

STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION

Docket No. DG 23-067

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty
Distribution Service Rate Case
Current and Future Capital Investment Recovery

DIRECT TESTIMONY

OF

TRACY A. MUSTO

AND

BRADFORD R. MARX

July 27, 2023



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1 **I. INTRODUCTION AND BACKGROUND**

2 **Q. Ms. Musto, please state your full name, business address, and position.**

3 A. My name is Tracy A. Musto. My business address is 130 Elm Street, Manchester, New
4 Hampshire. I am employed by Liberty Utilities Service Corp. (“LUSC”) as a
5 Construction Manager, Gas Operations, for Liberty Utilities (EnergyNorth Natural Gas)
6 Corp. d/b/a Liberty (“Liberty EnergyNorth” or the “Company”).

7 **Q. Please describe your professional background and qualifications.**

8 A. I received my Bachelor of Science degree in Business Administration from Southern
9 New Hampshire University. I have completed leadership programs with The Business
10 and Industry Association in 2021 and the Energy Council of the Northeast (“ECNE”) in
11 2018. I have been a member of the Construction Technical committee for the American
12 Gas Association (“AGA”) since 2022 and have received professional development hours
13 through the AGA Spring Conferences in 2022 and 2023. I have been in the position as
14 Construction Manager since 2021 where my primary responsibilities are to oversee
15 Liberty EnergyNorth’s capital work plan and its processes, as well as provide oversight to
16 our gas contractors and internal construction team. Prior to that role, I spent several years
17 as a Resource Planning Supervisor and Analyst for Gas Operations.

18 **Q. Have you previously testified before the New Hampshire Public Utilities**
19 **Commission (the “Commission”)?**

20 A. No.

1 **Q. Mr. Marx, please state your full name, business address, and position.**

2 A. My name is Bradford R. Marx. My business address is 130 Elm Street, Manchester, New
3 Hampshire. I am employed by LUSC as the Manager of Gas Engineering for Liberty
4 EnergyNorth.

5 **Q. Please describe your professional background and qualifications.**

6 A. I received a Bachelor of Science degree in Mechanical Engineering from Worcester
7 Polytechnic Institute in 2012 and a Master of Science degree in Mechanical Engineering
8 in 2013, also from WPI. I have attended the Appalachian Gas Measurement Short
9 Course, the Northeast Gas Association (“NGA”) Gas Operations School, and several in
10 person formal training classes provided by the Gas Technical Institute. I passed the
11 Fundamentals of Engineering Exam in 2013 and was promoted from Engineer III to the
12 Manager of Gas Engineering in October 2021.

13 **Q. Have you previously testified before this Commission?**

14 A. Yes, I previously testified in support of Docket No. DG 22-028.

15 **Q. What is the purpose of your testimony?**

16 A. The purpose of our testimony is to support the Company’s cost recovery of plant
17 additions placed in service since the Company’s last rate case, and the Company’s
18 request for step adjustments to recover the cost of non-growth plant additions in 2023,
19 2024, and 2025. Our testimony describes the factors driving the need for increased
20 capital investment and outlines the Company’s integrated capital improvement plan to
21 maintain system safety and reliability and to address asset condition.

1 **II. RATE CASE DRIVERS AND MAJOR CAPITAL PROJECTS**

2 **Q. Has the Company made significant investments in its distribution system since its**
3 **last distribution rate case, Docket No. DG 20-105?**

4 A. Yes. The Company's most recent rate case, Docket No. DG 20-105, was based on a 2019
5 test year and provided for step increases to recover some non-growth-related capital
6 investments through December 31, 2021. The Company made capital investments for
7 growth and non-growth capital in its distribution system of \$46.8 million in 2020, \$45.8
8 million in 2021, and \$86.5 million in 2022, totaling \$179.1 million. Approximately \$56
9 million of this total, or approximately 30 percent, is currently included in Liberty
10 EnergyNorth's distribution rates. However, the remaining \$123.1 million of capital
11 investments are not currently being recovered through rates and are included in the
12 Company's revenue requirement in this case.

