

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

**DG 16-449**

**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 6, 2016**

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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 Director of the Safety Division for  
3 the New Hampshire Public Utilities Commission. My business address is 21 S. Fruit Street,  
4 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. I have  
9 been the Director of Safety for the New Hampshire Public Utilities Commission since  
10 December 2004. Prior to that I was an Environmental Consultant and Business Development  
11 Manager at The Smart Associates, Environmental Consultants, Inc., located in Concord, New  
12 Hampshire. My prior work experience includes a number of Business and Operations roles  
13 at Keyspan Energy Delivery New England and EnergyNorth Natural Gas Inc. (Keyspan,  
14 EnergyNorth), including Key Account Executive, Commercial & Industrial Sales Manager,  
15 Sales Engineer, Senior Engineer, Staff Engineer, and CAD Supervisor. For many of those  
16 years, I designed natural gas distribution systems, recommended capital improvement  
17 projects, recommended system expansions, wrote Operations and Maintenance procedures,  
18 and oversaw construction projects. While performing the duties of each of these occupations  
19 I was responsible for compliance related to applicable Local, State, and Federal Codes. I  
20 worked at Westinghouse Electric designing high voltage transmission lines as a Project  
21 Engineer. I have completed 22 Technical Training Sessions and 21 Online Training Sessions  
22 provided by the Training and Qualification Center of the Pipeline and Hazardous Materials  
23 Safety Administration (PHMSA). See RSK Attachment 1. I've served as Staff Engineer for  
24 the New Hampshire Site Evaluation Committee prior to its most recent reorganization in

2014 and as subject matter expert for the New Hampshire Advisory Council on Emergency Preparedness and Security. My professional work experience spans more than 30 years.

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

A. Yes. I am a member of the Association of Energy Engineers (AEE). I serve on multiple committees of the National Association of Pipeline Safety Representatives (NAPSR) including positions of Chair and Past Chair. I served as editor of each of the biennial editions of NAPSR's Compendium of State Pipeline Safety Requirements & Initiatives Providing Increased Public Safety Levels Compared to Code of Federal Regulations. I chair the Staff Pipeline Safety subcommittee of the National Association of Regulatory Commissioners (NARUC), serve on the Common Ground Alliance Technology committee, and I am a board member of the New Hampshire Public Works Standards and Training Council. Finally, I have testified before the United States Congress on pipeline safety issues.

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

A. The purpose of this testimony is to:

I. Update the Commission with a brief synopsis of the Liberty Utilities (EnergyNorth Natural Gas) Corp ("LU-ENG", "the Company", "Liberty") Cast Iron Bare Steel Replacement (CIBS) replacement program since its inception in 2009;

II. Comment on the LU-ENG CIBS program results for Fiscal Year 2016 (April 1, 2015 – March 31, 2016), including the associated costs, including carry-over costs the Company is seeking to recover in this proceeding;

III. Provide Staff's assessment of the adequacy of the LU-ENG CIBS plan for Fiscal Year 2017 (April 1, 2016, to March 31, 2017); and

IV. Make recommendations regarding the Company's replacement rate associated with its CIBS Main Replacement Program going forward.

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.

Staff does not require physical cutouts of cast iron mains. Lastly, Staff reviews actual finalized expenditures and compares them to the previously submitted projections for the recently completed fiscal year.

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

A. These condition reports provide the Safety Division with valuable pipeline integrity data, including wall thickness, age, soil conditions, system pressure, and location information of bare steel pipe segments related to various types and vintages of removed bare steel segments. These characteristics determine integrity and corrosion assumptions that are useful to incorporate into subsequent planning. It is a delicate balance to weigh the need to replace aging piping systems as they near the undesirable condition where leaks increase and mains break against premature replacement of pipes that have many years of useful life and pose little risk to the public. In many cases Staff has seen deep pitting, seam cracks, holes and other undesirable features of the bare steel mains. For FY 2016, 2 projects required bare steel replacement that necessitated written condition reports, and each of the bare steel pipe locations had 100% wall loss (i.e. holes). This indicates that the pipeline has far exceeded acceptable safety requirements and was leaking 24 hours a day, 365 days per year, with ratepayers bearing the costs through the cost of gas adjustment recovery mechanism. Since 2009, 42<sup>1</sup> individual reports have been completed regarding bare steel segments, which is an average of 5.25 per year. The average age of each segment removed is 81.5 years with an addition four years, Liberty could not determine the age of the removed segment.

**Q. Liberty has stated that it costs approximately \$4,000 to collect a sample and write a report with the majority of the costs attributed to reopening a hole. Do you believe this practice should continue?**

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<sup>1</sup> Liberty and its predecessor companies have provided 42 written reports to date. Two of the reports submitted were on coated steel segments in FY2010, thus only 40 were required.

