

**STATE OF RHODE ISLAND
PUBLIC UTILITIES COMMISSION**

The Narragansett Electric Company
d/b/a National Grid

Docket No. 5209

RE: FY 2023 Electric Infrastructure,
Safety, and Reliability Plan

PREFILED DIRECT TESTIMONY OF

**Gregory L. Booth, PE
President, Gregory L. Booth, PLLC
On Behalf of Rhode Island Division of Public Utilities and Carriers**

February 15, 2022

Prepared by:
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Prefiled Direct Testimony of

**Gregory L. Booth, PE, President
Gregory L. Booth, PLLC**

**On Behalf of Rhode Island Division of Public Utilities and Carriers
Docket No. 5209**

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DIRECT TESTIMONY OF GREGORY L. BOOTH, PE

I. INTRODUCTION

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

A. My name is Gregory L. Booth. My company is Gregory L. Booth, PLLC ("Booth, PLLC"), mailing address 14460 Falls of Neuse Road, Suite 149-110, Raleigh, North Carolina 27614.

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 ("Division").

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, and was inducted into the North Carolina State University Department of Electrical and Computer Engineering Alumni Hall of Fame in November 2016. I am a registered professional engineer in twenty-three (23) states, including Rhode Island, as well as the District of Columbia. I am a registered land surveyor in North Carolina. I am also registered under the National Council of Examiners for Engineering and Surveying.

Q. ARE YOU A MEMBER OF ANY PROFESSIONAL SOCIETIES?

A. I am an active member of the National Society of Professional Engineers ("NSPE"), the Professional Engineers of North Carolina ("PENC"), the Institute of Electrical and Electronics Engineers ("IEEE"), American Public Power Association ("APPA"), American Standards and Testing Materials Association ("ASTM"), the National Fire Protection Association ("NFPA"), and Professional Engineers in Private Practice ("PEPP"). I have also served as a member of the IEEE Distribution Subcommittee on Reliability and as an

1 advisory member of the National Rural Electric Cooperative Association (“NRECA”)-
2 Cooperative Research Network, which is an organization similar to EPRI.

3 **Q. PLEASE BRIEFLY DESCRIBE YOUR EXPERIENCE WITH ELECTRIC**
4 **UTILITIES.**

5 A. I have worked in the area of electric utility and telecommunication engineering and
6 management services since 1963. I have been actively involved in all aspects of electric
7 utility planning, design and construction, including generation, transmission, and
8 distribution systems, and North American Electric Reliability Corporation (“NERC”)
9 compliance.

10 **Q. HAVE YOU PREVIOUSLY TESTIFIED AS AN EXPERT BEFORE THE RHODE**
11 **ISLAND PUBLIC UTILITIES COMMISSION?**

12 A. Yes. I have testified before the Rhode Island Public Utilities Commission on numerous
13 matters, including Docket Nos. 2489, 2509, 2930, 3564, 3732, 4029, 4218, 4237, 4307,
14 4360, 4382, 4770/4780, 4473, 4483, 4513, 4539, 4592, 4614, 4682, 4783, 4857, 4915,
15 4995, 5077, 5098, D-11-94, D-17-45, and D-21-09. My testimony in Rhode Island has
16 included filed and live testimony on previous Electric Infrastructure, Safety and Reliability
17 Plan Fiscal Year Proposal filings by National Grid in Docket Nos. 4218, 4307, 4382, 4473,
18 4539, 4592, 4682, 4783, 4915, 4995, and 5098.

19 **Q. HAVE YOU PREVIOUSLY TESTIFIED AS AN EXPERT IN OTHER**
20 **JURISDICTIONS?**

21 A. I have testified before the Federal Energy Regulatory Commission (“FERC”) and
22 numerous state commissions, including in Connecticut, Delaware, Florida, Georgia,
23 Maine, Maryland, Massachusetts, Minnesota, New Jersey, North Carolina, Pennsylvania,
24 and Virginia.

