Testimony of Stuart Blood

Hearing on S.5
House Committee on Environment and Energy
4 April 2023

Introduction

I am Stuart Blood. I live in Thetford. Thank you, Chair Sheldon and members of the committee, for inviting me to testify.

There are many flaws in S.5, as drafted. With my allotted 10 minutes, I'm going to focus only on one area, that of the special provisions for Vermont Gas Systems. I'll preface my remarks by saying they might be more complex than what you've heard from the bill's advocates. Those accounts have steered away from nuances and unforeseen consequences. Unfortunately, the devil -- and the bill's flaws -- are in the details and they really need to be discussed fully. So, with that out of the way, here's what I'd like you to understand.

S.5 will allow VGS to get clean heat credits for fuel that won't be burned in Vermont. Their customers will be burning the same fossil fuel that they currently get, the only difference being that they will be charged extra for the "attributes" of renewable natural gas. The actual RNG will be burned in another state. Ironically, that RNG will create greater emissions than energy from a less profitable use of the biogas from which the RNG is produced. S.5, as drafted, will treat RNG as reducing greenhouse gas emissions, compared to fossil gas. In reality, net emissions will increase compared to the less costly alternative of generating energy by burning the biogas on-site where it is created.

First things first: what is RNG and why is it a climate concern?

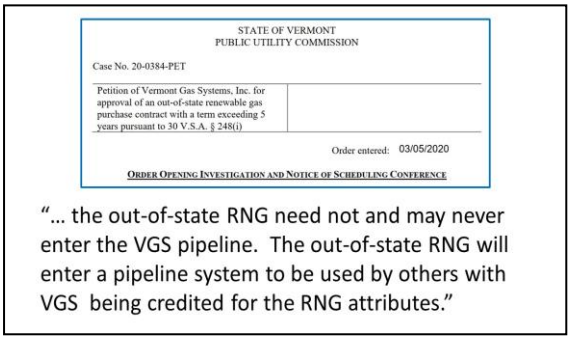
RNG is made from biogas. Biogas is a mixture of methane and carbon dioxide that is captured from landfills or produced in anaerobic digesters at wastewater treatment plants and animal farms. Raw biogas can be used as a fuel to generate electricity or heat, but it can't be put into pipelines. The RNG made from biogas, on the other hand, is nearly pure methane and it can be mixed with fossil gas in pipelines.

Methane is a greenhouse gas 80 times worse than carbon dioxide. That means even minor leaks of unburned fossil gas or RNG constitute out-sized greenhouse gas emissions and therefore need to be considered in life cycle emissions accounting.

There's a track record for RNG in Vermont

The PUC recently approved a contract for RNG from a landfill in upstate New York. It is by far the largest for VGS and the first since the enactment of the Global Warming Solutions Act. The PUC's orders approving that one and previous contracts suggests a road map for how RNG will be handled if S.5 is enacted.

We know that virtually none of the out-of-state RNG that VGS purchases is actually delivered to Vermont. We know it because VGS, the Department of Public Service and the PUC have all acknowledged it. We know that VGS's contracts have contained language regarding the "physical delivery" of RNG that is nearly identical to the language in S.5 and that the PUC has interpreted that to mean VGS can sell fossil


STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Case No. 20-0384-PET

Petition of Vermont Gas Systems, Inc. for approval of an out-of-state renewable gas purchase contract with a term exceeding 5 years pursuant to 30 V.S.A. § 248(i)

Order entered: 03/05/2020

ORDER OPENING INVESTIGATION AND NOTICE OF SCHEDULING CONFERENCE

"… the out-of-state RNG need not and may never enter the VGS pipeline. The out-of-state RNG will enter a pipeline system to be used by others with VGS being credited for the RNG attributes."

gas and label it "renewable" simply by retaining "RNG attributes" even though the actual RNG is burned elsewhere.

We know that the amount of RNG produced in-state is tiny, only about 1% of the total supply. We know from testimony that continuing to sell methane is part of VGS's business plan for the next many years, probably through 2050.

We know that RNG is far more expensive to produce than fossil gas. The DPS testified in the NY landfill case that VGS's own analysis, "demonstrates that the Proposed Contract is one of the most expensive means for VGS to reduce emissions."

