



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

Docket No. DE 16-383

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities  
Distribution Service Rate Case

**DIRECT TESTIMONY  
OF  
CHRISTIAN P. BROUILLARD**

April 29, 2016

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1   **I.   INTRODUCTION AND QUALIFICATIONS**

2   **Q.   Mr. Brouillard, please state your full name and business address.**

3   A.   My name is Christian P. Brouillard and my business address is 15 Buttrick Rd.,  
4       Londonderry, NH 03053.

5   **Q.   By whom are you employed and in what position?**

6   A.   I am employed as the Director of Engineering by Liberty Utilities Service Corp.  
7       ("Liberty"). In my capacity as Director of Engineering, I am responsible for delivery  
8       system planning and capital investments, engineering and design, and maps and records  
9       integrity for Liberty Utilities (Granite State Electric) Corp. ("Granite State" or the  
10      "Company").

11   **Q.   Please describe your educational background and certifications.**

12   A.   I graduated from the University of New Hampshire in 1982, earning a bachelor's degree  
13      in electrical engineering. I also completed the Public Utility Executive Course,  
14      sponsored by the University of Idaho. I am a registered professional engineer in the  
15      states of New Hampshire and Massachusetts.

16   **Q.   Please describe your professional experience.**

17   A.   In 1982, I began my engineering career as an associate engineer with Massachusetts  
18      Electric Company, a subsidiary of National Grid USA ("National Grid") and a former  
19      affiliate of Granite State, in North Andover, Massachusetts. From 1982 to 1992, I held  
20      positions of progressive responsibility in the distribution engineering, planning,  
21      protection, and executive support functions. In 1993, I was promoted to Manager of

1 District Engineering and held various engineering and management positions since that  
2 time, including Manager of Asset Strategy. In 2005, I became Manager of Work  
3 Planning and was responsible for developing Granite State's capital construction plans.  
4 In 2008, I was promoted to Director, Investment Planning for the Company's electric  
5 distribution system in both New England and New York for National Grid. In 2011, I  
6 assumed my current role as Director of Engineering for Liberty Energy NH. In January  
7 2015, I assumed transitional responsibility for Electric Operations, Gas Production,  
8 Control and Dispatch Center, and Compliance Quality and Emergency Management. I  
9 am currently responsible for Electric and Gas Engineering, Gas Production, Control and  
10 Dispatch Center, and Compliance Quality and Emergency Management

11 **Q. Have you previously testified before the New Hampshire Public Utilities**  
12 **Commission (the "Commission")?**

13 A. Yes, I have previously testified before the Commission on the Company's Reliability  
14 Enhancement Program and its Integrated Resource Plan as well as other topics.

15 **II. PURPOSE OF TESTIMONY**

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

17 A. My testimony discusses: (i) Granite State's electric distribution system and its capital  
18 improvements since the Company's last base rate case; (ii) capital improvements that will  
19 be made within one year after the end of the test year and the Company's request for a  
20 step increase to recover that investment; and (iii) the Company's proposal to continue its  
21 Reliability Enhancement Plan ("REP") and Vegetation Management Plan ("VMP").

1    **III.    GRANITE STATE'S OPERATIONS AND SYSTEM INVESTMENT**

2    **Q.    Please provide an overview of Granite State's operations.**

3    A.    Granite State distributes electricity to approximately 43,300 residential, commercial, and  
4        industrial customers in 21 communities in Southern and Western New Hampshire. To  
5        serve its customers, the Company utilizes 15 distribution substations supplying  
6        approximately 37 distribution and sub-transmission feeders. Approximately 80 percent  
7        of the approximately 1,140 miles of distribution and sub-transmission circuits on the  
8        Company's system are overhead facilities operating at voltage levels ranging from 2.4 kV  
9        to 23 kV. Approximately 99 percent of the distribution and sub-transmission system  
10       operates in the 15 kV class range or below (2.4kV to 13.8 kV).

11   **Q.    What is the Company's operational philosophy?**

12   A.    The Company's fundamental goal is to provide safe and reliable electric service to its  
13        customers, at reasonable cost, while placing a strong emphasis on maintaining a local  
14        focus. We develop local reliability and integrity programs that are tailored to our New  
15        Hampshire system. We also plan and develop our system to reflect our resourcing and  
16        outage response capabilities to weather events and system contingencies. We believe this  
17        planning and operating model allows the Company to be more responsive to the needs of  
18        its customers and stakeholders.

