

STATE OF NEW HAMPSHIRE
before the
PUBLIC UTILITIES COMMISSION

DG 21-036

In the Matter of:
Liberty Utilities (EnergyNorth Natural Gas) Corp., d/b/a Liberty Utilities
Petition for Approval of a Renewable Natural Gas Supply and Transportation
Agreement

Direct Testimony

of

Randall S. Knepper
Department of Energy
Division of Enforcement
Director – Safety Bureau

November 12, 2021

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

2 A. My name is Randall S. Knepper. I am employed as the Director of the Safety Bureau for the
3 Division of Enforcement of the New Hampshire Department of Energy. My business address
4 is 21 S. Fruit Street, Suite 10, Concord, New Hampshire 03301.

5 **Q. Please summarize your education and professional work experience.**

6 A. I received a Bachelor of Science in Mechanical Engineering from the University of Rochester
7 and a Master of Science in Civil Engineering from the University of Massachusetts. I am a
8 licensed Professional Engineer in the State of New Hampshire, License No. 9272. For
9 continuing education, I have completed 21 Technical Training Courses and 23 Online
10 Training Sessions provided by the Training and Qualification Center of the Pipeline and
11 Hazardous Materials Safety Administration (PHMSA). See Attachment RSK-1.
12 I have been the Director of Safety Bureau for the newly established Department of Energy
13 since July 1, 2021 and previously served as the Director of Safety and Security for the New
14 Hampshire Public Utilities Commission since December 2004. I have testified in over two
15 dozen proceedings before the Commission. See Attachment RSK-2 for a summary of
16 previous dockets. Prior to that I was an Environmental Consultant and Business Development
17 Manager at The Smart Associates, Environmental Consultants, Inc., located in Concord, New
18 Hampshire. For 16 years I was employed at a local gas distribution company. My previous
19 work experience included a number of Business and Operations roles at Keyspan Energy
20 Delivery New England (Keyspan) and EnergyNorth Natural Gas Inc. (EnergyNorth),
21 including Key Account Executive, Commercial & Industrial Sales Manager, Sales Engineer,

1 Senior Engineer, Staff Engineer, and CAD Supervisor. For many of those years, I designed
2 natural gas distribution systems, recommended capital improvement projects, recommended
3 system expansions, wrote Operations and Maintenance procedures, and oversaw construction
4 projects. While performing the duties of each of these occupations I was responsible for
5 compliance related to applicable local, state, and federal codes. Prior to my utility experience
6 I worked at Westinghouse Electric designing high voltage transmission lines as a Project
7 Engineer.

8 In addition, I served as Staff Engineer for the New Hampshire Site Evaluation Committee
9 prior to its most recent reorganization in 2014 and currently serve as subject matter expert for
10 the New Hampshire Advisory Council on Emergency Preparedness and Security. My
11 professional work experience spans more than 30 years.

12 **Q. Are you affiliated with any professional organizations?**

13 A. Yes. I am a member of the Association of Energy Engineers (AEE). I serve on multiple
14 committees of the National Association of Pipeline Safety Representatives (NAPSR),
15 including prior positions as Chair and Past Chair. I have served as editor of all of the past
16 editions of NAPSR's *Compendium of State Pipeline Safety Requirements & Initiatives*
17 *Providing Increased Public Safety Levels Compared to Code of Federal Regulations*. I
18 previously chaired the Staff Pipeline Safety Subcommittee of the National Association of
19 Regulatory Commissioners (NARUC) for nearly 12 years; I serve on the Common Ground
20 Alliance Technology Committee; I am appointed as a member of the Gas Technology
21 Institute's Public Interest Advisory Committee; and I am a board member of the New

1 Hampshire Public Works Standards and Training Council. Finally, I have testified before the
2 United States Congress on pipeline safety issues.

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

4 A. The purpose of my testimony is to describe the Safety Bureau’s observations regarding
5 Liberty Utilities’ proposed contract for renewable gas with RUDARPA North Country, LLC
6 (“RUDARPA”).