There's only one piece of the puzzle missing for VGS, that puzzle being how to continue to sell the same old gas without running afoul of the GWSA. That missing piece is provided by the special treatment VGS gets in S.5, specifically the unique ability to get clean heat credits for a fuel that will not be burned in Vermont.

What does S.5 miss with respect to landfill RNG?

Federal regulations already require landfill biogas to be captured and controlled to reduce greenhouse gas emissions. This is already accomplished in two ways on site. A typical method of control is burning off, or "flaring" the gas, the idea being that the CO2 produced is far less harmful than releasing unburned methane. A better method, used by the landfill in Coventry, VT and soon by the Lebanon, NH municipal landfill, is to generate electricity on site by burning the raw biogas. That energy can legitimately be considered zero-emissions because it is generated with ***no additional*** emissions compared to flaring.

That zero-emissions energy generation must be considered the baseline against which alternative uses of landfill biogas are compared.

The RNG that VGS purchases from landfills, ***adds*** GHG emissions 1) from the energy required to process the raw biogas, 2) from methane released at the gas purification plant and 3) from methane emissions during the transport through hundreds of miles of leaky pipelines to the user. VGS claims that the carbon intensity of the New York RNG is 57% that of fossil gas. But the biogas from which it was created can generate energy on site with a carbon intensity of zero.

Think of it this way: You've started with a fuel that generates emissions-free energy. You've turned it into a high-emissions fuel. Should you get clean heat credit because you're substituting it for a fuel with even higher emissions? (See the figure on the final page.)

Life cycle accounting doesn't fix this flaw

You may think, surely the life cycle accounting required by S.5 will prevent such a perverse outcome. But you'd be wrong. The life cycle accounting only determines a carbon intensity value for each fuel. If you look closely at the section on carbon intensity of fuels on page 22, you'll see what I mean. Fuels qualify for credits based solely on their carbon intensity scores, even if those fuels are displacing zero-emissions energy sources. RNG from New York will have a higher carbon intensity than the biogas it's made from but, with a computed value of 44, it will be eligible for

credits at least through 2050. Remember: we're talking here about gas that will never be delivered to Vermont and so will not displace fossil gas use in our state.

> Note that Cornell Prof. Robert Howarth submitted testimony to the Senate Natural Resources and Energy Committee that disputes the validity of the CI value accepted by the PUC. According to Prof Howarth, using the methodology specified by NY's emissions reduction law and published methane emissions data, RNG results in higher emissions than fossil gas.
>
> *Read his testimony to the Senate Natural Resources and Energy Committee:*
> *https://legislature.vermont.gov/Documents/2024/WorkGroups/Senate%20Natural%20Resources/Bills/S.5/Witness%20Documents/S.5~Robert%20Howarth~Environmental%20Science%20Testimony~2-8-2023.pdf*

How can this flaw in the bill be fixed?

The simplest, most obvious way is to disqualify RNG entirely. The bill could still allow credits for biogas that is turned into energy at the site of production.

Richard Cowart addressed this issue in a recent webinar. He said S.5 qualifies RNG, "only if it can be proven that that methane would otherwise have been vented and wouldn't have been reduced to some other existing regulatory framework". If that's what S.5 actually said, then it would disqualify landfill gas and remove this specific flaw. But the bill doesn't have that language. If the architect of the Clean Heat Standard says that is the intention, then the language should be explicit. That can be done with a simple one-sentence amendment.

> Watch 30 second segment in context:
> https://www.youtube.com/embed/AIbyHY4wlkM?start=2658&end=2690