19   **Q.    How much capital has the Company invested in its distribution system since its last**  
20        **distribution rate case in 2013 (Docket No. DE 13-063)?**

21   A.    The Company has invested approximately \$54.5 million of capital in its distribution  
22        system and general plant from 2013 through December 2015 that is subject to cost

1 recovery, of which \$4.8 million was included in the step increase that was approved in  
2 DE 13-063. The remaining plant investments, subject to cost recovery in this proceeding  
3 total approximately \$49.7 million. Using the gross amount invested for the period of  
4 \$54.5 million, approximately \$18.2 million was invested in mandated categories, which  
5 includes the following: \$6.3 million in new services to residential and commercial  
6 customers (new business), \$0.6 million in transformer and meter purchases, \$2.9 million  
7 in public requirements, \$4.7 million in response to equipment damage and failure, \$1.3  
8 million in third party attachments, \$0.6 million in outdoor lighting, \$0.2 million in  
9 general equipment, \$0.4 million related to major storms, \$0.8 million in substations, and  
10 \$0.4 million in the remaining mandatory categories. Non-mandated investments include  
11 \$16.1 million relating to reliability, including REP investments which are discussed later  
12 in my testimony, \$6.8 million relating to capacity, \$4.7 million relating to asset  
13 replacement, \$3.4 million in facilities, \$2.8 million in vehicles, and \$2.5 million in IT-  
14 related infrastructure and applications.

15 **Q. Please describe some of the specific capital projects that have been undertaken since**  
16 **Docket DE 13-063.**

17 A. From 2013 to 2015, major projects included the installation of a second supply line from  
18 the Lebanon substation to the Enfield substation to improve reliability to the town of  
19 Enfield. The Company completed the conversion of substation Remote Terminal Unit  
20 (RTU) equipment from the National Grid-based system to a Liberty owned and operated  
21 system. Four feeder circuit breakers at the Lebanon No. 1 substation were replaced with  
22 modern units providing faster and more reliable fault clearing capability. Feeder getaway

1 and underground residential distribution (URD) cables installed in the 1970s were  
2 replaced at the Hanover No. 6 and Barron Ave No. 10 substations and in several URDs as  
3 a replacement solution to these cables with a poor operating history. Low voltage during  
4 peak periods was corrected as part of a low voltage/load relief program in the Lebanon  
5 area. Other projects included upgrades to the Company's service centers in Salem and  
6 Lebanon to enhance worker safety and efficiency and to provide for customer walk-in  
7 service. Neither building had received any significant upgrades since the 1980s. The  
8 Company also invested in IT hardware and software applications during this period and  
9 purchased vehicles to replace those that had exceeded their useful, economic operating  
10 life.

11 In addition to the projects described above, several projects totaling \$4.8 million that  
12 were completed by December 31, 2013 were included in the step increase that took effect  
13 in April 2014 as part of Docket DE 13-063 and are therefore already being recovered  
14 through rates. These projects include the Michael Avenue substation and feeder  
15 additions, the installation of voltage regulators at the substations at Lebanon, Craft Hill,  
16 Hanover, and in Canaan, and additions and upgrades to Company facilities.

1 **Q. Is all of the capital investment included in rate base in this case used and useful in**  
2 **providing service to the Company's customers?**

3 A. Yes. All of these projects are operational and providing service to the Company's  
4 customers.

5 **Q. Were the costs for all of the projects prudently incurred?**

6 A. Yes. All of the investments were made pursuant to a capital investment plan to ensure  
7 continued safe and reliable operation of the network as well as meeting all regulatory and  
8 statutory requirements.

9 **Q. Are there any large capital investments that will be used in useful in 2016 for which**  
10 **the Company is seeking a cost recovery?**

11 A. Yes. In 2016, the Company is planning to construct and place into service two additional  
12 feeder positions at its Mt. Support substation in Lebanon along with the associated  
13 overhead and underground street distribution construction. This construction will  
14 provide much needed capacity to the homes and businesses in the Lebanon/Hanover area  
15 as well as provide redundancy of feeder capacity to the surrounding area. The Mt.  
16 Support substation upgrades are being completed in conjunction with upgrades to the  
17 transmission and supply system by National Grid along the transmission right-of-way and  
18 within the substation. The Company's total expected investment in these projects is  
19 approximately \$6,000,000. The testimony of Messrs. Mullen and Gorman describe how  
20 the Company proposes to recover the costs of those investments.



