STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION

Docket No. DG 18-XXX

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities
Cast Iron/Bare Steel Replacement Program Results

JOINT DIRECT TESTIMONY

OF

SHAWN D. FUREY

AND

BRIAN R. FROST

April 16, 2018

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I. INTRODUCTION

Mr. Furey

Q. Please state your name and business address.

A. My Name is Shawn D. Furey. My business address is 130 Elm Street, Manchester, New Hampshire.

Q. By whom are you employed and in what capacity?

A. I am employed by Liberty Utilities Service Corp. as the Manager of Gas Operations (Construction) for Liberty Utilities (EnergyNorth Natural Gas) Corp. ("EnergyNorth" or "the Company").

Q. On whose behalf are you testifying today?

A. I am testifying on behalf of EnergyNorth.

Q. Mr. Furey, please state your educational background and professional experience.

A. In 2008, I received a Bachelor of Science degree in Mechanical Engineering from the University of Massachusetts Lowell. I have attended several training seminars and courses conducted by various organizations such as the National Association of Corrosion Engineers (NACE), the Northeast Gas Association (NGA).

In April 2017, I assumed my current position as Manager of Gas Operations (Construction) where my responsibilities include overseeing construction activities for various programs such as the Cast Iron/Bare Steel ("CIBS")

Replacement Program, City/State construction, and growth and reliability projects in New Hampshire. From 2007 to 2008, I was employed by KeySpan Energy Delivery where I was an intern for the Corrosion Department. From 2008 through 2013, I worked as a Gas System Operator in the Gas Control Room and as an Engineer in the Asset Replacement Department at National Grid. From 2013 through March 2017, I worked as a Corrosion Engineer for the Company.

Q. Have you previously testified before this Commission?

A. No, I have not.

Mr. Frost

Q. Please state your full name, business address and position.

A. My name is Brian R. Frost. My business address is 15 Buttrick Road, Londonderry, New Hampshire. I am a Senior Engineer for Liberty Utilities Service Corp. in New Hampshire and provide engineering services to EnergyNorth.

Q. Please describe your educational background and training.

A. In 2007, I received a Bachelor of Science degree in Mechanical Engineering from Rochester Institute of Technology. I have also attended the Appalachian Gas Measurement Short Course and NGA Gas Operations School.

Q. Please describe your professional background.

A. In April 2016, I assumed a position in Project Engineering for EnergyNorth where my responsibilities include analyzing, prioritizing, and selecting the gas main replacement projects under the CIBS Program. From 2008 to 2016, I worked for New York State Electric & Gas Corporation as an Engineer mainly specializing in the writing and maintenance of gas construction standards and operating and maintenance procedures. In 2005 and 2006, I worked as a college intern at Rochester Gas and Electric Corporation in the Gas Engineering department.

Q. Have you previously testified before the Commission?

A. Yes, I testified in Docket No. DG 17-063, the 2017 Cast Iron/Bare Steel Replacement Program Results docket.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your testimony?

A. The purpose of our testimony is to explain the Company's annual program report associated with the CIBS main replacement program for fiscal year ("FY") 2017-2018, or the twelve months ending March 31, 2018 ("FY 2018").

III. IMPLEMENTATION OF THE CIBS PROGRAM

Q. Please describe the purpose of the CIBS program.

A. The CIBS program was established as part of the National Grid/KeySpan merger settlement agreement approved by the Commission in Order No. 24,777 (July 12, 2007) in Docket No. DG 06-107, and the settlement agreement in Docket No. DG

11-040 approved in Order No. 25,370 (May 30, 2012). The program's goal is to accelerate the replacement of cast iron and bare steel pipes used in the Company's distribution system, which tend to deteriorate over time. These are pipes that have been in ground and exposed to a corrosive environment and earth movement for a long time, in some cases more than one hundred years.