1 A. I do believe there is value in collecting data on the bare steel segments and that this process  
2 allows the data to be applied to other parts of the system. Eliminating a direct feedback  
3 mechanism such as this doesn't allow the Company nor the Safety Division to determine  
4 when and if the safety issue is being remedied appropriately. Tangible evidence, not  
5 presumptive or qualitative descriptions, is a more powerful indicator of assessing pipe  
6 integrity. Samples and associated test results render a clearer understanding of the gas  
7 pipeline system conditions. With physical samples, it is more difficult to refute the degree of  
8 how worn the leak prone piping systems are allowing for quicker consensus and supporting  
9 the continued need for a CIBS program. Until Liberty has turned the corner on bare steel  
10 replacements, which after eight years we can affirm it has not, I would recommend that the  
11 practice continue. As a manner of customary business practice, each year Liberty is  
12 continuously and frequently opening up pavement for many reasons including--  
13 additional tie-ins for new growth, leak repairs, replacement of valves, relocation of pipelines  
14 and other operations and maintenance needs-- and these few additional excavations would  
15 appear to be a small amount of cost to expend given the benefits. Commission Order 25,798  
16 agreed with the Safety Division's analysis when it was determined Liberty should not  
17 abandon the soil testing, and that the information remains useful<sup>2</sup>. The analysis of bacterial  
18 conditions for one of the two samples taken in FY 2016 (Salem St, Nashua) revealed very  
19 elevated readings for acid producing bacteria. Lastly, the original Commission Order 25,370  
20 approving the settlement agreement still requires it. RSK Attachment 3 provides the history  
21 of the sampling and RSK Attachment 4 also compiles highlights of each of the submitted  
22 reports of the past eight years.

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<sup>2</sup> See Order 25,798 at Page 8 Paragraph 2 of Commission Analysis

**Q. Does Liberty use the information gained from microbiological induced corrosion testing for consideration of selecting other future segments considered as future candidates for replacement or for any other purposes?**

A. Liberty has stated that it does not use the information.

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

A. Of the 29 communities served by Liberty Utilities gas distribution operation, only seven have cast iron or bare steel segments (leak prone or worn pipe). As expected, the heaviest concentration is in the municipalities of Manchester, Nashua, and Concord. These communities began serving customers back in the 1800s and, as a result, have some of the oldest piping in the state. Liberty, in its CIBS filing, reduced the amount of leak prone pipe from 113.96 miles for FY 2015 to 106.46 miles for FY 2016<sup>3</sup>. This 7.5 mile decrease includes 5.05 miles as a result of the CIBS program (4.89 miles replaced plus 0.45 miles upsized pipe less 0.20 miles related to coated steel and plastic mains). The remainder of the 7.5 mile decrease is comprised of 2.36 miles<sup>4</sup> related to municipal work and Liberty's cast iron encroachment policy. In addition, another 1.19 miles of leak prone pipe was abandoned. In addition to the CIBS filing, Liberty reports annually to the US DOT Pipeline Hazardous Material Safety Administration (PHMSA) and to the Safety Division the amounts of Cast Iron and Bare Steel remaining by pipe diameter and by division. The cities and towns with cast iron or bare steel pipes are listed in Figure 1 below:

<sup>3</sup> The source of this mileage is Attachment DBS-1, page 4 of 4, Bates Page 063 (line 13) of the Filing.

<sup>4</sup> The source is Attachment GMC-ITC-1 Table 3, Bates Page 031 of the Filing.



**Figure 1**

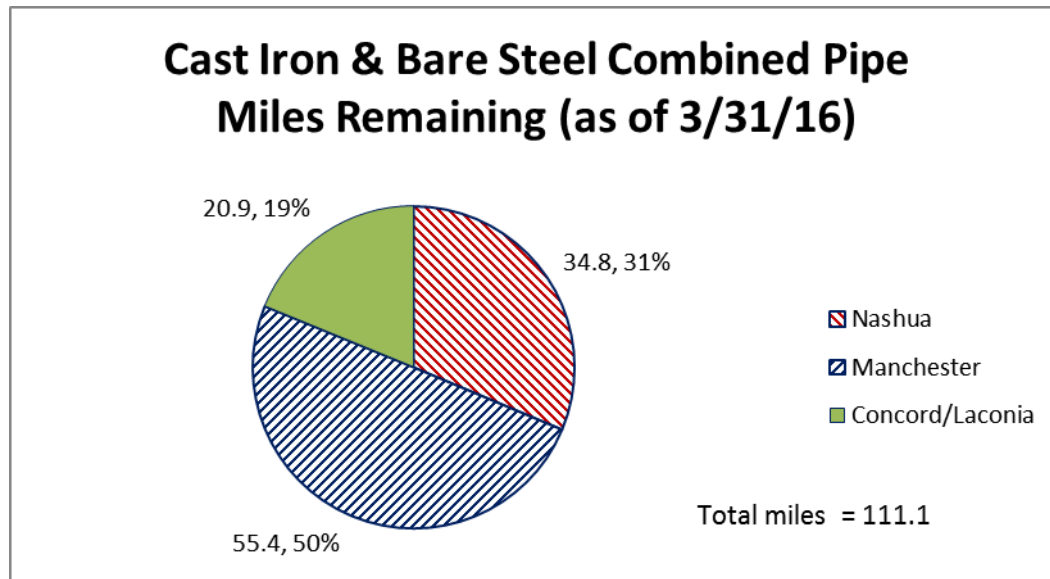


Figure 1 Notes:

- A. The Southern Division CIBS areas include Nashua and some sections of Hudson.
- B. The Central Division CIBS areas include Manchester and small sections of Goffstown and Bedford.
- C. The Northern Division CIBS areas include Concord, Laconia and a small single segment in Bow.