1 **II. PURPOSE OF TESTIMONY**

2 **Q. WHAT IS THE PURPOSE OF THIS TESTIMONY?**

3 A. The purpose of my testimony is to introduce *Exhibit GLB-1*, Report of Gregory L. Booth,
4 PE on the review of National Grid’s Proposed FY 2023 Electric Infrastructure, Safety and
5 Reliability Plan provided to the Division October 1, 2021 (“ISR Plan”). My testimony will
6 briefly summarize the collaborative process between the Division and National Grid, which
7 resulted in preliminary consensus of the final Electric Infrastructure, Safety, and Reliability
8 Plan FY 2023 Proposal filed with the Commission by National Grid on December 20, 2021.
9 My testimony also summarizes the details of *Exhibit GLB-1* and my recommendations.

III. ISR PLAN EVALUATION PROCESS

Q. WOULD YOU BRIEFLY OUTLINE THE PROCESS WHICH LEADS TO THE DIVISION'S SUPPORT OF THE NATIONAL GRID ISR PLAN FILED ON DECEMBER 20, 2021 IN THIS DOCKET?

A. Yes. An evaluation and analysis process were performed. The Division and I participated in numerous conferences leading up to the filing which included many other related matters such as Area Study presentations, power sector transformation, system reliability planning, COVID-19 impacts, Docket 4600, FY 2022 ISR Plan quarterly reports and Distributed Energy Resources ("DER") interconnection. There were some 20 separate actions and procedures, including conferences with the Company, that were directly related to the Company's FY 2023 filing which are listed in my Report attached as *Exhibit GLB-1*. The following charts summarize the adjustments by category and the preliminary agreement reached between the Division and National Grid, which are represented in National Grid's December 20, 2021 filing:

FY 2023 PROPOSED BUDGET by Spending Rationale	NG Initial Proposed Budget (10-1-21)	Adjustments	National Grid Proposed Budget (12-20-21)	% of Total Budget
Customer Request/Public Requirements	\$ 27,183,000		\$ 27,183,000	26%
Damage/Failure Total	\$ 14,251,000		\$ 14,251,000	14%
Subtotal Non-Discretionary	\$ 41,434,000	\$ -	\$ 41,434,000	40%
Asset Condition	\$ 47,288,000	\$ 1,000,000	\$ 48,288,000	46%
Non-Infrastructure	\$ 1,520,000		\$ 1,520,000	1%
System Capacity and Performance	\$ 13,508,000		\$ 13,508,000	13%
Subtotal Discretionary	\$ 62,316,000	\$ 1,000,000	\$ 63,316,000	60%
Grand Total	\$ 103,750,000	\$ 1,000,000	\$ 104,750,000	

FY 2023 Proposed Budget	NG Initial Proposed Budget (10-1-21)	Adjustments	National Grid Proposed Budget (12-20-21)	FY 2022 Forecast
Vegetation Management				
Cycle Pruning	\$ 6,800,000	\$ 500,000	\$ 7,300,000	\$ 6,600,000
Hazard Tree	\$ 1,750,000		\$ 1,750,000	\$ 1,500,000
Sub-T	\$ 350,000		\$ 350,000	\$ 500,000
Police/Flagman Detail	\$ 775,000		\$ 775,000	\$ 775,000
Pockets of Poor Performance	\$ 200,000		\$ 200,000	\$ 200,000
All Other Activities	\$ 1,500,000		\$ 1,500,000	\$ 1,225,000
Program Total	\$ 11,375,000	\$ 500,000	\$ 11,875,000	\$ 10,800,000

