

**EXHIBIT**  
 #2  
 DG 17-063

**STATE OF NEW HAMPSHIRE  
 PUBLIC UTILITIES COMMISSION**

**DG 17-063**

**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 13, 2017**

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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 University of Rochester  
7 and a Master of Science in Civil Engineering from the University of Massachusetts. I am a  
8 licensed Professional Engineer in the State of New Hampshire, License No. 9272. For  
9 continuing education, I have completed 21 Technical Training Courses and 22 Online  
10 Training Sessions provided by the Training and Qualification Center of the Pipeline and  
11 Hazardous Materials Safety Administration (PHMSA). See RSK Attachment 1.

12

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

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

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

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

9 A. Yes. I am a member of the Association of Energy Engineers (AEE). I serve on multiple  
10 committees of the National Association of Pipeline Safety Representatives (NAPSR)  
11 including prior positions of Chair and Past Chair. I served as editor of each of the biennial  
12 editions of NAPSR's *Compendium of State Pipeline Safety Requirements & Initiatives*  
13 *Providing Increased Public Safety Levels Compared to Code of Federal Regulations*. I  
14 currently chair the Staff Pipeline Safety subcommittee of the National Association of  
15 Regulatory Commissioners (NARUC), serve on the Common Ground Alliance Technology  
16 committee, and I am a board member of the New Hampshire Public Works Standards and  
17 Training Council. Finally, I have testified before the United States Congress on pipeline  
18 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. Provide an updated succinct program history including a brief synopsis of the Liberty  
22 Utilities (EnergyNorth Natural Gas) Corp ("LU-ENG", "the Company", "Liberty") Cast  
23 Iron Bare Steel Replacement (CIBS) replacement program since its inception in 2009 [  
24 *See pages 6 through 12]*

1 II. Comment on the LU-ENG CIBS program results for Fiscal Year 2017 (April 1, 2016 –  
2 March 31, 2017), including the associated costs, including carry-over costs the Company  
3 is seeking to recover in this proceeding; [ See pages 13 through 22]

4 III. Provide Staff's assessment of the adequacy of the LU-ENG CIBS plan for Fiscal Year  
5 2018 (April 1, 2017, to March 31, 2018); [ See page 23] and

6 IV. Make recommendations regarding the Company's replacement rate associated with its  
7 CIBS Main Replacement Program going forward. [ See pages 24 through 26]

8

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

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

4 A. The interests of the Commission and its Safety Division have always been to ensure that the  
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, Liberty Utilities acquisition of EnergyNorth Natural Gas  
15 from National Grid, as memorialized in Attachment J, Section 20 of the Settlement  
16 Agreement in Order No. 25,370 (May 30, 2012). A copy of Attachment J, Section 20 is  
17 provided as RSK Attachment 2 in my testimony. The Safety Division has generally  
18 encouraged LU-ENG to replace its low pressure, cast iron mains with high pressure mains  
19 when appropriate. The Safety Division regularly incorporates field inspections of CIBS  
20 segments into its monitoring program. Our Staff will review the Company's written reports  
21 of actual cutouts of certain segments of bare steel mains that have been replaced through this  
22 program. The CIBS Program requires physical cutouts of bare steel mains to be hand-  
23 delivered to the Safety Division for examination by its Staff. This feedback mechanism  
24 provides Staff with the tangible evidence that the selected segments are appropriately chosen.

1 Staff does not require physical cutouts of cast iron mains. Lastly, Staff reviews actual  
2 finalized expenditures and compares them to the previously submitted projections for the  
3 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. These condition reports provide the Safety Division with valuable pipeline integrity data,  
7 including wall thickness, age, soil conditions, system pressure, and location information of  
8 bare steel pipe segments related to various types and vintages of removed bare steel  
9 segments. These characteristics determine integrity and corrosion assumptions that are  
10 useful to incorporate into subsequent planning. It is a delicate balance to weigh the need to  
11 replace aging piping systems as they near the undesirable condition where 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 2017, 6 projects required bare steel replacement that necessitated written condition reports,  
16 and 5 of the 6 bare steel pipe locations had 100% wall loss (i.e. holes). This indicates that the  
17 pipeline has far exceeded acceptable safety requirements and was leaking 24 hours a day,  
18 365 days per year, with ratepayers bearing the costs through the cost of gas adjustment  
19 recovery mechanism. The average age of these 6 selected bare steel main projects was 96  
20 years of service between installation to replacement. Since 2009, 48<sup>1</sup> individual reports have  
21 been completed regarding bare steel segments, which is an average of 5.33 per year. The  
22 average age of each segment removed is 83.9 years excluding two reports where Liberty

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<sup>1</sup> Liberty and its predecessor companies have provided 48 written reports to date. Two of the reports submitted were on coated steel segments in FY2010, thus only 46 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 could not determine the age of the removed segment. See RSK Attachment 3 and RSK  
2 Attachment 4 for additional details related to the CIBS program history.

