

**STATE OF NEW HAMPSHIRE
PUBLIC UTILITIES COMMISSION**

DG 18-140

In the Matter of:
Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities
Renewable Natural Gas Supply and Transportation Contract

Direct Testimony

of

Stephen P. Frink
Director – Gas & Water Division

February 22, 2019

New Hampshire Public Utilities Commission

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities

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Q. Please state your name, occupation, and business address.

A. My name is Stephen P. Frink and I am employed by the New Hampshire Public Utilities Commission (Commission) as Director of the Gas & Water Division. My business address is 21 S. Fruit Street, Suite 10, Concord, New Hampshire 03301.

Q. Please summarize your educational and professional experience.

A. I joined the Commission in 1990 as a member of the Audit Team and worked as a Utility Analyst and Senior Utility Analyst before becoming the Assistant Finance Director in 1998. In 2001, Commission operations were restructured and I became the Assistant Director of the Gas & Water Division, primarily responsible for the administration of the financial aspects of the regulation of the gas utilities. On February 1, 2018, I became Director of the Gas & Water Division.

Prior to joining the Commission, I worked as a Budget/Financial Analyst for the cities of Austin and Dallas, Texas. I have a Bachelor of Arts and a Master's in Business Administration from the University of New Hampshire.

1 **Q. What is the purpose of your testimony in this proceeding?**

2 **A.**The purpose of my testimony is to present Staff's analysis and recommendation on the
3 economics of the Liberty Utilities (EnergyNorth Natural Gas) Corp., d/b/a Liberty Utilities
4 (Liberty or Company) proposal to enter into a renewable natural gas supply and transportation
5 agreement (Agreement) under which Liberty agrees to buy renewable natural gas (RNG) from
6 RUDARPA, Inc. (RUDARPA).

7 **Q. Please summarize Staff's findings and recommendations.**

8 **A.**The Commission should not approve the Agreement because it is likely to result in higher
9 rates than if Liberty were to meet its supply needs by other available means.

10 **Q. Please briefly describe the Liberty filing.**

11 **A.**On September 7, 2018, Liberty filed for approval of the Agreement for the purchase of
12 processed, pipeline quality RNG produced from a landfill located in Bethlehem, New
13 Hampshire, to be compressed and delivered into Liberty's distribution system or transported
14 to other locations to be used in place of natural gas. RUDARPA will have sole responsibility
15 for the design, construction, initial financing, and operation of the cleaning/production
16 facilities, and delivery of RNG to the Liberty distribution system. Liberty is responsible for
17 the construction, operation, and maintenance of the infrastructure to receive and inject the
18 RNG into its distribution system.

19 The contract requires RUDARPA to provide a minimum annual supply quantity
20 (MASQ) of RNG at a fixed price for each year, subject to annual inflation adjustments capped
21 at two percent, with the contract to continue for 17 years from when service commences. If
22 RUDARPA delivers the minimum contracted volumes in either Year 1 or 2, Liberty is

1 required to purchase the cleaning/production facilities at a fixed price at that time. Liberty
2 also has the option to purchase the facilities at any time after the service commencement date.
3 According to Liberty's analysis, if Liberty is required or elects to purchase the facilities, the
4 per therm cost of RNG will be reduced by 23% by year four.

5 The Company identified three material risks associated with the project -- construction
6 costs, RNG production quantities, and RNG production quality. The Agreement reflects
7 certain steps to mitigate each of those risks. In addition, there are certain risks to consider
8 with respect to Liberty's reliance on the assumption that the sale of RNG will trigger
9 renewable energy credit earnings for the Company and, as a result, lower project and gas
10 supply costs for Liberty and its ratepayers.

11 **Q. Does Staff agree with Liberty's risk assessment and measures to mitigate those risks?**

12 **A.** Yes and no. Staff agrees that the risks identified are material and that the measures proposed
13 by Liberty to address those risks should mitigate the identified risks to a degree. But there are
14 other material risks as well, related to the economics of the project and operational risks
15 associated with the use of RNG. Staff witness Randall Knepper addresses the operational
16 risks in his testimony.

17 **Q. Please describe the financial analysis Liberty performed and the results of that analysis.**

18 **A.** Liberty performed an economic analysis comparing the per dekatherm (Dth) cost of RNG,
19 and the cost of RNG net of potential Thermal Renewable Energy Certificates (TRECs), over
20 the 17-year term of the Agreement, with the average Liberty cost of gas (COG) rate over the
21 last ten years. The analysis was performed under two scenarios: the cost of RNG under
22 RUDARPA ownership of the cleaning/production facilities and under Liberty ownership of

those facilities (Bates pages 72-73, Attachment WJC/MES-4).

