

STATE OF NEW HAMPSHIRE
PUBLIC UTILITIES COMMISSION

DG 20-049

Liberty Utilities (EnergyNorth Natural Gas) Corp.

d/b/a Liberty Utilities

Cast Iron Bare Steel Replacement Program

Direct Testimony

of

Randall S. Knepper
Director – Safety Division

June 12, 2020

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

2 A. My name is Randall S. Knepper. I am employed as the Safety and Security Director of the
3 Safety Division for the New Hampshire Public Utilities Commission. My business address is
4 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
7 Rochester and a Master of Science in Civil Engineering from the University of
8 Massachusetts. I am a licensed Professional Engineer in the State of New Hampshire,
9 License No. 9272. For continuing education, I have completed 21 Technical Training
10 Courses and 23 Online Training Sessions provided by the Training and Qualification Center
11 of the Pipeline and Hazardous Materials Safety Administration (PHMSA). See RSK
12 Attachment 1.

13 I have been the Director of Safety for the New Hampshire Public Utilities Commission
14 since December 2004. Prior to that I was an Environmental Consultant and Business
15 Development Manager at The Smart Associates, Environmental Consultants, Inc., located in
16 Concord, New Hampshire. For 16 years I was employed at a local gas distribution company.
17 My previous work experience included a number of Business and Operations roles at
18 Keyspan Energy Delivery New England (Keyspan) and EnergyNorth Natural Gas Inc.
19 (EnergyNorth), including Key Account Executive, Commercial & Industrial Sales Manager,
20 Sales Engineer, Senior Engineer, Staff Engineer, and CAD Supervisor. For many of those
21 years, I designed natural gas distribution systems, recommended capital improvement
22 projects, recommended system expansions, wrote Operations and Maintenance procedures,
23 and oversaw construction projects. While performing the duties of each of these occupations
24 I was responsible for compliance related to applicable local, state, and federal codes. Prior to

1 my utility experience I worked at Westinghouse Electric designing high voltage transmission
2 lines as a Project Engineer.

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

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

8 A. Yes. I am a member of the Association of Energy Engineers (AEE). I serve on multiple
9 committees of the National Association of Pipeline Safety Representatives (NAPSR),
10 including prior positions as Chair and Past Chair. I have served as editor of all of the past
11 editions of NAPSR's *Compendium of State Pipeline Safety Requirements & Initiatives*
12 *Providing Increased Public Safety Levels Compared to Code of Federal Regulations*. I
13 currently chair the Staff Pipeline Safety Subcommittee of the National Association of
14 Regulatory Commissioners (NARUC); I serve on the Common Ground Alliance Technology
15 Committee; I am appointed as a member of the Gas Technology Institute's Public Interest
16 Advisory Committee; and I am a board member of the New Hampshire Public Works
17 Standards and Training Council. Finally, I have testified before the United States Congress
18 on pipeline safety issues.

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

20 A. My testimony is comprised of the following elements:

21 1) Comments on the final reconciliation of the FY 2020 CIBS program that will terminate
22 with this proceeding in accordance with Commission Order No. 26,266 (June 28, 2019),
23 issued in Docket DG 19-054;

1 2) Recommendations for future Commission consideration regarding aged and worn pipe
2 replacement programs.

3 **Q. Would you please summarize the process the Safety Division has used to review**
4 **Liberty's cast iron and bare steel replacement program since its inception?**

5 A. A complete detail of the parameters of the CIBS program is included in Attachment J,
6 Section 20 of the Settlement Agreement approved in Order No. 25,370 (May 30, 2012),
7 approved in Docket DG 11-040 concerning the Liberty Utilities acquisition of EnergyNorth
8 Natural Gas from National Grid. A copy of Attachment J, Section 20 is provided as RSK
9 Attachment 2 to my testimony.

