

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- \_\_\_\_\_

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- \_\_\_\_\_

-----X

**DIRECT TESTIMONY OF  
ELECTRIC RELIABILITY AND OPERATIONS PANEL**

**Keri L. Glitch  
Hugh J. Ives  
Walt J. Matyjas  
Bill H. Ransom  
Judy A. Schroeder**

May 20, 2015

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND  
OPERATIONS PANEL**

**TABLE OF CONTENTS**

1

2 I. INTRODUCTION..... 1

3 II. SUMMARY AND IDENTIFICATION OF EXHIBITS ..... 4

4 III. ELECTRIC RELIABILITY PERFORMANCE METRICS ..... 4

5 IV. INCREMENTAL MAINTENANCE PROGRAMS ..... 12

6 A. Steel Tower Inspections (10-Year Cycle)..... 13

7 B. Aluminum Base Insulator Replacements..... 14

8 C. LiDAR (Three-Year Program)..... 15

9 D. Increased Funding for Wood Pole Inspection and Treatment  
10 (10-Year Cycle for Distribution) ..... 17

11 E. Substation Maintenance ..... 18

12 F. Electric System Storm Susceptibility Assessment..... 19

13 G. Substation Facility Assessment (Non-Electric Systems)..... 20

14 H. Hydroelectric Projects/Fossil-Fueled Plant..... 21

15 I. Additional Incremental Maintenance..... 26

16 V. SECURITY..... 27

17 VI. INCREMENTAL EXPENSE DUE TO BULK ELECTRIC SYSTEM  
18 REGULATORY MANDATES..... 30

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND  
OPERATIONS PANEL**

**I. INTRODUCTION**

1

2 Q. Please state the names of the members on this Electric Reliability and Operations  
3 Panel (“Panel”).

4 A. We are Keri L. Glitch, Hugh J. Ives, Walt J. Matyjas, Bill H. Ransom, and Judy  
5 A. Schroeder.

6 Q. Ms. Glitch, please state your title and business address.

7 A. I am the Vice President of Corporate Security. My business address is 89 East  
8 Avenue, Rochester, New York 14649.

9 Q. Please summarize your educational background and work experience.

10 A. My Curriculum Vitae (“CV”) is set forth in Exhibit \_\_ (EROP-1).

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

14 A. No.

15 Q. Mr. Ives, please state your title and business address.

16 A. I am the Director of Substation and Hydro Operations and Automation. My  
17 business address is 89 East Avenue, Rochester, New York 14649.

18 Q. Please summarize your educational background and work experience.

19 A. My CV is set forth in Exhibit \_\_ (EROP-1).

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND  
OPERATIONS PANEL**

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

3 A. I have testified on several occasions before the Commission, including in Cases  
4 09-E-0715, 09-G-0716, 09-E-0717 and 09-G-0718.

5 Q. Mr. Matyjas, please state your title and business address.

6 A. I am the Director of New York Electric Distribution. My business address is  
7 1300 Scottsville Road, Rochester, New York 14624.

8 Q. Please summarize your educational background and work experience.

9 A. My CV is set forth in Exhibit \_\_ (EROP-1).

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

12 A. No.

13 Q. Mr. Ransom, please state your title and business address.

14 A. I am the Director of Asset Management & Maintenance. My business address is  
15 1300 Scottsville Road, Rochester, New York 14624.

16 Q. Please summarize your educational background and work experience.

17 A. My CV is set forth in Exhibit \_\_ (EROP-1).

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

20 A. No.

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND  
OPERATIONS PANEL**

1 Q. Ms. Schroeder, please state your title and business address.

2 A. I am the Director of Electric T&D Operations/Support. My business address is 73  
3 Wright Circle, Auburn, New York 13021.

4 Q. Please summarize your educational background and work experience.

5 A. My CV is set forth in Exhibit \_\_ (EROP-1).

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

8 A. No.

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

10 A. The Panel discusses:

11 1) New York State Electric & Gas Corporation's ("NYSEG") and Rochester Gas  
12 and Electric Corporation's ("RG&E" and together with NYSEG, the  
13 "Companies") electric reliability performance metrics;

14 2) The Companies' request for incremental operating and maintenance costs  
15 necessary for the Companies to continue to provide safe and reliable electric  
16 service to customers while meeting all regulatory requirements and mandated  
17 standards of service;

18 3) The Companies' incremental and overall expense related to their security  
19 plan; and

20 4) The Companies' incremental expense associated with bulk electric system  
21 regulatory mandates.

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND  
OPERATIONS PANEL**

**II. SUMMARY AND IDENTIFICATION OF EXHIBITS**

1  
2 Q. Is this Panel sponsoring any exhibits?

3 A. Yes. This Panel is sponsoring the following exhibits:

4 1) Exhibit \_\_ (EROP-1) provides the CVs of the witnesses testifying on this  
5 Panel;

6 2) Exhibit \_\_ (EROP-2) identifies incremental Operations and Maintenance  
7 (“O&M”) costs;

8 3) Exhibit \_\_ (EROP-3) shows the annual costs associated with the proposed  
9 security plan;

10 4) Exhibit \_\_ (EROP-4) shows annual O&M costs estimated for Bright Line  
11 compliance; and

12 5) Exhibit \_\_ (EROP-5) provides an index of the Panel’s workpapers. A copy of  
13 the workpapers will be provided to the New York State Department of Public  
14 Service Staff (“Staff”).

15 **III. ELECTRIC RELIABILITY PERFORMANCE METRICS**

16 Q. How do the Companies currently measure their reliability performance?

17 A. NYSEG and RG&E currently provide safe and reliable service, as measured  
18 through their achievement of established System Average Interruption Frequency  
19 Index (“SAIFI”) and Customer Average Interruption Duration Index (“CAIDI”)   
20 performance targets.