7 **Q. Does the Department of Energy believe capturing landfill gas, processing it to pipeline-**
8 **quality standards, and injecting it into gas distributions systems is a positive step toward**
9 **furthering climate change goals?**

10 A. The Department of Energy does believe capturing renewable gas from landfills by eliminating
11 or reducing flaring is a worthwhile undertaking for gas utilities as state and federal policies to
12 reduce methane releases are established. The Department of Energy believes this can and
13 should be accomplished in a manner that minimizes or eliminates as many potential safety
14 and financial risks to existing ratepayers as possible. The proposed RNG Supply and
15 Transportation Agreement between RUDARPA and Liberty provides a means to accomplish
16 the first objective, the reduction of methane emissions, but needs improvements towards
17 meeting the second objective, the minimization of safety and financial risks. Energy Staff
18 notes that unlike renewables used for electricity supply, renewable gas that is processed,
19 compressed, and transported through trucks/trailers can be accomplished without using any
20 public utility assets. Many customers currently contract for their own compressed natural gas
21 supplies in the Northeast delivered to the customer’s premises without the need to go through
22 a public utility distribution system. That same model can be used for renewable gas as well.

1 This mainly takes into account that RNG is a compressible gas and thus can be transported
2 and easily stored directly at a customer site and injected into the customer's fuel burning
3 appliances or equipment. There is nothing that prohibits this from occurring provided safety
4 measures are observed. Because electricity is not as easily stored, it currently tends to have
5 methods of achievement based on programs of displacement. This involves leveraging
6 existing electric transmission and distribution systems that are much more widespread and
7 provide power along every street to dwellings and businesses.

8 **Q. Does the Department of Energy believe Liberty should ever own the gas processing
9 equipment at the North Country Environmental Services landfill gas project?**

10 **A.** No. The proposed RNG Supply and Transportation Agreement between RUDARPA and
11 Liberty, Article 2 - Construction and Operation of the Production Facility, Section 2.2 allows
12 Liberty to maintain a Facility Purchase Option and Purchaser Right of First Refusal. That
13 provision permits Liberty to purchase the facility after 4 years under the contract. While
14 Liberty stated during the initial hearing for this docket that it has no intention of ever
15 exercising the provision, it nonetheless believes it is a harmless provision because any future
16 purchase of the facility would require Commission approval. Within its testimony and
17 discovery responses, Liberty believes for a variety of reasons that direct ownership of the
18 RNG processing facility could lower the future costs of renewable gas by 25% to 30% and
19 provides Liberty the means to ensure that the supply agreement is not interrupted in the event
20 RUDARPA chooses to sell the processing equipment and facility to another entity.

21 **Q. What are some of the reasons that Staff does not believe this provision should remain in
22 the proposed contract?**

1 **A.** There are four main reasons why Staff does not believe Liberty should own the processing
2 equipment at the landfill.

3 First, this concept goes against the legislature’s objective to create separate energy delivery
4 entities and move away from vertically integrated energy providers that generate, transmit,
5 and provide distribution services within a single organization. Within the electricity market it
6 has taken decades to achieve this legislative objective. The gas market has been set up this
7 way since FERC Order 636 was issued in 1992 that separated transmission costs from
8 commodity costs. This federal natural gas pipeline order fostered competition in the natural
9 gas industry by ensuring that all natural gas suppliers compete for gas purchasers on equal
10 footing. Its policy goals are to enhance competition in the natural gas industry and to ensure
11 that adequate and reliable service is maintained. The gas industry has traditionally been
12 segmented into three components - a producer (i.e., wells and processing company),
13 transmission operator and distribution operator. Liberty’s provision could allow the gas
14 industry in New Hampshire to become somewhat vertically integrated once again and allow
15 upstream assets into the public utility rate base. This outcome would undermine the industry
16 changes that New Hampshire’s energy policy objectives have taken so long to accomplish.

