



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

Docket No. DE 18-\_\_\_\_\_

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

Calendar Year 2017 Annual Report

March 16, 2018

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1           **INTRODUCTION**

2           Liberty Utilities (Granite State Electric) Corp. (“Liberty” or the “Company”) hereby  
3           submits the results of the Reliability Enhancement Plan (“REP”) and Vegetation  
4           Management Plan (“VMP”) for the calendar year 2017 (“CY2017”). These results for  
5           the CY2017 Plan are submitted consistent with the requirements in Attachment F to the  
6           Settlement Agreement in Docket No. DE 13-063. *See* Order No. 25,638 (March 17,  
7           2014) (approving the Settlement Agreement in Docket No. DE 13-063, the “Settlement  
8           Agreement”), as amended by Order No. 26,005 (April 12, 2017) (approving the  
9           Settlement Agreement in Docket No. DE 16-383). For ease of reference, a copy of  
10          Attachment F is included as Appendix 8 to this report. This report contains the following  
11          information:

- 12           1.    A comparison of actual to budgeted spending on operating and maintenance  
13           (“O&M”) activities related to the VMP in CY2017. Appendix 1, line 12, column  
14           (d) shows that total actual O&M spending that occurred during 2017 was  
15           \$2,495,406. That amount includes \$2,188,894 (column (b)) incurred for CY2017  
16           activities and \$306,512 (column (c)) for CY2016 expenses that were paid in  
17           2017.<sup>1</sup> As shown in column (b), the CY2017 O&M expenses, after taking into  
18           account FairPoint credits of \$442,992, totaled \$1,745,902, or \$115,901 less than  
19           the budgeted amount of \$1,861,803.

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1           The \$306,512 of CY2016 costs were not included in the CY2016 reconciliation filing as that filing was prepared on the cash basis of accounting. Consistent with the Settlement Agreement in DE 16-383, the reconciliation filing is now prepared on the accrual basis of accounting.

- 1           2.    A comparison of actual investment to budgeted spending on capital projects for  
2                    REP in CY2017. Appendix 2, line 7, column (d) shows that the total capital  
3                    investment recorded on Granite State's books in CY2017 was \$1,699,030<sup>2</sup>. This  
4                    actual investment is \$74,030 more than the budgeted amount of \$1,625,000.
- 5           3.    A request to recover \$552,414 of O&M costs. That amount consists of two  
6                    components: i) \$245,902 representing the CY2017 incremental O&M spending  
7                    above the \$1,500,000 base amount; and ii) \$306,512 of O&M costs incurred  
8                    during 2016 but paid in 2017.
- 9           4.    A request to recover \$166,322 of revenue associated with a total of \$1,699,030 in  
10                   capital investment, broken down between two program years CY2016 and  
11                   CY2017. The total from CY2016 was \$58,957 as discussed in Section 2 of this  
12                   report, and the total capital investment for 2017 was \$1,640,073; and
- 13           5.    A summary of reliability performance for CY2017; and distribution feeder  
14                   reliability performance for those that are part of the REP/VMP Plan.

15           The Company is submitting the joint testimony of Joel Rivera and Jeffrey Carney, which  
16                   provides further information regarding the Company's actual O&M cost and capital  
17                   investment made during CY2017. In addition, the testimony of David Simek addresses  
18                   the Company's request for a net increase in distribution rates associated with the

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2           This investment includes \$58,957 associated with CY2016 capital projects that was not booked to plant until 2017 and is being included in the CY2017 rate adjustment.

1 REP/VMP Adjustment Provision and the REP Capital Investment Allowance described  
2 above, and includes typical bill impacts.

