

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

**DG 19-054**

**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**

**May 24, 2019**

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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 22 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 of Chair and Past Chair. I served as editor of each of the biennial  
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  
15 Technology committee; I am appointed as a member of the Gas Technology Institute's  
16 Public Interest Advisory Committee; and I am a board member of the New Hampshire  
17 Public Works Standards and Training Council. Finally, I have testified before the United  
18 States Congress on pipeline safety issues.

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

20 A. The testimony is comprised of four primary sections identified as I through IV:

21 I. An updated, succinct program history, including a brief synopsis of the Liberty Utilities  
22 (EnergyNorth Natural Gas) Corp ("the Company" or "Liberty") Cast Iron Bare Steel  
23 Replacement (CIBS) replacement program since its inception in 2009. [ See pages 6 through  
24 12]

- 1 II. Comment on Liberty’s CIBS program results for Fiscal Year 2018 (April 1, 2017 – March  
2 31, 2017), including the associated costs, including carry-over costs the Company is seeking  
3 to recover in this proceeding; *[ See pages 13 through 21]*
- 4 III. Staff’s assessment of the adequacy of Liberty’s CIBS plan for Fiscal Year 2019 (April 1,  
5 2019, to March 31, 2019); *[ See page 22]* and
- 6 IV. Staff recommendations regarding the Company’s replacement rate associated with its CIBS  
7 Main Replacement Program going forward. *[ See pages 23 through 25]*
- 8

1 **I. HISTORICAL SYNOPSIS OF THE CAST IRON and BARE STEEL PROGRAM**

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

4 A. The interests of the Commission and its Safety Division have always been to ensure that  
5 appropriate levels of safety are either maintained or improved upon, and that associated  
6 expenditure considerations result in the least cost impact to customers with minimal  
7 disruptions of municipal streets. Through the years, the Safety Division has been actively  
8 engaged in its review of proposed replacements of leak prone pipes that the Company  
9 prioritizes in its annual plans. The review ensures that the Company does not select  
10 segments that are outside the limited scope of the CIBS program and includes verifying that  
11 municipal projects are not included in the segments selected. Other items that are not always  
12 initially excluded from these filings include abandonments, coated steel mains, inside meter  
13 relocations, and upsizing mains. A complete detail of the parameters of the CIBS program is  
14 included in docket DG 11-040 concerning the Liberty Utilities acquisition of EnergyNorth  
15 Natural Gas from National Grid, as memorialized in Attachment J, Section 20 of the  
16 Settlement Agreement approved in Order No. 25,370 (May 30, 2012). A copy of Attachment  
17 J, Section 20 is provided as RSK Attachment 2 to my testimony.

18 The Safety Division has generally encouraged Liberty to replace its low pressure, cast  
19 iron mains with high pressure mains when appropriate. The Safety Division regularly  
20 incorporates field inspections of CIBS segments into its monitoring program. Safety  
21 Division Staff review the Company's written reports of actual cutouts of certain segments of  
22 bare steel mains that have been replaced through this program. The CIBS Program requires  
23 physical cutouts of bare steel mains to be hand-delivered to the Safety Division for  
24 examination by its Staff. This feedback mechanism provides Staff with the tangible evidence

1 that the selected segments are appropriately chosen. Staff does not require physical cutouts  
2 of cast iron mains. Lastly, Staff reviews actual finalized expenditures and compares them to  
3 the previously submitted projections for the recently completed fiscal year.

4 **Q. What useful information is the Safety Division able to extract from written condition**  
5 **reports that are provided as part of the CIBS main replacement program?**

6 A. The condition reports provide the Safety Division with valuable pipeline integrity data,  
7 including pipeline wall thickness, pipeline age, soil conditions, system pressure, and location  
8 information of bare steel pipe segments related to various types and vintages of removed bare  
9 steel segments. These characteristics determine integrity and corrosion assumptions that are  
10 incorporated into subsequent planning. It is a delicate balance to weigh the need to replace  
11 aging piping systems as they near the undesirable condition at which leaks increase and  
12 mains break against premature replacement of pipes that have many years of useful life and  
13 pose little risk to the public. Since the program inception, Staff has continually seen deep  
14 pitting, seam cracks, holes, and other undesirable features of the bare steel mains. For FY  
15 2019, 4 projects required bare steel replacement that necessitated written condition reports,  
16 and 3 of the 4 bare steel pipe locations had 100% wall loss (i.e., holes). This indicates that  
17 the pipeline had far exceeded acceptable safety requirements and was leaking 24 hours a day,  
18 365 days per year, with ratepayers bearing the expense through the cost of gas adjustment  
19 recovery mechanism. The average age of these 4 selected bare steel main projects was 74.5  
20 years of service from installation to replacement. Since 2009, 59<sup>1</sup> individual reports have  
21 been completed regarding bare steel segments, which is an average of 5.4 per year. The

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<sup>1</sup> Liberty and its predecessor companies have provided 59 written reports to date. Two of the reports submitted were on coated steel segments in FY2010, thus only 57 were required. For 4 written reports Liberty did not identify age, in those cases staff assumed an age based on installation dates of nearby mains in the vicinity and reviewing service documentation.

1 average age of each segment removed is 83.9 years, excluding two reports where Liberty  
 2 could not determine the age of the segment removed. See RSK Attachment 3 and RSK  
 3 Attachment 4 for additional details related to the CIBS program history.

