BEFORE THE
NEW YORK STATE
PUBLIC SERVICE COMMISSION

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Proceeding on Motion of the Commission as to the
Rates, Charges, Rules and Regulations of
New York State Electric & Gas Corporation
for Electric Service

Case 15-E- ____

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Proceeding on Motion of the Commission as to the
Rates, Charges, Rules and Regulations of
Rochester Gas and Electric Corporation
for Electric Service

Case 15-E- ____

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DIRECT TESTIMONY OF
VEGETATION MANAGEMENT PANEL

Weston J. Davis
Bill H. Ransom
Paul J. Appelt
J. M. Sparkman

May 20, 2015

DIRECT TESTIMONY OF VEGETATION MANAGEMENT PANEL

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DIRECT TESTIMONY OF VEGETATION MANAGEMENT PANEL

I. INTRODUCTION

Q. Please state the names of the members on the Vegetation Management Panel (the "Panel").

A. We are Weston J. Davis, Bill H. Ransom, Paul J. Appelt, and J.M. Sparkman.

Q. Mr. Davis, please state your title and business address.

A. I am the Program Manager of Vegetation Management. My business address is 83 Edison Drive Augusta, Maine 04330.

Q. Please summarize your educational background and work experience.

A. My Curriculum Vitae ("CV") is set forth in Exhibit __ (VMP-1).

Q. Have you previously testified in other proceedings before the New York State Public Service Commission ("PSC" or the "Commission") or any other state or federal regulatory agency or court?

A. Yes, I have testified before the Maine Public Utilities Commission in Docket No. 2013 - 00168.

Q. Mr. Ransom, please state your current position and business address.

A. I am the Director of Asset Management & Maintenance. My business address is 1300 Scottsville Road, Rochester, New York 14624.

Q. Please summarize your educational background and work experience.

A. My CV is set forth in Exhibit __ (VMP-1).

Q. Have you previously testified in other proceedings before the Commission or any other state or federal regulatory agency or court?

A. No, I have not.

DIRECT TESTIMONY OF VEGETATION MANAGEMENT PANEL

Q. Mr. Appelt, please state your title and business address.

A. I am the President of Environmental Consultants, Inc. ("ECI"). My business address is 520 Business Park Circle, Stoughton, Wisconsin 53589.

Q. Please summarize your educational background and work experience.

A. My CV is set forth in Exhibit __ (VMP-1).

Q. Have you previously testified in other proceedings before the Commission or any other state or federal regulatory agency or court?

A. I have provided testimony on the following two occasions: 1) Commonwealth of Massachusetts, Department of Public Utilities D.P.U. 11-01 on behalf of Fitchburg Gas and Electric Light Company d/b/a Unitil; and 2) New Hampshire Public Utilities Commission Docket No. DE 10-055 on behalf of Unitil Energy Systems, Inc. (written testimony only).

Q. Mr. Sparkman, please state your title and business address.

A. I am the Manager, Consulting Services for ECI. My business address is 520 Business Park Circle, Stoughton, Wisconsin 53589.

Q. Please summarize your educational background and work experience.

A. My CV is set forth in Exhibit __ (VMP-1).

Q. Have you previously testified in other proceedings before the Commission or any other state or federal regulatory agency or court?

A. Yes, I testified on behalf of Florida Power & Light Company in Case No. 2003-020101-CA-01 in Miami-Dade County.

Q. What is ECI?

A. ECI is an environmental, scientific, and vegetation management consulting firm

with its operations office located in Stoughton, Wisconsin. ECI's administrative office is located in Southampton, Pennsylvania and it has several other offices nationwide. ECI is a leading provider of vegetation management consulting services, with over forty years of consulting experience in the electric utility industry, having served companies throughout the United States, Canada, Australia, and the United Kingdom.

ECI provides quality solutions for all aspects of vegetation management, including program development, crew productivity measurement, environmental assessment, contract foresters, program management, training, expert testimony, and research. ECI has helped over 170 utilities develop new or improved distribution and transmission vegetation management programs. ECI's projections, studies and final reports have been successfully used in rate cases in several states. ECI not only develops effective strategies for vegetation management, but also actively manages line clearance work and helps utilities to implement industry best practices.

ECI avails itself of a professional, technical, and support staff, including a group of specialized scientists, engineers, and field technicians, to help clients solve complex environmental and operations problems through cost-effective management practices and state-of-the-art quality control methods.

ECI has a staff of approximately 300 professionals with expertise in vegetation management, forestry, biology, wildlife management, and related fields. Many of these employees are engaged in assisting utility clients in vegetation management program implementation, including work planning, risk

tree assessment, customer notification, customer inquiry response, and work acceptance processes.

ECI has authored in excess of 50 vegetation management related research papers. ECI prepared the Vegetation Management Manual for the National Rural Electric Cooperative Association, completed a companion manual on tree growth regulators, and prepared the Utility Specialist Certification Guide for the International Society of Arboriculture.

II. SUMMARY AND IDENTIFICATION OF EXHIBITS

Q. Is the Panel sponsoring any exhibits?

A. Yes. The Panel is sponsoring the following exhibits:

1) Exhibit __ (VMP-1) provides the CVs of the witnesses testifying on this Panel;
2) Exhibit __ (VMP-2) provides New York State Electric & Gas Corporation's ("NYSEG" or "Company") March 15, 2013 Petition and Report filed in Case 13-E-0117;
3) Exhibit __ (VMP-3) provides NYSEG's 2014 Vegetation Management Plan;
4) Exhibit __ (VMP-4) provides the 2015 Vegetation Management Cycle Alternative Analysis performed for NYSEG by ECI;
5) Exhibit __ (VMP-5) provides the 2015 Vegetation Management Cycle Alternative Analysis performed for Rochester Gas and Electric Corporation ("RG&E" or "Company" and together with NYSEG, the "Companies") by ECI;
6) Exhibit __ (VMP-6) provides Emerald Ash Borer Mitigation Estimates; and

7) Exhibit __ (VMP-7) provides an index of the Panel's workpapers. A copy of the workpapers will be provided to the New York State Department of Public Service Staff ("Staff").