3 **Section 1: CY2017 O&M Budget vs. Actual O&M Expenses for VMP**

4 The proposed operating and maintenance (“O&M”) budget for VMP activities for  
5 CY2017 is shown in Appendix 1, line 12, column (a). Liberty initially proposed to spend  
6 \$2,281,803, which included \$420,000 that Liberty estimated it would bill to FairPoint for  
7 its share of the planned vegetation maintenance work. As shown on Appendix 1, line 14,  
8 column (a), those estimated reimbursements were excluded from the total amount of  
9 VMP O&M expenses to be recovered, resulting in an adjusted total VMP O&M expense  
10 budget of \$1,861,803. Consistent with Section III.b. within Attachment F of the  
11 Settlement Agreement, Liberty submitted this alternative budget for Staff’s consideration,  
12 which is above the Base Plan O&M Budget amount of \$1,360,000<sup>3</sup> by \$501,803.  
13 Commission Staff subsequently expressed its support for the budget. The agreement the  
14 Company has with FairPoint allows for invoicing for completed work January through  
15 June in July and completed work July through December in January of the following  
16 year. The Company invoiced FairPoint \$442,992 (Appendix 1, line 13 column (b)) for  
17 CY2017 and has included that amount in calculating the REP/VMP Adjustment Factor.  
18 As shown in Appendix 1, line 14, column (b), the Company’s actual total spending level  
19 for CY2017 was \$1,745,902 for O&M activities related to the VMP, or \$115,901 less  
20 than the filed budgeted amount of \$1,861,803. Budget variances related to the total

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3 Subsequent to submitting the CY2017 budget to Staff in November 2016, the Base Plan O&M amount was increased to \$1,500,000 as part of the Settlement Agreement in Docket No. DE 16-383. With that revision, the CY2017 O&M budget was \$361,803 above the base amount.

1 CY2017 VMP O&M spending are described below. In addition to Appendix 1, which  
2 shows total O&M expenses, Appendix 5 shows the actual VMP O&M expenses by  
3 month, while Appendix 4 contains the work plan of completed VMP O&M activities by  
4 feeder.

5 The Company completed all of the vegetation management work contained in its CY2017  
6 plan. Some of the spending variances are described below:

7 The Company spent \$72,285 less on work planning than anticipated. Priorities for  
8 performing municipal street light surveys, planning on capital projects, and storm damage  
9 assessment diverted these resources in CY2017.

10 Spot tree trimming was underspent \$11,691 due to lower than anticipated volume of  
11 electric service orders and customer calls.

12 The trouble and restoration budget is for unplanned work based on actual occurrence.  
13 Spending exceeded the budget by \$5,915 due to an increase in unplanned non-storm  
14 related trouble call volume and support of the overhead line department.

15 The Company spent \$57,570 less than budgeted on planned cycle pruning as a result of  
16 removing the Enfield 7L2 feeder and replacing it with the Spicket River 13L1 Feeder.  
17 This decision was made due to field conditions and customer count and resulted in a  
18 mileage differential of approximately 14.74 miles at an average cost of \$3,905.70 per  
19 mile.

1 The Company spent \$5,698 more than anticipated for traffic control for police details in  
2 the Town of Salem. The Town of Salem Police costs are now double the crew cost on a  
3 per mile basis.

4 The Company spent \$58,607 more than budgeted on hazard tree removals because  
5 additional risk trees with a higher probability of failure resulting in a negative reliability  
6 impact were identified during the work planning process. The removals that were  
7 completed were the highest risk ranked trees with the highest potential to impact a large  
8 number of customers. These removals are generally larger mature trees, which are more  
9 costly to remove.

10 Interim trimming is generally unplanned work, and we experienced a lower volume of  
11 work that would be needed.

12 **Section 2: CY2017 Capital Budget vs. Actual Capital Investment for REP**

13 The proposed Capital Investment budget for REP activities for 2017 is shown in  
14 Appendix 2, line 6, column (b). For the calendar year 2017, Liberty proposed to spend  
15 \$1,625,000 on capital investments related to REP activities, including \$100,000 related to  
16 CY2016 carryover work (Appendix 2, line 5, column (b)). As discussed with  
17 Commission Staff, the capital budget included installation of five trip saver units and  
18 replacement of three miles of bare primary conductors. Details of the REP Capital  
19 Investment projects and costs are included in Appendix 3. Commission Staff  
20 subsequently expressed its support for the budget.