IV. REPORT SUMMARY

1 **Q. PLEASE BRIEFLY SUMMARIZE YOUR REPORT ATTACHED AS *EXHIBIT***
2 ***GLB-1* (“REPORT”).**

3 A. The Report contains an Introduction describing the overall process and summarizing the
4 adjustments, which resulted in a preliminary consensus for the FY 2023 ISR Plan Proposed
5 Budget of \$104.8 million for capital items, and proposed Vegetation Management Program
6 expense budget of \$11.9 million. The Report section on the Capital Investment Plan
7 discusses in detail each major category: Customer Request/Public Requirements;
8 Damage/Failure; Asset Condition; Non-Infrastructure; System Capacity and Performance,
9 along with an Additional Assessments section, outlining the issues considered, the
10 adjustments proposed, and the reasoning for the adjustments as accepted by National Grid.
11 A detailed summary chart contained in *Exhibit GLB-1* as Appendix-2 shows each Spending
12 Rationale and Budget Class with the October 1, 2021 initial proposed budget, net
13 adjustments, and the resulting final proposed budget filed by the Company on December
14 20, 2021.

15 The Report focuses on each spending rationale, generally categorized as
16 discretionary and non-discretionary spend, with an assessment of the Company’s proposed
17 projects and associated spend for FY 2023. Customary programs and projects are addressed
18 with additional observations in areas that raise concerns for the Division or benefit from
19 expanded discussions. The Report contains a conclusion that includes twelve (12)
20 recommendations related to the capital investment, O&M, and vegetation management
21 portions of the ISR Plan. Many of these recommendations are a continuation of previous
22 ISR Plan recommendations. These include, but are not limited to: recommendations that
23 the Company modulate annual spend to mitigate dramatic upward pressure on rates due to

1 significant asset condition related projects and future investments such as advanced
2 metering and grid modernization, continue to develop an alignment between ISR Plan core
3 programs and those arising from external initiatives, improve project estimations and
4 complex project execution to meet budgets, address potential overlap between non-
5 discretionary spend in the Damage/Failure category and discretionary spend in the
6 Inspection & Maintenance and Asset Replacement programs, and continue targeted
7 vegetation management programs while evaluating future program enhancements to
8 address increasing outages due to trees. These are in addition to the requisite analysis and
9 documentation expected of the Company each year to support projects and programs.

10 **Q. PLEASE SUMMARIZE NEW OBSERVATIONS OR RECOMMENDATIONS**
11 **RESULTING FROM YOUR REVIEW OF THE PROPOSED FY 2023 ISR PLAN.**

12 A. After nearly six years, the Company has now completed all 11 Area Studies which cover
13 the entire system. The next step is to develop a holistic Long-Range Plan which integrates
14 all 11 Area Studies and establishes a correlation between the Area Study projects. The
15 objective is to prepare a single comprehensive plan in the upcoming year that optimizes
16 the solutions across all regions studied and prioritizes scheduling of those projects based
17 on the knowledge gained through the completion of all 11 Area Studies. These studies have
18 taken into account robust evaluation metrics that include Non-Wires Alternatives
19 (“NWA”) for grid solutions. The Division recommends that the Company put forth a straw
20 proposal on planning enhancements to explore and/or facilitate customer implementation
21 of a NWA when a system capacity project is driven by that same customer’s increasing
22 load.

23 The Division notes that inflation, supply chain issues and qualified worker
24 availability is translating into project delays and increased costs that the Company must

1 anticipate and manage. Alternately, future ISR Plans are nearly \$30 million lower since the
2 Company has halted Strategic Distributed Energy Resources (“DER”) Advancement and
3 all related Grid Modernization Plan (GMP) spend pending the outcome of PPL
4 Corporations’ petition to acquire Narragansett Electric. Should Narragansett transfer to a
5 new owner, Company changes that impact capital investment plans are inevitable and the
6 Division expects a higher level of scrutiny will be required to determine that 1) changes
7 are necessary and produce quantifiable benefits that accrue to ratepayers which outweigh
8 costs, 2) there is no degradation to service, and 3) ratepayers do not incur excess or
9 duplicative costs.