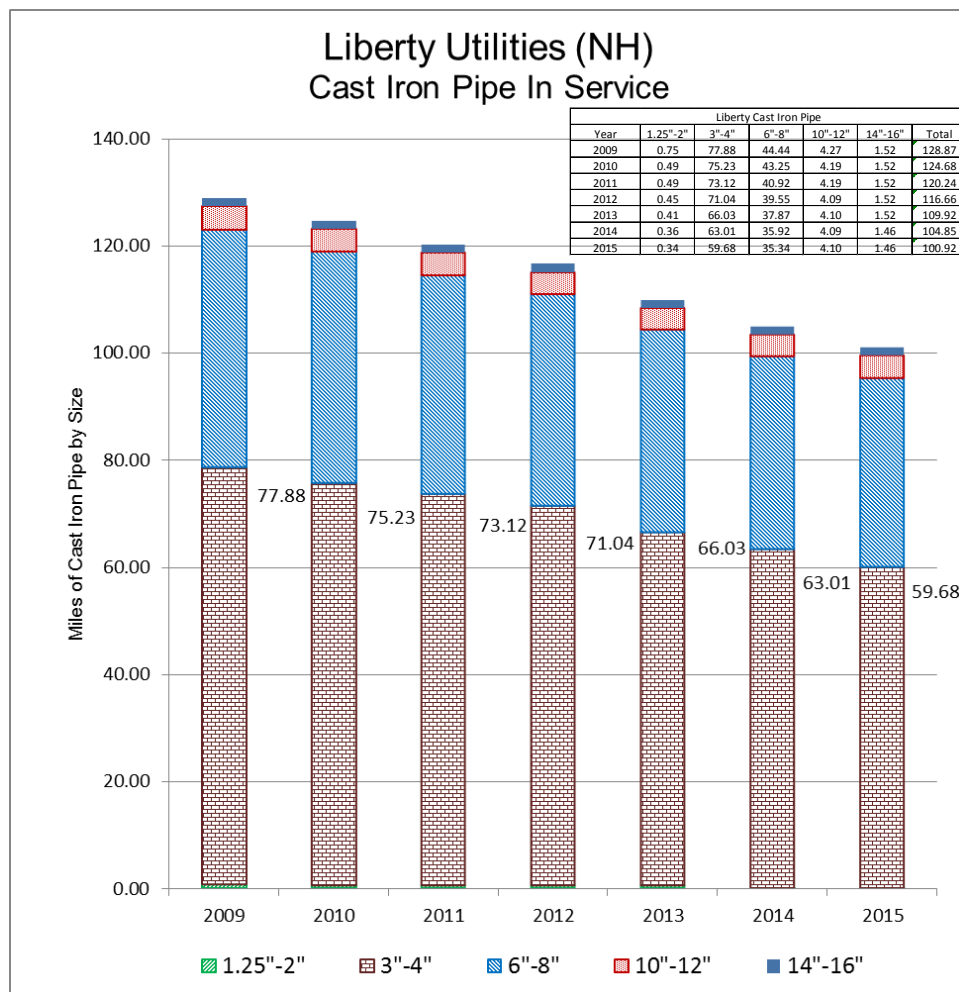
There is minimal difference in each community's percentage share of leak prone pipe between FY 2015 and FY 2016. This reflects that Liberty is spreading its CIBS program work among all three of its divisions: Northern, Central, and Southern. It should be noted that the difference between 111.1 miles remaining, which is derived from the annual DOT 7100 report filed with the Commission and the 106.5 miles reported in the CIBS filings results from a recording lag of documenting asset data in Liberty's GIS system. Liberty uses the amounts recorded in its GIS system to submit the mileage of cast iron/bare steel within the gas distribution systems as of December 31, 2015 and records it on the annual DOT 7100 report. Staff notes FY 2016 had the largest discrepancy<sup>5</sup> in the eight year history between the two system reports.

<sup>5</sup> Discrepancy was 4.6 miles [111.1 miles remaining and 106.5 miles remaining]

1 **Q. Do you have a breakdown of the how much cast iron pipe is in service for each pipe**  
 2 **diameter, and if yes, why is this information important to the Safety Division?**