1 “Trip Saver” cutouts target circuit segments that would realize reliability benefits from  
2 single phase tripping and reclosing and from isolating faults down to the smallest single  
3 phase segment possible. These devices are designed to interrupt circuit segments  
4 following a transient or temporary fault condition and then automatically restore the  
5 segment after a short period to allow the fault to clear. These devices not only improve  
6 reliability of service, but also avoid the cost of dispatching a trouble shooter or line crew  
7 to replace the fuse.

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

16 In Appendix 2, the Company provides the carryover capital investment from 2016 and  
17 the actual capital investment for 2017. The Company’s actual total carryover from  
18 CY2016 was \$58,957 (Appendix 2, line 5, column (d)) for Capital activities related to the  
19 REP, or \$41,043 less than the filed budget amount of \$100,000. A key factor  
20 contributing to this carryover from CY2016 is timing differences due to budgeted  
21 amounts from CY2016 being placed into service in CY2017, which can typically occur as



1 capital work is performed, completed, invoiced to vendors, and processed through the  
2 accounting system.

3 As shown on line 4, column (c) of Appendix 2, the Company's total spending for  
4 CY2017 was \$1,640,073 for capital activities related to REP, or \$115,073 more than the  
5 filed budgeted amount of \$1,525,000.

6 Additional details of the variance in each of the CY2017 REP projects are provided  
7 below:

8 "Trip Saver" Reclosing Applications: As shown in Appendix 2, line 3, column (c),  
9 CY2017 capital expenditures incurred for "Trip Saver" Reclosing applications amounted  
10 to \$8,729, or \$16,271 less than the proposed budget of \$25,000. The variance in this  
11 program was mainly due to the deferral of the installation of a trip saver at pole 1 on  
12 Codfish Hill Road and the deferral of the installation of a trip saver at pole 28 and pole 53  
13 on Shore Drive. The installation of the Codfish Hill Road trip saver was deferred to align  
14 with a future bare wire replacement project on the same road. In addition, Liberty is  
15 reviewing and considering a different type of unit at this location called a "fuse saver."  
16 Liberty decided to defer the installation of two trip savers on Shore Drive as it develops a  
17 future project to install single-phase reclosers with capability for remote sensing and  
18 control. The deferral of these three units accounts for the majority of the \$16,271  
19 variance.

20 Bare Conductor Replacement: As shown in Appendix 2, line 1, column (c), CY2017  
21 capital expenditures incurred for Bare Conductor Replacement amounted to \$1,631,344,

1 or \$131,344 more than the proposed target of \$1,500,000. The variance in the Bare  
2 Conductor Replacement Program was driven primarily by bid prices being higher than  
3 expected, which resulted in a higher than forecasted investment. The remote location of  
4 the Route 123 project may have had an impact on the bid price.

5 **Section 3: Reliability Results – Calendar Year 2017**

6 Consistent with Section VII.b within Attachment F of the Settlement Agreement,  
7 reliability metrics for CY2017 are presented in the table below based on both the PUC  
8 Standard<sup>4</sup> for excluding major weather events and the IEEE Standard 1366<sup>5</sup> method for  
9 excluding major event days. The metrics presented on the next page also exclude  
10 transmission supply outages, planned or notified outages, and all other applicable  
11 exclusions<sup>6</sup>. The metrics include customers interrupted (“CI”), customer minutes  
12 interrupted (“CMI”), system average interruption frequency index (“SAIFI”), system  
13 average interruption duration index (“SAIDI”), customer average interruption duration  
14 index (CAIDI), and customers interrupted per interruption index (CIII).

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4 PUC Major Storm: [(CI >= 15 % of Customers Served and 30 concurrent events) or (45 concurrent events)]. Using PUC criteria, eight days were excluded in Calendar Year 2017: March 14 – March 15, October 29 – November 1, December 23 – December 24.

5 IEEE Major Event Days: Using IEEE criteria, two days were excluded in Calendar Year 2017: October 29 – October 30.

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 involve only one customer.