Q. What did Liberty conclude from its analysis?

A. Liberty concluded that entering into the contract with RUDARPA would have a minimal impact on COG rates, noting that, as a base load¹ supply, RNG would be incrementally more expensive in the summer but during the winter would reduce purchases of propane, LNG, and spot gas commodities that are more expensive than RNG (Bates page 12, line 16 thru page 13, line 4). Liberty concluded (Bates page 18, lines 2-3), "We believe EnergyNorth has secured the lowest-cost RNG in the region, which will have a *de minimus* impact on customer bills even without TRECs and will be the lowest cost option for incremental supply on an annual basis when revenue from the TRECs is credited back to customers through [the] COG."

Q. Does Staff agree with Liberty's analysis and conclusion?

A. No. Liberty should also have performed a cost benefit analysis using the discounted cash flow (DCF) methodology to determine the net present value (NPV) of annual costs and/or savings.² Furthermore, the analysis should not be comparing the RNG rates with the average COG rate over the last 10 years, as historical COG rates are not indicative of future COG rates and include much more than just supply costs. And while the estimated TREC value used in the analysis may be reasonable based on the current market, Liberty's ability to qualify for TRECs under the current statute and rules and the future values for TRECs over the term of the contract are very much in question, as explained in the testimony of Staff

¹ Base Load is a given consumption of gas remaining fairly constant over a period of time, usually not temperature-sensitive.

² Net present value discounts the stream of expected cash flows associated with a proposed project to their current value, which presents a cash surplus or loss for the project. When NPV is positive, there are enough cash flows to pay back the project's debt and provide a return to shareholders.

1 witness Stephen Eckberg. In fact, Mr. Eckberg expects the TREC value will decrease from
2 \$4.50 per Dth to \$1.88 per Dth beginning in Year 3 of the Agreement.

3 **Q. Please identify the economic risks that most concern Staff.**

4 **A.** Liberty assumes that two potential customers that would use 44% of the annual RNG
5 production will enter into special contracts, as these potential customers have signed letters of
6 intent (LOI) to do (Bate pages 75-83). According to Liberty's proposal, customers that pay
7 the full RNG cost will reduce the amount of RNG costs to be recovered through the COG rate
8 recovery process and lessen the related bill impact on firm sales customers, but the LOIs are
9 non-binding and do not create an obligation or commitment to enter into a contract, nor do the
10 LOIs indicate when those potential customers might commence service. Firm sales customers
11 would be responsible for all RNG costs unless, or until, customers commence service under a
12 special contract that pay all or a portion of RNG costs.

13 Liberty's reliance on revenue expected from TRECs as a result of RNG usage is also a
14 concern. According to Liberty's filing, RNG costs to be recovered from firm sales customers
15 will be offset by TRECs earned but there is a great deal of uncertainty regarding whether
16 Liberty is entitled to TRECs and, if so, what the value of those TRECs might be, if and when
17 Liberty or its RNG customers become eligible to earn them.

18 A very significant concern is that the additional base load supply that Liberty is
19 required to take under the Agreement may not be needed in the near future. If Liberty's
20 proposed Granite Bridge Project is built, for example, there will a significant increase in
21 capacity and base load supplies, in which case there would be no need for additional base load
22 supplies, such as the proposed RNG source. *See Attachment SPF-1 (Liberty Response to*

1 *OCA DR 2-41 in Docket DG 17-198*). In that instance, unless RNG is used to serve Keene or
2 other satellite systems (i.e., stand-alone systems without access to natural gas deliveries via
3 pipeline), RNG would only add to the excess supply and would not be replacing costlier
4 peaking supplies during the winter but replacing lower cost base load supplies available to
5 Liberty through the Granite Bridge Project.

6 Another risk relates to the quality of the RNG gas, which could potentially have a
7 negative impact on customer end-use equipment. While the risk is difficult to quantify, if
8 customer equipment is negatively impacted there could be significant costs to investigate,
9 litigate, and remedy.

10 **Q. What is the proper analysis to determine the economic benefit?**

11 **A.** As previously stated, the NPV should be determined using a DCF analysis based on expected
12 annual incremental costs and/or savings to be realized through the Agreement. Expected
13 annual incremental cost and/or savings should be determined by comparing the cost of RNG
14 with cost of the alternative gas supplies that would otherwise be purchased. This requires two
15 separate analyses, as there is a large discrepancy between the cost of alternative supplies to
16 serve Keene versus those to meet non-Keene supply requirements.

17 A positive NPV would mean the expected return on the project exceeds Liberty's
18 currently approved rate of return over the period of time analyzed. A higher return would
19 reduce the overall revenue requirement during that period. Since the revenue requirement is
20 used to determine rates, ratepayers should benefit through lower overall rates if a project has a
21 positive NPV. Conversely, ratepayers would see higher overall rates if a project has a
22 negative NPV. In evaluating major system expansions, a 10-year DCF analysis has been used

1 by the Commissioners in deciding the merits of the investment.

