nationalgrid

Reliability Enhancement Plan (REP) and Vegetation Management Plan (VMP) for Fiscal Year 2010 (April 1, 2009 – March 31, 2010)

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Submitted to:
New Hampshire
Public Utilities Commission Staff

Submitted by:

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Introduction

Pursuant to the settlement agreement approved by the Commission as part of the National Grid/KeySpan merger proceeding in Docket DG 06-107 [1] ("Settlement Agreement"), Granite State Electric Company d/b/a National Grid ("National Grid" or "Company") is submitting its proposed Reliability Enhancement Plan ("REP") and Vegetation Management Plan ("VMP") for fiscal year 2010 (April 1, 2009-March 31, 2010). As set forth in Exhibit GSE-8 of the Settlement Agreement, the REP and VMP are being implemented by National Grid in order to bring the Company's reliability performance back to historical performance levels that existed prior to 2005,[2] with the goal of meeting those historical performance levels by the end of fiscal year 2013.[3] The extent to which the Company has incorporated the recommendations of the four system reliability studies provided to Staff in July 2008 into the fiscal year 2010 REP and VMP is discussed in Section 4 below.

Section 1: Base O&M Budget

The proposed operating and maintenance ("O&M") budgets for REP and VMP activities for fiscal year 2010 are shown below in Tables 1 and 2 respectively. For fiscal years 2009 through 2013, the base O&M budget for REP and VMP as set forth in the Settlement Agreement is $1,360,000. National Grid is proposing a base O&M budget of $1,360,000 for fiscal year 2010. Details about the proposed O&M activities are set forth in Appendix 1.

[1] See Order No. 24,777 (July 12, 2007).
[2] Historical performance level is defined as average SAIDI and SAIFI performance over the period 1996 to 2004 excluding storms that meet the IEEE criteria. The goal by the end of fiscal year 2013 is to achieve average SAIFI of 1.8 and average SAIDI of 126.
[3] See Exhibit GSE-8 of the Settlement Agreement at pp. 1.

Table 1. Proposed REP O&M Activities

Activities	FY 2010 Budgeted Expenses
Inspection and Maintenance	$20,000
O&M related to Capital Expenditures	$63,000
Total	**$83,000**

Table 2. Proposed VMP O&M Activities[4]

Activities	FY 2010 Budgeted Expenses
Spot Tree Trimming	$59,000
Trouble and Restoration Maintenance	$59,000
Planned Cycle Trimming	$693,000
Cycle Trimming Police Detail Expenses	$65,000
Hazard Tree Removal	$304,500
Interim Trimming	$82,000
Tree Planting	$500
Other Police Detail Expenses	$14,000
Total	**$1,277,000**

Section 2: Capital Investment Budget

National Grid has included a capital investment budget of $500,000 for fiscal year 2010 as part of this plan. Capital investment projects proposed for fiscal year 2010 as part of the REP are shown below in Table 3. Details about these projects are set forth in Appendix 2.

[4] Budget items included in Table 2 are based on work price estimates.

Table 3. Proposed REP Capital Investments

Projects	Goal	FY 2010 Budgeted Investments
Feeder Hardening	25 miles	$320,000
Reclosers	3 reclosers	$120,000
Asset Replacement		
- Cutouts: Installing new cutouts on side taps per engineering study and replacing potted porcelain cutouts	220 cutouts	$60,000
Total		**$500,000**

Section 3: Optional Enhanced O&M Budget

The Settlement Agreement provides that the Company may provide for Staff's consideration alternative plans with O&M budgets that exceed the base O&M budget[5]. The Company would like Staff to consider an enhanced O&M budget of $100,000 for vegetation management for fiscal year 2010. Excluding the impact of major storms, trees accounted for almost 50% of customer interruptions in New Hampshire in 2008. Furthermore, the Company believes that the December 2008 ice storm has augmented the number of hazard trees likely to hinder the reliability performance of network assets in the year ahead. With this in mind, the Company believes that allocating additional funds for the off-cycle removal of hazard trees will help to better achieve the goal to bring reliability performance back to historical levels that existed prior to 2005.

