



Environmental Consultants

Lakeside Environmental Consultants, LLC
12324 Hampton Way Drive
Suite 101
Wake Forest, NC 27587
(608) 335-9968
www.eci-consulting.com

J. M. SPARKMAN, JR.

PROFESSIONAL EXPERIENCE

LAKESIDE ENVIRONMENTAL CONSULTANTS, LLC (d.b.a. ECI), Wake Forest, North Carolina

Manager, Consulting Services

December 2012 to Present

Responsible for oversight and direction of the ECI's consulting services business unit including distribution line clearance program assessments, wood pole and joint facilities management plans, transmission ROW studies, gas pipeline assessment and mapping, training services, practical research projects, litigation support, rate case support, and special studies.

LAKESIDE ENVIRONMENTAL CONSULTANTS, LLC (d.b.a. ECI), Stoughton, Wisconsin

Senior Project Manager

2010 to December 2012

Provided overall direction, coordination, implementation, control, and execution to specific assigned projects. This included acquiring resources and coordinating the efforts and logistics of team members and third-party contractors or consultants to deliver projects according to schedule. Responsible for data analysis, formulating specific program recommendations based on analysis and the delivery of final project reports to clients.

FLORIDA POWER & LIGHT COMPANY, West Palm Beach, Florida

Regional Lead

1991 to April 2010

Held several positions of increasing responsibility within the Vegetation Management business unit. As a Utility Arborist, responsibilities included the administration of the North Area line clearing contract and the oversight of over 6,000 distribution miles. This included the monitoring of crew productivity to control line clearing costs, monitoring reliability performance and quality assurance for compliance to contract terms. Routinely worked directly with city, county, and municipal officials as well as FPL customers to promote and educate proper vegetation management pruning techniques.

After recognizing the need for dedicated internal data and program support within the business unit in 1999, and appointed as Senior Systems Analyst, responsibilities included system reliability monitoring, forecasting, and tracking to ensure compliance with system goals, variance analysis, countermeasure development, budget preparation, and upper-level reporting.

In 2002, became the supervisor of the newly created Vegetation Management Project Management Office. Responsible for all core project management functions of the group. Responsible for managing budget

development, contract development, goal and target compliance, performance indicator development, policy and process development, programming, and systems support, claims processing, legal expert witness support including depositions and court trials, Florida Public Service Commission inquiry response, rate case support, and other administrative functions. Supervised the invoice process, approval, and payment for the FPL Vegetation Management business unit with over \$65M in annual contractor invoices. Coordinated crew, storm logistical functions, storm cost estimates, and accruals as part of the General Office Command Center storm team for 3 major hurricanes impacting FPL in 2004 and 2005 totaling more than \$150M in tree related restoration expenses.

In 2008 after the Project Management Office was combined with the Contract Payment Center and Central Maintenance Budget group, began supervising vegetation operations for the East Region of the FPL service territory. This included seven counties from Palm Beach County north to the Brevard County line with over 8,600 miles of distribution overhead lines. Directly supervised a staff of two FPL Arborists and five Contract Arborists and managed the activities of 150 tree crew resources. Developed RISK analysis procedures for Vegetation Management to better prioritize, assign, and mitigate reliability performance issues.

EDUCATION

B.S. - Forestry, Virginia Polytechnic Institute and State University (VA Tech) College of Forestry and Wildlife, 1988.

PROFESSIONAL AFFILIATIONS

International Society of Arboriculture (ISA)
Utility Arborist Association (UAA)

CERTIFICATES

ISA Certified Arborist SO 0418A
ISA TRAQ Credential
YCA Project Management Certification

PUBLICATIONS / CONFERENCE PRESENTATIONS

Sparkman, J. M. 2014. "Outage Risk from Emerald Ash Borer Infestations at LG&E and KU."
Transmission & Distribution World, Supplemental, Pg. 20, June 2014.

Sparkman, J. M. 2014. "Justifying, Designing and Funding an Effective Risk Tree Program." CEATI
Vegetation Management Conference, Vancouver, BC, Canada, November 12-13, 2014.

Sparkman, J. M. 2014. "How Trees Cause Distribution Outages: Review of the Research and How to Use
the Knowledge." CEATI Vegetation Management Conference, Vancouver, BC, Canada, November
12-13, 2014.

Sparkman, J. M. and Joshua Stedman. 2018. "Understanding Your Reliability Data and How to Use It."
2018 WAA/DNR Annual Conference, Green Bay, WI, February 18-20, 2018.

Sparkman, J. M. 2015. "Mega Data and Predictive Modeling in the Effective Application of Utility Vegetation Management Resources." 2015 ISA Conference and Trade Show, Orlando, FL, August 6-12, 2014.

Sparkman, J. M. and Dahle, G.A. 2020. "Development of Regional Research Approach to Modeling Tree Failure Risk Probability Affecting Distribution Overhead Lines UARF #19-UAA-01", UAA Tree Fund, December 15, 2020.



