 California, you can get an LCFS credit. In addition  
16 to that you can also qualify for the renewable -- the  
17 federal renewable fuel standard credit. So those two  
18 benefits can stack on top of one another if you're in  
19 a jurisdiction where that's possible.

20 The second major buyer in this market  
21 is compliance markets. That tends to be utilities or  
22 industry who are under obligations based on their  
23 jurisdiction to reduce carbon. So an example here  
24 might be the clean heat standard that passed in  
25 Colorado a few years ago, or as Tom mentioned, the

1 clean heat standard that was under consideration here  
2 in Vermont. And there are a few foreign markets that  
3 are pulling RNG to Europe as LNG to meet statutory  
4 limitations or programs there.

5 Finally, there are voluntary buyers in  
6 the marketplace. And these are utilities like VGS  
7 that have voluntary programs where customers can  
8 choose to participate or the utility chooses to  
9 participate on their behalf.

10 You also see a lot of academic  
11 institutions participating here to meet RSG goals,  
12 and as well as industrial customers who are also  
13 meeting low carbon goals so that they can make  
14 certain claims on their products.

15 So RNG can meet any one of these  
16 marketplaces, but it can only meet the obligations of  
17 one marketplace at a time. So for example, if you  
18 create RINs with your RNG, you can only retire those  
19 RINs in the jurisdiction where the RIN is eligible.  
20 So either at the federal program or at one of the  
21 state level programs if you're in an LCFS market.

22 You cannot simultaneously claim credit  
23 for that RNG in a compliance or voluntary market,  
24 and, of course, the opposite is true as well.

25 Next slide, please.

1 MR. BURKE: Before you go on, I have a  
2 quick question about this slide and a clarification.  
3 I just want to clarify the point you made at the end  
4 there that the RINs -- so one molecule you can only  
5 use it for a RIN in the federal standard or you can  
6 use it for compliance in a state standard. You  
7 cannot double dip with that; is that correct?

8 MR. MORSE: That's correct. You cannot  
9 double dip.

10 MR. BURKE: Okay.

11 MR. MURRAY: You might want to touch on  
12 the LCFS, the way that stacks up. That's probably a  
13 good time to clarify that.

14 MR. BURKE: The reason I asked that is  
15 I was looking at the company's responses to the  
16 Department's discovery requests, and there was a  
17 table in there that included the value of RNG. And  
18 it looked to me that you had aggregated the RIN cost,  
19 the -- I'm sorry -- the LCFS cost, and then just the  
20 underlying value of it as a natural gas element to  
21 achieve that. Maybe you can unpack that for me.

22 MR. MORSE: Sure. My apologies for the  
23 confusion. That's a really good question.

24 So when you are participating in the  
25 transportation fuel markets you can usually

1 participate in all of the transportation credits that  
2 are available. So if you go to the transportation  
3 market, you qualify for RINs no matter where you fuel  
4 that vehicle. If you are also fueling that vehicle  
5 in a jurisdiction that has an LCFS, you get the LCFS  
6 credit also. But you only get that for  
7 transportation use.

8 So for example, VGS could not claim  
9 that we are meeting one of our goals in Vermont with  
10 an RNG molecule and then simultaneously sell it into  
11 a renewable transportation fuel market and have that  
12 market claim the benefit of the RNG as well.

13 Does that clarify your question?

14 MR. BURKE: It does. And I also have a  
15 follow-on question about the fuels. So if -- so  
16 Green Mountain Transit. If they have a natural gas  
17 operated bus and you sell RNG to them. Can the  
18 attribute from that be used to satisfy a credit in  
19 California or Oregon? Or does it need to physically  
20 be used in California to qualify?

21 MR. MORSE: So is your question whether  
22 an attribute can be created in California for a  
23 vehicle fueled in Vermont?

24 MR. BURKE: Yes. That's correct. Does  
25 it operate like the REC market in the electricity

1 land? Or does the molecule have to physically be  
2 used where the attribute is claimed?

3 MR. MORSE: Right. I understand. So  
4 the fueling has to take place in the jurisdiction  
5 where the LCFS market exists. You have to fuel a  
6 vehicle in California to get a California LCFS  
7 credit.

8 MR. BURKE: Thank you.

9 MR. MORSE: Okay. Any other questions  
10 before I move on?

11 MR. BURKE: I guess I do have one  
12 question, a general question. The chart you have on  
13 this slide shows the aggregate number of facilities.  
14 Do you have any sort of comparable data on the  
15 aggregate capacity for all of these facilities in  
16 terms of potential theoretical output of RNG from  
17 them?

18 MR. MORSE: Also a very good question.  
19 I believe that information is available. We don't  
20 have that in this presentation today, but we can  
21 certainly get back to you with some of that  
22 information.

23 MR. BURKE: Okay. Thank you. I see a  
24 comment from Joan White. And Joan, I'm sorry, I did  
25 not realize you were on this.

1           For those members of the public who do  
2           not know Joan, she is also an analyst for the Public  
3           Utility Commission. I'm going to read into the  
4           record Joan's comment here which is: But the RINs  
5           are a federal phenomena though, so a bus fueled with  
6           RNG in Vermont would create RINs at the federal  
7           level.

8           Thank you, Joan.

9           MR. MORSE: Yes. That's correct. The  
10          bus fueled in Vermont could create RINs if the RNG  
11          that's fueling it is RIN qualified, but you would not  
12          create an LCFS credit, because there is no LCFS  
13          market in Vermont currently.

14          MR. WHITE: Just for clarification,  
15          this is Joan. I sort of meant to be a fly on the  
16          wall but couldn't help myself. Thanks, Dan.

17          MR. BURKE: I'm done with my questions  
18          on this slide.

19          MR. MORSE: Great. Jill, can you give  
20          us one slide, please. Thank you very much.

21          Okay. So as the number of participants  
22          has increased, that's brought buyers into direct  
23          competition with one another, and that's drawn a lot  
24          of developers into the space, which has created some  
25          procurement challenges for entities like VGS who are

1       trying to buy RNG.

2                       Importantly, credit has become a  
3       concern. As the number of projects proposed by  
4       entities with no experience has expanded, the  
5       guarantee that those projects reach fruition and  
6       become producing assets in the fleet has lost its  
7       way. So we have some execution risk built in now  
8       because many projects that are proposed never  
9       actually get built.

10                      The lack of visibility into the  
11       development time lines and the non fungible nature of  
12       RNG that we touched on a little before, that makes  
13       price discovery fairly difficult. And what we mean  
14       there is two-fold.

15                      First, it's simply hard to see lots of  
16       pricing because there is no clearinghouse like there  
17       are -- like there is for other commodities. No  
18       clearinghouse where deals get reported. And there is  
19       no published price index that we can refer to that  
20       would give us a price today or a forward curve price  
21       that we could rely on or book for tomorrow.

22                      So even when we do have a pricing it  
23       tends to be opaque for the reasons we have touched  
24       on; different development schedules, different feed  
25       stocks, different carbon intensities, and different

1 term lengths. So that makes it difficult to compare  
2 two projects on a direct apples-to-apples basis  
3 without some other conversion.

4 Next I'm going to let Tom go through a  
5 couple of aspects of our RNG program, and I'll be  
6 back, as Tom mentioned, to discuss a little about our  
7 procurement approach and some details on this.

8 MR. MURRAY: Thanks. And I alluded to,  
9 you know, there is a very interesting story, but I'll  
10 save it for another day. But essentially we got into  
11 this back in 2017 when the PUC approved our RNG  
12 tariff. For those of you that don't know, we have  
13 been working closely with Middlebury College and a  
14 developer to develop a renewable gas project in  
15 Addison County, and that had been evolving for  
16 several years. So we were getting a voluntary tariff  
17 in place for that project which was and is very  
18 exciting to us.

19 And so basically we officially launched  
20 a program in April of 2018. And we were in the  
21 marketplace selling that, just voluntary mind you.  
22 And we have had some successes in that market, and we  
23 will talk about that on the next slide. And then we  
24 started to blend RNG into our base supply portfolio.  
25 So think of it as kind of two pathways. It's similar

1 to Cow Power adders, and GMP's renewable portfolio  
2 customers can now stack them up to get even a greater  
3 goal.

4 So we have customers today that are  
5 getting a very small portion today of blended RNG in  
6 their base gas, and then they are buying additional  
7 RNG to satisfy their sustainability goals whether  
8 they be commercial or residential.

9 And so in April of 2020 we started  
10 blending RNG in there. We had a relatively small  
11 level, but to start to work in that direction. In  
12 2021 in our alternative regulation plan, with the  
13 help of regulators we got the authority to start  
14 adding up to 2 percent of our supply as RNG each  
15 year. So that's not a mandate. But it's a cap. And  
16 we have been -- so that's allowed us to continue to  
17 increase RNG in our supply portfolio at a level that  
18 would get us to that 20 percent, if you think about  
19 that over the coming years.

20 And then last year we launched our  
21 first in-state project. It was a project that I  
22 alluded to earlier with the Middlebury College and a  
23 developer that came in to advance that project,  
24 Vanguard Renewables. Vanguard has been a great  
25 partner. They have been operating that plant very

1       successfully and really have been a signature project  
2       for all of us.

3               So we are excited to have that as one  
4       of the first that we hope is many farm projects that  
5       can help to, you know, you look at those farm  
6       projects, and they just hit on so many things that we  
7       are trying to achieve in Vermont; clean energy, you  
8       know, obviously this project down in -- near  
9       Middlebury takes food waste and manure, turns it into  
10      renewable gas so you're both solving our organic  
11      waste issues related to, you know, compost and things  
12      along those lines, and also taking that methane out  
13      of the atmosphere that is being emitted from the  
14      manure at the farm. So a lot of benefits there.