13 **Q. Please describe the factors driving the need for capital investment in the system.**

14 A. In general, the Company's capital investments can be separated into two categories: (1)
15 non-growth-related investments, which are associated with activities necessary to
16 maintain system safety and address asset condition issues; and (2) growth-related
17 investments, which are associated with new customers or increased load. Non-growth-
18 related investments arise primarily from the replacement of leak prone pipe ("LPP") and
19 other leak prone assets, from city and state requirements, and from public works projects.
20 Growth-related investments, as stated above, are primarily due to the addition of new
21 customers and increased load on the gas distribution system.

1 **Q. Please describe city and state requirements and public works projects, and how they**
2 **affect the Company.**

3 A. The Company is responsible for the costs to install, relocate, and protect its gas facilities
4 that are within the public right of way (“ROW”). When the Company’s facilities are in
5 the public ROW, the Company must remove or relocate its equipment at the direction of
6 the relevant government agencies. This affects the Company in two major ways: (1)
7 project coordination with state and municipal road projects; and (2) gas facility relocation
8 to clear conflicts with public works jobs. For example, when a municipality is
9 performing sewer or water main replacements and LPP exists within the municipality’s
10 work area, the Company typically replaces the affected sections of LPP before paving in
11 an attempt to avoid future excavation for leak repair maintenance. Additionally, if the
12 location of the Company’s existing gas facilities, such as gas mains or services, impedes
13 or conflicts with municipal or state construction on roads, bridges, sewers, or drains, the
14 Company is required to relocate those facilities so the municipality or state work can take
15 place. Common examples of physical location conflicts occur when the Company’s
16 existing pipes are in the way of proposed bridge foundations, manholes, or gravity fed
17 sewers and drains.

18 **Q. Is the annual volume of work for city/state requirements and public works projects**
19 **easily predictable?**

20 A. No. It is not easy to forecast the amount of work that will be required under the
21 City/State program year over year. The Company estimates the volume of work based on
22 past trends and known projects being planned by the municipalities. However, the actual

1 amount in any given year is determined by what projects the municipalities and state
2 ultimately decide to proceed with each year, decisions which the Company has no control
3 over.

4 Even though the Company regularly meets with the municipalities to learn their
5 schedules in an attempt to refine the Company's upcoming budget, the projects actually
6 undertaken by the municipalities often differ from those originally identified as planned
7 projects, which in turn impacts the Company's budget and actual capital investments.
8 Because the Company often needs to respond quickly to inquiries from cities or the state
9 to alleviate potential conflicts, such changes are, of course, outside the Company's
10 control.

11 **Q. Please describe the projects completed by the Company from 2020 through 2022 as**
12 **a result of the city/state requirements and public works projects.**

13 A. Since the Company's last distribution rate case, the Company has invested over \$19
14 million replacing over 4.5 miles of cast iron bare steel as well as associated services.
15 Although separate from the Company's LPP program, the city/state program also tends to
16 assist in the replacement of cast iron and bare steel mains and services. By the end of
17 2023, there will be approximately 33 miles of leak prone pipe remaining in the
18 distribution system, and the release of methane gas emitted from leaking pipes will
19 continue its decline. Table 1 below describes the projects the Company has undertaken
20 over the past three years in this area.

Table 1. City/State Requirements and Public Works Replacement Projects, 2020–2022

	2020	2021	2022	Total
Number of main replacement projects completed	29	29	11	69
Miles of cast iron/bare steel pipe replaced	2.1	2.4	0	4.5
Miles of coated steel or polyethylene replaced	0.4	1.2	0.8	2.4
Number of cast iron/bare steel services replaced or transferred	47	61	17	125
Number of polyethylene or coated steel services replaced or transferred	67	134	48	249
Total annual capital investment (million)	\$7.3	\$8.7	\$3.3	\$19.4

Q. Separate from the replacements made for City State projects, what was the investment in relation to LPP projects?

A. In addition to the city/state requirements and public works projects, the Company has invested over \$43 million in replacing LPP on the system since the last rate case. Between 2020 and 2022, the Company has replaced over 16 miles of CIBS and associated services through the LPP replacement program.

The chart below shows the Cast Iron and Bare Steel Replacements from 2009 to 2022.

