

# National Grid

Granite State Electric Company

Fiscal Year 2010 Reliability  
Enhancement Plan and Vegetation  
Management Plan Report and  
Reconciliation Filing

May 17, 2010

Submitted to:  
New Hampshire Public Utilities Commission

Submitted by:

**nationalgrid**

2010 REP/VMP  
Report

Attachment 1

Attachment 2

Panel Testimony

Testimony of  
David E. Tufts

National Grid

Granite State Electric Company

Fiscal Year 2010 Reliability  
Enhancement Plan and Vegetation  
Management Plan Report

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The logo for National Grid, featuring the word "national" in a blue sans-serif font and "grid" in a bold, blue sans-serif font.

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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 No. DG 06-107<sup>1</sup> (“Settlement Agreement”), Granite State Electric Company d/b/a National Grid (“National Grid” or “Company”) is submitting the results of the Reliability Enhancement Plan (“REP”) and Vegetation Management Plan (“VMP”) for fiscal year 2010 (April 1, 2009 - March 31, 2010). This report contains the following information:

1) A report on actual spending on operating and maintenance (“O&M”) activities and capital projects for fiscal year 2010, including an explanation of differences from the fiscal year 2010 budget reviewed by Staff;

2) A request for recovery of the incremental O&M expense of \$1,047,770 above the threshold amount of \$1,360,000, which represents an increase of \$933,868 above the amount of REP/VMP O&M currently reflected in rates, effective for usage on and after July 1, 2010;

3) A request for a REP Capital Investment Allowance of \$163,663, which is the revenue requirement associated with \$876,243 of capital investment for fiscal year 2010 to be included in rates effective for usage on and after July 1, 2010; and

4) A summary of reliability performance for calendar year 2009.

The Company is submitting the testimony of Catherine T. McDonough, Robert D. Sheridan and Sara M. Sankowich which provides further information regarding the Company’s actual O&M cost and capital investment made during fiscal year 2010. In addition, the testimony of David E. Tufts addresses the Company’s request for an increase in distribution rates associated with the REP/VMP Adjustment Provision and the REP Capital Investment Allowance

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<sup>1</sup> See Order No. 24,777 (July 12, 2007).

described above, and includes a proposed rate design, typical bill impacts and clean and revised tariff pages.

### **Section 1: Budget vs. Actual O&M Expenses**

As per the Settlement Agreement, the Company will provide an O&M budget to Staff that assumes the REP and VMP O&M spending for each fiscal year will be approximately equal to the Base Plan O&M of \$1,360,000 or an alternative O&M Budget that exceeds the O&M Base Amount for consideration by Staff.

In the wake of the December 2008 Ice Storm and following discussions with Staff, the Company set a vegetation budget of \$1,848,966 for fiscal year 2010, which was more than \$400,000 higher than the \$1,473,832 amount spent for vegetation management in fiscal year 2009. This budget gave the Company the ability to remove hazard trees and/or to perform hazard tree removal along seventeen feeders. Combined with the expenses associated with inspections and REP capital improvements, the Company submitted an alternative O&M budget for fiscal year 2010 of \$1,943,966, which was \$470,134 greater than the \$1,473,832 embedded in rates<sup>2</sup>. Staff expressed their support for this alternative budget, which was filed with the Commission on December 23, 2009 in DE 09-031.

As shown in Tables 1, 2a, and 2b, the Company actually spent \$2,407,770 for O&M activities related to the REP and VMP, or about \$460,000 above the alternative budgeted amount. This work was essential in order for the Company to reach its reliability goals since, as shown in Figure 1, trees account for about 40% of customer interruptions, and failed equipment and lightning (the key focus of its feeder hardening program) account for another 20%-to-30% of

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<sup>2</sup> The annual recovery of REP/VMP O&M currently in rates consists of \$1,360,000 in base rates plus \$113,832 currently being recovered through the REP/VMP Adjustment Factor that took effect August 1, 2009.

customer interruptions. Section 2 and 3 describes the budget variances in more detail.

Attachment 1 shows the monthly expenses and Attachment 2 contains the work plan of completed VMP O&M activities by feeder.

