

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS  
PUBLIC UTILITIES COMMISSION**

RE: The Narragansett Electric Company  
d/b/a National Grid's Proposed  
FY 2012 Electric Infrastructure, Safety  
and Reliability Plan

R.I.D.P.U.C. Docket No. 4218

**PREFILED DIRECT TESTIMONY OF**

**Gregory L. Booth, PE, President  
PowerServices, Inc. d/b/a PowerServices and Consulting, Inc.  
On Behalf of Rhode Island Division of Public Utilities and Carriers**

**February 18, 2011**

Prepared by:  
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Prefiled Direct Testimony**

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**DIRECT TESTIMONY OF GREGORY L. BOOTH, PE**

**INTRODUCTION**

**Q. PLEASE STATE YOUR NAME AND THE BUSINESS ADDRESS OF YOUR EMPLOYER.**

A. My name is Gregory L. Booth. I am employed by PowerServices, Inc. ("PowerServices"), UtilityEngineering, Inc. ("UtilityEngineering"), and Gregory L. Booth, PLLC ("Booth, PLLC") all located at 1616 E. Millbrook Road, Suite 210, Raleigh, North Carolina 27609.

**Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS MATTER?**

A. I am testifying on behalf of the Rhode Island Division of Public Utilities and Carriers.

**Q. WHAT IS YOUR POSITION WITH POWERSERVICES, INC., UTILITYENGINEERING, INC., AND BOOTH, PLLC?**

A. I am president of PowerServices, Inc., an engineering and management services firm, UtilityEngineering, Inc., a design/build firm, and Booth, PLLC, an engineering firm. As such, I am responsible for the direction, supervision, and preparation of engineering projects and management services for our clients, including the corporate involvement in engineering planning, design, construction management, and testimony for our clients.

**Q. WOULD YOU PLEASE OUTLINE YOUR EDUCATIONAL BACKGROUND?**

A. I graduated from North Carolina State University in Raleigh, North Carolina in 1969 with a Bachelor of Science Degree in Electrical Engineering. I am a registered professional engineer in twenty one states, as well as District of Columbia, and including Rhode Island. I am also a registered land surveyor in North Carolina. I am also registered under the National Council of Examiners for Engineering and Surveying.

1 **Q. ARE YOU A MEMBER OF ANY PROFESSIONAL SOCIETIES?**

2 A. I am an active member of the National Society of Professional Engineers (“NSPE”), the  
3 Professional Engineers of North Carolina (“PENC”), The Institute of Electrical and  
4 Electronics Engineers (“IEEE”), American Public Power Association (“APPA”),  
5 American Standards and Testing Materials Association (“ASTM”), and the Professional  
6 Engineers in Private Practice (“PEPP”). I am also a member of the IEEE Distribution  
7 Subcommittee on Reliability and the National Fire Protection Association, and an  
8 advisory member of the National Rural Electric Cooperative Association (“NRECA”)-  
9 Cooperative Research Network, which is an organization similar to EPRI.

10 **Q. HAVE YOU PUBLISHED ANY TREATISES, MANUALS, COURSES, OR**  
11 **TAUGHT SEMINARS?**

12 A. Since 1972, I have authored manuals and taught numerous seminars each year on  
13 engineering matters, including reliability, rates and regulations, design and construction  
14 and construction management and services matters. I have also prepared engineering  
15 manuals and text for instruction, seminars and courses. My manuals and texts have  
16 included subjects such as the National Electrical Safety Code (“NESC”), Power Loss  
17 Management, Power System Protective Coordination, Long-Range Planning, Asset  
18 Management Strategic Planning, Electric Utility Best Practices, Power Factor  
19 Optimization, Power Quality, Underground Design Standards, Hazard Assessment and  
20 Arc Flash Mitigation, the National Electrical Code, and many others. My seminars,  
21 instructions, courses and speaking have been before state and national electric utility  
22 organizations across the United States. I have been nationally published on some of these  
23 subjects as well.

1 **Q. HAVE YOU ATTACHED TO YOUR TESTIMONY A COPY OF YOUR**  
2 **CURRICULUM VITAE?**

3 A. Yes. My curriculum vitae is attached as *Exhibit GLB-1*, and includes an overview of my  
4 experience since beginning my work in 1963.

5 **Q. PLEASE BRIEFLY DESCRIBE YOUR EXPERIENCE WITH ELECTRIC**  
6 **UTILITIES.**

7 A. I have worked in the area of electric utility and telecommunication engineering and  
8 management services since 1963. I have been actively involved in system planning and  
9 protective coordination and stability studies, including detailed analyses of all  
10 components of distribution and transmission systems including electric utilities in 40  
11 states, and the District of Columbia, for over 300 utility clients. My experience includes  
12 all phases of consulting engineering, engineering design and management services from  
13 generation through transmission and substation design and distribution of power on  
14 electric utility systems. I have been actively involved in cost-of-service studies, rate  
15 studies and rate design, both retail and wholesale. My involvement has also included the  
16 planning, design, and construction management of generation, transmission, substation,  
17 and distribution line facilities. This involvement has included the inspection of these  
18 facilities and the evaluation of service reliability. I have performed hundreds of long-  
19 range and short-range planning studies, load flow studies, and cost estimates for electric  
20 utilities across the United States. I was involved in the management of all of the  
21 divisions of Booth & Associates, Inc. ("Booth & Associates"), for over 30 years,  
22 including transmission, substation, and distribution facilities design and construction  
23 management of approximately \$100 million dollars per year in plant value additions. My  
24 involvement included electric utility systems in rural and urban areas as well as coastal,

1 plain and mountain areas throughout the eastern United States and as far west as Arizona,  
2 Washington State, and Alaska, along with design and construction in light, medium and  
3 heavy loading districts as defined in the NESC. My work has included services to  
4 numerous electric systems in the northeast, including Maine, Maryland, Massachusetts,  
5 New Hampshire, New Jersey, Pennsylvania, Rhode Island, and Virginia. I have been  
6 involved in power supply contract bids, negotiations, economic analyses and  
7 implementation, including evaluating the transmission system network capabilities. I  
8 have also been involved in projects to relieve or mitigate transmission congestion in the  
9 PJM area.

10 **Q. DO YOU HAVE OTHER INVOLVEMENT AND EXPERIENCE WITH**  
11 **COMPANIES THAT PROVIDE YOU WITH ADDITIONAL EXPERTISE**  
12 **RELEVANT TO THIS DOCKET?**

13 A. Yes. My electric utility reliability assessment work for the Rhode Island Division of  
14 Public Utilities and Carriers ("Division"), the New Jersey Board of Public Utilities  
15 ("NJBPU") and at the Pennsylvania PUC and the Virginia State Corporation Commission  
16 ("SCC") over the last ten years has involved in-depth assessment and working with  
17 northeastern electric utilities on reliability enhancement and the costs associated with  
18 such enhancement, including annual construction work plan development for electric  
19 utility systems. Also, I was directly involved in the purchase and transition of electric  
20 utility facilities from Progress Energy Florida (formerly Florida Power Corporation) to  
21 the City of Winter Park, Florida, and also the Fort Bragg Army Base electric utility  
22 system purchase by Sandhills Utilities, LLC and its transition along with Delmarva  
23 Power & Light distribution and transmission system on the Eastern Shore of Virginia  
24 purchased by A & N Electric Cooperative and the Potomac Edison Company entire

1 Virginia jurisdiction to Shenandoah Valley Electric Cooperative and Rappahannock  
2 Electric Cooperative. Along with these acquisitions, I prepared system condition  
3 assessments, construction work plans for annual infrastructure expansion, safety and  
4 reliability and loan purposes. These ranged from \$50 million to \$250 million, excluding  
5 the acquisition cost. Additionally, I investigate safety related accidents and testify as an  
6 expert in state and federal courts concerning safety related accidents involving electric  
7 utility systems averaging over 30 cases a year.