Figure 1. CIBS Main Replacements, 2009–2022

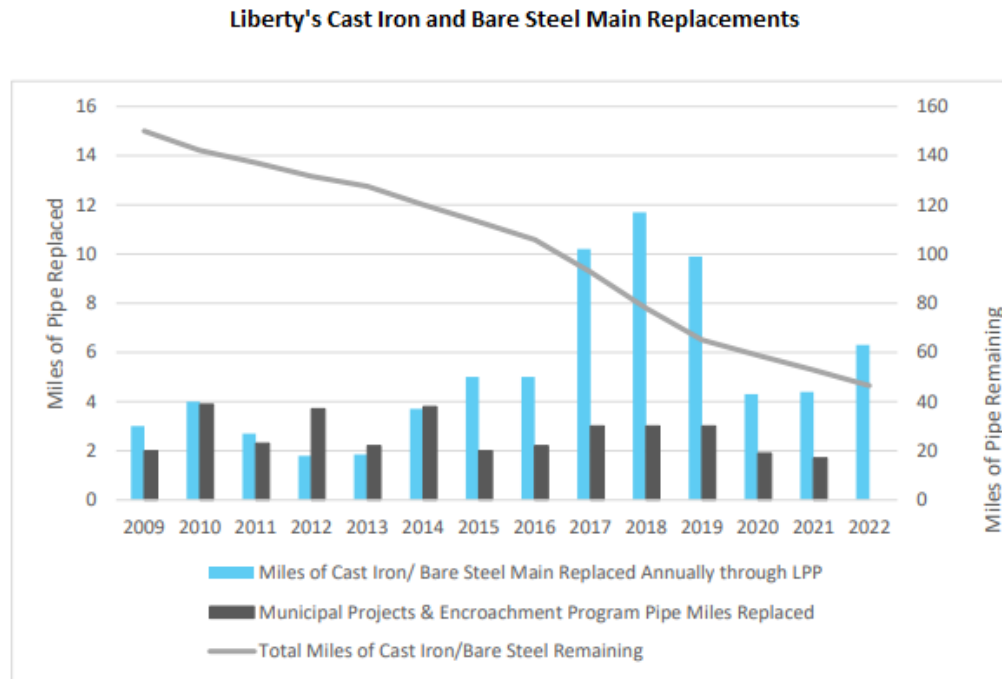


Table 2 below describes the projects the Company has undertaken over the past three years in this area.

Table 2. LPP Projects, 2020–2022

	2020	2021	2022	Total
Number of main replacement projects completed	26	26	26	78
Miles of cast iron/bare steel pipe replaced	5.0	5.0	6.4	16.4
Miles of coated steel or polyethylene replaced	0	0	0	0
Number of cast iron/bare steel services replaced or transferred	134	173	141	448
Number of polyethylene or coated steel services replaced or transferred	278	274	341	893
Total annual capital investment (million)	\$13.7	\$12.1	\$17.7	\$43.5

Q. Please describe the growth-related capital investments since the last rate case.

A. To support the Company's growing customer base, the Company installs new service lines off its existing mains and builds main extension projects that include new service lines. Table 3 below shows the projects undertaken by the company over the past three years since the Company's last base distribution rate case.

Table 3. Growth Projects, 2020–2022

	2020	2021	2022	Total
Number of main extension projects completed	46	36	32	114
Miles of new plastic mains	8.4	5.4	3.4	16.4
Number of new service lines	661	656	490	17.2
Number of new residential meters	1,281	892	736	2,909
Number of new commercial meters	249	184	154	587
Total annual capital investment (million)	\$12.4	\$9.3	\$7.7	\$29.4

Q. Please provide a summary of the Company's capital investments since the last rate case.

A. Please see Attachment TM/BM-1 for a list of additional capital investments placed in service as of December 31, 2022. A summary is also presented below in Table 4.

Table 4. Total Additions, 2020–2022

<u>Total Additions 2020 through 2022</u>				
	<u>Table 4</u>			
	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>TOTAL</u>
Growth	\$10,084,545.07	\$10,735,412.72	\$9,456,222.76	\$30,276,180.55
Non-Growth	\$36,703,052.96	\$35,089,570.40	\$77,024,262.76	\$148,816,886.12
Total	\$46,787,598.03	\$45,824,983.12	\$86,480,485.52	\$179,093,066.67

1 **III. PLANNED CAPITAL PROJECTS**

2 **Q. Is Liberty EnergyNorth requesting recovery of planned capital projects?**

3 A. Yes. As discussed by Company witnesses Culbertson and Cayton, the Company is
4 including three step adjustment to recover non-growth capital investments completed in
5 2023, 2024, and 2025, in accordance its integrated capital spending plan with defined
6 projects and investments forecasted through 2028 as part of its 5-year plan. These
7 projects address safety, reliability, and capacity concerns on Liberty EnergyNorth's
8 distribution system, along with increasing upstream gas supply. The integrated capital
9 plan for the years 2023 through 2025 is included with estimated in-service costs in
10 Attachment TM/BM-2.