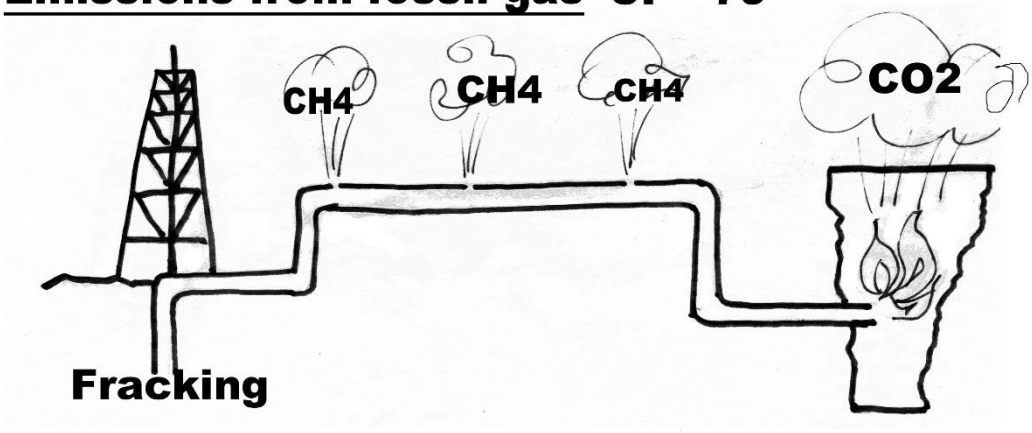
> *"Renewable natural gas shall not qualify unless that particular gas (a) would otherwise have been vented, and (b) no other regulation presently in force would require the biogas from which it was derived to be reduced, captured, or flared."*

Summary and conclusion

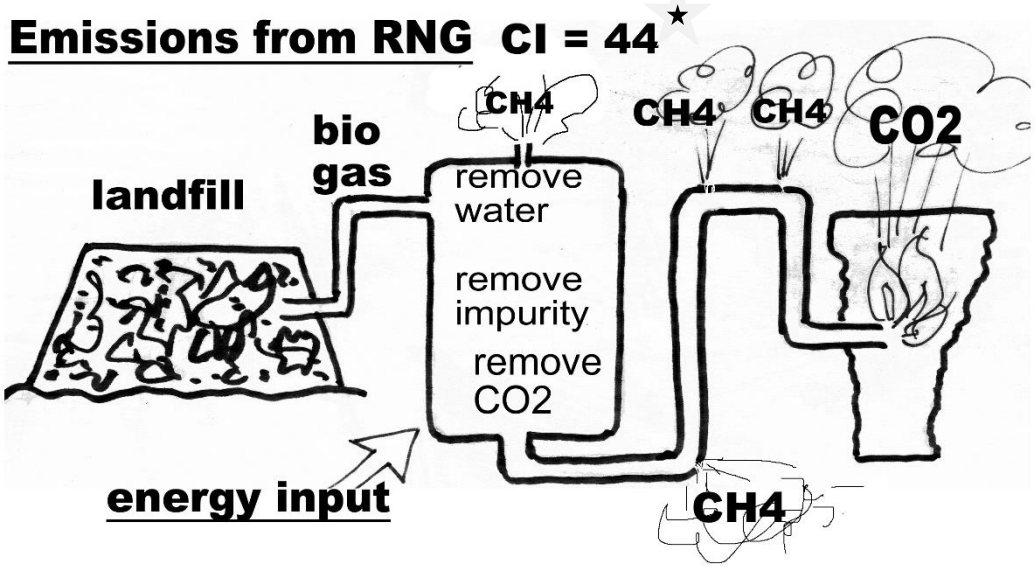
If S.5 is enacted in its current form, VGS will continue to sell a gas that is almost entirely fossil fuel. Its customers will pay extra for renewable gas that customers of another gas utility in another state will burn. That renewable gas will result in greater greenhouse gas emissions than would come from energy production by on-site burning of the raw biogas from which the RNG is produced. That will be a truly perverse outcome for legislation named the Affordable Heat Act. The life cycle accounting of emissions prescribed in S.5 does not address the problem. The problem can be fully addressed by disqualifying RNG. It can be mitigated with a simple one-sentence addition to the bill.

If VGS continues to supply methane, whether its carbon intensity is nominally 79 or 44, it can never reach the 2050 requirements of 80% emissions reduction and net zero no matter what other measures it takes. For Vermont as a state to meet these requirements, other fuel providers will need to disproportionately decarbonize. That isn't an efficient or fair way to meet the state's emissions reduction requirements.

Emissions from fossil gas CI = 79★



Emissions from RNG CI = 44★



★CI: Carbon intensity values for fossil gas and RNG provided to PUC by Vermont Gas Systems

Baseline zero emissions electricity from landfill gas