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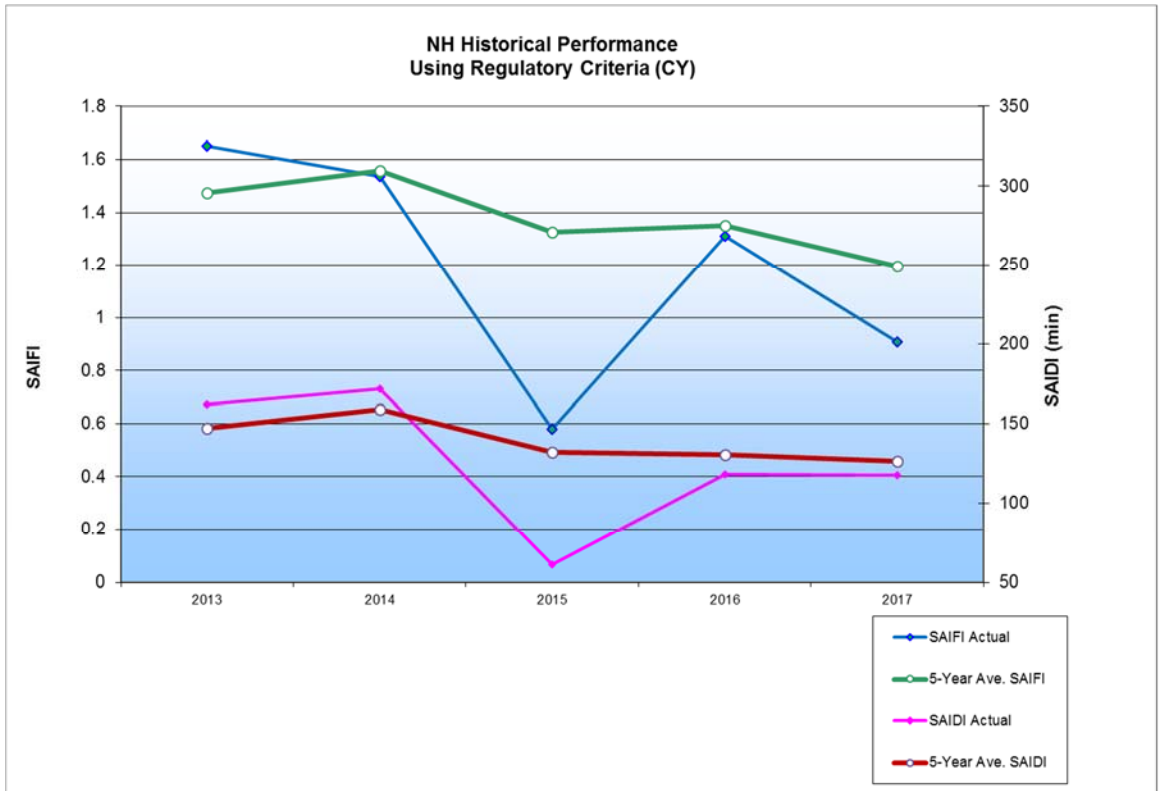
**Calendar Year 2017 Reliability Results**

<b>No Exclusions</b>								
Year	Events	Customers Interrupted	Customer Minutes Interrupted	Customers Served	SAIFI	SAIDI	CAIDI	CIII
2017	918	73,180	17,945,832	43,894	1.6700	407.890	245.23	79.72
<b>Excludes Only IEEE Major Events</b>								
Year	Events	Customers Interrupted	Customer Minutes Interrupted	Customers Served	SAIFI	SAIDI	CAIDI	CIII
2017	745	56,672	6,882,761	43,894	1.2900	157.090	121.45	76.07
<b>Excludes Only PUC Major Events</b>								
Year	Events	Customers Interrupted	Customer Minutes Interrupted	Customers Served	SAIFI	SAIDI	CAIDI	CIII
2017	606	44,057	5,437,550	43,894	1.0100	124.160	123.42	72.70
<b>Excludes Only Loss of Supply by Other Utility or Transmission Outage</b>								
Year	Events	Customers Interrupted	Customer Minutes Interrupted	Customers Served	SAIFI	SAIDI	CAIDI	CIII
2017	915	69,530	17,749,921	43,894	1.5800	403.400	255.28	75.99
<b>Excludes Only Planned Maintenance</b>								
Year	Events	Customers Interrupted	Customer Minutes Interrupted	Customers Served	SAIFI	SAIDI	CAIDI	CIII
2017	882	72,896	17,909,768	43,894	1.6600	407.070	245.69	82.65
<b>All Exclusions: IEEE Major Events, loss of supply, transmission, planned maintenance, Load Shedding, Single Customer Outages, Fire/Police Request</b>								
Year	Events	Customers Interrupted	Customer Minutes Interrupted	Customers Served	SAIFI	SAIDI	CAIDI	CIII
2017	557	52,470	6,602,880	43,894	1.2000	150.6900	125.84	94.20
<b>All Exclusions: PUC MEDs, loss of supply, transmission, planned maintenance, Load Shedding, Single Customer Outages, Fire/Police Request</b>								
Year	Events	Customers Interrupted	Customer Minutes Interrupted	Customers Served	SAIFI	SAIDI	CAIDI	CIII
2017	418	39,855	5,157,669	43,894	0.9100	117.760	129.41	95.35