**Table 1. REP O&M Activities<sup>3</sup>**

<b>Activities</b>	<b>FY 2010 O&amp;M Cost Proposal</b>	<b>FY 2010 Actual O&amp;M Cost</b>
Inspection and Maintenance	\$20,000	\$6,429
O&M related to Capital Expenditures	\$75,000	\$194,171
<b>Total</b>	<b>\$95,000</b>	<b>\$201,084</b>

**Table 2a. VMP O&M Activities<sup>4</sup>**

<b>Activities</b>	<b>FY 2010 O&amp;M Cost Proposal</b>	<b>FY 2010 Actual O&amp;M Cost</b>
Spot Tree Trimming	\$42,795	\$37,483
Trouble and Restoration Maintenance	\$22,572	\$16,557
Planned Cycle Trimming	\$635,000	676,858
Cycle Trimming Police Detail Expenses	\$126,401	\$201,176
Hazard Tree Removal	\$850,000	\$1,103,543
Interim Trimming	\$6,048	\$1,047
Tree Planting	\$500	\$0
Other Police Detail Expenses	\$65,650	\$65,327
<b>Total</b>	<b>\$1,748,966</b>	<b>\$2,101,991</b>

**Table 2b. Optional Enhanced O&M Activities**

<b>Activities</b>	<b>FY 2010 REP O&amp;M Cost Proposal</b>	<b>FY 2010 Actual REP O&amp;M Cost</b>
Hazard Tree Removal	\$100,000	\$104,695
<b>Total</b>	<b>\$100,000</b>	<b>\$104,695</b>

<sup>3</sup> See December 23, 2009 letter in DE 09-031.

<sup>4</sup> Id.



cutouts. In fiscal year 2010, 64 miles of feeder hardening was completed on the Craft Hill 11L1, Salem Depot 9L3, Vilas Bridge 12L1 and Barron Avenue 10L4 feeders. Six (6) new line reclosers were installed to improve feeder sectionalization. A recloser was installed on Mount Support feeder 16L1, Hanover feeder 6L3, Spicket River feeder 13L2 and three reclosers were installed on Salem feeder 9L3. Potted porcelain cutouts are replaced as they are identified. Many are replaced as part of the feeder hardening program, however additional cutouts are targeted on feeders not expected to have feeder hardening completed on them. In fiscal year 2010, replacements outside of the feeder hardening program totaled 310 at various locations.

Driven by its desire to continue the momentum in improvements in its reliability performance and the availability of crews to complete additional reliability work in New Hampshire in fiscal year 2010, the Company chose to exceed its goals in the feeder hardening and cutout programs. This boosted capital outlays and the associated O&M expenditures for these programs.

Table 3 compares the budgeted capital expenditures against the value of electric plant additions placed in-service to the FERC 101/106 accounts. These fiscal year 2010 additions form the basis for the revenue requirement calculation in this filing. Factors contributing to the difference between the fiscal year 2010 budgeted amount and the fiscal year 2010 capital investment are (1) budgeted amounts from the prior fiscal year placed into service in fiscal year 2010, which can typically occur as capital work is performed, completed, and processed through the accounting system, and (2) the difficulty in estimating costs associated with particular projects until the site specific requirements are determined by inspection or detailed design. Variances for unit costs in the feeder hardening program arise due to the uncertainties in the volume of deficiencies that may be identified through the feeder inspections that require repair,

replacement or installation of new plant to address the deficiency. Variances in the recloser and cutout programs are driven by the construction issues that are specific to the site of installation. Examples include the need to replace a pole, cross arms or the relocation of a device to install a new recloser.

As set forth in Mr. Tufts’ testimony, the revenue requirement associated with fiscal year 2010 capital investment of \$876,243 is \$163,663.

The increase in O&M costs associated with the REP programs is driven by the increased mileage completed in the Feeder Hardening program. The Feeder Hardening program has an O&M ratio that is relatively high when compared to other capital projects.