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1 Q. What are SAIFI and CAIDI?

2 A. SAIFI and CAIDI are electric utility standard measures of reliability. SAIFI is a  
3 measurement of the frequency or average number of times an electric customer  
4 experiences an interruption in electric service. CAIDI is a measurement of the  
5 restoration or average amount of time (measured in hours) that it takes to restore  
6 power to an electric customer following an interruption.

7 Q. What are the Companies' current SAIFI and CAIDI targets and associated  
8 negative revenue adjustments?

9 A. The Companies' current targets and associated negative revenue adjustments are  
10 as follows:

<b>SAIFI Performance Metrics</b>		
<b>Company</b>	<b>SAIFI Performance Target</b>	<b>Negative Revenue Adjustment</b>
NYSEG	1.20	\$3,500,000
	1.26	\$7,000,000
RG&E	0.90	\$5,000,000

<b>CAIDI Performance Metrics</b>		
<b>Company</b>	<b>CAIDI Performance Target</b>	<b>Negative Revenue Adjustment</b>
NYSEG	2.08	\$3,500,000
	2.18	\$7,000,000
RG&E	1.90	\$5,000,000

11 Q. Could the amount at risk increase?

12 A. Yes. The negative revenue adjustment for an individual measure doubles if either  
13 Company misses any of its target levels for that particular measure for two  
14 consecutive years. Any doubling of the negative revenue adjustment would apply  
15 to the year encompassing the second miss of the target. The negative revenue

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1 adjustment would continue to double for each consecutive miss of the target. If  
2 doubling takes place and the Company subsequently meets the previously missed  
3 target, the negative revenue adjustment for that target reverts to the original (i.e.,  
4 non-doubled) amounts.

5 Q. What do you recommend the Commission adopt for an electric reliability  
6 performance mechanism in these rate cases?

7 A. We propose that the Companies' individual existing SAIFI and CAIDI targets and  
8 associated negative revenue adjustments be maintained. The Companies also  
9 propose a positive incentive mechanism related to their SAIFI and CAIDI  
10 performance. Specifically, to the extent NYSEG and/or RG&E are able to  
11 outperform their existing SAIFI and/or CAIDI targets by 10% or more, a positive  
12 revenue adjustment should be available as follows:

<b>SAIFI Performance Metrics</b>		
<b>Company</b>	<b>SAIFI Performance Target</b>	<b>Positive Revenue Adjustment</b>
NYSEG	$\leq 1.08$	\$7,000,000
RG&E	$\leq 0.81$	\$5,000,000

<b>CAIDI Performance Metrics</b>		
<b>Company</b>	<b>CAIDI Performance Target</b>	<b>Positive Revenue Adjustment</b>
NYSEG	$\leq 1.87$	\$7,000,000
RG&E	$\leq 1.71$	\$5,000,000

13 Q. Are certain outages currently excluded from the Companies' SAIFI and CAIDI  
14 calculations?

15 A. Yes, certain outages, such as those resulting from major storms, as that term is  
16 defined in 16 NYCRR Part 97, are excluded from SAIFI and CAIDI calculations.



**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND  
OPERATIONS PANEL**

1 Q. Are there other circumstances in which outages should be excluded from the  
2 SAIFI and CAIDI calculations?

3 A. Yes, outages occurring during times when NYSEG and/or RG&E provide mutual  
4 assistance to neighboring utilities should be excluded from the calculations.

5 Q. Please explain.

6 A. During certain events the Companies may be asked to assist neighboring utilities  
7 that were hit harder by the event than us (e.g., Superstorm Sandy). When  
8 providing mutual aid during such times, the Companies have fewer resources than  
9 usual to address smaller outages on our own systems. If the Commission allowed  
10 the Companies to exclude outages on their systems in times when they are  
11 providing mutual assistance, the Companies would be able to deploy as many  
12 resources as is reasonable to help other neighboring utilities restore service. This  
13 exclusion would last only as long as mutual aid resources are deployed. The  
14 exclusion would end the date the deployment ceased.

15 Q. Are there other instances in which it would be appropriate for the Companies to  
16 petition the Commission to request that an outage be exempt from the SAIFI and  
17 CAIDI calculations?

18 A. Yes. In particular, outages due to events beyond the Companies' control ("Non-  
19 Utility Control" outages) should be exempt from such calculations.

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1 Q. Can the Panel provide some examples of Non-Utility Control outages for which  
2 the Companies would potentially apply for an exemption?

3 A. Non-Utility Control outages include, but are not limited to, outages due to the  
4 following: 1) vandalism; 2) unexpected deforestation (e.g., Emerald Ash Borer  
5 (“EAB”)); 3) foreign utility supply; and 4) motor vehicle accidents. Incidence of  
6 each of these issues has trended upward.

7 Q. Please expand on what you mean by vandalism.

8 A. Vandalism or other criminal activity can affect the performance of the  
9 Companies’ system and cause outages. For example, NYSEG recently  
10 experienced an incident where an individual used a chainsaw to cut down two  
11 poles supporting distribution wires. Additionally, the Companies have been the  
12 victims of copper theft at their facilities. Even where copper theft itself does not  
13 cause an outage, the Companies are often required to take an outage (for safety  
14 reasons) to restore the ground grid back to normal. The Companies take  
15 vandalism and criminal activity affecting their facilities very seriously. As  
16 discussed below, as well as in the testimony of the Companies’ Electric and  
17 Hydro Capital Expenditures Panel, the Companies are proposing new initiatives  
18 to enhance physical security at their facilities. However, even with enhanced  
19 security, the Companies likely will not be able to completely prevent vandalism  
20 and criminal activity.

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1 Q. Please explain the outages the Companies have experienced or may experience  
2 due to “unexpected deforestation.”