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**Calendar Year Historical Reliability Performance**



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As shown on the Calendar Year Historical Reliability Performance graph above, the SAIFI performance of 0.91 and the SAIDI performance of 117.76 for CY2017 continue on an improving downward trend with the 2017 performance slightly better than that of 2013, 2014, and 2016. Calendar year 2015 was an exceptionally favorable year and the Company would not expect to consistently achieve that level of performance. For 2017, there were events in radial areas that impacted the SAIDI performance. Seven out of the top ten events for CY2017 occurred in areas that lack feeder ties that would allow for partial restoration of customers in those areas. Those events led to prolonged outages, as power could not be restored until damaged equipment was replaced. These seven events made up approximately 30% of the SAIDI and on average required 250 minutes to

1 restore. The top three events for CY2017 made up 23% of the SAIDI and 14% of SAIFI.  
2 The top two events occurred on the Lebanon 1L2 feeder and made up 17% of the SAIDI  
3 and 12% of SAIFI. Mitigation measures, both inside and outside of the REP, were  
4 implemented in 2017 to improve our reliability performance, specifically targeting radial  
5 and poor performing areas.

6 In summary, the Company met its SAIFI and SAIDI targets of 1.35 and 130.73 minutes,  
7 respectively, which are based on a five-year rolling average and are shown in Appendix  
8 7. For the past four years, the Company has met all of its SAIFI targets and has only  
9 missed its SAIDI target once, which occurred in CY2014. Some level of variability is to  
10 be expected in the year to year metrics, typically rooted in weather pattern changes.  
11 Liberty expects this overall positive performance in SAIFI and SAIDI to continue as  
12 further positive impacts from our reliability initiatives are experienced. Below is a  
13 summary of historical reliability performance for distribution feeders that were part of the  
14 2017 REP/VMP Plan.

