

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

Liberty Utilities (Granite State Electric)
Corp. d/b/a Liberty Utilities
Reliability Enhancement Plan and
Vegetation Management Plan Report

Docket No. DE 16-277

Technical Statement of Steven E. Mullen and Heather M. Tebbetts

May 6, 2016

A. Purpose of Technical Statement

This Technical Statement is being submitted to explain revisions and updates to Granite State Electric's proposed distribution rate increase related to the annual reconciliation of its Reliability Enhancement Plan and Vegetation Management Plan ("REP/VMP"). This filing updates the REP/VMP reconciliation filing submitted on March 15, 2016 and as amended on March 30, 2016. Due to the delay in the hearing, this technical statement includes rate calculations and impacts for proposed changes to distribution rates effective June 1, 2016. Finally, this filing incorporates updated information and addresses certain comments received from Staff during a meeting held on April 13, 2016.

The revisions and updates to the various components of the REP/VMP filing are described below:

B. REP/VMP Report CY2015

Based on Staff's comments during the April 13, 2016 meeting, the Company has made the following changes to the original Report filed on March 15, 2016 (page references are to that original filing):

- Page 1 (Bates 003), section 1) The \$1,994,184 of actual spending should have been compared to \$1,860,397, the original budget amount prior to consideration of any Fairpoint credits, resulting in a variance of \$133,787. The original variance of \$421,902 was based on a comparison of the budget amount after consideration of Fairpoint credits. This corrected comparison puts the budget and actual costs on the same basis. Page 1 (Bates 003), section 2) - \$1,321,4562 was a typographical error; the total is \$1,321,456
- Page 1 (Bates 003), section 3) – "excluding those carryover costs" was added for clarification
- Page 3 (Bates 005), second paragraph - see first bullet above

- Page 6 (Bates 008), paragraph 2 – “for a protective device” was added for clarification.
- Page 9 (Bates 011) – The chart showing SAIDI and SAIFI performance is being submitted as a separate page to aid in readability. In future filings the Company will include the chart as a separate page.
- Appendices to the Report:
 - Appendix 1 (Bates 13):
 - a. Removed parentheses from \$288,115 in column (a)
 - b. Added clarifying language to footnote (**)
 - Appendix 5 (Bates 18) – corrected certain line item totals in the “Subtotal” column. The overall total did not change.

C. Direct Testimony of Christian Brouillard and Jeffrey Carney

Based on Staff’s comments in the April 13, 2016 meeting, the Company has made the following changes to the testimony as filed on March 15, 2016:

- Page 7 (Bates 032), Lines 16-17 - The \$1,994,184 of actual spending should have been compared to \$1,860,397, the original budget amount prior to consideration of any Fairpoint credits, resulting in a variance of \$133,787. The original variance of \$421,902 was based on a comparison of the budget amount after consideration of Fairpoint credits. This corrected comparison puts the budget and actual costs on the same basis.

D. Background for Revisions/Updates to the Schedules of Heather M. Tebbetts

At the inception of the REP/VMP program under National Grid ownership, the program year was an April 1 – March 31 fiscal year as it matched National Grid’s corporate fiscal year. The plan called for an annual reconciliation filing by May 15 of each year for a July 1 rate change. With that timing, the overall depreciation rate on distribution plant and the property tax calculation were based on information in the Company’s FERC Form 1 that is due on April 18th of each year.

Liberty operates on a calendar year basis and, in line with that, the program year for the REP/VMP was changed to a calendar year basis as part of the settlement agreement in Granite State’s most recent rate case, DE 13-063, which became effective beginning April 1, 2014. As part of that realignment, the annual filing date for the reconciliation was moved from May 15 to March 15, a date earlier than the due date of the FERC Form 1. When the 2014 reconciliation filing was made in March 2015, the FERC Form 1 data was not available as the year end closing and review process had not yet been completed. At that time, a simplifying assumption was made that the depreciation rate and property tax rate calculations should be fairly consistent from year to year and, therefore, the same rates were used in 2014 as were used in 2013. Those rates were included in the schedules that were reviewed in the proceeding and ultimately approved. At the time of the initial March 2016 filing of the 2015 reconciliation in this proceeding, the same timing issue with the FERC Form 1 data availability existed. However, now with the delay in this proceeding, we have prepared calculations for the 2014 and 2015 depreciation and property

tax rates based on FERC Form 1 information. While typically one would not expect a significant difference in the rates from one year to the next, a couple of factors have changed that were not taken into account in the simplifying assumptions. First, with respect to depreciation rates, the depreciation rates were adjusted in DE 13-063. In addition, there was a calculation of a depreciation reserve surplus that is being amortized into rates over a period of time as a reduction to depreciation expense. The impact of those factors is that the actual depreciation rates for 2014 and 2015 are lower than what was originally included in the schedules. For property taxes, there is a lag between the Company's investments in its system and the amount it is charged by municipalities. As the Company has invested significant capital over the last couple of years, that hasn't been fully reflected in the tax bills received from the various communities. As a result, the calculated property tax rate has decreased in 2014 and 2015 as compared to 2013. Although the amounts for 2014 were already approved in rates, we determined that since the actual amounts were lower, the correct thing to do would be to update the 2014 amounts while we were updating the 2015 amounts.

As we looked to update the 2015 amounts for this reconciliation, we also took the opportunity to review the 2014 information. In the 2015 filing for the CY2014 reconciliation, the estimated annual revenues used to determine the Capital Investment Allowance were from a then-recent docket as forecasted information was not available at the time of that reconciliation filing. In preparing the schedules for the March 2016 filing of the CY2015 reconciliation, that same estimated annual level of revenue was used in the calculations. As correctly pointed out by Staff during a meeting on April 13, 2016, the settlement agreement in DE 13-063 provides for the use of forecasted annual revenues. In this updated filing, the Company has adjusted the forecasted annual revenues based on current rates and current forecast information.

E. Schedules of Ms. Tebbetts

As mentioned above, the Company met with Staff on April 13, 2016 to review both the March 15 and March 30 filing. Taking into account Staff's comments along with the information described above, the Company has made the following changes to the Schedules of Ms. Tebbetts:

- Schedule HMT-1, Page 3, Line 62, Column CY2014: Revenue requirement has been updated to reflect an update to the calculation of property taxes
- Schedule HMT-1, Page 3, Line 62, Column CY2015: The CY2015 capital revenue requirement has been updated to reflect an update to property taxes and the book depreciation rate
- Schedule HMT-2, Page 1, Line 2: Forecasted base revenues are now included as the starting point to increase distribution rates based on the Settlement Agreement in DE 13-063
- Schedule HMT-2, Page 2, Line 6: Estimated kilowatt-hour deliveries have been updated to reflect an eleven month recovery of the REP Adjustment Factor
- HMT-2, Page 3: The interest calculation has been updated to reflect an eleven month recovery
- Schedule HMT-2, Page 4: The base distribution rates have been updated to reflect approved base distribution rates in Docket No. DE 13-063 effective June 1, 2016

- Schedule HMT-3: The month of May has been included in the reconciliation to reflect an additional month of credit from the REP Adjustment Factor to customers

In addition, Staff pointed out that some of the footnotes in the schedules needed to be revised and/or updated. The Company has revised and updated some of the footnote references. All changes and updates to Ms. Tebbetts' schedules have been reflected in bold and italic print.

F. Bill Impact

The average residential customer using 650 kWh per month will see an overall bill increase as a result of this filing of \$0.56, or 0.51% effective with service rendered on and after June 1, 2016.

Liberty Utilities (Granite State Electric)
Corp. d/b/a Liberty Utilities

Reliability Enhancement Plan (REP) and
Vegetation Management Plan (VMP)
Report for Calendar Year 2015

| May 6, 2016~~March 15, 2016~~

Submitted by:



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Introduction

Liberty Utilities (Granite State Electric) Corp. (“Liberty” or the “Company”) hereby submits the results of the Reliability Enhancement Plan (“REP”) and Vegetation Management Plan (“VMP”) for the calendar year 2015, (“Calendar Year 2015 Plan”). These results for the Calendar Year 2015 Plan are submitted consistent with the requirements in Attachment F to the Settlement Agreement in Docket No. DE 13-063 (the “Settlement Agreement”) that was approved by the Commission in Order No. 25,638 (March 17, 2014). For ease of reference, a copy of Attachment F is included as Appendix 8 to this report. This report contains the following information:

- 1) A comparison of actual to budgeted spending on operating and maintenance (“O&M”) activities related to the VMP in CY 2015. Appendix 1, line 13, column (b), shows that total actual spending for this period was \$1,994,184¹ or \$~~421,902~~133,787 more than the budgeted amount of \$~~1,572,282~~1,860,397.
- 2) A comparison of actual investment to budgeted spending on capital projects for REP in CY 2015. Appendix 2, line 7, column (d) shows that the total capital investment recorded on Granite State’s books in CY 2015 was \$1,321,456². This actual investment is \$81,456 more than the budgeted amount of \$1,240,000.
- 3) A request to recover \$346,184 which is the incremental O&M spending over the \$1,360,000 base amount for CY 2015 and is broken down between two program years CY 2014 and CY 2015. The total carryover from CY 2014 was \$273,674 as discussed in Section 1 of this report, and, excluding those carryover costs, the total

¹ This investment includes \$273,674 associated with CY 2014 VMP projects that was not booked until 2015 and is being included in the 2016 REP-VMP rate adjustment.

² ~~This investment includes \$269,663 associated with CY 2014 capital projects that was not booked until 2015 and is being included in the 2016 REP-VMP rate adjustment.~~

- net VMP costs for 2015 was \$1,720,507. Included in those costs are only VMP O&M costs, as the Company does not have O&M related to capital expenditure costs.
- 4) A request to recover \$279,097 of revenue associated with a total of \$1,321,456 in capital investment, broken down between two program years CY 2014 and CY 2015. The total carryover from CY 2014 was \$269,663 as discussed in Section 2 of this report, and the total capital investment for 2015 was \$1,051,792; and
 - 5) A summary of reliability performance for CY 2015.

The Company is submitting the joint testimony of Christian Brouillard and Jeffrey Carney, which provides further information regarding the Company's actual O&M cost and capital investment made during CY 2015. In addition, the testimony of Heather Tebbetts addresses the Company's request for a net increase in distribution rates associated with the REP/VMP Adjustment Provision and the REP Capital Investment Allowance described above, and includes a proposed rate design and typical bill impacts.

Section 1: CY 2015 O&M Budget vs. Actual O&M Expenses for VMP

The proposed operating and maintenance ("O&M") budgets for VMP activities for 2015 are shown in Appendix 1, Line 13, Column (a). For calendar year 2015, Liberty proposed to spend \$1,860,397 on O&M expenses related to VMP activities. The VMP O&M spending included \$288,115 that Liberty would bill to FairPoint for its share of the planned vegetation maintenance work (Appendix 1, line 12³). As shown on Appendix 1, line 14, column (a), those reimbursements were excluded from the total amount of VMP O&M expenses to be recovered, resulting in an adjusted total of VMP O&M expenses of \$1,572,282 (Appendix 1, line 16,

³ To date, FairPoint has not paid Liberty for maintenance trimming expense of \$172,685 for 2013, \$208,443 for 2014 or \$288,000 for 2015. Liberty is pursuing payment from Fair Point consistent with the process set forth in the September 30, 2007 Memorandum of Understanding between the two companies.

column (a)). Consistent with Section III.b. of the Settlement Agreement, Liberty submitted this alternative budget for Staff's consideration as it exceeded the Base Plan O&M Budget amount of \$1,360,000 by \$212,282. Commission Staff subsequently expressed its support for the budget.

As shown in Appendix 1, line 13, column (b), the Company's actual total spending level for CY 2015 was \$1,994,184 for O&M activities related to the VMP, or ~~\$421,902~~133,787 more than the filed budgeted amount of ~~\$1,572,282~~1,860,397. Budget variances related to the total CY 2015 VMP O&M spending are described below. In addition to Appendix 1, which shows total O&M expenses, Appendix 5 shows the actual VMP O&M expenses by month, while Appendix 4 contains the work plan of completed VMP O&M activities by feeder.

- The Company completed all of the vegetation management work contained in its CY 2015 plan. The spending variance is the result of the following factors:
- The Trouble and Restoration budget is need based. Spend exceeded budget by \$43,378 due to an increase in non-storm related trouble call volume.
- The actual cycle pruning spend includes a portion of the CY 2014 costs paid in CY 2015. When the FairPoint credit is applied spend only exceeded the budget by \$18,994.
- The Company spent significantly more than anticipated for traffic control. Overspend is due to the unpredictable nature of where traffic control will be required. The budget is based on the average of historical spend and cost per unit. Additional tree crews were brought on in the fourth quarter to complete the work plan, requiring additional police details.
- The Company spent more on hazard tree removals because additional risk trees with higher probability of failure resulting in a reliability impact were identified during the

work planning process. A portion of the CY 2014 expense paid in CY 2015 is also included.

- The Company spent more than anticipated on interim trimming due to three phase patrol on several circuits scheduled for CY 2015 for enhanced reliability. The Company used a portion of the right-of-way clearing underspend.
- Lastly, the Company spent less than anticipated on right-of-way clearing. The budget was based on work being performed hourly but it was subsequently paid for as unit cost tree removals resulting in savings and a lower than anticipated spend.

Section 2: CY 2015 Capital Budget vs. Actual Capital Investment for REP

The proposed Capital Investment budget for REP activities for 2015 is shown in Appendix 2, Line 6, Column (b). For the calendar year 2015, Liberty proposed to spend \$1,240,000 on capital investments related to REP activities. The CY 2015 REP capital investment budget included \$100,000 from previous CY 2014 carryover (Appendix 2, line 5, column (b)). As discussed with Commission Staff, the Company budgeted this amount to install nine single phase reclosers, eighteen units of trip savers, and replace two miles of bare primary conductors. Details of the REP Capital Investment projects and costs are included in Attachment 3. Consistent with Section III.b. of the Settlement Agreement, Liberty submitted this alternative budget for Staff's consideration as it exceeded the \$1,000,000 target of REP capital investment by \$240,000. Commission Staff subsequently expressed its support for the budget.

Single phase reclosers and "Trip Saver" cutouts target circuit segments that would realize reliability benefits from single phase tripping and reclosing and from isolating faults down to the smallest single phase segment possible. These devices are designed to interrupt circuit segments following a transient or temporary fault condition, then automatically restore the segment after a

short period to allow the fault to clear. These devices not only improve reliability of service, but also avoid the cost of dispatching a trouble shooter or line crew to replace the fuse.

A significant portion of this budget was targeted towards the re-conductoring of two miles of bare mainline primary conductor with spacer cable in tree outage prone areas where it is too costly to rely on vegetation management practices alone to mitigate feeder lockouts. The application of spacer cable, a covered conductor resistant to tree related outages, significantly improves mainline circuit performance during windy and stormy conditions as well as affording protection against incidental tree-conductor contact at the end of the trim cycle and contact resulting from branches falling from above the trim zone.

In Appendix 2, the Company provides the carryover capital investment from 2014 and the actual capital investment for 2015. The Company's actual total carryover from CY 2014 was \$269,663 (Appendix 2, line 5, column (d)) for Capital activities related to the REP, or \$169,663 more than the filed budgeted amount of \$100,000. A key factor contributing to this carryover from CY 2014 are timing differences due to budgeted amounts from CY 2014 being placed into service in CY 2015 which can typically occur as capital work is performed, completed, invoiced to vendors, and processed through the accounting system. The Company has taken a number of steps to improve the timing of the accounting treatment of these jobs, including establishing and using an account 106 as well as holding monthly meetings between Accounting and Operations personnel to review the status of pending capital projects.

As shown on line 4, column c of Appendix 2, the Company's total spending for CY 2015 was \$1,051,792 for capital activities related to REP, or \$88,208 less than the filed budgeted amount of \$1,140,000.