17
18 Second, Liberty does not have the technical experience to operate a processing plant. Its
19 employees are not trained to provide such functions, nor do they have the necessary
20 equipment, experience or knowledge of the anaerobic processes used at landfill gas facilities.
21 Exhibit D of the RNG Supply and Transportation Agreement between RUDARPA and
22 Liberty (BP 069 and 070 of Attachment WJC/MRS-1), provides a high-level outline of the

1 five phases or stages of gas processing that are required to manufacture RNG to pipeline-
2 quality standards so that it can be injected into a distribution system. Even if Liberty were to
3 eventually purchase the landfill processing equipment from RUDARPA, it would have to
4 subcontract out the work activities, and manage oversight of those activities. In fact, Liberty
5 has preliminarily indicated that it anticipates that RUDARPA would provide those services, in
6 the event of Liberty's purchase of the facilities and could result in significant incremental cost
7 to ratepayers. This will result in a complex arrangement that ultimately does not need to
8 occur in the first place. Liberty should procure gas capacity and supplies just as it does with
9 other interstate providers by designating receipt points, specifying volumes, and specifying
10 reliability and quality metrics, without the utility itself engaging in processing and service
11 operations. Ratepayers should not have to absorb those costs simply because Liberty chooses
12 to earn a return on capital for those assets.

13
14 Third, this would potentially subject existing ratepayers to vulnerabilities associated with land
15 fill extraction, landfill volume deliverability, landfill trash types, (and potential gas
16 constituents' issues), economy variations, weather disruptions, freezing ground temperatures,
17 equipment malfunctions, personnel management, power outages, road and transportation
18 issues and other risks that may be inherent to a processing unit. While it sounds enticing to
19 potentially lower the price of gas supply and delivery of RNG, the Energy Staff believes it is
20 more than offset by potential risks.

21
22 Fourth, this model is quite rare in the United States. Liberty could only point to one landfill at

1 the Fresh Kills, Staten Island, New York as an example of a utility operating a processing
2 facility. Energy Staff believes that the Fresh Kills facility energy processing portion is owned
3 and operated by a much larger entity (National Grid) and is derived from one of the largest
4 landfills, (nearly 2,200 acres) in the country and thus is not comparable to the much smaller
5 landfill (by several magnitudes) located in Bethlehem, NH.

6 **Q. How does Liberty’s proposal address gas quality of the proposed renewable gas supply**
7 **planned compared to conventional natural gas supplies currently used by Liberty within**
8 **its distribution systems?**

9 **A.** Exhibit B (BP 064 to 066) of the RNG Supply and Transportation Agreement provides the
10 RNG specification that Liberty requires. This is shown in Attachment WJC/MRS-1,
11 specifically as listed in Table 1 (BP 066). There are ten primary characteristics which will
12 comprise the gas quality specification that will be continuously measured:

- 13 They are:
- 14 1) **Btu Content** or Heating Value between 970 and 1100 btu/scf
 - 15 2) **Wobbe Index** Value greater than 1270 but below 1400 btu/scf
 - 16 3) No more than 2% **Carbon Dioxide**
 - 17 4) Between 0.1% and 0.4% **Oxygen**
 - 18 5) No more than 4% **Inerts**
 - 19 6) No more than 7 pounds of **water** per million scf
 - 20 7) No more than 4.125 ppm of **hydrogen sulfide**
 - 21 8) No **particles or dust**
 - 22 9) Avoid **liquid hydrocarbons** forming by staying above the dew point
temperature of 15 degrees Fahrenheit.

1 10) Be delivered at **temperatures** below 105 degrees Fahrenheit.

2 In addition, seven other trace components will be measured at unspecified frequencies. Those
3 components and specifications include: **Hydrogen** levels will be accepted between 0.1% and
4 0.3%; **Sulfur** levels below 16.5 ppm; **Ammonia** levels below 10 ppm; **Siloxanes** levels below
5 0.5 ppm; **Halocarbons** will be accepted between 1 and 2 ppm; and no **VOC** or **Bacteria** will
6 be accepted.

7 There are many sections within the RNG Supply and Transportation Agreement that place
8 requirements on RUDARPA for meeting the RNG specifications for gas quality. They
9 include:

10 A) Article 2 - Construction and Operation of the Production Facility requires in Section 2.2
11 RUDARPA to design, operate, maintain and repair the processing facilities to meet the
12 above RNG specifications.

