

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 No. 7970

**PETITIONER'S FIRST SET OF DISCOVERY REQUESTS TO
THE CONSERVATION LAW FOUNDATION**

Vermont Gas Systems, Inc. ("VGS" or "Petitioner") serves the following discovery requests on the Conservation Law Foundation ("CLF" or "Respondent").

Petitioner respectfully requests that the Respondent answer the following discovery Requests in writing and under oath and deliver one complete copy of all documents, plus an electronic version of such responses, by July 12, 2013, to Petitioner's counsel whose names and addresses are set forth on the Certificate of Service accompanying this request. CLF is requested to provide a copy of its answers in electronic format, that is, Word or other format readable by the Petitioners, and to provide any spreadsheets in electronic format.

DEFINITIONS

The following definitions apply to the following discovery requests:

1. Communication. The term "communication" means the transmittal of information in the form of facts, ideas, inquiries or otherwise.

2. Document. The term "document" is defined to be synonymous in meaning and equal in scope to the usage of this term in Vermont Rule of Civil Procedure 34(a) and includes any and all writings or other materials, whether handwritten, typed, printed, recorded or reproduced by any other physical, mechanical, electronic or electrical means, including, but not limited to, records, papers, correspondence, telegrams, memoranda, notes, letters, photographs, photographic slides or negatives, films, filmstrips, computer diskettes, computer files, tapes and recordings, summaries or records of telephone conversations, summaries or records of personal conversations, and all carbons or photocopies bearing any underlining, highlighting, additions,

corrections, or marginal notations which are in the possession, custody, or control of CLF, its agents, employees, representatives, attorneys or experts, wherever located.

3. Identify (With Respect to Persons). When referring to a person to "identify" means to provide, to the extent known, the person's full name, present or last known address, and when referring to a natural person, additionally, the present or last known place of employment. Once a person has been identified in accordance with this subparagraph, only the name of the person need be listed in response to subsequent discovery requesting the identification of that person.

4. Identify (With Respect to Documents). When referring to documents, to "identify" means to provide, to the extent known, information about the (i) type of document; (ii) its general subject matter; (iii) the date of the document; and (iv) its author(s), and each recipient.

5. You or Your(s): CLF, you or your(s) means Conservation Law Foundation and, where applicable, its officers, directors, employees, representatives, subsidiaries or affiliates.

6. Person. The term "person" is defined as any natural person or any business, legal or governmental entity or association.

7. Concerning. The term "concerning" means relating to, referring to, describing, evidencing or constituting.

8. Produce. The term "produce" means to provide the original or an exact legible copy of a requested document to Petitioner's counsel. A draft or non-identical copy is a separate document within the meaning of this term.

The following rules of construction apply to all discovery requests:

1. All/Each. The terms "all" and "each" shall both be construed as all and each.
2. And/Or. The connectives "and" and "or" shall be construed either disjunctively or conjunctively as necessary to bring within the scope of the discovery request all responses that might otherwise be construed to be outside of its scope.
3. Number. The use of the singular form of any word includes the plural and vice versa.

INSTRUCTIONS

1. Provide a separate page for each separate question. Reproduce the discovery

request made before presenting the response.

2. The response to each request should be made under oath by a person competent to testify concerning the response and all documents and exhibits produced as part of the response. With respect to each request, state (1) the name(s) and title(s) of the person or persons responsible for preparing the response; and (2) the date on which each question was answered.

3. Where information requested is not available in the precise form described in the question or is not available for all years (or other periods or classifications) indicated in a series of years (or other periods or classifications), provide all information with respect to the subject matter of the question that can be identified in your work papers and files or that is otherwise available.

4. These discovery requests are continuing in nature, and require you to file supplementary answers pursuant to the Vermont Rules of Civil Procedure as incorporated by the Rules of the Vermont Public Service Board. Change, supplement and correct your responses to conform to all information as it becomes available to you, including the substitution of actual data for estimated data. Responses to requests covering a period not entirely in the past (or for which complete actual data are not yet available) should include all actual data available at that time.

5. Whenever responses include estimated information, include an explanation (or reference to a previous explanation) of the methods and calculations used to derive the estimates.

6. For any matter where a request for admission is being answered by a denial or objection, the answer should set forth in detail the reasons for the denial or objection, in conformity with Vermont Rule of Procedure 36.

7. In construing these discovery requests, the terms "refer to" and "relate to" shall include any and all logical or factual connections to the subject of the discovery request as specified.

8. Organize responses and supporting documents using the identifying number to which they respond.

DISCOVERY REQUESTS

Q.PET:CLF.1-1. Admit that CLF Ventures is a for-profit affiliate of CLF.

