



**STATE OF NEW HAMPSHIRE  
BEFORE THE  
PUBLIC UTILITIES COMMISSION**

Docket No. DG 17-152

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities  
Least Cost Integrated Resource Plan

**DIRECT TESTIMONY  
OF  
WILLIAM KILLEEN**

April 30, 2019

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1   **I. INTRODUCTION**

2   **Q. Please state your name, position, and business address.**

3   A. My name is William R. (Bill) Killeen. I am Director, Energy Procurement, of Liberty  
4       Utilities (Canada) Corp., the parent of Liberty Utilities Co. (“Liberty Utilities”), which is  
5       the parent company of Liberty Energy Utilities (New Hampshire) Corp. (“Liberty Energy  
6       (NH)”). My business address is 345 Davis Road, Oakville, Ontario, Canada.

7   **Q. On whose behalf are you submitting this testimony?**

8   A. I am submitting this testimony before the New Hampshire Public Utilities Commission  
9       (the “Commission” or “NHPUC”) on behalf of Liberty Utilities (EnergyNorth Natural  
10       Gas) Corp. d/b/a Liberty Utilities (“EnergyNorth” or the “Company”), a subsidiary of  
11       Liberty Energy (NH). I am ultimately responsible for EnergyNorth’s energy  
12       procurement.

13   **Q. Please describe your educational background and qualifications.**

14   A. I earned a Bachelor of Engineering Science (Chemical) degree from the University of  
15       Western Ontario (now Western University) in 1985. I also earned a Master’s degree in  
16       Business Administration from the Ivey School of Business at Western University in 1989.

17       I have 30 years of professional experience in the energy and utilities industries in the  
18       areas of regulation, supply, operations, and customer service. I have worked at natural  
19       gas and electric utilities, as well as in consulting, marketing, and government positions.  
20       Early in my career, I was employed by Union Gas Limited, a major natural gas utility  
21       serving over 1.4 million customers in Ontario, Canada, for twelve years in varying

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1 capacities, including regulatory and supply. Prior to joining Liberty Utilities in February  
2 2014, I was employed by Enersource Hydro Mississauga Inc., a major electric utility  
3 serving the City of Mississauga, Ontario, for three years as Manager, Regulatory Affairs.  
4 In between my employment at these two large utilities, I was employed at various other  
5 companies, always retaining responsibility for oversight of regulatory affairs and supply,  
6 typically in Ontario or eastern Canada. These companies included Engage Energy  
7 Canada Inc., Direct Energy as Manager, Regulatory Affairs, and a consulting company,  
8 ECNG Energy LP, as Director, Supply and Regulatory Affairs for eight years. Following  
9 ECNG, I spent a brief tenure within the Ministry of Energy of the Ontario Government.  
10 Please refer to Attachment WRK-1 for a summary of my professional background.

11 **Q. Have you previously testified before any regulatory bodies?**

12 A. Yes, I have. In the United States, I have provided testimony in a number of proceedings  
13 in Arizona, California, Arkansas, Montana, New Hampshire, Massachusetts, Georgia,  
14 and Texas. In Canada, I have testified in approximately 18 natural gas and electric utility  
15 pricing cases and facility approval cases before the Ontario Energy Board. Please refer to  
16 Attachment WRK-1 for a summary of my past testimony appearances.

17 **Q. What is the purpose of your testimony?**

18 A. The purpose of my testimony is to respond to Order No. 26,225 (Mar. 13, 2019) (the  
19 “Order”), which directed the Company “to submit a supplemental filing, including  
20 supporting testimony, to address each of the specific elements required under RSA  
21 378:38 and RSA 378:39 that are not already addressed in its LCIRP, with adequate

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1 sufficiency to permit the Commission's assessment of potential environmental,  
2 economic, and health-related impacts of each option proposed in the LCIRP, as required  
3 by RSA 378:39." Order at 7.

4 **Q. How have you organized your testimony?**

5 A. The Order identified two subsections of RSA 378:38 that were not sufficiently addressed  
6 in the LCIRP. Subsection V directs the Company to assess the LCIRP's "integration and  
7 impact on state compliance with the Clean Air Act of 1990, as amended, and other  
8 environmental laws that may impact a utility's assets or customers." Subsection VI  
9 requires an assessment of the LCIRP's "long- and short-term environmental, economic,  
10 and energy price and supply impact[s] on the state."