**Table 3. Summary of 2010 REP Program**

<b>Projects</b>	<b>FY 2010 Goal</b>	<b>FY 2010 Actuals</b>	<b>FY 2010 Capital Investment Budget</b>	<b>FY 2010 Actual Capital Investment (FERC 101/106)</b>
Feeder Hardening (miles)	25	64	\$320,000	\$469,416
<b>Asset Replacement</b>				
- Reclosers	6	6	\$240,000	\$316,975
- Cutouts: Installing new cutouts on side taps and replacing potted porcelain cutouts	220	310	\$60,000	\$89,852
<b>Total</b>			<b>\$620,000</b>	<b>\$876,243</b>

**Section 3: Budget versus Actual Spending for Vegetation Management**

The Company completed all of the vegetation management work contained in this year’s plan. Overall, actual expenses incurred for base VMP O&M activities (\$2,407,770) were \$463,804 greater than the alternative budget (\$1,943,966). The Company spent less than anticipated for spot tree trimming, trouble and restoration calls, and interim trimming. These

activities are demand driven and the Company experienced less demand for these activities during fiscal year 2010 than expected. In contrast, cycle pruning, cycle pruning police detail expenses, and hazard tree removal exceeded the anticipated spending level. The positive variance for cycle pruning was caused by an unanticipated increase in mileage due to a reconfiguration of circuits that added extra miles to the work plan.

The increase in spending for hazard tree removal was due to a number of factors. First, more trees were removed per mile because of the improved risk analysis and specification training for arborists that the Company rolled out last summer. This training set specific risk tolerances and improved the training and ability of field arborists to identify risk which in turn resulted in more hazard trees being identified and removed. As a result of this training, crews are now removing larger full canopy ‘healthy looking’ trees that may have been passed previously. Such trees are now subjected to more rigorous biological and structural inspection methods and are, therefore, more likely to be removed as hazard trees despite their outward appearance.

Second, the cost of removing hazard trees as part of the circuit pruning program was also higher. Removals for both hazardous trees and incompatible species growing directly under the conductors were performed while maintenance pruning was being done. The number of removals was in excess of average conditions on the 39L 2 and 6L3 circuits, which increased the trees removed per mile on those circuits.

Finally, there was also an impact from the overall decline in tree health from recent storm events and reduced town and private tree care budgets. As customers and towns are less able to care for their own trees, the Company has seen a rise in unmaintained private trees in close proximity to conductors which it must address.

**Section 4: Calendar Year 2009 Reliability Results**

The REP and VMP activities appear to be bearing fruit. Table 4 shows the Company’s reliability performance metrics for 2009 based on both the regulatory and IEEE Standard 1366 method for excluding major weather events; Customers Interrupted, Customer Minutes Interrupted, system average interruption duration index (“SAIDI”), system average interruption frequency index (“SAIFI”), and customer average interruption duration index (“CAIDI”).