10 Safety Division Staff reviewed the Company's written reports of actual cutouts of
11 certain segments of bare steel mains that were replaced in CIBS FY 2020 (April 1, 2019-
12 March 31, 2020) through this program. The CIBS Program requires sample physical cutouts
13 of bare steel mains to be hand-delivered to the Safety Division for examination by its Staff.
14 Staff does not require physical cutouts of cast iron mains. The condition reports prepared by
15 the Company provide the Safety Division with valuable pipeline integrity data, including
16 pipeline wall thickness, pipeline age, soil conditions, system pressure, and location
17 information of bare steel pipe segments related to various types and vintages of removed bare
18 steel segments. These characteristics determine integrity and corrosion assumptions that
19 should be incorporated into distribution integrity management planning. Since the program
20 inception, Staff has continually seen deep pitting, seam cracks, holes, and other undesirable
21 features of the bare steel mains. For CIBS FY 2020, 4 projects required bare steel
22 replacement that necessitated written condition reports; 1 of the 4 bare steel pipe locations
23 included in the report had 100% wall loss (i.e., holes) and 2 of the 4 had wall losses of at

1 least 50%.¹ This indicates that the pipeline in question had far exceeded acceptable safety
 2 requirements and was leaking 24 hours a day, 365 days per year, with ratepayers bearing the
 3 expense through the cost of gas adjustment recovery mechanism. The average age of these 4
 4 selected bare steel main projects was 72.5 years of service from installation to replacement.
 5 Since 2009, 63² individual reports have been completed regarding bare steel segments, which
 6 is an average of 5.25 per year. The average age of each bare steel segment removed is 83.1
 7 years, excluding two reports where Liberty could not determine the age of the segment
 8 removed. See RSK Attachment 3 and RSK Attachment 4 for additional details related to the
 9 historical CIBS program written bare steel reports.

10 According to its most recent CIBS filing, Liberty has reduced the amount of leak prone pipe
 11 from 68.74 miles in FY 2019 to 55.83 miles in FY 2020³. This 12.91 mile decrease includes
 12 11.13 miles as a result of the CIBS program (10.55 miles replaced plus 1.56 miles
 13 abandoned, less 0.97 miles related to coated steel and plastic mains.)⁴. The remainder of the
 14 12.91 mile decrease is comprised of 1.78 miles⁵ related to municipal work and Liberty's cast
 15 iron encroachment policy; both are considered beyond the scope of the CIBS program.

16 Included in the 10.55 miles replaced is 3.97 miles of leak prone pipe that was upsized.

17 **Q. Compared to the FY 2019 CIBS Program, how does the overall cost per foot of mains**
 18 **replaced compare from year to year?**

¹ See Liberty Mostone/Frost (RAM-BRF) Testimony, Attachment at BP 025 to 029.

² Liberty and its predecessor companies have provided 63 written reports to date. Two of the reports submitted were on coated steel segments in FY2010, thus only 61 were required. In 4 written reports Liberty did not identify the age of pipes; in those cases Staff assumed an age based on installation dates of nearby mains in the vicinity and a review of service documentation.

³ The source of this mileage is Liberty Attachment CAM-1, page 4 of 4, Bates Page 045 (line 13).

⁴ The source is Liberty Attachment RAM-BRF-2 AJ52, Bates Page 030, (Note Liberty states cell R52 is 1.56 abandoned miles but 3 projects were not started so need to exclude .05 miles of potential abandonment. This is derived from 260ft /5280 ft/mile associated with R40 Ledge St and Ramon Avenue in Nashua). Note 11.14 is attained through rounding but 11.13 is used throughout Liberty testimony.

⁵ The source is Liberty RAM-BRF Testimony, Bates Page 009 line 16, and Attachment RAM-BRF-1, Bates Page 023.

1 A. Liberty in FY 2020 incurred costs per mile of mains replaced of \$1.919 million per mile,
2 which is equivalent to \$363/ft.⁶ Liberty in FY 2019 incurred cost per mile of mains replaced
3 of \$1.687 million per mile which is equivalent to \$319.5/ft. This is a rather large 12%
4 increase in a single year where more main was replaced and typically receives a lower
5 amount of allocated overhead costs. In most cases, the overall cost per foot of main replaced
6 decreases as the quantity replaced increases but this did not occur in FY 2020. Liberty's
7 explanation is comprised of three main factors:

- 8 1) more segments are located in asbestos contaminated areas of Hudson, which requires
9 expensive construction delays and expenditures;
- 10 2) increased municipal costs associated with primary arterial streets requiring increased
11 traffic control requirements and restricted hours per day to accomplish work; and
- 12 3) higher per unit costs of bids received from a new five-year gas contract for construction
13 and replacement services.

14 Liberty testimony in this docket describes Liberty's performance as able to "successfully
15 manage" the CIBS program as a whole despite its FY 2020 variances of actual costs to
16 estimates of 15% for loaded costs and 27% between estimates and actual costs on a direct
17 cost basis.⁷ Liberty describes the overall 15% variance as "slightly elevated".