Additional details of the variance in each of the CY 2015 REP projects are provided below:

Single Phase and “Trip Saver” Reclosing Applications: As shown in Appendix 2, lines 2-3, column (c), CY 2015 capital expenditures incurred for Single Phase and “Trip Saver” Reclosing applications amounted to \$312,995, or \$56,495 more than the proposed budget of \$256,500. The variance in this program was mainly due to issues with estimating overhead costs for in-house crews. Recloser and “Trip Saver” installations are mainly performed by in-house crews and in most cases these installations are done between other jobs of short duration, such as new business development and public requirements. This creates added time during which a job remains open and collects additional overhead and labor charges due to multiple crew visits to the job site.

As shown on Appendix 3, line 18, the installation of a single phase recloser at Seminary Hill Road was changed to Plainfield Road after a more suitable location for a protective device was determined.

Bare Conductor Replacement: As shown in Appendix 2, line 1, column (c), CY 2015 capital expenditures incurred for Bare Conductor Replacement amounted to \$738,797 or \$144,703 less than the proposed budget of \$883,500. The variance in the Bare Conductor Replacement Program was driven primarily by bid prices being lower than expected which resulted in a lower than forecasted investment. In addition, bare conductor replacement which was planned for Bridge Street in Pelham was deferred to calendar year 2016 due to issues with telephone set poles. This project is shown on Appendix 3,

line 15. As shown on Appendix 3, lines 16-17, in its place, bare conductor was replaced along Bluff Street, Lake Street, and School Street in Salem.

Section 3: Reliability Results – Calendar Year 2015

Consistent with Section VII.b of the Settlement Agreement, reliability metrics for CY 2015 are presented in the table below based on both the PUC Standard⁴ for excluding major weather events and the IEEE Standard 1366⁵ method for excluding major event days. The metrics presented on the next page also exclude transmission supply outages, planned or notified outages, and all other applicable exclusions.⁶ The metrics include customers interrupted (“CI”), customer minutes interrupted (“CMI”), system average interruption frequency index (“SAIFI”), system average interruption duration index (“SAIDI”), customer average interruption duration index (CAIDI), and customers interrupted per interruption index (CIII).

⁴ PUC Major Storm: [(CI >= 15 % of Customers Served and 30 concurrent events) or (45 concurrent events)], Using PUC criteria, two days were excluded in Calendar Year 2015: August 3-4, 2015.

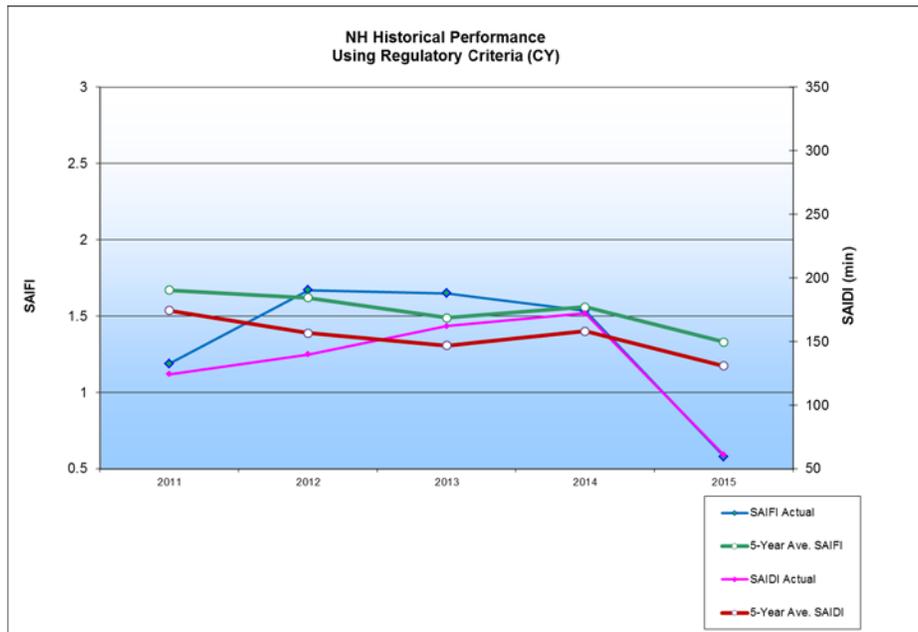
⁵ IEEE Major Event Days: Using IEEE criteria, one day was excluded in Calendar Year 2015: August 3 2015.

⁶ Events that are excluded are those involving loss of supply from another utility, customer-owned facilities, fire or police emergency requests, load shedding, planned maintenance, events whose duration was 5 minutes or less and/or events which involving only one customer.

Calendar Year 2015 Reliability Results

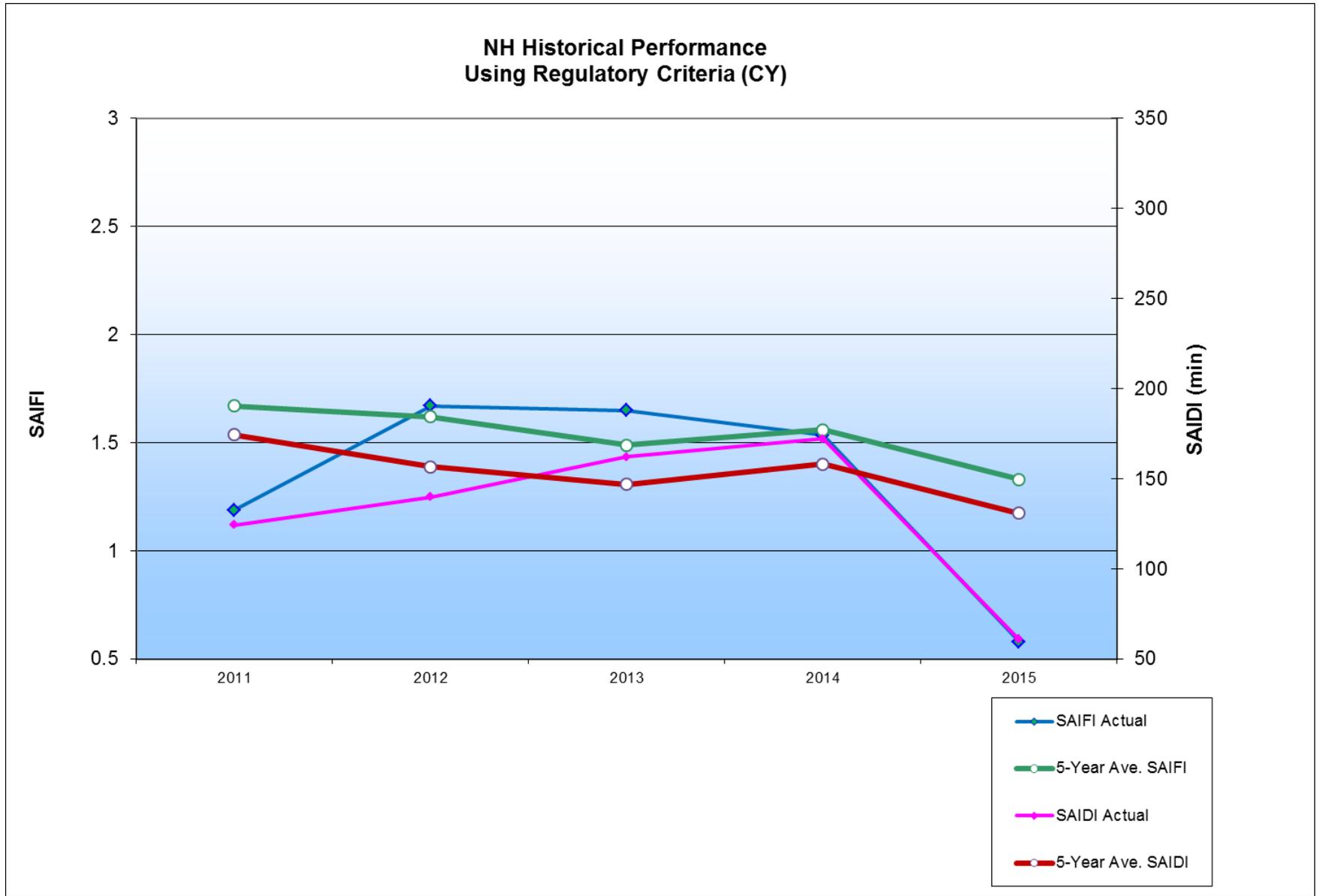
No Exclusions								
Year	Events	Customers Interrupted	Customer Minutes Interrupted	Customers Served	SAIFI	SAIDI	CAIDI	CIII
2015	546	34,496	5,614,879	42,911	0.8030	130.570	162.77	63.18
Excludes Only IEEE Major Events								
Year	Events	Customers Interrupted	Customer Minutes Interrupted	Customers Served	SAIFI	SAIDI	CAIDI	CIII
2015	518	30,751	3,230,818	42,911	0.7163	75.366	105.06	59.36
Excludes Only PUC Major Events								
Year	Events	Customers Interrupted	Customer Minutes Interrupted	Customers Served	SAIFI	SAIDI	CAIDI	CIII
2015	508	29,971	3,180,959	42,911	0.6982	74.211	106.13	59.00
Excludes Only Loss of Supply by Other Utility or Transmission Outage								
Year	Events	Customers Interrupted	Customer Minutes Interrupted	Customers Served	SAIFI	SAIDI	CAIDI	CIII
2015	540	31,745	5,131,372	42,911	0.7388	119.263	161.64	58.79
Excludes Only Planned Maintenance								
Year	Events	Customers Interrupted	Customer Minutes Interrupted	Customers Served	SAIFI	SAIDI	CAIDI	CIII
2015	508	33,841	5,574,512	42,911	0.7878	129.631	164.73	66.62
All Exclusions: IEEE Major Events, loss of supply, transmission, planned maintenance, Load Shedding, Single Customer Outages, Fire/Police Request								
Year	Events	Customers Interrupted	Customer Minutes Interrupted	Customers Served	SAIFI	SAIDI	CAIDI	CIII
2015	358	25,673	2,667,933	42,911	0.5981	62.2045	103.92	71.71
All Exclusions: PUC MEDs, loss of supply, transmission, planned maintenance, Load Shedding, Single Customer Outages, Fire/Police Request								
Year	Events	Customers Interrupted	Customer Minutes Interrupted	Customers Served	SAIFI	SAIDI	CAIDI	CIII
2015	348	24,893	2,618,074	42,911	0.5800	61.050	105.17	71.53

Calendar Year Historical Reliability Performance



As shown on the Calendar Year Historical Reliability Performance graph above, the SAIFI performance of 0.58 for CY 2015 continues on an improving, downward trend, with the 2015 performance significantly better than that of 2014. Similar to the SAIFI trend, the 61.05 minutes for SAIDI reflects a significant improvement in SAIDI indices over the past few years. For 2015, there were a very limited number of non-recurring events, greater than 5 minutes in duration that drove our improvement in SAIDI performance. The top 3 events made up 24% of our SAIDI performance indices. Mitigation measures, both inside and outside of the REP, were also implemented in 2015 to further improve our SAIDI performance, specifically addressing the drivers to SAIDI performance in 2015. The measures included addressing pockets of poor performance and underperforming feeders. In summary, the Company met its SAIFI and SAIDI targets of 1.56 and 158.10 minutes respectively, which are based on a 5-year rolling average and are shown on Appendix 7. 2015 was the best reliability year since the Company began tracking reliability performance some twenty years ago. However, it is worth noting that in general,

electric delivery system reliability performance in the New England region, as well as nationally, was favorable in 2015. Some level of variability is to be expected in the year to year metrics, typically rooted in weather pattern changes. We expect this overall positive performance in SAIFI and SAIDI to continue, albeit at more historical levels, as we experience further positive impact from our reliability initiatives.



Appendix 1 - VMP O&M Expenses

Line	(a) CY 2015 Budgeted Expenses	(b) CY 2015 Actual Expenses	(c) Fairpoint Contribution	(d) CY2015 Net Actual Expenses	(e) Reference	(f) CY 2015 Actual Variance
1	VMP O&M					
2	Work Planners for Veg Plan	\$ 95,000	\$ 149,589	\$ 53,757	\$ 95,832	Appendix 4
3	Spot Tree Trimming	\$ 40,000	\$ 41,008	\$ -	\$ 41,008	Appendix 4
4	Trouble and Restoration Maintenance	\$ 40,000	\$ 83,378	\$ -	\$ 83,378	Appendix 4
5	Planned Cycle Trimming	\$ 702,320	\$ 839,591	\$ 117,271	\$ 722,320	Appendix 4
6	Police Detail Expenses - Cycle Trimming	\$ 145,362	\$ 227,151	\$ 29,072	\$ 198,079	Appendix 4
7	Hazard Tree Removal	\$ 350,000	\$ 510,445	\$ 87,900	\$ 422,545	Appendix 4
8	Interim Trimming	\$ 65,000	\$ 90,623	\$ -	\$ 90,623	Appendix 4
9	Tree Planting	\$ 5,000	\$ 5,350	\$ -	\$ 5,350	Appendix 4
10	Other Police Detail Expenses (Included w/Cycle Trim Police)	\$ 24,600	\$ -	\$ -	\$ -	Appendix 4
11	Sub-Transmission Right of Way Clearing	\$ 105,000	\$ 47,050	\$ -	\$ 47,050	Appendix 4
12	Fairpoint Credits	\$ 288,115		\$ 288,000	\$ 1,706,184**	
13	Total VMP O&M Expenses	\$ 1,860,397	\$ 1,994,184	**		
14	Less: Reimbursements from Fairpoint	\$ 288,115	\$ 288,000			
15	VMP O&M Expenses Net of Fairpoint Credits	\$ 1,572,282	\$ 1,706,184			
16	Total VMP O&M Expenses	\$ 1,572,282				

(*)

(**)

(*) From CY 2015 Plan submitted to Staff on November 14, 2014

(**) Total net veg spend includes \$273,674 of CY2014 VMP year end charges paid in CY2015

adjusted actual net spend for CY2015 VMP is \$1,720,507 **(\$1,994,184 total spend in CY2015 less CY2014 carryover of \$273,674)**

Appendix 2 - REP Capital Investments - Summary

Line	Projects	(a) 2015 Goal	(b) CY 2015 Capital Investment Budget(*)	(c) CY 2015 Actual Capital Investment	(d) CY 2014 Capital Carryover Investment	Reference
1	Bare Conductor Replacement	1.7 mi.	\$ 883,500	\$ 738,797		Appendix 3, lines 15-17
2	Single Phase Reclosing Installations	3 Locations	\$ 171,000	\$ 231,545		Appendix 3, lines 18-21
3	Single Phase Trip Saver Installations	18 Units	\$ 85,500	\$ 81,450		Appendix 3, lines 22-29
4	Calendar Year 2015 Totals		\$ 1,140,000	\$ 1,051,792		
5	Previous CY Carryover		\$ 100,000		\$ 269,663	Appendix 3, lines 1-14
6	Totals		\$ 1,240,000	\$ 1,051,792	\$ 269,663	
7			(*)		<u>\$ 1,321,456</u>	

(*) From CY 2015 Plan submitted to Staff on November 14, 2014.