V. **CONCLUSION**

1 **Q. DO YOU AND THE DIVISION SUPPORT NATIONAL GRID'S FY 2023**
2 **ELECTRIC ISR PLAN PROPOSAL FOR \$103.7 MILLION IN BUDGETED**
3 **CAPITAL EXPENDITURES, WITH \$10.8 MILLION IN VEGETATION**
4 **MANAGEMENT EXPENSES?**

5 A. Preliminary agreement was reached on several cost components, but the Division reserved
6 its right for additional adjustments or conditions pending further evaluation. The Division
7 now supports the Company's FY 2023 Electric ISR Plan filing emphasizing that in several
8 categories there are programs in which the Company has agreed to collaborate with the
9 Division prior to initiating the capital spending.

10 **Q. WHAT ARE THE RECOMMENDATIONS YOU HAVE MADE IN YOUR**
11 **REPORT *EXHIBIT GLB-1*?**

12 A. The twelve (12) recommendations related to capital investment and vegetation
13 management I have provided in my *Exhibit GLB-1* are summarized in the following list,
14 and are provided with additional discussion in the Summary and Recommendations section
15 of my Report.

- 16
- 17 1. The Company shall continue to coordinate with the Division to monitor and report on
18 work performed under Damage/Failure, I&M, and related Asset Replacement blanket
19 programs to validate proper classifications. The Company shall put forth program
20 adjustments in the FY 2024 ISR Plan that include advancing Damage/Failure to a "fix
21 on failure" strategy.
- 22

1 2. The Company shall develop an alignment between various planning and project
2 evaluation processes, with consideration as to how a grid modernization strategy may
3 be incorporated. This includes, but is not limited to, the System Reliability Procurement
4 ("SRP") plans, Area Studies, ISR Plan, non-wires alternatives ("NWA") options and
5 internal Design Criteria.

6
7 3. The Company shall continue enhancing current and future study documents supporting
8 Asset Replacement and System Capacity programs or projects as applicable to include,
9 at a minimum:

- 10 • The traditional elements included in the Company's current studies including, but
11 not limited to, purpose and problem statement, scope and program description,
12 condition assessment/criticality rankings, alternatives considered, solution, cost
13 and timeline.
- 14 • Discussion on the impact to related Company initiatives, Commission programs,
15 the various pilot projects, or other requirements driven by SRP, Distribution
16 System Planning ("DSP"), Heat Maps, and emerging initiatives.
- 17 • A detailed comparison of recommendations to Area Studies to determine if
18 solutions are aligned with study outcomes, noting adjustments required to avoid
19 redundancy in planning.
- 20 • An evaluation of potential incremental investments that support the Company's
21 long-term grid modernization strategy. This includes description of technology
22 or infrastructure investment, cost-benefit to traditional safety and reliability
23 objectives, and additional operational benefits achieved, if implemented. The

1 GMP should be closely correlated with all ISR Plan investments, including both
2 recurring and newly proposed programs.

- 3 • A robust NWA evaluation for projects passing initial screening that clearly
4 identifies alternatives considered, costs, and benefits.
- 5 • A correlation of the 11 Area Studies to each other for the development of a holistic
6 system Long-Range Plan which further informs the ISR Plan.

7

8 4. The Company shall continue to develop a System Capacity Load Study and a 10-year
9 Long-Range Plan in order to increase the level of support and transparency for the
10 capital budget. The Company shall analyze the overall system in a holistic manner
11 using the now completed 11 Area Studies to establish enhancements in the Area Study
12 solutions. The Company shall use the completed Area Studies to re-prioritize and
13 sequence all solutions and major projects in the Long-Range Plan. The Company shall
14 submit and present the outcome of each revised Area Study to the Division and its
15 consultant at the time of completion. These studies shall include a separate Non-Wire
16 Alternative analysis of the projects consistent with the requirements of other program
17 commitments. The Company shall submit a report with updates on modeling activities,
18 holistic system long range plan development and revision of each Area Study status at
19 least 120 days prior to filing its FY 2024 ISR Plan Proposal, but in any event no later
20 than August 31, 2022.