Q. What is the overall purpose of the Panel's testimony?

A. The Panel discusses NYSEG's and RG&E's electric vegetation management proposals. The purpose of the Panel's testimony is to evaluate and recommend changes to the electric vegetation management practices at NYSEG and RG&E.

Q. Please provide a high level summary of the Panel's recommendations regarding NYSEG's electric distribution vegetation management practices.

A. The Panel recommends and provides support for moving NYSEG to a full-cycle distribution vegetation management program. Our testimony covers the steps taken by NYSEG as a result of the Commission's Order requesting that NYSEG address circumstances in its Brewster and Liberty Divisions where progress toward implementation of full-cycle vegetation management could serve as an interim step towards system-wide full-cycle distribution vegetation management. The lessons learned from these ongoing pilots were utilized to explore alternative cost-effective full-cycle options and their impacts on system tree contact and reliability.

Q. What were the results of the Panel's analysis?

A. The Panel analyzed four options. Results of the analysis and subsequent recommendations for full-cycle distribution vegetation management are presented in Exhibit __ (VMP-4). In summary, this Panel supports Option 1, which provides for a four-year cycle on 34.5 kV circuits with a supporting mid-cycle

program on the three-phase portions of the 34.5 kV circuits, a five-year cycle on 12.5-19.9 kV circuits, and a five-year cycle on circuits below 12.5 kV. Option 1 includes a full clearance specification and offers the greatest long-term reliability and cost savings. In addition, work on the three-phase portions of the 12.5-19.9 kV circuits drops to a four-year cycle in the second cycle.

Q. Under Option 1, would NYSEG incur the full cost estimated for the first year of the Reclamation Cycle during the Rate Year (i.e., the 12 months ending March 31, 2017)?

A. No. The first year of the Reclamation Cycle includes an 18 month phase-in to ramp up NYSEG's required labor resources in the most effective manner. In addition, the estimated $62.5 million is an average annual cost over the four-year reclamation period, which includes an inflation adjustment (based on the consumer price index) for each year.

Q. Why is NYSEG proposing this "ramp-up" period?

A. A planned, steady increase in required contract labor resources over time provides the most cost-effective approach to reaching full strength.

Q. What are the estimated annual expenditure requirements for Option 1?

A. Table 1 presents the estimated annual expenditure requirements for Option 1, assuming an implementation date of April 2016 and including adjustments for inflation.

Table 1: NYSEG Estimated Rate Year Annual Expenditure Requirements for Option 1
(dollars in millions; includes adjustments for inflation)

Apr. 2016 – Mar. 2017	Apr. 2017 – Mar. 2018	Apr. 2018 – Mar. 2019	Apr. 2019 – Mar. 2020	Apr. 2020 – Mar. 2021
$39.9	$67.0	$75.0	$68.1	$49.2

Q. Please provide a high level summary of the Panel's recommendations regarding RG&E's distribution vegetation management practices.

A. As established in RG&E's current rate plan, the Company's total annual distribution vegetation management spend is approximately $6.6 million to accommodate a five-year average cycle. RG&E completed the fourth year of its five-year average maintenance cycle at the end of 2014. RG&E has experienced cost increases that will increase the Company's spend in the next five-year average cycle. The cost increases are primarily based on more recent vendor bids, the cost of inflation, and higher tree densities on rear-lot 4.16 kV lines. These cost increases are needed to maintain the cycle program. As such, RG&E has re-calibrated its annual expenditure requirements for a five-year average cycle. See Exhibit __ (VMP-5). The requested Rate Year expenditure requirements, including inflation and assuming an April 2016 implementation date, are presented in Table 2.

Table 2: RG&E Estimated Rate Year Annual Expenditure Requirements for a Five-year Cycle
(dollars in millions; includes adjustments for inflation)

Apr. 2016 – Mar. 2017	Apr. 2017 – Mar. 2018	Apr. 2018 – Mar. 2019	Apr. 2019 – Mar. 2020	Apr. 2020 – Mar. 2021
$7.8	$7.9	$8.1	$8.2	$8.4

III. DISTRIBUTION VEGETATION MANAGEMENT

A. NYSEG

Q. Please discuss the evolution of NYSEG's distribution vegetation management practices and funding levels.

A. NYSEG's distribution vegetation management has historically included a three-year cycle for the three-phase portions of the 34.5 kV circuits, a five-year cycle for non-34.5 kV three-phase lines and 34.5 kV single-phase lines, and a priority-driven approach (indeterminable cycle) for the remaining non-34.5 kV single-phase lines. In the Company's last rate case, the Commission authorized NYSEG to make an incremental move toward a full-cycle program by increasing annual funding for vegetation management. For 2011, 2012, and 2013, NYSEG's rates included $16.67 million, $18.67 million, and $20 million, respectively, for its distribution system vegetation management program. As shown in the table below, over the past several years, NYSEG's actual distribution vegetation management expense has been in excess of the amounts included in rates.

Table 3: NYSEG Reported Annual Distribution Spend and Miles Completed for Years 2011 – 2015
(dollars in millions)

	2011	2012	2013	2014	2015 (Planned)
Dist. Spend	$23.8	$19.1	$22.0	$23.8	$24.3
Miles	2,949	2,782	2,990	3,113	TBD

Q. What are the current vegetation management practices at NYSEG?

A. NYSEG currently schedules whole circuit maintenance to include all line segments within each circuit. Circuits are prioritized utilizing a process that ranks

circuits based on past tree caused outages, customer density, and line clearance history. This method combines some of the basic concepts of a reliability-centered maintenance program in order to have the greatest impact on reliability with the limited funding available.