Under the base O&M budget, the Company is proposing to remove up to 760 hazard trees during fiscal year 2010. Spending an additional $100,000 will enable the Company to remove 280 more trees that are likely to hinder reliability performance so that, in total, the Company will

[5] See Exhibit GSE-8 of the Settlement Agreement at pp. 5.

remove approximately 1,040 hazard trees in fiscal year 2010. Appendix 1 includes a table showing the feeders targeted for additional off-cycle hazard tree removals.

With the additional $100,000 for hazard tree removal, the Company's total O&M budget for reliability enhancement in fiscal year 2010 will be $1,460,000. As discussed in Section 5 below, the proposed fiscal year 2010 O&M budget of $1,460,000 is $13,832 less than the optional enhanced O&M budget implemented in fiscal year 2009.

Section 4: System Reliability Studies

As set forth in the Settlement Agreement, the results of four system reliability studies were submitted to Staff in July of 2008. The degree to which the results of each study have been incorporated into the REP and VMP for fiscal year 2010 is discussed below:

Assessment of National Grid's Vegetation Management Program and Practices –

Over the past fiscal year, the Company has evaluated the recommendations from a third party assessment of the Company's Vegetation Management Program in New Hampshire. The Company has begun and will continue to incorporate these recommendations into the VMP for 2010.

1. Asset Strategy & Policy Forestry department ("AS&P Forestry") has developed a formal Vegetation Management strategy which was implemented in June of 2008.

2. AS&P Forestry will continue to develop a process flow between Construction Delivery Forestry and AS&P Forestry and a formal plan that addresses service level expectations, measurement and systems.

3. AS&P Forestry has proposed the addition of a full time equivalent ("FTE") to support Consultant's recommendation for Quality Control and Quality Assurance of services delivered by the Construction Delivery Forestry Group.

4. AS&P Forestry will continues to maintain a base trimming cycle by circuit and is currently exploring the Consultant's recommendation to use sampling methods to assess circuits. This function may also be supported by the proposed FTE.

5. AS&P Forestry has recently updated the line clearance pruning specifications implemented by the Construction Delivery Forestry group. The purpose of this update is to better define areas that would benefit from ground cutting to remove new growth that has the most potential to interfere with overhead lines. This is a preventative measure to avoid the cost of future pruning. AS&P Forestry is evaluating the use of a decision model to help determine whether to prune or remove an existing tree as a way to avoid higher future pruning costs.

6. AS&P Forestry has employed the research and development services of a specialist to refine its Enhanced Hazard Tree program. While the arboriculture industry has done much research about what causes hazard trees, building a document that uses this research to identify actionable levels of risk as it relates to utility vegetation management, is a unique industry leading practice. To date, the Company has completed a review of research required to write a document that classifies hazard trees. The Company has also started to develop a hazard tree training manual and field guide to be used as part of its hazard tree training and mandatory certification process for Construction Delivery Forestry in the upcoming fiscal year.

7. AS&P Forestry has initiated an industry cooperative branch failure analysis study to focus on mitigating the risk to reliability due to branch failures. This study consists of a research review, a qualitative assessment phase and field testing phase. The Company will evaluate the results of this study and incorporate the results into its vegetation management strategy and line clearance specification as deemed cost effective and appropriate.

Analysis of Fuses, Reclosers, and Distribution Circuit Reconfiguration –

This study identified locations where additional reclosers or fuses would help to enhance reliability. Two of the three reclosers included in the FY 2010 capital REP budget will be installed at locations recommended by this study. The third recloser identified in the REP budget (16L1) is recommended to address a coordination problem that prevents a set of heavily loaded three-phase fuses from being replaced with larger fuses. A recloser will be installed to replace these fuses. This problem became apparent after the above study was completed in 2008. The other enhancements recommended by this study – i.e., installation of new fuses, adjustment to fuse sizes and settings will be implemented over a three-year

period beginning in 2009. The 220 cutout replacements included in the REP for fiscal year 2010 were also identified by this reliability study.

