

STATE OF NEW HAMPSHIRE  
PUBLIC UTILITIES COMMISSION

DOCKET DE-16-383

IN THE MATTER OF:      LIBERTY UTILITIES  
REQUEST FOR CHANGE IN RATES

DIRECT TESTIMONY

OF

Michael D. Cannata, Jr., P.E.  
President  
Innovative Alternatives, Inc.

DECEMBER 16, 2016

1     **I.     INTRODUCTION AND QUALIFICATIONS**

2     **Q.     Please state your full name.**

3     A.     My name is Michael D. Cannata, Jr.

4

5     **Q.     By whom are you employed and what is your business address?**

6     A.     For this proceeding, I am engaged by Innovative Alternatives, Inc. (IAI) whose business  
7             address is 65A Ridge Road, Deerfield, New Hampshire 03037. I am also the president of  
8             IAI.

9

10    **Q.     In what capacity are you employed?**

11    A.     I have been hired by the New Hampshire Public Utilities Commission (NHPUC or  
12             Commission) to provide engineering-related services. In this proceeding, I have been  
13             requested by Commission Staff (Staff) to provide a review of energy utility engineering  
14             and operations management, practices, and procedures.

15

16    **Q.     Please summarize your educational and professional work experience.**

17    A.     My educational background, work experience, and major career accomplishments are  
18             presented in Exhibit MDC-1.

19

20    **Q.     To what professional organizations or industry groups do you belong or have you**  
21             **belonged?**

22    A.     I am a member of the Institute of Electrical and Electronic Engineers and its Power  
23             Engineering Society, and am a Registered Professional Engineer in the State of New

1 State Emergency Response Commission as a designated member. I was also a member  
2 of the former Staff Subcommittee on Engineering of the National Association of  
3 Regulatory Utility Commissioners.  
4

5 **Q. Have you testified before regulatory bodies before?**

6 A. I have testified before the NHPUC in rate case, condemnation, least cost planning, fuel  
7 adjustment, electric industry restructuring, and unit outage review proceedings. I have  
8 testified before the Kentucky Public Service Commission and the Maine Public Utilities  
9 Commission in transmission siting proceedings, the Maryland Public Service  
10 Commission and the Massachusetts Department of Public Utilities with respect to system  
11 reliability/storm restoration proceedings, and have submitted testimony at the Federal  
12 Energy Regulatory Commission (FERC). I have also testified at the request of the  
13 Commission before Committees of the New Hampshire Legislature on a variety of  
14 matters concerning regulated utilities.  
15

16 **II. SUMMARY OF TESTIMONY**

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

18 A. My testimony in this proceeding addresses several issues. The primary issue is the  
19 general process by which Liberty Utilities (Liberty) justifies its new capital reliability  
20 projects through its new system planning criteria as compared to the criteria used by  
21 National Grid prior to the Liberty acquisition and as compared to other New Hampshire  
22 electric utilities. It is my finding that by building to a much stricter standard, Liberty  
23 plans to add plant, and incur additional expenditures, that may not be necessary to ensure

1 to its planning criteria to be \$50 million per year on an annualized basis over the next 15  
2 years. It appears that the planning criteria changes were made to enhance reliability.

3  
4 In terms of MWHs at risk for single contingency conditions<sup>4</sup>, the newer and stricter  
5 National Grid planning criteria required that:

6 For substation transformers, load at risk at peak should be limited to 10 MW,  
7 repairs be made within 24 hours, and the load at risk shall be limited to 240  
8 MWHs after post contingency switching;<sup>5</sup>

9 For sub-transmission lines, load at risk at peak should be limited to 20 MW,  
10 repairs be made within 12 hours, and the load at risk shall be limited to 240  
11 MWHs after post contingency switching; and

12 For distribution feeders, the load at risk shall be limited to 16 MWHs after post  
13 contingency switching.<sup>6</sup>

14 In all cases above, if the load at risk MWH criteria is exceeded, alternatives to eliminate  
15 or significantly reduce the risk shall be evaluated and prioritized considering the load at  
16 risk, reliability impacts, and the cost to mitigate. It is also important to keep in mind that  
17 the 240 MWH load at risk values independently apply to bulk feeds into each geographic  
18 area of the National Grid system including the four geographic areas of the former  
19 Granite State Electric system.  
20

<sup>4</sup> Also known as N-1 (system normal with one contingency) testing.

<sup>6</sup> In reality, customers are restored as quickly as possible through post-contingency switching which may or may not be under remote control. The 16 MWH criteria begins at that point in time, however repairs are begun on initiation of the event.