Q. What is full-cycle vegetation management?

A. Full-cycle vegetation management is a time-driven approach for determining the appropriate frequency with which vegetation on all overhead miles are maintained. Cycles are based upon three main factors: tree-to-conductor clearance achieved at the time of preventive maintenance; regrowth rates of the dominant tree species on the distribution system; and level of tolerance for incidental tree-conductor contact. These factors are used to establish the frequency of maintenance and the calculated resource requirements.

Q. What are the benefits of a full-cycle vegetation management plan?

A. The March 1, 2013 ECI Report (attached as Exhibit D to Exhibit __ (VMP-2)) ("ECI Report") discusses the benefits associated with NYSEG's implementation of full-cycle distribution vegetation management. As discussed in the ECI Report, "trees are a leading cause of service interruptions at NYSEG and at most utilities." See Exhibit __ (VMP-2), page 48 of 122. Vegetation management programs are "key strategic initiatives designed to manage risks through the efficient and cost effective maintenance of vegetation posing an immediate or potential threat to the electric delivery system." See Exhibit __ (VMP-2), page 37 of 122. Such risks include but are not limited to system reliability, infrastructure equipment and public safety. These risks are recognized in the

National Electric Safety Code and the Commission's tree trimming targets. The ECI Report also references several advantages of the Reclamation Cycle and long-term maintenance cycle, including the potential for: 1) reduction in storm restoration time and cost; 2) maintenance of acceptable reliability with potential for improvement in system reliability; 3) improvement in customer satisfaction; 4) improvement of public relations image; 5) improvement in safety to NYSEG workers, NYSEG contractor workers and the public; and 6) reduction in customer trim requests and associated cost.

Q. Is a full-cycle distribution vegetation management plan consistent with the Companies' Management Audit in Case 10-M-0551?

A. Yes. The Companies' Management Audit identified the benefits of full-cycle distribution vegetation management and Recommendation 11.7 states that NYSEG should move to a five-year distribution vegetation management cycle.

Q. Since the last rate case, has NYSEG sought to move toward a full-cycle vegetation management plan?

A. Yes. Consistent with Recommendation 11.7 in the Companies' Management Audit, on March 15, 2013, NYSEG filed a petition with the Commission requesting authorization to implement an initial full-cycle distribution vegetation management reclamation program and, thereafter, enter into a full-cycle long-term distribution vegetation management maintenance program as recommended by ECI (the "Vegetation Management Petition") (Case 13-E-0117). NYSEG also sought authorization to implement a temporary surcharge until the full cost of the distribution vegetation management program was embedded in a new rate plan.

Q. You mentioned that the Vegetation Management Petition was based on ECI's recommendation for NYSEG to move toward a full-cycle distribution vegetation management program. Specifically, what did ECI analyze for NYSEG?

A. NYSEG hired ECI to undertake a distribution system cycle optimization study, which resulted in the development of the ECI Report. See Exhibit D to Exhibit __ (VMP-2). As part of the ECI Report, ECI analyzed, among other items, trees per mile, tree species, and tree regrowth data in NYSEG's service territory. The percentage of tree workload adjacent to multi-phase lines, the percentage of trees in contact with conductors, the percentage of trees overhanging the conductors, the percentage of hazard trees with obvious defects and the top trims as a percentage of all trims are important considerations when determining optimal cycle lengths.

Q. Please discuss the results of this analysis.

A. Table 6 in the ECI Report (Exhibit __ (VMP-2), page 44 of 122) summarizes trees per mile for multi-phase lines, trees in contact, overhanging trees, hazard trees and top pruning workload by division. As shown in Table 6 of the ECI Report, there is an overall average of 86 trees per mile in the NYSEG system. This is slightly less than the average utility for which ECI has comparable data. However, tree density varies significantly from division to division within NYSEG's system and often varies within a division depending on circuit location. As reflected in Table 6 of the ECI Report, the average trees per mile by division ranges from 56 in Elmira and Plattsburgh to 162 in Brewster and 175 in Liberty.

Q. What else did ECI study?

A. ECI also studied the types of trees and associated growth in NYSEG's service territory. One of the primary considerations in determining the appropriate maintenance cycle for the NYSEG distribution system is the rate at which the trees grow after being pruned. ECI used regional tree regrowth data, species frequency, and the percentage of each species that require either top or side pruning to project average tree regrowth and the amount of line contact by varying maintenance cycles. The overall growth rates of top- and side-pruned trees in this study are shown in Figure 8 of the ECI Report. See Exhibit __ (VMP-2), page 52 of 122. Figure 9 of the ECI Report (Exhibit __ (VMP-2), page 53 of 122) presents the percentage of trees that can be expected to be in direct contact with conductors each year after pruning.

Q. Are there other factors that impact the total cost of pruning?

A. Yes. Tree clearance is also a major factor to the total cost of pruning. Trees in close proximity to the conductors require additional steps and safety measures for the tree crew, which can significantly impact productivity. Lower productivity equals higher costs. Table 8 of the ECI Report (Exhibit __ (VMP-2), page 47 of 122) indicates that 50% of the trees on the NYSEG system were within four feet of primary conductors at the time of the workload survey with the potential to make line contact within two growing seasons. With each passing year, the cost of maintaining these trees increases.

Q. What were the ECI Report's recommendations?

A. Based on its evaluation of the NYSEG system, ECI made recommendations to

move NYSEG toward an optimal vegetation management approach with full-cycle vegetation management on all distribution voltages. ECI also recommended long-term vegetation management strategies.