**Table 4. Calendar Year 2009 Reliability Results**

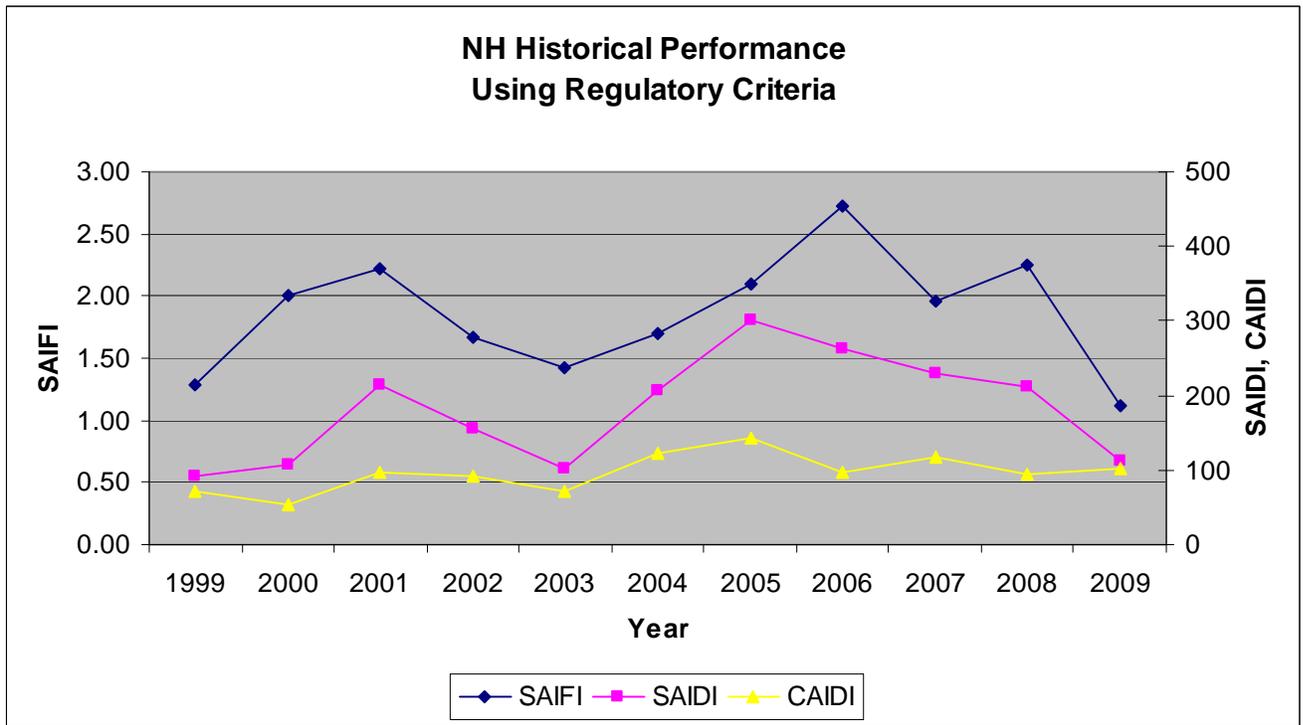
Exclusions <sup>5</sup>	Customers Interrupted CI	Customer Minutes Interrupted CMI	SAIFI	SAIDI	CAIDI
PUC Major Storm <sup>6</sup>	45,860	4,634,160	1.12	112.81	101.05
IEEE Major Event Days <sup>7</sup>	45,860	4,634,160	1.12	112.81	101.05

As shown in Figure 2, the improvement trend in reliability performance continues. The SAIFI metric improved remarkably in 2009 - down about 60% since the metric peaked in 2006. The improvement trend in reliability as measured by SAIDI, an even broader measure of reliability performance, is also compelling. In 2009, SAIDI was down for the fourth year in a row. Still, it is important to note that part of the improvement in reliability performance in 2009 was due to good weather. The Company will need to remain vigilant with its REP and VMP activities to sustain these improvements.

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<sup>5</sup> Only events involving 1 or more customers and more than 5 minutes are included in the calculated statistics.  
<sup>6</sup> PUC Major Storm: [(CI >= 15 % of Customers Served and 30 concurrent events) or (45 concurrent events)], Using PUC criteria, no days were excluded in 2009.  
<sup>7</sup> IEEE Major Event Days: Using IEEE criteria, no days were excluded in 2009

Figure 2. Historical Performance





Maintenance Activities Fiscal Year 2010 Actuals by Month

Activity Description	April	May	June	July	August	September	October	November	December	January	February	March	Grand total
Spot Tree Trimming	\$ 360.41	\$ 165.94	\$ 5,238.54	\$ 3,182.20	\$ 2,233.98	\$ 7,883.94	\$ 5,730.05	\$ 2,277.18	\$ 4,316.16	\$ 1,937.45	\$ -	\$ 4,157.58	\$ 37,483.43
Trouble & Restoration Maintenance		\$ 4,932.37		\$ 3,977.87	\$ 784.93	\$ 1,960.50	\$ 916.44	\$ 405.44	\$ 1,720.51		\$ 593.94	\$ 1,265.51	\$ 16,557.51
Planned Cycle Trimming	\$ (115,885.58)				\$ 137,533.35	\$ 131,459.86		\$ 132,055.69	\$ 70,268.62		\$ 183,063.46	\$ 138,363.07	\$ 676,858.47
Cycle Trimming Police Detail Expense	\$ (11,918.06)	\$ 11,888.00		\$ 1,136.00	\$ 30,220.00	\$ 9,121.00	\$ 35,954.39	\$ 25,544.50	\$ 9,992.00	\$ 23,636.50	\$ 34,017.00	\$ 31,584.50	\$ 201,175.83
Hazard Tree Removal	\$ (20,240.01)	\$ 1,404.56	\$ 32,482.56	\$ 179,298.25	\$ 224,514.65	\$ 239,274.36	\$ 134,221.26	\$ 159,211.57	\$ 62,545.91	\$ 72,404.71	\$ 84,651.52	\$ 38,468.80	\$ 1,208,238.14
Interim Trimming	\$ 420.00	\$ -	\$ -	\$ -	\$ 627.66	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,047.66
Tree Planting	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other Police Detail Expenses	\$ -	\$ -	\$ 2,046.15	\$ -	\$ -	\$ 30,918.80	\$ 16,714.20	\$ -	\$ 3,202.00	\$ 11,520.00	\$ -	\$ -	\$ 65,326.95
Total	\$ (147,263.24)	\$ 13,458.50	\$ 42,653.47	\$ 189,640.47	\$ 395,914.57	\$ 420,618.46	\$ 193,536.34	\$ 319,494.38	\$ 152,045.20	\$ 109,498.66	\$ 302,325.92	\$ 214,765.26	\$ 2,206,687.99