15             And lastly, on that project in  
16      particular they put in a phosphorous renewable system  
17      so you're talking about clean water now. So that  
18      project is taking phosphorus out of the watersheds.  
19      Some of it gets reapplied on the farm, but in a much  
20      more manageable manner in terms of how they can  
21      administer it on the land so that you have less  
22      runoff and things like that. It just hits on -- I  
23      don't want to leave out farm sustainability. It's  
24      generating revenues for farms. We all know that  
25      family farms in Vermont are struggling. So if we can

1 diversify their revenue streams and get them to check  
2 all those boxes, well it's really a good story, and  
3 we are excited to be part of that. And we are  
4 looking at several other projects along the lines of  
5 that. Because of the size of the projects they tend  
6 to be a little more expensive. And Greg will touch  
7 on that. In Vermont.

8 So that's the history of our kind of  
9 program at that level. And then to talk a little bit  
10 about how we see our portfolio stacking up. We can  
11 go to the next slide. So if you look at this slide  
12 you can see some of our other contracts. So we have  
13 several contracts. We launched a program with a  
14 short-term contract to get some RNG in our system  
15 from a landfill outside of Montreal. And that was  
16 just to kind of get the program going, get us some  
17 supply that we could market through our voluntary  
18 programs.

19 We also contracted with a waste water  
20 treatment plant in Dubuque, Iowa. So that's a  
21 project that injects RNG to the system there, and it  
22 allows us to take the attributes and market them to  
23 our customers under the program.

24 I mentioned the Salisbury project which  
25 is the one at the Goodrich farm Vanguard Renewables

1 did with us.

2 Our fourth contract is a food waste  
3 digester in London, Ontario. That project is in the  
4 middle of commissioning which is how you actually  
5 start injecting into the system. There is a lot of  
6 testing that goes in with that. I think that's going  
7 to be coming online literally in the coming weeks  
8 because they are very close to that, so we are  
9 expecting to see some of that supply work into our  
10 system very soon. And we are excited about that  
11 project.

12 And then obviously we are going to talk  
13 about the Archaea contract today. We will talk about  
14 how that works. The big blue triangle gives us the  
15 optionality to get to a little over 12 percent of our  
16 system when you stack up our contracts.

17 We are excited about the potential. We  
18 will talk about the variability and how this contract  
19 can play out and different ways it can evolve due to  
20 the tools we got negotiated in the contract. We are  
21 excited about that.

22 As we sit here today, we technically  
23 have, assuming this contract gets approved, we will  
24 have the largest percentage of RNG contracted of any  
25 gas utility certainly in North America. I work with

1 all the progressive gas utilities in this space on a  
2 daily basis, and I know what they are doing. And so  
3 this is pretty exciting for us to have a tool like  
4 this. And so Greg will talk about how that evolves  
5 in a lot more detail in a few slides.

6 Next slide, Greg.

7 COMMISSIONER ALLEN: Tom, just so I'm  
8 clear. It looks like what you have here gets you  
9 about a little bit more than halfway towards your  
10 objective of 20 percent by 2030?

11 MR. MURRAY: Yeah. Yeah. And we are  
12 working on a variety of other projects that could get  
13 us to that line.

14 As we sit here today we actually have  
15 enough projects in the queue, I say projects. Some  
16 of them are in very early stages so I don't want to  
17 be too ambitious about how we characterize those. We  
18 have enough projects to get to 20 percent if they all  
19 came to fruition. In working with these projects  
20 some will, some won't. That's the nature of them.

21 We are excited to be sitting here at  
22 this stage of the game to have the levers to get us  
23 to the goal, we think. And this contract is a  
24 significant portion of that. And then we will talk  
25 more about how we evolve that.

1 MS. POPPITI: Mr. Murray, I wanted to  
2 ask if you could give us a sense of what's preventing  
3 these other progressive utilities from moving  
4 forward. Is there -- is it limited supply? You  
5 know, what are the challenges for them at this time?

6 MR. MURRAY: Is it Mrs. Bock? Who is  
7 this?

8 MS. POPPITI: Ms. Poppiti. Andrea.

9 MR. MURRAY: I'm sorry. We haven't met  
10 before. Nice to meet you.

11 So good question. There is a variety  
12 of issues. Some of them are stuff that you're well  
13 aware of. And for the most part, most gas utilities  
14 just were living under a least cost mandate in each  
15 one of those states basically. So that was the first  
16 hurdle that you heard about, you know, as we got  
17 involved in this market. And, you know, because  
18 again I talk to these folks all the time. And so  
19 many of them were stuck with that state level mandate  
20 that said, you know, you can't buy renewable gas  
21 because it's more expensive. That was the edict  
22 there.

23 Some of the states that have choice  
24 actually had more complications. You had resellers  
25 selling over gas systems and some resellers resisted

1       that. So those are some of the regulatory hurdles we  
2       overcame.

3               What we have seen in the last few years  
4       is several states have advanced renewable gas  
5       standards, and renewable goal standards, et cetera,  
6       et cetera. So Colorado's got an RNG standard. I  
7       forget what their exact number is, 4 percent or 5  
8       percent that you can get to. Washington and Oregon  
9       have standards. Oregon standard, I think, is pretty  
10      aggressive. I forget. I think Oregon has the  
11      authority for them to get to a decent percentage.  
12      California went through a long process, and I forget  
13      where they landed. I want to say like 10 percent is  
14      what's in there by 2030 for gas utilities.

15             So we are finally seeing the policy and  
16      regulatory environment advance in that regard. And I  
17      think I want to say there is four or five states that  
18      actually have some sort of thing that's in statute or  
19      from a policy point of view in place to advance  
20      renewable gas.

21             Last cycle, legislative cycle, there  
22      was probably another four or five bills out there.  
23      Some of those got through. Some of those didn't. We  
24      will see more of this continually.

25             The clean heat standard was analogous

1       for us. A little different flavor than a renewable  
2       standard, but that really gets you to the same place  
3       in terms of focusing on how do we clean up our grids  
4       to meet our goals.

5               And then Greg touched on some of the  
6       marketplace challenges as well too. The renewable  
7       fuel and the LCFS are generating, you know, fairly  
8       large incentives. So once the utility has the  
9       authority to get in, you've got to find contracts  
10      that fit within our portfolio.

11             MS. POPPITI: Thanks for that context.  
12      That's very helpful. I think we have a question in  
13      the comments. Will you get it, Mr. Burke?

14             MR. BURKE: Yes. I can read this one.  
15      This is from Karen Horne. And she has a question.

16             How does the RNG get to Vermont from  
17      Canada, Iowa, and New York in pipelines? If so, do  
18      these pipelines already exist or do they need to be  
19      built?

20             And I had just a general question that  
21      I wanted you all to go over at some point about  
22      delivery of RNG and moving of molecules relative to  
23      the attributes, and how you can claim the  
24      environmental attributes, and whether or not the  
25      pipelines need to have that physical connection.

1 I think the question goes to that point  
2 as well.

3 MR. MURRAY: I'll touch on it in a  
4 broader scale, but I want Greg into get into details  
5 on that.

6 So there is a difference around  
7 electric grids and gas grids basically. So the gas  
8 grid is a North American grid basically. If you  
9 looked at the spaghetti map that is the pipelines  
10 around North America, they are all essentially  
11 interconnected. We are connected to the TransCanada  
12 pipeline system. So conversely, the electric grids  
13 are essentially regional.

14 So it made sense when they developed  
15 the renewable standards in the REC marketplaces that  
16 they did these regional grids, and you see regional  
17 trading of RECs in that environment. What's evolved  
18 in the gas system, whether it be on the RIN side or  
19 the LCFS, is looking at this as a North American  
20 marketplace. At the highest level any time you're  
21 replacing a fossil molecule from being extracted with  
22 a renewable molecule, we are doing the right thing.  
23 We are headed in the right direction.

24 That's the high level framing of that.  
25 It's a little different than I know certainly the

1 regulators in the room are used to. That's the lens  
2 we view it from. And that's how the marketplace has  
3 evolved.

4 Greg can talk a little more about the  
5 specifics of that question.

6 MR. MORSE: Sure. Sure. So there are  
7 two ways that you can look at RNG. And the way we  
8 most commonly look at it is through a physical lens.  
9 So for most of our transactions we are booking the  
10 physical transmission from the production source to  
11 the interconnect with Vermont Gas's system at the  
12 Canadian border.

13 And that means that we have taken  
14 ownership of the right to transmit gas through those  
15 pipelines. Those pipelines are all existing  
16 pipelines. I don't think I am aware of any RNG  
17 projects that are substantial enough in and of  
18 themselves to justify new interstate transmission  
19 pipelines. Those are large, long-term investments  
20 that require, you know, BCF, many BCF a day to flow  
21 through them, and RNG projects just aren't that big.

22 So there are no -- there is no new kind  
23 of substantial transmission infrastructure generally  
24 associated with RNG.

25 I think Tom's point about the, you

1 know, any place you put an RNG molecule into the  
2 system displaces a traditional molecule, that's an  
3 important element of this market, and frankly for  
4 renewable markets everywhere. For those renewable  
5 markets to work, whether it's electric or gas, we  
6 have to accept that we build renewables where they  
7 can be built, and we consume electricity or gas where  
8 population lives.

9 So can you trace an electron from its  
10 solar field all the way to your house? Probably not.  
11 But you can financially trace that through a number  
12 of instruments to make that claim. Gas works the  
13 same way. Can I trace the molecule from the  
14 production facility all the way to a specific burner?  
15 Probably not. But I can evidence that we have caused  
16 that molecule to be entered into the system, and I  
17 can retire that molecule against our obligations, and  
18 we can attempt to evidence physical delivery through  
19 the North American system. So that's kind of how the  
20 market works on a practical basis.

21 Does that answer the question?

22 MR. BURKE: I believe it does. Yes.

23 MR. MURRAY: I just want to finish out  
24 Mrs. Horne's question there. The question around  
25 pipelines for this project. So there will be no new

1 pipelines built for this project. There are on  
2 occasion small extensions like we did in the  
3 Middlebury project to connect a farm. Farms tend to  
4 be in the rural areas. So tend to be a few projects  
5 like that. But this project in particular does not  
6 require any new pipeline construction.

7 Again, leveraging the infrastructure  
8 that we have today is the critical way we are going  
9 to achieve our goals in the future. So thank you.