Q. How is the CIBS program implemented?

A. Under the CIBS program, the Company annually submits to Commission Staff for review and comment its plan for the replacement of cast iron and bare steel pipes for the coming fiscal year, which begins in April.[1] The proposed plan sets forth a prioritized list of pipes to be replaced based on the year of installation, condition of the pipe, and other relevant factors. Subject to certain limited exceptions, pipes replaced as part of public works projects or as part of the Company's gas main encroachment policy are excluded from the CIBS program because those pipes would likely have been replaced even in the absence of the program. Following review by Staff, including technical sessions between Staff and the Company, Liberty implements the CIBS plan over the course of the construction season, subject to reasonable deviations based on circumstances that may arise or additional information that may become available.

[1] The CIBS fiscal year begins in April and concludes in March of the following year.

The Company is required to spend a base amount each year on the CIBS program. The base capital expenditure amount required under the FY 2018 CIBS program is $527,275 ("CIBS Base Amount"). The Company is allowed a permanent increase in its base distribution delivery rates ("Capital Investment Allowance"), effective July 1 of each year, to recover the annual revenue requirement for investments made in excess of the CIBS Base Amount during the preceding fiscal year. A copy of the CIBS report is included as Attachment SDF/BRF-1 and includes, among other things, an overview of the actual capital expenditures incurred in implementing the FY 2018 CIBS Plan, and variances between the initial project estimated costs and final project actual costs, with comments on variances. Also included with the Report is a FY 2018 Condition Bare Steel Main Replacement Program – Sample Analysis, which describes the steel pipe and soil samples collected from CIBS projects completed over the course of the FY 2018 construction season.

IV. FY 2018 CIBS PROGRAM

Q. Please describe the FY 2018 CIBS program.

A. The FY 2018 CIBS program was based on a preliminary project plan developed by the Company in January 2017 and agreed to by Staff during a technical session on April 18, 2017. The initial plan for the FY 2018 CIBS program consisted of forty-five projects that included the replacement or abandonment of approximately 13.23 miles of Cast Iron/Bare Steel Leak Prone Pipe. Thirty-eight of the planned projects were completed, with only one project resulting in

significant scope reduction. Construction work for the seven uncompleted projects and pipe affected by the reduced scope of one project is expected to be completed during the FY 2019 CIBS program. The thirty-eight completed projects eliminated 11.6 miles of leak prone pipe at a total cost of $15,313,206 (including estimated carryover costs). The program also included the replacement, insertion, or abandonment of 831 associated services, of which 364 were bare steel and 467 were coated steel or plastic. As part of the work performed, 230 services were transferred, 16 new plastic services were installed, and one bare steel service was abandoned.

The Company increased the amount of CIBS main replaced or abandoned during the FY 2018 program as compared to figures from the preceding year FY 2017 program -- 11.6 miles versus 10.3 miles. The Company remains committed to, and is on track for, completing the removal of substantially all of the leak prone pipe and associated bare steel services by 2024.

Q. Is all of the replacement main installed as part of the FY 2018 CIBS Program used and useful?

A. Yes. All of the main installed and related capital improvements are used and useful and providing service to customers.

Q. Did the Company replace any other leak prone pipe outside of the CIBS program?

A. Yes. In FY 2018, the Company replaced 30 feet of cast iron through the Cast Iron Encroachment Policy and 15,570 feet of cast iron and bare steel through municipal projects, totaling to 2.95 miles of replacement.

V. COSTS OF FY 2018 CIBS PROGRAM

Q. What were the total costs incurred during the FY 2018 CIBS program?

A. As Attachment SDF/BRF-2 shows, total implementation costs for the FY 2018 CIBS program are expected to be $17,982,014. This number includes $15,313,206 spent on FY 2018 projects during the program year, $2,668,808 incurred as carryover costs from the prior year's program (FY 2017), and an estimated future carryover cost of $3,698,261. Of the costs incurred during the FY 2018 program year, $10,247,781 are recoverable under CIBS rates. This leaves $2,102,965 incurred for unrecoverable costs such as tie-over of plastic services, or replacement of short lengths of plastic pipe where efficient, etc.