8 **Q. HAVE YOU PREVIOUSLY TESTIFIED AS AN EXPERT BEFORE STATE**  
9 **UTILITY COMMISSIONS, OTHER REGULATORY AGENCIES, AND/OR**  
10 **COURTS?**

11 A. Yes. I have testified on numerous occasions before the Federal Energy Regulatory  
12 Commission ("FERC"), including pre-filed testimony in both wholesale rate matters as  
13 well as in electric utility reliability complaints, including Duke Power Company and  
14 Dominion Power issues. I have also testified before the New Jersey Board of Public  
15 Utilities, the Delaware Public Service Commission, Minnesota Department of Public  
16 Service Environmental Quality Board, Virginia State Corporation Commission, the  
17 Pennsylvania Public Utility Commission, and the North Carolina Utilities Commission,  
18 most of them on multiple occasions. I have testified before the Rhode Island Public  
19 Utilities Commission on numerous matters, including Docket Nos. 2489, 2930, 3564,  
20 3732, and 4029.

21 **Q. HAVE YOU BEEN ACCEPTED AS AN EXPERT BEFORE STATE OR**  
22 **FEDERAL COURTS?**

23 A. Yes. I have been accepted as an expert in the area of electrical engineering and electric  
24 utility engineering, construction and reliability matters and the NESC, NEC, OSHA

1           EMF, and forensic engineering, including standard and customary construction practices  
2           in the electric utility industry and the electric industry before 12 state and federal courts.

3

4

1 **PURPOSE OF TESTIMONY**

2 **Q. HAVE YOU REVIEWED THE TESTIMONY OF THE NATIONAL GRID**  
3 **WITNESSES, THEIR EXHIBITS, AND THE FILINGS?**

4 A. Yes, I have reviewed all of the documents as filed in Docket No. 4218.

5 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

6 A. I am testifying on behalf of the Rhode Island Division of Public Utilities and Carriers  
7 ("Division").

8 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?**

9 A. The purpose of my testimony is to present the analysis, as completed by me on behalf of  
10 the Division, of the National Grid Electric Infrastructure, Safety and Reliability Plan FY  
11 2012 Proposal (the "ISR Plan" or the "Plan") dated December 23, 2010. My testimony  
12 will include an explanation of the process of the initial ISR Plan evaluations and  
13 collaborative efforts resulting in a reduction of FY 2012 capital spending on  
14 infrastructure projects, operation and maintenance ("O&M") expenses for Vegetation  
15 Management ("VM"), and O & M expenses for an Inspection and Maintenance ("I&M")  
16 program from the Company's initial ISR Plan submitted to the Division in August 2010.  
17 This process, as provided for in Chapter 39-1-27.7.1 of the General Laws entitled  
18 "Revenue Decoupling", is for the Company, prior to the start of each fiscal year, to  
19 submit its ISR spending plan and consult with the Division regarding said plan. The  
20 Division is also bound by statute to "cooperate in good faith to reach an agreement on a  
21 proposed plan." This process ultimately resulted in the Division and the Company  
22 reaching agreement on an appropriate level of the capital spending and O&M expenses  
23 for FY 2012 to be included in what is now the Company's filing of an Electric ISR Plan  
24 in Docket No. 4218.

1 **Q. HOW HAVE YOU ORGANIZED YOUR TESTIMONY?**

2 A. I have organized my testimony so it matches the structure of the Company's testimony.  
3 In this initial portion of my testimony, I will provide an overview of the process. I will  
4 then address the Capital Investment Plan and the recommended adjustments adopted by  
5 the Company. I will discuss the Vegetation Management ("VM") Program and those  
6 components I supported and the portions of the plan I believed were more expensive than  
7 necessary based on current circumstances. I will provide testimony on the Inspection  
8 and Maintenance ("I&M") Program assessment, including from a historical perspective  
9 and prospective recommendations. Finally, I will provide a conclusion summarizing my  
10 analyses and recommendations.

11 **Q. PLEASE EXPLAIN YOUR REVIEW PROCESS.**

12 A. The Company provided its proposed plan to the Division in August, 2010. An in depth  
13 analysis of each component of the plan was undertaken. A series of data requests were  
14 served on the Company and the Company provided responses. Follow-up requests were  
15 sent to the Company and additional responses were received. These requests and  
16 responses shall be made a part of the record and are included as my *Exhibit GLB-2*. In  
17 November 2010, I provided an assessment to the Division and, subsequently, the  
18 Division delivered this assessment to the Company. A meeting was held at the  
19 Company's offices in Rhode Island, in which the ISR Plan and each element of the ISR  
20 Plan were discussed in detail. The Company provided a PowerPoint presentation which  
21 expanded on each element of the Plan, particularly the VM Plan. The Division staff and I  
22 asked numerous questions, and articulated our position on each element of the ISR Plan.  
23 The dialog at this meeting was very open and interactive. The Company addressed our  
24 questions and agreed to provide further information. Additionally, the Company

1           elaborated on how certain programs, such as the I&M Program, would be transitioning in  
2           future years. A series of telephone conferences were held with the Company to discuss  
3           our assessment. Additional discussions specifically focusing on the VM Plan and I&M  
4           Plan were held.

5  
6           An iterative process began with detailed discussions of each ISR Plan spending Rationale  
7           Category, including Capital Expenditures, the VM Plan, and the I&M Plan. The  
8           Company included each of its area experts in the discussions as we worked towards a  
9           final plan for FY 2012 which would have the support of the Division. This ISR Plan is  
10          reflected in the Company's December 2010 filing with the Commission.

11

**CAPITAL INVESTMENT PLAN**

**Q. HAVE YOU EVALUATED THE COMPANY’S FY 2012 CAPITAL INVESTMENT PLAN AS FILED?**

A. Yes. I have evaluated the \$58.4 million FY 2012 Capital Spending Plan proposed by the Company, along with its supporting testimony and exhibits.

**Q. WOULD YOU DESCRIBE THE PROCESS OF YOUR EVALUATION?**

A. Yes. I first reviewed the initial proposed ISR Plan submitted to the Division in August 2010. As I discussed earlier, there was a meeting, a series of data requests and associated responses, and numerous telephone conferences. Over a period of approximately three (3) months, there was an iterative process in which modifications to the Company’s original proposed Capital Spending Plan were discussed. A consensus was reached concerning each of the Spending Rationales and the six (6) major categories. Chart GLB-1 below summarizes the initial planned spending level for each of the Company’s categories for FY 2012 as contained on the Company’s Chart 1 and the consensus level reached through the evaluation process.

**CHART GLB - 1**

SPENDING RATIONALE	INITIAL FY2012 PROPOSED BUDGET	FILED FY2012 PROPOSED BUDGET	% Diff
Statutory/Regulatory	\$ 21,636,500	\$ 21,636,500	100%
Damage/Failure	\$ 9,705,000	\$ 9,705,000	100%
<i>Subtotal</i>	\$ 31,341,500	\$ 31,341,500	100%
Asset Condition Total	\$ 11,118,050	\$ 9,737,050	88%
Non-Infrastructure Total	\$ 278,000	\$ 278,000	100%
System Capacity and Performance Total	\$ 17,962,450	\$ 15,821,100	88%
<i>Subtotal</i>	\$ 29,358,500	\$ 25,836,150	88%
<b>Grand Total</b>	<b>\$ 60,700,000</b>	<b>\$ 57,177,650</b>	<b>94%</b>
Flood Damage Avoidance Engineering Studies	\$ 1,200,000	\$ 1,200,000	100%
<b>Grand Total including Flood-Related Studies</b>	<b>\$ 61,900,000</b>	<b>\$ 58,377,650</b>	<b>94%</b>

1 **Q. WOULD YOU FIRST EXPLAIN YOUR ASSESSMENT OF THE STATUTORY /**  
2 **REGULATORY AND DAMAGE / FAILURE CATEGORY?**

3 A. Generally speaking, a utility's capital spending to meet its regulatory obligations to  
4 extend service to new customers, upgrade basic service to existing customers, interface  
5 facilities with other agencies, such as the Rhode Island Department of Transportation,  
6 and to restore power by repairing failed or damaged equipment can account for fifty  
7 percent (50%) or more of a fiscal year capital budget. The Company projects the need  
8 for \$21.6 million in Statutory / Regulatory spending and \$9.7 million in Damage / Failure  
9 spending. This is approximately fifty-five percent (55%) of the ISR Plan Capital  
10 requirements. These budgeted levels are reasonably supported by historical spending  
11 levels. None of the projects in these categories is precisely defined because specific  
12 customer requests have not been made and damage or failure is yet to occur. For that  
13 reason, historical spending serves as the primary method to develop a budget. The  
14 economic conditions are a factor considered in adjusting historical costs. There are both  
15 upward and downward trends in new construction costs combined with the effects of  
16 inflation on construction cost. The housing and commercial construction industry  
17 remains depressed while the cost of raw materials and construction cost have seen  
18 dramatic escalation. My analysis supports the Company's projections.