10 MR. MORSE: Is there another question  
11 that popped up? I didn't get a chance to read that.

12 MS. SMITH: This is Annette Smith with  
13 Vermonters for a Clean Environment. Could I ask a  
14 question?

15 MR. BURKE: Please go ahead, Ms. Smith.

16 MS. SMITH: So I'm trying to understand  
17 the -- I call these things gimmicks that you're  
18 trying to do, and why it makes sense to sell  
19 renewable natural gas from a landfill in New York  
20 State to customers in Vermont. Because with the  
21 marketplace the way it is, and I did look, it seems  
22 like New York has plenty of markets for renewable  
23 natural gas. One of the things that we have learned,  
24 I think, very well with electricity is that renewable  
25 electricity is most efficient and best used when it's

1 close to load.

2 And so, for instance, what you've got  
3 with the Goodrich farm, it's produced and it's being  
4 used locally. So I'm having a hard time  
5 understanding why there isn't a pretty strong market  
6 for this Seneca Meadows landfill gas. I lived in  
7 Geneva, New York, at one time. I know where this is.  
8 There is a lot of customers there.

9 I don't understand why this makes  
10 sense, especially with the leakage that takes place  
11 from methane from pipelines. Wouldn't it be better  
12 for the environment to use it where it is produced?  
13 That's my question. Thank you.

14 MR. MURRAY: Well thank you for that  
15 question. Well so in New York, for example, I work  
16 closely with the gas utilities in New York. They  
17 have struggled to get all the authority they need to  
18 blend RNG, and so those gas utilities don't have the  
19 full authority that we have now. They just started  
20 to get some of that authority, and there are frankly  
21 discussions of lower carbon fuel market, vehicle fuel  
22 market in New York. I don't think that bill passed.

23 But so there isn't really a market for  
24 it there. And this landfill gas, the other market  
25 for it, as Greg alluded to, is the vehicle

1 transportation market. And Greg will talk about how  
2 this contract fits in with what you're saying.

3 From our perspective, our strategy is  
4 to have a combination of both in-state and out-of-  
5 state, you know, as it relates to Vermont, we don't  
6 have enough feed stocks to displace all of our  
7 system. You know some of our estimates are in the 20  
8 percent range of what we could generate in Vermont  
9 reasonably to provide renewable gas in our system.  
10 And we are working on that basically.

11 But as it relates to larger volumes and  
12 at lesser and more attractive prices, we have got to  
13 take a look at some of these out-of-state  
14 opportunities, and you know, in a perfect world, all  
15 the renewables would be local to the source. But you  
16 have situations, Burlington, for example, where you  
17 could never get enough renewables in, you know, solar  
18 panels in Burlington, for example, to power those  
19 homes.

20 So the way renewables and their  
21 marketplaces develop is to leverage these grids.  
22 Greg talked about solar and wind that gets injected  
23 into the grid somewhere else. You know, the kilowatt  
24 doesn't get to the house per se. We are leveraging  
25 those grids to basically deliver these fuels and

1 develop these projects.

2 So it's just as critical for us in the  
3 gas industry to take this broader approach to, you  
4 know, any time we can bring renewables into our  
5 system in this -- overlaid on that North American  
6 grid, the better we are going to be. So I hope that  
7 answers your question.

8 MR. BURKE: Before we go on, there are  
9 a couple more comments that came in. I do want to  
10 make sure we are staying a bit on time here though.  
11 I do want to read these in the record. One is from  
12 an individual named Stuart Blood that reads: If all  
13 the potential sources of RNG nationwide landfills,  
14 farms, et cetera, were developed, what percentage of  
15 the current gas demand nationwide could be met? I've  
16 seen published figures, but what is your best  
17 information?

18 And I think, Mr. Blood, that's why I  
19 asked earlier if VGS has a feel for the aggregate  
20 capacity that is RNG that is capable of being  
21 produced. My understanding was that Mr. Murray or  
22 Mr. Morse through VGS was going to provide some of  
23 that information separately.

24 I don't know if you have an answer to  
25 his question more directly, Mr. Murray or Mr. Morse.

1 MR. MURRAY: I can comment on some  
2 studies. There are various studies out there that  
3 you can look at that have optimistic or pessimistic  
4 views. If you look at those studies they have  
5 technical potential, which is, if everything was  
6 developed versus different percentages. The one that  
7 I'm most familiar with is one that was done by the  
8 American Gas Foundation which is a very comprehensive  
9 study. And I was involved in the work group that  
10 helped develop that study. That study estimated I  
11 think it was about 60 percent of the nation's gas  
12 utilization could be met with renewable gas. And  
13 that coincides with -- I think it was just about all  
14 the residential homes in the country could be powered  
15 by renewable gas if you focus that on that sector.

16 So and certainly we can send some  
17 different studies. We are happy to share both sides  
18 of those studies in terms of ones that are optimistic  
19 versus pessimistic. But, you know, the thing that  
20 you have to remember about Vermont Gas is we are a  
21 tiny gas utility. Let's be honest. And certainly on  
22 the national spectrum we are tiny. When people say  
23 you can't displace all of the national usage of gas  
24 with renewable gas, I would concur with that  
25 statement. But when you look at Vermont Gas it's

1 very possible for us to replace all of our, you know,  
2 traditional supply with renewable gas. You know,  
3 there is a lot of complexities with that, and there  
4 is some cost issues with that as well we will talk  
5 about.

6 That's probably not where we are headed  
7 in terms of having a hundred percent renewable gas.  
8 I think it's a combination of reducing load from our  
9 customers through efficiency programs. Embracing  
10 strategical electrification. Electrifying the loads  
11 that make sense, and then essentially, you know,  
12 greening up our portfolio, reducing the carbon  
13 footprint of our supply so that we have very little  
14 to -- hopefully minimal amount of fossil gas in  
15 there, and we are using green hydrogen, renewable  
16 gas, other alternatives to move us forward.

17 That's how we see this kind of playing  
18 out. I hope that answered the question.

19 MR. BURKE: Thank you, Mr. Murray. I  
20 think it would be helpful to move on with the slides,  
21 because I do want to make sure we are using time to  
22 talk about the actual Archaea contract that's at  
23 issue in this case.

24 Mr. Morse or Mr. Murray, whoever has  
25 the next slide, try to work through that.

1 MR. MURRAY: Sorry. So just real quick  
2 on our voluntary program, as we mentioned, we saw the  
3 time line of our program. You can see a fairly  
4 significant bump here in -- if I can read the slide  
5 -- it's 2021. So we have had some more commercial  
6 customers sign up taking larger chunks.

7 This slide doesn't fully represent  
8 Middlebury College's commitment here. So Middlebury  
9 has got another hundred thousand that they are  
10 ramping up to on top of these sales. So, you know,  
11 one point I'll make on the voluntary sale, which is  
12 very interesting, and it really kicked off a couple  
13 years ago with what we see here, this whole concept  
14 of ESG goals, companies and organizations really  
15 embracing, aggressively embracing it, and financially  
16 committing to purchasing renewable supply, and doing  
17 other things to meet their environmental and social  
18 and governmental goals essentially, is driving more  
19 interest in renewable gas.

20 We have got a number of prominent  
21 customers in Vermont that have 2025 goals and 2030  
22 goals. These are corporate goals essentially that  
23 move forward on sustainability. So we have got  
24 several customers that are likely to be buying more  
25 chunks of RNG in the coming years to meet their

1 corporate goals. And that's pretty exciting. So we  
2 are excited about that.

3 I'll move on, and Greg, I think you've  
4 got the next slide.

5 MR. MORSE: Sure. Yeah. Tom touched  
6 on some of our goals. In order to meet those goals  
7 that are set out by the RNG program we are always  
8 evaluating new supply options, and we do that through  
9 the four principles that are laid out in this slide.  
10 And the first of those principles is engagement.

11 Tom mentioned this. We are constantly  
12 engaged with the market. We have contacts in other  
13 gas utilities, development entities, financing  
14 entities, so that we can keep our finger on the pulse  
15 of what's happening in the marketplace and what  
16 projects are coming to the market.

17 And we hear from developers on probably  
18 a weekly basis which give us a good chance to  
19 evaluate those projects, learn something from them  
20 importantly, and learn from their pricing methodology  
21 so that we can have those important insights into the  
22 market.

23 The second is to support local. And  
24 Tom touched on this as well. We support local RNG,  
25 local RNG production, and local RNG use. Because

1       it's providing local economic benefits. It's  
2       providing local environmental benefits. And Tom went  
3       through some of the things -- the benefits that are  
4       available at the Goodrich farm. But the nature of  
5       RNG projects in Vermont makes those projects by and  
6       large more costly. So we are continuing to look at  
7       out-of-state contracts in order to round out the  
8       supply in our portfolio.

9               The third principle is balance. And  
10       our approach here evaluates the impact of increasing  
11       RNG amounts on near-term and long-term rate impact.  
12       And we do that in two ways. The first is to evaluate  
13       competitively priced supply and try to secure that.

14              And the second is to make strategic  
15       decisions year over year about how much RNG gets  
16       blended into the portfolio with respect to rates.

17              And finally the fourth principle is  
18       flexibility. We value flexibility within our supply  
19       contracts. Because it allows us to do things like  
20       respond to changing rate pressure, responding to a  
21       change in regulatory environments, responding to  
22       customer demand and changing market dynamics. So  
23       this is the lens that we look at our supply contracts  
24       through.

25              Go to the next slide, Jill. So when we

1 translate those supply principles into the four  
2 criteria that we use to evaluate contracts  
3 specifically, we end up with these four.

4 The first is price. In general, we are  
5 targeting contracts that will fit into our existing  
6 portfolio without causing rate pressure. So we are  
7 comparing the price of a new supply contract with the  
8 price of our existing supply contracts.

9 We also compare that price or evaluate  
10 that price for how it fits into the market context.  
11 And what that means is as prices change between the  
12 times when we do deals, we are attempting to  
13 understand what's gone on in the marketplace and why  
14 prices are changing.