13 B) Article 3 - RNG Purchase and Sale requires in Section 3.2 an initial formal attestation for
14 meeting the RNG specifications and annually thereafter. The attestation is primarily
15 meant to benefit RUDARPA so that it can be eligible for a renewable identification
16 number (RIN) to meeting EPAs motor vehicle fuel additive program. The attestation
17 would be performed by a third party, named as Weaver and Tidwell LP of Houston, TX
18 (see BP 030 of Attachment WJC/MRS-1).

19 C) Article 3 - RNG Purchase and Sale requires in Section 3.3 that all volumes delivered by
20 RUDARPA conform to the RNG Specifications.

21 D) Article 3 - RNG Purchase and Sale requires in Section 3.4 that the gas quality will be
22 measured by RUDARPA before each truck leaves the Bethlehem site and may also be

1 measured by Liberty as each truck is delivered. It does not state that Liberty will measure
2 the gas quality at each delivery point prior to injection or that Liberty may elect to
3 electronically rely on RUDARPA's measurements. Thus Liberty will be relying on
4 equipment maintained by RUDARPA but not necessarily validated by Liberty's own gas
5 quality measurements. This is a slight risk for Liberty. *The staff of the Department of*
6 *Energy recommends Liberty install its own calibrated equipment that measures the gas*
7 *quality that can validate RUDARPA owned equipment if the contract is approved by the*
8 *Commission.*

9 E) Article 3 - RNG Purchase and Sale in Section 3.6 allows Liberty to reject any non-
10 conforming RNG and RUDARPA would be responsible for any costs for storing and
11 disposal of the non-conforming RNG. Section 3.6 does not require RUDARPA to absorb
12 any incremental costs that may be incurred by Liberty if Liberty has to go to the spot
13 natural gas market on such occasions when the spot natural gas market price is in excess
14 of the price agreed upon by RUDARPA and Liberty. This is a moderate risk for Liberty
15 ratepayers if this scenario were to occur frequently. *The staff of the Department of Energy*
16 *recommends that a provision be added that protects existing ratepayers from absorbing*
17 *incremental costs that may be incurred for non delivery or delivery of non-conforming*
18 *gas.*

19 F) Article 3 - RNG Purchase and Sale in Section 3.7 requires immediate notification of gas
20 not meeting the RNG specification.

21 G) Article 3 - RNG Purchase and Sale in Section 3.9 states that a Bill of Lading be provided
22 upon delivery that provides the volume delivered and the gas quality of the RNG

1 delivered. *The staff of the Department of Energy recommends that the Bill of Lading*
2 *should have time and date stamps recording of the measurement for each of the*
3 *components listed in Table 1 including those continuously monitored and those*
4 *periodically monitored. In addition, Bill of Ladings documentation should be kept for*
5 *inspection by the NH Department of Energy Audit and Safety Bureaus or other regulatory*
6 *agencies for a minimum of 2 years.*

7 **Q. Do the anticipated RNG Specifications meet pipeline-quality metrics currently used by**
8 **Liberty and are those interchangeable with Liberty's other gas supplies?**

9 **A.** The RNG specifications appear to be identical to those found in Attachment WJC/MRS-1,
10 Interconnect Guide for Renewable Natural Gas (RNG) in New York State Final Report
11 August 2019 (BP 089 to 160). While the testimony does not compare the RNG specifications
12 to existing Liberty supplies, the Energy Staff did ask Liberty to provide such information in
13 Staff Response 2-15. The RNG Specifications appear to align with those of Tennessee Gas
14 Pipeline and PNGTS, both of which currently flow into the Liberty distribution systems.
15 Liberty also provided other pipeline specifications regarding pipeline quality, including those
16 of other Transcanada subsidiaries. Based on its review, the Staff of the Department of Energy
17 does not believe there will be an interchangeability issue with processed RNG and other
18 Liberty gas supplies.