19 **Q. WHAT IS YOUR OPINION CONCERNING AN ANNUAL TRUE UP FOR THE**  
20 **TWO CATEGORIES OF STATUTORY / REGULATORY AND DAMAGE /**  
21 **FAILURE?**

22 A. During our discussions with the Company, I proposed there should be a true up  
23 adjustment or reconciliation. There are two primary driving factors. First, as discussed  
24 in the Company's testimony on pages 11 and 12, the projected \$31.3 million is non-

1 discretionary in terms of scope and timing. Regardless of all other capital project  
2 demands, the Company must expend the funds necessary to meet the requests for new  
3 services or increased service capacity and other facility requests, all of which are driven  
4 by others and outside the control of the Company. Additionally, the Company must  
5 repair or replace damaged or failed equipment. Since the budgets for these categories are  
6 not project specific but rather based on the Company's best estimate using historical cost  
7 trends combined with most recent trend data, a mechanism for reconciliation of the actual  
8 expenditures to the budget projections is essential to protect both the rate payers and the  
9 Company. Mr. David E. Tufts describes in his testimony, beginning on Page 136 (page 6  
10 of 10 of Tufts testimony), the mechanism for the true up. This mechanism will reconcile  
11 the annual differences between the projected budget and the actual expenditures for the  
12 non-discretionary capital spending. I support the annual ISR Plan reconciliation of each  
13 year's revenue requirements for the non-discretionary categories of Statutory /  
14 Regulatory and Damage / Failure only.

15 **Q. THE COMPANY CHART 1 FOR PROPOSED FY 2012 HAS FOUR**  
16 **DISCRETIONARY CATEGORIES ACCOUNTING FOR \$27,036,150. WOULD**  
17 **YOU DISCUSS YOUR ANALYSIS OF THESE CATEGORIES?**

18 A. The four categories, which are discretionary in the sense they are based on engineering,  
19 safety, reliability and economic analyses rather than being mandatory as are the previous  
20 two categories discussed, account for the remaining forty-five percent (45%) of the  
21 proposed capital budget. These categories are Asset Condition, Non-infrastructure,  
22 System Capacity, and Performance and Flood Damage Avoidance Engineering Studies. I  
23 will discuss each category separately.

24

1        Asset Condition

2        Dating back to 2001, I was involved in a reliability assessment of the Company which  
3        included the evaluation of its Asset Management Plans. This assessment resulted in an  
4        initial report published in March 2003 and a final report dated March 31, 2006 which I  
5        prepared on behalf of the Division. The final reliability assessment report included a set  
6        of Action Items and an “Ongoing” process for evaluation and monitoring of reliability  
7        enhancement performance by the Company. The Company provided annual reports to  
8        the Division outlining its reliability performance and progress on the Action Items.  
9        These annual reports concluded with a final 2010 report. The predominant programs that  
10       resulted from this reliability assessment and annual reporting process included a Feeder  
11       Hardening Program, a Feeder Health Program, and associated Operation & Maintenance  
12       reliability enhancements. These programs were successful and have now matured,  
13       resulting in the need for a transition to a continually sustainable program. The Company,  
14       in its preliminary August 2010 filing, proposed a program overlap which maintained the  
15       Feeder Hardening and Reliability O&M programs in FY 2012 while it added the new  
16       I&M Program, which is intended to be a portion of the future sustainable infrastructure  
17       asset management program. I identified several duplications in capital costs during the  
18       analysis of the Company’s initial proposal. After numerous conferences with Company  
19       representatives, it was mutually agreed to reduce the capital programs in a portion of the  
20       Feeder Hardening and I&M Programs. This reduced the Asset Condition category from  
21       \$11,118,050 to \$9,737,050. I would recommend \$9,737,050 as sufficient for FY 2012 to  
22       meet the needs for adequate asset management and infrastructure condition enhancement  
23       necessary to avoid safety and reliability deterioration due to infrastructure failure from

1 condition degradation. Later, I will discuss the I&M Program O&M expense budget and  
2 how it transitions from the previous programs.

3  
4 Non-Infrastructure

5 This category is for telecommunications and other capital expenditures needed for  
6 operation, which are neither related to condition nor system capacity. I consider this  
7 \$278,000 of capital expenditures prudent and necessary.

8  
9 System Capacity and Performance

10 The \$15,821,100 in the System Capacity and Performance category represents 90  
11 projects, including increased substation capacity, distribution conductor replacement, and  
12 the addition of capacitors and sectionalizing equipment in order to meet the capacity and  
13 voltage delivery requirements of the system predicated on existing and future projected  
14 load additions. Equipment and power line thermal stress, outage contingency switching  
15 and maintenance of adequate voltage delivery were the primary drivers identified with  
16 the proposed capital projects. I found the projects to be justified and based on sound and  
17 prudent engineering and economics.

18  
19 Flood Damage Avoidance

20 Rhode Island experienced significant flooding in March 2010 which caused widespread  
21 customer outages. Nine substations were affected that continue to be vulnerable to future  
22 adverse impact from flooding. The Company proposes to expend \$1,200,000 in  
23 engineering during FY 2012 to determine the most cost effective way to mitigate future  
24 widespread outages from flooding. I strongly support the expenditure of up to

1 \$1,200,000 for engineering. However, the Division and the Commission should carefully  
2 evaluate the mitigation plans resulting from this study and determine the risk mitigation  
3 value before any commitment is made to expend significant capital in future years  
4 beginning with FY 2013.

5  
6 Overall

7 *Exhibit GLB-3* compares the Company's August 2010 proposed capital expenditure  
8 levels to those the Division and the Company ultimately agreed upon as reflected in the  
9 Company's ISR Plan filed December 2010. The consensus ISR Plan is nearly a twelve  
10 percent (12%) reduction in the discretionary capital spending budget from the August  
11 2010 proposed level. The overall capital spending reduction exceeded six percent (6%)  
12 or \$3,522,350.

13 **Q. DID YOU REVIEW AS PART OF YOUR ANALYSIS THE COMPANY'S**  
14 **EXHIBIT 1 WITH THE DETAILS ON THE SPECIFIC PROJECTS?**

15 A. Yes.

16 **Q. WHAT WAS THE OUTCOME OF THAT ANALYSIS?**

17 A. The analysis indicated the Company made the reductions in each category and specific  
18 projects as we recommended during our evaluation of its initial proposed ISR Plan  
19 budget submitted in August 2010. The initial ISR Plan was substantially similar in  
20 structure and descriptions as contained in Exhibit 1 attached to Docket No. 4218. The  
21 Company made adjustments as agreed upon with the Division and incorporated  
22 additional discussion of each category to more fully explain the requirements for the FY  
23 2012 ISR Plan Proposed Budget. The Company's Chart 1 and Exhibit 1 are consistent

1 with the derived budget by category and project as agreed to between the Company and  
2 the Division.

3 **Q. HOW DOES THE COMPANY'S REQUESTED REVENUE REQUIREMENT**  
4 **CALCULATION NOW COMPARE WITH ITS REVENUE REQUIREMENT OF**  
5 **THE AUGUST 2010 INITIAL ISR PLAN?**

6 A. The reductions from the initial ISR Plan of August 2010 revenue requirements to the  
7 Proposed ISR Plan revenue requirement appear consistent with the consensus, and plant-  
8 in-service amounts were also adjusted downward. The Company's Chart 2 reflects the  
9 Division's agreement for the level of Capital to be placed in service in FY 2012 plus the  
10 Cost of Removals. The revenue requirement declined nearly twelve percent (12%) from  
11 the original August 2010 proposal provided to the Division. David Efron, on behalf of  
12 the Division, will address the revenue requirement effects of the Plan more specifically in  
13 a separate submission in this proceeding.