3 A. Currently, the Companies are not experiencing a notable number of customer  
4 interruptions or damage to their systems as a result of unexpected deforestation.  
5 However, the Companies’ service territories are at risk for an increased amount of  
6 deforestation related to ash tree infestation by the EAB. Ash trees that succumb  
7 to EAB are often subject to failure at the root plate, resulting in the whole tree  
8 hinging over at the base. Failure of this magnitude can result in severe damage to  
9 utility infrastructure, including failing conductors, breaking poles, and other  
10 hardware damage.

11 In a vegetation workload study conducted for the Companies,  
12 Environmental Consultants, Inc. (“ECI”) estimated that there were approximately  
13 238,000 ash trees within the combined line corridors in NYSEG’s and RG&E’s  
14 service territories that may pose a significant risk to the safety and reliability of  
15 the electrical infrastructure if infested by EAB. Since the ECI study did not  
16 account for trees outside of the Companies’ current line corridors, the total ash  
17 tree population that poses a risk to the system could be significantly greater than  
18 the number noted above.

19 EAB infestation has become a significant problem for several utilities  
20 outside of New York. For example, Consumers Energy in the state of Michigan  
21 has seen substantial increases in outages related to trees damaged by EAB. In  
22 addition, outage minutes are also increasing due to the catastrophic nature of these

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1           outages. Consumers Energy estimates a 150% increase in total tree-caused  
2           outages due to EAB related tree outages over the next five to seven years.

3                   The EAB problem is beginning to spread to New York. Since EAB's  
4           discovery in July 2009, its existence has been confirmed in 11 New York  
5           counties, including: Cattaraugus; Steuben; Ulster; Monroe; Genesee; Livingston;  
6           Greene; Erie; Orange; Albany; Niagara; and Dutchess Counties. Cornell  
7           University estimates that approximately 5% of New York's ash trees are currently  
8           infested and urges the public to begin developing action plans now. Given this  
9           threat, the recent experiences of other electric utility companies, and the New  
10          York State Department of Environmental Conservation's infestation and detection  
11          data, future interruptions due to EAB could warrant an exemption from SAIFI and  
12          CAIDI calculations. The Companies' Vegetation Management Panel further  
13          discusses EAB.

14 Q.    What is an outage due to foreign utility supply?

15 A.    In certain instances, the Companies rely upon other utilities to supply power  
16          needed for the Companies' provision of safe and reliable service. Occasionally,  
17          those utilities are unable to supply the Companies with the required power, which  
18          in turn results in outages for the Companies' customers.

19 Q.    Please provide more detail on outages due to motor vehicle accidents.

20 A.    Motor vehicle accidents, particularly those resulting in fatalities, can produce  
21          hours-long outages that the Companies cannot control since the police or other  
22          authorities usually take control of the scene for investigatory purposes. During

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1 the investigation, the Companies are barred from accessing the site and cannot  
2 begin repairs, thereby lengthening the overall outage. In one example, due to two  
3 fatalities, the State Police had to do accident reconstruction work, which  
4 prevented NYSEG from working on a sectionalizer pole for approximately six  
5 hours. NYSEG sectionalized all that it could and had half of its customers'  
6 service restored in two hours, but the remaining customers were without service  
7 until the pole was repaired, approximately twelve hours later.

8 Q. Why would it be appropriate to exempt Non-Utility Control outages, such as  
9 outages due to these four categories of reliability events, from the SAIFI and  
10 CAIDI calculations?

11 A. Like the other exclusions currently recognized by the Commission, outages due to  
12 vandalism, unexpected deforestation, foreign utility supply and motor vehicle  
13 accidents are generally outside of the Companies' control. Thus, it would be  
14 appropriate to exempt these types of outages from SAIFI and CAIDI calculations.

15 Q. Please discuss the current process for requesting that a Non-Utility Control outage  
16 be exempt from the Companies' SAIFI and CAIDI calculations.

17 A. The current practice is to file for such an exemption after the end of a calendar  
18 year in which a company, such as NYSEG or RG&E, fails to hit a performance  
19 target.

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND  
OPERATIONS PANEL**

1 Q. Are the Companies proposing a change with respect to when they would file a  
2 request to exempt a Non-Utility Control outage from their SAIFI and CAIDI  
3 calculations?

4 A. Yes, the Panel proposes that the Companies file for an exemption immediately  
5 after any Non-Utility Control outage. Doing so would allow the Commission or  
6 Staff to act upon the request before the Companies perform their annual SAIFI  
7 and CAIDI calculations for determining whether a revenue adjustment applies.

8 Q. Why is it important for the Companies that the Commission or Staff consider and  
9 act upon a request for an exemption contemporaneous with the Non-Utility  
10 Control outage event?

11 A. By filing for, the Commission or Staff acting upon, a request for an exemption  
12 contemporaneous with a Non-Utility Control outage event, the Company is not  
13 forced to allocate resources to remedy the impact of the Non-Utility Control  
14 outage event.

15 **IV. INCREMENTAL MAINTENANCE PROGRAMS**

16 Q. Were there incremental maintenance programs that the Companies undertook  
17 over the last several years?

18 A. Yes. These programs are delineated in the Companies' annual compliance filings  
19 and have now become part of the Companies' normal operations. The costs of  
20 these programs are reflected in the Companies' proposed base rates.

21 Q. Is the Panel supporting new incremental O&M programs in the Rate Year?

22 A. Yes. NYSEG's and RG&E's incremental O&M programs and costs are identified

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1 and summarized in Exhibit \_\_ (EROP-2). These incremental O&M programs are  
2 further described in the testimony that follows.