11 The Order directed the Company to address these two subsections, to the extent they  
12 were "not already addressed," with "adequate sufficiency to permit the Commission's  
13 assessment of potential environmental, economic, and health-related impacts of each  
14 option proposed in the LCIRP." Order at 7.

15 To respond to the Order, my testimony will first describe the two planning issues  
16 identified in the LCIRP -- a lack of sufficient capacity to *deliver* natural gas to  
17 EnergyNorth's city gates along the Concord Lateral, and the need to obtain a new source  
18 of *supply* to use that incremental capacity. Second, I will describe the options that were  
19 identified. Third, I will provide the Company's interpretation of the two subsections of  
20 RSA 378:38 and describe the Company's analysis of the relative environmental and

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1 health related impacts of each option in a manner that will allow the Commission to make  
2 its assessment of each option proposed in the LCIRP.

3 **Q. What was the first step in the LCIRP planning process?**

4 A. The LCIRP first presented the Company's demand forecast, which is described in the  
5 LCIRP. Bates 012–031.<sup>1</sup> The Company's forecast showed continued growth throughout  
6 the five-year forecast period covered by the LCIRP. Bates 031, 036. The balance of the  
7 LCIRP discussed the Company's resource portfolio and options available to meet that  
8 forecasted demand.

9 **Q. Please provide an overview of EnergyNorth's existing delivery capacity.**

10 A. The EnergyNorth system is fed by a single transmission pipeline, the Concord Lateral,  
11 owned by Tennessee Gas Pipeline Company, LLC ("Tennessee" or "TGP"), which  
12 travels from Dracut, Massachusetts, to Concord, New Hampshire. The Company also  
13 supplements the existing pipeline capacity on the Concord Lateral through the use of on-  
14 system propane-air and liquefied natural gas ("LNG") facilities, which are located in  
15 Nashua, Manchester, Concord, and Tilton. These facilities are filled via truck and are  
16 necessary for the Company to meet its design day requirements. In fact, in 2017 the  
17 Company requested and received a waiver of Puc 506.03, On-Site Storage Requirements,  
18 due to a historic cold snap in 2017 and 2018.<sup>2</sup> Over the past three calendar years,  
19 EnergyNorth has received 704 deliveries of propane and LNG. The Company projects

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<sup>1</sup> References to the LCIRP will be by page number only, e.g., "Bates 007."

<sup>2</sup> Docket No. DG 17-200, Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities Petition for Temporary Waiver of Puc 506.03, On-Site Storage Requirements

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1 this number to increase over the next several years, until additional natural gas capacity is  
2 available in its service territory. Other than these on-system peaking facilities, the  
3 Concord Lateral is the only way to bring natural gas to the Company's distribution  
4 system.

5 **Q. Is the Company's existing delivery capacity sufficient to meet the forecasted**  
6 **demand requirements of its customers?**

7 A. No. The Company's design day demand during the planning period will exceed its capacity  
8 on the Concord Lateral, and there is no more capacity available on the Concord Lateral for  
9 the Company to purchase, absent an incremental project to expand the Concord Lateral.  
10 Stated differently, the Concord Lateral, which was last expanded in 2009 when the  
11 Company contracted for 30,000 Dth per day of capacity, is fully subscribed.<sup>3</sup> Therefore,  
12 any additional requests to increase capacity and deliverability will, at a minimum, require  
13 incremental facilities on the Tennessee system.

14 **Q. What options did the Company identify to solve this delivery capacity shortage?**

15 A. The LCIRP identified two pipeline delivery options that could provide incremental gas  
16 supplies to the Company's service territory to solve the delivery constraint issue: (1) the

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<sup>3</sup> The Commission issued an order approving the Settlement Agreement relating to the Company's transportation agreement on the TGP Concord Lateral expansion in Order No. 24,825 (Feb. 29, 2008). The TGP Concord Lateral expansion was approved for construction by the Federal Energy Regulatory Commission ("FERC") in Docket No. CP 08-65-000.

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1 Granite Bridge Pipeline (which was referred to as an “extension of its system” in the  
2 LCIRP<sup>4</sup>), and (2) an expansion of the Concord Lateral. Bates 054.

3 **Q. Which delivery option did the Company choose?**

4 A. The Company’s analysis, as detailed in the LCIRP, demonstrated that the inclusion of the  
5 Granite Bridge Pipeline results in the least-cost portfolio. In addition, the Granite Bridge  
6 Pipeline enhances the reliability, diversity, and flexibility of the Company’s portfolio,  
7 and provides overall support for the operating pressure on the Concord Lateral, which is a  
8 significant enhancement over the current situation. Bates 052, 054.