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

5 A. Of the 29 communities served by Liberty Utilities gas distribution operation, only six have  
6 cast iron or bare steel segments (leak prone or worn pipe). As expected, the heaviest  
7 concentration is in the municipalities of Manchester, Nashua, and Concord. These  
8 communities began serving customers back in the 1800s and, as a result, have some of the  
9 oldest piping in the state. Liberty, in its CIBS filing, reduced the amount of leak prone pipe  
10 from 106.46 miles for FY 2016 to 93.18 miles for FY 2017<sup>2</sup>. This 13.28 mile decrease  
11 includes 10.26 miles as a result of the CIBS program (9.41 miles replaced plus 1.29 miles  
12 abandoned less 0.43 miles related to coated steel and plastic mains). The remainder of the  
13 13.28 mile decrease is comprised of 2.97 miles<sup>3</sup> related to municipal work and Liberty's cast  
14 iron encroachment policy; both are considered beyond the scope of the CIBS program.  
15 Included in the 9.41 miles replaced is 0.39 miles of leak prone pipe that was upsized.  
16 In addition to the CIBS filing, Liberty reports annually to the US DOT Pipeline Hazardous  
17 Material Safety Administration (PHMSA) and to the Safety Division the amounts of Cast  
18 Iron and Bare Steel remaining by pipe diameter and by division. The cities and towns with  
19 cast iron or bare steel pipes are listed in Figure 1 below:  
20

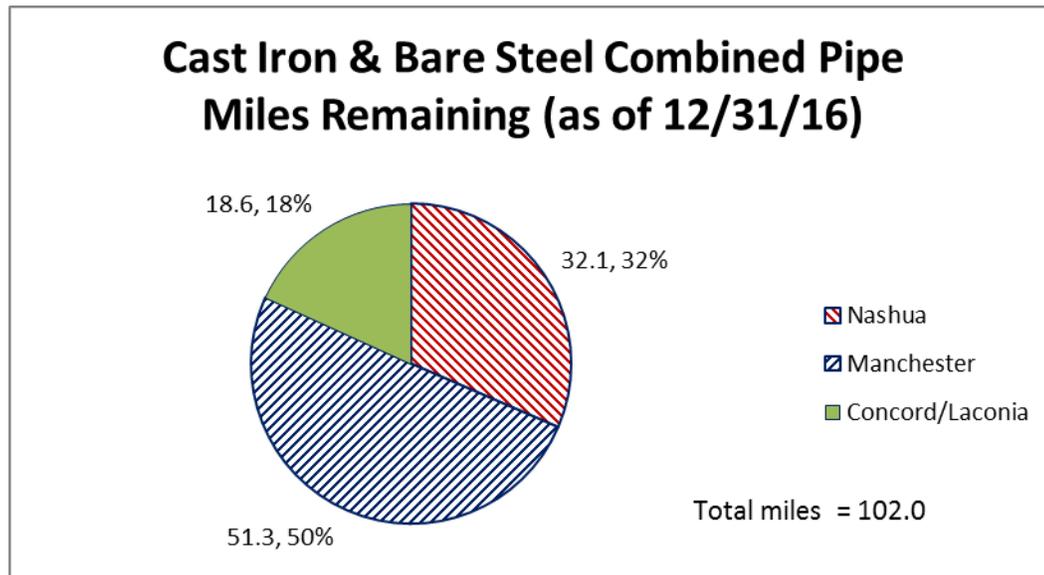
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<sup>2</sup> The source of this mileage is Attachment DBS-1, page 4 of 4, Bates Page 067 (line 13) .

<sup>3</sup> The source is Attachment RGM-BRF-1 Table , Bates Page 031

1

**Figure 1**



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Figure 1 Notes:

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A. The Southern Division CIBS areas include Nashua and some sections of Hudson.

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B. The Central Division CIBS areas include Manchester and small sections of Goffstown

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C. The Northern Division CIBS areas include Concord, Laconia.

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There is a slight difference in each community's percentage share of leak prone pipe between

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FY 2009 and FY 2017. Over time, Concord's share decreased by 7%, while Manchester's and

9

Nashua's increased by a corresponding 3.5% each. This indicates that Liberty is spreading its

10

CIBS program work among all three of its divisions: Northern, Central, and Southern. It

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should be noted that the difference between 102.0 miles remaining, which is derived from the

12

annual DOT 7100 report filed with the Commission and the 93.8 miles reported in the CIBS

13

filings results from a recording lag of documenting asset data in Liberty's GIS system.

14

Liberty uses the amounts recorded in its GIS system to submit the mileage of cast iron/bare