3 **A. Steel Tower Inspections (10-Year Cycle)**

4 Q. What is the Panel proposing with respect to Steel Tower Inspections?

5 A. We propose that the Companies inspect steel transmission poles and towers on a  
6 10-year cycle and perform repairs as needed to extend service life. Steel tower  
7 legs and poles will be inspected and repairs will be conducted on a priority basis  
8 as required to maintain the structural integrity of the Companies' transmission  
9 system. Steel components will be examined for degradation and any necessary  
10 cleaning and re-coating at the groundline will be conducted during the  
11 inspections. The work will also involve excavations of each steel structure to the  
12 base plate of steel poles and to four feet below ground on the legs of lattice towers  
13 with steel grillage foundations. Towers with concrete foundations, however,  
14 would not need to be excavated. Inspection and re-coating and/or repairs would  
15 then be performed. Steel corrosion beyond acceptable limits will be repaired by  
16 welding of additional galvanized plates on a priority basis.

17 Q. Why is the Panel proposing these modifications?

18 A. The maintenance program for steel towers and poles will help to prevent major  
19 transmission outages by maintaining the structural integrity of the Transmission  
20 system. The goal is to eliminate outages attributable to the degradation of steel  
21 poles and towers and their associated foundations.

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1 Q. What is the incremental cost associated with the Steel Tower Inspection program?

2 A. As indicated in Exhibit \_\_ (EROP-2), the Rate Year incremental cost of this  
3 program is approximately \$441,000 at NYSEG and \$118,000 at RG&E. The  
4 annual cost of the program in subsequent rate years is approximately \$882,000 at  
5 NYSEG and \$118,000 at RG&E. For NYSEG, the Rate Year cost is lower than  
6 the annual cost in subsequent years to allow for a ramp-up period.

7 **B. Aluminum Base Insulator Replacements**

8 Q. What is the Panel proposing with respect to the replacement of aluminum base  
9 insulator plates?

10 A. We propose to replace aluminum base insulator plates at NYSEG. Replacement  
11 will be completed starting with the highest priority circuits, which have the  
12 greatest impact upon reliability.

13 Q. Why is the replacement of aluminum base insulator plates appropriate?

14 A. The aluminum cap disc insulator has demonstrated an above average failure rate  
15 at all primary voltages. This project will replace distribution class 4-1/4 inch dead  
16 end style insulators. A visual inspection cannot identify the failed units. When  
17 all of the units have electrically failed, the insulators will puncture and lose all  
18 insulation value. The aluminum cap insulator degrades over time, as verified on  
19 various lines in our territory.

20 Q. What is the annual incremental cost associated with the replacement of aluminum  
21 base insulators?

22 A. The annual cost of this item is approximately \$1 million at NYSEG only.



**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1 Q. What has RG&E done with aluminum base insulator replacements?

2 A. RG&E began replacing aluminum base insulators five years ago consistent with  
3 the start of its current rate plan. The costs associated with such replacements are  
4 included in the Test Year (i.e., the 12 months ending December 31, 2014) and  
5 RG&E will continue replacing aluminum base insulators.

6 **C. LiDAR (Three-Year Program)**

7 Q. What is LiDAR?

8 A. LiDAR stands for Light Detection and Ranging. It is an imaging tool utilized to  
9 manage Right-of-Way (“ROW”) and vegetation growth.

10 Q. What is the Companies’ proposal with respect to LiDAR?

11 A. The Companies propose to perform a LiDAR survey annually for three  
12 consecutive years. Low resolution LiDAR provides geographic information that  
13 will be used for vegetation clearance/encroachment surveys on a three-year cycle.  
14 Desktop viewing of aerial imagery will be used to see what areas are affected by  
15 encroachments and to schedule maintenance accordingly to improve reliability  
16 and restoration.

17 Q. Why is the funding of a LiDAR program appropriate?

18 A. LiDAR is an excellent tool for identifying conditions on the ROW. Funding for  
19 LiDAR is appropriate because not all potential issues at all rated operating  
20 conditions can be identified visually. While the Companies annually perform  
21 aerial and ground vegetation patrols of the bulk system, it is impossible for the  
22 inspectors to accurately gauge the maximum sag of the conductors. To do so, an

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1 inspector would need to know the maximum conductor sag for the entire length of  
2 each individual span of the bulk transmission system. In addition, where side  
3 slopes or knolls exist, the maximum sag for the conductors relative to the terrain  
4 would also have to be known. These facts cannot be determined without a tool  
5 such as LiDAR.

6 Q. What are the benefits of LiDAR as a ROW management tool?

7 A. LiDAR has two important functions as a ROW management tool. First, LiDAR  
8 correctly identifies the scope of work that is necessary to meet reliability ROW  
9 clearing standards, allowing for the most efficient utilization of line clearing  
10 funds. Second, repeated LiDAR surveys are an accurate and cost effective  
11 method for determining that all target vegetation was successfully removed.

12 Q. Have other utilities around the country had success utilizing LiDAR over multiple  
13 years?

14 A. Yes, several utilities have had success. For example, PPL Electric Utilities  
15 (“PPL”) conducted LiDAR surveys in 2008, 2009, and 2010. PPL’s experience is  
16 that repeated LiDAR surveys “are the real litmus test” in determining that all  
17 target vegetation has been removed. Additionally, PPL’s experience of ground  
18 patrols alone versus LiDAR convinced PPL of the necessity of removing the  
19 possibility of human error associated with visual estimation of maximum sag.

20 Q. What is the annual incremental cost associated with the LiDAR program?

21 A. As indicated in Exhibit \_\_ (EROP-2), on the line item entitled “Transmission  
22 Corridor Encroachment,” the Rate Year cost of this item is approximately

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1           \$205,000 at NYSEG and \$138,000 at RG&E. The annual cost of the program in  
2           subsequent rate years is approximately \$413,000 at NYSEG and \$138,000 at  
3           RG&E. For NYSEG, the Rate Year cost is lower than the annual cost in  
4           subsequent years to allow for a ramp-up period.

5           **D. Increased Funding for Wood Pole Inspection and Treatment (10-Year**  
6           **Cycle for Distribution)**

7           Q. Is the Panel proposing an increase in funding with respect to the Companies’  
8           Wood Pole Inspection and Treatment (“WPIT”) Program?

