

Appendix 1 - O&M Expenses

Line	(a)+ 2019 Budgeted Expenses	(b) 2019 Actual Expenses	(c) Variance	(d) Reference	(f) CY2018 Variance Actual vs. Budget
1	VMP O&M				
2			\$ 7,494	Appendix 5	We brought in a work planner to perform backlog on audits. We also implemented a new program to collect and record the vegetation work process.
	\$213,200	\$ 220,693.73			
3			\$ (1,434)	Appendix 4 & 5	Includes a lower volume of unplanned spot work and customer concerns.
	\$36,900	35,466.05			
4			\$ 1,903	Appendix 4 & 5	Includes a higher volume of unplanned trouble response/line department support
	\$36,900	38,803.29			
5			\$ (18,363)	Appendix 4 & 5	8L1 work along RR carried over to 2020. 40L3 work moved to 2020.
	\$980,000	961,637.45			
6			\$ (76,861)	Appendix 4 & 5	Includes a lower than anticipated cost for traffic control.
	\$400,000	323,139.50			
7			\$ 18,703	Appendix 4 & 5	Includes a higher volume of tree removals.
	\$400,000	418,702.65			
8			\$ (22,211)	Appendix 4 & 5	Includes a lower volume of unplanned interim pruning needs.
	\$30,000	7,788.58			
9			\$ (500)	Appendix 4 & 5	
	\$5,000	4,500.00			
10			\$ (119,203)	Appendix 4 & 5	Adjustment of work from 2019 to 2020.
	\$205,000	85,797.00			
11			\$ -	Appendix 4 & 5	
12	\$ 2,307,000	\$ 2,096,528	\$ (210,472)	Appendix 5	
13	\$ 480,000	\$ 495,381			
14	\$ 1,827,000	\$ 1,601,147	\$ (210,472)		

15 Note: Adjustment \$40,559.93 - Include additional invoice not included in the December 2019 accrual

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Appendix 2 - REP Capital Investments - Summary

Line	Projects	(a) 2019 Goal	(b) CY 2019 Capital Investment Budget(*)	(c) CY 2019 Actual Capital Investment	(d) CY 2018 Capital Carryover Investment	Reference
1	Bare Conductor Replacement	3.65 mi	\$ 1,450,000	\$ 1,212,204	\$ 582,709	Appendix 3, lines 1,2,4,5
2	Single Phase Reclosing Installations	None	\$ -	\$ -	\$ 43,020	Appendix 3, line 3
3	Single Phase Fuse Saver Installations	4 Locations	\$ 50,000	\$ -	\$ -	Appendix 3, lines 6-9
4	Calendar Year 2019 Totals		\$ 1,500,000	\$ 1,212,204		
5	Previous CY Carryover		\$ 100,000		\$ 625,729	Appendix 3, lines 1-3
6	Totals		\$ 1,600,000	\$ 1,212,204	\$ 625,729	
7					\$ 1,837,934	

(*) From CY 2019 Plan submitted to Staff on November 15, 2018.