15 The second is counterparty evaluation.  
16 And this is where we are looking at other RNG  
17 contracts that we have seen. As I mentioned, we see  
18 them pretty often. So we are looking for similar  
19 contracts that have come across our path, and we are  
20 evaluating the differences between those contracts  
21 and why those differences might exist. This is also  
22 the element where we are looking at counterparty  
23 trust. So we are thinking about who the  
24 counterparties are, how much experience they have,  
25 whether their project is online or under

1 construction, or whether they have financing secured.

2 The third element is term.

3 MR. BURKE: I just had a quick  
4 question. The counterparties and seeking your own  
5 capacity, are you using RFPs and putting those out  
6 generally for specific capacity? Or are you more  
7 opportunistic in trying to put contracts in place?

8 MR. MORSE: That's a very good  
9 question. We have not so far used RFPs. I guess we  
10 shouldn't say we have not. The company has run RFPs  
11 in the past for these.

12 We don't think those RFPs are  
13 particularly successful for a couple of reasons, and  
14 I touched on this before. The number of proposals  
15 that we receive when we do RFPs, when we review other  
16 RFPs, the number of proposals we receive for projects  
17 that don't exist yet is pretty high. So there is a  
18 considerable execution risk there. And we have seen  
19 a lot of projects get booked with a new off taker and  
20 take years to come online. So that's a problem for  
21 one.

22 The other thing we are thinking about  
23 is who is not bidding, or, you know, when we have  
24 asked for something, have we excluded someone without  
25 -- sort of without the consciousness. So that's why

1 we evaluate every contract that comes in through the  
2 door. And often we will go out and find new  
3 contracts if we think we need more market context.

4 To specifically answer your question,  
5 we take an opportunistic approach, but we think  
6 that's analogous to an RFP because we have a wide  
7 view of what's going on in the marketplace.

8 MR. MURRAY: We did have one RFP, an  
9 official RFP, that we did early on before we launched  
10 the program. And that led us to when we saw the  
11 first contract when we launched the program. We have  
12 done some RFIs to talk to developers about different  
13 strategies, but as Greg said, you know, much of the  
14 marketplace is focused on this vehicle market for the  
15 RINs and the LCFS. So you've got to sort through and  
16 find developers like Archaea that is willing to  
17 potentially accept a lesser price but for longer term  
18 stability. And those are the developers that we are  
19 most interested in talking to.

20 So traditional RFPs have not been what  
21 we think are successful. We had very few respondents  
22 to the first RFP we did. We have been very  
23 successful with this networked approach to be able to  
24 find different opportunities. Some of them fit, some  
25 of them don't. And we are working through some of

1       those. This particular one we think we are talking  
2       about today touches on a lot of what we want to see  
3       in a partner for a project like this.

4               MR. BURKE: Thank you.

5               MR. MORSE: Jill, can you just advance  
6       that slide again, please? Thanks.

7               Okay. So the third element we are  
8       looking at is term. We generally seek long-term  
9       fixed priced supply, and we do that because the  
10      long-term fixed price supply provides cost  
11      predictability, and it helps us avoid volatility.  
12      And in our experience, especially recently, the  
13      prices of long-term contracts are lower than the  
14      prices of short-term spot contracts.

15              And the fourth criteria is optionality.  
16      And for us, that means flexibility just like I  
17      mentioned on the previous slide. Flexibility to  
18      change volumes or change direction offers flexibility  
19      to our customers and to the program, and it can be  
20      very valuable.

21              So go ahead and advance one more slide  
22      there. So we evaluated the Archaea contract using  
23      the criteria that I just mentioned. And this is the  
24      type of contract that fits those criteria pretty  
25      well.

1                   This contract delivers a substantial  
2                   amount of low carbon renewable fuel that will help  
3                   VGS deliver on its RNG program goals and also assist  
4                   in meeting the state's GWSA goals. We will work  
5                   through those criteria that I mentioned as it relates  
6                   to this contract specifically.

7                   So the first is price. This price is  
8                   comparable to the contracts that are already in our  
9                   portfolio. So it keeps our portfolio at a similar  
10                  price range.

11                  The second is counterparty. In this  
12                  case the counterparty is Archaea RNG. It's a well  
13                  known, publicly traded, large operator in this space  
14                  with a portfolio that is substantially comprised of  
15                  other landfill gas projects, both existing projects  
16                  that are already operating, and projects that are  
17                  under development.

18                  And the Seneca RNG plant is an existing  
19                  plant that's already operating. It is scheduled for  
20                  expansion in the future. So it gives us some  
21                  confidence that that RNG will show up when we book  
22                  it.

23                  The third element is term. The  
24                  transaction length on this contract is 15 years. And  
25                  the price is substantially fixed throughout. The low

1 pricing in the 15-year term in conjunction help us  
2 reduce RNG supply volatility, and you saw the graph  
3 that Tom talked about before with the increasing  
4 amount of this contract, which means we will have  
5 increasing stability in the RNG portfolio.

6 The fourth element is optionality. And  
7 this contract has quite a bit of it. So we start at  
8 300,000 MMBTU in the first year of the contract. And  
9 there are options throughout the contract to increase  
10 volume. We call those call options where we can  
11 increase.

12 What we are considering doing here is  
13 increasing up to 100,000 MMBTU per year up to a total  
14 of one BCF, which is about a million MMBTU.

15 There is also the option to resell gas  
16 that is in -- that we have already booked. We call  
17 this a call option. The option to put gas back into  
18 the market. And in this case Vermont Gas and Archaea  
19 share in the proceeds of that transaction. Doing so  
20 allows us to smooth the rate impact and to change  
21 volume.

22 So the two options in conjunction with  
23 one another offer us a really substantial tool to  
24 manage volume. We can increase volumes when  
25 necessary, or decrease volumes by putting them back

1 into the market which allows us to balance volume in  
2 the portfolio as we bring new decarbonization  
3 projects online and smooth impact as alternative  
4 supply ramps up over time.

5 There is one more benefit that falls a  
6 little outside of the criteria we just discussed, and  
7 Tom mentioned that. And that's the Seneca landfill  
8 sits on top of favorable geology for carbon capture.  
9 You might be aware carbon capture is the  
10 sequestration of the CO2 that is produced by the  
11 landfill. So the addition of that equipment will  
12 further improve the carbon reduction pathway for this  
13 landfill.

14 Any questions there before I move on?

15 MR. BURKE: I have some questions, but  
16 I think it's probably best if you work through the  
17 next slide related to this contract.

18 MR. MORSE: Go ahead and advance one.  
19 Thanks, Jill.

20 So we provided to the Department some  
21 modeling in the discovery process that detailed the  
22 rate impact that -- rate impacts that are on this  
23 slide. So I won't bore everyone by reading it all  
24 the way through, but I do want to highlight just a  
25 couple of things.

1                   Broadly speaking, rate impact is driven  
2                   by a fairly large number of factors, but for this  
3                   contract specifically, rate impact depends on the  
4                   volume exercised and the volume resold under the  
5                   optionality provisions we just discussed. Those  
6                   decisions are made on an annual basis in consultation  
7                   with the Department, and the commission will have  
8                   visibility into that process through our quarterly  
9                   PGA filings.

10                  The scenarios that show up on this  
11                  slide really represent guardrails. But they also  
12                  show that the impact is in line with our IRP and the  
13                  alternative rate -- alternative regulation plan. So  
14                  I'll wrap up here.

15                  I'm going to kick it back to Tom who  
16                  has got a few concluding thoughts, and then we will  
17                  move on to some discussion.

18                  MR. MURRAY: Thank you. First of all,  
19                  I appreciate all your attention through this and some  
20                  of the great questions. You know, just to kind of in  
21                  summary about how we view this contract, we think  
22                  that it provides a significant portion of the supply  
23                  we need to achieve our -- certainly our 2030 goals  
24                  and it aligns with the Global Warming Solutions Act.  
25                  We think the price for this is attractive.

1           The flexibility that Greg talked about  
2           is a great toolbox for us to help manage our supply  
3           portfolio and the rate impacts of bringing more  
4           renewable fuels into our system. And so those are  
5           really key tools.

6           And while the markets are a little  
7           different on the electric side, this is very similar  
8           to what you see on the electric side. There is  
9           different renewable projects that are worked through  
10          the REC marketplace to develop ratepayer benefit by  
11          reducing the cost.

12          And then the last point, you know, as I  
13          alluded to earlier, we are really proud of the stuff  
14          that we have done at Vermont Gas to advance climate  
15          and to really try to figure out how we are going to  
16          solve these complex climate challenges. We know that  
17          we have got work to do to improve, and we are pleased  
18          that we can come to you with this contract that  
19          provides tools for us to manage this transition in a  
20          balanced way and do it in such a way that we continue  
21          our focus on providing safe, reliable and affordable  
22          energy solutions to our customers.

23          And with that, I'll wrap up the formal  
24          presentation and look forward to some more questions.

25          MR. BURKE: Thank you, Mr. Murray, and

1 I noticed that Chairman Roisman just hopped into the  
2 conference as well. So Chair Roisman, just to bring  
3 you up to speed, Mr. Murray and Mr. Morse just  
4 presented the slide deck that VGS had filed into ePUC  
5 yesterday. They have answered some questions along  
6 the way both from me, from Mr. Allen, commission  
7 staff, and some members of the public who have been  
8 attending today.

9 And I did have some questions about the  
10 contract. Some of these maybe are process related  
11 and may be legal in nature, so if you feel that you  
12 need to go back to Mr. McClain or Ms. Pfenning before  
13 you can respond, I completely understand and any  
14 issues that you could address either in future  
15 testimony or filings in this case.

16 But one of the questions I did just  
17 want to make sure I'm reading the contract correctly.  
18 When I looked at what was filed, I know it's sort of  
19 a standard industry boilerplate contract. But there  
20 is no express option for an early termination in the  
21 contract. Am I correct on that?

22 MR. MURRAY: I believe there isn't.  
23 Jill, do you know offhand? If there is, I don't  
24 remember seeing one in there. Or Owen?

25 MS. PFENNING: I believe that's

1 actually addressed -- this is Jill Pfenning from VGS.  
2 I believe that's addressed in the NAESB but not the  
3 sort of underlying agreement and not the  
4 confirmation. So there are sort of two pieces of the  
5 contract. And any earlier termination, I think, is  
6 dealt with in the NAESB.