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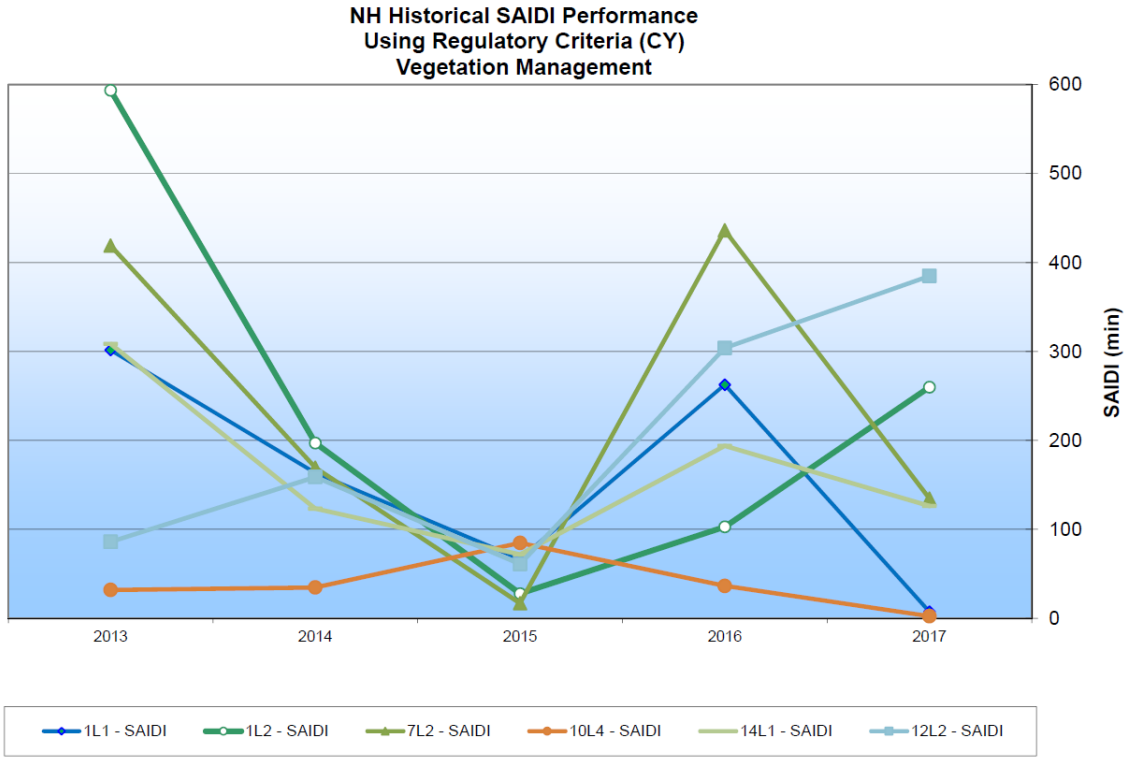
**Calendar Year Historical Reliability Performance – REP/VMP Program 2017**

Vegetation Management Program			Bare Conductor Replacement Program		
Feeder	SAIFI	SAIDI	Feeder	SAIFI	SAIDI
<b>41-1L1</b>			<b>42-18L4</b>		
2013	1.73	301.51	2013	1.49	85.03
2014	1.41	163.44	2014	1.23	259.12
2015	0.57	66.56	2015	0.10	22.89
2016	3.38	262.57	2016	2.53	102.94
2017	0.04	7.36	2017	0.25	9.09
<b>41-1L2</b>			<b>43-12L1</b>		
2013	5.27	593.62	2013	0.48	77.02
2014	1.53	196.96	2014	2.43	245.64
2015	0.25	27.75	2015	0.52	91.48
2016	2.48	102.79	2016	1.85	173.15
2017	1.41	259.87	2017	1.31	224.19
<b>41-7L2</b>					
2013	3.26	418.95			
2014	1.37	169.26			
2015	0.11	16.89			
2016	3.44	436.23			
2017	1.49	134.54			
<b>42-10L4</b>					
2013	0.80	31.92			
2014	0.14	34.63			
2015	0.61	84.79			
2016	0.36	36.42			
2017	0.03	2.37			
<b>42-14L1</b>					
2013	3.20	308.68			
2014	1.31	123.33			
2015	0.73	71.84			
2016	1.18	193.91			
2017	1.35	126.23			
<b>43-12L2</b>					
2013	0.47	85.97			
2014	1.52	158.84			
2015	0.61	61.01			
2016	2.97	303.82			
2017	1.85	384.79			
<b>43-1L4</b>					
2013	0.00	0.00			
2014	0.00	0.00			
2015	0.00	0.00			
2016	0.00	0.00			
2017	0.00	0.00			