Q. Are there any carry-over costs from FY 2017 CIBS projects that the Company incurred in FY 2018?

A. Yes. As shown on Attachment SDF/BRF-2, line 83 column BE, there will be a total of $2,718,259 of estimated carry-over costs from FY 2017 to FY 2018, as compared to $585,800 in carry over costs from FY 2016 to FY 2017. All of the carry-over costs are related to final trench restoration work that could not be

completed in the planned fiscal year due to city rules regarding minimum temperature requirements, or a requirement that trenches be allowed to settle for one full freeze-thaw cycle before final restoration.

Q. What are the unit costs for FY 2018?

A. The total loaded actual cost per foot for the FY 2018 program was $251 (including both carry-over costs and degradation fees) compared to the estimated cost per foot of $260. The average variance between the estimated and actual costs of FY 2018 completed projects was 4%. On a direct basis, the variance between actual and estimated costs was higher at 21% overall.

Q. What causes have increased unit and overall costs in FY 2018?

A. There were two major drivers of the increase in costs that occurred in FY 2018: full incorporation of Manchester degradation fees, and increased complexity of the projects being undertaken. First, FY 2018 was the first year of the program where Manchester paving degradation fees were fully included into the program. The City of Manchester paving degradation fee is five dollars per square foot of final pavement patch dimensions. Manchester's standard paving cutback is two feet on each side of the trench. Therefore, for a standard two foot wide trench excavation the degradation fee would be calculated based upon a six foot wide final patch, which is equal to $30 per foot of gas main installed. Additional degradation fee costs are incurred for gas service trenches and tie in excavations. The Manchester degradation fee costs are also significant to the CIBS program

overall because the City of Manchester contains the most remaining CIBS main mileage.

The second reason for higher unit costs in FY 2018 was increased complexity in the projects undertaken. Large quantities of buried asbestos were encountered on the sole CIBS project in the Town of Hudson because all remaining CIBS main in Hudson is located in areas of known buried asbestos contamination. The average unit cost for this Hudson project was $426 per foot which contributed approximately $4 per foot to total program costs. Additionally, permit time restrictions and ledge were encountered on other projects. Permit restrictions are work hour restrictions, typically preventing work during heavy traffic hours or school drop off/pickup times, enforced by municipalities. The lost work time raises overall project costs due to crew downtime. It should be noted from a gas system safety perspective, the Company places special emphasis on replacing mains located near schools, healthcare facilities, and in highly developed urban areas where permit restrictions typically occur.

Q. Please explain why there are fluctuations in the overheads and summarize how they are currently allocated.

A. Overheads are currently spread on a monthly basis as opposed to fixed percentage throughout the year. During the busy construction months, the Company will have a larger pool of direct cost over which to spread the overheads, causing a lower percentage of burdens. Spreading actual overhead on a monthly basis

causes a fluctuation in the percentage of burden applied to jobs. The current practice of allocating overheads consists of proportionately allocating categories of overhead cost to the direct capital cost incurred. Labor burden, which is comprised of payroll taxes, pension, time not worked, and benefits, is allocated to the direct capital labor charges from Company employees derived from employee timesheets. Back office work consisting of sales and work package preparation is allocated to the cost of the new services which are constructed. Corporate allocations, insurance, fleet, and telephone/internet are allocated to direct capital costs incurred. Construction supervision, engineering, compliance, and plant accounting is allocated to direct capital costs incurred. The Company will continue to evaluate the process of allocating overheads to ensure that direct capital cost incurred receives a representative share of the overhead burden.

Q. What steps is the Company considering to limit increases in direct costs going forward?

A. The Company continues to monitor and evaluate the estimating process, crew productivity, and invoice review to ensure the bid units are used correctly and for their intended purposes. The Company also works closely with cities and towns to ensure that permits are obtained in a timely manner and crew down time is reduced to the greatest extent possible.

The Company has also focused on creating synergies with the municipalities where it does work. The Company meets regularly with the three major

municipalities (Nashua, Manchester, and Concord) where it does the bulk of the work. Where prudent, the Company endeavors to align CIBS work to occur in conjunction with municipally driven projects. By aligning work in this fashion, the Company is typically able to save on final restoration paving and paving degradation fees.

Q. Have there been any significant variances in the cost of work in the past year? If so, please explain the reasons for the variances.