4 **Q. Do certain municipalities have higher percentages of the cast iron and bare steel**  
 5 **distribution pipe that are addressed as part of the CIBS program?**

6 A. Of the 31 communities served by Liberty Utilities' gas distribution operation, only six have  
 7 cast iron or bare steel segments that include leak prone or worn pipe remaining. As expected,  
 8 the heaviest concentration is in the municipalities of Manchester, Nashua, and Concord  
 9 where the majority of customers are located and supplied by the greatest quantity of gas  
 10 pipelines. These communities began serving customers back in the 1800s and, as a result,  
 11 have some of the oldest piping in the state. According to its most recent CIBS filing, Liberty  
 12 has reduced the amount of leak prone pipe from 78.65 miles in FY 2018 to 68.74 miles in FY  
 13 2019<sup>2</sup>. This 12.80 mile decrease includes 9.91 miles as a result of the CIBS program (9.30  
 14 miles replaced plus 1.12 miles abandoned, less 0.51 miles related to coated steel and plastic  
 15 mains.)<sup>3</sup>. The remainder of the 12.80 mile decrease is comprised of 2.89 miles<sup>4</sup> related to  
 16 municipal work and Liberty's cast iron encroachment policy; both are considered beyond the  
 17 scope of the CIBS program. Included in the 9.91 miles replaced is 3.45 miles of leak prone  
 18 pipe that was upsized.

19 In addition to the CIBS filing, Liberty reports annually to the US DOT Pipeline  
 20 Hazardous Material Safety Administration (PHMSA) and to the Safety Division the amount

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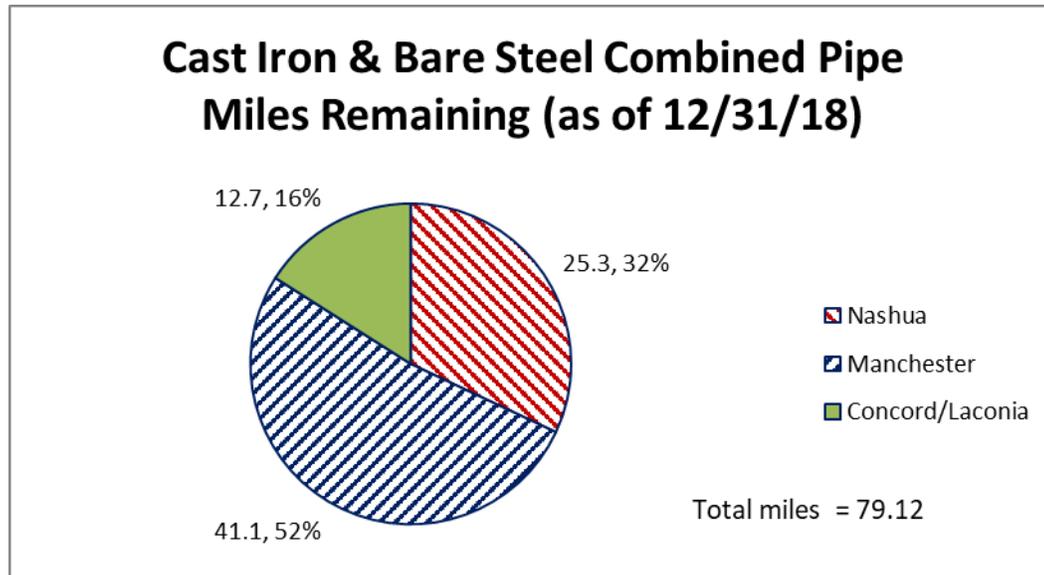
<sup>2</sup> The source of this mileage is Attachment DBS/CAM-1, page 4 of 4, Bates Page 061R (line 13).

<sup>3</sup> The source is Attachment SDF-BRF-2 AJ40 ,Bates Page 040, (Note Liberty states column R is 1.44 abandoned miles but 3 projects not started so need to exclude 0.3125 miles of potential abandonment)

<sup>4</sup> The source is SDF-BRF Testimony, Bates Page 009 line 4, and Attachment SDF-BRF-1, Bates Page 031.

1 of linear pipeline of remaining Cast Iron and Bare Steel by pipe diameter and by division.  
 2 The cities and towns with cast iron or bare steel pipes are listed in Figure 1 below.

3 **Figure 1**



4  
 5 **Figure 1 Notes:**

- 6 A. Southern Division CIBS areas include Nashua and some sections of Hudson.
- 7 B. Central Division CIBS areas include Manchester and small sections of Goffstown.
- 8 C. Northern Division CIBS areas include Concord, and Laconia.

9 The amounts in each division had to be estimated since Liberty’s DOT 7100 report by division  
 10 had inaccurate reporting. Staff used the aggregated Liberty’s DOT 7100 report and used the  
 11 previous allocations by divisions assuming they did not change significantly from FY2018 to  
 12 FY2019.

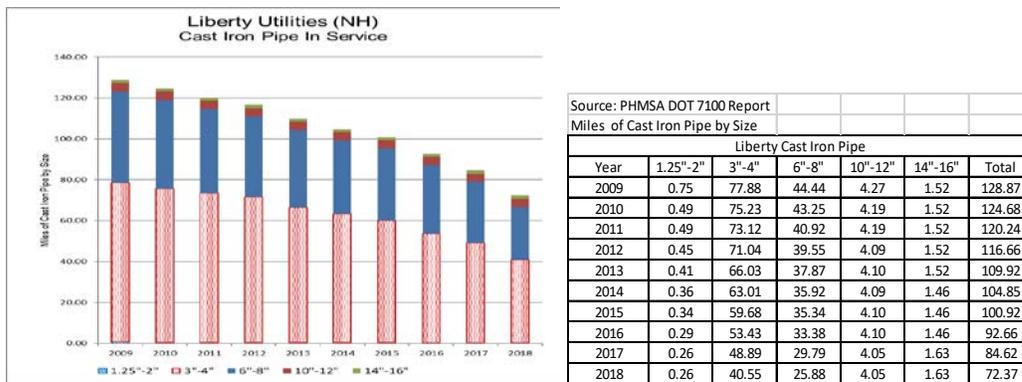
13 There is a slight difference in each community’s percentage share of leak prone pipe between  
 14 FY 2009 and FY 2019. Over time, Concord’s share decreased by 9%, while Manchester’s and  
 15 Nashua’s shares increased by a corresponding 5% and 4%, respectively. This indicates that  
 16 Liberty is spreading its CIBS program work among all three of its divisions: Northern,  
 17 Central, and Southern. As indicated in Figure 1, replacements should be targeted towards the  
 18 largest populations of leak prone pipe, which are in Manchester and Nashua. It should be