14

1 **VEGETATION MANAGEMENT PROGRAM**

2 **Q. WOULD YOU SUMMARIZE YOUR EVALUATION OF THE COMPANY'S**  
3 **VEGETATION MANAGEMENT PROGRAM?**

4 A. Yes. My evaluation was performed on multiple levels. First, I considered the overall  
5 Company reliability indices and determined they have continued to remain better than the  
6 Commission's benchmarks. Second, I carefully considered the Company's justification  
7 for its more aggressive VM Program and its incorporation of an Enhanced Hazard Tree  
8 Mitigation ("EHTM") Program. The Company provided an excellent presentation to the  
9 Division and me on these programs. I found the Company has developed an industry  
10 leading program. I will address my concerns later in my testimony, which deal with the  
11 overall cost of the programs and the benefit cost analysis. Third, I evaluated the  
12 Company's anticipated reliability improvement and the justification for the proposed  
13 budget expenditures, considering both the Company's reliability performance and the  
14 present depressed economy. The Company and Division reached a compromise position  
15 balancing all of these issues and concerns.

16 **Q. COULD YOU FIRST SUMMARIZE THE CONSENSUS POSITION REACHED**  
17 **BEFORE YOU DISCUSS EACH EVALUATION COMPONENT**  
18 **INDIVIDUALLY?**

19 A. The Company's initial ISR Plan submitted to the Division in August 2010 included  
20 \$9,826,000 for the VM Program including the EHTM Program. We fully support a  
21 vegetation management program that yields benefits commensurate with the program  
22 costs. The Division convinced the Company to reduce the VM Program budget to  
23 \$8,069,000, or nearly twenty percent (20%) below the initial proposed budget. I found  
24 the Company's estimated reliability improvement was based on data from a small portion

1 of the system. I recommended a lower VM Program expenditure until such time as more  
2 data was available to support the Company's estimates. Additionally, through the data  
3 request process it was determined some of the percentage improvements were incorrectly  
4 stated. Furthermore, to the extent the Company's predicted reliability improvements and  
5 damage repair costs are improved, there will be an overall net budget benefit.  
6 Considering the present difficult economic environment combined with an acceptable  
7 reliability history, I recommended a slower transition from the historical VM Program to  
8 the Company's proposed more aggressive spending level.

9 **Q. WOULD YOU NOW DISCUSS IN DETAIL EACH AREA OF YOUR VM**  
10 **PROGRAM EVALUATION?**

11 A. First, even though trees account for nearly 30 percent of the Customer Minutes  
12 Interrupted ("CMI"), the overall reliability performance is still very acceptable.  
13 Furthermore, there is a variance each year in tree related CMI which does not directly  
14 support the new VM Program having an indisputable positive trend. This first level of  
15 evaluation does not definitively support the proposed VM Program absent other benefits.  
16 Second, the incorporation of an Enhanced Hazard Tree Mitigation Program based on the  
17 direct damage repair cost creates an economic benefit. Based on the Company's  
18 benefit/cost analysis ratio of 4:1 (\$3,200/\$820), there should be a decline in the O&M  
19 expenses and capital budgets for damage/failure in the future. Considering the  
20 Company's current projections for FY 2013 through FY 2016 show an increasing  
21 Damage/Failure Capital Cost trend of 13 percent, it will be critical to carefully track the  
22 actual benefits to assure there is a real and not imaginary benefit to cost ratio associated  
23 with the VM Program and EHTM Program. The Company accepted the Division's

1 recommendation of a \$1,061,000 reduction in the EHTM Program for FY 2012, or nearly  
2 sixty percent (60%) reduction.

3 I support the 4 year vegetation clearing cycle. Generally, across the utility industry, a 4  
4 year clearing cycle on feeder lines is customary with small tap line clearing cycles less  
5 frequently.

6 **Q. DO YOU AGREE WITH THE COMPANY'S POSITION THAT THE RISK OF**  
7 **ELECTRIC SHOCK TO THE PUBLIC/WORKFORCE AND THE RISK OF FIRE**  
8 **IS SIGNIFICANT IF THERE IS CONDUCTOR-VEGETATION CONTACT?**

9 A. Yes. In areas of the country where vegetation management has been significantly  
10 deferred and tree growth has begun consuming the power lines, we are seeing significant  
11 public injury incidents. For example, this problem in the Florida Power & Light ("FPL")  
12 area has reached a point that FPL is instituting a more aggressive vegetation management  
13 program and now sending letters to its customers asking for cooperation in its program to  
14 re-clear areas.

15 **Q. DO YOU SUPPORT THE BUDGET LEVEL FOR VEGETATION**  
16 **MANAGEMENT PROPOSED BY THE COMPANY?**

17 A. Yes. I find the \$8,069,000 FY 2012 level and a 4 year clearing cycle based on the  
18 Company's enhanced Vegetation Management Program to be appropriate considering  
19 the anticipated level of benefits while balancing today's difficult economic environment.  
20  
21

1 **INSPECTION AND MAINTENANCE PROGRAM**

2 **Q. HOW DID YOU EVALUATE THE COMPANY'S INSPECTION AND**  
3 **MAINTENANCE I&M PROGRAM?**

4 A. I started by reviewing in detail all of the Capital Projects and the O&M Expenses  
5 included in the August 2010 Initial ISR Plan submitted to the Division. Through data  
6 requests and a meeting, combined with telephone conferences, I obtained a complete  
7 understanding of the new I&M Program and how it relates to the previous reliability and  
8 feeder hardening programs. Through the iterative process, I established there was a  
9 certain level of redundancy associated with the transition from the prior programs to the  
10 new I&M Program and its processes. I concur with the Company's proposed I&M  
11 Program processes based on its maturity of the Feeder Hardening and reliability programs  
12 that were an outgrowth of the Reliability Assessment Project from 2001. The Company  
13 agreed to adjust the Capital Budget and O&M spending levels to \$880,100 and  
14 \$1,340,385, respectively, based on the Division's recommendations. Chart 5 on Page 26  
15 of the Company's filing represents the agreement reached between the Division and the  
16 Company.

17 **Q. WHAT WAS THE PURPOSE FOR THE I&M PROGRAM ADJUSTMENTS?**

18 A. I recommended the Company only complete the Feeder Hardening projects for an  
19 additional 209 miles during FY 2012, which represents projects already engineered and  
20 in some stage of the process. This avoids a loss of already expended resources and cost  
21 with this program which will end in FY 2012. It will be transitioned into the new I&M  
22 program. The future I&M program will include a component for feeder hardening in the  
23 overall evaluation process. This eliminates any duplication of programs and permits the

1 new I&M program to most efficiently indentify the projects by feeder based on all of the  
2 needs including reliability, condition and performance.

3 Furthermore, I concur with the need to complete the replacement of the potted porcelain  
4 cutouts scheduled for FY 2012. This will enhance reliability while eliminating safety  
5 hazards.

6

1 **CONCLUSION**

2 **Q. WOULD YOU SUMMARIZE THE EVALUATION PROCESS AND YOUR**  
3 **RECOMMENDATIONS?**

4 A. The collaborative process between the Company and the Division resulted in an ISR Plan  
5 which sets forth a capital budget, VM Program and I&M Program, and associated O&M  
6 activities which balances the need for safety and reliability with the efficient benefit/cost  
7 considerations. *Exhibit GLB-3* summarizes by spending rationale (category) and  
8 individual budget class within each category the Company's initially proposed ISR Plan  
9 in August 2010 and the resulting ISR Plan FY 2012 Proposed Budget reached through an  
10 iterative process of exchange in ideas between the Division and the Company contained  
11 in its filing. While the Budget for the Statutory/Regulatory and Damage/Failure portions  
12 of the FY 2012 Proposed Budget were not adjusted for reasons previously discussed,  
13 significant adjustments through a cooperative process of balancing cost with safety and  
14 reliability were achieved in the other capital and O&M categories. This will result in a  
15 lower annual revenue requirement than originally proposed in the August 2010 initial ISR  
16 Plan document.