18 Of the 39 projects proposed in January 2019, 3 were not initiated. Of the remaining 36
19 projects, 7 were not completed and were extended into the FY 2021 season. These 7
20 projects, which had significantly reduced the scope of the project, prevented the overall
21 variances from being even higher since they were considered negative variances. Nearly half

⁶ Source: Liberty RAM-BRF Testimony stating \$21,369,317 in costs incurred for 11.13 miles replaced. Bates Page 008 line 16. This is equivalent to \$363/ft.

⁷ Liberty RAM-BRF Testimony. Bates Page 011 line 16 -18, 21 and Bates Page 013 Line 18.

1 of the projects, 13 of the 29 completed projects had variances higher than 27%. Beyond
 2 those projects listed, another four of the projects had variances that doubled or more than
 3 doubled the initial estimate. The highest variance was more than 2.5 times the original
 4 estimate where the estimated cost was \$346,298 and the actual loaded cost was \$870,165.
 5 All combined, this made FY 2020 the highest per unit cost of replacement projects that
 6 Liberty has undertaken and is reflected in the incremental revenue requirement of
 7 \$14,885,260.⁸ If the CIBS base amount provision, carryover cost limitations, upsizing,
 8 abandonment, and non bare steel service cost recovery limitations were not included,
 9 Liberty's revenue requirement would have been \$21,369,387.⁹

10 **Q. Are there any other notable events included in Liberty's FY 2020 reconciliation?**

11 A. Yes, for the first time a Keene cast iron replacement project was included in the CIBS
 12 program. A single project in Keene on Marlboro Street and Martin Street consisting of 4,710
 13 feet and costing \$776,178 was included. While there was a single footnote in last year's
 14 CIBS FY 2019 attachment that revenues of Keene were being combined with the remainder
 15 of Liberty's revenues, there was no project included as a replacement project in CIBS FY
 16 2019. In CIBS FY 2020 CAM-1 Attachment BP 045 includes the same footnote but Liberty
 17 did include the project mentioned above. The original January 2019 proposed project list
 18 submitted to Staff by Liberty did not contain a Keene project, but the May 2019 project list
 19 submitted to Staff did contain the Marlboro Street project in Keene. The Safety Division did
 20 not notice the project because it was listed in the Company's Southern Division, where in
 21 most other Company filings the Keene Division is separated and is not included as part of the
 22 Southern Division. Staff noted that the corresponding amount of cast iron remaining in

⁸ Liberty RAM-BRF Testimony, Bates Pages 019, 020.

⁹ Liberty RAM-BRF Testimony, Bates Page 008 line 16, Bates Page 020, and 021.

1 Keene does not appear to be reflected in associated line 13 of CAM-1 attachment in FY 2020
 2 or FY 2019. Staff once again believes Liberty should prepare a comprehensive business plan
 3 for Keene prior to undertaking large projects in its Keene territory so that Staff can be better
 4 informed if the upsized project comports with the overall plan for Keene, including whether
 5 the low pressure system will remain and how the conversion plans to CNG will be
 6 implemented. Since the CIBS accelerated recovery program will terminate with this
 7 proceeding, the approximately 6.75 miles¹⁰ of cast iron in Keene will not have to be updated
 8 or included in a filing with the Commission going forward.

9
 10 Liberty abandoned 13 bare steel services and replaced 230 bare steel services with
 11 polyethylene. 247 existing services that were coated steel or polyethylene were tied over
 12 from the retired leak-prone main to the newly installed polyethylene mains. 20 new services
 13 were installed to customers along that main that were previously not customers of Liberty.
 14 The 20 new services was the highest amount Liberty has achieved during the course of the
 15 CIBS program.

16
 17 **Q. Does Liberty still commit to replacing the remaining bare steel and cast iron by 2024 as**
 18 **previous testimonies in prior CIBS proceedings had projected.**

19 A. No, Liberty's FY 2020 testimony does not mention any future replacement timelines. RSK
 20 Attachment 5 includes a Company discovery response that indicates that 2024 is no longer
 21 Liberty's goal for completion of all CIBS pipe replacement in its service territories. Given
 22 the 55 miles of existing systems and the inclusion of the 6.75 miles of cast iron within the

¹⁰ Liberty PHMSA 7100.1 reports, filed annually with Safety Division, reflect 6.756 miles of cast iron remain in Keene as of December 31, 2019.