Appendix 3 - Reliability Enhancement Program Capital Costs

Line	(a) Activities	(b) Project Description	Funding Project Number	Work Order	(c) CY 2015 Budgeted Capital Investment (107)	(d) CY 2015 Capital Investment Closed to Plant (101/106/108)	(e) CY 2015 Capital Investment Closed to Plant from CY2014 carryover	(f) CY 2015 Total	(g) Estimated Capital Investment to be Booked in CY 2016 (107)
1	Bare Conductor Replacement Program -Mammoth Rd - 14L2	Replace approximately 0.85 miles of bare conductors along Mammoth Rd Pelham with 477 Spacer Cable.	8830- C18603	16809134	\$ -	\$ -	\$ 72,136	\$ 72,136	\$ -
2	Bare Conductor Replacement Program -Cemetery Pine Tree Rd - 11L1	Replace approximately 0.28 miles of bare conductors along Cemetery Pine Tree Rd Lebanon with 477 Spacer Cable.	8830- C18603	17078097	\$ -	\$ -	\$ 25,400	\$ 25,400	\$ -
3	Bare Conductor Replacement Program -East Main St / North Main St Salem - 13L3	Replace approximately 1 mile of bare conductors along North Main St Salem with 477 Spacer Cable.	8830- C18603	17144884	\$ -	\$ -	\$ 80,372	\$ 80,372	\$ -
4	Recloser Installations - Acworth Rd Single Phase Reclosing - 12L1	Install Vyper ST with SEL-651R control on Acworth Rd Alstead NH for single phase tripping.	8830- C24073	15711510	\$ -	\$ -	\$ 6,313	\$ 6,313	\$ -
5	Recloser Installations -Bridge St Salem Single Phase Reclosing - 13L3	Install Vyper ST with SEL-651R control on Bridge St. Salem NH for single phase tripping.	8830- C24073	17145659	\$ -	\$ -	\$ 1,688	\$ 1,688	\$ -
6	Trip Saver Installations - Route 123A / Forest Rd Acworth - 12L1	Install 1 single phase trip saver on Route 123A and Install 1 single phase trip saver on Forest Rd Acworth NH.	8830- C24073	15711564	\$ -	\$ -	\$ 12,162	\$ 12,162	\$ -
7	Trip Saver Installations - Atkinson Rd Salem - 13L3	Install 2 single phase trip saver on Atkinson Rd Salem NH.	8830- C24073	16031618	\$ -	\$ -	\$ 7,596	\$ 7,596	\$ -
8	Trip Saver Installations - Shannon Rd / Hooker Farm Rd Salem - 13L3	Install 1 single phase trip saver on Shannon Rd and install 1 single phase trip saver on Hooker Farm Rd Salem NH	8830- C24073	16031590	\$ -	\$ -	\$ 3,211	\$ 3,211	\$ -
9	Trip Saver Installations - West Shore Rd Windham - 9L3	Install 3 single phase trip savers on West Shore Rd Windham NH	8830- C24073	17146026	\$ -	\$ -	\$ 15,877	\$ 15,877	\$ -
10	Trip Saver Installations - Mammoth Rd Pelham - 14L3	Install 3 single phase trip savers on Mammoth Rd Windham NH	8830- C24073	17146064	\$ -	\$ -	\$ 13,800	\$ 13,800	\$ -
11	Trip Saver Installations - Sherburne Rd Pelham - 14L2	Install 3 single phase trip savers on Sherburne Rd Pelham NH	8830- C24073	17146103	\$ -	\$ -	\$ 11,028	\$ 11,028	\$ -
12	Trip Saver Installations - Bush Hill Rd Pelham - 14L2	Install 1 single phase trip saver on Bush Hill Rd Pelham NH	8830- C24073	17146148	\$ -	\$ -	\$ 8,228	\$ 8,228	\$ -
13	Trip Saver Installations -Pond St. Salem - 10L1	Install 1 single phase trip saver on Pond St Salem NH	8830- C24073	15836509	\$ -	\$ -	\$ 5,510	\$ 5,510	\$ -
14	Trip Saver Installations -Valley Rd Walpole - 12L1	Install 1 single phase trip saver on Valley Rd Walpole NH	8830- C24073	18000084	\$ -	\$ -	\$ 6,344	\$ 6,344	\$ -
15	Bare Conductor Replacement Program -Bridge St -14L2/14L3	Replace approximately 1.7 miles of bare conductors along Bridge St. Salem with 477 Spacer Cable.	8830- C18603	18000311 8830- 18000650	\$ 883,500	\$ -	\$ -	\$ -	\$ -

Appendix 3 - Reliability Enhancement Program Capital Costs

Line	(a) Activities	(b) Project Description	Funding Project Number	Work Order	(c) CY 2015 Budgeted Capital Investment (107)	(d) CY 2015 Capital Investment Closed to Plant (101/106/108)	(e) CY 2015 Capital Investment Closed to Plant from CY2014 carryover	(f) CY 2015 Total	(g) Estimated Capital Investment to be Booked in CY 2016 (107)
16	Bare Conductor Replacement Program -Bluff/Lake St 13L2	Replace approximately 1.6 miles of bare conductors along Bluff St and Lake St. Salem with 477 Spacer Cable.	8830-C18603	8830-18001058	\$ -	\$ 546,128	\$ -	\$ 546,128	
17	Bare Conductor Replacement Program -School St 13L3	Replace approximately 0.6 miles of bare conductors along Bluff St and Lake St. Salem with 477 Spacer Cable.	8830-C18603	8830-18001100	\$ -	\$ 192,669	\$ -	\$ 192,669	
18	Recloser Installations - Seminary Hill Rd Single Phase Reclosing - 11L1	Install Vyper ST with SEL651R control on Seminary Hill Rd P32 for single phase tripping.	8830-C24073	8830-18000156	\$ 57,000	\$ -	\$ -	\$ -	
19	Recloser Installations - Connecticut Valley Rd Single Phase Reclosing - 1L2	Install Vyper ST with SEL651R control on Connecticut Valley Rd for single phase tripping.	8830-C24073	8830-16660619	\$ -	\$ 35,540	\$ -	\$ 35,540	
20	Recloser Installations - Windham Rd Single Phase Reclosing - 14L3	Install Vyper ST with SEL651R control on Windham Rd P43 for single phase tripping.	8830-C24073	8830-18000157	\$ 57,000	\$ 73,914	\$ -	\$ 73,914	
21	Recloser Installations - Old Rockingham Rd Single Phase Reclosing 9L2	Install Vyper ST with SEL651R control on P2 Old Rockingham Rd for single phase tripping.	8830-C24073	8830-18000158	\$ 57,000	\$ 122,091	\$ -	\$ 122,091	
22	Trip Saver Installations -May St Canaan - 7L2	Install 2 single phase trip savers on P1 May St Salem NH	8830-C24073	8830-18000331	\$ 9,500	\$ 10,094	\$ -	\$ 10,094	
23	Trip Saver Installations -Rudsboro Rd Hanover - 16L1	Install 1 single phase trip saver on P84 Rudsboro Rd	8830-C24073	8830-18000333	\$ 4,750	\$ 5,518	\$ -	\$ 5,518	
24	Trip Saver Installations -Hanover Center Rd Hanover - 16L1	Install 3 single phase trip saver on P73 Hanover Center Rd	8830-C24073	8830-18000334	\$ 14,250	\$ -	\$ -	\$ -	
25	Trip Saver Installations -Cove Rd Salem - 13L1	Install 1 single phase trip saver on P113 Cove Rd	8830-C24073	8830-18000339	\$ 4,750	\$ 24,928	\$ -	\$ 24,928	
26	Trip Saver Installations -Stevens Rd Lebanon - 1L1	Install 3 single phase trip savers on P52 Stevens Rd	8830-C24073	8830-18000340	\$ 14,250	\$ 19,217	\$ -	\$ 19,217	
27	Trip Saver Installations -Poverty Lane Rd Lebanon - 39L2	Install 3 single phase trip savers on P19 Poverty Lane Rd	8830-C24073	8830-18000341	\$ 14,250	\$ -	\$ -	\$ -	
28	Trip Saver Installations -Plainfield Rd Plainfield - 39L1	Install 2 single phase trip savers on P61-89 Plainfield Rd	8830-C24073	8830-18000342	\$ 9,500	\$ 10,591	\$ -	\$ 10,591	
29	Trip Saver Installations -Highland Ave Lebanon - 11L1	Install 3 single phase trip savers on P7 Highland Ave.	8830-C24073	8830-18000343	\$ 14,250	\$ 11,101	\$ -	\$ 11,101	
30	Capital Investment Carryover from previous CY				\$ 100,000				
31	Totals				\$ 1,240,000	\$ 1,051,792	\$ 269,663	\$ 1,321,456	\$ 250,000

Appendix 4 - Vegetation Management Activities

CY 2015				
Line	Activities	Program Plan (*)	Reference	
1	Spot Tree Trimming	As needed	See Appendix 6 for definitions	
2	Trouble and Restoration Maintenance	As needed	See Appendix 6 for definitions	
3	Planned Cycle Trimming	175.58 miles	See Appendix 6 for definitions	
4	Cycle Trimming Police Detail Expenses	As needed	See Appendix 6 for definitions	
5	Hazard Tree Removal	As needed	See Appendix 6 for definitions	
6	Enhanced Hazard Tree Removal	As needed	See Appendix 6 for definitions	
7	Interim Trimming	As needed	See Appendix 6 for definitions	
8	Tree Planting	As needed	See Appendix 6 for definitions	
9	Subtransmission Right of Way Clearing	6.3 miles (12.6 miles total - both sides of ROW)/additional as needed from patrols	See Appendix 6 for definitions	
10	Other Police Detail Expenses	As needed	See Appendix 6 for definitions	
11	Substation	Feeder	OH Miles - Distribution	OH Miles - Distribution Completed
12	Mt. Support	16L1	41	41
13	Slayton Hill	39L1	1.86	1.86
14	Slayton Hill	39L2	29.83	29.83
15	Hanover 6	6L3	34.59	34.59
16	Pelham 14	14L3	37.71	37.71
17	Spicket River	13L2	30.59	30.59
18		Total OH_Miles - Distribution	175.58	175.58
19	Subtransmission		OH Miles - Subtransmission	OH Miles - Subtransmission
20	1303/1304 Line Hanover #6 to Lebanon #1	Side Trimming/Hazard Tree Removal	6.3	6.3
21		(Combined Edge)	12.6	12.6
22		Total OH_Miles - Subtransmission	12.6	12.6

Appendix 5 - VMP Spend by Month

Line	Sum of Amount	January	February	March	April	May	June	July	August	September	October	November	December	Total	Less Reimbursements from Faripoint	Subtotal
1	Hazard Tree Removal	\$49,026	\$8,419	\$10,877	\$8,781	\$45,572	\$33,745	\$35,332	\$14,593	\$15,458	\$50,824	\$72,811	\$165,009	\$510,445	\$87,900	\$422,545
2	Interim Trimming	\$12,192	\$9,324	\$47,885	\$21,221									\$90,623	\$0	\$90,623
3	Planned Cycle Trimming	\$201,122		\$7,511	\$1,252	\$83,283	\$68,474	\$63,950	\$64,529	\$73,588	\$90,634	\$58,333	\$126,914	\$839,591	\$117,271	\$722,320
4	Police Detail Expenses - Cycle Trimming & Other	\$41,416	\$636		\$22,424	\$38,750		\$10,356	\$30,546		\$18,230	\$41,819	\$22,974	\$227,151	\$29,072	\$198,079
5	Spot Tree Trimming	\$6,604	\$6,978	\$9,493	\$5,460	\$9,980	\$2,492							\$41,008	\$0	\$41,008
7	Sub-Transmission Right of Way Clearing	\$5,805						\$2,991		\$4,199	\$400	\$800	\$32,856	\$47,050	\$0	\$47,050
8	Tree Planting											\$5,350		\$5,350	\$0	\$5,350
9	Trouble and Restoration Maintenance	\$6,701	\$809	\$1,717	\$6,267	\$7,376	\$11,464	\$12,424	\$3,234	\$7,466	\$8,098	\$14,370	\$3,451	\$83,378	\$0	\$83,378
10	Work Planners for Veg Plan		\$14,461	\$14,253	\$15,176	\$18,855	\$19,131	\$10,242	\$5,193		\$2,135	\$14,673	\$35,471	\$149,589	\$53,757	\$95,832
11	Subtotal	\$322,866	\$40,628	\$91,735	\$80,581	\$203,815	\$135,307	\$135,295	\$118,095	\$100,711	\$170,321	\$208,155	\$386,675	\$1,994,184	\$288,000	\$1,706,184

VMP Definitions

Inspection and Maintenance: The inspection and maintenance component of the REP involves a comprehensive overhead assessment of the Company's equipment and feeders prior to performance of the REP work.

Augmented Tree-Trimming and Clearing: This program involves the removal of hazard trees and limbs beyond what is normally included in tree trimming to reduce the risk of interruptions on the overhead distribution system. In addition to removing dead, dying, and damaged limbs from above the conductor, we also increase overhead clearances to fifteen feet outside of residential areas. This additional work is integrated into routine scheduled trimming program to create a more aggressive approach to removing tree hazards and overhang.

Spot Tree Trimming: This captures all charges for field follow up, review and execution of corrective action required, if any, to mitigate vegetation management concerns requested or reported by a customer.

Trouble and Restoration Maintenance: This captures all charges for response and corrective action to mitigate isolated tree related trouble, overhead line requests to mitigate tree related trouble and storm responses not covered by a storm specific charge number.

Planned Cycle Trimming: This captures all charges for annual fiscal year planned cycle pruning activities but does not include police detail expenses.

Cycle Trimming Police Detail Expenses: This captures all charges for police detail expenses associated with annual planned cycle trim and tree removals.

Tree Hazard Removal: This captures all charges for removal of dead, dying and/or structurally weak trees, limbs and leads.

Enhanced Hazard Tree Removal –EHTM: This captures all charges for the hazard tree removal program directed at improving reliability of on and off cycle poor performing circuits based on removing dead, dying and/or structurally weak trees, limbs and leads on the three phase portions of those targeted circuits using a Customer Served approach beyond each major reliability device point including the lockout section or station breaker to the first reliability device.

Interim Trimming: This captures all charges for mitigation of tree conditions that threaten reliability of one or more sections of primary conductor on a circuit or circuits not contained in the current fiscal year's annual plan of work.

Tree Planting: This captures all charges for tree replacements in exchange for tree removals of full clearance, tree replacement to remediate property owner complaints, trees planted for Arbor Day events.

Sub-transmission Right of Way Clearing: This captures all charges for activities related to cutting, clearing, herbicide application and danger tree removal on substation supply lines up to 46 kV.

Other Police Detail Expenses: This captures charges for all O&M police detail expenses not associated with Planned Cycle Trim.

Appendix 7 - SAIDI/SAIFI 5 year rolling averages

CY	Sum of CI	Sum of CMI	Sum of SAIFI	5-Year Avg. SAIFI (right)	Sum of SAIDI	5-Year Avg. SAIDI (left)
2000	75,896	4,079,729	2.00		107.76	
2001	85,017	8,219,366	2.22		214.39	
2002	65,099	6,042,438	1.68		155.28	
2003	56,341	3,971,111	1.43		100.86	
2004	67,956	8,313,277	1.71	1.81	207.53	157.16
2005	84,188	12,085,278	2.08	1.82	301.25	195.86
2006	106,935	10,363,197	2.70	1.92	263.83	205.75
2007	79,070	9,196,797	1.96	1.98	228.36	220.37
2008	93,197	8,609,475	2.30	2.15	212.05	242.60
2009	47,270	4,763,099	1.17	2.04	115.94	224.29
2010	72,089	8,156,936	1.74	1.97	196.44	203.32
2011	49,176	4,997,759	1.17	1.67	119.60	174.48
2012	69,677	5,829,537	1.70	1.62	140.06	156.82
2013	68,033	6,792,013	1.65	1.49	162.28	146.86
2014	63,878	7,145,798	1.54	1.56	172.12	158.10
2015	24,893	2,618,074	0.58	1.33	61.05	131.02
2016 Projection	55,478	5,470,015	1.33	1.36	130.70	133.24

Appendix 8

Liberty Utilities (Granite State Electric) Corp. Reliability Enhancement Program and Vegetation Management Program Docket No. DE 13-063

I. REP and VMP Commitment

Beginning April 1, 2014 and until the conclusion of Liberty's next distribution rate case, Liberty will continue its Reliability Enhancement Program ("REP") and a Vegetation Management Program ("VMP") (collectively, the "Program"), as set forth below.