17 There will be numerous challenges in the near term through FY 2016. *Exhibit GLB-4*  
18 provides both a historical budget perspective and a prospective view from the Company  
19 of the fiscal years 2013 through 2016. While many of the same competing interests of  
20 safety, reliability, benefit to cost, and economic pressures will need to be considered  
21 going forward, the Division has established a number of important areas of consideration  
22 for the Company in establishment of future budgets. The flood related mitigation  
23 projects will potentially account for as much as ten percent (10%) of the capital budget  
24 over FY 2013 and FY 2014. It will be critical to carefully evaluate the risk mitigation

1 benefits associated with the flood related projects developed during the FY 2012  
2 engineering studies. I re-emphasize my recommendation that the approval for the flood  
3 mitigation engineering studies budgeted in FY 2012 does not automatically approve the  
4 flood related projects in future years.

5 I support the FY 2012 Capital Budget as proposed at \$58,377,650 with a value for the  
6 capital placed in to service in FY 2012 plus cost of removal at \$55,381,000. I also  
7 support the FY 2012 proposed VM Program at \$8,069,000, and the I&M Program and  
8 O&M Program at \$1,138,845.

9 Furthermore, I am a proponent for an annual adjustment process for the categories of  
10 Statutory/Regulatory and Damage/Failure.

11 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

12 A. Yes, it does.

# **EXHIBIT**

## **GLB-1**

**GREGORY L. BOOTH, PE, PLS**  
**President**  
**PowerServices, Inc.**  
**Gregory L. Booth, PLLC**

**RESUME**

Gregory L. Booth is a registered professional engineer with engineering, financial, and management services experience in the areas of utilities, industry private businesses and forensic investigation. He has been representing over 300 clients in some 40 states for more than 40 years.

Mr. Booth has been accepted as an expert before state and federal regulatory agencies, including the Federal Energy Regulatory Commission, the Delaware Public Service Commission, the Minnesota Department of Public Service Environmental Quality Board, the New Jersey Board of Public Utilities, the North Carolina Utilities Commission, the Pennsylvania Public Utility Commission, the Rhode Island Public Utilities Commission, and the Virginia State Corporation Commission. He has been accepted as an expert in both state and federal courts, including Delaware, Florida, New York, North Carolina, Pennsylvania, Virginia, West Virginia, and Federal Court. Investigation and testimony experience includes areas of wholesale and retail rates, utility acquisition, territorial disputes, electric service reliability, right-of-way acquisition and impact of electromagnetic fields and evaluation of transmission line options for utility commissions. Additionally, Mr. Booth has extensive experience serving as an expert witness before state and federal courts on matters including property damage, forensic evaluation, fire investigations, fatality, and areas of electric facility disputes and Occupational, Safety and Health Administration violations and investigations together with National Electric Code and National Electrical Safety Code and Industry Standard compliance.

The following pages provided are the education and experience from 1963 through the present. Also included are courses taught, publications and a list of cases from 1981 to present.

# Resume

## GREGORY L. BOOTH, PE, PLS

Mr. Booth is a Registered Professional Engineer with engineering, financial, and management experience assisting local, state, and federal governmental units; rural electric and telephone cooperatives; investor owned utilities, industrial customers and privately owned businesses. He has extensive experience representing clients as an expert witness in regulatory proceedings, private negotiations, and litigation.

### PROFESSIONAL EDUCATION:

NORTH CAROLINA STATE UNIVERSITY; Raleigh NC,  
Bachelor of Science, Electrical Engineering, 1969

### REGISTRATIONS:

Registered as Professional Engineer in Alabama, Arizona, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Kansas, Maryland, Minnesota, Missouri, New Hampshire, New Jersey, North Carolina, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Commonwealth of Virginia, West Virginia, and Wisconsin

Professional Land Surveyor in North Carolina

Council Record with National Council of Examiners for Engineering and Surveying

### EXPERIENCE:

1963-1967  
Technician  
Booth & Associates

Transmission surveying and design assistance, substation design assistance; distribution staking; construction work plan, long-range plan, and sectionalizing study preparation assistance for many utilities, including Cape Hatteras EMC, Halifax EMC, Delaware Electric Cooperative, Prince George Electric Cooperative, A&N Electric Cooperative; assistance generation plant design, start-up, and evaluations.

1967-1973  
Project Engineer  
Booth & Associates

Transmission line and substation design; distribution line design; long-range and construction work plans; rate studies in testimony before State and Federal commissions; power supply negotiations; all other facets of electrical engineering for utility systems and over 30 utilities in 10 states.

1973-1975  
Professional Engineer  
Associates  
1975-1994  
Executive Vice President  
Booth & Associates

Directed five departments of Booth & Associates, Inc.; provided engineering services to electric cooperatives and other public Booth & power utilities in 23 states; provided expert testimony before state regulatory commissions on rates and reliability issues; in accident investigations and tort proceedings; transmission line routing and designs; generation plant designs; preparation and presentation of long-range and construction work plans; relay and sectionalizing studies; relay design and field start-up assistance; generation plant designs; rate and cost-of-service studies; reliability studies and analyses; filed testimony, preparation and teaching of seminars; preparation of nationally published manuals; numerous special projects for statewide organizations, including North Carolina EMC. Work was provided to over 130 utility clients in 23 states, PWC of the City of Fayetteville, NC, Cities of Wilson, Rocky Mount and Greenville are among the utilities in which I have provided engineering services in North Carolina during this time

frame. Services to industrial customers include Texfi Industries, Bridgestone Firestone, Inc and many others.

1994-2004  
President  
Booth & Associates

Responsible for the direction of the engineering and operations of Booth & Associates, Inc. for all divisions and departments. The engineering work during this time frame has continued to be the same as during 1974 through 1993 with the addition of greater emphasis on power supply issues, including negotiating power supply contracts for clients; increased involvement in peaking generation projects; development of joint transmission projects, including wheeling agreements, power supply analyses, and power audit analyses. The work during this time frame includes providing services to over 200 utility clients across the United States, including NCEMC and NRECA.

2004-Present  
President  
Gregory L. Booth, PLLC

Providing engineering and management services to the electric industry, including planning and design. Providing forensic engineering, product evaluation, fire investigations and accident investigation, serve as an expert witness in state and federal regulatory matters and state and federal court.

2005-Present  
President  
PowerServices, Inc.

Providing engineering and management services to the electric industry, including planning and design and utility acquisition. Providing forensic engineering, product evaluation, fire investigations and accident investigation, serve as an expert witness in state and federal regulatory matters and state and federal court.

## **WORK AND EXPERTISE:**

Electric Utilities:  
(more than 300 clients)

- Utility acquisition expert, including providing condition assessment, system electrical and financial valuation, electrical engineering assessment, initial Work Plan and integration plans, acquisition loan funds, testimony, assessment and consulting services for numerous electric utility acquisitions. Utility clients for acquisition projects include Winter Park, FL acquisition of Progress Energy, FL, system in the City limits, A & N Electric Cooperative acquisition of the Delmarva Power & Light Virginia jurisdiction, Shenandoah Valley Electric Cooperative acquisition of Allegheny Energy Virginia jurisdiction, Rappahannock Electric Cooperative acquisition of Allegheny Energy Virginia jurisdiction, and numerous other past and currently active electric utility acquisitions.
- System studies, including long-range and short-range planning, sectionalizing studies, transmission load flow studies, system stability studies (including effects of imbalance and neutral-to-earth voltage), environmental analyses and impact studies and statements, construction work plan, power requirements studies, and feasibility studies.
- Fossil and hydro generation plan analysis, design, and construction observation.
- Transmission line design and construction observation through 230 kV overhead and underground.

- Switching station and substation design and construction observation through 230 kV.
- Distribution line design and staking, overhead and underground.
- Design of submarine cable installations.
- Supervisory control and data acquisition system design, installation and operation assistance.
- Load management system design, installation and operation assistance.
- Computer program development.
- Load research and alternative energy source evaluation.
- Field inspection, wiring, and testing of facilities.
- Relay and energy control center design.
- Mapping.
- Specialized grounding for abnormal lightning conditions.
- Ground potential rise protection.
- Protective system/relay coordination.