1 noted that the difference between 79.12 miles remaining, which is derived from the annual  
 2 DOT 7100 report filed with the Commission and the 68.74 miles reported in the CIBS filings  
 3 results from a recording lag of documenting asset data of nearly 10.38 miles in Liberty’s GIS  
 4 system. Liberty uses the amounts recorded in its GIS system to submit the mileage of cast  
 5 iron/bare steel within the gas distribution systems as of December 31, 2018 and records it on  
 6 its annual DOT 7100 report. Staff notes that FY 2019 had the second largest discrepancy in  
 7 the 11 year history between the two system reports.<sup>5</sup>

8 **Q. What is the breakdown of how much cast iron pipe is in service for each pipe diameter,**  
 9 **and why is this information important to the Safety Division?**

10 A. The Safety Division tracks the amount of every type and diameter of pipe in service. This  
 11 information helps Staff track the performance of each type and size of pipe as we review  
 12 prioritizations of which pipe segments of the remaining population are more leak prone. The  
 13 information also gives us a better idea of the expected cost to replace the pipe. See Figure 2  
 14 below for a breakdown of the Company’s inventory of cast iron pipe categorized by pipe  
 15 diameter. Staff continues to suggest that Liberty concentrate on the 3”, 4”, and 6” diameter  
 16 cast iron mains that make up the majority of the remaining cast iron inventory.

17 **Figure 2.**



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<sup>5</sup> The discrepancy was 10.38 miles [79.12 miles remaining and 68.74 miles remaining], nearly 26% decrease the discrepancy of FY 2017 of 13.95miles but a 698% increase in the discrepancy from FY 2016 levels.

1 **Q. Since the inception of the CIBS Program, how does the overall cost per foot of mains**  
2 **replaced compare from year to year?**

3 A. Figure 3-A below shows the overall CIBS Program expenditures in cost per foot of mains  
4 replaced from year to year. As expected, the cost per foot of main replaced decreases as the  
5 quantity replaced increases. Figure 3-B shows the overall CIBS Program expenditures in  
6 cost per foot of mains, but also includes the unit cost of replacing services that are attached to  
7 mains. Liberty has been able to lower the costs from \$150 per foot of main in 2014 to \$102  
8 per foot of main in 2017. All the data points in Figure 3-B are higher than those with main  
9 costs because these include the associated services that are also being replaced. If segments  
10 are selected that have multiple bare steel services as well as more non-bare steel services that  
11 are in close proximity, then the combined costs typically increase. The encouraging trend is  
12 that Liberty has been driving these unit costs down over the past few years, although much of  
13 the cost decline may be a result of the increased miles replaced year over year. A similar  
14 explanation is the overhead cost trend, which, even though they may be rising, are spread  
15 over more miles being replaced. It should be noted that these graphs reflect total  
16 expenditures incurred, not the lower amount of expenditures allowable for recovery under the  
17 CIBS program.

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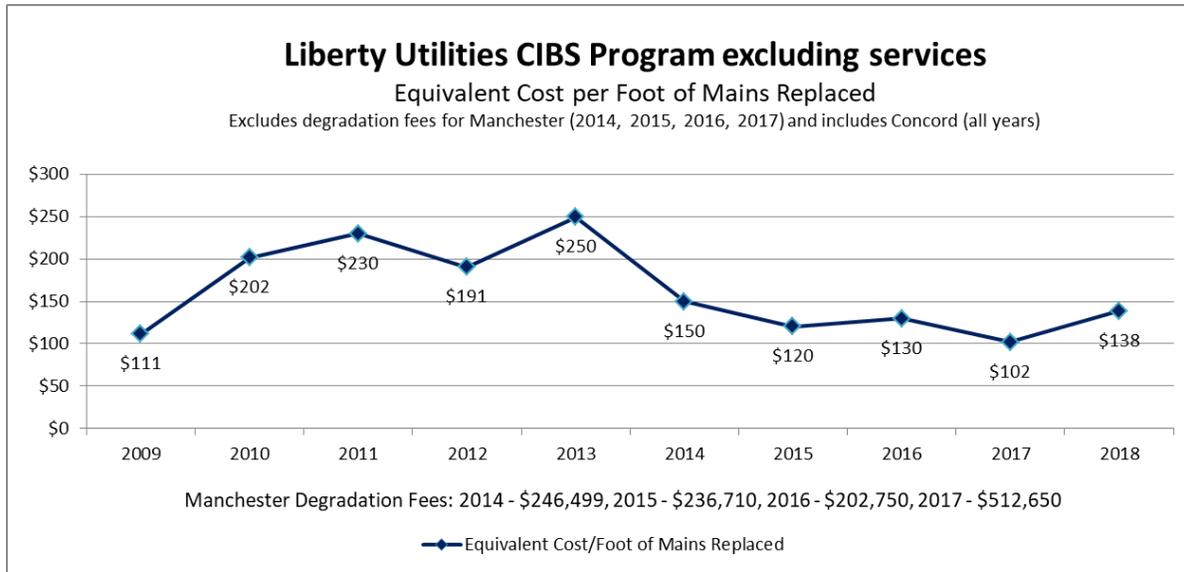
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**Figure 3-A**