21

22 5. The Company shall manage major Asset Replacement and System Capacity &
23 Performance project budgets separate from other discretionary projects, such that any

1 budget variances (underspend) will not be utilized in other areas of the ISR Plan. The
2 Company shall provide quarterly budget and project management reports.

3
4 6. The Company will continue to manage (underspend/overspend management)
5 individual project costs within the ISR Plan discretionary category (comprised of Asset
6 Condition and System Capacity and Performance projects), such that total portfolio
7 costs are aligned within a discretionary budget target that excludes major substation
8 projects.

9
10 7. The Company shall continue to provide quarterly reporting on Damage/Failure
11 expenditures to include the details of completed projects by operating region. The
12 Company will separately identify Level I projects repaired as a result of the I&M
13 program.

14
15 8. The Company shall continue to provide a detailed budget for System Capacity &
16 Performance and Asset Condition in order to provide transparency on a project level
17 basis for the current and future 4-year period. The budget shall be provided in advance
18 of the FY 2024 ISR Plan Proposal filing, and in any event no later than August 31,
19 2022.

20
21 9. The Company shall submit an evaluation of future proposed Asset Condition projects
22 as compared to the Company's Long-Range Plan in advance of the FY 2024 ISR Plan
23 Proposal filing, and in any event no later than August 31, 2022.

1 10. The Company shall continue to submit its detailed substation capacity expansion plans
2 and load projections, and include an evaluation of proposed projects against the
3 Company's Long-Range Plan, in advance of the FY 2024 ISR Plan Proposal filing, and
4 in any event no later than August 31, 2022.

5
6 11. The Company shall continue to submit a cost-benefit analysis on the Vegetation
7 Management Cycle Clearing Program and a separate cost-benefit analysis on the
8 Enhanced Hazard Tree Management program for the Division's review prior to
9 submitting the Company's FY 2024 ISR Plan Proposal, and in any event no later than
10 August 31, 2022.

11
12 12. In the event the PPL acquisition of Narragansett transpires, Narragansett Electric shall
13 provide within 60 days of closing a comprehensive report addressing, at a minimum:
14 an organizational chart identifying the new ISR Plan team members and responsibilities
15 as compared to the current organization, any changes in the project sanctioning process;
16 any proposed changes to the ISR Plan process; and a schedule for the quarterly
17 presentations of the quarterly reports. The Company shall provide report updates at
18 each quarterly presentation.

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

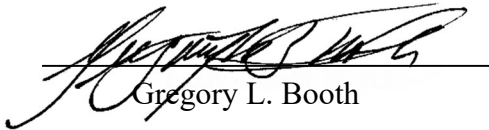
20 **A. Yes.**

AFFIDAVIT OF GREGORY L. BOOTH, PE

Gregory L. Booth, does hereby depose and say as follows:

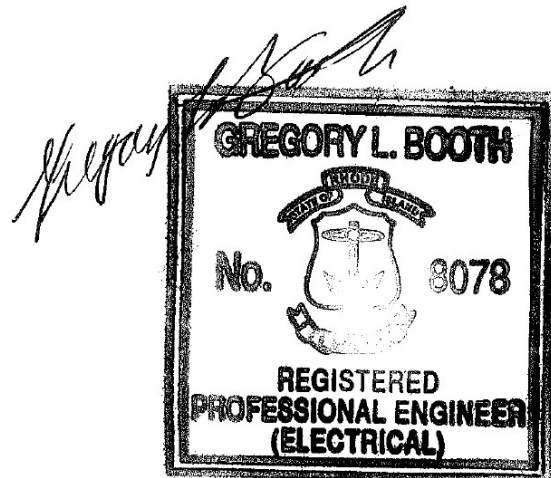
I, Gregory L. Booth, on behalf of the Rhode Island Division of Public Utilities and Carriers, certify that testimony, including information responses, which bear my name was prepared by me or under my supervision and is true and accurate to the best of my knowledge and belief.