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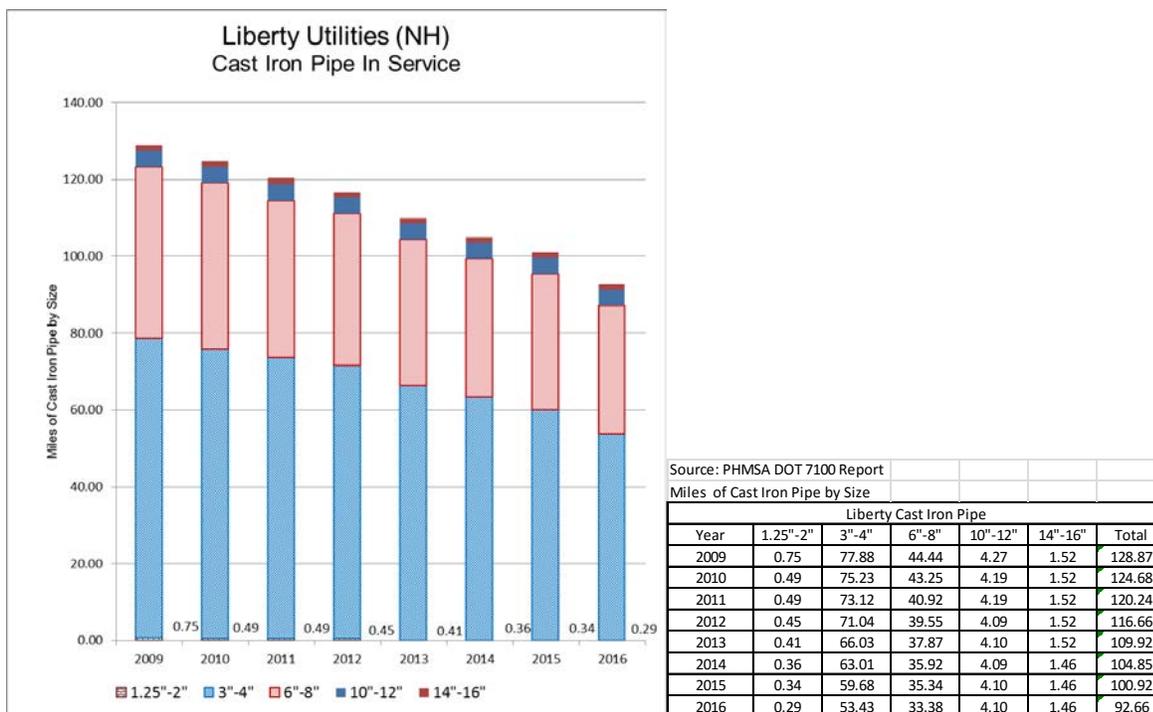
steel within the gas distribution systems as of December 31, 2016 and records it on the annual

1 DOT 7100 report. Staff notes FY 2017 had the largest discrepancy<sup>4</sup> in the nine year history  
 2 between the two system reports.

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

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

12 **Figure 2.**



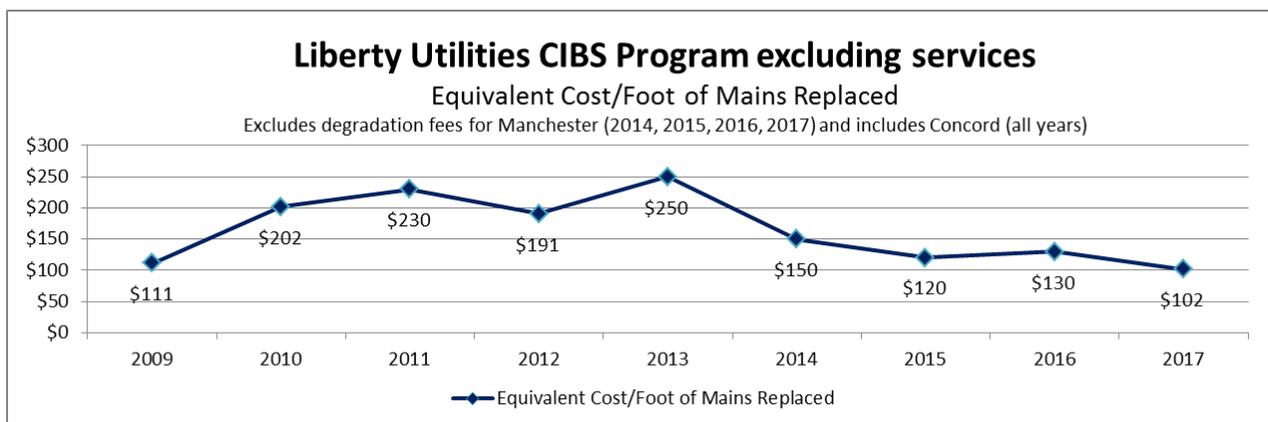
13

<sup>4</sup> Discrepancy was 8.8 miles [102.0 miles remaining and 93.2 miles remaining], nearly double the discrepancy of FY 2016 of 4.6 miles