Appendix 3 - Reliability Enhancement Program Capital Costs

Line	(a) Activities	(b) Project Description	(c) Funding Project Number	(d) Work Order	(e) CY 2019 Budgeted Capital Investment (107)	(f) CY 2019 Capital Investment Closed to Plant (101/106/108)	(g) CY 2019 Capital Investment Closed to Plant from CY2018 carryover	(h) CY 2019 Total	(i) Estimated Capital Investment to be Booked in CY 2020 (107)
1	1L2 Bare Conductor Replacement Project - Meriden Rd Lebanon	Replace approximately 1 mile of bare conductors along Meriden Rd with 477 Spacer Cable.	8830-C18603	301846-01002			\$ (8,288)	\$ (8,288)	
2	12L2 Bare Conductor Replacement Project - Route 12 Walpole	Replace approximately 2.65 miles of bare conductors along Route 12 Walpole with 477 Spacer Cable.	8830-C18603	301846-01001			\$ 590,998	\$ 590,998	
3	14L1 Single Phase recloser installation - Dutton Rd - 14L1 Pelham	Install single phase tripping recloser at Dutton Rd Pelham NH	8830-C24073	301847-01001			\$ 43,020	\$ 43,020	\$ 29,000
4	7L2 Bare Conductor Replacement Project - Shaker Hill Rd Enfield	Replace approximately 1.9 mile of bare conductors along Shaker Hill Rd with 477 Spacer Cable.	8830-1940	301946-01002 / 301849-01001	\$ 725,000	\$ 516,399		\$ 516,399	\$ 465,894
5	40L3 Bare Conductor Replacement Project - Sullivan St Charlestown	Replace approximately 1.9 miles of bare conductors along Sullivan St Charlestown with 477 Spacer Cable.	8830-1940	301946-01001	\$ 725,000	\$ 695,805		\$ 695,805	\$ 161,323
6	12L1 Fuse Saver installation - Gilsum Mine Rd Alstead	Install one Fuse Saver at Gilsum Mine Rd Alstead NH	8830-1947		\$ 8,334	\$ -		\$ -	\$ 8,334
7	12L1 Fuse Saver Installation - Ball Rd Acworth	Install one Fuse Saver at Ball Rd Acworth NH	8830-1947		\$ -	\$ -		\$ -	\$ -
8	12L2 Fuse Saver Installation - Watkins Hill Rd Walpole	Install three Fuse Savers at Watkins Hill Rd Walpole NH	8830-1947		\$ 25,000	\$ -		\$ -	\$ 25,000
9	14L2 Fuse Saver Installation - Sherburne Rd Pelham	Install one Fuse Saver at Sherburne Rd Pelham NH	8830-1947		\$ -	\$ -		\$ -	\$ -
10	14L2 Fuse Saver Installation - Ledge Rd Pelham	Install one Fuse Saver at Ledge Rd Pelham NH	8830-1947		\$ 16,666	\$ -		\$ -	\$ 16,666
11	Capital Investment Carryover from previous CY				\$ 100,000				
12	Totals				\$ 1,600,000	\$ 1,212,204	\$ 625,729	\$ 1,837,934	\$ 706,217

Appendix 4
Vegetation Management Activities

CY 2019

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	228.5	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	61.29 Acres & 24.9* Miles	See Appendix 6 for definitions
10	Other Police Detail Expenses	As needed	See Appendix 6 for definitions

Line	Substation	Feeder	OH Miles - Distribution	OH Miles - Completed	
12	LEBANON #1	1L1	16.90	16.90	
13	HANOVER #6	6L3	26.79	26.79	
14	CHARLESTOWN #8	8L1	21.56	20.32 ***	1.24
15	SPICKET RIVER #13	13L2	23.95	23.95	
16	PELHAM #14	14L3	21.55	21.55	
17	PELHAM #14	14L4	17.08	17.08	
18	MONROE #15	15H1	12.56	12.56	
19	MOUNT SUPPORT #16	16L1	41.39	41.39	
20	MOUNT SUPPORT #16	16L3	9.23	9.23	
21	OLDE TROLLEY #18	18L2	10.93	10.93	
22	OLDE TROLLEY #18	18L3	5.99	5.99	
23	SLAYTON HILL #39	39L1	1.87	1.87	
24	MICHAEL AVE #40	40L1	9.42	9.42	
25	MICHAEL AVE #40	40L3	7.28	2.46 ***	4.82
26	MOUNT SUPPORT #16	16L5**	2.00	2.00	
27	SubTotal		228.50	222.44	

28 ** Total miles are 9.19. However portions were complete as part of the 16L2 in the CY2017 and the 1L3
29 in the CY2018. An estimated 2.0 miles remain to be maintained.

Line	Subtransmission	OH Miles - Subtransmission	
31	Monroe 15H1	15H1	1.18 Miles/13.92 Acres
32	BARRON AVE. #10/SALEM DEPOT #9	2352	3.15 Miles/ 30.13 Acres
33	BARRON AVE. #10	2393	.89 Miles/ 6.57 Acres
34	SPICKET RIVER #13	2376	.93 Miles/ 10.67 Acres
35	HANOVER #6/MT. SUPPORT #16/LEB #1	1303/1304	6.3 Miles
36	SubTotal		24.9* Miles/ 61.29 Acres

37 * Total includes both sides of the ROW

38 *** Variances include:

- 39 8L1 - Waiting on a RailRoad Right of Entry Permit Approval, 1.24 miles.
- 40 40L3 - 2.46 miles of the 40L3 was completed as New Construction or as a double circuit.
- 41 Remaining portion had a disagreement on price. We moved to 2020.
- 42 2352 and 2393 were moved to 2020 in consideration of staff request and aligning with construction of 115KV.
- 43 2376W not yet completed due to abutter conflict and scheduling.
- 44 1303/1304 Sideline completed 1/2 the length in 2019 and moved 1/2 work to 2020.