CY2023 Vegetation Management Program (VMP) Plan

Report on CY2023 Vegetation Management Program (VMP) Plan

November 15, 2022



2023



CY2023 Vegetation Management Program (VMP) Plan

Table of Contents

1.	Executive Summary	1
2.	Program History	1
3.	Funding the VMP Program	3
4.	State of Liberty Utilities Vegetation Management Contractors	5
5.	Deferred work	5
6.	CY2023 Plan	6
7.	Conclusion	7



CY2023 Vegetation Management Program (VMP) Plan

1. Executive Summary

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty (“Liberty” or the “Company”) hereby submits its proposed Vegetation Management Plan (“VMP”) for the calendar year 2023 (“CY2023 Plan”). This CY2023 Plan is submitted consistent with the requirements in Attachment F to the Settlement Agreement in Docket No. DE 13-063 which was approved by the Commission in Order No. 25,638 (March 17, 2014), as further amended by the Settlement Agreement in Docket No. DE 19-064 approved by Commission Order No. 26,376 (June 30, 2020). For convenience, a copy of the VMP Plan from DE 13-063 is included in Appendix 3 and the definitions are included in Appendix 4. Liberty is proposing to trim 165 miles in 2023 at a cost of \$2,419,709.

The following information contained within this plan will provide an outline of Liberty’s 2023 program.

2. Program History

Since 2007, the Company has followed the Vegetation Management and Reliability Enhancement Programs provided to the Company from Order No. 24,777 (July 12, 2007), as amended by Order No. 25,638 (March 17, 2014), as further amended by Order No. 26,005 (April 12, 2017), and the latest amendment which was part of a settlement agreement in Docket No. DE 19-064, which provided for \$2,200,000 included in base rates, with a cap of up to an additional ten percent, for a potential total annual spend of \$2,420,000.

In general, the VMP includes categories of O&M spending targeted to maintain and improve reliability performance. The program is premised on the understanding that a certain amount of annual spending on O&M activities is necessary to maintain the safety and reliability of the Company’s electric distribution system. The VMP activities consist of Planned Cycle Trimming, Interim, Spot, and Trouble Tree Trimming, Work Planning, Traffic Detail, Tree Removal, Tree Planting, and Right of Way work for floor and side.

The current VMP establishes the following corridor requirements for clearances under Puc 307.10 on no more than a five-year cycle:

- 10 feet below the conductors,
- 8 feet to the side of the nearest conductor, and
- 15 feet above the conductors, at the time of clearing.

In rural areas, the Company seeks to obtain the clearance of all capable tree seedlings and lower branches of established trees to minimize future work. In urban areas, where work can be more



CY2023 Vegetation Management Program (VMP) Plan

customer-sensitive, Liberty seeks the same clearance as the rural areas but allows a reduced scope of work for concerns and sensitivities of the adjacent landowner where needed or requested. In urban areas, Liberty leaves lower branches under the communication wires, often referred to as a “shelf,” when requested or if previously established. The Company still seeks to remove young capable trees in this zone; however, in urban areas, if requested Liberty may trim the top of that capable brush to leave a requested screening.

A. Right of Way (ROW) Maintenance

The Company’s first four-year cycle adjusted the scope of work to obtain improved corridor maintenance with improved sight line and reduced vegetation contact potential. The Company, now in its second four-year cycle, is now able to mow the supply ROW lines to provide the much-needed sight line visibility. This activity also prepares the corridors for Integrated Vegetation Management (IVM) of a variety of sustainable and cost-effective techniques as Liberty moves through the upcoming cycles of work. The 2023 budget includes plans to reinstate the selective herbicide treatment that National Grid previously incorporated into the VM program. Selective herbicide applications will be one of many necessary methods of addressing the ROW in the future.

The 2023 budget does not have mowing or sideline work budgeted for the ROWs. The Company adjusted most of the 2022 and 2023 ROW clearing and side work to be performed in CY2021 for the Lebanon ROWs to accommodate workforce availability and needs. Additionally, much of the Salem area ROWs were mowed as part of the 2020 and 2022 ROW maintenance and preparation of capital construction. The result is the ROWs in both areas have been addressed, thus the Company has a small budget for spot or emergency work to perform along the ROWs in 2023. Most of the budget allocation is for herbicide and other program needs as shown in Appendix 1 lines 13 through 20.

B. PUC 307.10 & ANSI Z133–2017 impacts to the Company VMP

Additional safety standards were created for tree pruning: Puc 307.10 in 2014, and ANSI Z133–2017 in 2017.

Prior to Puc 307.10, the Company’s tree removals were mostly Fall-In risks. Fall-in trees are those that are tall enough and within a distance from the conductor that their high risk is that they fall in. The corridor was fairly established, and unit price trees started at 9” Diameter at Breast Height (DBH) (diameter of tree four and one-half feet from ground). With the implementation of Puc 307.10 and its definition of a *narrower* corridor,



CY2023 Vegetation Management Program (VMP) Plan

the quantity of Grow-In/Corridor Creation trees was well beyond the quantity and scope and allocated funds required to remove these impacted trees within the newly defined corridor. The result of this to Liberty and its customers is the inability to achieve the 8' corridor given current funding.

Tree removal is necessary to move from the previous six-foot side clearance to the new eight-foot side clearance requirement of Puc 307.10 and to potentially decrease the number of future removals of five-inch to twelve-inch diameter trees in subsequent cycles.

C. Tree Risk Management

The best way to achieve the requirements of Puc 307.10 is through removal, rather than pruning or allowing the trees to remain in the corridor. These tree and limb removals align with best practices in the industry and follow professional standards of arboriculture, reliability concerns, and cost-effectiveness.