1 **Q. Does the Company have any significant capital projects planned for the near**  
2 **future?**

3 A. Yes, the Company will be undertaking several system capacity and reinforcement  
4 projects in subsequent years through 2021. These projects are necessary to provide  
5 additional capacity in areas that have experienced load growth, and are expected to see  
6 load increases in the future. These projects will also provide for distribution system  
7 redundancy, consistent with the Company's planning criteria, and allow for the phased  
8 retirement of substation assets that have exceeded their useful operating and economic  
9 lives. The Company has detailed its plan for recovery of the cost of these needed  
10 investments as part of accompanying joint testimony submitted by Mr. Stephen Hall and  
11 me in this docket. These projects include a major upgrade to the Pelham substation,  
12 similar in scope to the Mt. Support construction, replacement of the Charlestown  
13 substation with capacity from the newly constructed Michael Ave. substation, and an  
14 upgrade to the Golden Rock substation in Salem.

15 **IV. RELIABILITY ENHANCEMENT PROGRAM**

16 **Q. Does Granite State currently have approval for a reliability enhancement program**  
17 **and a vegetation management program?**

18 A. Yes. The Company has been operating its REP/VMP (the "REP/VMP Program" or the  
19 "Program") that was originally approved in Docket DG 06-107 with continuation of the  
20 Program approved by the Commission as part of Order No. 25,638 issued in Docket DE  
21 13-063.

1   **Q.    Please describe the capital and O&M components of the REP/VMP Program**  
2       **established in 2013 under DE 13-063.**

3   **A.**    The Company received Commission approval to continue the REP/VMP Program to  
4       maintain and improve the performance of the system to levels at or below the five-year  
5       average of SAIFI and SAIDI<sup>1</sup>. The base spending levels approved in Docket DE 13-063  
6       reflect O&M costs of \$1,360,000, including O&M related to capital and vegetation  
7       management, and an annual capital target of \$1,000,000. The specific elements of the  
8       REP/VMP Program include a comprehensive vegetation management program reflecting  
9       a five-year feeder trim cycle, hazard tree removal, and provisions for interim, spot and  
10      trouble maintenance trimming as well as the associated police protection. The 2016  
11      REP/VMP Program filing reflects a move to a four-year trim cycle. The capital elements  
12      of REP are focused on bare conductor replacement with tree resistant spacer cable  
13      construction as well as continued application of single phase reclosers and “Trip Saver”  
14      fuses. Over the three year period, CY2013-CY2015, the Company invested \$4.8 million  
15      in capital reliability enhancement program initiatives, including approximately \$3.6  
16      million in bare conductor replacement, \$1.1 million in line reclosers and “Trip Saver”  
17      installations.

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1 “SAIFI” refers to the System Average Interruption Frequency Index, and “SAIDI” refers to the System Average Interruption Duration Index.

1 **Q. The purpose of the REP/VMP Program is to maintain and improve Granite State's**  
2 **reliability performance as measured against the five-year average reliability indices.**  
3 **Has the Company met that performance level?**

4 A. Yes. The REP/VMP Program has achieved positive trending in reliability performance  
5 since 2006. Underscoring this trend, in CY2015 the Company achieved a SAIFI of 0.58  
6 against the five-year target of 1.56, and a SAIDI of 61 against the five-year target of 158  
7 minutes. It is worth noting that 2015 was a favorable weather year from a reliability  
8 perspective, which also contributed to the exceptional performance. Our projection for  
9 CY2016 indicates that we are tracking slightly above the five-year targets of 1.33 for  
10 SAIFI and, 131 minutes for SAIDI. This tracking is within the general year to year  
11 variability of weather patterns and non-excludable storms. The Company continues to  
12 believe that the REP/VMP Program is achieving its intended overall performance results,  
13 provides a vehicle for significant program focus and collaboration with Commission  
14 Staff, and accordingly we believe that the program should continue going forward.

15 **Q. Is the Company seeking to change the elements of the previously approved**  
16 **REP/VMP Program?**

17 A. Yes. The Company is requesting a continuation of the REP/VMP Program as it currently  
18 exists; however, we are proposing a modest increase in the base O&M spending from  
19 \$1,300,000 to \$1,500,000. This increase reflects the additional expenditures necessitated  
20 by with moving from the existing five-year vegetation management trim cycle to a four-  
21 year cycle. The increase in estimated expenses was reflected in the Company's CY 2016  
22 REP/VMP Program filing, submitted to Commission Staff for its review on November

1 12, 2015. The Company proposes to continue to use funds invested through its  
2 REP/VMP Program on the installation of spacer cable in areas presently using bare  
3 primary conductor and on the application of single phase reclosers, potentially in  
4 automatic, loop sectionalizing applications, and on the installation of “Trip Saver” fuses.  
5 Outside of REP, the Company will continue to undertake mitigation of underperforming  
6 areas and worst performing circuits through stepdown transformer upgrades and  
7 replacements, covered conductor application, protection upgrades, arrestor/bonding,  
8 grounding application, and vegetation management.