7 MR. BURKE: Okay. And I think that's  
8 just part of the assessment of the risk under the  
9 contract, recognizing it's relatively long term. And  
10 if market conditions turn unfavorably, or if there is  
11 a windfall along the lines in this contract, I just  
12 want to make sure the commission fully appreciates  
13 what your options are for terminating or what the  
14 counterparty's options are for terminating the  
15 contract early to the extent VGS is reaping a  
16 financial windfall from it.

17 And then just in terms of going  
18 forward, assuming VGS exercises the option to resell  
19 some of the RNG into one of the markets, how is that  
20 going to be communicated to the Department and the  
21 commission? Are we just going to see revenues on  
22 your quarterly PGAs? Will there be annual filings  
23 updating the commission as that goes along?

24 MR. MURRAY: So the way we had hoped to  
25 do this is -- so by -- established in our RNG program

1 order, we have an annual RNG filing that we file in  
2 June basically which is kind of a summary of what's  
3 happened in our portfolio basically. That's in the  
4 June time frame.

5 That is also the time frame where we  
6 have to inform Archaea about our plans for going into  
7 these external markets, wholesale markets, renewable  
8 fuel markets, if you will.

9 And so our intent is to meet with the  
10 Department essentially in the, you know, call it in  
11 the April, May time frame and talk to them about what  
12 our plans are. Basically say this is what we think  
13 about doing this coming year, and kind of working  
14 with them. Essentially that supply filing would be  
15 -- reflect our plans with input from the Department.

16 So that's how we would be thinking  
17 about what will be the following year's participation  
18 in those markets.

19 And then Greg touched on the other  
20 factors that go into rates. It's, you know, base  
21 rate increases. It's PGA increases. So, you know,  
22 in our current process we have been filing rate cases  
23 early in the year, so we will have visibility into  
24 what the proposed base rates would be. So those  
25 inputs will be RNG-thinking base rate inputs.

1                   And then the gas markets is something  
2                   that evolves on our quarterly PGAs, so that's  
3                   something that the PUC sees. And so in each quarter  
4                   you can see in our filing how much RNG we are  
5                   blending. So obviously, you know, you guys tend to  
6                   approve those with regularity. I think you have had  
7                   some questions on a few, but in general they go  
8                   fairly well.

9                   So at the commission level, your  
10                  visibility on a routine level would be you would see  
11                  the annual RNG report in the June time frame which is  
12                  kind of forecasting what we see in the future year.  
13                  We also do a gas supply filing at the same time. So  
14                  between the rate case, the RNG report, and the gas  
15                  supply thing, you'll have three inputs that look out  
16                  into the future that give you some good clarity.

17                  And then you'll obviously get the PGAs.  
18                  So if there is a PGA that came up that you had  
19                  questions on, renewable gas blended into the  
20                  portfolio, what have you, you could raise questions  
21                  at that time as well. So we think that provides  
22                  enough transparency for regulators, and we look  
23                  forward to working with you on this. If it doesn't,  
24                  let us know. We can adapt the program to work with  
25                  whatever you guys think you need to make these

1 decisions.

2 MR. BURKE: This may be a question for  
3 Mr. Lawliss. I know he's online with his camera off.  
4 The revenues that will come in from any resales would  
5 flow through the quarterly PGAs; is that correct? So  
6 they would offset any price increases.

7 MR. MURRAY: Essentially. Yeah. There  
8 is essentially going to be some lags in there just by  
9 the cycling on this market. But yeah, If it doesn't  
10 flow to this quarter, the next quarter. It will be  
11 reflected in that fashion. You're right.

12 Any revenues that we generate from this  
13 will essentially offset the cost of our RNG portfolio  
14 that we are blending into our rates basically. So  
15 that's a benefit to this contract.

16 MR. BURKE: And I think from reading  
17 your discovery responses I think I know the answer to  
18 this, but you do not at least as of now, have a  
19 written policy or a firm cost/benefit analysis that  
20 you're going to be doing on an annual basis that's  
21 laid out specifically in terms of deciding whether to  
22 exercise the option to resell RNG at this point.

23 MR. MURRAY: No. No. We have been  
24 developing that along the way here. This has been an  
25 evolving thing for us. I think this discussion today

1 highlights how we are viewing them, and you can kind  
2 of see the decision thinking that goes into it.

3 It's fairly dynamic. You know there is  
4 a lot of inputs in this. We want to make sure that  
5 we are doing this in a way that both achieves our  
6 climate goals but also balances all those other  
7 factors.

8 But so yeah, and I think there was a  
9 longing for like a threshold price that we  
10 participate in these renewable fuel markets, et  
11 cetera. And it doesn't -- it doesn't lend itself to  
12 that, and the example I would use is if we have some  
13 volumes out in the renewable fuel market, and we are  
14 making, you know, I'll just -- a very minimal margin,  
15 just a small amount, that's benefiting our  
16 ratepayers. So we could be, you know, we could be  
17 increasing supply but still keeping the volume out in  
18 that market to generate that ratepayer benefit.

19 So this is an evolving market. And  
20 each year our intent is to be communicating with  
21 regulators to give you guys the full transparency on  
22 this. And you'll see how we are making those  
23 decisions. As I alluded to, hopefully we are meeting  
24 with the Department in that April, May time frame,  
25 here's what we think the RIN price is. Here's our

1 logic for what volumes we think we want to put into  
2 those markets. Here's rough estimates of ratepayer  
3 benefit. And that would be the cycle that we hope  
4 would work for folks.

5 But as I said, we are open to input  
6 from our regulators to find something that works for  
7 you if this doesn't.

8 MR. BURKE: And Ms. Block, I see your  
9 hand raised. I know you had some questions, so I  
10 think this would be a good time to transition over to  
11 you if you have a question following on from what we  
12 have heard today.

13 MS. BOCK: Thank you. Thank you for  
14 the slide presentation. It answered a lot of my  
15 questions. But I'm still wondering about the benefit  
16 it's going to have to me as a ratepayer and the  
17 potential rate impact. That slide.

18 I'm wondering if there's been  
19 independent verification of VGS's projection for  
20 those three scenarios.

21 MR. MURRAY: No. You know, we work  
22 with a rate model that regulators have seen at  
23 certain points, how we build our rates basically.  
24 No. We haven't done an independent verification on  
25 this. This is the rate model we use. It looks at

1       our cost of service, our supply costs, and now  
2       renewable gas in there.

3               So we are comfortable that it projects  
4       appropriately the impacts. Again, this -- these  
5       numbers were done isolating those other variables  
6       that we don't know. We don't know what the 2025 base  
7       rate increase might be. We don't know what the gas  
8       market's going to be in 2025. So we are just looking  
9       specifically at this contract.

10              And these are just three scenarios.  
11       The optionality in the contract provides a lot of  
12       different combinations that we will be talking to  
13       regulators about saying, okay, this year RINs are  
14       high, we will move more market in there. RINs are  
15       low, we will do less. Things like that will evolve  
16       each year.

17              So we think it's important to recognize  
18       this contract is looking at the 300,000. That's the  
19       firm commitment that's kind of in front of us here.  
20       Whether we increase or not is going to be a function  
21       of all those dynamic variables that we see each year.  
22       And we work with regulators to find that balance of  
23       keeping rates low and affordable but also meeting our  
24       statutory goals and our interstate's energy plan  
25       goals of 90 percent renewable by 2050.

1 MS. BOCK: Thank you. And there was  
2 somebody that asked a question about why we aren't  
3 looking for more renewable energy in Vermont. And  
4 the answer I heard was that it's too expensive in  
5 Vermont. Are there any other --

6 MR. MURRAY: I wouldn't say -- yes,  
7 it's more expensive. I wouldn't say it's too  
8 expensive. It's more expensive. So well the first  
9 reason is feed stocks.

10 And as I mentioned, our initial  
11 estimates are in that 20 percent that we can generate  
12 in state. We only have one large landfill in  
13 Vermont. And most of that is spoken for for electric  
14 generation. And we only have so many farms, and a  
15 lot of them are small farms.

16 So the dynamic in Vermont is those  
17 projects are going to likely be a little more  
18 expensive. But they also come with some pretty  
19 significant environmental benefits that I mentioned  
20 earlier in reference to the multitude of factors that  
21 you get when you're doing these projects. So we are  
22 actively working on a variety of those.

23 In a perfect world, as I said, we would  
24 love to do it all in Vermont. That's not possible.  
25 So we have to look at other sources. And in that

1        regard it's not dissimilar to electricity. We know  
2        there is a level of electricity that's going to have  
3        to be generated out of state. We have to accept  
4        that. We are a small state with a small population,  
5        and those are the variables we are faced with.

6                    So yeah. That's how we do that. I  
7        hope that answers your question.

8                    MS. BOCK: Thank you.

9                    MR. BURKE: Mr. Whiting, I see your  
10       hand. Feel free to ask a question.

11                   MR. WHITING: This is Chase Whiting.  
12       Conservation Law Foundation. Just a couple of quick  
13       questions. And these could be for either Mr. Murray  
14       or Mr. Morse.

15                   I heard you both speak to related  
16       questions. It looked like on slide 4 about 69  
17       percent of the load that -- RNG load could be coming  
18       from landfills. And then it looked on slide 8 that  
19       for VGS's specific load -- I mean I'm doing the math  
20       here -- just sort of based on that chart there, but  
21       approximately 80, 81 percent of VGS's load would be  
22       coming from landfill gas.

23                   Are those numbers -- I guess is that  
24       second number more or less accurate? And -- I'm  
25       assuming --

1 MR. MURRAY: So I think Greg's  
2 reference on the earlier slide was to what we are  
3 seeing out there in the North American marketplace.  
4 I alluded to VGS is a relatively small gas utility.  
5 This contract represents a large chunk of our supply  
6 that would be from landfill gas, and that's what you  
7 see on that chart on slide 8, I believe. So they are  
8 not a direct correlation between the two.