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?**

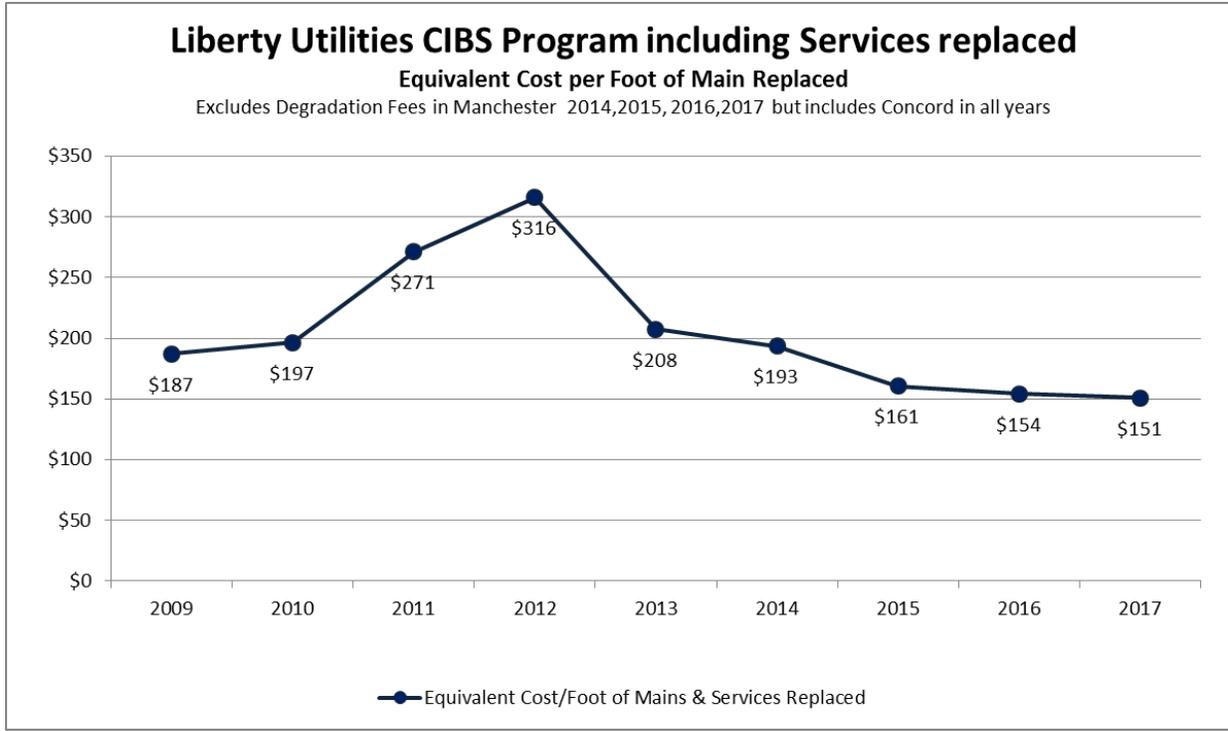
3 A. See Figure 3-A below that shows the overall CIBS Program expenditures in cost per foot of  
 4 mains replaced from year to year. As expected the cost per foot of main replaced decreases  
 5 as the quantity replaced increases. Figure 3-B shows a similar graph that the overall CIBS  
 6 Program expenditures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

17 **Figure 3-A**



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**Figure 3-B**



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1 **II. STAFF COMMENTS ON THE FY 2017 RESULTS AND FY 2018 CIBS**  
 2 **FORECAST PLAN**

3 **Q. Please describe the FY 2017 Program and what was accomplished versus what was**  
 4 **forecasted.**

5 A. Reference MacDonald-Frost testimony, Attachment RGM-DBF-2 included as part of the  
 6 Liberty Utilities CIBS filing on 4-17-2017. Liberty initially proposed 25 CIBS projects for  
 7 FY 2017 (9 in Nashua, 8 in Manchester, and 8 in Concord/Laconia) for a planned  
 8 replacement total of 8.14 miles with an additional 1.29 miles abandoned. Liberty modified  
 9 the plan by increasing amount of reduction for leak prone pipe including mains and services  
 10 to 32 CIBS projects (10 in Nashua, 10 in Manchester, and 12 in Concord/Laconia) for a total  
 11 of 9.41<sup>5</sup> actual miles replaced. Liberty thus replaced approximately 16% more leak prone  
 12 pipe than originally forecasted. Liberty has indicated that many of the resources were  
 13 reallocated from completing new growth projects to CIBS projects when it became apparent  
 14 that the new growth projects were not coming to fruition as expected. One of the 32 projects  
 15 was delayed and never started. The 9.41 miles replaced represents approximately 92% more  
 16 main replaced than the previous year, and 4.5% more than the proposal to Staff in June of  
 17 2016 and submitted as revised testimony in DG 16-449<sup>6</sup>. In terms of replacing bare steel  
 18 services, Liberty replaced, inserted or abandoned the highest number of bare steel services  
 19 (385) in FY 2017 since the inception of the program, a 224% increase over FY 2016 and was  
 20 17% more than what was initially projected to occur.<sup>7</sup> This 14% increase is largely a result  
 21 of the seven associated main projects getting added. Of the 31 projects in which mains and  
 22 services were installed only 7 had final restoration costs applied leaving 24 projects with  
 23 carryover costs. Thus only 7 of the initial 25 projects proposed were started and completed

<sup>5</sup> Source: Discovery1-1 Attachment RGM-DBF-2 Column AC Line 44 = 9.41 miles;

<sup>6</sup> Source: DG 16-449 Attachment DBS -1 revised April 15 2016 page 4 of 4 Line 11 (BP 062)

<sup>7</sup> Source: 3/26/16 original FY 2017 program: 385/338 bare steel services = 14%

1 within the construction season with all costs applied to the program. This is an increase in  
 2 unfinished projects from last year’s work log which resulted in 5 unfinished projects where  
 3 final restoration was not completed. A summary is provided in Table 1 (below):

4 **Table 1:**  
 5

Fiscal Year as Represented in Spreadsheets	Liberty FY	Bare Steel Services Replaced from CIBS Program	Cast Iron 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	385	50,385	9.54
<b>Sub Total</b>		<b>1,246</b>	<b>187,020</b>	<b>35.42</b>
2017 (Estimated) as of 3/25/2016	FY 2017 (Projected)	338	42,975	8.14

6  
 7  
 8  
 9 **Q. What is your assessment of the adequacy of the Liberty CIBS results for Fiscal Year**  
 10 **2017, beginning with a brief summary of the forecast?**

11 A. For FY 2017, the Company estimated it would replace 8.14 miles of cast iron and bare steel  
 12 mains and would replace 338 bare steel services that are tied to these mains. Liberty  
 13 projected it would cost \$9.325 million for these FY 2017 investments<sup>8</sup>. These two goals  
 14 equate to an estimated cost per mile of replaced main of slightly more than \$1,145,620.