9 For the REP capital investments, the Company is proposing an annual capital REP  
10 investment target of \$1,500,000, as compared to the current \$1,000,000 capital  
11 investment target, when it makes its next REP/VMP Program filing. The capital plan  
12 would reflect annual funding for the re-conductoring of approximately 2 miles of bare  
13 mainline conductor with spacer cable and tree wire, and the application of single phase  
14 reclosers and “Trip-Saver” fusing in rural areas. These initiatives represent the optimum  
15 combination of reliability investments impacting a wide range of outage causes and  
16 duration impacts. Beyond a two to three year horizon, the Company believes that  
17 expanded SCADA applications along with feeder mainline cable and URD cable  
18 replacement would also effectively yield reliability benefits as recloser and “Trip Saver”  
19 application opportunities are exhausted.

20 As with the current program, the Company will submit its annual REP/VMP Program  
21 plan to Staff each year, describing its planned activities and budget, and will meet with  
22 Staff prior to its implementation to obtain its feedback. The Company proposes to submit

1 that plan each November, as specified in Docket DE 13-063. The Company will discuss  
2 its plans with Staff and obtain its Staff's input prior to their implementation. Consistent  
3 with the current requirements of the Program, each year on March 15 the Company will  
4 make a reconciliation filing with the Commission to i) either recover or refund to  
5 customers the difference between the Company's actual O&M spending and the agreed-  
6 upon base amount of O&M, and ii) adjust distribution rates to recover the revenue  
7 requirement associated with reliability-related capital spending that was included in the  
8 Program and is used and useful and providing service to customers..

9 **V. COSTS AND CONCERNS ASSOCIATED WITH OWNERSHIP OF NEW**  
10 **RESIDENTIAL UNDERGROUND SERVICES**

11 **Q. Please describe Commission Staff's recommendation in Docket IR 14-190 that**  
12 **Liberty be required to own all new residential underground service lines.**

13 **A.** The Commission Staff's recommendation was originally included in an April 2, 2015  
14 memorandum and reads as follows:

15 Liberty is the only electric distribution utility that does not take  
16 ownership of underground line extensions. Staff understands that  
17 Liberty already locates and marks underground residential service  
18 lines. Staff recommends that the Commission require Liberty to  
19 take ownership of and maintain line extensions for all the new  
20 residential underground service lines, consistent with the practice of  
21 Eversource and Unitil.

22 On April 8, 2016, Commission Staff submitted another memorandum in the proceeding  
23 expressing Staff's continued belief that its recommendation concerning Granite State's

1 ownership of underground services was appropriate and further recommended that the  
2 issue be addressed in this rate case filing.

3 **Q. How long has the Company's current line extension policy been in place?**

4 A. The current policy has been in place since 2014. In Order No. 25,638 issued March 17,  
5 2014 in Docket No. DE 13-063 (Petition for 17 Permanent Rate Increase), the  
6 Commission approved a settlement agreement between the Company, Commission Staff  
7 and the Office of Consumer Advocate which included the current line extension policy.  
8 The current policy (which was revised in Docket No. DE 13-063) includes four different  
9 policies covering individual residential customers, residential developments, individual  
10 commercial and industrial customers, and commercial and industrial developments. Of  
11 those various policies, the relevant policy for this testimony is underground Line  
12 Extension Policy 1. As part of Policy 1, the Company's policy of requiring the customer  
13 to own and maintain the underground service is a continuation of the policy that was in  
14 place under the Company's prior ownership by National Grid and dates back many  
15 decades.

16 **Q. Are there costs and other concerns with such a change to the ownership of**  
17 **underground services that are not addressed by Staff's recommendation?**

18 A. Yes. I describe those below. Staff's recommendation seems borne out of a desire to have  
19 some uniformity to the underground service ownership policies of the New Hampshire  
20 electric utilities. While that is understandable, the recommendation does not address the  
21 cost, safety and customer confusion implications associated with changing such a long-  
22 standing policy.

1   **Q.   Please describe the costs associated with undertaking ownership of new residential**  
2       **individual line extensions as proposed by Commission Staff in Docket IR 14-190.**

3   **A.**   For labor costs, Granite State's current practice is to connect its distribution system to a  
4       customer's underground service utilizing a troubleshooter, which is a one-man crew, used  
5       to connect secondary/service risers, replace streetlights, and pull fuses, etc.