Keene system into Liberty's replacement program, coupled with other significant projects that Liberty is planning, it is doubtful that the Company will complete all replacements by 2024, as it had originally said it would do. Absent a Commission mandate to have leak prone pipe removed by a certain date, Liberty can prolong the replacement rate.

Q. Does Staff recommend an end date for replacement work be established as part of this final CIBS proceeding?

Yes, Staff recommends that the Commission require Liberty to set a targeted goal to remove and replace all remaining cast iron and bare steel mains from its distribution system by the end of calendar year 2025, with the exception of mains equal to or greater than a 10 inch nominal diameter and mains associated with the Keene system. Downstream bare steel services attached to such remaining mains should also be targeted. Liberty should notify Commission Staff when the final main is removed.

Q. With the termination of the CIBS program, is Liberty required to annually file detailed cost estimates and descriptions of the remaining replacement work with a quantification of services replaced? Does the information provide valuable data for tracking metrics?

A. No, with the termination of the CIBS program, Liberty is no longer required to file such reports or provide physical samples of replaced bare steel mains. Nor is a hearing on the status of the program for cost recovery required. However, that data would provide a full accounting on a segment by segment basis of the many construction replacement projects that Liberty is undertaking and would allow the Safety Division to compare replacement project records against leak reports, odorization reports and capital expenditures. It would also give an indication of where crews will be located for planning Safety Division inspection work and the type of Liberty work to be accomplished at any given time.

Q. What options are available for the Commission to implement such a requirement?

A. There are 3 potential options:

1) The Commission can include within this docket a provision that orders Liberty to provide the same records and materials that it has been providing for the past 12 years, similar to page 16 of Attachment RAM/BRF BP030 for replacement work and Attachment CAM-1 BP 047-050 for impacts.

2) The Commission can require that Liberty provide sufficient detail each May in its E-22 report of capital expenditures, as required by Puc 509.11. RSK Attachments 6A, 6B and 7 provide samples of the detail of replacement work capitalized in Liberty's budgeting (6A), of what Liberty provided on the E-22 for FY 2021, filed in May of 2020 (6B), and what it provided with a data response that provides much more detail (7).

3) The Commission can also require enhanced details to be provided on daily crew reports that indicate work order number, system pressure, replacement project description and length, and clearer description of the work activities to be accomplished. Daily crew reports are required as part of Commission Order No. 25,370 in Docket DG 11-040 as part of Settlement Attachment J, item 14 but lacks details regarding what types of information should be included in the daily crew report. RSK Attachment 8 is a sample of a Liberty daily crew report. The Commission has the authority to require Options 1, 2, and 3, or any combination of those.

Q. Which options are recommended by Staff?

A. Staff believes information on the E-22 that is supplemented with details as shown in RSK Attachment 7 would be sufficient for the replacement work. Combined with Option 3, that approach would allow future tracking of significant expenditures and would allow for limited inspection comments for future audits and improved rate case reviews. Staff would propose

1 similar changes to the E-22 form in a future Puc 500 rulemaking and this remedy would be
2 sufficient in the interim.

3 **Q. What are the results of Staff's Audit?**

4 RSK Attachment 9 is the Commission Staff audit of Liberty's CIBS FY 2020 program
5 conducted by Anthony Leone, a Utility Analyst in the Gas Division. In summary, the
6 Analyst reviewed work orders, supporting documents, invoices, journal entries, Excel
7 spreadsheets of the FY 2020 CIBS Program, and any other necessary supporting
8 documentation that would substantiate the information presented in the Company's filings.

9
10 **Q. Did Liberty produce a report regarding the number of Conversions of Non Gas**
11 **Customers?**

12 No, Commission Order No. 25,370 did not require Liberty to provide any statistics regarding
13 Liberty customer additions for mains associated with the CIBS program as had been required
14 in previous Commission Orders. Liberty did state that 20 customers were added for FY
15 2020, compared to 16 in FY 2019 and 6 in FY 2018. It did not indicate that there were any
16 changes to its marketing program, or that Liberty would continue marketing efforts going
17 forward, given the Company's testimony in prior CIBS dockets that it does not believe
18 marketing to be a fruitful exercise to encourage customer service additions.

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

20 A. Yes