A. No. Overall budget adherence on the FY 2018 CIBS program was excellent. On an overall basis for FY 2018 projects constructed, the Company's year-end cost variance was only 4%. On an individual project basis 15 out of the 38 projects completed had a cost variance greater than 20%. Construction variances for these 15 projects were roughly split between over- and under-cost. On the over-cost projects the causes generally centered on external factors such as ledge, environmental contamination, or work hour permit restrictions.

VI. FY2019 CIBS PROGRAM

Q. What is the planned scope of the FY 2019 CIBS Program?

A. The FY 2019 CIBS program has a total of 32 planned projects that will accomplish the replacement or abandonment of 13.83 miles of cast iron or bare steel pipe. The total estimated cost of the proposed program is approximately $21.4 million. Currently, it is estimated that there will be approximately $4.4 million of carryover costs from FY 2018 into FY 2019.

Q. Will the Company have sufficient crews to complete the FY 2019 CIBS work?

A. Yes. The Company plans to have approximately 30 construction crews completing work during the 2018 calendar year. Of those, approximately 13 crews will be focused on CIBS program work. The remaining construction crews will be focused on other growth, city/state, or reinforcement construction projects. During the 2017 calendar year, the Company made two changes to increase construction resources for the 2018 calendar year: on-boarding its own internal construction crew and successfully adding an additional contractor. This added an additional four crews that will be available for the 2018 calendar year. The Company also completed a comprehensive analysis based on historical construction productivity in order to predict and reserve availability of sufficient construction crews.

Q. What other steps is the Company taking to ensure completion of the FY 2019 CIBS work?

A. In FY 2019 the Company plans to start construction approximately one month earlier than the prior year. The Company has worked with both Nashua and Concord to ensure that construction can begin prior to April 15. The Company also employs a comprehensive resource management plan that looks at planned work units and compares them to historical completed work durations.

VII. CUSTOMER GROWTH ALONG CIBS ROUTES

Q. Order No. 25,918 in Docket No. DG 16-449 required the Company to provide the Staff with a report documenting the results of its market research conducted during this construction season and its plans for marketing to new customers going forward. Did the Company submit this report?

A. Yes. Attachment SDF/BRF-3 contains the report submitted on December 20, 2017.

Q. Please summarize the efforts the Company undertook in FY 2018 to market to potential customers along the CIBS routes.

A. For the FY 2018 CIBS campaign, the Company sent notification letters to all residents along the CIBS routes, both existing and potential customers, to inform them of the scope of work that would be taking place and to inform non-gas homeowners that the best time to convert to natural gas is when construction is underway. Additionally, the Company completed a manual data analysis so that homeowners who were not customers could be provided an additional personalized letter and marketing materials from the Company's Residential Account Sales Team. These letters are shown as Attachments SDF/BRF-4 and SDF/BRF-5.

The Company sent out a total of 1,419 letters. Of the 1,419 letters sent to homeowners, 1,265 were already natural gas customers. This indicates that only 154 homeowners along the FY 2018 CIBS routes were not customers, or that the

route already had a saturation rate of 89%. Out of the 154 letters that were sent to non-customers, the Company received 26 responses yielding a 17% response rate. Out of the 26 homeowners who contacted us, 16 had gas services installed in FY 2018, indicating a conversion success rate of 62%. Of the 16 services installed, 10 meters have been turned on.[2] The other six services should have meters installed by the end of FY 2019. In addition to sending letters, field crews hung door hangers on the doors of potential customers and spoke to potential customers who were home in an effort to get them to sign up for natural gas service.

Q. How many new customers did the Company obtain as a result of these efforts?

A. In FY 2018, the Company added 1,621 new customers, of which 16 resulted from sales and marketing efforts along CIBS routes. Overall, customers obtained as a result of CIBS projects represented approximately 1% of the Company's new customers in FY 2018. The saturation rate along CIBS routes was 89% in FY 2018.

Q. Is the Company marketing to potential customers along the CIBS routes being worked in FY 2019? If so, please explain how.