6       At this point, the service will have been trenched with conduit, wired by the customer or  
7       the customer's electrician, and brought to a hand-hole or up to a pole via a riser pipe.  
8       The service is then connected to the Company's secondary cable in the hand-hole or at  
9       the transformer.

10      If the Company were required to install, own, and maintain underground residential  
11      services, a two-person line crew would be needed for all such installations, as only they  
12      are equipped to pull wire through conduit. A troubleshooter is not equipped to complete  
13      this type of work. The cost to install a service would significantly increase and would be  
14      passed on to all customers through higher distribution rates, as noted below, even if the  
15      single customer requesting the work paid the excess cost for that single line extension.

16      Today, when a customer requests that the connection be completed, a trench inspector is  
17      not required by Granite State, as the Company does not own the residential services  
18      placed in the trench. A town inspector is required to determine if the trench meets local  
19      codes, and the customer is responsible for arranging such inspection. If the Company  
20      were to own such services, the Company would need to hire a full-time trench inspector

1 to inspect all the Company-owned underground services as they come to fruition on a  
2 house-by-house basis.

3 Currently, Granite State has six line crews in Lebanon and five line crews in Salem. The  
4 work completed by these crews does not include installing and maintaining new  
5 underground services. In order to complete the additional work for residential  
6 underground services in a timely manner, the Company would need to hire one more line  
7 full-time employee (FTE) to complete the work requests. The cost of such an FTE would  
8 need to be recovered through Granite State's distribution rates as part of this rate  
9 proceeding.

10 The Company only stocks materials needed for work requests associated with the type of  
11 facilities that are currently owned. If the Company were required to install and maintain  
12 underground residential services, it would be required to stock many different size wires  
13 and any other materials associated with underground installations to accommodate each  
14 specific underground request. The cost associated with increased inventory is about  
15 \$25,000 per year due to stocking separate reels of wire. The total incremental annual cost  
16 estimate based on labor rates of one additional FTE for the line department is \$85,000,  
17 plus \$25,000 of additional material per year, \$80,000 in trench inspector costs, along with  
18 the need for design of the underground services.

19 Although creating identical line extension policies for the electric utilities in New  
20 Hampshire may reduce confusion for customers moving between service territories,  
21 changing the established policy would result in Granite State owning some underground



1 services (new services) and the customers owning others (existing services). This  
2 situation causes the Company significant concern over customer confusion within  
3 residential developments currently under construction. The potential exists for the  
4 Company to be responsible for repairing or replacing some underground services while  
5 other services prior to the policy change would be the responsibility of the customer.  
6 There is no question that such a situation would cause significant customer confusion

7 At this time, Granite State has many underground residential developments being  
8 constructed. The Company believes that the above issue of conflicting ownership of  
9 underground services within the same development will occur if its line extension policy  
10 is changed. The Company does not believe that this change in policy is in customers'  
11 interests, and will create problems that do not currently exist.

12 **Q. What if the Commission were to require the Company to replace or repair all**  
13 **underground services at no charge upon failure, even if they were owned by the**  
14 **customer?**

15 A. Such a requirement would result in an entirely different set of concerns. First, without  
16 knowing exactly what is below the surface of the ground, Granite State does not agree  
17 that being required to replace or repair any underground services owned by the customer  
18 upon failure is in the best interest of the Company or its customers. Issues such as the  
19 location of leach fields and water and sewer lines on a customer's property could create  
20 safety issues for our crews and the customer. Second, for the Company to undertake  
21 installations at no charge to the customer would require base rates to reflect this change  
22 due to increased labor and materials costs beyond of the aforementioned costs.

1 Therefore, while it may seem like an easy solution to simply require the Company to  
2 repair or replace all failed services, the safety concerns and added costs associated with  
3 such a policy outweigh any potential benefit.

4 **Q. Does Granite State believe that the policy in place today provides benefit to**  
5 **customers?**

6 A. Yes. All of Granite State's customers have the benefit of overall lower cost service  
7 because they are not subsidizing the aforementioned costs to install and maintain  
8 residential underground services. The customers who choose to install the underground  
9 service bear all of the costs to install and maintain their service. The cost associated with  
10 owning new residential underground services and adding employees and materials to  
11 accommodate these service requests is a cost that should not be borne by all customers.

12 **Q. What is Granite State's position on owning new residential underground services on**  
13 **private property?**

14 A. The Company believes that the policy in place today is sufficient to serve its customers at  
15 the lowest cost while providing reliable service.

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

17 A. Yes it does.