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

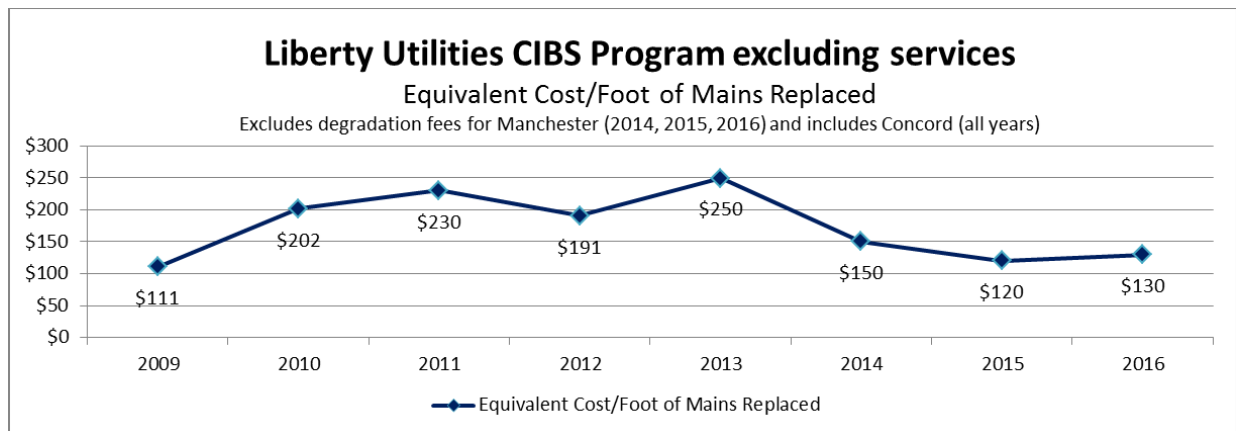
10 **Figure 2.**



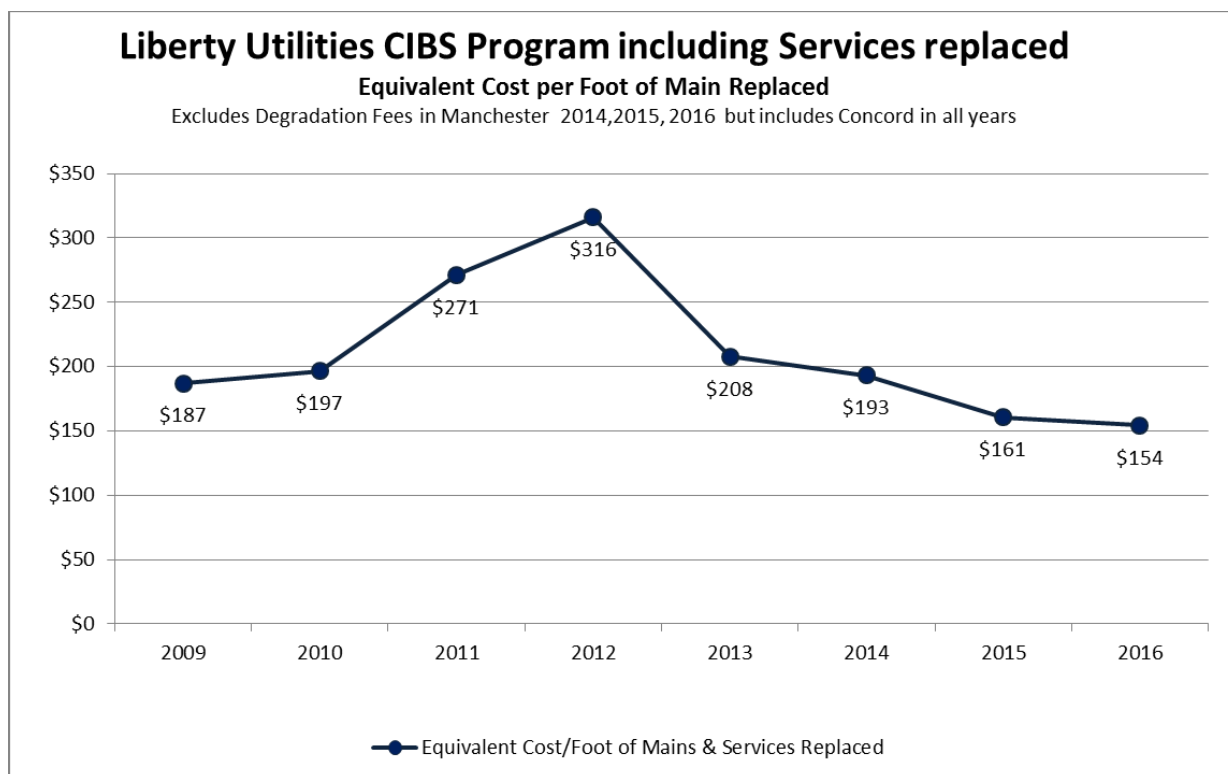
**Q. Since the inception of the CIBS Program, how does the overall cost per foot of mains replaced compare from year to year?**

A. See Figure 3-A below that shows the overall CIBS Program expenditures in cost per foot of mains replaced from year to year. Figure 3-B shows a similar graph that the overall CIBS Program expenditures in cost per foot of mains but also includes the cost of replacing services that are attached to the main. All the data points in Figure 3-B are higher than those with main costs. The encouraging trend is that it shows Liberty is driving down these costs over the past few years although much of it may have to do with the miles replaced in the same time frame. It should be noted these are not the expenditures that are allowed for recovery but those that are incurred.

**Figure 3-A**



**Figure 3-B**



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**II. STAFF COMMENTS ON THE FY 2016 RESULTS AND FY 2017 CIBS FORECAST PLAN**

**Q. Please describe the FY 2016 Program and what was accomplished versus what was forecasted.**

A. Reference Attachment GMC-ITC-2 dated 4-15-16. Liberty initially proposed 20 CIBS projects for FY 2016 (7 in Nashua, 6 in Manchester, and 7 in Concord/Laconia) for a planned replacement total of 7.51 miles. Liberty reduced leak prone pipe including mains and services for 13 CIBS projects (3 in Nashua, 4 in Manchester, and 6 in Concord/Laconia) for a total of 4.89<sup>6</sup> actual miles replaced. Liberty thus replaced approximately 35% less leak prone pipe than originally forecasted. Liberty has indicated that many of the resources were reallocated to completing new growth projects. Seven of the 20 projects were delayed and never started. Six of the seven have been rescheduled for FY 2017. The remaining one is unscheduled at this time. The 4.89 miles replaced represents only approximately 3% more main replaced than the previous year, but 39% less than the proposal to Staff in June of 2015 and submitted as revised testimony in DG 15-104<sup>7</sup>. In terms of replacing bare steel services, Liberty replaced, inserted or abandoned the highest number of bare steel services (177) in FY 2016 since the inception of the program, a 11% increase over FY 2015 but 45% less than what was initially projected to occur. This 45% shortfall is largely a result of the seven associated main projects getting delayed to future years and a significant reduction in project length associated with of 2 of the 13 projects. Of the 13 projects in which mains and services were installed, only 8 had final restoration costs applied leaving 5 projects with carryover costs. Thus 8 projects of the initial 20 projects proposed were started and completed within the construction season with all costs applied to the program. This is an improvement from