9 Lastly, as discussed below, the Granite Bridge Pipeline would have the same or better  
10 environmental and health-related impacts as the Concord Lateral upgrade.

11 **Q. Please provide an overview of EnergyNorth’s existing gas supply portfolio.**

12 A. The Company’s existing gas supply portfolio consists of various legacy contracts for  
13 pipeline capacity and storage that can move gas to the Company’s city gates along the  
14 Concord Lateral. Bates 038–041. These existing contracts have favorable terms that  
15 could not be obtained in today’s market. Therefore, the Company, consistent with past  
16 practices documented in prior LCIRP filings and Commission orders approving those  
17 filings, intends to renew those existing contracts that will expire during the five-year  
18 period covered by the LCIRP. Bates 050–052.

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<sup>4</sup> The Company did not initially disclose the Granite Bridge Pipeline in the LCIRP because the LCIRP was filed prior to the public announcement of the Granite Bridge Pipeline.



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1 **Q. Is the Company's existing gas supply sufficient to meet the forecasted demand?**

2 A. No. Although the Company currently has sufficient supplies to use all the available  
3 capacity on the Concord Lateral, the Company does not have the incremental supply to  
4 meet the forecasted increase in demand. Specifically, the Company requires incremental  
5 supply during the development of the Granite Bridge Pipeline, and to utilize the capacity  
6 of the Granite Bridge Pipeline once it is placed into service.

7 **Q. What options did the Company identify to solve this resource deficiency?**

8 A. The Company identified three supply options: (1) ENGIE delivered supply to the  
9 EnergyNorth city-gates and/or its existing on-system LNG facilities; (2) Repsol delivered  
10 supply to Dracut (i.e., the receipt point on the Concord Lateral) and/or directly to Granite  
11 Bridge Pipeline; and (3) pipeline transportation capacity as part of the PNGTS's Portland  
12 XPress ("PXP") project, which is deliverable to Dracut and/or to the Granite Bridge  
13 Pipeline . Bates 053-054, 056.

14 **Q. How does the Company interpret the requirement to assess the LCIRP's**  
15 **"integration and impact on state compliance with the Clean Air Act of 1990, as**  
16 **amended, and other environmental laws that may impact a utility's assets or**  
17 **customers," as required by RSA 378:38, V?**

18 A. The goal of the Clean Air Act of 1990, as amended (the "Act"), is primarily to "curb  
19 three major threats to the nation's environment and to the health of millions of  
20 Americans: acid rain, urban air pollution, and toxic air emissions." See 1990 Clean Air

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1 Act Overview, <https://www.epa.gov/clean-air-act-overview/1990-clean-air-act->  
2 [amendment-summary](https://www.epa.gov/clean-air-act-overview/1990-clean-air-act-amendment-summary).

3 To achieve these goals, and relevant here, the Act “requires states to make constant  
4 formidable progress in reducing emissions,” through programs and policies that  
5 “promote[] the use of clean low sulfur coal and natural gas, as well as innovative  
6 technologies to clean high sulfur coal through the acid rain program [and] and create[]  
7 enough of a market for clean fuels derived from grain and natural gas to cut dependency  
8 on oil imports by one million barrels/day.” *Id.*

9 Although the status of New Hampshire’s compliance with the Act is not within the scope  
10 of the LCIRP, the increased use of natural gas will have a positive contribution toward  
11 achieving New Hampshire’s required emissions levels under the Act. Since the LCIRP  
12 describes how the Company can meet its growing customer demand over the planning  
13 period, and increased natural gas usage is specifically and favorably referenced in the Act  
14 (likely because natural gas most often displaces other more polluting fuels such as oil and  
15 propane for heating, as will likely be the case with most of EnergyNorth’s new  
16 customers), the LCIRP would likely have a positive impact on New Hampshire’s  
17 compliance with the Act.