FY 10 Vegetation Management Program - Completed Workplan

Planned Circuit Trimming		CO_DIST_FDR	Substation Name	FY10 Planned Miles	FY10 Completed Miles	FY10 Hazard Trees Rmvd	Comments
Salem		41_42_10L1	Barron Ave. #10	11.51	5.08		Feeder reconfigured after work plan submitted
Salem		41_42_10L4	Barron Ave. #10	15.37	14.14	53	GIS variance
Salem		41_42_14L3	Pelham #14	29.06	36.24		GIS variance
Salem		41_42_18L1	Old Trolley #18	0.11	0.02		GIS variance
Salem		41_42_18L4	Old Trolley #18	13.25	12.96		GIS variance
Lebanon		41_41_16L1	Mt. Support #16	42.52	41.07	126	GIS variance
Lebanon		41_41_39L1	Slayton Hill #39	14.14	1.87		Feeder reconfigured after work plan submitted
Lebanon		41_41_39L2	Slayton Hill #39	15.93	29.88	87	Added miles from 39L1 reconfiguration
Lebanon		41_41_6L3	Hanover #6	34.30	34.94	185	
Charlestown/Walpole		41_43_8L2	Charlestown #8	0.26	0.01		GIS variance
<b>Totals FY10</b>				<b>176.45</b>	<b>176.21</b>	<b>451</b>	

Base Hazard Tree Removal		CO_DIST_FDR	Substation Name	FY10 Planned Miles	FY10 Completed Miles	FY10 Hazard Trees Rmvd	Comments
Salem		41_42_10L2	Barron Ave. #10			76	
Salem		41_42_18L2	Old Trolley #18			78	
Salem		41_42_9L3	Salem Depot #9			265	
Lebanon		41_41_11L1	Crafts Hill #11			93	
Lebanon		41_41_1L2	Lebanon #1			1	
Lebanon		41_41_1L4	Lebanon #1			29	
Lebanon		41_41_6L4	Hanover #6			28	
Lebanon		41_41_7L1	Enfield #7			178	
Lebanon		41_41_16L2	Mt. Support			160	Carry over from FY09
Charlestown/Walpole		41_43_12L1	Vilas Bridge #12			189	Carry over from FY09
<b>Totals FY10</b>						<b>1097</b>	

Optional Enhanced O&M Budget Off Cycle Hazard Tree Removal Feeders		CO_DIST_FDR	Substation Name	FY10 Planned Miles	FY10 Completed Miles	FY10 Hazard Trees Rmvd	Comments
Lebanon		41_41_1L3	Lebanon #1			70	Balance Deferred to FY11
Lebanon		41_41_6L2	Hanover #6			6	
Lebanon		41_41_39L2	Slayton Hill #39				See 39L2 above-moved to on cycle w/prune
Lebanon		41_41_15H1	Monroe #15				Completed FY09 147 Removals
Lebanon		41_41_7L2	Enfield #7			105	Carry Over from FY09
Salem		41_42_18L4	Old Trolley #18				Deferred to FY11
<b>Totals FY10</b>						<b>181</b>	

Grand Total FY10 Removals

1729

Sub-Transmission Clearing

Non scheduled in FY10 Work Plan