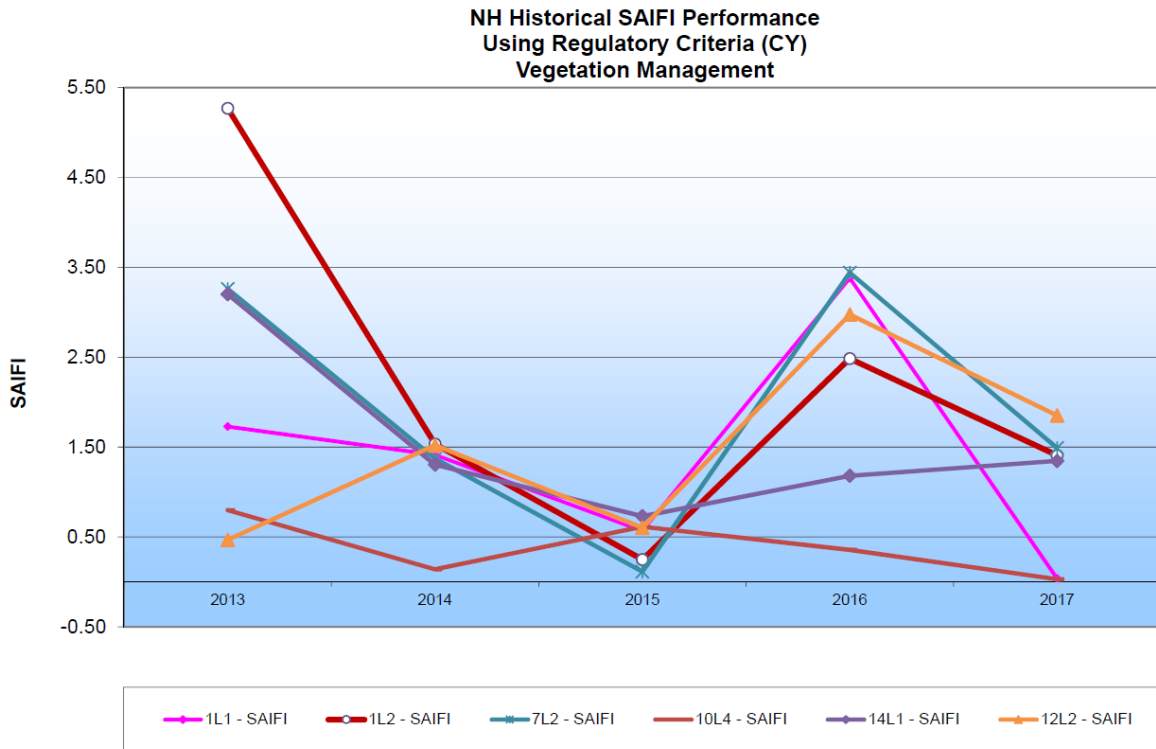
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**Calendar Year Historical Reliability Performance – Vegetation Management**