<sup>6</sup> Source: Discovery1-1 Attachment GWN-ITC-2 Column AC Line 32 = 4.89 miles;

<sup>7</sup> Source: DG 15-104 Attachment DBS -1 revised May 20 2015 page 4 of 4 Line 11

last year's work log which resulted in 12 unfinished projects where final restoration was not completed. A summary is provided in Table 1 (below):

**Table 1:**

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
<b>Sub Total</b>		<b>861</b>	<b>136,635</b>	<b>25.88</b>
2016 (Estimated) as of 3/20/2015	FY 2016 (Projected)	322	39,630	7.51

**Q. What is your assessment of the adequacy of the Liberty CIBS results for Fiscal Year 2016, beginning with a brief summary of the forecast?**

A. For FY 2016, the Company estimated it would replace 7.51 miles of cast iron and bare steel

mains and would replace 322 bare steel services that are tied to these mains. Liberty

projected it would cost \$8.213 million for these FY 2016 investments<sup>8</sup>. These two goals

equate to an estimated cost per mile of replaced main of slightly more than \$1,093,569.

The Company actually replaced 4.89 miles of cast iron and bare steel mains and 177 services

<sup>8</sup> Source: Discovery1-1 Attachment GWN-ITC-2 Column AU Line 32 = 7.51 miles; Column L Line 31 = 322 bare steel services; Column V Line 31 = \$8.212,710.

during FY 2016 at a cost of \$3.985 million<sup>9</sup>. Five projects were left uncompleted regarding final paving restoration costs but mains and services were installed. At this time these five projects can only be estimated for final paving costs in the amount of \$593,728 in which a portion or all are eligible for recovery in FY 2017. These are costs that should have been included but are by “carried over” to next year. Finally, the impacts of FY 2015’s twelve restoration projects that were completed and final costs were determined must be included. Initially these were estimated to be \$912,607 but the actual costs came in at \$816,384.

Liberty has requested within the petition to get approval from the Safety Division for all of the \$816,384 while the settlement allows for only \$301,874.

While not exactly a “true” comparison between the estimated costs per mile and the actual costs per mile, if we used the assumed paving costs (5 projects) associated with the \$3.985 million (13 projects) then the cost per mile of main with services replaced came to approximately \$936,328 per mile.

Thus, the actual per mile loaded cost was 85.6 % of the estimated cost.

**Q. What is your assessment of the adequacy of the Company’s results for FY 2016?**

A. Although the Company’s plan meets the requirements of prior settlement agreements approved by the Commission, with the exception of carry over costs which I will go into detail in section IV below, my concern is that while Liberty had intentions of gaining sizeable ground during FY 2016 for making a significant dent into the projected goal regarding rate of reduction of leak prone pipe over a 10 year horizon we are still not gaining sufficient momentum on one of the most important objectives of the overall replacement rate (both from CIBS and from municipal projects) to accelerate the timeframe for replacing these

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<sup>9</sup> Source: Discovery 2-7 Attachment GWN-ITC-2 Column AC Line 32 = 4.89 miles; Column AN Line 31 – AH – AJ – Ak – AM = 177 bare stl services; Column AU Line 31 = \$3,984,919.

problematic pipelines. Each year that the goal is not achieved will put further demands in the outer years if the 2024 agreed upon date is held fixed.

**Q. Please explain why you believe the Company gained ground FY 2016 in its CIBS mains replacement program but overall did not sufficiently accelerate the total replacement rate forecast iron/bare steel including municipal work?**

A. I have created Table 2 below to illustrate my observations. The table summarizes the total cast iron and bare steel mains that have been replaced annually in the CIBS Replacement Plan, the additional cast iron/bare steel pipe that is replaced during local municipal projects, and the cast iron mains replaced as part of the separate Cast Iron Encroachment Program. As noted in Table 2 with data provided by the Company in Attachment DBS-1, page 4 of Mr. Simek's testimony, over the past eight years 48.12 miles of cast iron and bare steel mains have been replaced, but only 26.50 miles (55%) have been replaced as part of the CIBS program. This leaves 106.46 miles of cast iron and bare steel mains yet to be replaced. The average rate of replacement over the past eight years has been 6.01 miles per year. Liberty exceeded that average in FY 2016 but was shy of the FY 2016 goal by approximately 2.5 miles. At the current pace, however, it will take nearly 18 years to replace all remaining cast iron and bare steel pipe in Liberty's system.



**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>Avg/Year</b>	2.74	3.31	6.01	
<b>Total Miles</b>	21.89	26.50	48.12	

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, achieving the 10 year horizon that was envisioned by Staff and agreed to by Liberty in DG 14-041 and DG 15-104 would now require a replacement pace of approximately 11.8 miles per year. Liberty has once again shown its intentions of installing 9 miles in FY 2017 and assumes 2 miles of municipal work. 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. If another year goes by without attaining the yearly goal then the CIBS program may not achieve the necessary accelerated rate to complete work by 2024. Each year that we do not achieve the replacement goal, puts burden on the outer years. Staff is pleased to see that Liberty has acknowledged the need to replace aging

infrastructure but recognizes the challenges this major program has upon other competing programs within the Company.