11 **Q. What tools and input did the Company use to identify the types of projects in its**
12 **capital plan?**

13 A. Several tools and sources were used to identify the continued needs of the distribution
14 system in a coordinated fashion.

- 15 • *First*, in Order No. 26,374 as part of the Company's 2020 Cast Iron/Bare Steel
16 Replacement Program proceeding in Docket No. DG 20-049, the Commission
17 supported an aggressive timeline for replacement of cast iron and bare steel pipe
18 materials. Cast iron and bare steel pipe is considered to be prone to leakage,
19 which can present public safety and environmental risks. The Company continues
20 to make the LPP Replacement Program a priority each year, as it has consistently
21 been one of the programs with the most funding in the Company's capital plan.

- 1 • *Second*, pipeline safety and asset condition related projects are identified
- 2 primarily by using the Company’s Distribution Integrity Management Program
- 3 (“DIMP”), the document that identifies top threats and risk prone assets within the
- 4 distribution system.
- 5 • *Third*, a computer-based optimization tool was used during the analysis of gas
- 6 system enhancement projects. The industry standard DNVGL Synergi Gas
- 7 computer model was used to simulate Liberty EnergyNorth’s distribution system
- 8 and identify areas requiring reinforcement for reliability and to model optimum
- 9 solutions.

10 **Q. What is DIMP and how did that methodology factor into project decisions?**

11 A. DIMP was introduced into the federal pipeline safety regulations that govern construction

12 and maintenance of the Company’s gas system in 2009. This regulation improves overall

13 pipeline safety by having distribution operators identify risks specific to their individual

14 distribution system, rank those risks, and then implement risk reduction measures to

15 provide greater pipeline safety improvement than is achieved through prescriptive

16 regulations. In May 2020, the Company finished a complete revision of its DIMP plan.

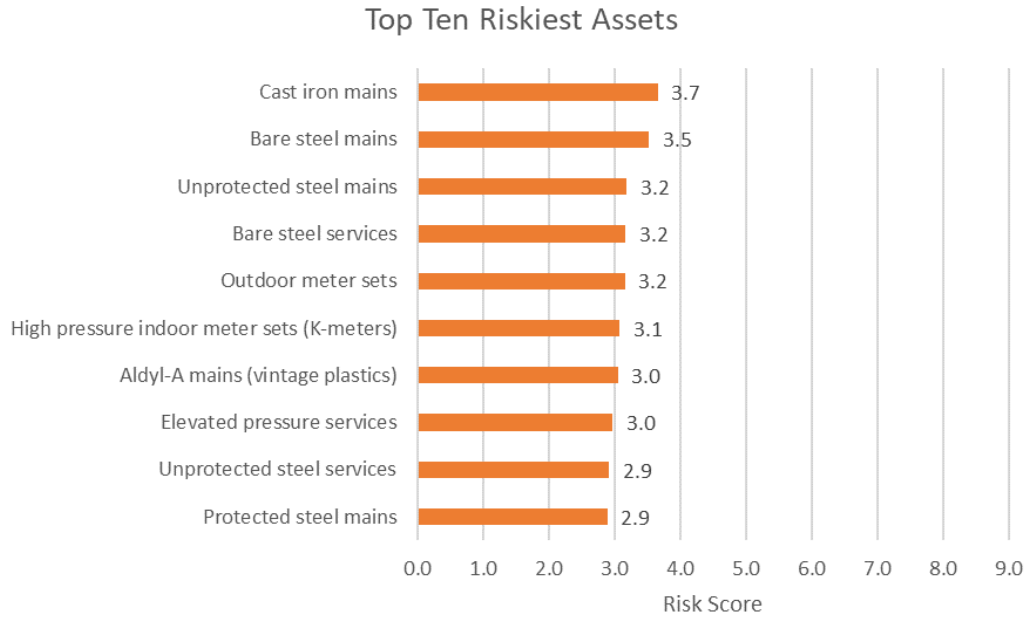
17 Subsequent revisions were made in 2022 to update and further enhance the plan. The two

18 charts below describe the top issues identified, each of which the Company is addressing

19 via capital investments or best maintenance practices.