II. Definitions of REP and VMP Activities

- a. Activities included in the REP are the following:
 - i. Spacer Cable Expansion/Bare Conductor Replacement
 - ii. Single Phase Recloser Replacement/Expansion
 - iii. Trip Saver Applications

- b. **Activities and expenses included in the VMP are set forth below:**
 - i. Spot Tree Trimming;
 - ii. Trouble & Restoration Maintenance;
 - iii. Planned Cycle Trimming;
 - iv. Cycle Trimming Police Details Expenses;
 - v. Hazard Tree Removal;
 - vi. Interim Trimming;
 - vii. Tree Planting;
 - viii. Subtransmission Right of Way Clearing; and
 - ix. Other Police Detail Expenses.

III. REP and VMP for FY 2014 and Thereafter

- a. Beginning with November 15, 2014, Liberty will provide its REP and VMP plan (the "Plan") to Staff for the following calendar year for Staff's review. Liberty will meet with Staff in technical sessions to discuss the Plan, obtain comments, and answer any questions regarding the plan to be implemented for the subsequent calendar year. After review by Staff, Liberty will take all reasonable steps it deems appropriate to carry out and implement the Plan, taking into account the comments of Staff. Review by Staff of the Plan does not relieve Liberty of its obligation to operate its business and maintain safe, reliable service through expenditures and other capital investments in the ordinary course of business that are not set forth in the Plan, nor does it bind Staff to a particular position regarding the adequacy and/or effectiveness of the Plan.

- b. The Plan shall provide a description of the activities along with targeted expenditures and investments of the proposed Plan to be implemented during the

following calendar year. The Plan will itemize the proposed activities by general category and provide budgets for both operation and maintenance ("O&M") expenses and capital investments expected from implementation of the Plan. The O&M budget will be \$1,360,000 (the "Base Plan O&M") for the calendar year ("Base Plan O&M Budget"). Liberty may also provide for consideration an alternative Plan with O&M budgets that exceed the O&M Base Amount for the calendar year. Liberty will reconcile actual expenditures and investments with the Base Plan O&M amount of \$1,360,000 and shall be subject to the REP/VMP Adjustment Provision, as set forth in Section IV below. All of the combined expenses will be counted against the Base Plan O&M amount, along with any REP-related O&M that does not relate to a VMP category.

IV. **REP/VMP Adjustment Provision**

- a. During each calendar year, Liberty shall track all O&M expenses incurred in implementing the components of the REP and VMP Plan. By March 15 of each year, Liberty will make a reconciliation filing with the Commission. To the extent that Liberty, in implementing the Plan, incurs expenses in an amount less than the Base Plan O&M amount, the difference between the Base Plan O&M amount and the amount of expenses actually incurred shall be refunded to customers or credited to customers for future REP/VMP program O&M expenditures, as the Commission determines is appropriate, with interest accruing at the customer deposit rate.
- b. To the extent the Plan submitted for review prior to the calendar year includes a budget higher than the Base Plan O&M Budget and Liberty incurs expenses over the Base Plan O&M amount (consistent with the alternative budget reviewed by Staff), the incremental expense above the Base Plan O&M amount shall be included in rates, subject to Commission approval, through a uniform adjustment factor on a per kilowatt-hour basis and recovered over a twelve month period, commencing for usage on and after May 1, with interest accruing at the customer deposit rate. Any over or under-recoveries at the end of the twelve month period shall be taken into account in the next REP/VMP Adjustment Provision reconciliation period.

V. **REP Capital Investment Allowance**

The REP capital investment target shall be \$1 million annually. Liberty shall track all capital investments made in accordance with the REP for each calendar year. At the same time that Liberty makes its reconciliation filing for the REP/VMP Adjustment reconciliation, Granite State shall file a report detailing the actual amount of capital investments made in accordance with implementing the REP during the prior calendar year. The report shall include a calculation of the revenue requirement for adding these additional capital investments into rate base, using Liberty's current Commission approved capital structure and debt and equity. Provided that the investments were made in accordance with the REP, Liberty will be allowed, subject to Commission approval, a permanent increase in its base distribution rates to recover the annual revenue requirement for those investments. This permanent REP Capital Investment Allowance

will take effect for usage on and after May 1, at the same time as any REP/VMP Adjustments are implemented for the preceding calendar year as discussed in Section IV above.

VI. **Procedure for Adjusting Base Distribution Rates for the REP Capital Investment Allowance**

Base distribution rates shall be increased by the ratio of: (i) the incremental revenue requirement associated with the REP capital investment; and (ii) forecasted base distribution revenue for the prospective year.

VII. **Annual Report, Plan Deviations, and SAIDI/SAIFI Results**

- a. At the same time Liberty makes its reconciliation and rate adjustment filing (by March 15 of each year), Liberty will file an annual report on the prior calendar year's activities. In implementing the Plans, the circumstances encountered during the year may require reasonable deviations from the original Plans reviewed by Staff. In such cases, Liberty would include an explanation of any deviations in the report. For cost recovery purposes, Liberty has the burden to show that any deviations were due to circumstances out of its reasonable control or, if within its control, were reasonable and prudent. Included in the annual report, Liberty will report its SAIDI and SAIFI results for the prior calendar year.
- b. Liberty shall also report SAIDI/SAIFI results:
 - i. Inclusive of all events identified in items ii, iv and v below;
 - ii. Using the criteria for major storm exclusions set forth by the Commission and IEEE Standard 1366.
 - iii. On a rolling five-year average for each metric in order to minimize the impact of uncontrollable factors;
 - iv. Excluding the effect on performance by supply assets owned by others given the potential impact of transmission on Liberty's reliability performance;
 - v. Excluding planned and notified outages from its calculation of SAIDI and SAIFI, and;
 - vi. Consistent with the Puc 300 rules.
- c. The Commission's definition of a major storm qualifying for exclusion from SAIDI and SAIFI reporting is 30 concurrent troubles and 15% of customers interrupted, or 45 concurrent troubles. (Troubles are defined as interruption events occurring on either primary or secondary lines).



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

Docket No. DE 16-~~277XXX~~

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
Calendar Year 2015 Reliability Enhancement Plan and Vegetation
Management Plan Report and Reconciliation Filing

DIRECT TESTIMONY

OF

CHRISTIAN BROUILLARD

AND

JEFFREY CARNEY

May 6, 2016~~March 15, 2016~~

1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Christian Brouillard**

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

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

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

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

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

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

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

19 A. In 1982, I began my engineering career as an associate engineer with Massachusetts
20 Electric Company, a subsidiary of National Grid USA (“National Grid”) and a former
21 affiliate of Granite State, in North Andover, Massachusetts. From 1982 to 1992, I held

1 positions of progressive responsibility in the distribution engineering, planning,
2 protection, and executive support functions. In 1993, I was promoted to Manager of
3 District Engineering and held various engineering and management positions since that
4 time, including Manager of Asset Strategy. In 2005, I became Manager of Work
5 Planning and was responsible for developing Granite State's capital construction plans.
6 In 2008, I was promoted to Director, Investment Planning for the Company's electric
7 distribution system in both New England and New York for National Grid. In 2011, I
8 assumed my current role as Director of Engineering for Liberty Energy NH. In January
9 2015, I assumed transitional responsibility for Electric Operations, Gas Production,
10 Control and Dispatch Center, and Compliance Quality and Emergency Management. I
11 am currently responsible for Electric and Gas Engineering, Gas Production, Control and
12 Dispatch Center, and Compliance Quality and Emergency Management

13 **Q. Have you previously testified before the New Hampshire Public Utilities**
14 **Commission?**

15 A. Yes, I have previously testified before the Commission on the Company's Reliability
16 Enhancement Program and Integrated Resource Plan.

17 **Jeffrey Carney**

18 **Q. Mr. Carney, would you please state your full name and business address?**

19 A. My name is Jeffrey Carney, and my business address is 407 Miracle Mile, Lebanon, New
20 Hampshire 03766.

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

2 A. I am employed by Liberty Utilities Service Corp. as the Vegetation Supervisor. In my
3 capacity as Program Manager Vegetation and Inspections, I support Electric Operations
4 and plan, budget and manage Granite State's inspection and vegetation management
5 programs, vendor performance, and provide storm and regulatory support on the
6 distribution and sub transmission assets.

7 **Q. Please describe your educational background.**

8 A. I graduated from Paul Smith's College of Arts and Sciences in Paul Smiths, New York in
9 1976. I received an associate's degree in Applied Science in Forestry and Land
10 Surveying.

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

12 A. I joined Liberty on April 1, 2012, when I assumed the transitional responsibility as
13 Vegetation Supervisor for the National Grid FY13 Vegetation Management Program.
14 Prior to that, I served as the System Arborist for National Grid Service Company from
15 2007 to 2012. I was the Transmission and Distribution Forester for Granite State and
16 New England Power Company's territory in New Hampshire and Vermont from 1989 to
17 2005. From 2005 to 2007, I was the New England North Lead Arborist and oversaw
18 New England North Arborists responsible for developing forestry strategy and delivery
19 the work plan. During that time, I simultaneously served as the Company's District
20 Arborist in New Hampshire. From 1979 to 1989, I was a self-employed Consulting
21 Forester.

1 **Q. Have you previously testified before the Commission?**

2 A. Yes. I have previously testified before this Commission on vegetation management
3 issues.

4 **II. PURPOSE OF TESTIMONY**

5 **Q. What is the purpose of this testimony?**

6 A. First, this testimony provides the Commission with background information regarding the
7 Reliability Enhancement Program (“REP”) and the Vegetation Management Program
8 (“VMP”) that Granite State implemented during Calendar Year 2015 as described in the
9 Calendar Year 2015 Reliability Enhancement Plan and Vegetation Management Plan
10 Report, dated March 15, 2016 (the “CY 2015 REP/VMP Report”), submitted with this
11 filing. Second, this testimony provides support for the Company’s request to recover
12 \$346,184 in expenses above the Base Plan operating and maintenance (“O&M”) amount
13 of \$1,360,000 that was authorized by the Settlement Agreement in Docket No. DE 13-
14 063 (the “Settlement Agreement”) and approved by Order No. 25,638 at 12 (March 17,
15 2014). Third, the Company seeks to recover the revenue requirement associated with a
16 total of \$1,321,456 in capital investment, broken down between program years CY 2014
17 and CY 2015. The total carryover from CY 2014 was \$269,663, as discussed in the CY
18 2015 REP/VMP Report and in the pre-filed direct testimony of Heather Tebbetts. The
19 Company is requesting an incremental revenue requirement of \$279,097 to recoup the
20 2015 REP capital expenditures. Finally, this filing provides information regarding the
21 calculation of the REP/VMP Adjustment Provision and the REP Capital Investment
22 Allowance and the associated rate impacts, as set forth in the testimony of Heather

1 Tebbetts, which is a part of this filing. The Company requests that the new O&M amount
2 apply to usage on and after May 1, 2016.

3 **III. OVERVIEW OF REP AND VMP**

4 **Q. Please explain the purpose of the REP and VMP.**

5 A. As part of the Settlement Agreement, the Company agreed to continue with its
6 Vegetation Management and Reliability Enhancement Programs at agreed upon levels,
7 subject to annual Commission approval. In general, the REP and VMP include both
8 capital (REP) and O&M (VMP) spending targeted to improve reliability. The REP and
9 VMP are premised on the understanding that a certain amount of annual spending on both
10 capital and O&M activities is necessary to maintain the safety and reliability of the
11 Company's electric distribution system. The Settlement Agreement assumed that a base
12 amount of \$1,360,000 would be spent on O&M activities associated with the VMP
13 during each fiscal year. The Settlement Agreement also contemplated that the Company
14 would target a budget of \$1,000,000 for REP capital investments for each fiscal year. To
15 the extent the Company spends less than the base O&M budget on VMP activities in a
16 given fiscal year, the difference is credited to customers either through a refund
17 commencing on May 1 or a credit to the following year's VMP O&M budget.

18 **Q. Please describe what types of activities were performed under the REP and VMP in**
19 **2015.**

20 A. The Company budgeted capital funds to install nine single phase recloser schemes, 18
21 trip savers in radial applications, and to replace 2.2 miles of bare mainline primary
22 conductor with spacer cable. These projects are identified in Appendices 2 and 3 of the

1 CY 2015 REP/VMP Report. The VM activities consisted of Planned Cycle Trimming,
2 and Interim, Spot, and Trouble Tree Trimming, identified in Appendices 1, 4 and 5 of the
3 CY 2015 REP/VMP Report.

4 **Q. Please explain how the Company decides to allocate funds towards vegetation**
5 **management and reliability activities within a given year's budget and the process**
6 **the Company uses to determine which REP/VMP projects to undertake in any given**
7 **year.**

8 A. Each year, the Company develops an Annual Work Plan that is designed to achieve the
9 overriding performance objectives of the business (safety, reliability, efficiency, customer
10 satisfaction, and environmental responsibility). The Company begins with a draft work
11 plan that consists of proposed spending for asset replacement and system capacity and
12 performance initiatives, individual capital projects and work activities required to comply
13 with franchise or tariff requirements such as pole relocations, response to damage/failure,
14 and new business construction. Each potential project specified within the plan includes
15 a business category/justification for the project and estimated costs. The Company then
16 prioritizes the projects based on the relative risk or opportunity associated with each
17 project proposal to facilitate the selection of appropriate projects to be included in the
18 Annual Work Plan. All of the proposed projects then undergo review and are prioritized
19 to achieve an optimized portfolio of projects considering the reliability performance data
20 compared to the reliability improvements targeted by the various programs and the
21 deliverability of the various programs within the fiscal year. The process is designed to
22 ensure the Company arrives at a budget that is the optimal balance in terms of selecting

1 the investments necessary to maintain and improve the performance of the system, while
2 also ensuring a cost-effective use of the Company's available resources.

3 **Q. Please explain how capital improvements in the REP/VMP Plan relate to the other**
4 **capital investments made by the Company to its system.**

5 A. The capital improvements in the REP/VMP Plan are developed within Company's overall
6 capital investment plans. The REP/VMP Plan is a subset of that plan and seeks to
7 develop and implement initiatives to improve the Company's delivery system
8 performance while still meeting investment obligations in the areas of franchise/tariff
9 requirements, capacity, and asset replacement.

10 **IV. CALENDAR YEAR 2015 REP AND VMP IMPLEMENTATION**

11 **Q. Please explain how the Company's actual O&M spending for CY 2015 varied from**
12 **the Company's original budget.**

13 A. As described in the CY 2015 REP/VMP Report, the Company completed all of the
14 vegetation management work contained in its CY 2015 plan. Overall, actual expenses
15 recorded in CY 2015 for VMP O&M activities, including \$273,674 associated with CY
16 2014 VMP activities, amounted to \$1,994,184 or ~~\$421,902~~133,787 more than the
17 proposed budget of ~~\$1,572,282~~1,860,397. The spending variances are explained in
18 Appendix 1 of the REM/VMP Report.

1 **Q. Please explain how the Company's actual capital spending for CY 2015 varied from**
2 **the Company's original budget.**

3 A. As shown in Appendix 2 of the CY 2015 REP/VMP Report, the Company provides the
4 actual capital investment for 2014 and 2015. The Company's actual total carryover from
5 CY 2014 was \$269,663 (Appendix 2, line 5, column (d)) for capital activities related to
6 the REP, or \$169,663 more than the filed budgeted amount of \$100,000. As shown in
7 Appendix 2, line 4, column c, of the CY 2015 REP/VMP Report, the Company's total
8 spending level for CY 2015 was \$1,051,792 for capital activities related to REP, or
9 \$88,208 less than the filed budgeted amount \$1,140,000 for CY 2015 capital projects.
10 Key factors for budget variances are described in Section 2 of the REP/VMP Report for
11 CY 2014.

12 **Q. Please summarize the reliability results shown in the CY 2015 REP/VMP Report.**

13 A. Metrics for CY 2015 presented on page 9 of the CY 2015 REP/VMP Report are based on
14 Commission Standards for excluding major weather events and on the IEEE Standard
15 1366 method for excluding major event days. The metrics also exclude transmission
16 supply outages, planned or notified outages, and all other applicable exclusions. The
17 metrics include customers interrupted ("CI"), customer minutes interrupted ("CMI"),
18 system average interruption frequency index ("SAIFI"), system average interruption
19 duration index ("SAIDI"), customer average interruption duration index (CAIDI), and
20 customers interrupted per interruption index (CIII).