**TELECOMMUNICATION:  
UTILITIES:**

- Subscriber and trunk carrier facilities design.
- Stand-by generation and DC power supplies
- DC-AC inverters for interrupted processor supplies.
- Plant design and testing.
- Fiber optics and other transmission media.
- Microwave design.

**FINANCIAL SERVICES:**

- Long-term growth analyses and venture analyses.
- Lease and cost/benefit analyses.
- Capital planning and management.
- Utility rate design and service regulations.
- Cost-of-Service studies.
- Franchise agreements.
- Corporate accounting assistance.

**FORENSIC ENGINEERING:**

- Compliance with NESC, NEC, OSHA other codes and industry standard.
- Equipment and product failure and analysis and electrical accident investigation.
- Stray voltage, electrical shocking, and electrocution investigations.
- Building code investigations.
- New product evaluation.

**INDUSTRIAL/ELECTRICAL  
ENGINEERING:**

- Building design (commercial and industrial).
- Building code application and investigation.
- Electric thermal storage designs for heating, cooling, and hot water.
- Standby generation and peaking generation design

**INSTRUCTIONAL  
SEMINARS AND TEXT:**

- Seminars taught on arc flash hazards and safety, including National Electrical Safety Code regulations for utilities
- Courses taught on National Electrical Safety Code and National Electrical Code.
- Courses taught on Distribution System Power Loss Evaluation.
- Courses taught on Distribution System Protection.
- Text prepared on Distribution System Power Loss Management.
- Text prepared on Distribution System Protection.
- Seminars taught on substation design, NESC capacitor application, current limiting fuses, arresters, and many others electrical engineering subjects.
- Courses taught on accident investigations and safety.

**TESTIMONY AS AN  
EXPERT:**

- Concerning rate and other regulatory issues before Federal Energy Regulatory Commission and state commissions in North Carolina, Virginia, Delaware, New Jersey, Pennsylvania, Rhode Island, and Minnesota.
- Concerning property damage or personal injury before courts in Maryland, Minnesota, North Carolina, Virginia, West Virginia, Wisconsin, New York, South Carolina, Texas and Pennsylvania.

**FIELD  
ENGINEERING:**

- Transmission line survey.
- Distribution line staking.
- Property surveying.
- Relay and recloser testing.
- Substation start-up testing.
- Generation acceptance and start-up testing.
- Ground resistivity testing.
- Work order inspections.
- Operation and maintenance surveys.

**PROFESSIONAL  
ORGANIZATIONS:**

- a. National Society of Professional Engineers (NSPE)
- b. Professional Engineers in Private Practice (PEPP)
- c. National Council of Examiners for Engineering & Surveying (NCEES)
- d. Professional Engineers of North Carolina (PENC)
- e. National Fire Protection Association (NFPA)
- f. Associate Member of the NRECA
- g. NRECA Cooperative Network Advisory Committee (NRECA-CRN)
- h. The Institute of Electrical and Electronics Engineers (IEEE)  
(Distribution sub-committee members on reliability)
- i. American Standards and Testing Materials Association (ASTM)
- j. Occupational Safety and Health Administration (OSHA) Certification
- k. American Public Power Association (APPA)

# **EXHIBIT**

## **GLB-2**

# **EXHIBIT**

## **GLB-3**

## Capital Outlays by Key Driver Category and Budget Classification

SPENDING RATIONALE	BUDGET CLASS	August Report	Proposed FY2012	% Diff
Statutory/Regulatory	3rd Party Attachments	641,000	641,000	
	Land and Land Rights - Dist	321,000	321,000	
	Meters – Dist	1,803,000	1,803,000	
	New Business - Commercial	6,157,500	6,157,500	
	New Business - Residential	3,917,000	3,917,000	
	Outdoor Lighting - Capital	718,000	718,000	
	Outdoor Lighting - Capital MV	300,000	300,000	
	Public Requirements	3,968,000	3,968,000	
	Transformers & Related Equipment	3,811,000	3,811,000	
<b>Statutory/Regulatory Total</b>		<b>21,636,500</b>	<b>21,636,500</b>	100.00%
Damage/Failure	Damage/ Failure	9,245,000	9,245,000	
	Major Storms – Dist	460,000	460,000	
<b>Damage/Failure Total</b>		<b>9,705,000</b>	<b>9,705,000</b>	100.00%
<b>Subtotal Statutory/Regulatory - Damage/Failure</b>		<b>31,341,500</b>	<b>31,341,500</b>	100.00%
Asset Condition	Woonsocket & Related	5,005,000	5,005,000	
	Asset Replacement	4,732,050	4,732,050	
	Asset Replacement - I&M (NE)	1,381,000	-	
	Substation Capital - Dist	-	-	
	Safety	-	-	
<b>Asset Condition Total</b>		<b>11,118,050</b>	<b>9,737,050</b>	87.58%
Non-Infrastructure	Corporate/Admin/General	-	-	
	Facilities	-	-	
	General Equipment	278,000	278,000	
	Telecommunications Capital - Dist	-	-	
<b>Non-Infrastructure Total</b>		<b>278,000</b>	<b>278,000</b>	100.00%
System Capacity and Performance	Coventry & Related	1,000,000	1,000,000	
	Hopkinton & Related	800,000	800,000	
	Newport & Related	720,000	720,000	
	West Warwick & Related	520,000	520,000	
	Load Relief	6,492,920	6,492,920	
	Reliability	5,199,430	3,938,180	
	Reliability - FEEDER HARDENING	3,230,100	2,350,000	
<b>System Capacity and Performance Total</b>		<b>17,962,450</b>	<b>15,821,100</b>	88.08%
<b>Grand Total</b>		<b>60,700,000</b>	<b>57,177,650</b>	94.20%
	Add: Flood Related Capital and Studies	1,200,000	1,200,000	
<b>Total Electric Distribution</b>		<b>61,900,000</b>	<b>58,377,650</b>	94.31%
Vegetation Management Program	Cycle Trimming	5,902,000	5,300,000	
	Hazard Tree	1,811,000	750,000	
	Sub-T	267,000	267,000	
	Police/Flagman Detail	585,000	491,000	
	All Other Activities	1,261,000	1,261,000	
<b>Vegetation Management Program Total</b>		<b>9,826,000</b>	<b>8,069,000</b>	82.12%
Inspection and Maintenance Program	Operation and Maintenance Expenses:	-	-	
	Opex related to Capex	1,725,285	993,900	
	Repair - Related Costs	609,000	-	
	Inspections - Related Costs 2	144,945	144,945	
<b>Inspection and Maintenance Program Total</b>		<b>2,479,230</b>	<b>1,138,845</b>	45.94%