Signed under the penalties of perjury this the 15th day of February, 2022.



Gregory L. Booth

I hereby certify this document was prepared by me or under my direct supervision. I also certify I am a duly registered professional engineer under the laws of the State of Rhode Island, Registration No. 8078.



Gregory L. Booth, PE

EXHIBIT GLB-1
REPORT OF GREGORY L. BOOTH, PE

STATE OF RHODE ISLAND
PUBLIC UTILITIES COMMISSION

REPORT OF

Gregory L. Booth, PE
President, Gregory L. Booth, PLLC
On Behalf of Rhode Island Division of Public Utilities and Carriers
Concerning
The Narragansett Electric Company d/b/a National Grid's Proposed
FY 2023 Electric Infrastructure, Safety, and Reliability Plan
Docket No. 5209

February 15, 2022

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EXHIBIT GLB-1
REPORT OF GREGORY L. BOOTH, PE

PREFACE

Gregory L. Booth, PLLC was engaged by the State of Rhode Island Division of Public Utilities and Carriers (“RIDPUC”) to evaluate the Electric Infrastructure, Safety and Reliability (“ISR Plan” or “Plan”) Plan FY 2023 Proposal submitted by National Grid. As part of the review of the plan, numerous data requests were submitted and responses provided by National Grid. Additionally, meetings and conferences were held with National Grid and their key personnel involved in the development of the Plan. The Legislative Act amending Chapter 39-1 “Revenue Decoupling”, 39-1-27.7.1, provided National Grid the right to file an ISR Plan and receive considerations for the Plan. The statute provides for evaluation by the Division, and for National Grid and the Division to attempt to reach an agreement on a proposed plan and submit a mutually agreed upon Plan. The following report describes the process and position reached between the Division and National Grid.

EXHIBIT GLB-1
REPORT OF GREGORY L. BOOTH, PE

REPORT OF

Gregory L. Booth, PE
President, Gregory L. Booth, PLLC
On Behalf of Rhode Island Division of Public Utilities and Carriers
Concerning
The Narragansett Electric Company d/b/a National Grid's Proposed
FY 2023 Electric Infrastructure, Safety, and Reliability Plan
Docket No. 5209

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EXHIBIT GLB-1

REPORT OF GREGORY L. BOOTH, PE

I. INTRODUCTION

Gregory L. Booth, PLLC (“Division Consultant”¹) was engaged by the Rhode Island Division of Public Utilities and Carriers (“Division”) to assist in the evaluation of the initial National Grid Electric Infrastructure, Safety, and Reliability Plan FY 2023 Proposal (the “ISR Plan” or “Plan”) dated October 1, 2021, and the final Electric Infrastructure, Safety, and Reliability Plan FY 2023 Proposal dated December 20, 2021 filed in Docket 5209. The evaluation followed the same process of analysis completed for each ISR Plan filed from FY 2012 through FY 2022. This Report includes an explanation of the process for the initial FY 2023 ISR Plan proposal evaluations and collaborative efforts, resulting in a preliminary reduction of proposed FY 2023 capital spending for discretionary projects. The reductions were applied to the proposed spending levels initially presented as part of the Narragansett Electric Company d/b/a National Grid’s (“Company”) August 6, 2021 pre-file documents, incorporated in the Company’s initial FY 2023 ISR Plan Proposal submitted to the Division on October 1, 2021, and further adjusted prior to the Company submitting the final ISR Plan Proposal dated December 20, 2021.

This process, as provided for in Chapter 39-1-27.7.1 of the General Laws entitled “Revenue Decoupling”, is for the Company, prior to the start of each fiscal year, to submit its ISR spending plan and consult with the Division regarding said Plan. The Division is also bound by statute to “cooperate in good faith to reach an agreement on a proposed plan.” Through this process, the Division and the Company ultimately reached agreement on select adjustments. In this report, I will discuss the areas of consensus between the Division and the Company. This involves an in-depth assessment of all spending categories that includes a detailed review of each project,

¹ For the purposes of this report, reference to “Division Consultant”, “I” and “my” are interchangeable.

