

**STATE OF VERMONT
PUBLIC SERVICE BOARD**

Petition of Vermont Gas Systems, Inc.,)
requesting a certificate of Public Good)
pursuant to 30 V.S.A. § 248, authorizing the)
construction of the “Addison Natural Gas)
Project” consisting of approximately 43 miles)
of new natural gas transmission pipeline in)
Chittenden and Addison Counties,)
approximately 5 miles of new distribution)
mainlines in Addison County, together with)
three new gate)
stations in Williston, New Haven, and)
Middlebury, Vermont)

Docket 7970

RESPONSE TO VERMONT GAS SYSTEMS QUESTIONS ON PREFILED TESTIMONY OF
JEFFERY WOLFE
ON BEHALF OF NATE AND JANE PALMER
LAUGHING TREE FARM
986 Rotax Rd
June 13, 2013

Questions for Jeffrey D. Wolfe, P.E.

Q.PET:Palmer.1-44. Produce all documents, including emails, relied on in support of your testimony.

A.PET:Palmer.1-44 First, the correct spelling of my first name is Jeffery.

My testimony is primarily based upon my personal knowledge and experience, accumulated over a period of 30 years in energy and related industries. References beyond my personal knowledge have been cited in the testimony and are additionally attached here for convenience.

Q.PET:Palmer.1-45. Provide all studies relied on and empirical data supporting your assertion in A.4 on page 3 that the proposed pipeline will decrease the market for renewable energy systems in Vermont.

A.PET:Palmer.1-45 The statement on A4 page 3 is "An explanation of how the destruction of future jobs in the solar industry were modeled". This statement is in an appendix to my prefiled testimony which is titled "Summary of information and data noted in testimony as needed to make a fully informed decision on whether or not the proposed pipeline project is prudent and should be awarded a CPG, based on the currently (sic) information"

Thus, this is not an assertion that the proposed pipeline will decrease the market for renewable energy jobs, but is a request for an explanation of the manner in which VGS modeled the job loss in the renewable energy industry due to the pipeline is described in detail. Our question is based on the fact that while VGS presented economic studies showing job creation and job loss (Exhibits JC-2 and JC-3), no detail was provided in regards to the types of jobs created and lost. Further, it is not evident that VGS considered loss of jobs in the renewable energy industry in their study.

It is natural to consider that if another form of energy is provided in an area, then jobs from a competing form of energy would be lost, especially where that competing form of energy (renewable energy) more frequently generates jobs which are local to the region using the energy.

The genesis of this request and more detail is in A.7 on page 9 of 15. My assertion on page 10 of 15 that "If the pipeline is built, there will be fewer solar and renewable energy jobs in Addison County" is based upon my personal experience which shows decreased sales for renewable energy systems in areas that have increased energy competition, and increased sales in areas that have fewer choices. The empirical data to support this is confidential, and is no longer in my possession, and is not based upon an outside study. However, any studies consulted by VGS or their consultants should be provided as part of the explanation of their economic models requested in my prefiled testimony.

I am relying on the Cornell Study¹ "Pipe dreams? Jobs Gained, Jobs Lost by the Construction of Keystone XL", for my other assertions about the lack of evidence for job creation by the VGS pipeline project.

1 http://www.ilr.cornell.edu/globallaborinstitute/research/upload/GLI_KeystoneXL_Reportpdf.pdf

While the Cornell study does not address the VGS project directly, it is the most detailed report concerning the jobs impact of the Keystone XL pipeline completed by a non-governmental group not employed by a government or an advocacy group. As such, it is relevant to these proceedings as independent research on the jobs issue. Their important conclusion is "Employment Potential from KXL is Little to None; Decision should be based on other factors". The Cornell study does not estimate the impact on jobs in renewable energy. As Vermont has a higher percentage of jobs in renewable energy than the Midwest, this becomes an important additional consideration.

While I could not find the studies, I believe that the Board has access to studies created during Docket 6860, the Northwest Reliability Project. These studies should be reviewed and considered for relevancy in this docket. My understanding is that Alternative Resource Configuration 5 may be of particular merit to review and incorporate into these proceedings.