<sup>8</sup> Source: March 25, 2016 submittal Column P Line 37 = 8.14 miles; Column L Line 36 = 338 bare stl services; Column X Line 36 = \$9,325,348

1 The Company actually replaced 9.54 miles of cast iron and bare steel mains and 385 services  
 2 during FY 2017 at a cost of \$7,493,962 million<sup>9</sup>. 24 projects were left uncompleted  
 3 regarding final paving restoration costs but mains and services were installed. At this time  
 4 these 24 projects can only be estimated for final paving costs in the amount of \$2,301,960 in  
 5 which a portion or all are eligible for recovery in FY 2018. These are costs that should have  
 6 been included but are “carried over” to next year. Finally, the impacts of FY 2016 five  
 7 restoration projects that were completed and final costs were determined must be included.  
 8 Initially these were estimated to be \$676,549 but the actual costs came in at \$585,000.  
 9 Liberty has requested within the petition to get approval from the Safety Division for all of  
 10 the \$585,000 while the settlement allows for only \$537,824. The Safety Division  
 11 recommends that the difference of \$47,176 in accordance with the settlement terms be  
 12 reduced from the amount Liberty is seeking.

13 While not exactly a “true” comparison between the estimated costs per mile and the actual  
 14 costs per mile, if we used the assumed paving costs (24 projects) associated with the  
 15 \$7,493,962 (31 projects) then the cost per mile of main with services replaced came to  
 16 approximately \$1,026,826 per mile.

17 Thus, the actual per mile loaded cost was 89.6 % of the estimated cost.

18 **Q. What is your assessment of the adequacy of the Company’s results for FY 2017?**

19 A. The Company’s plan meets the requirements of the settlement agreement approved by the  
 20 Commission, with the exception of carry over costs as mentioned above which I will go into  
 21 further detail in section IV below. Liberty was able to for the first time meet and slightly  
 22 exceed its stated intentions of gaining sizeable ground during FY2017 for making a

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<sup>9</sup> Source: Discovery 1-1 Attachment RGM-DBF-2, Column AD, Line 44 = 9.41miles; Column L Line 43 – Line 21 = 385 bare steel services; Column AU Line 31 = \$7,493,962.

1 significant dent into the projected goal regarding rate of reduction of leak prone pipe over an  
 2 eight year horizon. Liberty stated that its goal is to remove all leak prone pipe by 2024.

3 Going forward, Liberty has announced even more aggressive rates of 13.0 miles per year for  
 4 the remainder of the CIBS. This amounts to a hearty 37% increase in replacement amounts  
 5 greater than those achieved in FY 2017.

6 **Q. Please explain why you believe the Company for the first time in FY 2017 achieved its**  
 7 **CIBS mains replacement program targets. What overall rate is needed including**  
 8 **municipal work,**

9 A. I have created Table 2 below to illustrate my observations. The table summarizes the total  
 10 cast iron and bare steel mains that have been replaced annually in the CIBS Replacement  
 11 Plan, coupled with the additional cast iron/bare steel pipe that is replaced during local  
 12 municipal projects, including the minor amount of cast iron mains replaced as part of the  
 13 separate Cast Iron Encroachment Program. As noted in Table 2 with data provided by the  
 14 Company in Attachment DBS-1, page 4 of Mr. Simek’s testimony, over the past nine years  
 15 61.4 miles of cast iron and bare steel mains have been replaced, but only 36.86 miles (60%)  
 16 have been replaced as part of the CIBS program. This leaves 93.18 miles of cast iron and  
 17 bare steel mains yet to be replaced. The average rate of replacement over the past nine years  
 18 has been 6.82 miles per year. Liberty exceeded that average in FY 2017 and exceed its own  
 19 FY 2017 goal by approximately 1.4 miles. At the historical pace, however, it will take nearly  
 20 13.6 years to replace all remaining cast iron and bare steel pipe in Liberty’s system. Liberty  
 21 still believes that this can be accomplished in eight years.

22

**Table 2.**  
**Liberty Utilities Cast Iron and Bare Steel Replaced and Remaining Pipe**

<b>CIBS Replacement Program Fiscal Year</b>	<b>Municipal Projects &amp; Encroachment Program Pipe Miles Replaced</b>	<b>CIBS Program Pipe Miles Replaced /1</b>	<b>Total CIBS Plan, CIBS Municipal &amp; CI Encroachment Miles Replaced</b>	<b>CIBS Pipe Miles Remaining in System /2</b>
<b>2009</b>	2.11	2.96	5.07	149.80
<b>2010</b>	3.78	3.98	7.80	142.00
<b>2011</b>	2.22	2.79	4.60	137.40
<b>2012</b>	3.38	1.56	4.94	132.10
<b>2013</b>	2.38	1.65	4.03	126.30
<b>2014</b>	3.63	3.51	7.14	120.88
<b>2015</b>	2.04	5.00	7.04	113.96
<b>2016</b>	2.36	5.05	7.50	106.46
<b>2017</b>	2.97	10.36	13.28	93.18
<b>Avg/Year</b>	2.76	4.10	6.82	
<b>Total Miles</b>	24.87	36.86	61.40	
1. Source: Attachment DBS-1, p. 4 of 4, line 12			Replaced also includes those that were modified for connections, retiring, upsizing and other minor factors	
2. Source: Attachment DBS-1, p. 4 of 4, line 13				

The Safety Division (Staff) observes that while Liberty increased the amount of mileage that was replaced in the CIBS program to the highest since its inception, the eight year horizon that was envisioned by Staff and agreed to by Liberty in DG 14-041, DG 15-104, and DG 16-449 and confirmed in DG 17-063 would now need approximately 11.6 miles per year.