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REPORT OF GREGORY L. BOOTH, PE

proposed level of spend, and justification for inclusion in the ISR Plan. My evaluation considers the alignment of both non-discretionary and discretionary budgets with the Company's reliability and safety objectives, while promoting efficiencies that could reduce overall spend without compromising those critical objectives. In addition to individual program and project review with recommended adjustments, I address the need for the Company to now develop a comprehensive strategic spending plan and the Division's ongoing concern with continued upward pressure on costs considering increasing capital needs to support other Company initiatives. I emphasize the need for continuous improvement in project estimating and execution, and recommend enhancements to planning processes such as expanding the application of non-wires alternatives. I address the Company's actions taken outside the ISR Plan process to achieve a more holistic planning process, taking into account multiple external initiatives and the Company's associated steps to apply Docket 4600 goals to new ISR Plan projects and programs for which it seeks funding for the first time. Lastly, my review highlights unique challenges and potential impacts that could be brought forth by Narraganset Electric's potential change in ownership, including delays in advanced metering functionality and grid modernization initiatives.

The Company's initial proposed October 1, 2021 FY 2023 ISR Plan followed very closely the format and principals agreed to in previous Plans. Most of the Company's budget line items were structurally similar to the previous Plans, with modifications in the cost structure. The Division Consultant performed its evaluations by reviewing the Company's pre-file planning information, all of the Area Studies, and the proposed ISR Plan. The pre-file planning information is guided by Division recommendations and the Rhode Island Public Utilities Commission ("Commission") Report and Order from prior ISR proceedings. The materials evaluated include reliability reports, budget variance explanations, program cost benefit analyses, detailed budgets

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REPORT OF GREGORY L. BOOTH, PE

for major projects, completed Area Studies, Quarterly ISR Plan Reports, and other supplemental information. The Company's quarterly updates and conferences for the FY 2022 ISR Plan were also utilized to provide trending analysis and benchmarks for proposed levels of spending including how major project schedules may have been altered. An in-depth analysis of the pre-file planning information and each component of the proposed FY 2023 ISR Plan was undertaken.

This evaluation and analysis included the following actions and procedures:

1. On August 6, 2021, National Grid provided its ISR FY 2023 ISR Proposal Pre-filing Planning Information to the Division, and Division consultants.
2. On August 17, 2021, a conference call was held between the Division, Division consultants and the Company to discuss the Pre-filing Planning Information and reports provided by National Grid in advance of the FY 2023 ISR Plan filing. The Company also provided requested updates on the impact of Advanced Metering Functionality (AMF) and Grid Modernization Plan (GMP) deferrals, major project status, underground cable replacement strategy, Area Studies and long-range planning, and COVID-19 investment work.
3. On October 1, 2021, National Grid files its Proposed Electric Infrastructure, Safety, and Reliability Plan for Fiscal Year 2023.
4. On October 14, 2021 a conference call was held between the Division, Division consultants, and the Company to discuss the Blackstone Valley South and South County West Area Studies.
5. On October 26, 2021, the Division provided the First Set of Data Requests to the Company.
6. On November 16, 2021, National Grid provided responses to the First Set of Data Requests.
7. On November 16, 2021, a conference call was held between the Division, Division consultants, and the Company to discuss vegetation management, underground replacement cable program, non-wires alternative project updates, and potential adjustments to the FY23 Plan due to project delays in FY22.
8. On November 30, 2021, the Division provided the Second Set of Data Requests to the Company.
9. On December 1, 2021, a call was held between the Division, Division consultants, and the Company to discuss Dyer Street updates, supply chain challenges, the annual capacity review, and other Plan adjustments. The Company followed up with proposed adjustments to asset replacement and vegetation management categories on December 2, 2021.