A. Yes. The Company will be mailing two letters tailored to each homeowner's individual situation (customer or non-customer).

[2] Number of FY 2018 CIBS new customers with meters turned on as of March 23, 2018.

Q. What are the historical saturation rates and customers gained from the CIBS marketing program?

A. The chart below describes saturation rates, responses, and customers gained along CIBS routes for the past four years.

	FY 2015	FY 2016	FY 2017	FY 2018
Saturation rate before mailing	87.3%	86.7%	94%	89.1%
Number of prospects	47	59	67	154
Number of responses	23	5	17	26
Number of conversions	15	4	12	16

Q. Why does the Company believe that there has been a low response rate to CIBS marketing?

A. The Company has found marketing along CIBS routes to be difficult for primarily three reasons. First, the CIBS routes typically have very high existing customer saturation rates due to gas service availability that often dates back over 100 years. Second, keeping the previous reason in mind, some homeowners along CIBS routes have an aversion to natural gas that is outside the Company's ability to convert them from their current fuel source. Lastly, equipment conversion costs are a third factor which precludes homeowners from converting.

Q. What have been the costs of CIBS marketing work so far?

A. The Company has attempted to personalize CIBS marketing as much as possible to non-customers along CIBS routes. Identifying potential customers is a labor

intensive process of comparing public property owner databases with the Company's account holder database. Over the past four years the Company has spent $29,383 on CIBS marketing to gain 47 customers, as detailed on the chart below. This has resulted in a four year rolling average cost of $625 per customer as compared to the average $585 annual margin for an R-3 rate class residential heating customer.

	FY 2015	**FY 2016**	**FY 2017**	**FY 2018**
Miles of Proposed CIBS Main	**3.85**	**8.74**	**9.43**	**13.65**
Hours spent on mailing	75	90	200	275
Cost of time (rounded to nearest dollar)	$3,225	$3,870	$8,600	$11,825
Cost of materials (rounded to nearest dollar)	$199	$239	$659	$766
Total Cost	$3,424	$4,109	$9,259	$12,591
Number of conversions (from table above)	15	4	12	16
Cost per conversion	$228	$1,027	$772	$787

Q. What are the results and costs for the Company's typical new customer marketing on main extension projects outside the CIBS program?

A. During FY 2018, the Company initially explored 19 separate main extension projects in order to increase its customer base. There were a total of 1,054 homeowner prospects within the projects initially pursued. Based upon its investigation, the Company completed detailed marketing and construction on

seven main extension projects that contained 413 homeowner prospects. Within these completed projects the Company was able to convert 207 homeowners to natural gas. Therefore, the conversion rate for the Company's FY 2018 main extensions was 50%, as opposed to a 9% CIBS conversion rate. Under the non-CIBS main extension program the average cost per customer gained, as shown on the chart below, was $33. This is in stark contrast to the $625 per new customer four-year average spent on CIBS marketing.

	FY 2018
Hours spent on mailing	45
Cost of time (rounded to nearest dollar)	$1,952
Cost of materials (rounded to nearest dollar)	$4,803
Total Cost	$6,756
Total new customers	207
Total Cost per new customer	$33