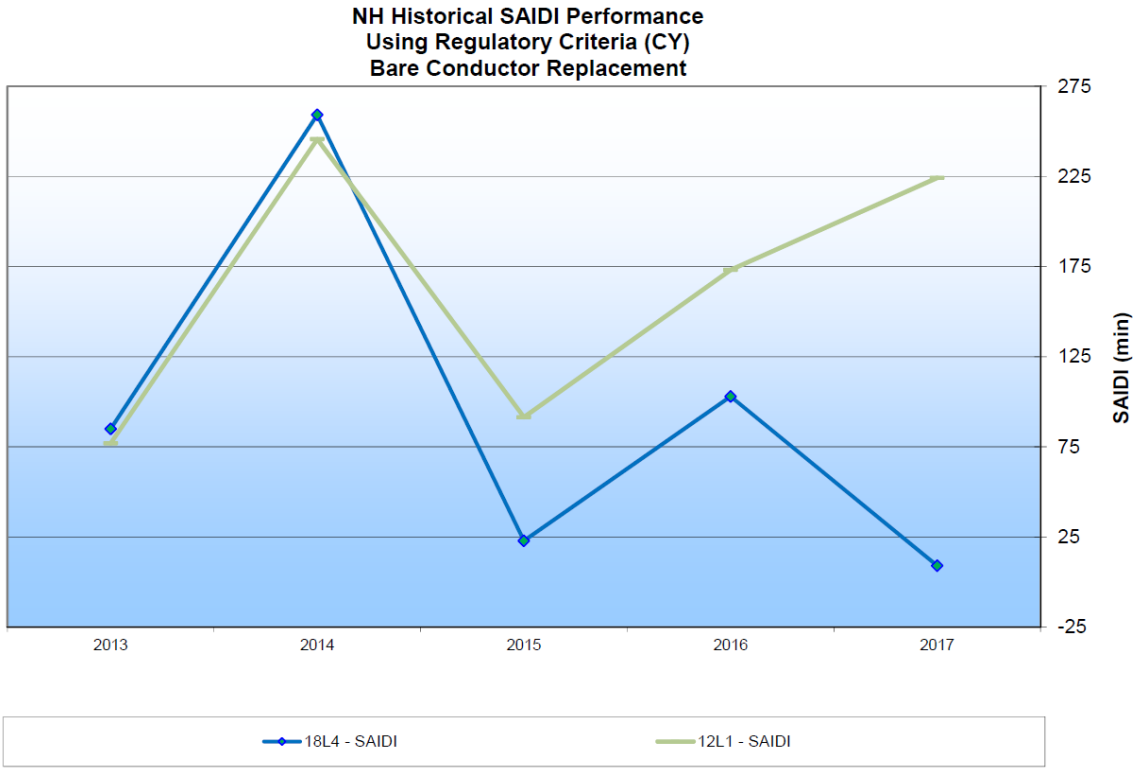
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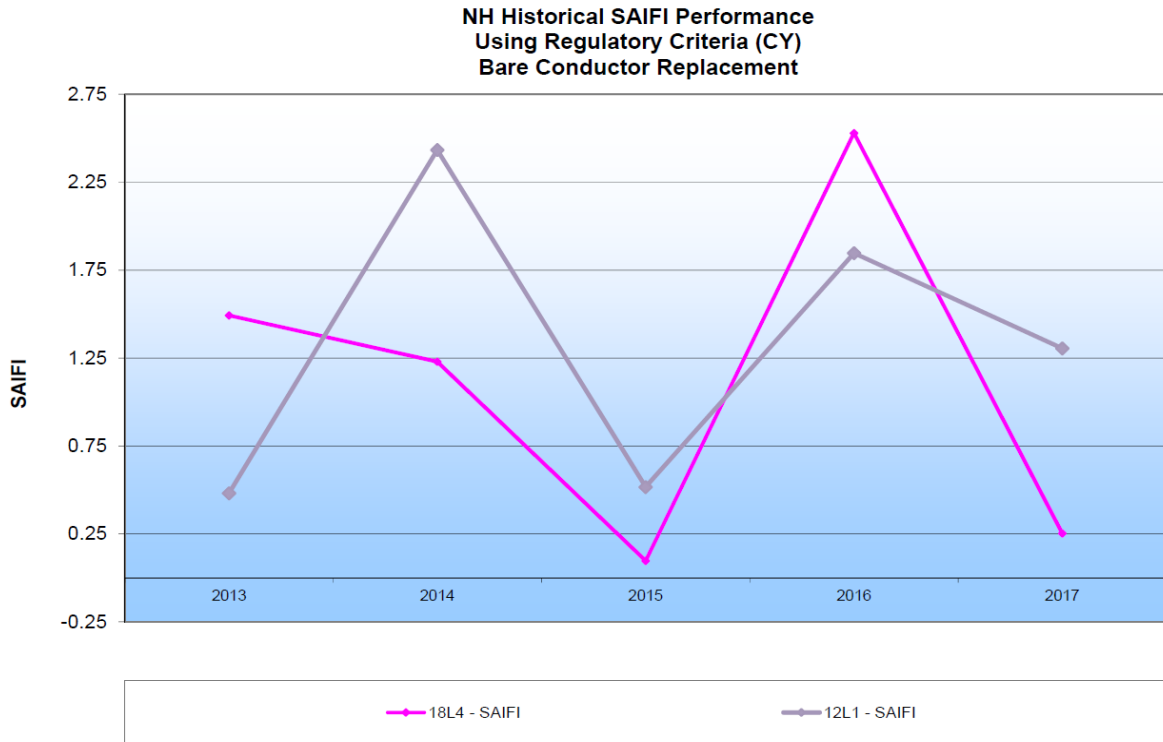
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**Calendar Year Historical Reliability Performance – Bare Replacement Program**



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