Analysis of Transmission Outages – This study concluded that the six National Grid transmission circuits that provide service to retail customers in New Hampshire have been quite reliable over an eight-year period (1999 through 2006). No systemic trends or any component failures were found to be driving customer interruptions. Nonetheless, a number of long term transmission initiatives to improve the overall reliability of the system were mentioned. Several of these projects have been underway for several years. A long term project to rebuild the Comerford and Bellows Falls substations is also underway, with completion expected in 2011. None of these projects are included in REP for fiscal year 2010.

Analysis of Company-caused Human-related Outages – This study concluded that most human-related outages are due to acts by people outside the Company. The largest contributor is motor vehicle accidents. Nonetheless, the Company has taken several actions to reduce the potential for Company-caused human-related outages. These include enhanced switching procedures to minimize errors, improving the performance of Company contractors with "site safety" procedures, and incident analysis. Implementation of REP projects such as the addition of reclosers will also help to minimize the number of customers interrupted by human-related outages.

In addition to analyzing the results of the above reliability studies required to be undertaken as set forth in the Settlement Agreement, National Grid continues to study and evaluate existing programs.

- Feeder Hardening Program - this program addresses deteriorated equipment, lightning and animal related interruptions which are also major important hindrances to reliability performance. This program has been in place since fiscal year 2007. By the end of fiscal year 2009, the required work will be complete on four feeders and one partial feeder. Two complete feeders and one partial feeder have been recommended for fiscal year 2010 as part of the REP. A performance review of fiscal year 2007 indicated that this program was achieving 100% of the SAIFI improvement and 65% of the SAIDI improvement estimated.
- Recloser Program - the installation of line reclosers provides improved overall reliability to distribution feeders by containing interruptions to smaller portions of the distribution circuit when an event occurs physically beyond the line recloser. Furthermore, since many overhead disturbances causing reliability concerns are transient, the line recloser provides the event causing the disturbance the opportunity to clear and thereafter automatically recloses, thereby restoring power to customers who would otherwise be without power until a line crew arrived at the location causing the disturbance. There are more than 50 reclosers installed on the 35 distribution feeders in New Hampshire with at least an additional six units planned over the next three years.

Section 5: Rate Impacts

As set forth in the Settlement Agreement, beginning on May 15, 2008, and annually thereafter, the Company will make a filing with the Commission to show actual O&M and capital expenses incurred from implementing the REP and VMP for the prior year. Actual expenses incurred by the Company in implementing the O&M components of the annual REP

and VMP shall be reconciled to the base O&M amount of $1,360,000 and shall be subject to the REP/VMP Adjustment Provision set forth in the Settlement Agreement. In addition, the revenue requirement associated with capital expenses incurred as part of the REP will be included in a Capital Investment Allowance which is adjusted annually at the same time as the REP/VMP Adjustment Provision.

For fiscal year 2010 the Company is proposing to spend $500,000 on capital which has an associated revenue requirement of $77,405 in 2010. The Company is proposing a base O&M budget of $1,360,000 with an additional $100,000 in O&M spending to remove hazard trees for a total enhanced O&M budget of $1,460,000 for fiscal year 2010. Because Staff and the Company agreed to an enhanced O&M budget of $1,473,832 for fiscal year 2009, no additional upward adjustment to rates would be necessary to continue an enhanced O&M budget of $1,460,000 for fiscal year 2010.[6]

Conclusion

The Company believes that implementation of the REP and VMP programs described in this plan is necessary to enable the Company to restore reliability performance back to historical levels by the end of fiscal year 2013. We look forward to discussing this plan with Staff in the near future.

[6] Assuming Commission approval of the REP/VMP adjustment provision associated with incremental fiscal year 2009 O&M spending above the base amount, the net revenue requirement associated with continuing the optional enhanced O&M budget of $1,460,000 for fiscal year 2010 would be a decrease of $13,832 from the fiscal year 2009 budget.