21 As shown in Section 3 of the CY 2015 REM/VMP Report, the SAIFI performance of
22 0.58 for CY 2015 continues on an improving, downward trend, with the 2015

1 performance significantly better than that of 2014. Similar to the SAIFI trend, the 61.05
2 minutes for SAIDI reflects a significant improvement in SAIDI indices over the past few
3 years. For 2015, there were very few non-recurring events greater than 5 minutes in
4 duration that drove our improvement in SAIDI performance. The top 3 events made up
5 24% of our SAIDI performance indices. Mitigation measures, both inside and outside of
6 the REP, were also implemented in 2015 to further improve our SAIDI performance,
7 specifically addressing the drivers to SAIDI performance in 2015. The measures
8 included addressing pockets of poor performance and underperforming feeders.

9 In summary, the Company met its SAIFI and SAIDI targets of 1.56 and 158.10 minutes,
10 respectively, which are based on a 5-year rolling average and are shown on Appendix 7.
11 2015 was the best reliability year since the Company began tracking reliability
12 performance some twenty years ago. However, it is worth noting that in general, electric
13 delivery system reliability performance in the New England region, as well as nationally,
14 was favorable in 2015. Some level of variability is to be expected in the year to year
15 metrics, typically rooted in weather pattern changes. We expect this overall positive
16 performance in SAIFI and SAIDI to continue, albeit at more historical levels, as we
17 experience further positive impact from our reliability initiatives.

18 **Q. Are the REP/VMP expenditures for which the Company is now seeking recovery**
19 **reasonable?**

20 A. Yes. As described in this filing, the expenditures were reasonable because they were
21 made for programs that are specifically referenced in the Settlement Agreement as
22 necessary to achieve continued improvement in the Company's system reliability. The

1 work undertaken for vegetation management, single phase recloser and trip-saver
2 installations, bare conductor replacement, and underperforming area mitigation was
3 incurred for the explicit purpose of improving system reliability and is consistent with the
4 intent of the Settlement Agreement. These expenditures are expected to generate real
5 customer benefits in the form of improved reliability performance. The Company
6 requests that the Commission approve recovery of these expenditures and permit the
7 requested rate adjustments to become effective for usage on and after May 1, 2016.

8 **V. CONCLUSION**

9 **Q. Does that conclude your testimony?**

10 **A.** Yes, it does.

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
REP/VMP Revenue Requirement
Annual Rate Changes
CY 2015 Actual

	<u>Actual</u> <u>7/1/2008</u> (a)	<u>Actual</u> <u>7/1/2009</u> (b)	<u>Actual</u> <u>7/1/2010</u> (c)	<u>Actual</u> <u>7/1/2011</u> (d)	<u>Actual</u> <u>7/1/2012</u> (e)	<u>Actual</u> <u>7/1/2013</u> (f)	<u>Actual</u> <u>6/1/2014</u> (g)	<u>Actual</u> <u>5/1/2015</u> (h)	<u>Actual</u> <u>6/1/2016</u> (i)	
<u>Annual Incremental Rate Adjustments</u>										
1	REP/VMP O&M Adjustment Factor	\$0	\$113,832	\$1,047,770	(\$758,113)	(\$295,207)	(\$52,081)	(\$275,840)	(\$210,585)	\$346,184
2	REP Capital Program	\$165,840	\$75,740	\$163,663	\$102,941	(\$18,005)	\$125,829	\$37,374	\$274,518	\$175,355
3	Total for Fiscal Year	\$165,840	\$189,572	\$1,211,433	(\$655,172)	(\$313,213)	\$73,748	(\$238,466)	\$63,932	\$521,539
4	Termination of Prior Period O&M Recovery	\$0	\$0	(\$113,832)	(\$1,047,770)	\$758,113	\$295,207	\$52,081	\$275,840	\$210,585
5	Net Change in Recovery	\$165,840	\$189,572	\$1,097,601	(\$1,702,942)	\$444,900	\$368,955	(\$186,385)	\$339,773	\$732,124

Notes:
 Line 1 **From Page 2 of 12, Line 7**
 Line 2 **From Page 3 of 12, Line 62**
 Line 3 **Line 1 + Line 2**
 Line 4 Line 1 of Prior Year
 Line 5 **Line 3 + Line 4**

**Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
REP/VMP O&M Adjustment Factor
Computation of Annual Revenue Requirement
CY 2015 Actual**

	Actual FY <u>2008</u> (a)	Actual FY <u>2009</u> (b)	Actual FY <u>2010</u> (c)	Actual FY <u>2011</u> (d)	Actual FY <u>2012</u> (e)	Actual FY <u>2013</u> (f)	Actual CYS <u>2013</u> (f)	Actual CY <u>2014</u> (g)	Actual CY <u>2015</u> (h)	
<u>Incremental VMP and REP O&M Spend</u>										
1	Actual VMP and REP Program Spending	\$2,169,258	\$1,477,916	\$2,556,530	\$1,245,985	\$1,467,486	\$1,560,973	\$1,055,861	\$1,395,166	\$1,994,184
2	Proposed Annual Program Budget	\$1,950,000	\$1,473,832	\$2,556,530	\$1,552,000	\$1,556,000	\$1,721,585	\$1,238,200	\$1,521,200	\$1,860,397
3	Amount Subject to Recovery	\$1,950,000	\$1,473,832	\$2,556,530	\$1,245,985	\$1,467,486	\$1,560,973	\$1,055,861	\$1,395,166	\$1,994,184
4	VMP and REP Base Spending Level	\$1,950,000	\$1,360,000	\$1,360,000	\$1,360,000	\$1,360,000	\$1,360,000	\$1,020,000	\$1,360,000	\$1,360,000
5	Total Revenue Requirement	\$0	\$113,832	\$1,196,530	(\$114,015)	\$107,486	\$200,973	\$35,861	\$35,166	\$634,184
6	Less Reimbursements from FairPoint Communications	\$0	\$0	(\$148,760)	(\$644,098)	(\$402,693)	(\$253,054)	(\$311,701)	(\$245,751)	(\$288,000)
7	Total Incremental Revenue Requirement for Adj. Factor	\$0	\$113,832	\$1,047,770	(\$758,113)	(\$295,207)	(\$52,081)	(\$275,840)	(\$210,585)	\$346,184
8	Total O&M Recovery	\$1,950,000	\$1,473,832	\$2,407,770	\$601,887	\$1,064,793	\$1,307,919	\$744,160	\$1,149,415	\$1,706,184

Notes:

Line 1 Actual VMP and REP program spending

Line 2 Program budget reviewed with Staff pursuant to Section 3a of the Settlement Agreement in Docket No. DE 13-063

Line 4 VMP and REP base spending level per Merger Settlement Agreement in Docket No. DG 06-107, continued in Docket No. DE 13-063

Line 5 **Line 3 minus Line 4**

Line 6 Reflects reimbursements related to vegetation management expenses from FairPoint Communications

Line 7 **Line 5 plus Line 6**

Line 8 **Line 3 plus Line 6**

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
REP/VMP Revenue Requirement
Computation of REP Revenue Requirement
CY 2015 Actual

	Revised FY 2008	Revised FY 2009	Revised FY 2010	Revised FY 2011	Revised FY 2012	Actual FY 2013	Actual CYS 2013	Actual CY 2014	Actual CY 2015
Deferred Tax Calculation									
1 REP Program Annual Spend	\$950,000	\$500,000	\$876,243	\$610,835	\$398,239	\$545,916	\$416,755	\$2,201,899	\$1,321,456
2 Cumulative REP Program Spend	\$950,000	\$1,450,000	\$2,326,243	\$2,937,078	\$3,335,317	\$3,881,233	\$4,297,988	\$6,499,887	\$7,821,343
3									
4 Book Depreciation Rate (a)	3.70%	3.72%	3.71%	3.73%	3.72%	3.33%	3.72%	2.88%	2.86%
5 FEDERAL Vintage Year Tax Depreciation:									
6 FY 2008 Spend	\$429,887	\$39,010	\$36,081	\$33,379	\$30,872	\$28,559	\$14,858	\$19,810	\$24,112
7 FY 2009 Spend		\$338,156	\$12,139	\$11,227	\$10,387	\$9,606	\$4,999	\$6,665	\$8,219
8 FY 2010 Spend			\$550,022	\$24,467	\$22,630	\$20,936	\$10,892	\$14,522	\$17,913
9 FY 2011 Spend				\$481,705	\$9,685	\$8,958	\$4,662	\$6,215	\$7,665
10 FY 2012 Spend					\$377,329	\$2,968	\$1,544	\$2,059	\$2,539
11 FY 2013 Spend						\$332,964	\$11,900	\$15,867	\$14,676
12 CYS 2013 Spend							\$212,773	\$5,861	\$15,043
13 CY 2014 Spend								\$1,142,236	\$79,478
14 CY 2015 Spend									\$685,505
15 Annual Tax Depreciation	\$429,887	\$377,166	\$598,242	\$550,778	\$450,902	\$403,992	\$261,627	\$1,213,235	\$855,149
16 Cumulative Tax Depreciation	\$429,887	\$807,053	\$1,405,295	\$1,956,073	\$2,406,975	\$2,810,967	\$3,072,594	\$4,285,829	\$5,140,977
17									
18 STATE Vintage Year Tax Depreciation:									
19 FY 2008 Spend	\$334,991	\$46,127	\$42,664	\$39,469	\$36,504	\$33,770	\$17,568	\$23,425	\$28,511
20 FY 2009 Spend		\$176,311	\$24,277	\$22,455	\$20,773	\$19,213	\$9,998	\$13,330	\$16,438
21 FY 2010 Spend			\$223,801	\$48,935	\$45,261	\$41,872	\$21,784	\$29,045	\$35,825
22 FY 2011 Spend				\$199,462	\$30,854	\$28,538	\$14,850	\$19,800	\$24,417
23 FY 2012 Spend					\$181,087	\$19,837	\$10,320	\$13,761	\$16,973
24 FY 2013 Spend						\$179,810	\$20,395	\$27,193	\$25,151
25 CYS 2013 Spend							\$8,791	\$11,721	\$30,086
26 CY 2014 Spend								\$82,571	\$158,955
27 CY 2015 Spend									\$49,555
28 Annual Tax Depreciation	\$334,991	\$222,438	\$290,742	\$310,320	\$314,480	\$323,039	\$103,706	\$220,846	\$385,912
29 Cumulative Tax Depreciation	\$334,991	\$557,429	\$848,171	\$1,158,492	\$1,472,971	\$1,796,010	\$1,899,716	\$2,120,562	\$2,506,473
30									
31 Book Depreciation	\$35,150	\$53,940	\$86,304	\$109,645	\$124,074	\$129,109	\$119,933	\$140,398	\$223,690
32 Cumulative Book Depreciation	\$35,150	\$89,090	\$175,394	\$285,039	\$409,113	\$538,222	\$658,155	\$798,553	\$1,022,243
33									
34 Book/Tax Timer (Federal)	\$394,737	\$717,963	\$1,229,901	\$1,671,034	\$1,997,862	\$2,272,745	\$2,414,439	\$3,487,276	\$4,118,734
35 less: Deferred Tax Reserve (State)	\$25,486	\$39,809	\$57,186	\$74,243	\$90,428	\$106,912	\$105,533	\$112,371	\$126,160
36 Net Book/Tax Timer (Federal)	\$369,251	\$678,154	\$1,172,715	\$1,596,791	\$1,907,435	\$2,165,833	\$2,308,906	\$3,374,905	\$3,992,575
37 Effective Tax Rate (Federal)	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%	34.00%	34.00%	34.00%
38 Deferred Tax Reserve (Federal)	\$129,238	\$237,354	\$410,450	\$558,877	\$667,602	\$758,041	\$785,028	\$1,147,468	\$1,357,475
39 Book/Tax Timer (State)	\$299,841	\$468,339	\$672,778	\$873,453	\$1,063,859	\$1,257,788	\$1,241,561	\$1,322,009	\$1,484,231
40 Effective Tax Rate (State)	8.50%	8.50%	8.50%	8.50%	8.50%	8.50%	8.50%	8.50%	8.50%
41 Deferred Tax Reserve (State)	\$25,486	\$39,809	\$57,186	\$74,243	\$90,428	\$106,912	\$105,533	\$112,371	\$126,160
42 TOTAL Deferred Tax Reserve	\$154,724	\$277,163	\$467,636	\$633,120	\$758,030	\$864,953	\$890,561	\$1,259,839	\$1,483,635
43									
44 Rate Base Calculation									
45 Plant In Service	\$950,000	\$1,450,000	\$2,326,243	\$2,937,078	\$3,335,317	\$3,881,233	\$4,297,988	\$6,499,887	\$7,821,343
46 Accumulated Book Depreciation	(\$35,150)	(\$89,090)	(\$175,394)	(\$285,039)	(\$409,113)	(\$538,222)	(\$658,155)	(\$798,553)	(\$1,022,243)
47 Deferred Tax Reserve	(\$154,724)	(\$277,163)	(\$467,636)	(\$633,120)	(\$758,030)	(\$864,953)	(\$890,561)	(\$1,259,839)	(\$1,483,635)
48 Year End Rate Base	\$760,126	\$1,083,747	\$1,683,213	\$2,018,919	\$2,168,174	\$2,478,057	\$2,749,272	\$4,441,496	\$5,315,465
49									
50 Revenue Requirement Calculation									
51 Year End Rate Base	\$760,126	\$1,083,747	\$1,683,213	\$2,018,919	\$2,168,174	\$2,478,057	\$2,749,272	\$4,441,496	\$5,315,465
52 Pre-Tax ROR	11.91%	11.91%	11.91%	11.91%	11.91%	11.91%	11.36%	11.36%	11.36%
53 Return and Taxes	\$90,515	\$129,051	\$200,435	\$240,410	\$258,183	\$295,084	\$312,413	\$504,338	\$603,837
54 Book Depreciation	\$35,150	\$53,940	\$86,304	\$109,645	\$124,074	\$129,109	\$119,933	\$140,398	\$223,690
55 Property Taxes (b)	\$21,773	\$27,218	\$66,676	\$89,904	\$110,318	\$118,343	\$149,961	\$212,090	\$204,653
56 Annual Revenue Requirement	\$147,438	\$210,209	\$353,415	\$439,960	\$492,575	\$542,536	\$582,307	\$856,825	\$1,032,180
57 Prior Period Change for Repairs Tax Deduct & Bonus Depreciation (FY 08 - 14) (e)					(\$73,471)	\$2,397			
58 Adjusted Annual Revenue Requirement	\$147,438	\$210,209	\$353,415	\$439,960	\$419,104	\$544,933	\$582,307	\$856,825	\$1,032,180
59									
60 Annual Rate Adjustment									
61									
62 Incremental Annual Rate Adjustment	\$147,438	\$62,771	\$143,205	\$86,545	(\$20,856)	\$125,829	\$37,374	\$274,518	\$175,355
63									
64									
65 Imputed Capital Structure (c)									
66									
67 Long Term Debt	Ratio	Rate	Weighted Rate	Pre Tax					
68 Common Equity	50.00%	7.54%	3.77%	3.77%					
69									
70									
71									
72 Imputed Capital Structure (d)									
73									
74 Long Term Debt	Ratio	Rate	Weighted Rate	Pre Tax					
75 Common Equity	45.00%	5.95%	2.68%	2.68%					
76									
77									

- (a) Actual Calendar Year Composite Depreciation rate for distribution property.
(b) Actual Calendar Year ratio of municipal tax expense to net plant in service, reference Schedule HMT-5
(c) Capital structure per Merger Settlement in Docket DG 06-107, Exhibit 1, Section 3(c).
(d) Capital structure per Rate Case Settlement in Docket DE 13-063, Attachment A, Schedule 1B.