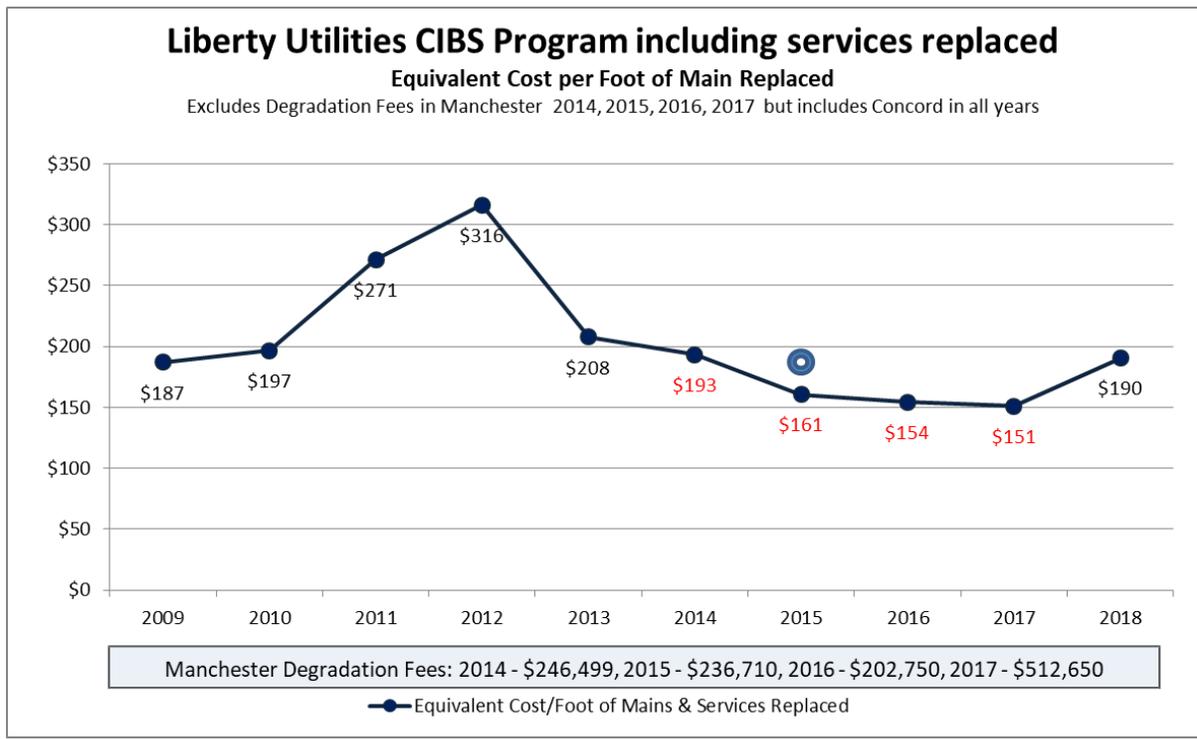
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**Figure 3-B**

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1 **II. STAFF COMMENTS ON FY 2019 RESULTS AND THE FY 2020 CIBS FORECAST**  
 2 **PLAN**

3 **Q. Please describe the FY 2019 Program and what was accomplished versus what was**  
 4 **forecasted.**

5 A. On August 27, 2018, after a meeting with the Safety Division regarding a revised detailed  
 6 filing of proposed FY 2019 CIBS work, Liberty proposed a revised CIBS scope of 27 CIBS  
 7 projects for FY 2019 (10 in Nashua, 11 in Manchester, and 6 in Concord/Tilton)<sup>6</sup>. This  
 8 amounted to a planned replacement total of 12.09 miles inclusive of 1.44 miles abandoned of  
 9 leak prone pipe. Liberty modified its August 2018 plan by slightly reducing the initial  
 10 amount of reduction in leak prone pipe, including mains and services, and decreasing the  
 11 overall number of CIBS projects to 8 in Nashua, 11 in Manchester, and 5 in Concord  
 12 (includes Laconia). Three of the 27 projects were delayed and never started and two projects  
 13 were significantly limited in size for FY 2019. Attachment SDF-DBF-2 of the Furey-Frost  
 14 testimony, included as part of the Liberty Utilities CIBS filing on April 15, 2019, depicts  
 15 what was accomplished. 9.30 miles of leak prone pipe were replaced and 1.12 miles were  
 16 abandoned.<sup>7</sup> Liberty thus replaced approximately 18 % less leak prone pipe than the revised  
 17 forecast. Liberty has indicated that the quantity of resources applied was adequate. The 9.91  
 18 miles replaced represent approximately 14% less main replaced than the previous year, but  
 19 28% less than the estimate made to Staff in May of 2018 and submitted as revised testimony  
 20 in docket number DG 18-064.<sup>8</sup> In terms of replacing bare steel services, Liberty replaced,  
 21 inserted, or abandoned the third highest number of bare steel services (274) in FY 2019 since

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<sup>6</sup> Liberty proposed a preliminary scope of work in January 2018 consisting of 32 projects with 13.83 miles but that was revised to the smaller amount of 27 projects and 12.09 miles.

<sup>7</sup> Liberty states that 9.91 miles of main in total were eliminated. Attachment SDF-BRF-2 AJ40, Bates Page 044, where 9.3 miles were installed plus 1.44 miles abandoned less 0.51 miles of coated steel and plastic were relayed or added to maintain the system. 2 projects consisting of 0.3125 miles were never abandoned.