9 As we sit here today, you know,  
10 assuming we do some of these projects I alluded to  
11 there is quite a few farm projects in that next  
12 tranche that hopefully gets us here. I'm not sure  
13 our portfolio will look just like that slide that you  
14 see there just because of how we are participating in  
15 the marketplace and how we are engaging with  
16 different developers.

17 MR. WHITING: Slide 8 looks like you  
18 have a larger portion for natural gas; is that  
19 correct?

20 MR. MORSE: I just wanted to jump in on  
21 that, Chase. So the graph there on slide 8, the  
22 scale is up to 20 percent. We are really showing how  
23 we are meeting our goal of meeting the 20. Landfill  
24 gas is maybe 8 or 10 percent. I can't quite see from  
25 the slide, but it's not 80 percent.

1 MR. WHITING: 80 percent of the total  
2 amount of RNG load that you have would be from  
3 landfill gas. In that general ball park.

4 MR. MORSE: That might be approximately  
5 right if all of the expansion options are exercised.

6 MR. WHITING: Okay. I appreciate that.  
7 Thanks. I wanted to make sure --

8 MR. MURRAY: I want to clarify the  
9 point that that slide, Chase, is only looking at our  
10 2030 goal. Obviously, we have got further to go once  
11 we get past 2030. And the mix, if you will, when we  
12 get to 2035, is probably going to look differently  
13 basically.

14 MR. WHITING: I appreciate that. Thank  
15 you. So --

16 MR. McCLAIN: Can I just further  
17 clarify? Just to be clear. So the graph shows a  
18 period of time over which various quantities would or  
19 would not be optioned. So I don't think you can  
20 fairly say, oh, the graph demonstrates what the  
21 contract requires at all.

22 So just to be clear, there is no -- I  
23 don't think you can draw a conclusion from this graph  
24 that VGS would have 80 percent of landfill gas in  
25 2030. That's a possibility. The quantities under

1       there are a possibility based on the contract  
2       options.

3               MR. WHITING: That makes sense. Is it  
4       at least fair to say based on the load that's  
5       available in North America and this contract relative  
6       to the other contracts that are in existence, that  
7       the majority of the RNG that you all are intending to  
8       source would be landfill natural gas?

9               MR. MURRAY: I wouldn't say that  
10       because we don't know basically. We don't know. I  
11       think as we look at this contract, our, you know,  
12       this contract satisfies a decent chunk of our 2030  
13       goals. So frankly our focus is really going to be  
14       shifting on to more of the local projects, farm  
15       projects, as I alluded to earlier.

16               If we get an attractive project that  
17       comes along somewhere else in North America that  
18       meets the criteria that we are looking for, you know,  
19       whether that be a landfill or some other project, we  
20       may enter into that contract. And so time will tell  
21       if that's how it evolved.

22               As I look at our 2030 goals I would  
23       like to see a lot of farm RNG in that mix as we fill  
24       in the rest of that 2030 goal.

25               MR. WHITING: I appreciate that.

1           Thanks.   So sorry.   Go ahead, Mr. Morse.

2                   MR. MORSE:   I was just going to add.  
3           We have a supply diversity valuation as well.   So as  
4           we are looking out across those four different feed  
5           stocks that we mentioned before, we want to have  
6           supply from each of those.   And we already do in our  
7           portfolio have supply from each.   You know, once we  
8           have a landfill gas contract that lasts awhile, we  
9           probably won't do a lot more landfill gas.   We would  
10          have to be pretty compelled to do that because it  
11          changes the dynamic in the portfolio and reduces some  
12          of that portfolio benefit, too much concentration of  
13          supply in that one feed stock.

14                  MR. WHITING:   But this contract is for  
15          landfill gas; right?   And so --

16                  MR. MORSE:   Correct.

17                  MR. WHITING:   As you mentioned earlier,  
18          Mr. Morse, under federal law landfill gas has to be  
19          captured and it has to be destroyed, you know, or  
20          burned, which converts the methane into CO2, carbon  
21          dioxide.

22                  So I guess my question is if the  
23          methane's going to be burned in New York anyways, if  
24          we ostensibly bring it over to Vermont, if it gets  
25          here, I know that you can't know for sure which

1 molecules get here and which don't. If it gets here  
2 and we burn it here, what's the actual greenhouse gas  
3 benefit that's achieved, if any? If it's going to be  
4 burned anyways.

5 MR. MORSE: Yeah, I think --

6 MR. WHITING: Isn't it the same outcome  
7 no matter where you burn it?

8 MR. MORSE: I don't think it is the  
9 same outcome. So a landfill -- the way a landfill  
10 destroys methane is by flaring it. If you flare it,  
11 you burn a molecule. At the same time I'm selling  
12 molecules to my customers who are burning natural gas  
13 and creating emissions there. So that's two  
14 molecules that get combusted and send CO2 up into the  
15 atmosphere.

16 What's happening here instead is that  
17 we are buying the RNG from a landfill where it is not  
18 combusted and our customers are combusting one  
19 molecule. So the difference between those two  
20 scenarios is really two molecules get burned, or one  
21 molecule gets burned. If you're looking at it from a  
22 GREET model perspective the but for scenario, yes,  
23 you lose some carbon value because the federal law  
24 requires you to burn that gas as the base standard.  
25 But from a renewability standard, from a displacement

1 standard, we think landfill gas has benefits.

2 MR. MURRAY: Just one follow on that.  
3 I think -- I said this over the years. You know,  
4 burning biogas, biomethane I should say, in our  
5 pipeline system is really the highest and best use  
6 for biomethane, and I want to make a distinction  
7 here. So when a landfill creates electricity from  
8 burning biogas, that biogas is typically 60 percent  
9 methane and 40 percent other constituencies  
10 basically. So that is a dirtier gas. When it gets  
11 put in the pipeline it is upgraded to usually 98  
12 percent methane. So you're cleaning out all of those  
13 impurities, and you're disposing of them properly.  
14 So at that level you've got a cleaner molecule that's  
15 being burned.

16 And the last point there is when you  
17 generate electricity those are classic gen sets. So  
18 they are burning that dirty biogas, and those units  
19 are -- what are they? 30, 40 percent efficient  
20 basically. So the unit of energy that actually gets  
21 to a household on the electric side is poor -- has  
22 poor efficiency versus burning a molecule that's 98  
23 percent or a product that's 98 percent methane  
24 renewable gas in somebody's high efficiency boiler in  
25 the basement of Middlebury, for example, basically or

1 in that context.

2 So the idea being that the much more  
3 efficient use of the resource to use it in pipeline  
4 systems basically.

5 MR. WHITING: So it's an efficiency  
6 thing then. It's not really a greenhouse gas  
7 emissions thing. The methane burned in New York  
8 produces CO2. The methane burned in Vermont produces  
9 CO2. Because it's coming from a landfill it would be  
10 burned in either scenario. The question is: Can we  
11 put it to a different use? Can we burn it here to  
12 displace something else?

13 MR. MURRAY: Yeah. I mean --

14 MR. WHITING: Okay. I just wanted to  
15 make sure I understood the extent of the sort of  
16 greenhouse gas argument there.

17 MR. MORSE: Remember in this case that  
18 carbon capture is scheduled for install at Seneca.  
19 So, you know, in addition to there being only one  
20 combustion molecule with this contract, we are also  
21 going to capture some of the CO2 that would otherwise  
22 just be escaping on a natural basis.

23 MR. WHITING: Thank you very much. I  
24 appreciate your time.

25 MR. GARDNER: This is Geoffrey Gardner

1 in Bradford, if I can ask a question.

2 MR. BURKE: Please go ahead, sir.

3 MR. GARDNER: Following up on the last  
4 conversation, since everyone agrees that we don't  
5 know how much RNG is actually going to enter Vermont,  
6 enter the pipe in Vermont, it's very hard to think of  
7 this in terms of molecules burned here against  
8 molecules burned or flared in New York.

9 And the only standard we really have  
10 for this is what you call renewable gas attributes.  
11 That is an abstraction. The goal of all of this is  
12 to reduce emissions caused by energy use in Vermont.  
13 So it seems to me that the only comparison you can  
14 make between what would be happening but for what's  
15 going on in Vermont with this system and what's going  
16 on without that is the avoided emissions as a result  
17 of buying gas from the landfill compared to what  
18 would happen if that didn't occur here in Vermont.

19 And that requires some kind of  
20 standard, either a national standard or a regional  
21 standard or a state standard, that gives to whatever  
22 the certification is for renewable natural gas, some  
23 value in terms of emissions.

24 And I don't think we have that, and  
25 since we don't have that, I don't think there is any

1 way of measuring what the actual GHG emissions  
2 reductions for renewable natural gas used in Vermont  
3 is. How do you answer that?

4 MR. MURRAY: There was a lot there.  
5 Actually hard to parse out exactly what the -- how we  
6 parse that out.

7 I'll talk to you maybe at a high level  
8 and maybe get to your thinking there. I'll go back  
9 to my electric analogy basically to some extent and  
10 maybe make a broader point on this is that Vermont's  
11 a small state. And if we just rely on this, I'll use  
12 the analogy of local renewables burned locally, we  
13 are going to have a hard time meeting our energy  
14 goals. This goes for the electric sector as well  
15 too. So getting out-of-state supply is essential to  
16 meet our goals.

17 So to me that's one of the lenses we  
18 have to look through. When we look at climate  
19 change, Vermont's a small state. Vermont, due to its  
20 forest and all the great work on the electric side,  
21 has an incredibly powerful carbon reduction story to  
22 tell. But we continue to push on the climate because  
23 it's the right thing to do for our neighbors around  
24 the globe. We need to be leading in this charge, and  
25 we think we are in this.

1                   So if we are reducing the amount of  
2                   fossil gas needed to be extracted, and replacing it  
3                   with renewable fuel that has a lower carbon  
4                   footprint, we are moving in the right direction.

5                   Your question around standards and what  
6                   have you, you know, the -- we call them renewable  
7                   attributes frankly because we don't want to use the  
8                   term REC, because REC has a very specific context,  
9                   but it has various similarities.