# **EXHIBIT**

## **GLB-4**

Capital Outlays by Key Driver Category and Budget Classification

SPENDING RATIONALE	BUDGET CLASS	FY 2006 Budget	FY 2006 Actual	FY 2007 Budget	FY 2007 Actual	FY 2008 Budget	FY 2008 Actual	FY 2009 Budget	FY 2009 Actual
Statutory/Regulatory	3rd Party Attachments	-	362,916	-	75,680	280,000	(123,199)	208,000	873,018
	Land and Land Rights - Dist	180,000	199,978	180,000	244,275	230,000	313,141	291,200	310,128
	Meters - Dist	1,976,000	1,609,398	1,900,000	1,748,581	1,950,000	2,194,959	2,101,000	2,135,191
	New Business - Commercial	6,192,000	6,178,305	4,425,000	7,782,725	7,210,000	7,602,534	5,691,500	6,993,422
	New Business - Residential	4,500,000	5,111,949	4,200,000	6,564,788	5,900,000	4,951,161	5,512,000	2,856,774
	Outdoor Lighting - Capital	400,000	523,859	400,000	573,758	1,000,000	712,535	1,001,200	1,236,779
	Outdoor Lighting - Capital MV	-	-	-	-	-	-	350,000	-
	Public Requirements	3,814,000	4,393,841	3,297,500	(790,093)	3,010,000	1,640,703	3,906,968	1,465,029
	Transformers & Related Equipment	3,240,000	4,504,947	3,500,000	4,812,334	5,050,000	6,595,658	4,960,800	5,301,415
	<b>Statutory/Regulatory Total</b>	<b>20,302,000</b>	<b>22,885,193</b>	<b>17,902,500</b>	<b>21,012,048</b>	<b>24,630,000</b>	<b>23,887,492</b>	<b>24,022,668</b>	<b>21,171,756</b>
Damage/Failure	Damage/ Failure	3,250,000	7,655,568	4,550,000	6,764,097	5,650,000	7,266,897	6,496,000	7,488,952
	Major Storms - Dist	-	609,088	-	678,175	10,000	375,380	100,000	856,490
	<b>Damage/Failure Total</b>	<b>3,250,000</b>	<b>8,264,656</b>	<b>4,550,000</b>	<b>7,442,272</b>	<b>5,660,000</b>	<b>7,642,277</b>	<b>6,596,000</b>	<b>8,345,442</b>
	<b>Subtotal Statutory/Regulatory - Damage/Failure</b>	<b>23,552,000</b>	<b>31,149,849</b>	<b>22,452,500</b>	<b>28,454,320</b>	<b>30,290,000</b>	<b>31,529,769</b>	<b>30,618,668</b>	<b>29,517,198</b>
Asset Condition	Woonsocket & Related	-	-	-	-	1,014,000	80,639	2,650,000	57,883
	Asset Replacement	9,323,000	5,828,465	8,241,000	8,314,885	8,631,000	12,381,390	7,050,732	10,793,745
	Asset Replacement - I&M (NE)	-	-	400,000	28,022	300,000	20,727	325,000	112,553
	Substation Capital - Dist	-	-	-	-	-	-	-	-
	Safety	-	-	-	-	75,000	76,680	65,000	(22,943)
	<b>Asset Condition Total</b>	<b>9,323,000</b>	<b>5,828,465</b>	<b>8,641,000</b>	<b>8,342,907</b>	<b>10,020,000</b>	<b>12,559,436</b>	<b>10,090,732</b>	<b>10,941,238</b>
Non-Infrastructure	Corporate/Admin/General	-	(3,136,053)	-	2,441,291	-	(60,904)	-	(3,464)
	Facilities	693,000	742,137	890,000	563,836	-	121,166	-	134,036
	General Equipment	100,000	54,233	100,000	12,601	75,000	324,847	67,000	154,236
	Telecommunications Capital - Dist	-	143,386	-	23,333	-	-	175,000	-
	<b>Non-Infrastructure Total</b>	<b>793,000</b>	<b>(2,196,297)</b>	<b>990,000</b>	<b>3,041,061</b>	<b>75,000</b>	<b>385,109</b>	<b>242,600</b>	<b>284,808</b>
System Capacity and Performance	Coventry & Related	-	-	-	-	-	4,345	950,000	89,324
	Hopkinton & Related	-	-	-	-	-	372	150,000	96,615
	Newport & Related	-	394	1,155,000	4,139	1,215,000	305,411	950,000	715,163
	West Warwick & Related	-	-	-	-	-	-	-	-
	Load Relief	5,964,000	7,306,395	4,648,000	6,694,784	5,030,000	3,486,228	4,335,500	5,988,143
	Reliability	2,922,500	3,022,794	5,745,000	3,529,889	5,104,000	5,446,383	5,667,500	3,878,186
	Reliability - FEEDER HARDENING	1,390,000	650,810	1,413,500	1,316,796	1,085,000	4,315,685	4,654,000	3,828,491
	<b>System Capacity and Performance Total</b>	<b>10,276,500</b>	<b>10,980,393</b>	<b>12,961,500</b>	<b>11,545,608</b>	<b>12,434,000</b>	<b>13,558,424</b>	<b>16,707,000</b>	<b>14,595,922</b>
	<b>Grand Total</b>	<b>43,944,500</b>	<b>45,762,410</b>	<b>45,045,000</b>	<b>51,383,896</b>	<b>52,819,000</b>	<b>58,032,738</b>	<b>57,659,000</b>	<b>55,339,166</b>
	Less: Facilities(where reported)	693,000	742,137	890,000	563,836	-	121,166	-	134,036
	<b>Total Electric Distribution (excluding Flood)</b>	<b>43,251,500</b>	<b>45,020,273</b>	<b>44,155,000</b>	<b>50,820,060</b>	<b>52,819,000</b>	<b>57,911,572</b>	<b>57,659,000</b>	<b>55,205,130</b>
	Add: Flood Related Capital and Studies	-	-	-	-	-	-	-	-
	<b>Total Electric Distribution</b>	<b>43,251,500</b>	<b>45,020,273</b>	<b>44,155,000</b>	<b>50,820,060</b>	<b>52,819,000</b>	<b>57,911,572</b>	<b>57,659,000</b>	<b>55,205,130</b>
Vegetation Management Program	Cycle Trimming	-	-	-	-	4,141,000	-	5,574,000	-
	Hazard Tree	-	-	-	-	721,000	-	757,000	-
	Sub-T	-	-	-	-	294,000	-	436,000	-
	Police/Flagman Detail	-	-	-	-	340,000	-	187,000	-
	All Other Activities	-	-	-	-	1,134,000	-	903,000	-
	<b>Vegetation Management Program Total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>6,630,000</b>	<b>-</b>	<b>7,857,000</b>	<b>-</b>
Inspection and Maintenance Program	Opex related to Capex	-	-	-	-	-	-	-	-
	Repair - Related Costs	-	-	-	-	-	-	-	-
	Inspections - Related Costs 2	-	-	-	-	-	-	-	-
	<b>Inspection and Maintenance Program Total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