**Q. In testimony for the FY 2015 CIBS (DG 15-104) Staff noted a few areas of concern. They were:**

**A) Carryover Costs exceeding 5%**

**B) Continuing Sampling of Bare Steel Segments**

**C) Increased focus of conversion on non-gas customers along CIBS segments.**

**What progress has been made regarding these three areas?**

**A. Carrying Costs:**

The Company has asked for approval of \$514,440 of excess carrying costs to be included in rate recovery for FY 2016. In Discovery 2-9 (RSK Attachment 5) and 2-10 (RSK Attachment 6), Liberty describes the factors that are beyond the company's control for restoration and paving costs.

The Safety Division is unconvinced of Liberty's arguments and does not approve of the inclusion of the excess carrying costs based on the following eight reasons:

1) The whole basis of the Settlement provision was based on a construction season. Liberty now believes that the permitting processes and pavement restoration policies of the three communities which have the greatest amounts of leak prone pipe are beyond Liberty's control to accomplish within a construction season, and thus are a good reason for the Safety Division to approve the excess carryover costs. The Safety Division believes these policies are and were known constraints that the Company must provide for within the internal processes the Company manages to achieve eligibility for the carryover cost provision. These policies, that were known at the time of the agreement, do not appear to be new factors. The construction season, including all its known constraints, was clearly identified within the CIBS program. The carry over provision is not the only subsection of the

1 agreement that references the construction season, it is discussed throughout the CIBS  
 2 program. Referencing RSK Attachment 2, it specifically states the “*CIBS program shall be*  
 3 *implemented that will be based on a **construction year** ( April through December).* In  
 4 subsection (c) it states “*..EnergyNorth shall rank and prioritize those mains to be replaced **in***  
 5 ***the associated construction year** and provide its plans to the Commission.* The carry over  
 6 cost provision is listed in subsection (d) 2.7 “ *Categories of spending that are not included in*  
 7 *the CIBS: carryover costs in aggregate exceeding 5% of the approved estimated total*  
 8 *expenditures under the CIBS program for the **construction year**, unless approved by the*  
 9 *Safety Division. Such carryover costs include items such as restoration costs **not incurred***  
 10 ***during the construction year.**”* In sub section (e ) again the construction year actual costs  
 11 are emphasized. It says: “*..Provided that investments were made in accordance with the*  
 12 *approved CIBS plan, EnergyNorth will be allowed a permanent increase in its base*  
 13 *distribution delivery rates to recover the annual revenue requirement for those investments*  
 14 *that are found to be reasonable and prudent made in the preceding construction year and in*  
 15 *excess of the CIBS Base Amount. The permanent capital investment recovery allowance will*  
 16 *not take effect until the **actual costs of the previous construction year** are approved by the*  
 17 *Commission.*”

18 Further, subsection (f) goes on to say: “*After Staff completes the review of the CIBS Plan for*  
 19 ***a given construction year**, EnergyNorth shall track all capital investments made in*  
 20 *accordance with the approved CIBS Plan. EnergyNorth will reconcile **actual capital***  
 21 ***expenditures** with the CIBS Plan targets at the conclusion of the CIBS Plan period.”*

22 [bold is emphasis added].

1        2) The Company states that it deliberately stretches out work over the course of a  
2        construction season because it believes it will get an edge in attracting contractor resources to  
3        bid on project work. The manner in which the Company manages workload is within the  
4        Company's control as well as how it solicits and writes specifications for contractor bids.

5        3) Liberty's back log of leaks requiring repair has been steadily declining as a result of a  
6        focused effort by Liberty. As the quantity of leak repairs becomes lower, coupled with larger  
7        amounts of CIBS replacement that also eliminates leaks, there should be a tendency towards  
8        fewer pavement patches, which in turn should aid in reducing the number of open patches  
9        that are monitored by the cities of Concord, Manchester and Nashua.

10       4) Referencing Attachment GMC-ITC-2 (column labeled Actual Completion Date) the  
11       completion date for projects in FY2016 shows a pattern that the final paving can be  
12       accomplished for this construction year's carryover costs. Project 2 in Concord was  
13       completed on 6/10/2015, Project 4 in Concord was completed 8/20/2015, Project 5 in  
14       Concord was completed 9/3/2015. This appears to leave ample opportunity to get final  
15       paving accomplished. The Safety Division assumes similar completion dates would have  
16       been applicable for the FY 2015 carry over amounts.

17       5) The temperatures referenced by most communities' restoration policies is for the surface  
18       temperature of the pavement, not the air temperature. Typically with black bituminous  
19       pavement, the surface temperature is much warmer than air temperature and the surface  
20       temperature limitations do not apply over the course of the entire day, just the hours in which  
21       the pavement is applied. Concord's paving requirements are attached as RSK Attachment 7.

1 6) During last year's testimony the Company asked if the Staff would discuss Carryover  
2 Costs with the Company. Staff replied they would be open to any discussions<sup>10</sup>. No  
3 discussions were made regarding carryover costs since the June 2015 hearing until Liberty  
4 within its petition filed April 15, 2016 assumed the inclusion of Carry over Costs. One  
5 would think that approvals would need to be granted prior to filing recovery rates not after.

6 7) It would set a bad precedent to allow for excessive Carry over Costs to be allowed as that  
7 would defeat the purpose of the provision. The provision purpose is to give a disincentive to  
8 not capturing costs within a single construction season so as to better be able to determine  
9 true costs of "all in" actual costs against estimates when considering the amount of work and  
10 impacts to customers in the ensuing year. Approvals would be more appropriately  
11 considered for extraordinary events rather than ordinary events that occur each year.