Q.PET:CLF.1-2. Admit that CLF Ventures assisted AES Corporation with the development

of a 720 MW natural gas combined cycle generating plant in Londonderry, New Hampshire (the Granite Ridge plant).

Q.PET:CLF.1-3. With respect to the previous question, admit that CLF received compensation for its work and identify the amount of payments received by CLF Ventures in connection with that project.

Q.PET:CLF.1-4. Admit that the Granite Ridge plant is operating and using natural gas fuel to generate electricity.

Q.PET:CLF.1-5. Admit that in 2011, CLF was awarded a \$391,500 grant that it used to install diesel engines in recreational/charter boats in New England.

Q.PET:CLF.1-6. Is it CLF's position in this proceeding that the PSB should deny VGS a CPG for the Addison Natural Gas Project? If yes, explain in detail why.

Q.PET:CLF.1-7. With respect to Ms. Stanton's testimony at page 23 lines 4-7, admit that the \$200 million savings in energy bills are savings VGS customers who switched to natural gas from propane or fuel oil would achieve, but only if the Project is built and customers switch to natural gas. If denied, explain why.

Q.PET:CLF.1-8. Is CLF proposing that the Board condition a CPG in this proceeding (if

granted) upon a condition that VGS customers refund the state to fund energy efficiency efforts?

Explain specifically and in detail how the recommendation at page 23 lines 4-7 would be applied, and identify and produce all documents supporting this recommendation.

Q.PET:CLF.1-9. Admit that because 30 V.S.A. §218c requires least cost planning from regulated utilities, the expansion of natural gas services to customers in Middlebury and Vergennes would increase the availability of energy efficiency programs. If denied, explain why and produce all documents supporting your response.

Q.PET:CLF.1-10. Admit that the project will increase opportunities for utilization of biomethane in Addison County. If denied, explain why and produce all documents supporting your response.

Q.PET:CLF.1-11. Admit that the Environmental Protection Agency ("EPA") recently revised its methodology for calculating methane emissions from natural gas systems, resulting in an annual average decrease in methane emissions from natural gas systems of approximately 30%. If denied, explain why and produce all documents supporting your response.

Q.PET:CLF.1-12. Admit that the EPA has recently issued regulations (available at <http://www.gpo.gov/fdsys/pkg/FR-2012-08-16/pdf/2012-16806.pdf>) that are expected to reduce emissions of methane by requiring the use of reduced emission completion technology, known as "green completions," (or flaring in some cases) for hydraulically fractured natural gas wells. If

denied, explain why and produce all documents supporting your response.

Q.PET:CLF.1-13. Has CLF prepared a GHG lifecycle analysis for natural gas and/or oil?

Please produce along with all work papers and supporting documents.

Q.PET:CLF.1-14. Admit that on your website (<http://www.clf.org/our-work/clean-energy-climate-change/energy-safety-and-security/lng-plant-siting/>), you state the following: "Using natural gas for heating, cooling, and electricity generation instead of oil or coal has important environmental benefits. Burning natural gas produces less air pollution than other fossil fuels, both in terms of the pollutants that threaten public health and the greenhouse gases that cause global warming. While New England should reduce overall energy demand through increased efficiency and cut fossil fuel demand by ramping up renewable energy, CLF considers natural gas to be an important transitional fuel as we move toward a clean energy economy."

Questions for Elizabeth Stanton

Q.PET:CLF.1-15. With respect to your testimony at A12, admit that the estimates from EPA's 1997 study have been superseded by more recent information in EPA's 2013 inventory.

Q.PET:CLF.1-16. With respect to the previous question, explain why you did not use most current EPA estimates in your testimony.

Q.PET:CLF.1-17. Admit that the methane leakage rates shown on Table 1 at page 10 of your

testimony derive from page 14 of the WRI paper.

Q.PET:CLF.1-18. With respect to your testimony at page 10, lines 16-18, admit that the WRI working paper (Exh. CLF-EAS-6) concludes that most studies agree that upstream emissions associated with shale gas and conventional gas production are roughly comparable to one another, within the margin of error.

Q.PET:CLF.1-19. Admit that most of the studies cited in the WRI paper, with the exception of Howarth, relied heavily on the then most current EPA inventories (see WRI paper, page 12).

Q.PET:CLF.1-20. Admit that the breakeven or cutoff leakage percentage that you calculated would have been substantially higher had you used the density of methane at standard temperature and pressure.

Q.PET:CLF.1-21. Admit that the WRI paper concludes at page 12 that the Howarth study “estimated exceptionally high leakage rates from the flow-back stage of hydraulic fracturing operations and also from transmission and distribution infrastructure.”