Appendix 5 - VMP Spend by Month

VM Only Jobs	GL Posting Month													Grand Total	Adjustments	Revised Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec				
VM1000	\$ 294.29	\$ 45,781.21	\$ 21,670.11	\$ 14,140.08	\$ 14,750.39	\$ 19,850.81	\$ 18,412.37	\$ 37,503.06	\$ 14,111.84	\$ 9,926.89	\$ 26,991.90	\$ (2,739.22)	\$ 220,693.73	40,559.93	\$ 220,693.73	
VM1010	(1,497.56)	170.79	1,016.41	1,236.94	11,133.39	7,582.91	(1,323.11)	14,588.30	(4,459.49)	447.69	2,908.60	3,661.18	35,466.05		35,466.05	
VM1210	1,695.57	2,494.64	2,057.02	4,111.15	11,665.12	(847.23)	5,122.51	3,497.04	1,355.43	9,751.69	(3,717.51)	1,617.86	38,803.29		38,803.29	
VM1215	(24,554.92)	142,519.77	108,493.91	116,270.60	177,031.81	128,716.18	(10,716.42)	56,716.15	75,952.83	44,779.02	39,634.58	66,234.01	921,077.52		961,637.45	
VM1218	(66,030.00)	29,580.00	39,096.00	13,752.00	42,738.00	87,890.58	(18,991.08)	32,482.00	47,400.00	27,970.00	45,538.00	41,714.00	323,139.50		323,139.50	
VM1220		5,578.28	56,011.74	43,079.11	36,459.76	18,243.43	2,888.01	15,209.86	16,631.88	29,211.45	29,012.07	166,377.06	418,702.65		418,702.65	
VM1235							720.45	10,277.30	(3,522.85)	5,978.70	(3,914.35)	(1,750.67)	7,788.58		7,788.58	
VM1240					9,000.00	(4,500.00)							4,500.00		4,500.00	
VM1280		5,867.41						8,100.00	26,965.42	(29,557.06)	(4,153.82)	78,575.05	85,797.00		85,797.00	
Grand Total	\$ (90,092.62)	\$ 231,992.10	\$ 228,345.19	\$ 192,589.88	\$ 302,778.47	\$ 256,936.68	\$ (3,887.27)	\$ 178,373.71	\$ 174,435.06	\$ 98,508.38	\$ 132,299.47	\$ 353,689.27	\$ 2,055,968.32		\$ 40,559.93	\$ 2,096,528.25

Note: Adjustment \$40,559.93 - Include additional invoice not included in the December 2019 accrual

VMP Definitions

Work Planning: Work planning process is a systematic approach to prescribing vegetation maintenance work around power lines. It involves the patrol and inspection of the power line corridor on a span-by-span basis. Work planning begins with an experienced (and typically degreed) forester working as an inspector (work planner). The clearances and tree selection parameters are pre-determined by the utility. The prescribed work is executed by the line clearance contractor.

Spot Tree Trimming: (Unplanned Work)

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: (Unplanned Work)

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/Other Traffic Control Expenses:

This captures all charges for traffic control expenses associated with annual planned cycle trim, tree removals, spot trimming and other unplanned work requiring traffic control.

Hazard Tree Removal:

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

Interim Trimming: (Unplanned work)

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.

Appendix 7 - 5 year rolling averages SAIDI/SAIFI

CY	Sum of CI	Sum of CMI	Sum of SAIFI (right)	5-Year Avg. SAIFI (right)	Sum of SAIDI (left)	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	1.64	1.48	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	56,784	5,124,815	1.31	1.35	118.14	130.73
2017	39,831	5,156,572	0.91	1.19	117.74	126.27
2018	32,681	5,406,674	0.74	1.01	121.79	118.17
2019	27,269	3,161,319	0.61	0.83	70.66	97.88
2020 Projection	33,985	4,053,457	0.83	0.88	97.88	105.24

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).