ECI specifically recommended that NYSEG implement an initial Reclamation Cycle in which full-cycle maintenance of the three-phase portions of 34.5 kV circuits will continue while NYSEG moves to full-circuit maintenance on all remaining circuits, including laterals. It was recommended that the Reclamation Cycle include an eighteen-month phase-in to ramp up NYSEG's workforce and contractors in the most effective manner. ECI also recommended that the Reclamation Cycle include a four-year cycle with selective mid-cycle maintenance for 34.5 kV, a five-year cycle for 12.5-19.9 kV, and a five-year cycle for less than 12.5 kV. Given that the Reclamation Cycle would include full-circuit pruning on laterals that have not been trimmed in a number of years, the cost per mile during this phase was estimated to be higher than the cost per mile for 34.5 kV circuits that have been trimmed on a regular cycle.

After the Reclamation Cycle, ECI recommended that NYSEG enter into a Long-Term Maintenance Cycle. As noted in the ECI Report, "the maintenance cost per mile will be reduced significantly in the second cycle and beyond as there will be lower workload, increased productivity due to trees no longer growing between the conductors, and fewer trees and brush requiring removal." See Exhibit __ (VMP-2), page 33 of 122.

Q. Please explain the Reclamation Cycle described in the ECI Report.

A. The Reclamation Cycle includes a four-year cycle on the 34.5 kV lines with a

targeted mid-cycle program for the three-phase portions, and a five-year cycle on all remaining voltages. All circuits are to be pruned to the full NYSEG clearance specifications. The Reclamation Cycle includes an 18-month ramp-up period. See Exhibit __ (VMP-2), page 87 of 122. The Panel notes, however, that reclamation costs and cash flows have been updated and recalculated as set forth in the NYSEG 2015 Vegetation Management Cycle Alternative Analysis provided as Exhibit __ (VMP-4). The Reclamation Cycle also addresses circuit prioritization and scheduling, personnel, work acceptance, auditing, customer relations, and tracking/record keeping.

Q. Please explain the Long-Term Maintenance Cycle described in the ECI Report.

A. The Long-Term Maintenance Cycle includes a four-year cycle on the 34.5 kV lines with a targeted mid-cycle program for the three-phase portions, a four-year cycle on three-phase with a five-year cycle on single-phase lines for voltages between 12.5 kV and 19.9 kV, and a five-year cycle on all voltages below 12.5 kV. All circuits are to be pruned to the full NYSEG clearance specifications. See Exhibit __ (VMP-4), Appendix A.

Q. What are the costs associated with the Reclamation Cycle and Long-Term Maintenance Cycle?

A. The annual and Rate Year costs associated with these cycles are contained in Appendix B of Exhibit __ (VMP-4). As stated therein, the total average annual cost (by Rate Year) for these programs would be $62.5 million for the Reclamation Cycle (years one through four) and $49.2 million for the first year of the second cycle.

Q. Did the Commission grant NYSEG's request in Case 13-E-0117?

A. No. On October 1, 2013, the Commission issued its Order Denying Petition and Establishing Further Procedures (the "Denial Order"). The Denial Order denied NYSEG cost recovery to implement a full-cycle distribution management program. While denying NYSEG cost recovery, the Commission stated "[n]othing prevents the utility from commencing movement towards full-cycle vegetation management now and throughout 2014." Therefore, the Commission directed NYSEG to file a plan detailing how NYSEG will move toward a full-cycle vegetation management program, with a particular focus on the Brewster Division.

Q. Did NYSEG file a Vegetation Management Plan as required by the Denial Order?

A. Yes, NYSEG filed its 2014 Vegetation Management Plan required by the Denial Order on December 2, 2013 in Case 13-E-0117. A copy of the plan can be accessed from the Commission's website and is provided as Exhibit __ (VMP-3).

Q. Please describe the 2014 Vegetation Management Plan.

A. The 2014 Vegetation Management Plan provided for the interim step of moving towards full-cycle vegetation management with a focus on both the Brewster and Liberty Divisions. NYSEG spent $23,765,898 for distribution vegetation management in 2014. This represents an 18.8% increase over the $20 million included in rates. The additional spend was used to accelerate the Brewster and Liberty Divisions toward a full-cycle program. At the end of 2014, 226 miles remained to be cleared in Brewster, which NYSEG plans to clear in 2015.

Q. Why did the 2014 Vegetation Management Plan focus on NYSEG's Brewster and Liberty Divisions?

A. Tree-caused System Average Interruption Frequency Index ("SAIFI") was higher in Brewster than NYSEG's other Divisions. Trees per mile within distribution rights-of-way in the Brewster Division were among the highest of all the Divisions. Further, tree maintenance issues in the Brewster Division had been a significant source of dissatisfaction among customers.

The Liberty Division's tree-caused interruption statistics per mile generally ranked second behind Brewster. The Liberty Division has the highest tree density of all Divisions at 175 trees per mile, even higher than the 162 trees per mile in the Brewster Division.

Q. How is NYSEG addressing the Brewster Division?

A. Between 2011 and 2014, 86% of Brewster Division miles have undergone full-circuit clearance. NYSEG plans to complete the remaining 226 miles by the end of 2015.

Q. How is NYSEG addressing the Liberty Division?

A. Approximately 53% of the distribution vegetation management miles in the Liberty Division remain to be reclaimed at the end of 2014. NYSEG's plan for 2015 is to accelerate the tree pruning and removal work in the Liberty Division on a pace to complete all remaining miles over the next three years.