<sup>8</sup> Source: DG 18-064 Attachment DBS -1 revised May 31, 2018, page 4 of 4, Line 11 (BP 061R).

1 the inception of the program, although that total represents a nearly 25% decrease below FY  
2 2018 levels and was 27% less than what the revised projected amount.<sup>9</sup> This 27% decrease  
3 was largely a result of the three associated main projects getting delayed and not started and  
4 the scope reductions on two of the projects.

5 Of the 24 projects in which mains and services were installed, only 3 had final restoration  
6 costs applied, leaving 21 projects with carryover costs. Thus only 3 of the initial 27 projects  
7 proposed were started and completed within the construction season, with all costs applied to  
8 the program. This is a decrease in the number of unfinished projects from last year's work  
9 log, which resulted in 27 unfinished projects in which final restoration was not completed.  
10 The decrease is attributable to a lesser quantity of projects but ended up with a higher  
11 percentage of projects not being completed. Of the 3 completed projects, all 3 were  
12 completed in August.

13 Of the 21 unfinished projects, one was partially completed in June, one was partially  
14 completed in July, three were partially completed in August, three were partially completed  
15 in September, one was partially completed in October, ten were partially completed in  
16 December, and two were partially completed in January 2019.

17 The total estimated remaining paving costs associated with the 21 unfinished projects are  
18 \$5,089,745, which is broken down into \$339,000 for all six unfinished projects in Concord,  
19 \$2,203,066 for nine unfinished projects in Manchester and \$2,547,679 for seven unfinished  
20 projects in Nashua.

21 Table 1 (below) provides a summary.  
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<sup>9</sup> Source: 8/27/18 revised forecast FY 2019 program: 274/375 bare steel services is 27% less than forecasted

**Table 1:**

Completion	CasBuilt (Finished Paving)				Comp Main & Services (Unfinished Paving)			
	Concord	Manchester	Nashua	Sub Total	Concord	Mancheste	Nashua	Sub Total
May-18	0	0	0	0	0	0	0	0
Jun-18	0	0	0	0	1	0	0	1
Jul-18	0	0	0	0	0	1	0	1
Aug-18	0	2	1	3	1	1	1	3
Sep-18	0	0	0	0	0	2	1	3
Oct-18	0	0	0	0	0	1	0	1
Nov-18	0	0	0	0	0	0	0	0
Dec-18	0	0	0	0	3	4	3	10
Jan-19	0	0	0	0	0	0	2	2
Feb-19	0	0	0	0	0	0	0	0
	<b>0</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>5</b>	<b>9</b>	<b>7</b>	<b>21</b>

Table 2 summarizes the Bare Steel Mains & Services and Cast Iron/Bare Steel Mains that have been replaced since the program inception.

**Table 2:**

Fiscal Year as Represented in Spreadsheets	Liberty FY	Bare Steel Services Replaced from CIBS Program	Cast Iron and Bare Steel Replacement Feet from CIBS Program	CIBS Equivalent Miles
ending March 2009	FY 2009	104	15,183	2.88
ending March 2010	FY 2010	126	21,050	3.99
ending March 2011	FY 2011	105	14,086	2.67
ending March 2012	FY 2012	59	8,236	1.56
ending March 2013	FY 2013	49	8,738	1.65
ending March 2014	FY 2014	82	18,537	3.51
ending March 2015	FY 2015	159	24,964	4.73
ending March 2016	FY 2016	177	25,841	4.89
ending March 2017	FY 2017	347	50,385	9.54
ending March 2018	FY 2018	364	61,158	11.58
ending March 2019	FY 2019	274	52,345	9.91
<b>Sub Total</b>		<b>1,846</b>	<b>300,523</b>	<b>56.92</b>
2019 (Estimated) as of 5/1/2019	FY 2020 (Projected)	398	70,280	13.31

note FY 2020 comes from May 1 2019 submittal for BS Services and CIBS Mains

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**Q. What is your assessment of the adequacy of the Liberty CIBS results for Fiscal Year 2019, beginning with a brief summary of the forecast?**

A. For FY 2019, the Company estimated that it would replace 10.90 miles of cast iron and bare steel mains and would replace 375 bare steel services connected to these mains. Liberty projected it would cost \$17.567 million for these FY 2019 investments<sup>10</sup>. These two goals equate to an estimated cost per mile of replaced main of slightly more than \$1,611,691. The Company actually replaced 9.9 miles of cast iron and bare steel mains and 273 bare steel services during FY 2019 at a cost of \$16,702,994<sup>11</sup>. 21 projects were left uncompleted with respect to final paving restoration costs, but mains and services were installed. At this time, these 21 projects can be estimated for all final paving costs in the amount of \$5,089,745, in which a portion or all are eligible for recovery in FY 2019. These are costs that should have been included but were “carried over” to next year. Finally, the impacts of 27 restoration projects of the FY 2018 that were finally completed in FY 2019 and the actual determined costs must be included. Initially these were estimated to be \$4,508,297<sup>12</sup>, but the actual costs came in at \$3,593,321. It should be noted that for 6 projects, the City of Manchester has not billed Liberty for degradation fees as of the April 15, 2019 filing. Thus, the variance between actual costs and estimated costs is only a temporary interim dollar amount. These costs eventually will be recovered in the next rate case or the FY 2020 reconciliation, dependent upon timing. In its filing, Liberty has requested approval from the Safety Division for recovery of all of the actual \$3,593,321 in costs. The settlement