Under ANSI Z133-2017, if a property owner engaged a trained and skilled private tree care company to perform tree work within proximity to the wires, there are situations in which that contractor could not perform the work. While the contractor may be qualified to work for a utility when working for residential customers, their standards are different. These implications can lead to the Utility having to trim in locations where residential contractors would have been able to trim, therefore leading to increased costs for the utility.

3. Funding the VMP Program

The DE 19-064 Settlement Agreement provided for \$2,200,000 to be included in base rates, with a cap of up to an additional ten percent, for a potential total annual spend of \$2,420,000.

Up until 2020, the Company also received payment from Consolidated Communications for their portion of the VMP costs. The average Company spend on VMP from 2010 through 2019, when Consolidated reimbursements were included in the VMP filings, was approximately \$1,800,000, plus an average annual revenue from Consolidated Communications of approximately \$369,150, or 21%. In 2019, the Company was notified by Consolidated Communications that they would no longer pay their portion of the VMP Program due to language within the existing contract between the Company and Consolidated Communications dating back to the early 1980s when both telecommunications and utilities were regulated. A provision embedded within the contract provided for either company to cancel payment with notice provided. During the last rate case



CY2023 Vegetation Management Program (VMP) Plan

proceeding, (Docket No. DE 19-064), the Company included the revenue from Consolidated Communications within the calculations for required VMP funding. Therefore, without this incremental revenue provided by Consolidated Communications, the Company was left deficient in sufficient funding required to fully exercise the proposed VMP.

As described above, the DE 19-064 agreed-upon funding of \$2,200,000 plus an up to ten percent overage (\$2,420,000 total) does not fully fund the Liberty required four-year trim cycle nor its ability to meet Puc 307.10. The funding level agreed to within DE 19-064 including the Consolidated Communication revenue, which at the time the Agreement was negotiated, was sufficient. Given the circumstances that occurred beyond the ruling of DE 19-064, the Company has been unable to meet the current four-year trim cycle and Puc 307.10 clearances. Table 1 provides an overview of total costs and costs per mile since 2017.

Table 1 – Overall Costs 2017 – 2021

Overall Costs			
Year	Planned Cycle		Cost
	Trimming Cost ¹	Miles	Per Mile
2017	\$1,734,375	220.17	\$7,877
2018	\$1,853,064	219.54	\$8,441
2019	\$1,871,335	222.44	\$8,413
2020	\$2,252,131	194.13	\$11,601
2021	\$1,651,358	83.94	\$19,673

¹ Spot tree trimming, trouble & restoration maintenance, planned cycle trimming, police detail, hazard tree removal, interim trimming, sub transmission

A. Incremental Cost Drivers

When considering the above incremental cost factors, a cyclical cause-and-effect impact is occurring. The backlog miles and ANSI trimming requirements and fewer tree removals are leading to more “trim triage” where the Company is having to spend incremental dollars allocated to cycle trimming on “hot spots” to triage the current electrical distribution system. As the Company continues to have funding at current levels, this cyclical impact of “trim triage” will continue and have a much larger and more significant O&M impact on the Company.

B. Traffic Control

The field requirement for traffic control depends on the traffic visibility, volume, and speed of the work area. There are varying levels of control needs. The cost of traffic



CY2023 Vegetation Management Program (VMP) Plan

control is directly related to how many tree crews are performing various planned and unplanned maintenance activities and in which municipalities those crews are working. Liberty’s Salem district towns, comprised of Salem, Pelham, Windham, and Derry, continue to require police details and at times require multiple units. Depending on what circuits are trimmed each year will dictate the traffic control costs. Table 2 provides an overview of traffic control costs incurred since 2017.

Table 2 – Summary of Traffic Control Costs

Year	Traffic Control		Cost Per Mile
	Total Costs	Miles	
2017	\$330,698	220.17	\$1,502
2018	\$402,083	219.54	\$1,831
2019	\$323,140	222.44	\$1,453
2020	\$267,960	194.13	\$1,380
2021	\$97,436	83.94	\$1,161

4. State of Liberty Utilities Vegetation Management Contractors

During the 2022 VMP proceeding, the Company stated that it would trim 153 miles for a cost of \$3,069,639. The Company also stated that its current contractor, Asplundh, was assessing the addition of a “mechanized” tree trimmer. The benefit of a mechanized tree trimmer was to address the workforce shortage plaguing the Vegetation Management industry. It functions as a workforce multiplier.

In the second quarter of 2022, the Company, in collaboration with Asplundh, was able to secure the mechanized tree trimmer along with a full-time permanent tree crew within its Salem territory in the third quarter. The Company is now fully staffed with full-time Vegetation Management tree crews in its operating areas (Salem, Lebanon/Charlestown). It is projected in 2023 that with full-time staffing and the mechanized trimmer, Liberty is on track to trim approximately 165 miles, which will get the Company close to a five-year trim cycle.

5. Deferred work

Based on the information provided above regarding the makeup of crews and revenue shortfall, the Company currently has 214 miles that are deferred. While the Company will trim 165 miles in 2023, this will not have an impact on the current backlog. It will however slow the growth of the



CY2023 Vegetation Management Program (VMP) Plan

backlog of a four-year cycle. The deferred pruning work, in addition to owner-restricted pruning sites and deferred removals, will adversely affect our reliability and expenses of unplanned work.