Appendix 1

REP and VMP O&M Details

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: 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.

Fiscal Year 2010 VMP Details

Activities	FY 2010 Program Details
Spot Tree Trimming	As needed
Trouble and Restoration Maintenance	As needed
Planned Cycle Trimming	176.45 miles (see below)
Cycle Trimming Police Detail Expenses	As needed
Tree Hazard Removal	760 tree removals (estimated)
Interim Trimming	As needed
Optional Enhanced O&M budget for Hazard Tree Removal	280 tree removals (estimated)
Tree Planting	As needed
Subtransmission Right of Way Clearing	No subtransmission right-of-way work on FY2010 schedule
Other Police Detail Expenses	As needed

Fiscal Year 2010 Planned Cycle Trimming Details

Company	District	Substation Name	Feeder	Overhead Miles
41	Salem	Barron Ave. #10	10L1	11.51
41	Salem	Barron Ave. #10	10L4	15.37
41	Salem	Pelham # 14	14L3	29.06
41	Salem	Old Trolley #18	18L1	0.11
41	Salem	Old Trolley #18	18L4	13.25
41	Lebanon	Mt. Support # 16	16L1	42.52
41	Lebanon	Slayton Hill #39	39L1	14.14
41	Lebanon	Slayton Hill #39	39L2	15.93
41	Lebanon	Hanover # 6	6L3	34.30
41	Charlestown/Walpole	Charlestown # 8	8L2	0.26

Fiscal Year 2010 Optional Enhanced O&M Budget
Hazard Tree Removals

Company	District	Feeder	Substation Name	Overhead Miles
41	Lebanon	1L3	Lebanon	14.54
41	Lebanon	6L2	Hanover	4.01
41	Lebanon	39L2	Slayton Hill	30.22
41	Lebanon	16L2	Mount Support	4.58
41	Lebanon	15H1	Monroe	11.92
41	Salem	18L4	Olde Trolley	12.93

Fiscal Year 2010 Sub-Transmission Clearing Details
No action needed FY2010

Appendix 2

REP Capital Investment Program Descriptions

Feeder Hardening: This term is used by the Company to refer to a targeted program to improve performance of the Company's worst performing feeders through remediation measures. Remediation measures may include equipment upgrades, such as replacement of fuse cutouts, crossarms, poles, and transformers; installation of reclosers; lightning protection with bonding, grounding and lightning arrester installations; and installation of animal guards. The best feeders to "harden" are identified by reviewing cost/benefit and performance data. Feeders are inspected and design packages are created for the required construction.

Asset Replacement: Asset replacement components of REP generally target potted porcelain cutouts, oil fuse cutouts, distribution transformers, underground cable, and poles for replacement. In addition, it includes adding new line reclosers and reconductoring selected feeders with spacer cable.

- Cutout Replacement – replace all potted porcelain cutouts in New Hampshire over the next 5 years.
- Specific Reliability Projects – Engineers shall perform studies on the worst performing circuits and make recommendations for projects to improve reliability.
- Distribution Transformer Replacement – replace overloaded distribution transformers.
- Substation Asset Replacement – replace defective substation equipment based on condition or age.
- Specific Reliability Projects – Engineers shall perform studies on the worst performing circuits and make recommendations for projects to improve reliability.

Specific details regarding components of the fiscal year 2010 capital budget for REP are listed below.

Fiscal Year 2010 Feeder Hardening & Asset Replacement Details

Program/Feeder	Description
Cutout Replacement	Install new side tap fuses to minimize the number of customers affected by individual faults and replace potted porcelain cutouts. The Company expects a total of 220 cutouts to be installed/replaced in FY10 as part of the base capital budget.
Vilas Bridge 12L1	Recloser installation
Mt. Support 16L1	Recloser installation
Spicket River 13L2	Recloser installation
Barron Ave. 10L4	14 miles of feeder hardening
Salem Depot 9L3	11 miles of feeder hardening in FY10 (25 total feeder miles on 9L3, of which 14 miles were done in FY 09 project)