1 For distribution feeders, repairs be made within N/A (24) hours<sup>10</sup>, and the load at  
2 risk shall be limited to 16 MWHs after post contingency switching.

3 In all cases above, under both the Liberty and National Grid criteria, if the load at risk  
4 MWH criteria is exceeded, alternatives to eliminate or significantly reduce the risk shall  
5 be evaluated and prioritized considering the load at risk, reliability impacts, and the cost  
6 to mitigate.<sup>11</sup>

7  
8 **Q. Are there other changes that Liberty made to the “new” National Grid planning**  
9 **criteria that were adopted in February 2011?**

10 A. Yes there are. Liberty has added the following requirements to its distribution feeder  
11 planning criteria:

12 “Feeders shall tie to neighboring feeders as much as practical as the flexibility to  
13 reconfigure feeders has a positive reliability impact for a wide range of possible  
14 contingencies. In general, and wherever practical, each feeder should have three  
15 feeder ties to neighboring feeders.

16 Distribution feeders should be limited to 2,500 customers and sectionalized such  
17 that the number of customers does not exceed 500 or 2,000 kVA between  
18 disconnecting devices.

19 For a typical Liberty owned 10 MW feeder, approximately 8 MW would need to  
20 be restored via switching within one hour. The remaining 2 MW would be  
21 restored after repairs are made within 4 hours. Where longer repair times are

<sup>10</sup> Established new time limits for restoration times that are described in the following question.

<sup>11</sup> While this language appears in the Liberty planning criteria and is the same as what appears in the National Grid planning criteria, it appears to have been ignored in the Liberty capital budgeting planning process.

1 stated that Liberty's probability of exceedance of the load forecast is lower than that used  
2 by others, also contributing to additional conservatism in equipment utilization.  
3

4 **IV. IMPACT OF NEW LIBERTY DISTRIBUTION PLANNING CRITERIA**

5 **Q. What do the changes made by Liberty to the planning criteria mean?**

6 A. The changes made to the reliability criteria (that had been made stricter by National Grid  
7 in 2011) shows that Liberty is very aggressively pursuing reliability improvement in their  
8 distribution system heading towards the goal that all distribution feeder and distribution  
9 transformer loads have the ability for total redundancy. Liberty is also pursuing the  
10 elimination of the 23kV supply system that they purchased from National Grid so that the  
11 Liberty system becomes a totally 115/13kV supplied system. Such aggressive action will  
12 result in a distribution system that is designed to a much higher standard than those used  
13 by other electric utilities in New Hampshire and at what IAI believes will be a much  
14 higher cost.  
15

16 **Q. Is building redundancy into the system a bad thing?**

20 <sup>15</sup> and the actual reliability benefits achieved by the  
21 effort. The yardstick IAI uses is "reliable and safe electric service at a reasonable cost". I  
22 also have a concern that the reliability criteria changes adopted by Liberty mask Liberty's

<sup>15</sup> IAI believes that other utilities could view system redundancy as a method to add system capital projects to rate base and thus increase earnings to its shareholders.

1 An example would be providing redundant supply sources to distribution substations.  
2 Such action would significantly reduce outage minutes that occurred due to loss of radial  
3 supply lines. At the same time, poor tree trimming practices or lack of fuse installations  
4 would increase outage minutes for those smaller outages and would be lost when  
5 reliability metrics are compiled, as the two values would be netted.  
6

7 **V. COMPARISON OF LIBERTY VERSUS OTHER NEW HAMPSHIRE UTILITY'S**  
8 **DISTRIBUTION PLANNING CRITERIA**

9 **Q. How does the Liberty Distribution planning criteria compare to other New**  
10 **Hampshire utilities?**

11 A. Liberty's planning criteria are far stricter than those of Eversource and Unitil. The Unitil  
12 planning criteria allows for the loss of 30 MW of load for a period of 24 hours or a 720  
13 MWH load at risk criteria. Similarly, Eversource Energy has the same criterion, but also  
14 limits the post contingency switching operations to three because of switching times.<sup>16</sup>  
15

16 When one compares the essentially 720 MWH load at risk of Unitil and Eversource for  
17 the loss of a supply transformer or distribution supply line to the 60 MWH for a Liberty  
18 distribution transformer and 36 MWH for a distribution supply line, one can see that for  
19 similarly designed systems, much more equipment will be required to serve the Liberty  
20 system load than other systems in New Hampshire. Couple the design difference with the  
21 reductions from 100 percent capability to the much lower conductor temperature values  
22 adopted by Liberty, and add in the other conservative changes Liberty made to its  
23 planning criteria, even more equipment will be required to service load.

<sup>16</sup> 720 MWH is a maximum value. Customers are restored as quickly as possible.