10                  In order to develop these renewable  
11                  markets you need a vehicle to enable the transactions  
12                  to occur, the projects to develop. It's just the way  
13                  it's worked. It's a structure that's been developed,  
14                  and that's the way we have decided to do that in this  
15                  country, and it's on the electric side generated  
16                  enormous benefit.

17                  So we are working in that direction.  
18                  You're right. There isn't a national standard. I'm  
19                  not sure there is a national standard on the REC  
20                  thing. I'll leave that to other folks. In the  
21                  electric sector, in the energy sector, I'll say in  
22                  general, we have struggled on the national level to  
23                  come up with cohesive energy policy frankly. If we  
24                  had that stuff, we would be in a lot better place in  
25                  terms of addressing climate.

1 But in order to lead on these things  
2 like Vermont has, we have had to develop a system,  
3 and we paralleled the development of this program,  
4 and the PUC agreed, that this structure of using the  
5 renewable attribute structure was the appropriate  
6 vehicle to create some of the same tools electric  
7 utilities have in terms of how they can bank RECs and  
8 market and participate in this in an appropriate way.

9 So that's the -- that's the renewable  
10 goals that we are trying to achieve in the state.

11 Your question on greenhouse gas  
12 emissions thing is something that has evolved with  
13 Global Warming Solutions Act. And there are  
14 standards that are being developed that are pushing  
15 their way across the country. Greg mentioned the  
16 GREET model which is a carbon intensity model that  
17 California and other states are using. So you're  
18 going to see more movement on that as these  
19 marketplaces develop. You know I hesitate to say  
20 it's going to be a national standard. I'm somewhat  
21 cynical about things moving forward in the relative  
22 dysfunction of DC.

23 But so the general question is, I think  
24 we are moving in the right direction. We are  
25 building tools that move us in the right direction.

1 And this contract provides a significant tool with a  
2 lot of flexibility and optionality for us to advance  
3 Vermont to make sure we are doing everything we can  
4 to achieve the state's and our own climate goals.

5 I hope that answers your question.

6 MR. BURKE: Ms. Poppiti, do you have  
7 any questions to follow up on anything you've heard  
8 today?

9 MS. POPPITI: No. I don't.

10 MR. BURKE: Okay. And I just received  
11 a message from Mr. Allen or from Commissioner Allen,  
12 excuse me, that he had to leave. He had another  
13 engagement starting at 2:30. And I do have just one  
14 more question sort of along the lines of the  
15 interplay between this contract and VGS's current  
16 alternative regulation plan.

17 My understanding is for VGS you're not  
18 contemplating a process whereby you would be seeking  
19 permission from the commission to increase the amount  
20 of RNG you're purchasing under this contract. The  
21 guardrail there would be what's allowed in terms of  
22 that 2 percent increase under the alt reg plan; is  
23 that correct?

24 MR. MURRAY: Yes. Correct.

25 MR. BURKE: Okay. I think that covers

1 all the questions I had.

2 Are there any other members of the  
3 public or any other parties that have any questions?  
4 Oh. I just got an email from Chair Roisman. He has  
5 a question.

6 CHAIR ROISMAN: Yes. Thank you. I'm  
7 sorry my camera is not working, even though I am.

8 So my question is this. Vermont now  
9 requires that all food waste be composted when you go  
10 to your local recycling center. And I don't know  
11 whether or not the state is now consolidating all of  
12 that food waste into a single compost and whether  
13 there is a renewable natural gas possibility of  
14 collecting from that.

15 And I wondered if you know anything  
16 about that, I would appreciate your sharing it.  
17 Thank you.

18 MR. MURRAY: Sure. A great question,  
19 Commissioner Roisman, and thank you for asking it.  
20 So there are efforts -- I mean so what happened in  
21 that space is the waste haulers; Casellas and Red Can  
22 and others, are developing practices to collect that.  
23 So that's the first step is collecting that.

24 And then marketplaces are -- the  
25 marketplace is kind of stepping in. So the Vanguard

1 project, for example, is taking some what you think  
2 of as green bin, that's the general term, green bin,  
3 for these kinds of things. And there are other  
4 projects -- we are working with several other  
5 projects that are looking to do that. We see that as  
6 an opportunity to continue to make more RNG.

7 And there will probably be some  
8 electric projects that generate it -- use it to  
9 generate as well. So that's an important part of  
10 this developing marketplace, important part of us  
11 getting more local feed stocks into our portfolio for  
12 renewable gas projects.

13 And so we are engaged in that actively  
14 to see how we can leverage that. We are talking with  
15 the usual suspects, if you will, the different waste  
16 districts and the different waste haulers to see  
17 about how we can look at this differently and also  
18 municipal waste. You know, municipal waste has been  
19 a decentralized thing with community-based projects.  
20 And we are looking at several opportunities to  
21 develop RNG at municipal waste projects.

22 Those hit on just another punch list of  
23 environmental benefits for Vermont, clean energy,  
24 clean water, potential revenue for the communities,  
25 potential savings for the communities. Some of the

1 projects we are looking at are actually going to turn  
2 it into savings because they are paying a lot of  
3 money to haul certain things. So we are engaged at  
4 all levels, and we see -- was it Act 171? Owen,  
5 correct me on that. The composting law that went  
6 into effect a couple years ago has a key tool for us  
7 to develop the feed stocks, municipal waste, organics  
8 that you're referring to, and farm manure. Those are  
9 the kind of three opportunities. And potentially  
10 landfill, but again Vermont doesn't have a big  
11 landfill opportunity as we sit here right now.

12 CHAIR ROISMAN: Let me follow up with a  
13 question. Would it be beneficial if the state  
14 implemented either a statute or regulations through  
15 perhaps the Agency of Natural Resources that  
16 compelled all that compostable material to be  
17 consolidated at a single place in Vermont in order to  
18 facilitate the generation of renewable gas in Vermont  
19 from all this waste? And I don't know what the  
20 volume is.

21 In other words, I saw your charts and  
22 tables and so forth. And looked like landfills were  
23 the largest potential, and food waste was relatively  
24 small, but I didn't know whether that was all the  
25 food waste that we generate, which seems like a lot

1 to me, or just the food waste that's generated and  
2 now collected like from restaurants and grocery  
3 stores and stuff like that.

4 So would you like to see something done  
5 -- would that be really beneficial or not so much so?

6 MR. MURRAY: The concept would be  
7 great. Obviously, that would be a great concept to  
8 see that evolve. When you get into these  
9 marketplaces, like any marketplaces, you get into a  
10 lot of interests that have to kind of coalesce around  
11 a piece of legislation that you're talking about.  
12 And certainly the composting law checked all those  
13 boxes. It was a complicated process to get that over  
14 the line.

15 So I think there would be interest in  
16 continuing to grow the opportunity and see how we can  
17 advance it. And if it's something as specific as you  
18 outline, certainly it would be -- it would be very  
19 attractive. You know, it's the waste hauler  
20 community, this collection network, while it's  
21 disparate in terms of location, there is a few usual  
22 suspects in there. Casellas is one. And things like  
23 that that are doing the majority of the work on that.  
24 So we are working with them. You know, they are  
25 picking that up.

1                   And one point I'll just add, you know,  
2                   the -- this and I'm -- I love the concept of  
3                   composting. But remember when you're composting you  
4                   are actually getting methane when you do that  
5                   basically, so there are some environmental down sides  
6                   of going with that even though it has a lot of  
7                   benefits to our garden and what have you.

8                   Again, it's almost like the highest and  
9                   best use, to your point, would be to basically  
10                  advance it to a centralized facility that was doing  
11                  all of the water quality, energy production in a most  
12                  efficient manner.

13                  And so we will be analyzing that as  
14                  this evolves and, like I said, we are working with  
15                  the key partners to see where that goes. And yeah,  
16                  we want to try to optimize all the sources we can in  
17                  Vermont, and certainly food waste is an important  
18                  part of that.

19                  CHAIR ROISMAN: Thank you.

20                  MR. GARDNER: This is Geoffrey Gardner  
21                  again. If I can -- I have one more question about  
22                  rates and customer base. And the question is this.  
23                  You say that by 2030 under this contract you would be  
24                  able to increase the amount of renewable natural gas  
25                  to a billion cubic feet. And in order to do that, or

1       that would take an increase in customers, or it would  
2       be comparable to an increase of customers to about 24  
3       percent of your total customers now.

4               But at present, if I understand  
5       correctly, and my arithmetic is right, you have 180  
6       customers who have volunteered to get -- to buy  
7       renewable natural gas. That's about .3 percent of  
8       your total customers at this point. So the leap is  
9       going to be tremendous to that 24 percent. It would  
10      be a factor of something like 70.

11             Second part of the question is if you  
12      were to get to 24 percent of customers volunteering  
13      to buy RNG, would you sometime before that or soon  
14      after that or at that point have to make this no  
15      longer a voluntary system but a system that everyone  
16      would necessarily be part of? And everyone would be  
17      sharing and paying the cost of it through their  
18      rates?

19             MR. MURRAY: Right. So there is a  
20      disconnect potentially. So when we are looking at --  
21      so the 180 customers represents our voluntary. So  
22      those are customers that have decided with their  
23      wallet and their passion for climate to basically  
24      invest in buying a more expensive fuel.  
25      Simultaneously, as you'll see in some of the other

1 slides, we begun blending RNG in our base supply. So  
2 we -- today we have a relatively small percentage in  
3 our portfolio of RNG that all customers are paying  
4 for, all of our firm customers essentially.

5 And then we have these customers, this  
6 180 customers, that are paying more to have  
7 additional renewability in their fuel production. So  
8 that's how -- so when we talk about the 24,000,  
9 that's looking at our overall portfolio of RNG. And  
10 if we were to get to that BCF, then that's what this  
11 contract would generate, which is a pretty impressive  
12 -- when you think about it that's pretty impressive.  
13 We have 55,000 customers. To get to 24 -- with one  
14 contract to have a pathway.

15 Again, there is a lot of optionality  
16 and things to play out. But we have a tool, we have  
17 a vehicle. It's a fairly large lever in the sense we  
18 could use it very aggressively to meet these goals.  
19 So we are excited about it. There is a lot of  
20 variability each year. We need to make sure we are  
21 managing around cost and making sure we are not  
22 increasing too much.