Q. Please summarize the current progress of the Vegetation Management Program in Brewster and Liberty.

A. Table 4 summarizes the full circuit miles completed in Brewster and Liberty since 2011.

Table 4: Brewster and Liberty Division Full Circuit Miles Completed and Miles Remaining After 2014

Division	Total Miles	2011 Miles	2012 Miles	2013 Miles	2014 Miles	Remaining Miles after 2014
Brewster	1,634	330	302	505	271	226
Liberty	2,041	106	200	274	386	1,075

Q. Did the Denial Order address cost recovery of incremental costs associated with the Brewster and Liberty pilot projects?

A. No. The Commission did not provide any additional rate recovery for such movement to full-cycle vegetation management.

Q. What were the goals of the Brewster and Liberty pilot projects?

A. The primary goal of the pilot projects was to move the Company's Brewster and Liberty divisions more quickly to a full-cycle trim. Additionally, the pilot projects sought to identify the main cost drivers and cost per mile reduction opportunities that could be applied system-wide to provide cost-effective full-cycle distribution vegetation maintenance. With the assistance of ECI, several operational and process opportunities were identified. These included:

1) Completion of both backbone and lateral circuit miles as part of a full circuit maintenance strategy;
2) Prescriptive planning of specific work; and
3) Review/modification of current distribution clearance specifications.

Q. Has NYSEG analyzed areas where it could potentially reduce vegetation management costs?

A. Yes. NYSEG has examined the areas where it could reduce vegetation management costs and asked ECI to conduct field reviews in its Brewster Division. Based on ECI's field review of circuits and current contract pricing in the Brewster Division, several major cost contributors were identified. Some of these cost drivers are unique to conditions in the Brewster Division and provide little opportunity for improvement. Others were a function of various processes that could have a potential for improvement over time.

Q. Which cost drivers have limited opportunity for improvement in the Brewster Division?

A. Cost drivers with limited opportunity for improvement include:

1) The need for flagging crews on a majority of highways that increases total cost in the Brewster Division compared to other areas;
2) Higher than normal need for customer notification and follow-up on complaint issues; and
3) Contractor crew parking and chip disposal distance from work sites that result in crews driving excessive distances in many cases.

Q. Which cost drivers present opportunities for process improvements?

A. Cost drivers with opportunities for process improvements include:

1) The annual firm price contracting process identifies the lowest competitively bid price for each circuit but does not create a longer-term stable, local workforce. With the potential to create a more stable clearance program, the

Company can build into its bidding process the longer-term contacts that may help develop a more local skilled workforce and reduce contractor costs associated with travel, per diem payments, and overtime; and

2) A substantial portion of the cost is for tree and brush removal with different considerations for residential compared to wooded spans. The actual work that will be done becomes subject to judgment and cooperation of property owners and local officials. This creates uncertainty in the overall work scope and higher pricing than may be obtained if the work scope were less variable.

Q. Has NYSEG explored other opportunities to reduce its vegetation management costs?

A. Yes, including prescriptive planning of specific work, use of herbicides to help control long-term costs, and longer commitments to contractors.

Q. How did NYSEG attempt to reduce costs during the Brewster and Liberty pilot projects?

A. One potential cost driver that was examined was the opportunity to reduce cost through work planning. NYSEG explored a process to better define the total vegetation maintenance work scope on the selected circuits for these projects. Defining work scope can help reduce costs by minimizing non-essential pruning and removals that have a negligible impact on system reliability and safety. NYSEG used work planners to survey each circuit and identify the work to be performed. Subsequent vendor firm price bids were submitted based on these defined work plans. The result yielded higher prices due to the high cost of reclamation work and the heavy workload identified.

Q. Did NYSEG identify any other means to reduce cost?

A. Yes. NYSEG has found that work adjacent to single-phase conductors requires the largest expenditure to reclaim the existing rights-of-way. Therefore, reducing the required clearances may allow for additional cost reductions while still allowing for improvements to overall system reliability and safety. The primary changes, which applied only to single-phase line sections, included:

1) Reducing side clearance from 10 feet to 6 feet;
2) Limiting overhang removal from 15 feet to 5 feet; and
3) Limiting removal to cost-effective removals less than or equal to 12 inches DBH (diameter at breast height).

Vendors were asked to re-submit firm price bids based on this revised clearance specification. The cost per mile savings due to the reduction of clearance specification resulted in a 9% and 42% reduction over full specification bid estimates in the Brewster and Liberty Divisions, respectively, as shown in Table 5 below.

Table 5: Firm Price Bid Average Cost per Mile for the Pilot Projects Based on the NYSEG Modified Clearance Specification

	Brewster		**Liberty**	
	Avg. Cost/Mile	% Savings	Avg. Cost/Mile	% Savings
Work Planned @ Full Spec	$10,841		$13,767	
Modified Spec	$9,815	9%	$8,019	42%

Q. Does the Panel recommend any other practices to reduce cost?

A. Yes, the Panel recommends the use of herbicides as part of NYSEG's vegetation

management practices. This recommendation is consistent with the implementation of Recommendation 11.8 of the Companies' recent Management Audit in Case 10-M-0551.