1 thereafter, Liberty indicated that those projects would cost \$19.5 million over that same  
2 time period.<sup>20</sup> Staff requested that Liberty break down the cost of each project, its  
3 reliability benefits, and the costs per customer interruption and customer minute saved.  
4

5 Liberty responded that the seven projects would now cost \$7.2 million<sup>21</sup> and that the  
6 costs per customer interruption for the seven projects now ranged from \$480 to \$1,863  
7 and the costs for each minute of customer interruption saved now ranged from \$1.32 to  
8 \$26.34 on an annual basis for the new lower cost estimates<sup>22</sup>. Such high costs do not  
9 compare to the cost effectiveness of the projects being authorized under the REP.

11 **Q. Mr. Cannata, are you against providing customers with a more robust and reliable**  
12 **electric system?**

13 A. Of course not. I believe that utilities should do what they can to bring safe and reliable  
14 electric service to their customers at a reasonable cost. As I stated above, my concerns are  
15 with the cost of such a robust system, the reaction of other New Hampshire utilities with  
16 additional spending if the Liberty planning criteria is approved by the Commission, and  
17 the actual reliability benefits of the effort along with the attendant cost.  
18

19 **Q. What do you recommend that the Commission do regarding the issues you have**  
20 **highlighted concerning the Liberty planning criteria?**

<sup>19</sup> Attachment MDC-03 (Staff Data Request 8-63, Attachment 8-63.2 at 21, Table 7), and Attachment MDC-08 (Staff Data Request 11-13, Attachment.)

<sup>20</sup> Attachment MDC-07 (Staff Data Request 11-10, Attachment, Table 4, Page 3.)

<sup>21</sup> Attachment MDC-08 (Staff Data Request 11-13, Attachment.)

<sup>22</sup> Attachment MDC-09 (Staff Data Request 11-14, Attachment.)



1 have an accuracy range of -50% to +100%.<sup>23</sup> Other New Hampshire utilities require  
2 accuracy estimates of -10% to +10% for approval of capital expenditures.<sup>24</sup> Given the  
3 lack of accuracy of its capital budget estimates and issues concerning budget controls as  
4 described by Jay Dudley and The Liberty Consulting Group in this case, and given the  
5 conservatism Liberty has built into its planning criteria compared to other New  
6 Hampshire utilities, and the lack of analysis made available to review prudence questions  
7 in this docket,<sup>25</sup> allowing cost recovery for projects put in service beyond December 31,  
8 2016 through a step adjustment mechanism would be ill advised, in my opinion.

9  
10 With regard to the step adjustment for 2016 investments (proposed for effect April 30,  
11 2017), IAI recommends that this first step adjustment be permitted to be filed with the  
12 Commission. Based on discussions in technical sessions, IAI understands that, at most,  
13 very little of the 2016 capital expenditures were made to satisfy the newer stricter Liberty  
14 planning criteria. However, IAI recommends that the effective date be postponed until  
15 October 31, 2017 to give Liberty time to submit and the Commission to review a filing  
16 that segregates the costs described above and to provide a more robust cost justification  
17 for any projects presented for recovery in that step adjustment.

18  
19 **VII. LIBERTY CHANGES IN APPLICATION OF NHPUC RULE Puc 307.10**

<sup>24</sup> Unitil responded in its rate case, Docket 16-384, that projects seeking budget approval had to have a +/- 10 percent estimate accuracy. IAI notes that this is consistent with its experience with those of Public Service Company of New Hampshire.

<sup>25</sup> As examples, Staff requested all documentation for the Golden Rock substation and received a draft executive summary of a report Attachment MDC-11 (Staff Data Request 3-63); Staff requested a complete copy of reliability criteria and received a summary Attachment MDC-12 (Staff Data Request 4-3); and Staff requested a copy of outage management plans and received a one paragraph response Attachment MDC-13 (Staff Data Request 4-11).

1    **Q.     What does IAI recommend?**

2    A.     Keeping in mind that Unitil Energy System has also decided to adopt more aggressive,  
3           although different, vegetation management practices than required by NHPUC rules<sup>27</sup>;  
4           IAI recommends that Liberty track the reliability performance of circuits that have been  
5           trimmed to the new Liberty 4-year standard on a go-forward basis as compared to the  
6           performance that would have been expected under the minimum vegetation management  
7           requirements in Rule 307.10 and report the findings in its annual Vegetation Management  
8           Plan filed with the Commission each November.

9

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

11   A.     Yes,    it does.

<sup>27</sup> IAI comments to the Unitil changes to the vegetation management practices required by Commission Rule Puc 307.10 are included in my testimony in Docket DE 16-384.