1

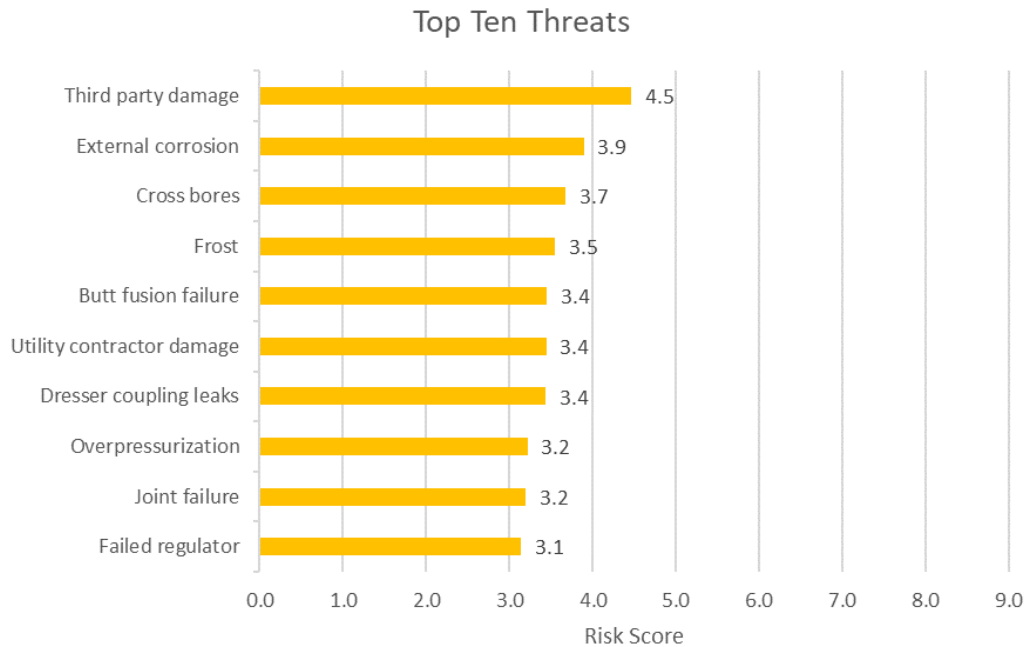
Figure 2. Top Risks



2

3

Figure 3. Top Threats



4

1 **Q. How does the Company’s capital plan address the risks of cast iron and bare steel**
2 **leak prone pipe that were identified in DIMP?**

3 A. For approximately 12 years, the Cast Iron and Bare Steel (“CIBS”) accelerated cost
4 recovery program operated successfully by providing the Company with the financial
5 resources to make steady progress replacing LPP while receiving timely cost recovery of
6 the investment. In 2019, the Commission terminated the CIBS accelerated cost recovery
7 program via Order No. 26,266 (June 28, 2019) due to the Company’s efficient process for
8 the annual replacement of CIBS pipe and therefore the Commission determined that an
9 accelerated recovery was no longer warranted and cost recovery could occur through
10 general rate proceedings. The Company continues to focus its capital investments on the
11 replacement of cast iron and bare steel pipes, which are ranked as the two most risk prone
12 assets in the Company’s DIMP plan. The majority of remaining affected pipe is located
13 in the City of Manchester.

14 The Company has developed a timeline of replacing the remaining 33 miles of cast iron
15 and bare steel pipe materials with a nominal diameter of 10 inches or smaller. The
16 Company will continue to utilize the LPP replacement program with \$37.3 million of in-
17 service costs expected from 2023 through 2025, which would replace approximately 15.5
18 miles of cast iron and bare steel main, or almost half of the remaining cast iron and bare
19 steel main in the system.

1 **Q. Are there other deteriorating assets or safety related conditions identified in the**
2 **DIMP that the Company is planning to address through its capital construction**
3 **program?**

4 A. Yes, there are many other examples of obsolete infrastructure that the Company is
5 actively replacing to enhance the safety and reliability of the distribution network.