2 **Q. Has Liberty performed that analysis?**

3 **A.** In response to Staff Data Request TS 1-4, Liberty undertook an analysis comparing
4 incremental costs/savings based on expected annual RNG deliveries to Concord and expected
5 annual RNG deliveries to Keene with the cost of alternative supplies at each of those locations
6 to determine the NPV for 10 and 20 years. It is a comprehensive analysis that for the most
7 part makes reasonable assumptions but does not price the cost of alternative supplies and
8 TREC value correctly and fails to include all RNG related investment costs when calculating
9 the Keene revenue requirement.

10 **Q. What were the results of Liberty's DCF analysis?**

11 **A.** Liberty's analysis found that the Agreement produces a negative NPV without TRECs and
12 positive NPV with TRECs, and that Keene customers would benefit from the Agreement with
13 or without TRECs. *See Attachment SPF-2.*

14 **Q. Has Staff preformed a DCF analysis?**

15 **A.** Yes, Staff used Liberty's DCF analysis but made three adjustments: 1) the Keene and non-
16 Keene alternative supply cost estimates were reduced to better match alternative gas supply
17 sources and the expected cost of those supplies; 2) the potential TREC value was reduced, as
18 recommended by Mr. Eckberg; and 3) the Keene rate base was increased to better reflect the
19 capital investment necessary for Liberty to provide RNG to Keene.

20 **Q. Why are Staff's non-Keene alternative supply cost estimates more reasonable than**
21 **Liberty's?**

22 **A.** Staff used the average annual future price for natural gas at the Henry Hub and Dracut Hub,

1 which is consistent with how Liberty forecasts commodity prices in its COG filings. In its
2 COG filings, Liberty's natural gas price forecast is based on the Henry Hub futures prices and
3 adjusted for the basis price³ at supply hubs where Liberty takes delivery. Because Liberty has
4 sufficient pipeline capacity in the summer to transport natural gas from production centers,
5 the Henry Hub futures prices more accurately reflect the Liberty supply price during that
6 period. The Dracut price is more representative of the supply price during the winter, when
7 Liberty spot purchases may be necessary and Dracut is the closest supply hub serving Liberty.
8 Since RNG is a base load supply, summer and winter volumes should be equivalent. The
9 average of the Henry Hub and Dracut Hub futures prices provides a conservative estimate
10 based on what investors expect the natural gas prices for alternative supply available to
11 Liberty will be over the next 10 years.

12 There will be no change in indirect gas costs or pipeline transportation costs as a result
13 of entering into the Agreement. The Agreement may result in a decrease in peaking supply
14 costs in the early years, because pipeline capacity into New Hampshire is currently
15 constrained, but that situation will reverse if the Granite Bridge Project is built.

16 Liberty's analysis uses an average of past COG rates as the alternative supply cost for
17 non-Keene volumes in the first year, adjusted for inflation in subsequent years (1% per year).

18 The COG rate includes indirect gas costs (e.g., miscellaneous overhead, production and
19 storage capacity, working capital, and bad debt), in addition to transportation, commodity, and
20 peaking supply costs. In Liberty's 2018-2019 COG filing (Docket No. DG 18-137),
21 forecasted annual commodity costs (including peaking supply costs) make up 72 percent of

3 "Basis Price" represent the differential, for each reference period, between the Henry Hub and various locations/hubs.

1 the proposed rates, which, if applied to the historical COG rate of \$7.17 per Dth used in the
2 Liberty analysis, results in alternative supply cost of \$5.19 per Dth. *See Attachment SPF-3.*

3 The futures prices are only available for 10 years, so for years 11 through 20 of the
4 Agreement, Staff adjusts the Year 10 average futures price for annual inflation. Both Liberty
5 and Staff analyses assume an annual inflation rate of one percent.

6 **Q. Why are Staff's non-Keene alternative supply cost estimates more reasonable than**
7 **Liberty's?**

8 **A.** The only supplies available to serve Keene, following Liberty's proposed conversion to
9 natural gas, will be CNG and LNG. There are no published futures market prices for CNG or
10 LNG so Liberty's used a cost estimate for CNG based on a vendor response to a Liberty
11 request for proposal for CNG to be delivered to Keene, which in addition to a demand charge,
12 included a CNG commodity charge indexed to a supply hub price with an adder. Staff's cost
13 estimate substitutes the futures prices at that supply hub for the historical average hub price
14 used in the Liberty analysis.