Liberty has further increased its intentions of installing 14.14 miles with 497 bare steel service replacements in FY 2018 not including 2 miles of municipal work expected in FY 2018. Staff is cautiously optimistic that Liberty can accomplish this but has reservations based on what has historically been achieved, as well as many concurrent projects being developed by Liberty. Staff is pleased to see that Liberty has acknowledged the need to

1 replace aging infrastructure as a company priority but recognizes the challenges this major  
2 program has upon other competing programs within the Company. Increasing the rate of  
3 replacement requires constant and increased oversight, increased number of qualified crews,  
4 increased communications with municipalities, while continuing to work within the confines  
5 of a construction and paving season. Inattention to any of these components can place the  
6 company in positions of jeopardy regarding pipeline safety.

7 **Q. In oral testimony for the FY 2016 CIBS (DG 16-449) Liberty commented on carry costs**  
8 **and stated the limits contained within the settlement should be explored and**  
9 **ultimately increased. Has the previous position changed of the Safety Division?**

10 A. No the previous position remains unchanged from my prior testimony, Earlier, I highlighted  
11 eight reasons why the existing limits are appropriate and altering them would not be  
12 beneficial or necessary. Briefly, they were:

13 1) Changing the lone provision regarding carry over costs would make it inconsistent with  
14 the remaining provisions of CIBS program. The overall theme is centered upon entire  
15 completion within a construction season.

16 2) Managing workload in a balanced mode that provides sufficient attractiveness to  
17 contractors is within the companies control and has historically been a constraint for New  
18 Hampshire companies. The bid documents that are used for long term contracts with outside  
19 contractor were put together by Liberty after the provision was in effect.

20 3) Reduced backlog of leaks should help the Central and Northern Divisions regarding open  
21 patch inventories that are monitored by Concord, and Manchester public works officials.  
22 Leak backlogs mostly on coated steel mains and the types of fittings used continues to  
23 remain steady within Nashua.

24 4) Finish dates of projects should be programmed in such that 10 day requirements from  
25 temporary to finish pavement in Manchester, 30 day requirements from temporary to finish

1 pavement imposed by Nashua and over the winter restoration requirements in Concord can  
2 be hard wired into schedules to allow for least amount of carrying costs.

3 5) Town specifications are based on surface temperature of road not air temperature as stated  
4 in Oral testimony of DG 15 -104.

5 6) Throughout the last 2 years, Liberty attempted no discussions with the Safety Division  
6 regarding carrying over costs other than through filings of CIBS dockets.

7 7) Estimated restoration costs lessens the ability to determine true costs of “all in” actual  
8 costs against estimates when considering amount of work and impacts to customers in the  
9 ensuing year. Capturing all the costs over multiple docket filings can be difficult and more  
10 importantly, providing anything less than a full picture leaves only a distorted view of the  
11 program.

12 8) Finally, the Company will suffer minimal financial harm and any associated lag would be  
13 minimal given the frequency of rate cases Liberty has chosen to file recently.

14 **Q. Are there others?**

15 A. The Safety Division is not exactly certain what the legal requirement and associated  
16 ramifications are in re opening a large settlement signed by multiple parties that wouldn't  
17 also trigger other allowances for alteration of terms of unrelated provisions within the  
18 settlement. This may lead to re-examining other changes that may be sought by an  
19 individual party.

20 B. The Safety Division is concerned that a lessening of the provision or elimination of the  
21 carrying cost provision will result in more projects not getting completed in a single  
22 construction season.

1 C. The focus of the discussion of paving and restoration costs should first be on how can  
 2 they be lowered within each community without significant degradation in quality and  
 3 only then should discussions be centered on how recovery mechanisms are achieved.

4 **Q. Has Staff performed any analysis of use of crews for FY 2016?**

5 A. A. Yes Liberty provided a Yes Staff has done a preliminary analysis of crew use in  
 6 FY2016 base on daily crew schedules submitted to the Safety Division by 8:30 am each  
 7 morning. Some of the analysis reveals:

8 1) On a daily average CIBS crews represented about 37% of the total amount of crews  
 9 used by Liberty.