18 Stated differently, since the displacement of higher polluting fuels (e.g., oil) by a  
19 customer choosing natural gas reduces emissions, delivery options that enable that  
20 decision to use natural gas facilitate the State of New Hampshire’s achievement of the  
21 objectives outlined in the Act. Both the Granite Bridge Pipeline and Concord Lateral

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1 would enable customers to convert to natural gas; however, only the Granite Bridge  
2 Pipeline provides currently unserved towns the ability to choose natural gas. As such, all  
3 else being equal, the Granite Bridge Pipeline would provide more opportunity for the  
4 State of New Hampshire to meet its objectives under the Act. To the extent the  
5 Commission must consider how (i) the increased availability of natural gas and (ii) the  
6 increased displacement of other higher polluting fuels are impacted by the Company's  
7 choices from the options described above, it is the Company's position that any choices  
8 that increase the likelihood of expanded natural gas usage would have a positive impact  
9 on New Hampshire's achievement of its requirements under the Act.

10 **Q. How did the Company interpret the requirement to assess the LCIRP's "long- and**  
11 **short-term environmental, economic, and energy price and supply impact[s] on the**  
12 **state," as required by RSA 378:38, VI?**

13 A. The Company interpreted the "environmental ... impact" portion of this statute the same  
14 as subsection V above. As for this subsection's reference to "economic and energy price  
15 and supply impact[s]" on the state, the Company addressed these factors in the LCIRP  
16 itself.

17 **Q. Please describe the Company's approach to assessing the "potential...health-related**  
18 **impacts of each option proposed in the LCIRP."**

19 A. Since the potential health-related impacts are directly related to air emissions, which are  
20 based upon the results of the assessment of environmental impacts, the Company's

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1 assessment of the health-related impacts of each option is subsumed in the environmental  
2 analysis discussed below.

3 **Q. Please assess the environmental impact of the two delivery options available to**  
4 **EnergyNorth.**

5 A. As discussed above, the Granite Bridge Pipeline provides certain benefits to the  
6 customers of EnergyNorth including a second feed for enhanced reliability and overall  
7 pressure support for the Concord Lateral. The interconnection location between the  
8 Granite Bridge Pipeline and the Concord Lateral coupled with the higher pressure from  
9 the Joint Facilities results in the Granite Bridge Pipeline providing higher operating  
10 pressure on the Concord Lateral. Specifically, construction of the Granite Bridge  
11 Pipeline would allow additional natural gas supply to be delivered at 750 pounds per  
12 square inch ("psi") into the Concord Lateral in Manchester. During high demand winter  
13 months, the Company has experienced reduced pressures along the Concord Lateral,  
14 sometimes as low as 300 psi. The Granite Bridge Pipeline is uniquely situated to  
15 provide additional pressure support without the need for additional, on-system  
16 compression, because it is providing a direct connection from the existing Joint Facilities  
17 to the Concord Lateral. The maximum allowable operating pressure ("MAOP") of the  
18 Joint Facilities pipeline in Exeter, New Hampshire, where the Granite Bridge Pipeline  
19 connects, is 1,440 psi, while the MAOP of the Granite Bridge Pipeline is expected to be  
20 950 psi. This pressure differential is sufficient to push natural gas the entire length of the  
21 Granite Bridge Pipeline from Exeter to Manchester without the need for on-system  
22 compression.

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1 To achieve similar pressure support as the Granite Bridge Pipeline, the Concord Lateral  
2 upgrade would require incremental compression or higher utilization of existing  
3 compressor stations resulting in additional fuel combustion, which would have  
4 incremental emissions as compared to the Granite Bridge Pipeline.

5 Therefore, the inclusion of environmental and health-related impacts with respect to the  
6 Company's assessment of delivery options continues to support the decision to develop  
7 the Granite Bridge Pipeline.

8 **Q. Please assess the environmental impact of the three supply options available to**  
9 **EnergyNorth.**

10 A. As discussed above, the Company identified three supply options (i.e., ENGIE, Repsol,  
11 and PXP) as potential resources to meet the increase in forecasted demand. The ENGIE  
12 option utilizes its existing transportation capacity on Tennessee and, specifically, the  
13 Concord Lateral to deliver gas supplies to the Company. As such, ENGIE is the only  
14 option to provide incremental supply to the Company using existing pipeline facilities  
15 resulting in no incremental emissions. The other two options (i.e., Repsol and PXP) are  
16 accessible to the Company by either of the delivery options (i.e., Granite Bridge Pipeline  
17 or a Concord Lateral expansion). As such, the choice of the supply option does not result  
18 in any incremental emissions associated with the deliveries of those supplies to the  
19 Company. Stated differently, since both supply options have access to both delivery  
20 options (i.e., they are delivered in the same fashion using the Granite Bridge Pipeline or  
21 Concord Lateral expansion), there are no unique differences that would result in one

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1 supply option having more environmental and health-related impacts than the other as  
2 result of the delivery of that supply option.