Q. Do the Panel's projections reflect the cost impacts of the use of herbicides?

A. Yes. The cost impacts are further described below.

Q. Why does the Panel recommend the use of herbicides as a part of NYSEG's vegetation management practices?

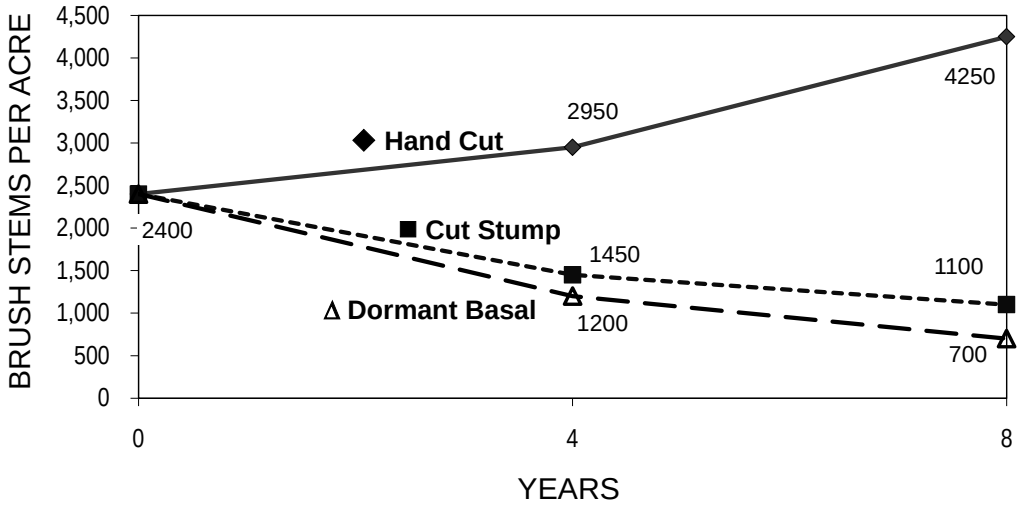
A. The benefits of applying herbicides as a component of a utility integrated vegetation management program are well documented in the utility industry and the use of herbicides as part of a vegetation management program is a recognized industry best practice. NYSEG's and RG&E's affiliate, Central Maine Power Company, for example, has used herbicides as a standard part of its distribution line clearance program for many years. Herbicides slow or control the vegetation growth process and are proven to reduce vegetation management costs and provide environmental and safety benefits.

Q. What are the cost savings associated with the use of herbicides?

A. Use of herbicides adds a small incremental cost to the reclamation period of the program while providing long term benefits by reducing work load in future cycles. The use of herbicides is essential if NYSEG is to maximize the benefits and moderate the long-term costs of its distribution tree and brush removal programs. Herbicide use should be an important component of any vegetation management strategy. The effectiveness of selective herbicide applications has been well documented through long-term studies on utility rights-of-way in the

central and northeastern United States. Results from treatment simulation models developed through these studies project that sites dominated by deciduous species would nearly double in stem density by the end of two cycles if simply cut without a follow-up herbicide application (see Figure 1 below). These same sites would be expected to exhibit about a 50% reduction in stem density over the same time period if treated with a selective herbicide application.

Figure 1: Effectiveness of Herbicides for Control of Brush Over Time.



Therefore, it is estimated that the cost to maintain the brush acreage (listed in Exhibit __ (VMP-4), Appendix A, Option 1 as $1,383,000) may increase to $2,075,000 in the second cycle and could go as high as $2,767,000 by the start of the third cycle, before accounting for inflation). This is in contrast to the estimated $791,000 total brush maintenance cost in the second cycle if herbicides are used.

Q. Does NYSEG plan to work with communities who may be sensitive to the use of herbicides?

A. Yes, as landowners and municipal officials are notified that planned vegetation management work includes the use of herbicides, they will have the opportunity to request that herbicides not be used on the identified locations.

Q. How has NYSEG applied lessons learned from its experience in Brewster and Liberty?

A. The lessons learned in 2014 in the Brewster and Liberty Divisions were used to reanalyze system cost projections to determine the feasibility of extending the full-cycle program to all remaining Divisions. Cost savings from the pilot program were used to project full-cycle expenditure requirements under varying cycle scenarios.

Q. Would the Panel please describe each of the four program scenarios?

A. Based on the experiences gained, NYSEG, with the support of ECI, initially identified four program scenarios. Detailed expenditure requirement breakouts, excluding inflation, developed for each scenario are listed in Appendix A of Exhibit __ (VMP- 4).

Q. Please describe the first of the four full-cycle vegetation management options ("Option 1") identified by ECI and recommended by the Panel.

A. Option 1 (the recommended approach) includes a four-year cycle on 34.5 kV circuits with a supporting four-year mid-cycle program on the three-phase portions of the 34.5 kV circuits, a five-year cycle on 12.5-19.9 kV circuits, and a five-year cycle on 12.5 kV and below circuits. This option includes full clearance

specification on all phases for both the first and second cycle. The three-phase portions of the 12.5-19.9 kV circuits drop to a four-year cycle in the second cycle. Average annual costs with inflation for the first cycle are estimated at $62.5 million (years one through four) reducing to $49.2 million in the first year of the second cycle.

Q. Please describe Option 2.

A. Option 2 includes a four-year cycle on 34.5 kV circuits with a supporting four-year mid-cycle program on the three-phase portions of the 34.5 kV circuits, a five-year cycle on 12.5-19.9 kV circuits, and a five-year cycle on 12.5 kV and below circuits. This option includes a reduced clearance specification on single-phase within the first cycle; however, it returns to full clearance specification in the second cycle. The work on the three-phase portions of the 12.5-19.9 kV circuits drops to a four-year cycle in the second cycle. The average annual costs, including inflation, for the first cycle are estimated at $57.5 million (years one through four) reducing to $54.8 million in the first year of the second cycle.

Q. Please describe Option 3.

A. Option 3 includes a five-year cycle on all circuit voltages with a supporting five-year mid-cycle program on the three-phase portions of the 34.5 kV circuits. This option includes a reduced clearance specification on single-phase within the first cycle; however, it returns to full clearance specification in the second cycle. The average annual costs with inflation for the first cycle (years one through four) are estimated at $54.4 million increasing to $57.6 million in the second cycle (years five through nine). The increase in the second cycle is due to extending the cycle

beyond the capabilities of the modified clearance specification resulting in increased tree-wire contact.