12 8) Lastly, the Company will suffer minimal financial harm as it has stated that it will initiate  
13 a rate case within the next year where all unrecovered carryover costs, as well as other non-  
14 recovered costs incurred associated with the CIBS program will be reviewed and analyzed in  
15 the context of the larger rate case proceeding. Thus the excess carryover costs will  
16 potentially be recovered during that proceeding and any lag associated with it would be for a  
17 short duration.

18 **Microbiological Induced Corrosion Testing:**

19 Section I outlines why the Safety Division believes the physical cutouts should continue as  
20 well as the microbiological induced corrosion testing results. This is referenced in RSK  
21 Attachment 2 subsections (o) and (p). The Safety Division believes the Settlement  
22 provisions should be upheld and that there is value in collecting this information. A tenet of  
23 distribution integrity management is to collect as much information as possible with regards

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<sup>10</sup> Transcript {DG 15-104} {06-04-15} p 75 line 18 through p 77 line 15.

1 to a distribution system for analyzing potential threats. The current DIMP plan does not  
2 recognize microbiological induced corrosion testing results while Liberty has identified this  
3 as a threat within its system. It is unclear from the testimony of Crabtree whether Liberty  
4 would like to discontinue the practice of the microbiological testing only or to discontinue  
5 both the testing and the practice of physical cutouts being provided to the Safety Division. It  
6 appears that the Company wishes to eliminate both.

7 **Conversions of Non-Gas Customers:**

8 Regarding continued focus on converting non-gas customers, Staff feels that FY 2015 CIBS  
9 program was the first year where Liberty really targeted customers along the CIBS projects  
10 and were successful. Liberty was able to install 17 new services and add 15 new customers  
11 from a potential pool of 47. This is a vast improvement over the previous years that yielded  
12 one or two customer additions along CIBS routes. FY 2016 Liberty was able to only install 4  
13 new services and attain 4 conversions from a potential pool of 59 customers. Since Liberty  
14 installed gas mains and services to only 13 of twenty proposed projects as well as two of  
15 those 13 projects dramatically being reduced in length Liberty's ability to gain new  
16 customers became limited. During a tech session in May 2016, Liberty also stated that the  
17 tariff only allows for free service for those customers who convert to heat. This is a  
18 hindrance that is inhibiting some customers from wanting gas service. Liberty believes it  
19 may be beneficial to offer free services to those customers along the CIBS routes that only  
20 want to initially install dryers, cooking, water heating and other uses but it gets the service  
21 run to the home. Staff is very open to that idea and encourages Liberty to consider proposing  
22 tariff changes that will allow for greater customer conversions. This may be a topic that  
23 maybe appropriate when discussing other tariff changes that may spur customer growth.

1 Currently filed docket DG 16-447 Petition to Amend Tariff to Include Managed Expansion  
2 Program Rates may be an appropriate docket to consider this.

3 Taking advantage of opportunities to add new customers along existing CIBS mains as the  
4 mains are being replaced is something that should be a high priority for the Company. Even  
5 though this is a labor intensive proposition that may require multiple visits to some project  
6 locations, the benefits to the Company should make these extra efforts a high priority. Often  
7 these potential customers need to be educated one-on-one with trained sales specialists that  
8 are able to answer questions, provide cost-benefit analysis, discuss energy efficiency  
9 incentives that are being offered, explain applicable state and federal tax incentives, and  
10 provide a list of reputable gas appliance suppliers and installers. These are the customers  
11 who have held out the longest and prove to be the most time consuming. They should not be  
12 measured with the same metrics as those customers who result from new construction or  
13 those for whom main extensions are required because of a new development.

14 Staff again emphasizes that efforts need to be initiated years ahead (as far as three years out)  
15 for potential gas mains that are candidates to be replaced, which can help customers who  
16 need to consider major investments to have the requisite ample time to consider adding  
17 natural gas as a fuel supply. For FY 2016 Liberty originally projected that there were 97  
18 potential customers along CIBS routes. As noted in Liberty's testimony, Liberty was late in  
19 complying with Order 25,798 to provide a market status update by December 31, 2015.

20

**III. STAFF COMMENTS ON THE FY 2017 FORECAST IN RELATION TO FY 2016 PROGRAM RESULTS**

**Q. What is your assessment of the adequacy of the Liberty CIBS plan for Fiscal Year 2016, beginning with a brief summary of the forecast?**

A. Under the CIBS program forecast for FY 2017, the Company estimates it will replace 9.0 miles of cast iron and bare steel mains. Liberty projects this will cost approximately \$8.5 million. Based on the outstanding number of bare steel services (approximately 6,200) Liberty will need to replace 620 bare steel services annually that are tied to these mains. Liberty has never replaced more than 200 bare steel services in any one season during the CIBS program. This is an aggressive goal and Staff is cautiously optimistic about the chances of it coming to fruition, but essentially believes the likelihood of the goals translating into actuals will be challenging.

**Q. How does the FY 2017 forecast compare with the Company's CIBS results during FY 2016?**

A. The Company replaced 4.89 miles of cast iron and bare steel mains and 177 services during FY 2016 at a cost of \$3.243 million (\$3.554 million if include the allowed 12 carryover costs from FY 2015), or approximately \$663,098 per mile. The FY 2017 forecast of \$941,074 per mile is 29% higher than the actual cost per mile from FY 2016. Staff attributes some of this higher cost to a greater number of services per mile that will be replaced in FY 2017 as well as Liberty's ability to attain actual costs that are less than estimated.