Additionally, in the article "Sunnovations: Solar Hot Water Is Where the Money Is"² from GreenTech Media, the CEO of Sunnovations makes it clear that where natural gas is available, they are unable to compete with solar hot water. Their market is where natural gas is not available. It follows that bringing natural gas to an unserved area will decrease the available market, decreasing future job growth.

Q.PET:Palmer.1-46. In regards to state energy policy, which you address in A4 on page 3, admit that Vermont's Comprehensive Energy Plan ("CEP") indicates that Vermont's strategy for achieving its goal of achieving 90% of the state's energy needs from renewable sources by 2050 is as follows: "eliminate Vermont's reliance upon oil by mid-century by moving toward enhanced efficiency measures, greater use of clean, renewable sources for electricity, heating and transportation, and electric vehicle adoption, while increasing our use of natural gas and biofuel blends where nonrenewable fuels remain necessary." 2011 CEP, vol. 1, p. 3, available at <http://publicservice.vermont.gov/publications/energy-plan/2011-plan> (emphasis added).

A.PET:Palmer.1-46 I admit that the above is a sentence in the Vermont CEP. While it is difficult to take any one sentence of any plan out of context and apply it alone, I particularly highlight the last section of the sentence "biofuel blends where nonrenewable fuels remain necessary", and note that new non-renewable fuels are not a "necessity" in the area proposed to be served by the pipeline, and that Nathan Palmer has testified that the construction of the pipeline may injure the ability to produce additional and new sources of biofuels in Vermont.

Additionally, as is stated in question Q.PET:Palmer.1-46 above, Vermont's goal is 90% renewable sources by 2050, which can also be stated as reducing the state's non-renewable energy sources, including natural gas to less than 10% of total energy use. Considering the area of Vermont served by the proposed pipeline, the percent of non-renewable energy provided to the service area solely by the

2 <http://www.greentechmedia.com/articles/read/Sunnovations-Solar-Hot-Water-is-Where-the-Money-Is->

proposed pipeline may be more than 10% of the total energy in the service area. I request that the Board require VGS to:

1. Indicate, for each year the pipeline will be in service, the percentage of total energy supplied to the service area of the proposed pipeline. Please share all materials used in the calculation.
2. Indicate the plan for retiring the pipeline or reducing the flow, if the non-renewable energy it supplies is more than 10% of the total energy in the service area in 2050.
3. Model the economic impact of any reduction in service required by the above natural gas flow reduction.
4. Model the economic impact of the decommissioning and removal of the pipeline at the end of its service life, incorporating the decommissioning fund from the time of the project construction.

Q.PET:Palmer.1-47. Is it your position that customers who would be serviced by the pipeline extension should not have the choice between oil, natural gas, and other sources of energy? If so, please explain why not.

A.PET:Palmer.1-47 The question does not accurately state my position. It is my position that customers should have choice of energy supply, so long as there is conformance with all of:

- The Vermont CEP
- Sound economic development which includes the impacts of climate change and disruption

I do not believe that building the proposed pipeline meets this standard.

I request that the Board require VGS to answer the following question:

Is it VGS' position that Vermont should allow construction of the pipeline in a near-term economic environment of uncertainty regarding the future price of carbon emissions, uncertainty regarding the GHG impact of fugitive emissions outside the control of VGS, significantly declining costs for renewable energy, where the beneficiary of the project is VGS, but the risk of negative economics is with all VGS ratepayers and possibly all Vermonters?

I also request that the Board consider the project through the above focus.

Q.PET:Palmer.1-48. Admit that the WRI working paper entitled *Clearing the Air: Reducing Upstream Greenhouse Gas Emissions from Natural Gas Systems*, available at http://pdf.wri.org/clearing_the_air_full_version.pdf (linked to from the WRI webpage that you cite in footnote 2 on page 5) concludes at page 12 that the Howarth study—which you cite in footnote 5 on page 5 regarding estimates of fugitive methane emissions—"estimated exceptionally high leakage rates from the flow-back stage of hydraulic fracturing operations and also from transmission and distribution infrastructure."