9           A. Yes, the Panel is proposing to add additional incremental maintenance funding to  
10           allow NYSEG to move its distribution system to a 10-year WPIT Program.

11          Q. Why is the Panel proposing these increased funding levels?

12          A. This proposal will move NYSEG distribution to a 10-year cycle with regard to  
13           wood pole inspection and treatment. Below the ground-line, WPIT Programs  
14           help maintain the safety and reliability of the electric energy delivery system by  
15           identifying and eliminating defective wood poles before failures can cause injury,  
16           damage, or unscheduled outages. The supplemental preservative extends the  
17           service life of wood poles providing an economical alternative to replacement. A  
18           single treatment cycle can extend pole service life up to ten years.

19          Q. Approximately how many distribution poles would need to be treated at NYSEG  
20           annually to be on a 10-year cycle?

21          A. NYSEG has approximately 846,427 distribution wooden poles. Thus, NYSEG  
22           would need to inspect and treat approximately 84,643 poles per year.

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1 Q. What is the annual incremental cost associated with this increase in WPIT for  
2 NYSEG distribution?

3 A. As indicated in Exhibit \_\_ (EROP-2), the Rate Year cost of this program is  
4 approximately \$1.05 million at NYSEG. The annual cost of the program in  
5 subsequent rate years is approximately \$2.10 million. The Rate Year cost is  
6 lower than the annual cost in subsequent years to allow for a ramp-up period.

7 **E. Substation Maintenance**

8 Q. Has the Panel identified any new incremental O&M programs related to  
9 substation maintenance?

10 A. Yes, the Panel has identified incremental O&M expense to perform  
11 polychlorinated biphenyl (“PCB”) retrofills at NYSEG’s substation transformers.  
12 This project will retro-fill the remaining PCB (> 50ppm) oil filled power  
13 transformers in NYSEG’s system. The purpose of this project is to eliminate the  
14 safety and environmental concerns associated with PCB oil.

15 Q. What is the amount of additional incremental funding in the substation area in  
16 order to implement this new program?

17 A. As shown on Exhibit \_\_ (EROP-2), the estimated cost for this project (for  
18 NYSEG only) is approximately \$110,000 in the Rate Year and \$1.1 million over  
19 the five-year period ended March 31, 2021.

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

**F. Electric System Storm Susceptibility Assessment**

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Q. Please describe the Electric System Storm Susceptibility Assessment line item on Exhibit \_\_ (EROP-2).

A. The Panel is proposing that the Companies perform (with an initial focus on NYSEG) a comprehensive infrastructure assessment to determine susceptibility of substations, lines and associated control/communication structures (i.e., radio towers) for damage and/or adverse impacts caused by storms and flooding. The analysis includes, but is not limited to, defining the specific location (including latitude/longitude and elevation) of infrastructure relative to nearby rivers and streams and hydrologic evaluations to determine flood impact based on precipitation levels/rapid melt of heavy snow pack (i.e., “100-year” and “500-year” storms). Existing data such as Federal Emergency Management Agency flood maps and U.S. Geological Survey stream gage historical data would be utilized as part of the analysis. Based on the assessment’s results, the final report would include storm hardening recommendations (maintenance and betterments). This line item cost reflects the cost of the initial assessment in the Rate Year and also includes the anticipated maintenance/repair work that would occur over a four-year period beginning in 2016. Any betterments resulting from the assessment would need to be included in the capital investment program.

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1 Q. What is the Rate Year incremental cost associated with the Electric System Storm  
2 Susceptibility Assessment?

3 A. As indicated in Exhibit \_\_ (EROP-2), the Rate Year cost of this item is  
4 approximately \$75,000 at NYSEG only. The cost of this program rises to  
5 \$125,000 in the year following the Rate Year and to \$500,000 in subsequent  
6 years. The Rate Year cost is lower than the annual cost in subsequent years to  
7 allow for a ramp-up period.

8 **G. Substation Facility Assessment (Non-Electric Systems)**

9 Q. What is the Panel's proposal with respect to Substation Facility Assessment for  
10 Non-Electric Systems?

11 A. The Panel is proposing that the Companies perform (with an initial focus on  
12 NYSEG) a comprehensive condition assessment of existing non-electric  
13 infrastructure such as substation control building roof systems, drainage/storm  
14 water conveyance systems/underground piping, above-grade building and  
15 structure foundations, doors, windows, access roads, substation grades and  
16 security fence systems. The assessments will be completed over a two-year  
17 period (2016 and 2017). Based on the assessment results, the analysis will  
18 include maintenance and betterment recommendations and priority ranking. This  
19 line item cost also reflects the maintenance/repair work that would occur over a  
20 four-year period beginning in 2016. Any betterments resulting from the  
21 assessment would need to be included in the capital investment program.

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1 Q. What is the Rate Year incremental cost associated with the Substation Facility  
2 Assessment for Non-Electric Systems?

3 A. As indicated in Exhibit \_\_ (EROP-2), the Rate Year cost of this item is  
4 approximately \$125,000 at NYSEG only. The cost of this program rises to  
5 \$250,000 in the year following the Rate Year and to \$750,000 in subsequent  
6 years. The Rate Year cost is lower than the annual cost in subsequent years to  
7 allow for a ramp-up period.

8 **H. Hydroelectric Projects/Fossil-Fueled Plant**

9 Q. Does this Panel support the incremental O&M items, shown on Exhibit \_\_  
10 (EROP-2), associated with the Companies' hydroelectric/fossil-fueled plants?