Capital Outlays by Key Driver Category and Budget Classification

SPENDING RATIONALE	BUDGET CLASS	FY 2010 Budget	FY 2010 Actual	FY 2011 Budget	FY 2011 Forecast	FY 2012 Proposed	Final Adjustments	Final Filing Proposed
Statutory/Regulatory	3rd Party Attachments	306,000	780,847	620,000	795,000	641,000	-	641,000
	Land and Land Rights - Dist	326,000	274,560	309,000	292,000	321,000	-	321,000
	Meters – Dist	2,690,000	2,042,048	2,040,000	2,150,000	1,803,000	-	1,803,000
	New Business - Commercial	5,801,000	4,705,078	5,550,000	5,100,000	6,157,500	-	6,157,500
	New Business - Residential	2,699,000	3,256,239	3,750,000	3,560,000	3,917,000	-	3,917,000
	Outdoor Lighting - Capital	945,000	941,164	680,000	700,000	718,000	-	718,000
	Outdoor Lighting - Capital MV	300,000	61,933	-	23,000	300,000	-	300,000
	Public Requirements	4,126,000	3,121,260	3,810,000	3,130,000	3,968,000	-	3,968,000
	Transformers & Related Equipment	6,533,000	4,128,756	4,255,000	3,100,000	3,811,000	-	3,811,000
	<b>Statutory/Regulatory Total</b>	<b>23,726,000</b>	<b>19,311,885</b>	<b>21,014,000</b>	<b>18,850,000</b>	<b>21,636,500</b>		<b>21,636,500</b>
Damage/Failure	Damage/ Failure	7,419,000	9,143,559	8,925,000	8,000,000	9,245,000	-	9,245,000
	Major Storms – Dist	500,000	(112,426)	440,000	3,400,000	460,000	-	460,000
	<b>Damage/Failure Total</b>	<b>7,919,000</b>	<b>9,031,133</b>	<b>9,365,000</b>	<b>11,400,000</b>	<b>9,705,000</b>		<b>9,705,000</b>
	<b>Subtotal Statutory/Regulatory - Damage/Failure</b>	<b>31,645,000</b>	<b>28,343,018</b>	<b>30,379,000</b>	<b>30,250,000</b>	<b>31,341,500</b>		<b>31,341,500</b>
Asset Condition	Woonsocket & Related	2,108,000	1,043,789	6,080,000	2,400,000	5,005,000	-	5,005,000
	Asset Replacement	10,847,000	11,530,572	721,000	3,500,000	4,732,050	-	4,732,050
	Asset Replacement - I&M (NE)	1,298,000	490,942	400,000	200,000	1,381,000	(1,381,000)	-
	Substation Capital - Dist	-	-	-	-	-	-	-
	Safety	-	-	-	-	-	-	-
	<b>Asset Condition Total</b>	<b>14,253,000</b>	<b>13,065,303</b>	<b>7,201,000</b>	<b>6,100,000</b>	<b>11,118,050</b>		<b>9,737,050</b>
Non-Infrastructure	Corporate/Admin/General Facilities	-	(1,238,810)	-	-	-	-	-
	General Equipment	161,000	391,872	200,000	250,000	278,000	-	278,000
	Telecommunications Capital - Dist	7,000	-	485,000	350,000	-	-	-
	<b>Non-Infrastructure Total</b>	<b>168,000</b>	<b>(590,138)</b>	<b>685,000</b>	<b>800,000</b>	<b>278,000</b>		<b>278,000</b>
System Capacity and Performance	Coventry & Related	1,128,000	558,222	300,000	100,000	1,000,000	-	1,000,000
	Hopkinton & Related	645,000	547,535	200,000	125,000	800,000	-	800,000
	Newport & Related	5,731,000	2,926,839	1,500,000	1,750,000	720,000	-	720,000
	West Warwick & Related	195,000	114,900	450,000	100,000	520,000	-	520,000
	Load Relief	6,780,000	4,650,580	1,958,000	4,225,000	6,492,920	-	6,492,920
	Reliability	3,641,000	5,768,069	2,214,000	3,750,000	5,199,430	(1,261,250)	3,938,180
	Reliability - FEEDER HARDENING	4,314,000	2,888,145	2,013,000	1,100,000	3,230,100	(880,100)	2,350,000
	<b>System Capacity and Performance Total</b>	<b>22,434,000</b>	<b>17,454,290</b>	<b>8,635,000</b>	<b>11,150,000</b>	<b>17,962,450</b>		<b>15,821,100</b>
	<b>Grand Total</b>	<b>68,500,000</b>	<b>58,272,473</b>	<b>46,900,000</b>	<b>48,300,000</b>	<b>60,700,000</b>		<b>57,177,650</b>
	Less: Facilities(where reported)	-	256,800	-	200,000	-	-	1,200,000
	<b>Total Electric Distribution (excluding Flood)</b>	<b>68,500,000</b>	<b>58,015,673</b>	<b>46,900,000</b>	<b>48,100,000</b>	<b>60,700,000</b>		<b>58,377,650</b>
	Add: Flood Related Capital and Studies	-	-	-	-	1,200,000	-	-
	<b>Total Electric Distribution</b>	<b>68,500,000</b>	<b>58,015,673</b>	<b>46,900,000</b>	<b>48,100,000</b>	<b>61,900,000</b>		<b>58,377,650</b>
Vegetation Management Program	Cycle Trimming	-	4,552,000	-	2,881,000	5,902,000	(602,000)	5,300,000
	Hazard Tree	-	709,000	-	283,000	1,811,000	(1,061,000)	750,000
	Sub-T	-	302,000	-	475,000	267,000	-	267,000
	Police/Flagman Detail	-	241,000	-	105,000	585,000	(94,000)	491,000
	All Other Activities	-	1,078,000	-	1,085,000	1,261,000	-	1,261,000
	<b>Vegetation Management Program Total</b>	<b>-</b>	<b>6,882,000</b>	<b>-</b>	<b>4,829,000</b>	<b>9,826,000</b>		<b>8,069,000</b>
Inspection and Maintenance Program	Opex related to Capex	-	-	-	-	1,725,285	(731,385)	993,900
	Repair - Related Costs	-	-	-	-	609,000	(609,000)	-
	Inspections - Related Costs 2	-	-	-	-	144,945	-	144,945
	<b>Inspection and Maintenance Program Total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2,479,230</b>		<b>1,138,845</b>

updated: 2/7/2011

Capital Outlays by Key Driver Category and Budget Classification

SPENDING RATIONALE	BUDGET CLASS	FY 2013 Proposed	FY 2014 Proposed	FY 2015 Proposed	FY 2016 Proposed
Statutory/Regulatory	3rd Party Attachments	660,000	678,000	698,000	704,000
	Land and Land Rights - Dist	332,000	343,000	355,000	360,000
	Meters – Dist	1,910,000	2,019,000	2,169,000	2,273,000
	New Business - Commercial	6,064,500	6,317,000	6,628,000	6,849,000
	New Business - Residential	4,137,000	4,362,000	4,612,000	4,779,000
	Outdoor Lighting - Capital	747,000	775,000	809,000	825,000
	Outdoor Lighting - Capital MV	1,400,000	2,500,000	-	-
	Public Requirements	4,059,000	3,830,000	4,029,000	4,160,000
	Transformers & Related Equipment	4,077,000	4,323,000	4,667,000	4,901,000
	<b>Statutory/Regulatory Total</b>	<b>23,386,500</b>	<b>25,147,000</b>	<b>23,967,000</b>	<b>24,851,000</b>
Damage/Failure	Damage/ Failure	9,566,000	9,884,000	10,269,000	10,425,000
	Major Storms – Dist	480,000	500,000	520,000	540,000
	<b>Damage/Failure Total</b>	<b>10,046,000</b>	<b>10,384,000</b>	<b>10,789,000</b>	<b>10,965,000</b>
	<b>Subtotal Statutory/Regulatory - Damage/Failure</b>	<b>33,432,500</b>	<b>35,531,000</b>	<b>34,756,000</b>	<b>35,816,000</b>
Asset Condition	Woonsocket & Related	600,000	-	-	-
	Asset Replacement	7,107,135	12,905,585	15,688,500	15,651,875
	Asset Replacement - I&M (NE)	1,168,000	1,168,000	1,168,000	685,000
	Substation Capital - Dist	-	-	-	-
	Safety	-	-	-	-
	<b>Asset Condition Total</b>	<b>8,875,135</b>	<b>14,073,585</b>	<b>16,856,500</b>	<b>16,336,875</b>
Non-Infrastructure	Corporate/Admin/General Facilities	-	-	-	-
	General Equipment	296,000	313,000	336,000	351,000
	Telecommunications Capital - Dist	-	100,000	-	-
	<b>Non-Infrastructure Total</b>	<b>296,000</b>	<b>413,000</b>	<b>336,000</b>	<b>351,000</b>
System Capacity and Performance	Coventry & Related	874,000	-	-	-
	Hopkinton & Related	4,500,000	400,000	-	-
	Newport & Related	9,006,000	3,050,000	750,000	-
	West Warwick & Related	3,100,000	4,100,000	200,000	-
	Load Relief	5,484,865	5,294,415	6,019,500	8,211,125
	Reliability	5,131,500	4,738,000	5,282,000	5,285,000
	Reliability - FEEDER HARDENING	-	-	-	-
	<b>System Capacity and Performance Total</b>	<b>28,096,365</b>	<b>17,582,415</b>	<b>12,251,500</b>	<b>13,496,125</b>
	<b>Grand Total</b>	<b>70,700,000</b>	<b>67,600,000</b>	<b>64,200,000</b>	<b>66,000,000</b>
	Less: Facilities(where reported)	-	-	-	-
	<b>Total Electric Distribution (excluding Flood)</b>	<b>70,700,000</b>	<b>67,600,000</b>	<b>64,200,000</b>	<b>66,000,000</b>
	Add: Flood Related Capital and Studies	6,207,000	4,844,000	1,664,000	250,000
	<b>Total Electric Distribution</b>	<b>76,907,000</b>	<b>72,444,000</b>	<b>65,864,000</b>	<b>66,250,000</b>
Vegetation Management Program	Cycle Trimming				
	Hazard Tree				
	Sub-T				
	Police/Flagman Detail				
	All Other Activities				
	<b>Vegetation Management Program Total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Inspection and Maintenance Program	Inspection and Maintenance Expenses:				
	Opex related to Capex				
	Repair - Related Costs				
	Inspections - Related Costs 2				
	<b>Inspection and Maintenance Program Total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>