Q. Please describe Option 4.

A. Option 4 includes a five-year cycle on 34.5 kV circuits with a supporting five-year mid-cycle program on the three-phase portions of the 34.5 kV circuits, a six-year cycle on 12.5-19.9 kV circuits, and a six-year cycle on 12.5 kV and below circuits. This option includes a reduced clearance specification on single-phase within the first cycle; however, it returns to full clearance specification in the second cycle. The average annual costs with inflation for the first cycle (years one through five) are estimated at $49.7 million, increasing to $56.4 million in the first year of the second cycle. The increase in the second cycle is due to extending the cycle beyond the capabilities of the modified clearance specification resulting in increased tree-wire contact.

Q. Please compare the four options, including the costs and the estimated tree SAIFI reduction for each option.

A. Table 6 provides a side-by-side comparison of the four options.

Table 6: NYSEG Full-cycle Alternatives
(includes inflation and assumes an April 2016 implementation)

Option	Description	5 Year Estimate	End 1st Cycle Estimate	Reclamation Cycle Average Annual Cost Estimate	2nd Cycle First Year Annual Cost Estimate
Option 1 Full Specification Recommended	**Circuit Cycle:** <12.5kV= 5 yr 12.5-19.9kV= 5 yr 34.5kV= 4 yr **Mid Cycle:** 34.5kV 3ø= 4 yr **Hazard Tree:** All= 5 yr	**CI Avoided:** <12.5kV= 8,791 12.5-19.9kV= 10,676 34.5kV= 14,142 Total= 33,609 % Tree SAIFI Redtn. = 11.53%	**CI Avoided:** <12.5kV= 8,791 12.5-19.9kV= 10,676 34.5kV= 14,142 Total= 33,609 % Tree SAIFI Redtn. = 11.53%	$62,512,255	$49,204,642
Option 2 Modified Specification	**Circuit Cycle:** <12.5kV= 5 yr 12.5-19.9kV= 5 yr 34.5kV= 4 yr *w/ Modified Spec **Mid Cycle:** 34.5kV 3ø= 4 yr **Hazard Tree:** All= 5 yr	**CI Avoided:** <12.5kV= 4,641 12.5-19.9kV= 6,629 34.5kV= 7,202 Total= 18,471 % Tree SAIFI Redtn. = 6.34%	**CI Avoided:** <12.5kV= 4,641 12.5-19.9kV= 6,629 34.5kV= 7,202 Total= 18,471 % Tree SAIFI Redtn. = 6.34%	$57,470,096	$54,824,803
Option 3 Modified Specification	**Circuit Cycle:** <12.5kV= 5 yr 12.5-19.9kV= 5 yr 34.5kV= 5 yr *w/ Modified Spec **Mid Cycle:** 34.5kV 3ø= 5 yr **Hazard Tree:** All= 5 yr	**CI Avoided:** <12.5kV= 4,012 12.5-19.9kV= 7,247 34.5kV= 6,430 Total= 17,689 % Tree SAIFI Redtn. = 6.08%	**CI Avoided:** <12.5kV= 4,012 12.5-19.9kV= 7,247 34.5kV= 6,430 Total= 17,689 % Tree SAIFI Redtn. = 6.08%	$54,377,997	$57,623,454
Option 4 Modified Specification	**Circuit Cycle:** <12.5kV= 6 yr 12.5-19.9kV= 6 yr 34.5kV= 5 yr *w/ Modified Spec **Mid Cycle:** 34.5kV 3ø= 5 yr **Hazard Tree:** All= 6 yr	**CI Avoided:** <12.5kV= 3,238 12.5-19.9kV= 6,088 34.5kV= 4,823 Total= 14,148 % Tree SAIFI Redtn. = 4.85%	**CI Avoided:** <12.5kV= 3,885 12.5-19.9kV= 7,305 34.5kV= 5,787 Total= 16,978 % Tree SAIFI Redtn. = 5.82%	$49,716,253	$56,426,290

Q. Do the cost estimates for the four options include a credit for reclamation miles completed to date?

A. Yes. Credit for reclamation miles completed to date is factored into the cost estimates. Miles completed to date equate roughly to one year of completed reclamation. Therefore, the second cycle will be able to start one year earlier.

Q. Why does the Panel recommend NYSEG adopt Option 1?

A. Each of the four full-cycle scenarios offers varying levels of reliability improvement and speed with which those improvements can be realized. The Panel recommends Option 1, because it will yield the lowest overall long-term (i.e., 2nd cycle and beyond) annual expenditure requirement and will provide for an 11.5% reduction in tree SAIFI from 0.31 (average 2013/2014 SAIFI) to 0.27 by the end of the first cycle. Table 6 provides the annual expenditure requirements including inflation, assuming an April 2016 implementation date. Option 1 is the only option which includes the use of a full clearance specification. The modified clearance specification, as presented in Options 2 through 4, is not sustainable over the long-term. Reducing side clearance from 10 feet to 6 feet will not yield adequate tree-to-conductor clearance over the duration of a five-year cycle based on ECI's regrowth projections. The reduction in overhang removal from 15 feet to 5 feet may also subject NYSEG to continued or increased outages due to overhanging limbs during storm events. Five feet of overhang clearance in most cases may not be sufficient to allow for a limb to hinge without contacting the energized conductor should it become weighted down with ice or snow. This Panel recommends Option 1 primarily due to the

importance of providing long-term and adequate clearance over the life of the circuit cycle.

Q. How does NYSEG intend to recover vegetation management costs?

A. NYSEG proposes that the costs be recovered through base rates.

Q. Is the Panel proposing a change in NYSEG's accounting treatment for vegetation management costs?

A. Yes. Currently, NYSEG's vegetation management expenditures are subject to a downward-only reconciliation mechanism; that is, the money that is allowed in rates but not spent for these purposes will be deferred for the benefit of customers. The Panel recommends that a full two-way reconciliation be adopted for NYSEG's vegetation management spending.