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<sup>10</sup> Source: August 27, 2018 submittal Column P Line 40 = 10.90 miles; Column L Line 39 = 375 bare steel services; Column Y Line 39 = \$17,567,439

<sup>11</sup> Source: Attachment SDF-DBF-2, Column AJ, Line 40= 9.91 miles; Column AK Line 39 and AL Line 39 = 273 bare steel services; Column BL Line 39 = \$16,702,994. Also BP 009 of SDF and BRF Testimony

<sup>12</sup> Source DG 17-063 Exhibit 1 at 6/19/17 hearing BP 043, col BD line 43 (\$430,417 for 10 projects Concord, \$482,280 for 5 projects Manchester, \$1443,263 for 9 projects Nashua)

1 agreement allows for recovery of only \$778,739 unless the Safety Division approves a  
2 higher amount. Testimonies of Simek and McNamara as well as Furey and Frost both  
3 included the \$3,593,321 amount. Technical Session Data Response 5 (TS 1-5) displays the  
4 difference in revenue requirements based on the recovery amount of \$778,739 only. The  
5 Safety Division recommends the Commission use the figures in TS1-5 attachments as the  
6 basis for revenue requirements. The Safety Division recommends that only the \$778,739  
7 be recovered for the similar reasoning as previously discussed in DG 16-449 , DG 17-063,  
8 DG 18-064 oral and written testimony from Staff. The remaining balance of \$2,814,582  
9 (\$3,593,321 less \$778,739) is eligible to be recovered in the next rate case but should not be  
10 recovered in this docket.

11 While not exactly a “true” comparison between the estimated costs per mile and the actual  
12 costs per mile, if we include the assumed additional paving costs (21 projects) of \$5,089,745  
13 associated with the \$11,613,249 (24 projects) then the cost per mile of main with services  
14 replaced would come to approximately \$1,685,468 per mile. Thus, the actual per mile loaded  
15 cost would be 104.5 % of the estimated cost. This is a verification that Liberty’s 7% overall  
16 variance seems reasonable. Attachment SDF/BRF-2 provides for a more detailed method of  
17 determining variance than the one described above.

18 **Q. What is your assessment of the adequacy of the Company’s results for FY 2019?**

19 A. The Company’s plan meets the requirements of the settlement agreement approved by the  
20 Commission, but does include a request for an exception for carry over costs above the  
21 permitted \$778,739, as mentioned above. Liberty was able to gain sizeable ground during  
22 FY2019 despite some projects being impacted by mutual aid to Columbia Gas, MA after the  
23 September 2018 gas explosions, which resulted in a significant dent in the projected goal  
24 regarding the rate of reduction of leak prone pipe by the previous committed target of 2024.

1 Liberty continues to strive toward completing its stated goal of removing all leak prone pipe  
2 by 2024. In FY 2019, Liberty replaced the third largest amount of leak prone main and bare  
3 steel services ever in a single year, despite 3 projects that were not started and two that were  
4 severely limited in scope. Going forward, Liberty has announced an even more aggressive  
5 rate of 13.3 miles for FY 2020 CIBS and an expected 2.8 miles of replacement from  
6 city/state construction. If those were to be achieved and there are 68.7 miles remaining after  
7 FY 2019, assuming 11.1 miles will be replaced through city/state construction in future years,  
8 then the remaining 4 years the CIBS program would require a replacement rate of 10.3 miles  
9 per year. This is an aggressive project schedule and requires management focus. Given the  
10 multiple other projects that Liberty is undertaking at this time, the Safety Division is cautious  
11 regarding the work level impacts of such a schedule.

12 **Q. Please explain why you believe the Company has made positive progress even though it**  
13 **did not achieve its CIBS mains replacement program targets.**

14 A. I have created Table 3 below to illustrate my observations. The table summarizes the total  
15 cast iron and bare steel mains that have been replaced annually in the CIBS Replacement  
16 Program, coupled with the additional cast iron/bare steel pipe that is replaced during local  
17 municipal projects, including the minor amount of cast iron mains replaced as part of the  
18 separate Cast Iron Encroachment Program. As noted in Table 3, with data provided by the  
19 Company in Attachment DBS-1, page 4 of Mr. Simek's and Ms. McNamara's testimony,  
20 over the past 11 years 88.59 miles of cast iron and bare steel mains have been replaced, with  
21 approximately 58.25 miles (66%) have been replaced as part of the CIBS program. This  
22 leaves 68.7 miles of cast iron and bare steel mains yet to be replaced. The average rate of  
23 replacement over the past eleven years has been 8.05 miles per year, including municipal  
24 projects but the rate of replacement during the last 5 years has been 11.0 miles per year.

1 Liberty exceeded both the 5-year and 11-year averages in FY 2019. At the most recent  
 2 historical pace, however, it will take approximately 6.2 years to replace all remaining cast  
 3 iron and bare steel pipe in Liberty’s system. Liberty believes that this can be accomplished  
 4 in the next 5 years.