6 One example, a “K Meter”¹, is an integrated gas meter, pressure regulator, and safety
7 relief valve manufactured by Sprague and installed by one of Liberty EnergyNorth’s
8 predecessor companies. Due to their integrated pressure regulator, these meters were
9 installed within the Company’s 60 psig distribution system, and the vast majority were
10 installed with indoor meter sets. Indoor installation of residential meters, especially those
11 on 60 psig distribution systems, is an obsolete gas utility industry practice and the K
12 Meters are therefore identified as a risk in DIMP. The Company is planning to spend
13 \$2.6 million to replace approximately 700 K Meters by the end of 2025.

14 DuPont Aldyl-A plastic pipe is another threat identified in DIMP. The vintage plastic
15 pipe was used in the Concord area from the early 1970s until the mid to late 1980s.
16 Failures with this pipe material are observed at butt fusion joints where individual pieces
17 of factory manufactured pipe were joined together in the field. The Company has
18 documented such failures and makes yearly reports to New Hampshire Department of
19 Energy Safety Division Staff regarding failure history and replacement efforts. To

1 These meters are called “K Meters” because, at the time of installation, they were given meter serial numbers coded with the letter K.

1 continue addressing this obsolete material, the Company is projecting to spend
2 approximately \$930,000 through 2025 to replace approximately 0.3 miles of Aldyl-A
3 pipe per year, with a focus on piping that has a documented leak history and that operates
4 at 60 psig.

5 As another example, mechanical fittings on coated steel pipe are the primary driver of
6 leaks in the southern part of the Company's service territory. Dresser branded
7 mechanical couplings were used to assemble pipe sections and connect valves for gas
8 mains in this area in the 1960s and 1970s. Each year, Dresser couplings are the source of
9 a significant number of leaks that the Company must repair, which is typically
10 accomplished by removing the couplings and valves and welding new steel pipe as the
11 replacement gas main. Based on historical spending, the Company anticipates spending
12 approximately \$1.5 million through 2025 to replace Dresser couplings in the distribution
13 system.

14 Finally, the Company plans to maintain a program for capital replacement of gas mains
15 with emergent leak history. It is most common to observe such emergent leaks on coated
16 steel pipe not under cathodic protection and short lengths of cast iron or bare steel mains.
17 Each of these assets are recognized as top risks in the DIMP plan. The Company is
18 anticipating spending about \$1.35 million on its reactive main replacement plan through
19 2025, which is consistent with historical averages.

1 **Q. Is the Company planning to integrate additional safety devices to protect the**
2 **distribution system?**

3 A. Yes. The Company has been installing pressure relief valves to provide an additional
4 layer of protection for the low pressure (“LP”) system. These relief valves are designed
5 to vent gas in the event that pressure exceeding 13.8” W.C. is sensed on the LP system.
6 Pressure relief valves are also utilized to protect the higher pressure (60 psig or greater)
7 distribution systems, typically at gate stations. In 2021 and 2022, Liberty installed two
8 relief valves on the LP system in Nashua and one relief valve on the LP system in
9 Manchester. Additional relief valves are being planned for the 185 psig, 60 psig, and the
10 LP systems in Manchester in 2023.

11 The Company is planning to install one relief valve each of the next three years. Relief
12 valves are installed utilizing the District Regulator Facilities Improvements program,
13 which also includes other upgrades to pressure regulation facilities, including the
14 replacement or modification of regulator stations.

15 **Q. Is the Company planning any reliability projects to reinforce the gas system over**
16 **the next three years?**

17 A. Yes, the Company is planning several improvements to main feeder pipes in order to
18 supply adequate pressure to its existing customers and to make the distribution system
19 available to new customers. The Company used DNVGL Synergi Gas software to
20 predict operating pressures in the system based on recent customer usage history. The
21 Company is planning between one and three reliability projects per year to maintain

1 capacity within the distribution system in response to recent customer growth. There are
2 a number of projects within system reliability to be completed over the next three years.
3 Among those projects are the following:

- 4 • Reinforcing the 60-psig system in Hooksett by upsizing the existing 4” main
5 extended west from the Hooksett Gate Station.
- 6 • Increasing supply to the City of Laconia due to organic growth to maintain the
7 system operating pressure.
- 8 • Complete the rebuilding of the Concord-Tilton Hi-Line to provide adequate
9 supply to customers north of Concord and reduce use of the Tilton LNG peaking
10 plant.

11 The Company is planning to spend \$4.25 million on projects within the Gas System
12 Planning & Reliability program through 2025. Spending includes projects described
13 above along with other projects to reinforce the distribution system.