23 I wanted to think about this, I think  
24 the -- certainly today as I alluded to about these  
25 customers that are motivated by ESG goals, there are

1 a lot of customers that want to be at a hundred  
2 percent, and they want to be there fast. So having a  
3 voluntary program that can stack on top of what's in  
4 the base supply is an important tool for us. Because  
5 more of those voluntary customers that are willing to  
6 invest minimizes rate impact.

7 So that's part of our evolution is in  
8 addition to managing the supply contract and what we  
9 blend in our portfolio, we want to be continuing to  
10 market as we are to those customers that are excited  
11 about it.

12 This is a very eloquent pathway for a  
13 lot of customers. Because some of these systems in  
14 Vermont, you think of industrial systems, for them to  
15 invest millions to electrify an electric -- a process  
16 that creates a widget versus basically blending  
17 renewable gas into their existing equipment has  
18 enormous benefits. And some processes don't even  
19 lend themselves to electrification. So gas --  
20 renewable gas in particular has a fit for a variety  
21 of uses. And we have a lot of residential customers  
22 that are in that mix as well too.

23 So we are excited about expanding that.  
24 And working with communities to see where renewable  
25 gas fits in. Burlington is a good example. Working

1 with them on their new building standards to see how  
2 renewable gas can fill in customers' portfolios and  
3 then the overall city goals as well. I hope that  
4 answers your question.

5 MR. BURKE: Before we move on, I just  
6 want to note that Annette Smith filed a written  
7 comment in the chat. I'm just going to read that in  
8 so we can get it in the transcript. And Ms. Smith  
9 wrote: Food waste has a depackaging problem. Some  
10 practices involve mushing up all the food with  
11 plastic and then land applying all that. Another  
12 thing that's happening is the food waste is trucked  
13 to Maine, and the packaging is burned in an  
14 incinerator. It's not a fun topic at present. Chair  
15 Roisman's idea might be a big improvement.

16 Thank you for that, Ms. Smith. Are  
17 there any other members of the public that are here  
18 today that have any questions that they would like to  
19 raise while we are all gathered?

20 (No response)

21 MR. BURKE: Okay. So I think we are  
22 probably in a position to close out the workshop. I  
23 want to remind all the members of the public who are  
24 here today, first, I thank you for your participation  
25 today. It's been really helpful for me to hear from

1 VGS and members of the public, and I think it's going  
2 to be very helpful as a hearing officer going forward  
3 and for the commission to consider the issues that  
4 were discussed today.

5 For those of you participating and  
6 observing the case as members of the public, we  
7 strongly urge you to file any comments you have in  
8 ePUC. Any public comments we receive we will  
9 consider. The earlier you can get those in, the  
10 better, especially for this case. This contract is  
11 filed under statute that require us to have a final  
12 order within 120 days. So if there are matters you  
13 want the commission to consider please get those  
14 comments in to us.

15 I would strongly encourage you to get  
16 them in at least by the end of September when we have  
17 asked the parties to complete their legal briefing in  
18 this case.

19 I do have one logistical issue that's  
20 really for Mr. McClain, I think. Having looked  
21 through the discovery responses, I think we have  
22 determined that we would like to see the attachments  
23 that went with the discovery responses. I spoke with  
24 the clerk of the commission today about how it would  
25 be best to file those under our emergency procedures.

1 And her recommendation was for you to file them on a  
2 physical media, either a CD or a flash drive, and  
3 have them mailed to the commission, if possible.

4 I don't know what your office  
5 situation's like right now, Mr. McClain. But she  
6 also requested that you file one disk or flash drive  
7 with the public attachments and one that includes the  
8 confidential attachments for our records.

9 MR. McCLAIN: Yeah. That's very easy.  
10 I am quite familiar with the mailing process. I  
11 predate ePUC, believe it or not. So we used to do  
12 that all the time, and we can send those in. We can  
13 send those in either this afternoon or first thing in  
14 the morning.

15 MR. BURKE: Okay. That will be really  
16 helpful. Thank you.

17 And, Mr. Guzman, we have not heard from  
18 you. Is there anything the Department wants to add  
19 to the workshop today?

20 MR. GUZMAN: Yeah. I did have, you  
21 know, just one sort of general question. And this  
22 was touched on in the discovery response, but for the  
23 benefit of the members of the public. I just wanted  
24 to see if VGS could speak to relative carbon  
25 intensities of this RNG source compared to other

1 sources in their portfolio.

2 MR. MURRAY: Sure. Greg talked a  
3 little bit about carbon intensity. That's a  
4 measurement tool that's becoming more important as we  
5 go forward. And the GREET model that we referenced  
6 several times is a standard that's out there that's  
7 taken a pretty deep dive as it relates to displacing  
8 transportation fuel, remember we talked about most of  
9 these projects have been focused on that. So there  
10 is a little nuance around that. But essentially  
11 because of this, the way they measure carbon  
12 intensity on projects, Greg referred to the but fors  
13 to energy, what was the status of the project before  
14 there was a gas production facility. And then what's  
15 the project afterwards.

16 So a farm project where you've got an  
17 enormous amount of manure that is decomposing  
18 emitting methane into the air has a very significant  
19 carbon intensity score, so it's actually negative.  
20 You do a farm project and RNG is generating an  
21 enormous benefit in terms of carbon reductions.

22 Landfills because they were mandated to  
23 capture methane and either flare it or generate  
24 electricity or some other way to destroy the methane,  
25 there is less of a bump in carbon intensity benefit

1 essentially.

2 So in our current portfolio we have a  
3 farm waste food digester project. So that has a  
4 carbon intensity that is, we believe, is around zero,  
5 potentially a little carbon negative with some of the  
6 benefit of that. Food waste doesn't have as much of  
7 a carbon benefit. Manure is on one end of the  
8 spectrum and landfills are on the other end of the  
9 spectrum because of the methane capture mandate.

10 So our portfolio has a combination of  
11 those that look at, you know, our goal is to land in  
12 the near future on a portfolio that is essentially  
13 carbon neutral by blending projects so we can get,  
14 you know, farm projects, landfill projects, and land  
15 on a carbon neutral score. Did that --

16 MR. GUZMAN: Thank you. Yeah. And I  
17 just wanted to double check with Adam if he had any  
18 follow up quickly.

19 MR JACOBS: Thank you, Eric. I think  
20 that largely covers what we are looking to get. Just  
21 a little bit more context again, and I know these  
22 were alluded to in the discovery responses.  
23 Appreciate it.

24 But that carbon intensity, I guess to  
25 some extent, when you talk about cost competitive of

1 different sources and this being relatively cheaper  
2 than some of those in-state options, you know, we  
3 would just consider the carbon intensity is one the  
4 factors you're thinking about in terms of not just  
5 the dollar per molecule but the dollar of emissions  
6 produced.

7 I think you do cover that reasonably  
8 well in the discovery responses.

9 MR. MURRAY: Thank you. And thank the  
10 participants. We appreciate it. It was a good  
11 discussion.

12 MR. WHITING: May I make one public  
13 comment at this point? I know we are running out of  
14 time. I just would like to note that there are  
15 multiple measures, multiple different ways to  
16 determine carbon intensity. GREET is just one of  
17 them. And it's receiving a lot of criticism by a lot  
18 of very good scientists, including Union of Concerned  
19 Scientists, professors at many universities across  
20 the country, lots of people. In large part because  
21 if you just think of it from a practical perspective  
22 methane CH<sub>4</sub>, when you burn it produces CO<sub>2</sub>. You're  
23 putting CO<sub>2</sub> into the atmosphere. It's an addition of  
24 CO<sub>2</sub>. To then count that as being negative CO<sub>2</sub> just  
25 doesn't really make a whole lot of practical sense.

1 To have negative CO2 you actually need to be  
2 extracting CO2 from the atmosphere and storing it in  
3 a way that wouldn't allow it to enter the atmosphere.

4 So I just would point out there are  
5 multiple measures to take a look at carbon intensity.  
6 GREET is probably the one most favorable to RNG, and  
7 it's receiving a lot of criticism right now from a  
8 lot of very reputable sources. So I would be happy  
9 to, in comments, brief on other ways of measuring  
10 carbon intensity that don't produce odd results in  
11 which adding CO2 to the atmosphere gets counted as  
12 somehow taking CO2 out of the atmosphere.

13 MR. BURKE: Thank you, Mr. Whiting.  
14 And I would encourage you to file those as public  
15 comments in the case. Any information you can direct  
16 the commission to would be helpful.

17 Are there any other comments before we  
18 adjourn for the day?

19 MR. MURRAY: I want to thank all the  
20 participants today. I think it was a good  
21 discussion. We hope it was informative to everybody  
22 that was involved and appreciate the engagement from  
23 the staff and the commission and the public on this.  
24 We welcome all the input, and we are trying to build  
25 a company that's focused on transitioning around

1 clean energy and doing it in a way that's a balance  
2 for our customers.

3 MR. BURKE: Thank you, Mr. Murray.  
4 Thank you, Mr. Morse. Thank you, Ms. Bock. And  
5 thank you also to the members of the public who  
6 attended. It's also nice to see people who are  
7 interested to see what we are working on here at the  
8 Public Utility Commission.

9 I think that's all we have for today.  
10 Thank you everybody.

11 (Whereupon, the proceeding was  
12 adjourned at 2:53 p.m.)  
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C E R T I F I C A T E

I, Kim U. Sears, do hereby certify that I recorded by stenographic means the Workshop re: Case No. 22-2230-PET, via videoconference, on August 11, 2022, beginning at 1 p.m.

I further certify that the foregoing testimony was taken by me stenographically and thereafter reduced to typewriting and the foregoing 97 pages are a transcript of the stenograph notes taken by me of the evidence and the proceedings to the best of my ability.

I further certify that I am not related to any of the parties thereto or their counsel, and I am in no way interested in the outcome of said cause.

Dated at Williston, Vermont, this 15th day of August, 2022.

A rectangular box containing a handwritten signature in cursive script that reads "Kim U. Sears".