5  
 6 **Table 3.**  
 7 **Liberty Utilities Cast Iron and Bare Steel Replaced and Remaining Pipe**  
 8

CIBS Replacement Program Fiscal Year	Municipal Projects & Encroachment Program Pipe Miles Replaced	CIBS Program Pipe Miles Replaced /1	Total CIBS Plan, CIBS Municipal & CI Encroachment Miles Replaced	CIBS Pipe Miles Remaining in System /2
2009	2.11	2.96	5.07	149.80
2010	3.78	3.98	7.80	142.00
2011	2.22	2.79	4.60	137.40
2012	3.38	1.56	4.94	132.10
2013	2.38	1.65	4.03	126.30
2014	3.63	3.51	7.14	120.88
2015	2.04	5.00	7.04	113.96
2016	2.36	5.05	7.41	106.46
2017	2.97	10.26	13.23	93.18
2018	2.95	11.58	14.53	78.65
2019	2.89	9.91	12.80	68.74
Avg/Year	2.79	5.30	8.05	
Total Miles	30.71	58.25	88.59	
1. Source: Attachment DBS/CAM-1, p. 4 of 4, line 11			Miles Replaced also includes pipe that was modified for connections, retirements, upsizing, and other	
2. Source: Attachment DBS/CAM-1, p. 4 of 4, line 13				

9  
 10  
 11 The Safety Division Staff observes that while Liberty increased the amount of mileage  
 12 replaced in the CIBS program in a single CIBS fiscal year to the third highest level since the  
 13 program’s inception, the 2024 end-of-year goal envisioned by Staff and agreed to by Liberty  
 14 in DG 14-041, DG 15-104, DG 16-449, DG17-063, and confirmed in DG 18-064 would  
 15 require approximately 8.5 years, based on the Company’s eleven-year average. Liberty has  
 16 further increased its intent to install 13.83 miles with 398 bare steel service replacements in  
 17 FY 2020, not including 2.8 miles of municipal work expected in FY 2020. Staff is cautiously  
 18 optimistic that Liberty can accomplish this but has reservations based on what the Company

1 has historically achieved, as well as the many concurrent projects being developed by Liberty  
2 at this time. Staff is pleased to see that Liberty has acknowledged the need to replace aging  
3 infrastructure as a Company priority but recognizes the challenges this major program has  
4 upon other competing programs within the Company. Increasing the rate of replacement  
5 requires continual and increased oversight, increased numbers of qualified crews, increased  
6 training requirements, more inspectors needed for construction quality audits, and increased  
7 communications with municipalities, as well as an increased probability of construction  
8 requirements not being strictly adhered to -- all while continuing to work within the confines  
9 of New Hampshire's construction and paving season. Inattention to any of these components  
10 could jeopardize the Company's pipeline safety goals and timeframes.

11 **Q. In oral testimony regarding FY 2016 CIBS (DG 16-449) and again in both oral and**  
12 **written testimony regarding FY 2017 CIBS (DG 17-063) programs, Staff and Liberty**  
13 **positions regarding carry over costs did not agree on granting exceptions to the section**  
14 **2.7 provision of the settlement agreement. Has either party's previous positions**  
15 **changed in this docket?**

16 A. No, my previous position remains unchanged from my prior testimonies. This year, Liberty  
17 submitted recovery based on its request that the 5% of estimated total amount allowed in  
18 Item 20 (d) (2.7) be exceeded, so there was a cause for discussing this item again. Staff notes  
19 that this 5% of estimated costs translates to approximately 27% of carryover costs being  
20 allowed.<sup>13</sup>

21 **Q. Did Liberty produce a report regarding the number of Conversions of Non Gas**  
22 **Customers?**

23 A. Yes, Liberty provided a half page summary of the statistics. In summary, 152 customers  
24 were potential conversion opportunities and 19 customers had services installed. This

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<sup>13</sup> \$778,739/\$3,593,321

1 indicates that a high conversion rate of 19/152, or approximately 12.5%, was achieved<sup>14</sup>.  
2 The industry standard is typically a 1% to 2% response rate. Liberty believes that a response  
3 rate of 12.5 % is considered “low”.  
4 Liberty’s Main and Service Extension Policy was adjusted in August 2016 to provide 100  
5 feet of service installation at no charge to be extended to residential non-heat customers who  
6 commit to taking service prior to a main extension or replacement. The CIBS program is an  
7 appropriate mechanism to apply this new tariff. Liberty’s testimony does not discuss the  
8 impact of this policy on the CIBS program, nor is it included in the Marketing results  
9 provided. Efforts need to be initiated years ahead (as far as three years out) for potential gas  
10 mains that are candidates to be replaced to provide customers the requisite time to consider  
11 converting to natural gas as a fuel supply. Currently Liberty begins the marketing efforts  
12 only when the annual CIBS replacement program details are finalized. Commission Order  
13 No. 26,514 encouraged Liberty to include a more detailed marketing alternative in the FY  
14 2019 filing, but the Liberty filing lacked details regarding the marketing initiatives.  
15

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<sup>14</sup> Liberty reported results Dec 21, 2018 indicating 15 but SDF/BRF Testimony BP 015 also indicated 16.

1 **III. STAFF COMMENTS ON THE FY 2020 FORECAST IN RELATION TO FY 2019**  
 2 **PROGRAM RESULTS**

3 **Q. What is your assessment of the adequacy of the Liberty CIBS plan for Fiscal Year 2020,**  
 4 **beginning with a brief summary of the forecast?**

5 A. Under the CIBS program forecast, FY 2020, the Company estimates that it will replace 13.3  
 6 miles of cast iron and bare steel mains. Liberty projects this will cost approximately  
 7 \$20,459,726 with an additional estimated \$5,089,745 of unfinished paving from FY 2019.  
 8 Liberty has never replaced more than 364 bare steel services in any one season during the  
 9 CIBS program and Liberty projects to replace nearly 400 bare steel services in FY 2020.

10 This is an aggressive goal and Staff is cautiously optimistic about the chances of it coming to  
 11 fruition but believes the likelihood of the goals translating into actuals will be very  
 12 challenging given some of the municipal restrictions that are now being imposed on Liberty.

13 **Q. How does the FY 2020 forecast compare with the Company’s CIBS results during FY**  
 14 **2019.**

15 A. The Company replaced 9.9 miles of cast iron and bare steel mains and 274 bare steel services  
 16 during FY 2019 at a cost of \$11,613,249 or approximately \$1,173,055 per mile.