11 A. Yes. The O&M reflects normal escalation from the amounts already incurred  
12 during the Test Year with the exception of maintenance work at the following  
13 hydroelectric/fossil-fueled facilities for NYSEG: 1) Harris Lake Unit 2; 2) Harris  
14 Lake Unit 1; 3) Mechanicville; 4) Rainbow Falls; 5) Kents Falls; 6) Mill C; and 7)  
15 Auburn. In addition, we are proposing incremental O&M associated with earthen  
16 berm maintenance and exterior maintenance.

17 Q. Will you briefly summarize the incremental O&M associated with the work at  
18 Harris Lake Unit 2?

19 A. The incremental O&M at Harris Lake Unit 2 is to improve reliability and meet the  
20 load growth projected in the Long Lake/Harris Lake area load center in the  
21 Adirondack Park. A second emergency/standby generating unit with rated  
22 capacity of 2.3 MW will be installed at the Harris Lake Substation in fourth

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1 quarter of 2015. Once installed, unit maintenance (services, materials and  
2 inspections) and associated fuel costs will be needed on a going forward basis at a  
3 Rate Year cost of \$50,000, which will increase to \$100,000 annually thereafter.  
4 The Rate Year cost is lower than the annual cost in subsequent years to allow for  
5 a ramp-up period.

6 Q. What is the incremental O&M work related to Harris Lake Unit 1?

7 A. The existing emergency/standby generating unit has been in service since the  
8 mid-1960s for electric reliability in the Long Lake/Harris Lake service area in the  
9 Adirondack Park and is due for a comprehensive major inspection and  
10 maintenance overhaul. Upon installing, commissioning and establishing the  
11 reliability of Unit 2 in the fourth quarter of 2015 / first quarter of 2016, the  
12 existing Unit 1 will be removed from its foundation to facilitate soil remediation  
13 beneath and adjacent to the unit. At that time, the Unit No. 1 diesel engine,  
14 turbine-generator and supporting auxiliary systems will undergo thorough  
15 inspections and maintenance. This line item is required to provide necessary one-  
16 time equipment maintenance (services, materials, and inspections) for continued  
17 safety and reliability of Unit 1, at a cost of \$210,000 over a two-year period  
18 (\$135,000 in the Rate Year).

19 Q. Will you briefly summarize the incremental O&M associated with the work at  
20 Mechanicville?

21 A. As a result of the Hudson River-Black River Regulating District's (upstream  
22 licensee) Conklingville Dam transferring to Federal Energy Regulatory



**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND  
OPERATIONS PANEL**

1 Commission (“FERC”) jurisdiction, NYSEG’s Mechanicville Hydro facility is  
2 now subject to headwater benefit charges associated with increased energy gains  
3 provided by that upstream facility. Based on a July 2012 FERC order, NYSEG  
4 will incur a headwater benefit charge per year. The Rate Year cost of this line  
5 item is approximately \$17,000, with annual costs thereafter of approximately  
6 \$35,200. The Rate Year cost is lower than the annual cost in subsequent years to  
7 allow for a ramp-up period.

8 Q. What is the incremental O&M work related to Rainbow Falls?

9 A. Per the requirements of the FERC license issued for this facility in 2004, NYSEG  
10 must install a fish bypass and 3/4 inch (narrower opening than existing/original  
11 design) racks at the facility. As a result of the newly installed narrower rack  
12 spacing and fish bypass, the facility received new bypass gates and a mechanized  
13 rack raker for keeping the narrower racks clear of river debris. These betterments  
14 are projected to go into operation in the third quarter of 2015 (upon completion of  
15 the post Hurricane Irene powerhouse restoration project). This cost line item is  
16 required to provide necessary equipment maintenance (services, materials and  
17 inspections) for continued safety and reliability of these new facilities as well as  
18 efficiency of the two hydro turbine generator (“T/G”) units, at a cost of \$12,000 in  
19 the Rate Year and \$15,000 annually thereafter. The Rate Year cost is lower than  
20 the annual cost in subsequent years to allow for a ramp-up period.

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND  
OPERATIONS PANEL**

1 Q. Will you briefly summarize the incremental O&M associated with the work at  
2 Kents Falls?

3 A. Similar to the work performed at the Rainbow Falls facility, pursuant to a FERC  
4 license, NYSEG must install one-inch (narrower opening than existing/original  
5 design) racks at five-year intervals. In 2015, the Kents Falls facility will receive  
6 the new racks and a mechanized rack raker, which is needed to keep the narrower  
7 racks clear of river debris. This line item is required to provide necessary  
8 equipment maintenance (services, materials and inspections) for safety and  
9 reliability of these new facilities as well as the efficiency of the three T/G units, at  
10 a cost of \$5,000 in the Rate Year and \$10,000 annually thereafter. The Rate Year  
11 cost is lower than the annual cost in subsequent years to allow for a ramp-up  
12 period.

13 Q. What is the incremental O&M work related to Mill C?

14 A. As was the case with the Rainbow Falls and Kents Falls facilities, the FERC  
15 license for this facility requires NYSEG to install one-inch (narrower opening  
16 than existing/original design) racks at five-year intervals. In 2020, the Mill C  
17 facility will receive new racks and a mechanized rack raker, which is needed to  
18 keep the narrower racks clear of river debris. This line item is required to provide  
19 necessary equipment maintenance (services, materials and inspections) for safety  
20 and reliability of these new facilities as well as the efficiency of the three T/G  
21 units, at an annual cost of \$10,000 beginning in 2020/2021.

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1 Q. What is the incremental O&M work related to earthen berm?

2 A. The High Falls, Mill C and Mechanicville hydro facilities include earthen berms  
3 adjacent to the dams to provide downstream flood protection as well as public  
4 recreation facilities at the High Falls and Mill C developments (i.e., hiking).  
5 These berms require maintenance to ensure the height and width are adequate to  
6 provide necessary integrity as water retaining structures and during an  
7 overtopping event, which could occur during extreme high flow events. Based on  
8 recent visual inspections, these berms are showing signs of erosion and therefore  
9 will require the addition of earthen material to obtain the design contour/cross  
10 sections. This line item is required to provide necessary berm maintenance  
11 (services, materials and inspections) for the continued safety and reliability, at a  
12 Rate Year cost of \$85,000 and \$175,000 annually thereafter. The Rate Year cost  
13 is lower than the annual cost in subsequent years to allow for a ramp-up period.