14 **Q. Is the Company planning any enhancements to its system to accommodate its supply**
15 **capacity contracts?**

16 A. Yes. The Company’s largest volume delivery point from the interstate pipeline system is
17 currently the Hudson gate station. This location is supplied by Tennessee Gas Pipeline
18 (“TGP”) via Windham on a pipeline that is at maximum capacity. To address long term
19 gas supply need, the Company completed development of an updated model showing that
20 40,000 dekatherms (“dth”) per day of additional long-term capacity was needed in the
21 Company’s service territory and signed a contract with TGP to provide the Company

1 with the additional long-term capacity, which contract the Commission approved in
2 Order No. 26,551 (Nov. 12, 2021). The Company in turn analyzed two scenarios² to
3 distribute this additional capacity and selected the option that carries the least long-term
4 cost to its customers. Through hydraulic modeling and analysis, it was determined that
5 the best use of this increased capacity would be to have 20,000 dth delivered to the
6 existing gate station on Candia Road in Manchester. A rebuild of the Candia Road
7 station, which began construction in 2022 and is to be completed in 2023, is necessary to
8 accommodate the increase in supply. Further analysis showed that the most
9 advantageous use for the remaining 20,000 dth would be at the Londonderry gate station,
10 with the ultimate goal of utilizing this supply as a backfeed into the Nashua distribution
11 system. While the Londonderry gate station does not need upgrades to handle additional
12 supply, the following infrastructure must be constructed to provide this reinforcement to
13 Nashua:

- 14 • A new meter and regulating station in Londonderry, tapping off of the existing
15 16" steel 750 psig pipeline feeding the Granite Ridge Power Plant;
- 16 • Approx. 1.8 miles of 12" 185 psig pipeline from Londonderry to Manchester;
- 17 • A new district regulator station on Brown Avenue, Manchester;
- 18 • Approx. 8.3 miles of 12" 185 psig pipeline from Manchester to Merrimack, which
19 includes a horizontal directional drill under the Merrimack River; and

² Details of that analysis are provided in the Petition for Approval of a Firm Transportation Agreement with Tennessee Gas Pipeline Company, LLC Direct Testimony of Francisco C. DaFonte and William R. Killeen filed in Docket No. DG 21-008.

- An extension of 12” 60 PSIG piping across the Raymond Wieczorek Bridge from Manchester to Bedford.

The Company is planning \$16.5 million of in-service costs through 2025, with the expectation of completing the entirety of the System Enhancement project by the end of 2028.

Q. What are the estimated costs by year for planned capital investments?

A. The estimated costs are shown in Attachment TM/BM-2. The attachment shows the estimated capital expenditure in each year and the amount that is expected to be in-service and used and useful at the end of each year. Company witnesses Culbertson and Cayton discuss the planned amount of capital investments to be recovered in the Company’s three proposed capital step adjustments in this case.

Q. What has the Company done to help improve the quality of its budget and planning process?

A. The Company is continuously making efforts to improve its estimating for individual projects. Over the previous two years, the engineers completing the preconstruction estimates are coordinating with the construction supervisors, receiving feedback based on their field experiences, and updating estimates accordingly.

There are still factors that could be unforeseen or could result in higher costs than originally anticipated, such as the presence of ledge, environmental hazards, proximity to other utilities, or restrictive working conditions imposed by the city or state. A 10 percent contingency is typically added to project estimates to account for such potential additive

1 costs. When extenuating circumstances arise that could increase the cost of a project, the
2 construction supervisors will communicate that information back to engineering and
3 finance. This information helps the Company forecast spending going forward and aids
4 in making decisions on whether to advance certain projects in a given fiscal year.

5 **IV. CONCLUSION**

6 **Q. Please summarize your testimony.**

7 A. Since the last general distribution rate proceeding, the Company has placed in service
8 approximately \$123.1 million of capital investments that are not currently reflected in
9 rates and drives a significant portion of the distribution rate increase requested in the
10 Company's rate case filing.

11 The future projects described in this testimony will provide the needed infrastructure
12 replacement related to pipeline safety and capacity for growth and will form the basis for
13 requests for cost recovery through future step adjustments to allow the Company timely
14 recovery of the costs associated with safe and reliable service.

15 **Q. Does this complete your testimony?**

16 A. Yes, it does.

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