Q.PET:CLF.1-22. Admit that the 3% “Average” leakage rate you report in your testimony at page 3.0% was derived from the Table 1 of the WRI paper, and therefore includes the higher leakage rates reported by Howarth.

Q.PET:CLF.1-23. Admit that WRI paper reports at page 16 that Howarth's higher leakage rates are due to the fact that he relied upon emissions data from 5 emissions basis, including the Haynesville basin, yielding a significantly higher estimate than other studies.

Q.PET:CLF.1-24. Admit that p. 16 of the WRI paper references O'Sullivan, F. and S. Paltsev (2012) (*Shale gas production: potential versus actual greenhouse gas emissions*. Environ. Res. Lett. 7: 6 pages. doi:10.1088/1748-9326/7/4/044030, available at: <http://iopscience.iop.org/1748-9326/7/4/044030/>), and notes O'Sullivan and Paltsev's conclusion that Howarth's estimate of methane venting at Haynesville was at least 700 percent too high.

Q.PET:CLF.1-25. Admit that WRI calculated two leakage rates for U.S. natural gas systems in 2010: 2.27 % (using 2012 EPA GHG inventory data) and 1.54% (using 2013 EPA draft inventory data), as noted on p. 15 of its working paper.

Q.PET:CLF.1-26. Admit that the 3% leakage rate that you relied upon for your analysis is nearly two times the leakage rate reported by WRI using the 2013 EPS inventory data.

Q.PET:CLF.1-27. Explain why you chose not to rely upon the WRI leakage rate estimates.

Q.PET:CLF.1-28. Describe how you calculated the 3% leakage rate and produce in native format all work papers and spreadsheets relating to your calculation.

Q.PET:CLF.1-29. Admit that the Howarth study also attributed higher methane emissions during transmission and distribution than did the other studies reported by WRI.

Q.PET:CLF.1-30. Admit that for the lifecycle transmission stage, Howarth relied, among other sources, upon Russian pipeline data in which "lost and unaccounted for gas" is treated as 100% vented, and that Howarth et al. (2012) acknowledge potential shortcomings to their approach, as noted on p. 17 of the WRI report.

Q.PET:CLF.1-31. Admit that Howarth did not rely on EPA data.

Q.PET:CLF.1-32. Admit that in 2012 the EPA finalized regulations for New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Pollutants (NESHAP) that will result in reduced methane emissions from natural gas production. (See NSPS subpart OOOO.)

Q.PET:CLF.1-33. Have you conducted such a GHG life cycle analysis for this project? If so, please produce.

Q.PET:CLF.1-34. Have you ever conducted a GHG life cycle analysis for natural gas or any other fuels? If so, please produce.

Q.PET:CLF.1-35. When were you retained by CLF in connection with the Addison Natural

Gas Project?

Q.PET:CLF.1-36. Have you reviewed each of the four papers listed in table 1 of the WRI report, and if so, when did you first review these reports?

Q.PET:CLF.1-37. With respect to your testimony at A15, have you reviewed any other reports, papers or studies of lifecycle emissions for natural gas? If so, please identify and produce.

Q.PET:CLF.1-38. Admit that the WRI paper, your exhibit 6, does not calculate or recommend a leakage rate of 3%. If denied, identify where such leakage rate is calculated and recommended in the WRI paper.

Q.PET:CLF.1-39. Admit that the Weber & Clavin paper identified in A15 of your testimony concludes at page E that the Howarth estimates for methane leaks from shale gas are “well outside the range of uncertainty estimated by the other authors due to two extremely high estimates for well completion and fugitive emissions in transmission” If denied, explain in detail why denied, and produce all documents supporting your answer. If admitted, state whether you agree with this conclusion and if not, why not. Produce all documents supporting your response.

Q.PET:CLF.1-40. Admit that the Weber & Clavin paper identified in A15 of your testimony

concludes at page F that “[m]any of the upstream greenhouse gas emissions associated with both sources of natural gas can be controlled effectively and economically through flaring (thus converting high-GWP methane to CO₂) or capture of fugitive emissions in completion and workover through best practices (such as RECs).” If denied, explain in detail why denied, and produce all documents supporting your answer. If admitted, state whether you agree with this conclusion and if not, why not. Produce all documents supporting your response.

Q.PET:CLF.1-41. Admit that you have not prepared any reports, papers or studies of lifecycle emissions for natural gas. If denied, identify and produce each such report, paper and study and produce all work papers, models (in native format) and reference materials associated with same.