10 2) The peak day of crews for Liberty was managing 28 crews total on October 19, 20  
 11 and 21 while the peak number of CIBS crews was 13 for a single day July 26, 2016

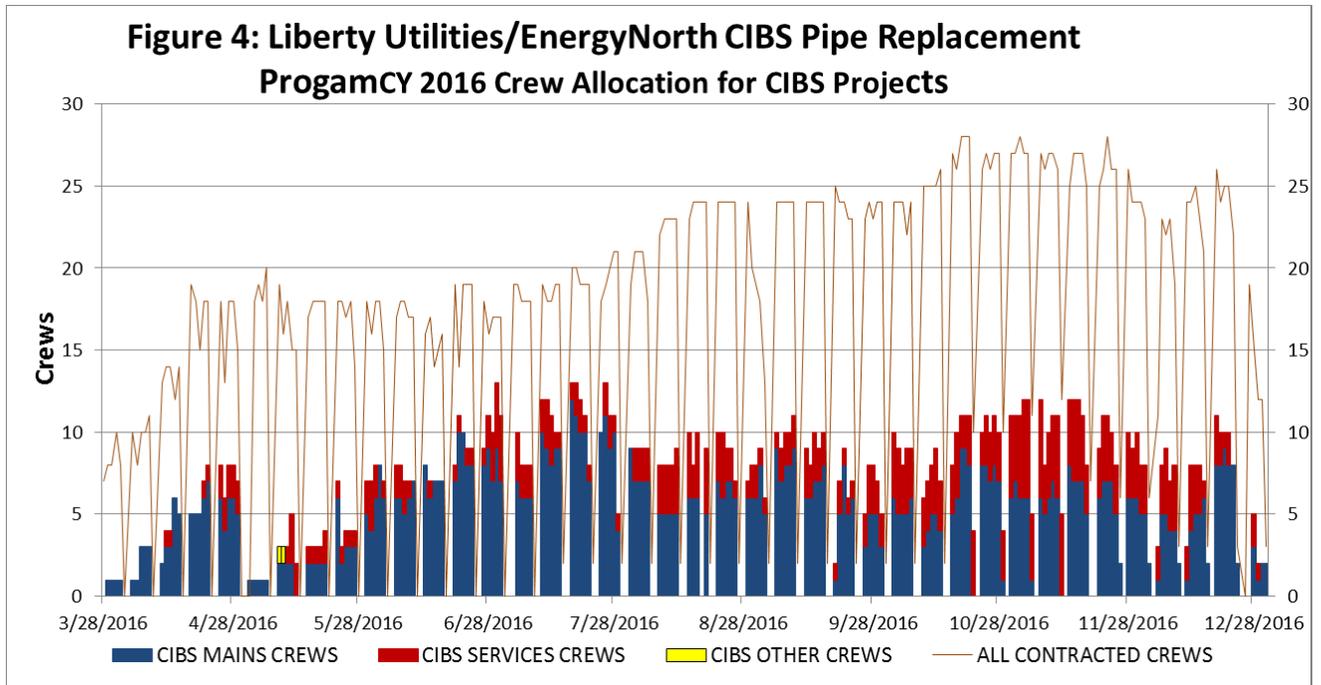
12 3) The average number of CIBS crews during the year is 6.4 crews per day and the  
 13 average number of total crews is 17.3 crews per day.

14 4) On Saturdays, the average number of CIBS crews working is 0.75 and the peak  
 15 occurred twice using 5 CIBS crews on November 5 and November 12, 2016

16 5) For 21 Saturdays between April 1 and December 31, there were no CIBS crews  
 17 working.

18 6) Only by exception do crews work on Sundays.

19 This is consistent with testimony of DG 16-449 when Mr MacDonald stated that they would  
 20 use 25 crews and 13 would be dedicated to CIBS. Figure 4 displays a daily and weekly  
 21 number of crews on the system.



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2

3

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

4

A. Yes Liberty provided a half page summary of the statistics. They are included RGM-

5

DBF-s Attachments. In summary, 67 customers were potential conversion opportunities

6

and 12 or 13 customers had services installed. This indicates a high response rate 17/67

7

or approximately 25% was achieved. Industry standard is typically 1% to 2% response

8

rate.

9

Liberty’s Main and Service Extension Policy was adjusted in August 2016 provision to

10

provide 100 feet of service installation at no charge to be extended to residential non-heat

11

customers who commit to taking service prior to a main extension or replacement. The

12

CIBS program is an appropriate mechanism to apply this new tariff. Staff again is

13

emphasizing that efforts need to be initiated years ahead (as far as three years out) for

14

potential gas mains that are candidates to be replaced can help customers who need to

15

consider major investments have the requisite ample time to consider adding natural gas

1 as a fuel supply. Currently Liberty only begins the marketing efforts once the CIBS  
2 program is finalized.

3

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2 **III. STAFF COMMENTS ON THE FY 2018 FORECAST IN RELATION TO FY 2017**  
 3 **PROGRAM RESULTS**

4 **Q. What is your assessment of the adequacy of the Liberty CIBS plan for Fiscal Year 2018,**  
 5 **beginning with a brief summary of the forecast?**

6 A. Under the CIBS program forecast for FY 2018, the Company estimates it will replace 14.4  
 7 miles of cast iron and bare steel mains. Liberty projects this will cost approximately \$17.987  
 8 million. Based on the outstanding number of bare steel services approximating 5,800 Liberty  
 9 will need to replace 725 bare steel services annually that are tied to these mains. Liberty has  
 10 never replaced more than 400 bare steel services in any one season during the CIBS program.  
 11 This is an aggressive goal and Staff is cautiously optimistic about the chances of it coming to  
 12 fruition but believes the likelihood of the goals translating into actuals will be challenging.