17 The FY 2020 forecast of \$1,538, 325 per mile is approximately 31% higher than the actual  
 18 cost per mile from FY 2019. Staff attributes some of this higher cost to a greater number of  
 19 services per mile that will be replaced in FY 2020 as well as increased municipal degradation  
 20 costs being applied, increased costs of construction oversight and increased municipal  
 21 restrictions.

22

1 **IV. STAFF RECOMMENDATIONS OF CIBS ACCELERATED REPLACEMENT**  
2 **PROGRAM GOING FORWARD IN FY 2020 AND OTHER SUGGESTED**  
3 **RECOMMENDATIONS**

4 **Q. Liberty has again indicated that they intend to remove all remaining cast iron and bare**  
5 **steel by 2024. Does Staff support this accelerated time frame?**

6 A. Staff welcomes the proposed increased rate of replacement projects, if such a rate proves to  
7 be economic and in the public interest. For FY 2019, Liberty is now the only gas utility with  
8 cast iron and bare steel mains in New Hampshire. It is doubtful that removal costs per mile  
9 in 2024 will be less than the unit expenditures of today assuming increases in labor rates, fees  
10 and equipment costs. Staff, once again, reminds the Commission that this requires increased  
11 focus by management to oversee the volume of projects, manage resources efficiently  
12 (especially outside crews), and maintain sufficient quality assurance of all replacement  
13 projects while balancing increased growth projections and other large capital projects. Staff  
14 believes that in the long run there are operational and maintenance offsets that can be  
15 achieved such as having fewer emergency responses, fewer leak surveys required, and less  
16 overtime associated with leak repairs that require repairs after normal business hours.

17 Liberty has not quantified any of these offsets to date.

18 The Safety Division believes Liberty should continue to target 2024 for final leak prone pipe  
19 removal or replacement, regardless of whether there is a surcharge on customer bills. Since  
20 the amount of remaining leak prone pipe after FY 2020 will be reduced to approximately 50  
21 miles of leak prone pipe, the same scrutiny and program elements may no longer be  
22 appropriate going forward, as that level can be addressed through system maintenance  
23 prioritization.

1 After 10 years of the program, the Safety Division believes it is appropriate to reexamine the  
2 existing CIBS program recovery methods and incentives given to the Company and evaluate  
3 whether the same conditions that existed prior to FY 2009 are still applicable.

4 **Q. What are the cost implications of accelerating the pace of the program as you suggest?**

5 A. Although the annual costs would be noticeably higher in total if Liberty maintains its recent  
6 pace of replacement, I believe the per-therm charges can be absorbed with minimal impact  
7 on customer bills and that accelerated recovery through the CIBS Program is no longer  
8 warranted. The future costs of replacement over a longer time period will inevitably be  
9 higher, and pushing the program out over an extended amount of time only delays the  
10 conclusion of the program while not reducing risk. In the long run, I would expect that rate  
11 payers would realize savings in costs related to this accelerated replacement rate. Other  
12 considerations would be the improved safety and reliability from replacing these problem  
13 mains by 2024 as opposed to beyond. Staff feels that the primary safety goal of replacing  
14 cast iron and bare steel should not be conflated with the incentive recovery method that exists  
15 currently.

16 **Q. Can the carry over cost problem worsen in FY 2020?**

17 A. Yes, the problem continues to be increasing. Table 1 indicates only 3 of 24 projects were  
18 completed (a mere 12.5%) for FY 2019. In FY 2018, 11 of 38 projects were completed  
19 (29%). Larger amounts of work continually get only partially finished and carry over into  
20 the next construction season, as more replacement projects are undertaken. Liberty has  
21 petitioned to recover these for FY 2019. Previously, the Safety Division has recommended  
22 not including immediate recovery of those costs and the Commission has determined those  
23 costs not to be eligible for short term recovery.

24 **Q. What other recommendations do you have going forward?**

1 A. For FY2020 if the program were to go forward as is, I recommend that Liberty continue  
2 filing its CIBS petitions by April 15 each year, as has been done the last few years, rather  
3 than May 15.

4 I recommend the Commission continue to require Liberty to provide a report to Staff by the  
5 end of 2019 documenting the results of its market research conducted during 2019, and its  
6 plans for marketing to new customers on a going forward basis along mains being replaced  
7 under the Company's CIBS Replacement Program. Commission Orders No. 25,684, No.  
8 25,798, and No. 26154 required this as well. Liberty should indicate in its marketing results  
9 any customers that took advantage of the 100 feet of free service tariff conditional offer that  
10 the Company began proposing in August 2016.

11 **Q. Have the FY2019 costs used to calculate the CIBS revenue requirement and proposed**  
12 **rate increase been audited by the commission Audit Staff?**

13 A. Yes. The Commission noted in Order 25,798 of DG 15-104 that audits are warranted.<sup>15</sup> FY  
14 2017 was the first year a comprehensive audit was performed and there were no findings of  
15 any expenditure or allocation method that pointed to a potential problem. In FY 2018, the  
16 sample audit was completed and revealed no irregularities. FY 2019 audit findings were not  
17 available prior to this testimony being written.

18 **Q. Do you believe going forward audits should be required annually for the CIBS**  
19 **program?**

20 A. Yes, given the significant amount of expenditures Liberty is proposing in FY 2020, I believe  
21 an audit should be required and an accompanying report be produced annually.

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

23 A. Yes

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<sup>15</sup> Transcript DG 15-104 page 23 lines 12-18, Order 25,798 p 8 Line 3.