14 Q. Will you summarize the incremental O&M associated with exterior maintenance?

15 A. The exterior structures of hydro facilities (High Falls, Cadyville, Mill C, Kents  
16 Falls, Rainbow Falls and Mechanicville) constructed in the early- to mid-1900s  
17 are showing signs of significant wear/degradation. Exterior maintenance (i.e.,  
18 repointing of masonry, sealing, and painting) of these facilities is required to  
19 ensure that the integrity of these structures is adequate for continued use. This  
20 line item is required to provide necessary building exterior maintenance (services,  
21 materials and inspections) for continued safety and reliability of these existing  
22 facilities at a Rate Year cost of \$125,000 per year and \$250,000 annually

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND  
OPERATIONS PANEL**

1           thereafter. The Rate Year cost is lower than the annual cost in subsequent years  
2           to allow for a ramp-up period.

3   Q.    Please summarize the incremental O&M associated with the work at Auburn.

4   A.    The Auburn turbine-generator (leased unit) has been in service since 2000 and is  
5           due for an inspection and maintenance overhaul. Under the terms of its lease,  
6           NYSEG is responsible for performing the inspection and maintenance overhaul.  
7           This line item, planned for 2016 and 2017, is required to provide the necessary  
8           maintenance (services, materials and inspections) of the major turbine-generator  
9           and associated auxiliary equipment for continued safety and reliability of this  
10          existing facility and to comply with the terms of the lease, at a cost of \$200,000  
11          over a two-year period (\$100,000 in the Rate Year).

12          **I. Additional Incremental Maintenance**

13   Q.    Might the Companies identify additional incremental maintenance initiatives to  
14          support electric system reliability?

15   A.    Yes, it is possible that the Companies may identify additional incremental  
16          maintenance initiatives needed to support electric system reliability, such as  
17          transmission and distribution loss studies. In the event additional incremental  
18          maintenance initiatives are identified, the Companies will address such additional  
19          initiatives in their update or manage the costs of the initiatives within the total  
20          amount of incremental O&M authorized by the Commission in these cases.

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

**V. SECURITY**

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- Q. What is the proposed security plan?
- A. Corporate Security is responsible for the protection of people, assets and information. The proposed security plan addresses the need to upgrade and maintain the Companies’ physical and cyber security infrastructure, including improved access control, video surveillance and alarming/detection capabilities, to mitigate risk. The continual and extensive changes to the security landscape require these security upgrades to protect against physical and cyber intrusions. Areas in scope include: Critical Bulk Substations; Energy Control Centers; Bulk Substations; Gas Gatehouses; Data Centers; Storage Facilities; Security Operations Centers; Cash Offices; Offices; Hydro Stations; and Storage Yards. North American Electric Reliability Corporation (“NERC”) standards require that the Companies improve and expand their security capabilities to protect critical infrastructure. In addition, the number of cyber security challenges the Companies face to ensure data protection, privacy and compliance with regulatory and legal mandates continues to grow. As threats evolve and grow increasingly more sophisticated, the Companies must keep pace. The proposed security plan strengthens the Companies’ security posture and addresses the need to keep employees and the public safe and to protect the integrity of our assets.
- Q. Why is this plan necessary?
- A. Security vulnerabilities continue to make headlines on a regular basis. Since the sabotage event at Pacific Gas and Electric Company’s Metcalf Substation in 2013

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1 and recent data breaches at major U.S. companies, there has been a heightened  
2 level of physical and cyber security attention by the U.S. Congress, FERC and the  
3 utility industry concerning the vulnerability of essential substations and other  
4 critical assets which may be targets for those seeking to damage the electrical  
5 infrastructure. This is demonstrated by the creation of new standards such as  
6 NERC’s Version 5 Critical Infrastructure Protection (“CIP”) Reliability  
7 Standards, the expedited deployment of current physical security projects, and the  
8 development of new physical hardening projects to resolve security concerns.

9 Q. What is the annual O&M cost associated with the security plan?

10 A. As indicated in Exhibit \_\_ (EROP-3), Rate Year O&M cost for the security plan  
11 is \$6.54 million. The methodology used to arrive at the forecast was based on  
12 risk assessments and regulatory requirements. As an initial step, forecast numbers  
13 were developed by reviewing security measures currently in place at each location  
14 across the two Companies and comparing it against Iberdrola USA Network Inc.’s  
15 security standards. The chart below depicts the Companies’ standard and level of  
16 security afforded to each tier asset class.

## DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL

Deployment Standard	Lock & Key	Card Access	Video Surveillance	Video Analytics	Thermal Cameras	Physical Hardening	Portable Trailer (Lights, Camera)
Critical Bulk Substations, Energy Control Centers							
<b>Tier1</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Bulk Substations, Gas Gatehouses, CIP Data Centers, CIP Storage facilities, Security Operation Centers							
<b>Tier2</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Cash Offices, Large and Medium Offices, Hydro Stations							
<b>Tier3</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
Small Offices, storage yards							
<b>Tier4</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
Low risk semi-occupied and low \$ value storage facilities							
<b>Tier5</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					
Non-critical substations and unoccupied facilities							
<b>Tier6</b>	<input checked="" type="checkbox"/>						
Temporarily supplements Tier 5 and Tier 6 standard when required							
<b>Tier7</b>							<input checked="" type="checkbox"/>

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Tier 1 is the highest level of security and is reserved for Critical Bulk Substations and Energy Control Centers. Security deployment measures for this asset class would include: 1) Lock & Key; 2) Card Access; 3) Video Surveillance; 4) Thermal Cameras; and 5) Physical Hardening.