13 **Q. How does the FY 2018 forecast compare with the Company's CIBS results during FY**  
 14 **2017.**

15 A. The Company replaced 9.42 miles of cast iron and bare steel mains and 385 services during  
 16 FY 2017 at a cost of \$7.493,962 million (\$8.080 million if include the allowed 5 carryover  
 17 costs from FY 2016), or approximately \$858,635 per mile<sup>10</sup>.

18 The FY 2018 forecast of \$1,272,122 per mile is 48% higher than the actual cost per mile  
 19 from FY 2017. Staff attributes some of this higher cost to a greater number of services per  
 20 mile that will be replaced in FY 2018 as well as Liberty's ability to attain actual costs that are  
 21 less than estimated. It appears the cost per mile is significantly higher even including these  
 22 factors.

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<sup>10</sup> \$8.080 million includes the \$585,800 of carryover costs, although only \$537,824 of carryover costs are recommended by Safety Division. Purpose is to yield an approximate cost per mile figure

1 **IV. STAFF RECOMMENDATIONS OF CIBS ACCELERATED REPLACEMENT**  
 2 **PROGRAM GOING FORWARD FY 2018 AND OTHER SUGGESTED**  
 3 **RECOMMENDATIONS**

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

6 A. Staff welcomes the proposed increased rate of replacement projects. In FY 2018, Liberty will  
 7 be the lone gas utility with cast iron and bare steel mains in New Hampshire. It will not cost  
 8 less per mile in 2024 than the unit expenditures of today. Staff ,once again, remains cautious  
 9 that this requires increased focus of management to oversee that quantity of projects, manage  
 10 resources efficiently (especially outside crews), and maintain sufficient quality assurance of  
 11 the replacement projects while balancing increased growth projections and other large capital  
 12 projects. Staff believes there are in the long run operational and maintenance offsets that can  
 13 be achieved such as having less emergency responses, less leak surveys required, less  
 14 overtime associated with leak repairs that require repairs after normal business hours.

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

16 A. Although the annual costs would be noticeably higher in total, I believe the per-therm  
 17 charges can be absorbed with manageable impact on customer bills. The future costs of  
 18 replacement over a longer time period will inevitably be higher and pushing the program out  
 19 over an extended amount of time only delays the conclusion of the program while not  
 20 reducing risk. In the long run, I would expect that rate payers would realize savings in costs  
 21 related to this accelerated program. Other considerations would be the improved safety and  
 22 reliability from replacing these problem mains by 2024 as opposed to beyond.

23 **Q. Please explain the “carry over cost provision” of Settlement Attachment J Section 20?**

24 A. According to Liberty, the carryover costs applied to FY 2017 for 5 projects left over from FY  
 25 2016 that were not final paved were \$ 585,800 for miles. This includes \$47,976 of charges

1 that are non recoverable in the CIBS but may be collected in a rate case at some later time.

2 The Staff has asked for this to be removed from recovery of rates and has requested of  
3 Liberty a schedule that reflects the removal and reduces the annual revenue requirement from  
4 \$ 694,182 to \$ 688,807.

5 **Q. Can the carry over cost problem worsen in FY 2018?**

6 A. The problem continues as more replacement projects are undertaken. In FY 2015, 52% of  
7 the projects undertaken were not completed by including the final restoration expenditures.  
8 Of the 13 projects undertaken in FY 2016, the paving for 5 were not completed accounting  
9 for an actual total of \$585,800 of delayed costs. In FY 2017 of the 31 projects started in  
10 during the construction season, 24 were not completed accounting for an estimated paving  
11 cost of \$2,301,960. This is the largest amount of carry over costs. Only 5 of 19 of the  
12 projects in Nashua and Manchester were completed with final paving. Under the terms of  
13 Attachment J, only \$899,390 of the \$2,301,960 estimated carryover costs may be recovered  
14 in FY 2018 (.05 x \$17,987,802), while the remaining \$1, 402,570 would be recovered during  
15 the next rate case. Depending upon what is completed in FY 2018 will determine how much  
16 larger the problem worsens in ensuing years.

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

18 I would recommend continuing filing of petitions by April 15 of each year as has been done  
19 the last few years rather than May 15.

20 I would recommend the continued provision that the Commission requires as was done in  
21 Commission Orders No. 25,684, and No. 25,798 that Liberty would provide a report to Staff  
22 by the end of 2017 documenting the results of its market research conducted during 2017,  
23 and its plans for marketing to new customers on a going forward basis along mains being  
24 replaced under the Company's Cast Iron/Bare Steel Replacement Program. Liberty should

1 include any quantities of customers that took advantage of the 100 feet of free service tariff  
 2 condition that began being offered in August 2016.

3 **Have the FY2018 costs used to calculate the CIBS revenue requirement and proposed**  
 4 **rate increase been audited by the commission Audit Staff?**

5 A. Yes. The Commission noted in Order 25,798 of DG 15-104 that audits are warranted<sup>11</sup>. FY  
 6 2017 was the first year a comprehensive audit was performed and there were no findings of  
 7 any expenditure or allocation method that pointed to a potential problem. The audit was just  
 8 completed in June 2017.

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

11 A. Yes, given the significant amount of expenditures Liberty is proposing over the next eight  
 12 years, I believe an audit should be required and an accompanying report be produced  
 13 annually.

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

15 A. Yes.

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<sup>11</sup> Transcript DG 15-104 page 23 lines 12-18, Order 25,798 p 8 Line 3.