6. CY2023 Plan

The O&M costs for VMP activities for 2023 are shown in Appendix I. As stated above, the costs include accommodations for the loss of monetary contribution from Consolidated Communications, the increased costs of the workforce, and the current costs related to vegetation management work to perform the work and meet a five-year cycle. The Company is committed to spending a total of \$2,419,709. This will allow the Company to complete 165 miles of trimming in 2023.

The cost offset to trim 165 miles in 2023 is a reduction in spending for tree removals and work planning. It costs approximately \$2,070 per mile to remove identified hazard trees on the circuits being trimmed. If the 165 miles of trimming included tree removals, the total tree removal cost would be \$341,736. To trim all of the 12L1 circuit in the Charlestown area, the Company will not be removing trees during the trimming process and has budgeted \$50,000 for limb removals during cycle pruning and whole tree removals in need of immediate attention due to safety. Liberty has also reduced its work planners from three to two to allow for more dollars to be allocated to trimming circuit miles.

Table 3 provides a summary of VMP costs for 2023. The table breaks down four scenarios, (A) trimming at the DE 19-064 approved amount, (B) five-year cycle, (C) four-year cycle, and (D) four-year cycle plus catch up of previous years.

Table 3 – Summary of VMP 2023 Costs

	Summary of VMP Costs			
	(A)	(B)	(C)	(D)
	CY 2023	CY 2023	CY 2023	CY 2023 Trim Plus
	5+ Yr Cycle	5 Yr Cycle	4 Yr Cycle	Deferred Miles
Deferred Miles	0	0	0	214
2023 Miles	<u>165</u>	<u>194</u>	<u>214</u>	<u>194</u>
Total Miles	165	194	214	408
Total Cost	\$2,419,709	\$3,086,423	\$3,305,853	\$6,023,957

The approximate cost per mile is \$14,657 for 2023 as shown in Appendix I line 26.

The Company has also included the following items in Appendix I:



CY2023 Vegetation Management Program (VMP) Plan

- Spot tree trimming/removals: \$46,500, single trees found that may need removal or trimming outside of planned cycle work.
- Herbicide treatment: \$69,210, most of the supply lines have been mowed so the Company is treating these sub-transmission areas with herbicide for efficient maintenance of the corridor; this was deferred from 2022.
- The company has entered a Pilot program with Ai-Dash to investigate the value of satellite imagery and artificial intelligence to assist in identifying the condition of the system as it related to vegetation and consider Condition Based Management viability. Liberty intends to review the findings and compare them to field findings and look to implement some of the priority work recommendations as samples to identify potential alternate work efficiencies. The total cost is \$42,000.

7. Conclusion

A. 2022 Successes

While a myriad of different challenges have created implications for the Company's VMP, the Company was able to adjust the program to allow for a local Salem crew to be on property full-time to address the required trimming miles in the Salem area. In collaboration with Asplundh, the Company was able to secure and approve the use and dedication of mechanized equipment, mechanical mower, and pruner (Jarraff) to function as workforce multipliers. This will stabilize resources and costs moving forward. The Company was also able to secure two incremental contracted resources in 2022, Enviro Arbor Solutions Tree Service and Wright Tree Service, to accomplish approximately 60 miles of vegetation in the Salem district.

B. 2023 Plan

Liberty believes that implementation of the vegetation management programs described herein, particularly including funding at the level exceeding the O&M budget, is necessary to ensure that Liberty remains on its current path targeted to maintaining and continually improving reliability performance, performing industry best practices and comply with Puc 307.10 and ANSI Z133-2017. These programs have contributed to actual performance improvements seen in recent years, and Liberty is committed to sustaining that improvement. Liberty intends to engage the Department of Energy to discuss the 2023 Plan as presented.



THIS PAGE LEFT BLANK INTENTIONALLY



Appendix 1 – O&M Expenses

Line	(A)	(B)	(C)	(D)
	CY 2023 5 Yr Cycle	CY 2023 5 Yr Cycle	CY 2023 4 Yr Cycle	CY 2023 Trm Plus Deferred Mes
1 Deferred Mes Catch Up				214.00
2 Planned Mes	165.09	194.38	213.79	194.00
3 Total	165.09	194.38	213.79	408.00
4 <u>VMP Costs</u>				
5 Work Planners for Veg Plan	\$220,000	\$330,000	\$330,000	\$660,000
6 Spot Tree Trimming	\$46,500	\$61,500	\$61,500	\$61,500
7 Trouble and Restoration Maintenance	\$46,500	\$46,500	\$46,500	\$46,500
8 Planned Cycle Trimming	\$1,435,663	\$1,535,750	\$1,661,779	\$1,610,335
9 Police Detail Expenses Cycle Trimming & Other	\$324,836	\$414,096	\$434,774	\$746,345
10 Hazard Tree Removal	\$50,000	\$402,367	\$442,545	\$844,477
11 Interim Trimming	\$46,500	\$46,500	\$46,500	\$46,500
12 Tree Planting	\$20,000	\$20,000	\$20,000	\$20,000
13 Herbicide in ROW	\$69,210	\$69,210	\$69,210	\$69,210
14 Post-nator Education/ Abatement	\$5,000	\$5,000	\$5,000	\$5,000
15 Monarch Butterfly Conservation	\$20,000	\$20,000	\$20,000	\$20,000
16 A-Dash	\$42,000	\$42,000	\$42,000	\$42,000
17 Meters/ Permits	\$3,500	\$3,500	\$3,500	\$3,500
18 Permits	\$25,000	\$25,000	\$25,000	\$25,000
19 Terra Spectrum	\$25,000	\$25,000	\$25,000	\$25,000
20 Training	\$20,000	\$20,000	\$20,000	\$20,000
21 Sub-Transmission Right of Way Clearing	\$0	\$0	\$31,545	\$96,811
22 Make Safe Removals	\$20,000	\$20,000	\$20,000	\$20,000
23 Total VMP O&M Expenses	\$2,419,709	\$3,086,423	\$3,304,853	\$4,362,178
24 Total Allowed Recovery per DE 19-064 Settlement	\$2,420,000	\$2,420,000	\$2,420,000	\$2,420,000
25 Difference	\$291	\$666,423	\$884,853	\$1,942,178
26 Cost Per Mile	\$14,657	\$15,878	\$15,458	\$10,692