**IV. STAFF RECOMMENDATIONS OF CIBS ACCELERATED REPLACEMENT  
PROGRAM GOING FORWARD FY 2016 AND OTHER SUGGESTED  
RECOMMENDATIONS**

**Q. Liberty has again indicated that they intend to remove the remaining cast iron and bare steel by 2024 as opposed to 2034 projected in Table 2. Does Staff agree with this accelerated time frame?**

A. Staff welcomes the proposed increased rate of replacement projects. Staff remains convinced that this requires increased focus of management to oversee that quantity of projects, manage resources efficiently (especially outside crews), and maintain sufficient quality assurance of the replacement projects while balancing increased growth projections and other large capital projects. Staff believes there are operational and maintenance offsets that can be achieved such as having less emergency responses, less leak surveys required, less overtime associated with leak repairs that require repairs after normal business hours.

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

A. Although the annual costs would be noticeably higher in total, I believe the per-therm charges would be absorbed with manageable impact on customer bills. The future costs will inevitably be higher and pushing the program out over an extended amount of time only delays the conclusion of the program while not reducing risk. In the long run, I would expect that ratepayers would realize savings in costs related to this accelerated program. Other considerations would be the improved safety and reliability from replacing these problem mains by 2024 as opposed to 2034.

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

A. According to Liberty, the carryover costs applied to FY 2016 for 12 projects left over from FY 2015 that were not final paved were \$ 816,374 for 4.89 miles. This is \$514,440 of charges that are non-recoverable in the CIBS but may be collected in a rate case at some later time. The Staff has asked for this to be removed from recovery of rates and Liberty has

1 included a provision for this in Discovery 2-1, (RSK Attachment 8) and reduces the annual  
2 revenue requirement from \$ 214,424 to \$ 161, 010.

3 **Q. Can the carry over cost problem worsen in FY 2017?**

4 A. The problem continues as more replacement projects are undertaken. In FY 2015, 52% of  
5 the projects undertaken were not completed by including the final restoration expenditures.

6 Of the 13 projects undertaken in FY 2016, the paving for 5 were not completed accounting  
7 for an estimated total of \$593,728 of delayed costs. Under the terms of Attachment J, only  
8 \$423,483 of the \$593,728 estimated carryover costs may be recovered in FY 2017 (.05 x  
9 \$8,469,663), while the remaining \$170,244 would be recovered during the next rate case.

10 Depending upon what is completed in FY 2017 will determine how much larger the problem  
11 worsens in ensuing years.

12 **Q. Does Staff think Attachment J has been effective?**

13 A. No, the results have not been what the Staff originally envisioned. Liberty does not  
14 optimally take advantage of the ability to immediately recover through the CIBS program for  
15 this large portion of its expenditures. Staff originally envisioned that the projects would be  
16 fully completed in the construction season in which they were undertaken. The large  
17 carryover costs distort the true variances of actual expenditures compared to estimated  
18 expenditures on a project by project basis making it difficult to assess the accuracy of  
19 Liberty's estimates. It also hampers Staff's ability to understand why variances differ so  
20 much from project to project.

21 **Q. Does Staff suggest any other changes that may get more of these projects completed in a**  
22 **timelier deadline?**

23 A. Staff believes the disincentives in Attachment J (or incentives, depending on one's  
24 perspective) are only going to get larger as Liberty replaces significantly more main per year

1 in the future. One possibility is to modify Attachment J language by enhancing the incentive  
2 by limiting cost recovery to those projects that are fully completed. The modification  
3 language could consider disallowing costs of the unfinished mains and services as part of the  
4 CIBS program and postpone all those costs, not just paving costs, to a future rate case. It  
5 should be noted that if Liberty plans to file subsequent rate cases at frequent intervals, then  
6 the existing concept contained in Attachment J becomes less effective in realizing its  
7 intended objective. This remains true for any proposed limitations for the main and service  
8 costs.

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

10 A. I would recommend that in Revised Attachment DBS-2, page 4 of 4, as was done in FY  
11 2010, Liberty include a column that restates the hypothetical total cost impact considering as  
12 if Rate Case in FY 2017 was not filed as well as a version that incorporates the results if a  
13 rate case is filed. It should continue to include the historical results of the Rate Case in DG  
14 14-180 including any Final Order considerations given by the Commission. This has been  
15 done previously in FY 2010 for National Grid.

16 I would recommend continuing filing of petitions by April 15 of each year rather than May  
17 15.

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

**Q. Have the FY2016 costs used to calculate the CIBS revenue requirement and proposed rate increase been audited by the commission Audit Staff?**

A. No. The annual CIBS filings have not typically been audited. Last year in DG 15-104 testimony<sup>11</sup>, Staff recommended that the annual CIBS filing should be audited going forward because of the increased number of replacement miles forecasted and resulting increased expenditures associated with the accelerated program. It was noted during the hearing that both Liberty and Staff were in agreement with auditing the results and the Commission noted this in Order 25,798<sup>12</sup>.

**Q. Was any type of Audit performed by Audit Staff during 2015 of the FY 2014 and FY 2015 results?**

A. Yes, a very limited, single item audit was conducted June 22, 2015 regarding the methods used for documentation of degradation fees imposed by and paid to the City of Concord and if they were properly accounted for. The Audit revealed a possible minor issue regarding excavation permits for this single item for FY 2015 and no issues in FY 2014. A comprehensive audit as envisioned by Staff was not completed nor initiated for FY 2016 CIBS program. Going forward this auditing step would need to be built into the existing compressed schedule and Staff expects FY 2017 results to undergo a more comprehensive audit.

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

A. Yes.

<sup>11</sup> Knepper Testimony DG 15-104 page 23 lines 16 -20.

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