3 **Q. Has the Company provided sufficient information for the Commission to assess the**  
4 **“potential environmental, economic, and health-related impacts of each option**  
5 **proposed in the LCIRP”?**

6 A. Yes, the Company has provided sufficient information for the Commission to assess the  
7 environmental and health-related impacts of each option in the testimony above, and the  
8 Company provided substantial economic information to address the economic impacts of  
9 the supply and delivery options in the LCIRP.

10 **Q. Does this conclude your testimony?**

11 A. Yes.

## **CURRICULUM VITAE OF WILLIAM R. KILLEEN**

### **Work Experience:**

Liberty Utilities (Canada) Corp. (2014 - Present)  
Director, Energy Procurement (2017-); Director, Regulatory Strategy (2014-2017)

Enersource Hydro Mississauga Inc. (2011 – 2014)  
Manager, Regulatory Affairs

Ministry of Energy, Energy Supply and Competition Branch (2011)  
Senior Advisor, External Energy Supply

ECNG Energy LP (2003 -2010)  
Director, Energy Supply and Regulatory

Direct Energy (2002-2003)  
Manager, Regulatory Affairs

Engage Energy Canada Inc. (2001-2002)  
Manager, Marketing and Sales

Union Gas Limited (1989 – 2001)  
Team Leader, Customer Support Services  
Manager, Gas Supply Planning  
Coordinator, Regulatory Affairs

### **Education:**

Masters of Business Administration, Richard Ivey School of Business, University of Western Ontario (now Western University), 1989

Bachelor of Engineering Science, Chemical Engineering, University of Western Ontario (now Western University), 1985

### **Appearances before the Ontario Energy Board (on behalf of Union Gas):**

EBRO 499  
EBRO 493-04/494-06  
EBRO 493/494  
EBRO 486-04  
EBRO 486-03  
EBRO 486  
EBO 174

EBLO 243  
EBRM 103  
EBRM 104  
EBLO 244  
EBRO 476-03

**Appearances before the Ontario Energy Board (on behalf of Enersource):**

EB-2012-0033

**Other Representations at the Ontario Energy Board:**

EB-2002-0130  
EB-2005-0520  
EB-2008-0106  
EB-2008-0219  
EB-2008-0292

**Other Testimony (on behalf of Liberty Utilities):**

Arkansas Public Service Commission - Docket No. 14-020-U — on behalf of Liberty Utilities (Pine Bluff Water) Inc.

Arizona Corporation Commission — Docket Nos. SW-02361A-15-0206 & SW-02361A-15-0207 (consolidated) — on behalf of Liberty Utilities (Black Mountain Sewer) Corp.

Arizona Corporation Commission — Docket Nos. WS-02676A-15-0368 & WS-02676A-15-0371 (consolidated) — on behalf of Liberty Utilities (Rio Rico Water & Sewer) Corp.

Arizona Corporation Commission — Docket Nos. W-02465A-15-0367 & W-02465A-15-0370 (consolidated) — on behalf of Liberty Utilities (Bella Vista Water) Corp.

Arizona Corporation Commission — Docket No. SW-02361A-16-0085 — on behalf of Liberty Utilities (Entrada Del Oro Sewer) Corp.

California Public Utilities Commission – Docket No. 15-11-009 – on behalf of Liberty Utilities (Calpeco Electric) LLC

Georgia Public Service Commission – Docket No. 41870 – on behalf of Liberty Utilities (Peach State Natural Gas) Corp.

Montana Public Service Commission – Docket No. D2016.2.15 – on behalf of Mountain Water Company



Massachusetts Department of Public Utilities – Docket No. D.P.U 18-68 – on behalf of Liberty Utilities (New England Natural Gas) Corp.

Massachusetts Department of Public Utilities – Docket No. D.P.U 18-92 – on behalf of Liberty Utilities (New England Natural Gas) Corp.

New Hampshire Public Utilities Commission – Docket No. DG 17-198 – on behalf of Liberty Utilities (EnergyNorth Natural Gas) Corp.

Texas Public Utilities Commission – Docket No. 46256 – on behalf of Liberty Utilities (Woodmark Sewer) Corp. and Liberty Utilities (Tall Timbers Sewer) Corp.

**Memberships:**

Professional Engineers of Ontario  
Ontario Society of Professional Engineers