15 **Q. Please explain the rate base adjustment Staff made to the Liberty Keene DCF analysis.**

16 **A.** The Liberty DCF analysis for Keene does not include the cost of the Concord decompression
17 facilities needed to accommodate RNG deliveries outside of Keene. However, the delivered
18 RNG quantities up to the Agreement maximum would need to be paid for and the cost of
19 unused RNG would be far greater than the revenue requirement associated with building the
20 Concord decompression facilities. Therefore, the total RNG project costs used to calculate
21 the revenue requirement for Keene should include both the purchase price of the
22 cleaning/production facilities and Concord decompression facilities. It would also be

reasonable to include the difference between RNG price and non-Keene alternative supply prices for non-Keene usage in the Keene analysis, which would add to the Keene costs, but that difference is captured in the combined analysis.

Q. Did Staff make any other adjustments to the Liberty Keene DCF analysis?

A. No. However, Staff has concerns regarding the projected Keene volumes. Presently Liberty has no CNG load in Keene and has concrete plans only for the conversion of a small segment of its system to CNG prior to the 2019-2020 winter period. The Company has made no proposal for how and when the remainder of the Keene system will be converted.

Q. What are the results of Staff's DCF analysis?

A. Without TRECs, the \$15.3 million capital investment has an NPV of *negative* \$7.0 million over 10 years and *negative* \$8.8 million over 17 years. With offsetting TRECs, the NPVs are *negative* \$2.5 million over 10 years and *negative* \$3.1 million over 17 years. *See Attachment SPF-4 (Staff DCF Analysis).*

NPVs for Keene, non-Keene and combined RNG usage over 10 and 17 years, with and without TRECS, are provided in tables 1 and 2, below:

Table 1

| Net Present Value without TRECs | | | |
|---------------------------------|---------------|---------------|---------------|
| | Non-Keene | Keene | Combined |
| 10 years | (\$6,653,090) | (\$345,162) | (\$6,998,252) |
| 17 years | (\$7,623,016) | (\$1,146,610) | (\$8,769,626) |

Table 2

| Net Present Value with TRECs | | | |
|------------------------------|---------------|-----------|---------------|
| | Non-Keene | Keene | Combined |
| 10 years | (\$3,325,668) | \$844,318 | (\$2,481,350) |
| 17 years | (\$4,052,610) | \$990,853 | (\$3,061,756) |

1 If the Agreement is approved and the net negative cash flow recovered through rates,
2 firm sales customers will suffer financial harm through higher rates, with the possible
3 exception on Keene customers if RNG costs are offset by TRECs.

4 **Q. Based on that analysis, should the Commission approve Liberty's entering into the**
5 **Agreement?**

6 **A.** No. There is a very strong possibility that the impact on COG rates may be far more
7 detrimental than the Liberty analysis indicates. There are a great many uncertainties that will
8 factor into the cost or benefit to be derived from the Agreement, some of which could be
9 resolved in the future. Key factors include whether the Granite Bridge Project is built, the
10 ability to use RNG to serve Keene and/or other stand-alone systems, acquisition of new load
11 via special contract with rates based on RNG costs, and whether statutory changes governing
12 the TREC market are possible to accommodate the arrangements proposed by Liberty.

13 **Q. Are there other factors that could negatively impact rates?**

14 **A.** Yes, the Agreement requires Liberty to purchase the cleaning/production facilities at the
15 landfill if RUDARPA delivers the minimum annual supply requirements in Year 1 or 2 of the
16 contract. The Agreement also makes Liberty subject to the terms of any "interim" or "bridge"
17 financing for the construction, commissioning and operation of the facilities and responsible
18 for any financing buy-out-fees if Liberty purchases the facilities. There could be reliability
19 and quality issues that manifest themselves during or after Year 1 and if the annual minimum
20 has been delivered, then Liberty would be obligated to purchase the facilities regardless of
21 what those issues might be.

22 **Q. Are there any conditions under which Staff might support Liberty entering into a RNG**

1 **supply contract at this time?**

2 **A.** Staff could support entering into an RNG agreement to serve new load under special
3 contract(s) for set volumes priced to recover the full RNG cost from the special contract
4 customer(s), with deliveries to be made directly to customer facilities. Under those
5 conditions, customers not electing to enter into a special contract would be isolated from the
6 economic and operational risks related to RNG.

7 **Q.** **Is there anything else you'd like to add?**

8 **A.** Yes. Staff believes it is premature to enter into the Agreement at this time. There will be
9 much greater certainty regarding the potential costs/savings of the RNG project once the
10 Granite Bridge Project proposal is decided and the Keene conversion to natural gas has
11 progressed.

12 While Staff appreciates that there may be environmental benefits related to Liberty
13 entering into the Agreement, there would be no direct economic benefit to Liberty's
14 ratepayers and shareholders associated with environmental benefits. As a result, potential
15 environmental benefits were not considered in Staff's recommendation.

16 **Q.** **Does that conclude your testimony?**

17 **A.** Yes.