Appendix 2 - O&M Expenses
CY 2022 Vegetation Management Activities

	<u>(A)</u>		<u>(B)</u>		<u>(C)</u>		<u>(D)</u>	
Line	<u>Circuit</u>	<u>Miles</u>	<u>Circuit</u>	<u>Miles</u>	<u>Circuit</u>	<u>Miles</u>	<u>Circuit</u>	<u>Miles</u>
1								
2	19L8	11.28	12L1	124.82	1L1	13.35	12L1	124.82
3	19L6	10.24	14L3	33.60	6L3	26.79	1L3	8.07
4	13L2	18.75	19L6	11.28	13L2	23.75	11L2	5.41
5	12L1	124.82	19L8	10.24	14L3	33.60	6L4	0.96
6	Tota	<u>165.09</u>	6L4	0.96	14L4	16.49	7L2	33.39
7			11L2	5.41	15 1	11.41	13L2	23.75
8			1L3	8.07	16L1	41.74	14L3	33.60
9			Tota	<u>194.38</u>	16L3	9.24	19L8	11.28
10					16L5	9.29	19L6	10.24
11					18L2	10.91	1L1	13.35
12					18L3	5.95	6L3	26.79
13					39L1	1.87	14L4	16.49
14					40L1	9.40	15 1	11.41
15					Tota	<u>213.79</u>	16L1	41.74
16							16L3	9.24
17							16L5	9.29
18							18L2	10.91
19							18L3	5.95
20							39L1	1.87
21							40L1	9.40
22							Tota	<u>407.96</u>

Granite State Electric Company

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 the Company's next distribution rate case, the Company 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, the Company will provide its REP and VMP plan (the "Plan") to Staff for the following calendar year for Staff's review. The Company 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, the Company 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 the Company 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"). The Company may also provide for consideration an alternative Plan with O&M budgets that exceed the O&M Base Amount for the calendar year. The Company 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, the Company shall track all O&M expenses incurred in implementing the components of the REP and VMP Plan. By March 15 of each year, the Company will make a reconciliation filing with the Commission. To the extent that the Company, 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 the Company 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. The Company shall track all capital investments made in accordance with the REP for each calendar year. At the same time that the Company 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 the Company's current Commission approved capital structure and debt and equity. Provided that the investments were made in accordance with the REP, the Company 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 the Company makes its reconciliation and rate adjustment filing (by March 15 of each year), the Company 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, the Company would include an explanation of any deviations in the report. For cost recovery purposes, the Company 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, the Company will report its SAIDI and SAIFI results for the prior calendar year.
- b. The Company 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 the Company'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).

Definitions

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 where practical. 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: (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 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: 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: (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:

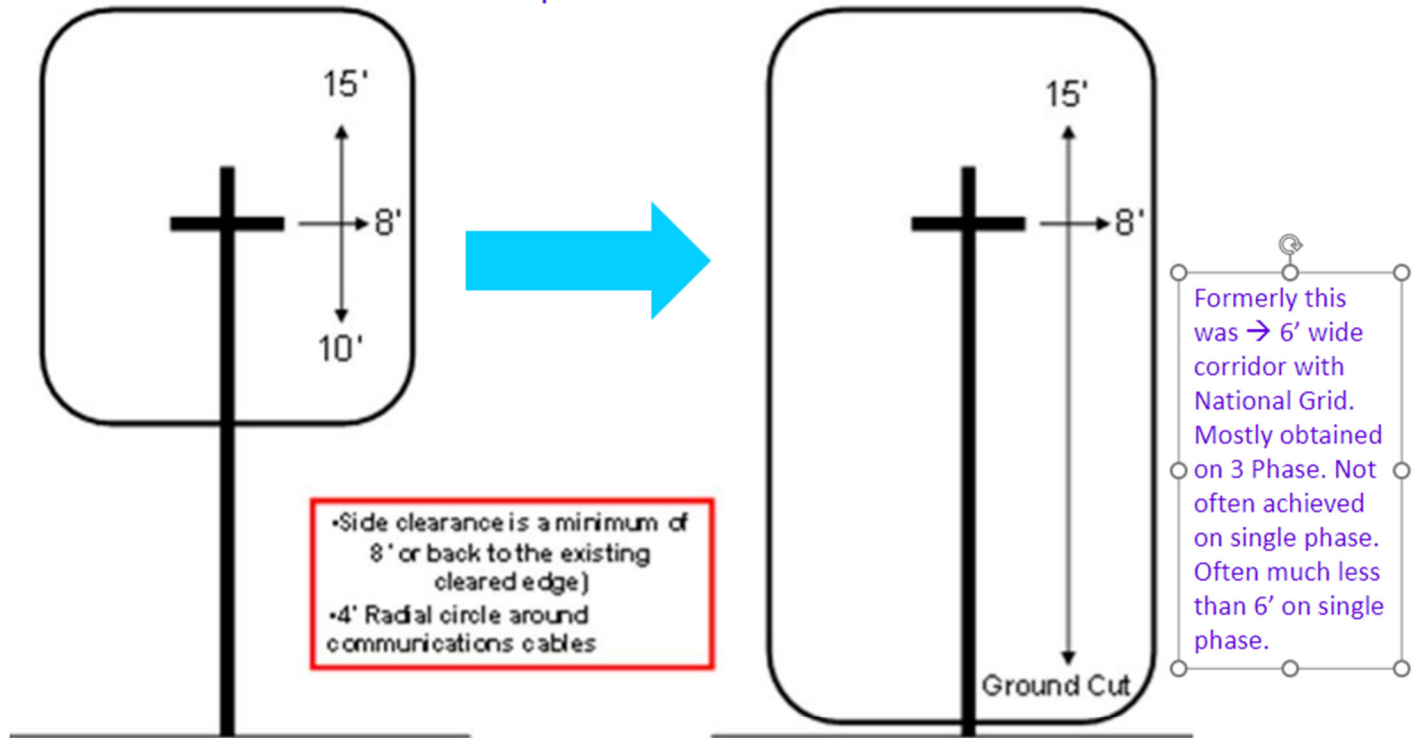
This captures all charges for activities related to cutting, clearing, herbicide application and danger tree removal on substation supply lines up to 46 kV.

Other Police Detail Expenses:

This captures charges for all O&M police detail expenses not associated with Planned Cycle Trim.