19 **Q. Will RUDARPA own the trucks/trailers that will deliver the compressed renewable gas**
20 **to the three decompression skids at the three expected sites?**

21 **A.** Not necessarily. The RNG Supply and Transportation Agreement in Article 3 RNG Purchase
22 and Sale in Section 3.10 allows for a third party to own and operate the truck/trailer

1 transportation equipment. Specifically, Shell Energy North America (US), L.P or some other
2 similarly qualified third party entity that is in the business of supplying natural gas is allowed
3 to transport the RNG from the processing equipment at the North Country Environmental
4 Services landfill located at 581 Trudeau Road in Bethlehem. Given the limited size of the
5 RUDARPA company, Staff believes this would be the scenario that is most likely.

6 RUDARPA would still be responsible for the renewable gas arriving at the delivery locations
7 as stated in Article 3 - RNG Purchase and Sale in Section 3.8 but that language includes
8 provision for a third-party trucking outfit. Under the agreement before the Commission,
9 Liberty will not own the trucks/trailers or be responsible for any of the on-road transportation
10 services. Typically, when Liberty contracts for LNG or liquid propane (LPG) gas on the
11 EnergyNorth system. the trucks/trailers are owned by the companies Liberty contracts with.

12 **Q. Please comment on applicable standards for the RNG trailers that would be used.**

13 **A.** The trailer is the mobile storage vessel used to transport CNG over the highways and would
14 be left onsite until the “trailer” gas volume is depleted. Once on site at the utility’s property
15 or, in this case, the end-user customer’s property, the trailer would no longer function as a
16 mobile device but more as a traditional storage tank, based on the sample language found in
17 the Letters of Intent. Under the Agreement, the trailer would contain highly pressurized fuel
18 (i.e., renewable gas sourced from an existing landfill). The on-road regulations of a CNG
19 trailer are governed by the Federal Motor Carriers Safety Administration and are not
20 jurisdictional to the Safety Bureau or the Public Utilities Commission. Once driven onto and
21 parked on Liberty premises or the premises of customers not directly connected to Liberty’s
22 distribution system (i.e. delivery locations), the trailers become a component of the Liberty

1 supply system and are considered NHPUC-jurisdictional with respect to safety governance,
2 pursuant to the terms of RSA 374:1, 374:4, and allied statutes. The Safety Bureau requires
3 that Liberty ensure that all operational conditions on its property and/or connected to the
4 provision of utility service, be conducted safely, as required by RSA 374:1. Liberty does not
5 (and cannot) cede this independent responsibility by transferring it to RUDARPA. For
6 instance, without limitation, Liberty must ensure the physical security, pavement conditions,
7 and traffic safety controls in which the parked trailer sits, as well as personnel training,
8 equipment maintenance, fire prevention protocols, and all other aspects of its readiness to
9 accept RNG supply trailer. Installations must be safe and adequate, as determined by the
10 Safety Bureau pursuant to applicable federal and state safety regulations. The Safety
11 Bureau's distinction between the trailer when "on road" and when parked, and the
12 demarcation point as defined, would result in a cleaner, more well defined and pragmatic
13 result. It would avoid multiple reviews of the ever-changing characteristics of storage trailers
14 that may be brought to delivery locations and left there. If potential future events such as a
15 fire involving the trailer, pressure releases, security breaches or other issues arise, the
16 Department, through its Safety Bureau, may elect to address the issue, exercise its authority,
17 and impose conditions as warranted.

18 **Q. Will the decompression skids to be installed meet the same requirements that apply to at**
19 **the existing Keene decompression skid at 43 Production Avenue in Keene?**

20 **A.** While not specifically addressed in the Liberty testimony, the Company's response to Energy
21 Discovery Request 2-16 confirms that each decompression skid will be built to the same
22 standards as currently used by Liberty at the Keene 43 Production Avenue existing CNG

1 decompression skid. This will ensure that the decompression skid is designed, operated,
2 maintained, and tested to meet 49 CFR Part 192 federal pipeline safety standards and not the
3 industry ASME B31.3 standards, which apply to standard natural gas. Liberty has stated this
4 will be the standard whether they are stand-alone units or connected to a distribution system.