Q.PET:CLF.1-42. With respect to your testimony at page 9, lines 9-11, do you agree with the analysis and conclusions of the Howarth study? Please identify all areas of agreement and disagreement. Produce all documents supporting your response.

Q.PET:CLF.1-43. Regarding your testimony at A16, which estimates are “unconventional” and what do you mean by “unconventional”? Explain in detail why the estimates are “unconventional”.

Q.PET:CLF.1-44. Regarding your testimony at A20 and A21, admit that both the EPA and the IPCC use a 100 year global warming potential period for methane as their standard for

analysis and inventory development. If denied, explain why denied and identify and produce all documents that support your response.

Q.PET:CLF.1-45. Admit that, as per page 14, lines 6-7 of your testimony, you determined that 100 years is the appropriate global warming potential for methane for this project.

Q.PET:CLF.1-46. Regarding your testimony at A33 concerning the Vermont Comprehensive Energy Plan and your exhibit 11, admit that the CEP states: “[T]o 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.

Q.PET:CLF.1-47. Admit that the CEP continues: “The moves must be deliberate and measured to ensure overall energy costs for our businesses and residents remain regionally competitive.” *Id.*

Q.PET:CLF.1-48. Did you speak to or inquire of any representative of the DPS regarding the CEP and how this project will address Vermont’s energy goals? Identify, describe and produce all communications and documents relating to same.

Q.PET:CLF.1-49. With respect to your testimony at A16 and A26-A30 and your analysis set forth in your exhibit 7, admit that you did not perform a life cycle analysis of emissions from fuel oil

or propane. If denied, explain why not. If admitted, explain why the board should consider your analysis to be reasonable in light of your testimony at A11-A14.

Q.PET:CLF.1-50. Admit that your analysis in your Exhibit 7 did not factor in GHG emitted in the production and distribution of fuel oil and propane, such as the emissions associated with trucking liquid fuel.

Q.PET:CLF.1-51. Admit that you included upstream methane in your calculations for gas, but not in your calculations for oil. If admitted, please explain why. If denied, please explain the basis for your denial.

Q.PET:CLF.1-52. Admit that in calculations in Exhibit 7, you used a higher density for methane than the density at standard temperature and pressure. If admitted, please explain why. If denied, please explain the basis for your denial, and produce all documents supporting your response.

Q.PET:CLF.1-53. With respect to your testimony at A25, identify specifically the passages of your exhibits 5 (EPA 1997 report) and 6 (WRI paper) that "implicitly assumes that methane leaks from oil and propane are negligible."

Questions for John Erickson

Q.PET:CLF.1-54. In relation to your comments in A9 on page 6-7 regarding the impacts of

natural gas expansion on the timing of transition to renewable fuels, admit that the project will increase opportunities for utilization of biomethane in Addison County. If denied, explain why and produce all documents supporting your response.

Q.PET:CLF.1-55. What is the basis for the statement at page 7 line 13 of your testimony concerning likelihood of customers converting to renewables before 35 years? Is it your testimony that customers in Addison County Vermont should continue burning oil now because people will switch to renewables faster. ? If so, explain the basis for this and produce all documents supporting this.

Q.PET:CLF.1-56. Admit that an increased use of natural gas is consistent with state policy, as articulated in the Comprehensive Energy Plan, which states the following strategy: “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 (emphasis added).

Requests to Produce

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

2. Please produce all supporting workpapers, notes, reports, spreadsheets and all other documents used, referred to or relied upon for the development of CLF's prefiled testimony.
3. For each of the CLF witnesses that have offered prefiled testimony in this matter, 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;
 - (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.
4. Please produce all supporting workpapers, notes, reports, spreadsheets and all other documents used, referred to or relied upon for the development of CLF's responses to these discovery questions.
5. Please produce a copy of every report, paper or presentation prepared by CLF regarding GHG impacts associated with natural gas leaks, unaccounted for natural gas, of lifecycle emissions associated with natural gas.
6. Please produce the reports listed under the "Reports and Policy Studies" on pages 4-6 of your resume.

7. Produce all workpapers and reference materials relied upon to develop Exhibit CLF-EAS-7.
8. Produce your calculations (in native format) supporting the 3% leakage rate referenced in A16 of your testimony.
9. Produce your calculations (in native format) supporting the 1.9% leakage rate referenced in A23 of your testimony. Produce all workpapers and reference materials relied upon to develop this 1.9% value.

Dated at Burlington this 21st day of June, 2013

VERMONT GAS SYSTEMS, INC.

By: _____

Kimberly K. Hayden, Esq.
Downs Rachlin Martin PLLC
P.O. Box 190, 199 Main Street
Burlington, VT 05402-0190
khayden@drm.com

cc: Certificate of Service

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