PUC RULES

2014 307.10 PUC minimum Requirement



Ground Cut is Best Practice/Minimize Future Work



Vegetation Management	Escalator		Bridge Period		Rate Year 1				Rate Year 2				Rate Year 3				Rate Year 4					
	5 Yr		Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024	Q3 2024	Q4 2024	Q1 2025	Q2 2025	Q3 2025	Q4 2025	Q1 2026	Q2 2026	Q3 2026	Q4 2026	Q1 2027	Q2 2027	Q3 2027	Q4 2027
# Miles	165.09	175.00		41.27	41.27	43.75	43.75	43.75	43.75	43.75	43.75	43.75	43.75	43.75	43.75	43.75	43.75	43.75	43.75	43.75	43.75	43.75
Work Planners for Veg Plan	\$220,000	\$375,000	5%	\$55,000	\$55,000	\$93,750	\$93,750	\$98,438	\$98,438	\$98,438	\$98,438	\$103,359	\$103,359	\$103,359	\$108,527	\$108,527	\$108,527	\$108,527	\$108,527	\$108,527	\$108,527	\$108,527
Spot Tree Trimming	\$46,500	\$60,610	5%	\$11,625	\$11,625	\$15,152	\$15,152	\$15,910	\$15,910	\$15,910	\$15,910	\$16,706	\$16,706	\$16,706	\$17,541	\$17,541	\$17,541	\$17,541	\$17,541	\$17,541	\$17,541	\$17,541
Trouble and Restoration Maintenance	\$46,500	\$60,610	5%	\$11,625	\$11,625	\$15,152	\$15,152	\$15,910	\$15,910	\$15,910	\$15,910	\$16,706	\$16,706	\$16,706	\$17,541	\$17,541	\$17,541	\$17,541	\$17,541	\$17,541	\$17,541	\$17,541
Interim Trimming	\$46,500	\$60,610	5%	\$11,625	\$11,625	\$15,152	\$15,152	\$15,910	\$15,910	\$15,910	\$15,910	\$16,706	\$16,706	\$16,706	\$17,541	\$17,541	\$17,541	\$17,541	\$17,541	\$17,541	\$17,541	\$17,541
Planned Cycle Trimming	\$1,435,663	\$1,418,025	10%	\$358,916	\$358,916	\$354,506	\$354,506	\$389,957	\$389,957	\$389,957	\$389,957	\$428,953	\$428,953	\$428,953	\$471,848	\$471,848	\$471,848	\$471,848	\$471,848	\$471,848	\$471,848	\$471,848
Police Detail Expenses - Cycle Trimming & Other	\$324,836	\$607,099	5%	\$81,209	\$81,209	\$151,775	\$151,775	\$159,363	\$159,363	\$159,363	\$159,363	\$167,332	\$167,332	\$167,332	\$175,698	\$175,698	\$175,698	\$175,698	\$175,698	\$175,698	\$175,698	\$175,698
Hazard Tree Removal	\$50,000	\$437,500	5%	\$12,500	\$12,500	\$109,375	\$109,375	\$114,844	\$114,844	\$114,844	\$114,844	\$120,586	\$120,586	\$120,586	\$126,615	\$126,615	\$126,615	\$126,615	\$126,615	\$126,615	\$126,615	\$126,615
Hazard Tree Removal - Catch up	\$0	\$437,500	5%	\$0	\$0	\$109,375	\$109,375	\$114,844	\$114,844	\$114,844	\$114,844	\$120,586	\$120,586	\$120,586	\$126,615	\$126,615	\$126,615	\$126,615	\$126,615	\$126,615	\$126,615	\$126,615
Brush & Limb Lead Removal	\$0	\$135,200	5%	\$0	\$0	\$33,800	\$33,800	\$35,490	\$35,490	\$35,490	\$35,490	\$37,265	\$37,265	\$37,265	\$39,128	\$39,128	\$39,128	\$39,128	\$39,128	\$39,128	\$39,128	\$39,128
Tree Planting	\$20,000	\$20,000	5%	\$5,000	\$5,000	\$5,000	\$5,000	\$5,250	\$5,250	\$5,250	\$5,250	\$5,513	\$5,513	\$5,513	\$5,788	\$5,788	\$5,788	\$5,788	\$5,788	\$5,788	\$5,788	\$5,788
IVM/ Herbicide in ROW	\$69,210	\$69,210	Specific	\$17,303	\$17,303	\$17,303	\$17,303	\$15,000	\$15,000	\$15,000	\$15,000	\$1,250	\$1,250	\$1,250	\$1,250	\$1,250	\$1,250	\$1,250	\$1,250	\$1,250	\$1,250	\$1,250
Pollinator Education/Habitat	\$5,000	\$5,000	5%	\$1,250	\$1,250	\$1,250	\$1,250	\$1,313	\$1,313	\$1,313	\$1,313	\$1,378	\$1,378	\$1,378	\$1,447	\$1,447	\$1,447	\$1,447	\$1,447	\$1,447	\$1,447	\$1,447
Monarch Butterfly Conservation	\$20,000	\$20,000	5%	\$5,000	\$5,000	\$5,000	\$5,000	\$5,250	\$5,250	\$5,250	\$5,250	\$5,513	\$5,513	\$5,513	\$5,788	\$5,788	\$5,788	\$5,788	\$5,788	\$5,788	\$5,788	\$5,788
AI- Dash Software	\$42,000	\$42,000	5%	\$10,500	\$10,500	\$10,500	\$10,500	\$11,025	\$11,025	\$11,025	\$11,025	\$11,576	\$11,576	\$11,576	\$12,155	\$12,155	\$12,155	\$12,155	\$12,155	\$12,155	\$12,155	\$12,155
Mailers/ Permissions	\$3,500	\$5,000	5%	\$875	\$875	\$1,250	\$1,250	\$1,313	\$1,313	\$1,313	\$1,378	\$1,378	\$1,378	\$1,447	\$1,447	\$1,447	\$1,447	\$1,447	\$1,447	\$1,447	\$1,447	\$1,447
Permit Fees	\$25,000	\$25,000	5%	\$6,250	\$6,250	\$6,250	\$6,250	\$6,563	\$6,563	\$6,563	\$6,563	\$6,891	\$6,891	\$6,891	\$7,235	\$7,235	\$7,235	\$7,235	\$7,235	\$7,235	\$7,235	\$7,235
Terra Spectrum	\$25,000	\$25,000	5%	\$6,250	\$6,250	\$6,250	\$6,250	\$6,563	\$6,563	\$6,563	\$6,563	\$6,891	\$6,891	\$6,891	\$7,235	\$7,235	\$7,235	\$7,235	\$7,235	\$7,235	\$7,235	\$7,235
Training	\$20,000	\$20,000	5%	\$5,000	\$5,000	\$5,000	\$5,000	\$5,250	\$5,250	\$5,250	\$5,250	\$5,513	\$5,513	\$5,513	\$5,788	\$5,788	\$5,788	\$5,788	\$5,788	\$5,788	\$5,788	\$5,788
Sub-Transmission Right of Way Clearing	\$0	\$80,000	5%	\$0	\$0	\$20,000	\$20,000	\$21,000	\$21,000	\$21,000	\$21,000	\$22,050	\$22,050	\$22,050	\$23,153	\$23,153	\$23,153	\$23,153	\$23,153	\$23,153	\$23,153	\$23,153
Make Safe Removals	\$20,000	\$20,000	5%	\$5,000	\$5,000	\$5,000	\$5,000	\$5,250	\$5,250	\$5,250	\$5,250	\$5,513	\$5,513	\$5,513	\$5,788	\$5,788	\$5,788	\$5,788	\$5,788	\$5,788	\$5,788	\$5,788
Total VMP O&M Expenses	\$2,419,709	\$3,923,363		\$604,927	\$604,927	\$980,841	\$980,841	\$1,044,441	\$1,044,441	\$1,044,441	\$1,044,441	\$1,101,660	\$1,101,660	\$1,101,660	\$1,178,129	\$1,178,129	\$1,178,129	\$1,178,129	\$1,178,129	\$1,178,129	\$1,178,129	\$1,178,129

Calendar Year			CY23	\$3,171,536		CY24	\$4,177,762		CY25	\$4,406,642		CY26	\$4,712,514
			RY1	\$4,050,563		RY2	\$4,292,202		RY3	\$4,559,578			

Bridge period spending = 50% of allowed rates (\$2.2M) + 10% coverage = \$1.21M

Assumes a reset of trim cycles - no catch up of deferred miles

Assumes a 5 year trim cycle consistent with Puc 307.10

Assumes full reconciliation of vegetation management costs through the Revenue Adjustment Charge (RAC) - actuals compared to forecasted rate year

Definitions

Brush & Limb Lead Removal (Planned)

This captures all charges for removal of 4.5"-8.5" diameter* trees or limb leads 8.5" diameter or greater on the system typically performed with cycle work. However, may be performed off cycle as catchup.