(e) Change in Revenue Requirement for Repairs Tax Deduction and Bonus Depreciation:

	7/1/2008	7/1/2009	7/1/2010	7/1/2011	7/1/2012	FY13 Total
1 Incremental Annual Rate Adjustment per Line 58	\$147,438	\$62,771	\$143,205	\$86,545	(\$20,856)	\$125,829
2 As Previously Filed	\$146,814	\$61,753	\$141,182	\$84,963	(\$18,005)	
3 FY13 Chg for Repairs Tax Deduction & Bonus Depreciation	\$624	\$1,018	\$2,023	\$1,582	(\$2,850)	\$2,397

FROM FY 2012 REP/VMP FILING

	7/1/2008	7/1/2009	7/1/2010	7/1/2011	7/1/2012
4 Incremental Annual Rate Adjustment	\$146,814	\$61,753	\$141,182	\$84,963	(\$18,005)
5 As Previously Filed	\$165,840	\$75,740	\$163,663	\$102,941	
6 FY12 Chg for Repairs Tax Deduction & Bonus Depreciation	(\$19,026)	(\$13,986)	(\$22,481)	(\$17,978)	(\$73,471)

**Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
REP/VMP Revenue Requirement
Calculation of REP Tax Depreciation 2008 - Per Tax Return
Using Capital Repairs Tax Return Rate**

	<u>2008</u>	<u>(a) 2009</u>	<u>(b) 2010</u>	<u>(c) 2011</u>	<u>(d) 2012</u>	<u>(e) 2013</u>	<u>(f) CYS2013</u>	<u>(g) CY2014</u>	<u>(h) CY2015</u>
1 <u>Capital Repairs Deduction</u>									
2 Plant Additions	\$950,000								
3 Capital Repairs Deduction Rate	32.74%								
4 Capital Repairs Deduction	\$311,030								
5									
6 <u>Bonus Depreciation</u>									
7 Plant Additions	\$950,000								
8 Less Capital Repairs Deduction	\$311,030								
9 Plant Additions Net of Capital Repairs Deduction	\$638,970								
10									
11 Percent of Plant Additions Eligible for Bonus Depreciation April 2007 - December 2007	69.14%								
12 Plant Additions Eligible for Bonus Depreciation April 2007 - December 2007	\$441,784								
13 Bonus Depreciation rate April 2007- December 2007	0%								
14 Bonus Depreciation for April 2007 - December 2007	\$0								
15									
16 Plant Additions Eligible for Bonus Depreciation for January 2008 - March 2008	30.86%								
17 Plant Additions Eligible for Bonus Depreciation for January 2008 - March 2008	\$197,186								
18 Bonus Depreciation rate January 2008 - March 2008	50%								
19 Bonus Depreciation for January 2008 - March 2008	\$98,593								
20									
21 Bonus Depreciation	\$98,593								
22									
23 <u>Remaining Tax Depreciation (Federal)</u>									
24 Plant Additions	\$950,000								
25 Less Capital Repairs Deduction	\$311,030								
26 Less Bonus Depreciation	\$98,593								
27 Additions Subject to 20 YR MACRS Tax Depreciation	\$540,377	\$540,377	\$540,377	\$540,377	\$540,377	\$540,377	\$540,377	\$540,377	\$540,377
28 20 YR MACRS Tax Depreciation Rates	3.750%	7.219%	6.677%	6.177%	5.713%	5.285%	3.666%	4.888%	4.462%
29 Remaining Tax Depreciation	\$20,264	\$39,010	\$36,081	\$33,379	\$30,872	\$28,559	\$14,858	\$19,810	\$24,112
30									
31 <u>Remaining Tax Depreciation (State)</u>									
32 Plant Additions	\$950,000								
33 Less Capital Repairs Deduction	\$311,030								
34 Additions Subject to 20 YR MACRS Tax Depreciation	\$638,970	\$638,970	\$638,970	\$638,970	\$638,970	\$638,970	\$638,970	\$638,970	\$638,970
35 20 YR MACRS Tax Depreciation Rates	3.750%	7.219%	6.677%	6.177%	5.713%	5.285%	3.666%	4.888%	4.462%
36 Remaining Tax Depreciation	\$23,961	\$46,127	\$42,664	\$39,469	\$36,504	\$33,770	\$17,568	\$23,425	\$28,511
37									
38 Federal Tax Depreciation	\$429,887	\$39,010	\$36,081	\$33,379	\$30,872	\$28,559	\$14,858	\$19,810	\$24,112
39 State Tax Depreciation	\$334,991	\$46,127	\$42,664	\$39,469	\$36,504	\$33,770	\$17,568	\$23,425	\$28,511

Note: Plant additions not subject to the capital repairs deduction may be subject to bonus depreciation. During 2008, Congress passed the Economic Stimulus Act of 2008 which established a 50% bonus depreciation deduction for certain eligible plant additions. Congress has passed further laws which have extended and changed the bonus depreciation rate at different periods of time. The bonus depreciation rates in effect since the start of the Company's REP/VMP program have been as follows:

<u>Period</u>	<u>Rate</u>
April 1, 2007 to December 31, 2007	0%
January 1, 2008 to September 7, 2010	50%

**Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
REP/VMP Revenue Requirement
Calculation of REP Tax Depreciation 2009 - Per Tax Return
Using Capital Repairs Tax Return Rate**

	<u>(a)</u> <u>2008</u>	<u>(b)</u> <u>2009</u>	<u>(c)</u> <u>2010</u>	<u>(d)</u> <u>2011</u>	<u>(e)</u> <u>2012</u>	<u>(f)</u> <u>2013</u>	<u>(g)</u> <u>CYS2013</u>	<u>(h)</u> <u>CY2014</u>	<u>(i)</u> <u>CY2015</u>
1 <u>Capital Repairs Deduction</u>									
2 Plant Additions		\$500,000							
3 Capital Repairs Deduction Rate		32.74%							
4 Capital Repairs Deduction		<u>\$163,700</u>							
5									
6 <u>Bonus Depreciation</u>									
7 Plant Additions		\$500,000							
8 Less Capital Repairs Deduction		<u>\$163,700</u>							
9 Plant Additions Net of Capital Repairs Deduction		\$336,300							
10									
11 Percent of Plant Additions Eligible for Bonus Depreciation		<u>100.00%</u>							
12 Plant Additions Eligible for Bonus Depreciation		\$336,300							
13 Bonus Depreciation Rate		50%							
14 Bonus Depreciation		<u>\$168,150</u>							
15									
16 Bonus Depreciation		\$168,150							
17									
18 <u>Remaining Tax Depreciation (Federal)</u>									
19 Plant Additions		\$500,000							
20 Less Capital Repairs Deduction		\$163,700							
21 Less Bonus Depreciation		<u>\$168,150</u>							
22 Additions Subject to 20 YR MACRS Tax Depreciation		\$168,150	\$168,150	\$168,150	\$168,150	\$168,150	\$168,150	\$168,150	\$168,150
23 20 YR MACRS Tax Depreciation Rates		3.750%	7.219%	6.677%	6.177%	5.713%	3.964%	5.285%	4.888%
24 Remaining Tax Depreciation		<u>\$6,306</u>	<u>\$12,139</u>	<u>\$11,227</u>	<u>\$10,387</u>	<u>\$9,606</u>	<u>\$4,999</u>	<u>\$6,665</u>	<u>\$8,219</u>
25									
26 <u>Remaining Tax Depreciation (State)</u>									
27 Plant Additions		\$500,000							
28 Less Capital Repairs Deduction		<u>\$163,700</u>							
29 Additions Subject to 20 YR MACRS Tax Depreciation		\$336,300	\$336,300	\$336,300	\$336,300	\$336,300	\$336,300	\$336,300	\$336,300
30 20 YR MACRS Tax Depreciation Rates		3.750%	7.219%	6.677%	6.177%	5.713%	3.964%	5.285%	4.888%
31 Remaining Tax Depreciation		<u>\$12,611</u>	<u>\$24,277</u>	<u>\$22,455</u>	<u>\$20,773</u>	<u>\$19,213</u>	<u>\$9,998</u>	<u>\$13,330</u>	<u>\$16,438</u>
32									
33 Federal Tax Depreciation		<u>\$338,156</u>	<u>\$12,139</u>	<u>\$11,227</u>	<u>\$10,387</u>	<u>\$9,606</u>	<u>\$4,999</u>	<u>\$6,665</u>	<u>\$8,219</u>
34 State Tax Depreciation		<u>\$176,311</u>	<u>\$24,277</u>	<u>\$22,455</u>	<u>\$20,773</u>	<u>\$19,213</u>	<u>\$9,998</u>	<u>\$13,330</u>	<u>\$16,438</u>

Note: Plant additions not subject to the capital repairs deduction may be subject to bonus depreciation. During 2008, Congress passed the Economic Stimulus Act of 2008 which established a 50% bonus depreciation deduction for certain eligible plant additions. Congress has passed further laws which have extended and changed the bonus depreciation rate at different periods of time. The bonus depreciation rates in effect since the start of the Company's REP/VMP program

<u>Period</u>	<u>Rate</u>
April 1, 2007 to December 31, 2007	0%
January 1, 2008 to September 7, 2010	50%

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
REP/VMP Revenue Requirement
Calculation of REP Tax Depreciation 2010 - Per Tax Return
Using Capital Repairs Tax Return Rate

	(a) 2008	(b) 2009	(c) 2010	(d) 2011	(e) 2012	(f) 2013	(g) CYS2013	(h) CY2014	(i) CY2015
1 <u>Capital Repairs Deduction</u>									
2 Plant Additions			\$876,243						
3 Capital Repairs Deduction Rate			<u>22.64%</u>						
4 Capital Repairs Deduction			\$198,381						
5									
6 <u>Bonus Depreciation</u>									
7 Plant Additions			\$876,243						
8 Less Capital Repairs Deduction			<u>\$198,381</u>						
9 Plant Additions Net of Capital Repairs Deduction			\$677,862						
10									
11 Percent of Plant Additions Eligible for Bonus Depreciation			<u>100.00%</u>						
12 Plant Additions Eligible for Bonus Depreciation			<u>\$677,862</u>						
13 Bonus Depreciation Rate			<u>50%</u>						
14 Bonus Depreciation			\$338,931						
15									
16 Bonus Depreciation			\$338,931						
17									
18 <u>Remaining Tax Depreciation (Federal)</u>									
19 Plant Additions			\$876,243						
20 Less Capital Repairs Deduction			\$198,381						
21 Less Bonus Depreciation			<u>\$338,931</u>						
22 Additions Subject to 20 YR MACRS Tax Depreciation			\$338,931	\$338,931	\$338,931	\$338,931	\$338,931	\$338,931	\$338,931
23 20 YR MACRS Tax Depreciation Rates			<u>3.750%</u>	<u>7.219%</u>	<u>6.677%</u>	<u>6.177%</u>	<u>4.285%</u>	<u>5.713%</u>	<u>5.285%</u>
24 Remaining Tax Depreciation			<u>\$12,710</u>	<u>\$24,467</u>	<u>\$22,630</u>	<u>\$20,936</u>	<u>\$10,892</u>	<u>\$14,522</u>	<u>\$17,913</u>
25									
26 <u>Remaining Tax Depreciation (State)</u>									
27 Plant Additions			\$876,243						
28 Less Capital Repairs Deduction			\$198,381						
29 Additions Subject to 20 YR MACRS Tax Depreciation			<u>\$677,862</u>						
30 20 YR MACRS Tax Depreciation Rates			<u>3.750%</u>	<u>7.219%</u>	<u>6.677%</u>	<u>6.177%</u>	<u>4.285%</u>	<u>5.713%</u>	<u>5.285%</u>
31 Remaining Tax Depreciation			<u>\$25,420</u>	<u>\$48,935</u>	<u>\$45,261</u>	<u>\$41,872</u>	<u>\$21,784</u>	<u>\$29,045</u>	<u>\$35,825</u>
32									
33 Federal Tax Depreciation			\$550,022	\$24,467	\$22,630	\$20,936	\$10,892	\$14,522	\$17,913
34 State Tax Depreciation			<u>\$223,801</u>	<u>\$48,935</u>	<u>\$45,261</u>	<u>\$41,872</u>	<u>\$21,784</u>	<u>\$29,045</u>	<u>\$35,825</u>

Note: Plant additions not subject to the capital repairs deduction may be subject to bonus depreciation. During 2008, Congress passed the Economic Stimulus Act of 2008 which established a 50% bonus depreciation deduction for certain eligible plant additions. Congress has passed further laws which have extended and changed the bonus depreciation rate at different periods of time. The bonus depreciation rates in effect since the start of the

Period	Rate
April 1, 2007 to December 31, 2007	0%
January 1, 2008 to September 7, 2010	50%
September 8, 2010 to December 31, 2011	100%

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
REP/VMP Revenue Requirement
Calculation of REP Tax Depreciation 2011 - Per Tax Return
Using Capital Repairs Tax Return Rate

	<u>(a)</u>	<u>(b)</u>	<u>(c)</u>	<u>(d)</u>	<u>(e)</u>	<u>(f)</u>	<u>(g)</u>	<u>(h)</u>	<u>(i)</u>
	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>CYS2013</u>	<u>CY2014</u>	<u>CY2015</u>
1 <u>Capital Repairs Deduction</u>									
2 Plant Additions				\$610,835					
3 Capital Repairs Deduction Rate				30.03%					
4 Capital Repairs Deduction				<u>\$183,434</u>					
5									
6 <u>Bonus Depreciation</u>									
7 Plant Additions				\$610,835					
8 Less Capital Repairs Deduction				<u>\$183,434</u>					
9 Plant Additions Net of Capital Repairs Deduction				<u>\$427,401</u>					
10									
11 Percent of Plant Additions Eligible for Bonus Depreciation April 2010 - September 2010				62.78%					
12 Plant Additions Eligible for Bonus Depreciation April 2010 - September 2010				<u>\$268,322</u>					
13 Bonus Depreciation rate April 2010- September 2010				50%					
14 Bonus Depreciation for April 2010 - September 2010				<u>\$134,161</u>					
15									
16 Plant Additions Eligible for Bonus Depreciation for October 2010 - March 2010				37.22%					
17 Plant Additions Eligible for Bonus Depreciation for October 2010 - March 2010				<u>\$159,079</u>					
18 Bonus Depreciation rate October 2010 - March 2010				100%					
19 Bonus Depreciation for October 2010 - March 2010				<u>\$159,079</u>					
20									
21 Bonus Depreciation				\$293,240					
22									
23 <u>Remaining Tax Depreciation (Federal)</u>									
24 Plant Additions				\$610,835					
25 Less Capital Repairs Deduction				\$183,434					
26 Less Bonus Depreciation				<u>\$293,240</u>					
27 Additions Subject to 20 YR MACRS Tax Depreciation				<u>\$134,161</u>	\$134,161	\$134,161	\$134,161	\$134,161	\$134,161
28 20 YR MACRS Tax Depreciation Rates				3.750%	7.219%	6.677%	4.633%	6.177%	5.713%
29 Remaining Tax Depreciation				<u>\$5,031</u>	\$9,685	\$8,958	\$4,662	\$6,215	\$7,665
30									
31 <u>Remaining Tax Depreciation (State)</u>									
32 Plant Additions				\$610,835					
33 Less Capital Repairs Deduction				<u>\$183,434</u>					
34 Additions Subject to 20 YR MACRS Tax Depreciation				<u>\$427,401</u>	\$427,401	\$427,401	\$427,401	\$427,401	\$427,401
35 20 YR MACRS Tax Depreciation Rates				3.750%	7.219%	6.677%	4.633%	6.177%	5.713%
36 Remaining Tax Depreciation				<u>\$16,028</u>	\$30,854	\$28,538	\$14,850	\$19,800	\$24,417
37									
38 Federal Tax Depreciation				<u>\$481,705</u>	\$9,685	\$8,958	\$4,662	\$6,215	\$7,665
39 State Tax Depreciation				<u>\$199,462</u>	\$30,854	\$28,538	\$14,850	\$19,800	\$24,417