Q. Does the Company believe that the increased CIBS marketing requirement has been beneficial?

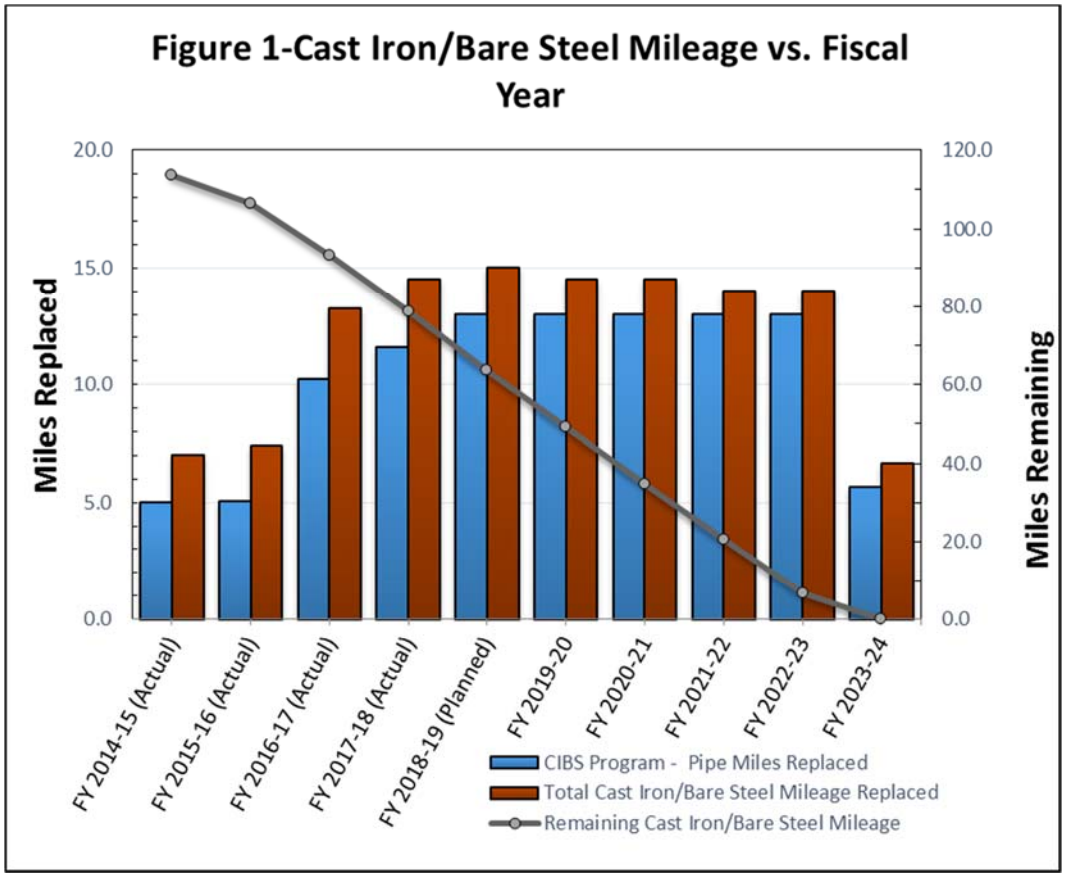
A. Not particularly. Although a small number of customers have been added due to marketing along the CIBS routes, the cost of acquiring a new customer along those routes is much too high as compared to other marketing opportunities to justify continued efforts. Plus, it does not appear that the extra effort and cost incurred to ramp up the marketing effort over recent years has yielded better results, perhaps because of the barriers described above. The Company proposes

to continue notifying customers along CIBS routes of the upcoming construction, with appropriate information if they are interested in converting to natural gas, but proposes not to engage in the extra time-consuming and expensive efforts that have not borne fruit. The Company believes that its customers are better served by pursuing more cost effective marketing opportunities.

VIII. THE ACCELERATED CIBS SCHEDULE

Q. Please provide an update to the Company's ten-year plan for accelerated CIBS replacement.

A. The Company is still on pace to complete the 10-year CIBS replacement plan to eliminate all leak-prone pipe ("LPP") by year 2024. Currently, there are 78.7 miles of LPP remaining in the Company's system. LPP includes vintage cast iron, bare steel, and wrought iron main pipes that have a high risk of main breaks and corrosion, and replacement of the bare steel services along the route. Figure 1 below describes the Company's actual progress and forward forecast related to meeting the 10-year accelerated CIBS replacement plan.



In the chart, the blue bar represents miles of cast iron and bare steel replaced under the CIBS program and the red bar represents total cast iron & bare steel replaced (including public works and encroachments). The Company has planned approximately 13.8 miles of LPP replacement through CIBS and 2.0 miles of LPP replacement through municipal projects for FY 2019. Going forward, if the Company maintains a replacement rate of 13 miles of LPP under the CIBS program and one to two miles of LPP in conjunction with municipal work, the 10-year planned schedule is expected to be met.

Q. Does this conclude your testimony?

A. Yes, it does.