DNH.VEGMGNT.VM.1220.5931

Cycle Administration: (Planned)

This captures the administration activities around the work planning process. Work planning 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 and are applied to the field conditions. Work is recorded in a software management system and assigned. The line clearance contractor executes the prescribed work. The work planning process concludes with a review of the work by auditing.

DNH.VEGMGNT.VM.1000

Cycle Trim: (Planned)

This captures charges for annual fiscal year of obtaining permissions and execution of planned cycle pruning, brush cutting, clearing and vine removals activities but does not include police detail expenses, removals 5" in diameter or greater or work planning.

DNH.VEGMGNT.VM.1215

Enhanced Risk Tree Removal (ERTM): (Planned)

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.

DNH.VEGMGNT.VM.1220.5933

Fall-In Risk Tree Removals (Planned)

This captures all charges for removal of fall-in (mostly growing outside the corridor) risk related dead, dying and/or structurally weak trees, limbs and leads typically performed with cycle work. However, may be performed off cycle as catchup.

DNH.VEGMGNT.VM.1220.5933

Grow-In Risk Tree Removals (Planned)

This captures all charges for tree removals growing within the corridor typically performed with cycle work. However, may be performed off cycle as catchup. Typically, the diameter is 8.6" in diameter or greater. Removal of these trees helps establish the corridor to maintain in the future.

DNH.VEGMGNT.VM.1220.5932

Integrated Vegetation Management (IVM)

A system of managing plant communities in which compatible and incompatible vegetation are identified; action thresholds are determined; tolerance levels are established; and control methods are evaluated, selected and applied to achieve management goals and maintenance

objectives. IVM often integrates multiple methods to promote sustainable plant communities that are compatible with management goals

Interim Trimming: (Unplanned)

This captures all charges for customer contact, field review, assignment, execution, and follow up for 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.

DNH.VEGMGNT.VM.1235

Make Safe Work: (Unplanned)

This captures all charges for customer contact, field review, assignment, execution, and follow up for assistance to private tree work as required to allow a landowner to perform property maintenance while following industry safety requirements.

DNH.VEGMGNT.VM.1010.5932

Permit Fees

This captures all charges for activities related to permitting, i.e., environmental permits, railroad permits, scenic roads, etc.

DNH.VEGMGNT.VM.1215.5932

Printed Material

This captures all charges for activities related to printed material to perform program needs: mailers, door hangers, tree removal forms, traffic control forms, etc.

DNH.VEGMGNT.VM.1215.5932

Program Assessment

A review and assessment of the vegetation maintenance program evaluating efficiency and effectiveness. Performed by a 3rd party contractor.

DNH.VEGMGNT.VM.1215.5932

VM Software

Vegetation Management software includes Ai-Dash and Terra Spectrum and others as needed. Ai-Dash and Terra Spectrum are 2 software tools utilized as work management system, evaluation tool, and reporting or projecting experiences or expectations.

DNH.VEGMGNT.VM.1215.5932

ROW IVM: Monarch Butterfly Conservation

This captures all charges for activities related to Monarch Butterfly Conservation to aid in effective and efficient IVM.

DNH.VEGMGNT.VM.1280

ROW IVM: Pollinator Education/Habitat

This captures all charges for activities related to incorporating promotion of pollinator habitat and cultural activities to aid in effective and efficient IVM.

DNH.VEGMGNT.VM.1280

ROW IVM: Sub-Transmission Clearing (Floor & Side & Removals):

This captures all charges for activities related to cutting, clearing, herbicide application and tree removal on off-road distribution and substation supply lines up to 115kV.

DNH.VEGMGNT.VM.1280

ROW IVM: Sub-Transmission Herbicide

This captures all charges for activities related to herbicide application on off-road distribution and substation supply lines up to 115kV.

DNH.VEGMGNT.VM.1280.5934

Spot Work: (Unplanned)

This captures all charges for customer contact, field review, assignment, execution, and follow up of corrective action required, if any, to mitigate vegetation management concerns requested or reported by a customer between cycle work. Can usually be scheduled over next several weeks to months for efficiencies.

DNH.VEGMGNT.VM.1010.5931

Traffic Control: (Planned & Unplanned)

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

DNH.VEGMGNT.VM.1218

Training

Scope of work, safety, software, process, or more training for program supervisors, administrators or crews as needed. Can be one on one or in group settings.

DNH.VEGMGNT.VM.1215.5932

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.

DNH.VEGMGNT.VM.1240

Trouble and Restoration Maintenance: (Unplanned)

This captures all charges for customer contact, field review, assignment, execution, and follow up 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. It typically requires immediate response. That is, cannot be schedule weeks or months later.

DNH.VEGMGNT.VM.1210

VM

Vegetation Management

*Diameter of trees is measured 4.5' from the ground.

THIS PAGE IS INTENTIONALLY LEFT BLANK