Note: Plant additions not subject to the capital repairs deduction may be subject to bonus depreciation. During 2008, Congress passed the Economic Stimulus Act of 2008 which established a 50% bonus depreciation deduction for certain eligible plant additions. Congress has passed further laws which have extended and changed the bonus depreciation rate at different periods of time. The bonus depreciation rates in effect since the start of the Company's REP/VMP program have been as follows:

<u>Period</u>	<u>Rate</u>
April 1, 2007 to December 31, 2007	0%
January 1, 2008 to September 7, 2010	50%
September 8, 2010 to December 31, 2011	100%

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
REP/VMP Revenue Requirement
Calculation of REP Tax Depreciation 2012 - Per Tax Return
Using Capital Repairs Tax Return Rate

	(a) 2008	(b) 2009	(c) 2010	(d) 2011	(e) 2012	(f) 2013	(g) CYS2013	(h) CY2014	(i) CY2015
1 <u>Capital Repairs Deduction</u>									
2 Plant Additions					\$398,239				
3 Capital Repairs Deduction Rate					31.00%				
4 Capital Repairs Deduction					\$123,454				
5									
6 <u>Bonus Depreciation</u>									
7 Plant Additions					\$398,239				
8 Less Capital Repairs Deduction					\$123,454				
9 Plant Additions Net of Capital Repairs Deduction					\$274,785				
10									
11 Percent of Plant Additions Eligible for Bonus Depreciation April 2011 - December, 2011					72.52%				
12 Plant Additions Eligible for Bonus Depreciation April 2011 - December, 2011					\$199,274				
13 Bonus Depreciation rate April 2011- December 2011					100%				
14 Bonus Depreciation for April 2011 - December 2011					\$199,274				
15									
16 Plant Additions Eligible for Bonus Depreciation for January 2012 - March 2012					25.04%				
17 Plant Additions Eligible for Bonus Depreciation for January 2012 - March 2012					\$68,806				
18 Bonus Depreciation rate January 2012 - March 2012					50%				
19 Bonus Depreciation for January 2012 - March 2012					\$34,403				
20									
21 Bonus Depreciation					\$233,677				
22									
23 <u>Remaining Tax Depreciation (Federal)</u>									
24 Plant Additions					\$398,239				
25 Less Capital Repairs Deduction					\$123,454				
26 Less Bonus Depreciation					\$233,677				
27 Additions Subject to 20 YR MACRS Tax Depreciation					\$41,108	\$41,108	\$41,108	\$41,108	\$41,108
28 20 YR MACRS Tax Depreciation Rates					3.750%	7.219%	5.008%	6.677%	6.177%
29 Remaining Tax Depreciation					\$1,542	\$2,968	\$1,544	\$2,059	\$2,539
30									
31 <u>Remaining Tax Depreciation (State)</u>									
32 Plant Additions					\$398,239				
33 Less Capital Repairs Deduction					\$123,454				
34 Additions Subject to 20 YR MACRS Tax Depreciation					\$274,785	\$274,785	\$274,785	\$274,785	\$274,785
35 20 YR MACRS Tax Depreciation Rates					3.750%	7.219%	5.008%	6.677%	6.177%
36 Remaining Tax Depreciation					\$10,304	\$19,837	\$10,320	\$13,761	\$16,973
37									
38 Federal Tax Depreciation					\$358,673	\$2,968	\$1,544	\$2,059	\$2,539
39 State Tax Depreciation					\$133,758	\$19,837	\$10,320	\$13,761	\$16,973
40									
41									
42 FY 2012 Safe Harbor True Up (Federal)					\$18,656				
43 FY 2012 Tax Depreciation (Federal)					\$377,329				
44 FY 2012 Safe Harbor True Up (State)					\$47,329				
45 FY 2012 Tax Depreciation (State)					\$181,087				

Note: Plant additions not subject to the capital repairs deduction may be subject to bonus depreciation. During 2008, Congress passed the Economic Stimulus Act of 2008 which established a 50% bonus depreciation deduction for certain eligible plant additions. Congress has passed further laws which have extended and changed the bonus depreciation rate at different periods of time. The bonus depreciation rates in effect since the start of the Company's REP/VMP program have been as follows:

Period	Rate
April 1, 2007 to December 31, 2007	0%
January 1, 2008 to September 7, 2010	50%
September 8, 2010 to December 31, 2011	100%
January 1, 2012 to December 31, 2013	50%

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
REP/VMP Revenue Requirement
Calculation of REP Tax Depreciation 2013 - Per Tax Return
Using Capital Repairs Tax Return Rate

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	2008	2009	2010	2011	2012	2013	CYS2013	CY2014	CY2015
1 <u>Capital Repairs Deduction</u>									
2 Plant Additions						\$545,916			
3 Capital Repairs Deduction Rate						31.00%			
4 Capital Repairs Deduction						\$169,234			
5									
6 <u>Bonus Depreciation</u>									
7 Plant Additions						\$545,916			
8 Less Capital Repairs Deduction						\$169,234			
9 Plant Additions Net of Capital Repairs Deduction						\$376,682			
10									
11 Percent of Plant Additions Eligible for Bonus Depreciation April 2012 - December, 2012						62.48%			
12 Plant Additions Eligible for Bonus Depreciation April 2012 - December, 2012						\$235,332			
13 Bonus Depreciation rate April 2012- December 2012						50%			
14 Bonus Depreciation for April 2012 - December 2012						\$117,666			
15									
16 Plant Additions Eligible for Bonus Depreciation for January 2013 - March 2013						20.83%			
17 Plant Additions Eligible for Bonus Depreciation for January 2013 - March 2013						\$78,444			
18 Bonus Depreciation rate January 2013 - March 2013						50%			
19 Bonus Depreciation for January 2013 - March 2013						\$39,222			
20									
21 Bonus Depreciation						\$156,888			
22									
23 <u>Remaining Tax Depreciation (Federal)</u>									
24 Plant Additions						\$545,916			
25 Less Capital Repairs Deduction						\$169,234			
26 Less Bonus Depreciation						\$156,888			
27 Additions Subject to 20 YR MACRS Tax Depreciation						\$219,794	\$219,794	\$219,794	\$219,794
28 20 YR MACRS Tax Depreciation Rates						3.750%	5.414%	7.219%	6.677%
29 Remaining Tax Depreciation						\$8,242	\$11,900	\$15,867	\$14,676
30									
31 <u>Remaining Tax Depreciation (State)</u>									
32 Plant Additions						\$545,916			
33 Less Capital Repairs Deduction						\$169,234			
34 Additions Subject to 20 YR MACRS Tax Depreciation						\$376,682	\$376,682	\$376,682	\$376,682
35 20 YR MACRS Tax Depreciation Rates						3.750%	5.414%	7.219%	6.677%
36 Remaining Tax Depreciation						\$14,126	\$20,395	\$27,193	\$25,151
37									
38 Federal Tax Depreciation						\$334,364	\$11,900	\$15,867	\$14,676
39 State Tax Depreciation						\$183,360	\$20,395	\$27,193	\$25,151
40									
41									
42 Effect of FY 2012 Safe Harbor True Up on FY 2013 Tax Depreciation (Federal)						(\$1,400)			
43 FY 2013 Tax Depreciation (Federal)						\$332,964			
44 Effect of FY 2012 Safe Harbor True Up on FY 2013 Tax Depreciation (State)						(\$3,550)			
45 FY 2013 Tax Depreciation (State)						\$179,810			

Note: Plant additions not subject to the capital repairs deduction may be subject to bonus depreciation. During 2008, Congress passed the Economic Stimulus Act of 2008 which established a 50% bonus depreciation deduction for certain eligible plant additions. Congress has passed further laws which have extended and changed the bonus depreciation rate at different periods of time. The bonus depreciation rates in effect since the start of the Company's REP/VMP program have been as

Period	Rate
April 1, 2007 to December 31, 2007	0%
January 1, 2008 to September 7, 2010	50%
September 8, 2010 to December 31, 2011	100%
January 1, 2012 to December 31, 2013	50%

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
REP/VMP Revenue Requirement
Calculation of REP Tax Depreciation 2013 - Per Tax Return
Using Capital Repairs Tax Return Rate

	<u>(a)</u>	<u>(b)</u>	<u>(c)</u>	<u>(d)</u>	<u>(e)</u>	<u>(f)</u>	<u>(g)</u>	<u>(h)</u>	<u>(i)</u>
	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>CYS2013</u>	<u>CY2014</u>	<u>CY2015</u>
1 <u>Capital Repairs Deduction</u>									
2 Plant Additions							\$416,755		
3 Capital Repairs Deduction Rate							<u>0.00%</u>		
4 Capital Repairs Deduction							<u>\$0</u>		
5									
6 <u>Bonus Depreciation</u>									
7 Plant Additions							\$416,755		
8 Less Capital Repairs Deduction							<u>\$0</u>		
9 Plant Additions Net of Capital Repairs Deduction							<u>\$416,755</u>		
10									
11 Plant Additions Eligible for Bonus Depreciation for April 2013 - December 2013							<u>100.00%</u>		
12 Plant Additions Eligible for Bonus Depreciation for April 2013 - December 2013							\$416,755		
13 Bonus Depreciation rate April 2013 - December 2013							<u>50%</u>		
14 Bonus Depreciation for April 2013 - December 2013							<u>\$208,378</u>		
15									
16 Bonus Depreciation							\$208,378		
17									
18 <u>Remaining Tax Depreciation (Federal)</u>									
19 Plant Additions							\$416,755	\$416,755	\$416,755
20 Less Capital Repairs Deduction							\$0	\$0	\$0
21 Less Bonus Depreciation							<u>\$208,378</u>	<u>\$208,378</u>	<u>\$208,378</u>
22 Additions Subject to 20 YR MACRS Tax Depreciation							\$208,378	\$208,378	\$208,378
23 20 YR MACRS Tax Depreciation Rates							<u>2.813%</u>	<u>3.750%</u>	<u>7.219%</u>
24 Remaining Tax Depreciation							<u>\$4,395</u>	<u>\$5,861</u>	<u>\$15,043</u>
25									
26 <u>Remaining Tax Depreciation (State)</u>									
27 Plant Additions							\$416,755	\$416,755	\$416,755
28 Less Capital Repairs Deduction							\$0	\$0	\$0
29 Additions Subject to 20 YR MACRS Tax Depreciation							\$416,755	\$416,755	\$416,755
30 20 YR MACRS Tax Depreciation Rates							<u>2.813%</u>	<u>3.750%</u>	<u>7.219%</u>
31 Remaining Tax Depreciation							<u>\$8,791</u>	<u>\$11,721</u>	<u>\$30,086</u>
32									
33 Federal Tax Depreciation							<u>\$212,773</u>	<u>\$5,861</u>	<u>\$15,043</u>
34 State Tax Depreciation							<u>\$8,791</u>	<u>\$11,721</u>	<u>\$30,086</u>

Note: Plant additions not subject to the capital repairs deduction may be subject to bonus depreciation. During 2008, Congress passed the Economic Stimulus Act of 2008 which established a 50% bonus depreciation deduction for certain eligible plant additions. Congress has passed further laws which have extended and changed the bonus depreciation rate at different periods of time. The bonus depreciation rates in effect since the start of the

<u>Period</u>	<u>Rate</u>
April 1, 2007 to December 31, 2007	0%
January 1, 2008 to September 7, 2010	50%
September 8, 2010 to December 31, 2011	100%
January 1, 2012 to December 31, 2013	50%

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
REP/VMP Revenue Requirement
Calculation of REP Tax Depreciation 2014 - Per Tax Return
Using Capital Repairs Tax Return Rate

	(a) <u>2008</u>	(b) <u>2009</u>	(c) <u>2010</u>	(d) <u>2011</u>	(e) <u>2012</u>	(f) <u>2013</u>	(g) <u>YS20</u>	(h) <u>CY 2014</u>	(i) <u>CY 2015</u>
1	<u>Capital Repairs Deduction</u>								
2								\$2,201,899	
3								0.00%	
4								<u>\$0</u>	
5									
6	<u>Bonus Depreciation</u>								
7								\$2,201,899	
8								<u>\$0</u>	
9								\$2,201,899	
10									
11								100.00%	
12								<u>\$2,201,899</u>	
13								50%	
14								<u>\$1,100,950</u>	
15									
16								\$1,100,950	
17									
18	<u>Remaining Tax Depreciation (Federal)</u>								
19								\$2,201,899	\$2,201,899
20								\$0	\$0
21								<u>\$1,100,950</u>	<u>\$1,100,950</u>
22								\$1,100,950	\$1,100,950
23								3.750%	7.219%
24								<u>\$41,286</u>	<u>\$79,478</u>
25									
26	<u>Remaining Tax Depreciation (State)</u>								
27								\$2,201,899	\$2,201,899
28								\$0	\$0
29								<u>\$2,201,899</u>	<u>\$2,201,899</u>
30								3.750%	7.219%
31								<u>\$82,571</u>	<u>\$158,955</u>
32									
33								<u>\$1,142,236</u>	<u>\$79,478</u>
34								<u>\$82,571</u>	<u>\$158,955</u>

Note: Plant additions not subject to the capital repairs deduction may be subject to bonus depreciation. During 2008, Congress passed the Economic Stimulus Act of 2008 which established a 50% bonus depreciation deduction for certain eligible plant additions. Congress has passed further laws which have extended and changed the bonus depreciation rate at different periods of time. The bonus depreciation rates in effect since the start of the Company's REP/VMP program have

<u>Period</u>	<u>Rate</u>
January 1, 2007 to December 31, 2007	0%
January 1, 2008 to September 7, 2010	50%
September 8, 2010 to December 31, 2011	100%
January 1, 2012 to December 31, 2013	50%
January 1, 2014 to December 31, 2014	50%

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
REP/VMP Revenue Requirement
Calculation of REP Tax Depreciation 2015 - Per Tax Return
Using Capital Repairs Tax Return Rate

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>CYS2013</u>	<u>CY 2014</u>	<u>CY 2015</u>
1 <u>Capital Repairs Deduction</u>									
2 Plant Additions									\$1,321,456
3 Capital Repairs Deduction Rate									0.00%
4 Capital Repairs Deduction									<u>\$0</u>
5									
6 <u>Bonus Depreciation</u>									
7 Plant Additions									\$1,321,456
8 Less Capital Repairs Deduction									<u>\$0</u>
9 Plant Additions Net of Capital Repairs Deduction									\$1,321,456
10									
11 Plant Additions Eligible for Bonus Depreciation									<u>100.00%</u>
12 Plant Additions Eligible for Bonus Depreciation									\$1,321,456
13 Bonus Depreciation rate									50%
14 Bonus Depreciation rate									<u>\$660,728</u>
15									
16 Bonus Depreciation									\$660,728
17									
18 <u>Remaining Tax Depreciation (Federal)</u>									
19 Plant Additions									\$1,321,456
20 Less Capital Repairs Deduction									<u>\$0</u>
21 Less Bonus Depreciation									<u>\$660,728</u>
22 Additions Subject to 20 YR MACRS Tax Depreciation									\$660,728
23 20 YR MACRS Tax Depreciation Rates									3.750%
24 Remaining Tax Depreciation									<u>\$24,777</u>
25									
26 <u>Remaining Tax Depreciation (State)</u>									
27 Plant Additions									\$1,321,456
28 Less Capital Repairs Deduction									<u>\$0</u>
29 Additions Subject to 20 YR MACRS Tax Depreciation									\$1,321,456
30 20 YR MACRS Tax Depreciation Rates									3.750%
31 Remaining Tax Depreciation									<u>\$49,555</u>
32									
33 Federal Tax Depreciation									<u>\$685,505</u>
34 State Tax Depreciation									<u>\$49,555</u>

Note: Plant additions not subject to the capital repairs deduction may be subject to bonus depreciation. During 2008, Congress passed the Economic Stimulus Act of 2008 which established a 50% bonus depreciation deduction for certain eligible plant additions. Congress has passed further laws which have extended and changed the bonus depreciation rate at different periods of time. The bonus depreciation rates in effect since the start of the Company's REP/VMP program have been as follows:

<u>Period</u>	<u>Rate</u>
January 1, 2007 to December 31, 2007	0%
January 1, 2008 to September 7, 2010	50%
September 8, 2010 to December 31, 2011	100%
January 1, 2012 to December 31, 2013	50%
January 1, 2014 to December 31, 2014	50%
January 1, 2015 to December 31, 2015	50%

Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities
REP/VMP Rate Design
Procedure for Adjusting Distribution Rates for Capital Investment Allowance
Calculation of Percentage Adjustment to Distribution Rates
Rates Effective June 1, 2016

(1)	Increase in Annual Revenue Requirement	\$71,923
(2)	Forecasted Base Distribution Revenues	\$34,634,065
(3)	Percentage of Adjustment to Distribution Rates	0.21%

(1)	Recalculated DE 16-277 CY2014 Rev. Req.	\$274,518
	Less DE 15-087 Approved Revenue Requirement	-\$377,950
	Difference	-\$103,432
	HMT-1, Page 3, Line 62	\$175,355
	HMT-1, Page 3, Line 62 less Difference Above	\$71,923

(2)	Forecasted Base Distribution Revenues for the period of June 1, 2016 - May 31, 2017	
(3)	Line (1) ÷ Line (2)	

Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities
Calculation of Reliability Enhancement Program and Vegetation Management Plan Adjustment Factor
Rates Effective June 1, 2016

(1)	O&M Expense Above Base O&M Expense	\$346,184
(2)	Final Balance of Reconciliation of Refund of CY 2014 Incremental O&M Expense Above Base O&M Expense	<u>(\$11,214)</u>
(3)	Reliability Enhancement Program and Vegetation Management Plan Expense	\$334,970
(4)	Estimated Interest During Recovery Period	<u>\$10,046</u>
(5)	Reliability Enhancement Program and Vegetation Management Plan Expense, Including Interest	\$345,015
(6)	Estimated kWh deliveries June 1, 2016 - April 30, 2017	887,257,581
(7)	Reliability Enhancement Program and Vegetation Management Plan Adjustment Factor	\$0.00038

- (1) Schedule HMT-1, Page 2
- (2) Schedule HMT-3, Page 1, Line 15
- (3) Line (1) + Line (2)
- (4) **Schedule HMT-2, Page 3, Column (g)**
- (5) Line (3) + Line (4)
- (6) Per Company forecast
- (7) Line (5) ÷ Line (6), truncated after 5 decimal places

Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities
Calculation of Interest on CY 2015 Incremental O&M Expense Above Base O&M Expense

	Beginning Balance With Interest (a)	Estimated Recovery (b)	Ending Balance (c)	Balance Subject to Interest (d)	Effective Interest Rate (e)	Interest (f)	Cumulative Interest (g)
January 2016	\$334,970		\$334,970	\$334,970	3.25%	\$894	\$894
February	\$335,864		\$335,864	\$335,864	3.25%	\$896	\$1,790
March	\$336,760		\$336,760	\$336,760	3.25%	\$899	\$2,689
April	\$337,659		\$337,659	\$337,659	3.50%	\$969	\$3,658
May	\$338,628		\$338,628	\$338,628	3.50%	\$972	\$4,631
June	\$339,600	(\$30,873)	\$308,728	\$324,164	3.50%	\$931	\$5,561
July	\$309,658	(\$30,966)	\$278,692	\$294,175	3.50%	\$845	\$6,406
August	\$279,537	(\$31,060)	\$248,477	\$264,007	3.50%	\$758	\$7,164
September	\$249,235	(\$31,154)	\$218,081	\$233,658	3.50%	\$671	\$7,835
October	\$218,752	(\$31,250)	\$187,501	\$203,126	3.50%	\$583	\$8,418
November	\$188,085	(\$31,347)	\$156,737	\$172,411	3.50%	\$495	\$8,913
December	\$157,232	(\$31,446)	\$125,786	\$141,509	3.50%	\$406	\$9,319
January 2017	\$126,192	(\$31,548)	\$94,644	\$110,418	3.50%	\$317	\$9,636
February	\$94,961	(\$31,654)	\$63,307	\$79,134	3.50%	\$227	\$9,863
March	\$63,534	(\$31,767)	\$31,767	\$47,651	3.50%	\$137	\$10,000
April	\$31,904	(\$31,904)	\$0	\$15,952	3.50%	\$46	\$10,046
Total		(\$345,015)					

(a) **Schedule HMT-2, Page 2, Line 3**

(b) Column (a) ÷ number of remaining months in recovery period

(c) Column (a) + Column (b)

(d) Average of Column (a) and Column (c)

(e) Interest rate on customer deposits

(f) Column (d) x [(1 + Column (e)) ^ (1 ÷ 12) - 1]

(g) Prior month Column (g) + Current month Column (f)

**Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities
REP/MVP Rate Design
Procedure for Adjusting Distribution Rates for Capital Investment Allowance & Incremental O&M Expense
Rates Effective June 1, 2016**

Rate Class	Distribution Rate Component	Approved June 1, 2016 Base Distribution Charges (a)	Proposed June 1, 2016 Distribution % Increase/ (Decrease) (b)	Proposed June 1, 2016 Base Distribution Charges (c)	June 1, 2016 Business Profits Surcharge (d)	June 1, 2016 Energy Service Cost Reclassification Distribution Credit (e)	Proposed June 1, 2016 REP/MVP O&M Adjustment Factor (f)	Proposed June 1, 2016 Total Distribution Charges (g)
D	Customer Charge	\$11.33	0.21%	\$11.35				\$11.35
	1st 250 kWh	\$0.03061	0.21%	\$0.03067	\$0.00057	(\$0.00017)	\$0.00038	\$0.03145
	Excess 250 kWh	\$0.04597	0.21%	\$0.04606	\$0.00057	(\$0.00017)	\$0.00038	\$0.04684
	Off Peak kWh	\$0.02923	0.21%	\$0.02929	\$0.00057	(\$0.00017)	\$0.00038	\$0.03007
	Farm kWh	\$0.03829	0.21%	\$0.03837	\$0.00057	(\$0.00017)	\$0.00038	\$0.03915
	D-6 kWh	\$0.03052	0.21%	\$0.03058	\$0.00057	(\$0.00017)	\$0.00038	\$0.03136
	Interruptible Credit IC-1	(\$6.64)	0.21%	(\$6.65)				(\$6.65)
	Interruptible Credit IC-2	(\$9.49)	0.21%	(\$9.50)				(\$9.50)
D-10	Customer Charge	\$11.48	0.21%	\$11.50				\$11.50
	On Peak kWh	\$0.08656	0.21%	\$0.08674	\$0.00057	(\$0.00008)	\$0.00038	\$0.08761
	Off Peak kWh	\$0.00073	0.21%	\$0.00073	\$0.00057	(\$0.00008)	\$0.00038	\$0.00160
G-1	Customer Charge	\$311.48	0.21%	\$312.13				\$312.13
	Demand Charge	\$6.64	0.21%	\$6.65				\$6.65
	On Peak kWh	\$0.00373	0.21%	\$0.00373	\$0.00057	\$0.00000	\$0.00038	\$0.00468
	Off Peak kWh	\$0.00073	0.21%	\$0.00073	\$0.00057	\$0.00000	\$0.00038	\$0.00168
	Credit for High Voltage Delivery > 2.4 k	(\$0.36)	0.21%	(\$0.36)				(\$0.36)
G-2	Customer Charge	\$51.94	0.21%	\$52.04				\$52.04
	Demand Charge	\$6.68	0.21%	\$6.69				\$6.69
	All kWh	\$0.00111	0.21%	\$0.00111	\$0.00057	\$0.00000	\$0.00038	\$0.00206
	Credit for High Voltage Delivery > 2.4 k	(\$0.36)	0.21%	(\$0.36)				(\$0.36)
G-3	Customer Charge	\$11.24	0.21%	\$11.26				\$11.26
	All kWh	\$0.03804	0.21%	\$0.03811	\$0.00057	(\$0.00017)	\$0.00038	\$0.03889
	Minimum Charge > 25 kVA	\$2.42	0.21%	\$2.42				\$2.42
M	Luminaire Charge							
	Description							
	LUM INC RWY 103W	\$100.41	0.21%	\$100.62				\$100.62
	LUM MV RWY 100W	\$72.66	0.21%	\$72.81				\$72.81
	LUM MV RWY 175W	\$88.37	0.21%	\$88.55				\$88.55
	LUM MV RWY 400W	\$167.15	0.21%	\$167.50				\$167.50
	LUM MV RWY 1000W	\$317.16	0.21%	\$317.82				\$317.82
	LUM MV FLD 400W	\$184.85	0.21%	\$185.23				\$185.23
	LUM MV FLD 1000W	\$319.21	0.21%	\$319.88				\$319.88
	LUM HPS RWY 50W	\$75.21	0.21%	\$75.36				\$75.36
	LUM HPS RWY 100W	\$91.19	0.21%	\$91.38				\$91.38
	LUM HPS RWY 250W	\$160.14	0.21%	\$160.47				\$160.47
	LUM HPS RWY 400W	\$208.67	0.21%	\$209.10				\$209.10
	LUM HPS FLD 250W	\$161.56	0.21%	\$161.89				\$161.89
	LUM HPS FLD 400W	\$223.04	0.21%	\$223.50				\$223.50
	LUM HPS POST 100W	\$105.02	0.21%	\$105.24				\$105.24
	Pole and Accessory Charge							
	Description							
	POLE – WOOD	\$88.63	0.21%	\$88.81				\$88.81
	POLE FIBER PT <25FT	\$91.78	0.21%	\$91.97				\$91.97
	POLE FIBER RWY <25FT	\$155.68	0.21%	\$156.00				\$156.00
	POLE FIBER RWY =>25	\$260.10	0.21%	\$260.64				\$260.64
	POLE METAL EMBEDDED	\$185.64	0.21%	\$186.02				\$186.02
	POLE METAL =>25FT	\$223.69	0.21%	\$224.15				\$224.15
	All kWh	\$0.00000	0.21%	\$0.00000	\$0.00057	\$0.00000	\$0.00038	\$0.00095
T	Customer Charge	\$11.45	0.21%	\$11.47				\$11.47
	All kWh	\$0.03374	0.21%	\$0.03381	\$0.00057	(\$0.00007)	\$0.00038	\$0.03469
	Interruptible Credit IC-1	(\$6.64)	0.21%	(\$6.65)				(\$6.65)
	Interruptible Credit IC-2	(\$9.49)	0.21%	(\$9.50)				(\$9.50)
V	Minimum Charge	\$11.28	0.21%	\$11.30				\$11.30
	All kWh	\$0.03894	0.21%	\$0.03902	\$0.00057	(\$0.00009)	\$0.00038	\$0.03988

- (a) Per approved June 1, 2016 tariff
- (b) Schedule HMT-2, Page 1, Line 3
- (c) Column (a) x (1+Column (b))
- (d) Distribution Energy Charges include a Business Profits Tax Surcharge of \$0.00057 per kWh for usage on and after 8/1/01
- (e) Per Energy Service Cost Reclassification Adjustment Provision
- (f) Schedule HMT-2, Page 2, Line 6
- (g) Column (c) + Column (d) + Column (e) + Column (f)

Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities
Reconciliation of Refund of CY 2014 O&M Expense

	Beginning Balance Refund With Interest (a)	Delivery Sales (b)	Refund (c)	Ending Balance Refund (d)	Balance Subject to Interest (e)	Effective Interest Rate (f)	Interest (g)	Cumulative Interest (h)
1 May 2014	\$178,351	57,033,130	(\$9,696)	\$168,655	\$173,503	3.25%	\$463	\$463
2 June	\$169,118	110,263,603	(\$18,745)	\$150,374	\$159,746	3.25%	\$426	\$889
3 July	\$150,800	82,616,869	(\$14,045)	\$136,755	\$143,778	3.25%	\$384	\$1,273
4 August	\$137,139	87,401,647	(\$14,858)	\$122,280	\$129,710	3.25%	\$346	\$1,619
5 September	\$122,627	82,570,434	(\$14,037)	\$108,590	\$115,608	3.25%	\$309	\$1,928
6 October	\$108,898	71,981,746	(\$12,237)	\$96,661	\$102,780	3.25%	\$274	\$2,202
7 November	\$96,936	62,404,131	(\$10,609)	\$86,327	\$91,631	3.25%	\$245	\$2,447
8 December	\$86,571	77,760,896	(\$13,219)	\$73,352	\$79,962	3.25%	\$213	\$2,660
9 January 2015	\$73,566	79,203,232	(\$13,465)	\$60,101	\$66,833	3.25%	\$178	\$2,838
10 February	\$60,279	73,627,678	(\$12,517)	\$47,763	\$54,021	3.25%	\$144	\$2,983
11 March	\$47,907	61,447,042	(\$10,446)	\$37,461	\$42,684	3.25%	\$114	\$3,097
12 April	\$37,575	85,556,865	(\$14,545)	\$23,030	\$30,302	3.50%	\$87	\$3,184
13 May	\$23,117	70,305,504	(\$11,952)	\$11,165	\$17,141	3.50%	\$49	\$3,233
14		Total Refund as of 4/30/16:	(\$170,369)					
15		Remaining Refund:	(\$11,214)					

- (a) Schedule HMT-2, Page 2, Line 3 in Docket DE 15-087
- (b) Company Billing Reports, Line 13 estimated
- (c) Column (b) x rate
- (d) Column (a) + Column (c)
- (e) Average of Column (a) and Column (d)
- (f) Interest rate on customer deposits
- (g) Column (e) x [(1 + Column (f)) ^ (1 ÷ 12) - 1]
- (h) Prior month Column (h) + Current month Column (g)

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities
Docket No DE 16-277
Schedule HMT-4
Page 1 of 1
Revised May 6, 2016

Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities
Bill Calculation

Usage	650	kWh	May 1, 2016 Current Rates	June 1, 2016 Proposed Rates	May 1, 2016 Current Bill	June 1, 2016 Proposed Bill
Customer Charge			\$11.29	\$11.35	\$11.29	\$11.35
Distribution Charge						
1st 250 kWh			\$0.03073	\$0.03145	\$7.68	\$7.86
excess of 250 kWh			\$0.04605	\$0.04684	\$18.42	\$18.74
Storm Recovery Adjustment			\$0.00000	\$0.00000	\$0.00	\$0.00
Transmission Charge			\$0.01361	\$0.01361	\$8.85	\$8.85
Stranded Cost Charge			\$0.00040	\$0.00040	\$0.26	\$0.26
System Benefits Charge			\$0.00330	\$0.00330	\$2.15	\$2.15
Electricity Consumption Tax			\$0.00055	\$0.00055	<u>\$0.36</u>	<u>\$0.36</u>
Subtotal Retail Delivery Services					\$49.00	\$49.56
Energy Service Charge			\$0.09221	\$0.09221	<u>\$59.94</u>	<u>\$59.94</u>
				Total Bill	\$108.94	\$109.49
						\$0.56
						0.51%

Liberty Utilities (Granite State Electric) d/b/a Liberty Utilities
Municipal Taxes as a Percentage of Net Plant

	<u>12/31/2014</u>	<u>12/31/2015</u>
1 Plant in Service, per Form 1, Page 200, Line 3 (+) Line 6	175,044	197,251
2 Depreciation Reserve, per Form 1, Page 200, Line 5 (+) Line 18	<u>(65,428)</u>	<u>(71,683)</u>
3 Net Plant	<u>109,616</u>	<u>125,568</u>
4 Average Net Plant		
5 Plant in Service	160,407	186,148
6 Depreciation Reserve	<u>(64,802)</u>	<u>(68,556)</u>
7 Net Plant	<u>95,605</u>	<u>117,592</u>
8 Municipal Taxes, Form 1, Page 262, Line 1	<u>3,557</u>	<u>3,540</u>
9 % Municipal Taxes to Net Plant	<u>3.72%</u>	<u>3.01%</u>