The next step in developing the security program was to identify security gaps and additional spending necessary to bring locations or asset classes up to the new standards. An outside consultant, Burns & McDonnell, was retained to assist with this effort. During the review process, the technical team reviewed sites for scope, schedule, and budget considerations. As part of this process, NYSEG and RG&E identified 154 sites that require physical or cyber security improvements. The Companies propose to complete security work on all of the

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1 highest priority assets, starting first with critical infrastructure and then all  
2 occupied facilities by the end of 2020. The security program requirements for  
3 each of these sites were categorized based on the following priorities:

- 4 1) Employee and public safety;  
5 2) Compliance (infrastructure);  
6 3) Mitigating company risks; and  
7 4) Mitigating security vulnerabilities

8 In total, these projects increase Corporate Security’s portfolio and security  
9 program responsibilities, with corresponding increases in capital and O&M  
10 amounts. Making these appropriate investments will allow the Companies to be  
11 proactive in keeping employees and the public safe, to increase the integrity of  
12 our systems, and to continue to provide safe and reliable service to our customers.

13 **VI. INCREMENTAL EXPENSE DUE TO BULK ELECTRIC SYSTEM**  
14 **REGULATORY MANDATES**

15 Q. What incremental expenses do the Companies expect to incur due to “Bulk  
16 Electric System” (“BES”) regulatory mandates?

17 A. The Companies expect to incur incremental expenses with respect to compliance  
18 with the FERC Final Rule (Order No. 773) issued on December 20, 2012, which  
19 approved modifications to the currently-effective definition of “Bulk Electric  
20 System” developed by NERC. FERC found that the modified definition of BES  
21 improves upon the currently-effective definition by establishing a “Bright Line”  
22 threshold that includes all facilities operated at or above 100 kV and, as a result,



**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

1 removed language that allows for broad regional discretion. The modified BES  
2 definition is intended to create consistency among the reliability regions with  
3 respect to what facilities are going to be deemed part of the BES and are thus  
4 subject to NERC Reliability Standards.

5 Q. Can the Panel please provide a brief background on the NERC Reliability  
6 Standards?

7 A. The U.S. Energy Policy Act of 2005 amended Section 15 of the Federal Power  
8 Act to require that FERC adopt mandatory and enforceable reliability standards  
9 for the bulk power system (“BPS”) and to create a self-regulatory “electric  
10 reliability organization” (“ERO”) with FERC oversight in the United States. On  
11 July 20, 2006, FERC gave the NERC responsibility for developing and enforcing  
12 these standards as one means of improving the reliability of North America’s  
13 BPS.

14 Q. Do these standards have a material expense impact on the Companies?

15 A. The NERC ERO reliability standards require a significant amount of document  
16 management and compliance monitoring for annual self-certification of  
17 compliance and periodic NERC audits. Several of the standards also have  
18 material cost impacts for implementation. Such standards include:

19 1) CIP standards provide a cyber-security framework for the physical and  
20 electronic protection of Critical Cyber Assets to support reliable operation of  
21 the BES. The additional levels of security, beyond industry standards, result  
22 in additional capital and O&M expenses;

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

- 1           2) Facilities Design, Connections, and Maintenance (“FAC”) standards establish  
2           criteria for facility design and maintenance to help avoid adverse impacts on  
3           reliability. Under the FAC standards, the Companies must establish facility  
4           connection and performance requirements, effectively manage vegetation in  
5           and adjacent to transmission ROWs, and ensure proper facility ratings in  
6           accordance with established rating methodologies; and
- 7           3) Protection and Control standards establish requirements for the installation,  
8           maintenance, and testing of system protection and control equipment.  
9           NYSEG and RG&E have had to upgrade and/or install equipment in  
10          substations to meet these standards, including breakers, relays, disturbance  
11          monitoring equipment and automation equipment.
- 12 Q.       How will the new Bright Line standard impact the Companies’ incremental O&M  
13          expense?
- 14 A.       The new Bright Line threshold will require the Companies to reclassify a  
15          significant part of their systems as “Bulk Electric System,” thereby subjecting  
16          more facilities to the NERC Reliability Standards and imposing incremental costs.
- 17 Q.       Can you identify the impacts on the Companies’ facilities?
- 18 A.       The impacts on the Companies’ facilities include:
- 19          1) An increase in the number of NYSEG and RG&E substation that must meet  
20          the new standard;

**DIRECT TESTIMONY OF ELECTRIC RELIABILITY AND OPERATIONS PANEL**

- 1           2) Under the expanded 100 kV Bright Line definition, the Companies need to  
2           comply with Transmission Operator Standards and face additional  
3           coordination, monitoring, and reporting for System Operations;  
4           3) As a transmission operator, compliance with Personnel Standards and  
5           Emergency Preparedness Standards would require additional training and  
6           staffing at the NYSEG Energy Control Center;  
7           5) Additional control house expansions, separation of cable systems, addition of  
8           battery banks and chargers, relay additions, breakers, trip coil, and current  
9           transformer additions would be required; and  
10          6) Transmission Planning (“TPL”) standards for contingencies in the event of the  
11          loss of a single BES element (TPL-002) and in the event of the loss of two or  
12          more BES elements (TPL-003) would apply.

13 Q.    Have the Companies prepared O&M estimates with respect to complying with the  
14          new Bright Line standard?

15 A.    The Companies have already started their compliance efforts, and the cost impacts  
16          to NYSEG and RG&E are included in Exhibit \_\_ (EROP-4). The estimated  
17          annual O&M costs for NYSEG and RG&E combined in 2016 is \$2.128 million.

18 Q.    Does this conclude the Panel’s direct testimony at this time?

19 A.    Yes, it does.