A.PET:Palmer.1-48 The above quotation is correct. However, it is obviously, out of context, and the entire paper must be considered by the Board, not one sentence. It must be noted that the WRI paper did not reject the claims made in the Howarth study, it simply noted them as being high *in some areas, not in all areas of* natural gas drilling, extraction, and transportation. Insufficient research has been done in this area, which is why on page 6 of 15, I requested that the Board require VGS to submit their own calculations for fugitive emissions, based on the latest peer-reviewed science as well, as well as the backup used in those calculations. In retrospect, we believe that we should ask the Board to have an independent study performed by a non-affiliated academic organization, in order to obtain the best unbiased numbers possible. Any numbers provided by VGS will most likely continue to selectively use data, as they have selected highlighted one sentence from an entire report above.

Additionally, as shown in my Exhibit JDW-1, the amount of fugitive emissions calculated to make VGS natural gas have more GHG effect than coal is 1.39%. Nothing VGS has presented has countered this calculation. As written in another report referenced on page 5 of 15 of my prefiled testimony "Greater focus needed on methane leakage from natural gas infrastructure", the EPA estimates the fugitive emissions rate to be 2.4%, "of gross U.S. natural gas production (1.9–3.1% at a 95% confidence level) (6).[†] EPA's reported uncertainty appears small considering that its current value is double the prior estimate, which was itself twice as high as the previously accepted amount (9)." (Footnotes in referenced report). Thus, the Howarth numbers are some of the newest numbers and follow a trend of newer estimates being substantially higher than older estimates.

Additionally, there is new data from a NOAA study, (copyrighted article, available from <http://chemport.cas.org/cgi-bin/sdcgi?APP=ftslink&action=reflink&origin=npg&version=1.0&coi=1:CAS:528:DC%2BC38XnsVOisrk%3D&pissn=0028-0836&md5=e1205664195665ad0957658374b4bb4c>) provide support for fugitive emissions in the same range as Howarth's numbers. A summary of the study, as well as rebuttal reference and counter-rebuttal reference, are available on line³. Understanding these emissions is fundamental to knowing whether or not there is a net decreased in GHG emissions as a result of the proposed VGS pipeline. The Board cannot rely on VGS' biased studies, old science, discredited science (such as the University of Texas fracking study which has been withdrawn).

Requests to Produce

1. Please produce any and all documents you expect to offer as exhibits at the technical hearing of this proceeding.

As a pro-bono witness, I have not fully prepared a case or evidence to be presented. Thus, I reserve the right to submit additional evidence and exhibits, including scientific and non-scientific evidence which may come to my attention, during the technical hearing.

³ <http://www.nature.com/news/methane-leaks-erode-green-credentials-of-natural-gas-1.12123#b2>

I have provided some of the documents which I will possibly be using for future technical hearings.

2. Please produce all supporting workpapers, notes, reports, spreadsheets and all other documents used, referred to or relied upon for the development of your prefiled testimony.

Some of the data, documents, and analysis relied upon for my understanding of these issues is confidential, and no longer in my control.

My understanding of these issues is largely based upon study of public documents, reports, and spreadsheets over many years. I have not retained copies of these items, and have not directly relied upon those not cited.

3. For each of the witnesses that have offered prefiled testimony in this matter on your behalf, please identify and produce for the past 5 year period, copies of the following:

(a) a list of all court or administrative proceedings in which the witness has been a witness or a party;

None directly in last 5 years. (My prefiled testimony indicated that I had provided testimony on feed in tariff dockets, which did occur in the last 5 years. Upon review, all my information was provided through Renewable Energy Vermont, I did not directly file any testimony, and was not a witness of a party)

(b) a detailed description of any testimony given by the witness in any court or administrative proceeding, and copies of all transcripts, prefiled testimony, exhibits, reports, and other documents relating to such testimony;

N/A

4. Please produce all supporting workpapers, notes, reports, spreadsheets and all other documents used, referred to or relied upon for the development of your responses to these discovery questions.

Some of the data, documents, and analysis relied upon for my understanding of these issues is confidential, and no longer in my control.

My understanding of these issues is largely based upon study of public documents, reports, and spreadsheets over many years. I have not retained copies of these items, and have not directly relied upon those not cited.