Q. Is a downward only reconciliation mechanism appropriate?

A. No. A full two-way reconciliation is an appropriate mechanism because the actual costs will be based primarily on competitive bids, which cannot be fully known at this time.

B. RG&E

Q. Please describe RG&E's current distribution vegetation management practices.

A. As established in the Company's current rate plan, RG&E's total annual distribution vegetation management spend is approximately $6.6 million to accommodate its current five-year average cycle. RG&E completed the fourth year of its five-year average maintenance cycle at the end of 2014. As described earlier in this testimony, the cost to complete RG&E's next five-year average cycle has increased. The cost increases are primarily based on more recent

vendor bids; the cost of inflation; and higher tree densities on rear-lot 4.16 kV lines. These cost increases are needed to maintain the cycle program. As such, RG&E has re-calibrated its annual expenditure requirements for a five-year average cycle. See Exhibit __ (VMP-5).

Q. Is the Panel proposing any changes to RG&E's current vegetation management expenditures?

A. Yes. The Panel has reviewed 2015 bid submissions and historical circuit expenditures at RG&E. The RG&E distribution vegetation management funding should be adjusted to approximately $7.7 million beginning April 2016. Table 7 outlines the cost by distribution voltage class at RG&E beginning April 2016.

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Table 7: RG&E Distribution Vegetation Management Expenditure Estimate by Voltage (with inflation)

Voltage	Total miles	Cycle	Annual Mileage	Estimated cost per mile (avg. five-year with inflation)	Estimated total cost (avg. five-year with inflation)
4kV	1760	5 yr.	352	$8,220	$2,893,000
12kV	2753	5 yr.	551	$4,561	$2,511,000
19.9kV	690	5 yr.	138	$4,897	$676,000
11kV	6	5 yr.	1	$9,326	$12,000
35kV	0	5 yr.	0	$0	$0
	5208		1042		$6,092,000
				Cycle Cost:	$6,092,000
				Hot-Spot:	$1,645,000
				Five-year Average w/ Inflation:	**$7,737,000**

Q. Is the Panel also recommending the use of herbicides as a part of RG&E's vegetation management practices?

A. Yes. For the same reasons discussed earlier for NYSEG, the Panel recommends the use of herbicides as part of RG&E's vegetation management practices.

Q. Is the Panel also proposing a change in RG&E's accounting treatment for vegetation management?

A. Yes. The Panel recommends that a full two-way reconciliation be adopted for RG&E's vegetation management spending, for the same reasons discussed earlier for NYSEG.

IV. TRANSMISSION VEGETATION MANAGEMENT

Q. Can you explain the Companies' current transmission line clearing program?

A. The transmission line clearing program is set forth in the Company's Long-Range Right-of-Way Management Plan (also referred to as the Transmission Vegetation Management Plan or "TVMP") which was submitted to the Commission on April 5, 2012. The TVMP is designed to meet mandatory NERC standards (i.e., FAC-003) and the Commission's requirements established in Case 04-E-0822. The Companies have determined that there is a need for approximately $1.5 million in incremental annual transmission line clearing expenditures at NYSEG and $300,000 in such expenditures at RG&E to ensure compliance with the applicable standards and requirements. The majority of this incremental spending is related to increased edgework, danger tree removal, and right-of-way widening within existing rights-of-way.

V. INCREMENTAL VEGETATION MANAGEMENT STAFFING

Q. Is NYSEG proposing to add additional positions, not included in the test year, to implement its proposed full-cycle vegetation management program?

A. Yes. NYSEG plans to add a sufficient number of resources in order to ensure that the proposed full-cycle distribution vegetation management program is effectively managed.

Q. Specifically, how many resources is NYSEG proposing to add?

A. NYSEG proposes to gradually ramp up to an additional 14 full-time equivalents ("FTE") during the 18-month ramp up period and hold at 14 FTEs for the duration of the first cycle reclamation period, as recommended by ECI and detailed in

Exhibit __ (VMP-4).

Q. Are the costs of these resources included in the Companies proposals?

A. Yes. The costs of these resources have been included in the dollars presented in Table 1.

VI. EMERALD ASH BORER

Q. Are there any additional issues that the Panel would like to address?

A. Yes, we would like to discuss the Emerald Ash Borer ("EAB") infestation as it impacts reliability.

Q. Can you elaborate on this situation?

A. The EAB has been detected in New York since 2009 and Cornell University estimates that 5% of New York ash trees are currently infected. Cornell University urges the public to begin EAB mitigation strategies immediately. Quarantines limiting the movement of ash wood are in place; however, the infestation is predicted to spread. If it does so, it could cause an increase in tree caused outages. EAB infestation has caused significant reliability issues for utilities in other states. For example, Consumers Energy in Michigan estimates a 150% increase in total tree-caused outages as a result of EAB infestation.

EAB larvae destroy the cambial layer under the bark causing the tree to die quickly – within one to three years. Trees affected by EAB often fail at the base, causing significant damage to utility infrastructure. While a 2010 workload study revealed that 10.5% of the trees on the NYSEG system and 10.9 % of the trees on the RG&E system are ash species, no specific studies have been

undertaken to fully estimate the cost and/or reliability impact of EAB on the Companies' systems.

Q. Is the Panel proposing to implement a preventative ash tree removal program at this time?

A. While a preventative ash tree removal program could be implemented, it is not recommended at this time due to what the Companies expect may be significant costs related with such a program. Preliminary rough estimates for such a program could range above $20 million at RG&E and above $121 million at NYSEG over a ten-year period. This work would be in addition to the proposed cycle plans. See Exhibit __ (VMP-6).

Q. Does this complete your testimony at this time?

A. Yes, it does.