5 **Q. In Liberty testimony (BP 011), how does Liberty expect to recover the cost of the**
6 **decompression skid and has Liberty changed its position since the initial filing?**

7 **A.** In the testimony of Clark/Stevens on BP 011, Liberty initially describes the cost of one of the
8 decompression skids (estimated at \$804,368) that would be injecting RNG into its pipeline
9 system in its legacy system area as being part of the cost of gas that any RNG customer that is
10 connected to the existing distribution system would have to pay once they opt in under a yet
11 to be defined tariff. This is similar as to how the existing Keene CNG decompression skid is
12 paid for and recovered in COG rates (see Docket DG 20-152), except the decompression skid
13 for RNG would be recovered by demand charges since it would be leased by Liberty, not
14 owned.

15
16 In discovery responses 3-7 and 3-8, Liberty appears to have changed its initial view as set out
17 in its petition testimony such that the “on-system decompression skid will have system
18 redundancy benefits that will benefit all EnergyNorth customers,” not just RNG customers.

19 Liberty also states that “Placing a decompression skid at the end of the 200# line in Tilton
20 would allow for additional capacity to the aforementioned towns, which otherwise would
21 have to come by replacing the 6” coated steel gas main with a larger diameter gas main.”

22 This statement indicates that Liberty plans to put at least one of the decompression skids into

1 rate base. Energy Staff has not been able to fully explore the need for this redundancy
2 because the Concord-Tilton Highline (capacity based on 200 psig to 60 psig difference) has
3 not been evaluated sufficiently to confirm this assertion. Currently there are already an LNG
4 peaking plant and a propane air plant that inject supplemental fuels into Liberty's pipeline
5 system and affect the capacity of the Concord-Tilton Highline.

6
7 Also, if the Commission approves the TGP capacity contract proposed in Docket DG 21-008,
8 one positive outcome would be that the TGP delivered pressure to Londonderry is increased
9 to 300 psig, which has indirect benefits to all TGP gate stations on the EnergyNorth system,
10 which may improve options along the Concord-Tilton Highline. Energy staff at this point
11 believes it may be premature to conclude that benefits for RNG injection at either Concord or
12 Tilton will be realized if capacity increases resulting from RNG injection is not ultimately
13 deemed the best option.

14
15 Liberty has stated that the two off system decompression skids would ultimately be recovered
16 through the yet to be filed Special Contracts for the other two LOI customers. However,
17 Energy staff have not seen anything to confirm that statement or that the LOI customers are
18 aware of that intent.

19 **Q. Does Energy staff have concerns with the Force Majeure event language?**

20 **A.** Yes. The RNG Supply and Transportation Agreement in Article 1 - Definitions at BP (0032)
21 defines a Force Majeure Event. Article 3, Section 3.5 - RNG Purchase and Sale 5 refers to “..
22 and any other shut-downs, curtailments, facility outages, or other scheduled or irregular

1 events which do not constitute Force Majeure Events.” This concerns Energy staff with
2 respect to the definition and scope of what may constitute an irregular event, shut-down,
3 facility outage or curtailment that may interrupt the RNG supply yet not be considered Force
4 Majeure Events. The definition of Force Majeure Events refers to interruptions caused by
5 “...*(b) the elements (including storms, lightning, landslides, hurricanes, floods, earthquakes,*
6 *tornados, freezing of equipment or lines of pipe, and threats of any of the foregoing);*
7 *(c) fire, accidents, or breakdowns;*
8 *(d) strikes, lockouts, and any other industrial, civil, or public disturbance;*
9 *(e) failure of upstream or downstream transportation facilities to take or transport RNG...*”
10

11 Unlike interstate pipelines which are buried below frost lines and use hardened enclosures,
12 Energy Staff is concerned about the ease in which items (b) and (e) may be considered Force
13 Majeure Events given the geographic location of the landfill and the processing equipment
14 required to produce RNG.

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

16 **A. Yes.**