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REPORT OF GREGORY L. BOOTH, PE

10. On December 8, 2021, the Division and Division consultant accepted the Company's recommended areas of adjustment and a final proposed FY 2023 ISR Plan budget. As has been customary with previous filings, the Division's acceptance was contingent on a satisfactory review of the final filing.
11. On December 9, 2021, a call was held between the Division, Division consultants, and the Company to review the Newport Area Study. In addition, the Company provided responses to the Second Set of Data Requests and supplemental responses to DIV 1-5 and DIV 1-6.
12. On December 14, 2021, the Division consultant and Company held a call to discuss enhancements to the ISR Plan format.
13. On December 20, 2021, National Grid filed the proposed final Electric Infrastructure, Safety, and Reliability Plan (Plan) for fiscal year 2023.
14. On January 5, 2022, the Division provided the Third Set of Data Requests to the Company.
15. On January 18, 2022, the Division provided the Fourth Set of Data Requests to the Company.
16. On January 19, 2022, National Grid provided responses to the Third Set of Data Requests.
17. On January 28, 2022, a call was held between the Division and National Grid to discuss a 69 kV project proposed in the ISR Plan.
18. On January 31, 2022, the Division provided the Fifth Set of Data Requests to the Company.
19. On February 1, 2022, National Grid provided responses to the Fourth Set of Data Requests.
20. On February 4, 2022, a call was held between the Division and National Grid to discuss major projects and the 10-year Long-Range Plan development. This included discussing how the Area Study projects would be sequenced over the next 10 years.
21. On February 14, 2022, National Grid provided responses to the Fifth Set of Data Requests.

The overall analysis was an iterative process, which included detailed discussions of each ISR Plan spending rationale category, including Capital Expenditures, the Vegetation Management ("VM") Plan, and the Inspection and Maintenance ("I&M") Plan. The Company

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included each of its subject matter experts in the discussions as we worked toward preliminary adjustments in the proposed FY 2023 Plan. This series of virtual web meetings, PowerPoint presentations, telephone conferences, materials related to previous and newly developed Area Studies, and data request responses were utilized in discussions with various individuals in the Company to provide full assessment and gain clarification in each area and spending category. The majority of formal data requests and responses referred to above, excluding those that are considered confidential or critical energy infrastructure information, have been submitted to the Commission by National Grid in the Company's filing as Book 2 of 2. Area Studies with finalized reports are available on the Company's portal.

In their analysis, the Division and its consultant gave significant consideration to information shared and filings by the Company including, but not limited to, impacts of delaying proposed Automated Metering Functionality/Grid Modernization Plans ("AMF/GMP"), System Reliability Procurement ("SRP") and Power Sector Transformation ("PST") materials, Interconnection guidelines, FY 2022 ISR Plan Quarterly Reports, supply chain challenges, non-wires alternatives ("NWA") discussions, and Docket 4600 compliance. In addition, the ISR Plan review and filings took place during regulatory proceedings to address PPL Corporation's (PPL) proposed acquisition of Narragansett Electric². Although the proceedings did not directly impact the ISR Plan, the proposed acquisition influenced related AMF and GMP filings which are effectively on hold. As a result, the FY 2023 ISR Plan and proposed future spend do not include AMF/GMP related investments. Whether AMF/GMP is eventually proposed under PPL's ownership or by National Grid, the content and timing of those potential filings is unknown. In

² Docket No. D-21-09: PPL Corporation petition to transfer ownership of The Narragansett Electric Company to PPL Rhode Island Holdings, LLC

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this report, I discuss implications of delayed AMF/GMP implementation along with other observations arising from the possible acquisition. The potential PPL acquisition raises questions on how, up to this point, the Division's insight into the scope and costs of future AMF and GMP investments within the ISR Plan will be changed. The Division expects the Company to remain engaged throughout the year to keep the Division and its consultant apprised of developments.

As discussed in the Company's filing and in this report, several programs have contingency dollars which may be used for certain programs yet to be fully developed. The Company must re-engage with the Division before any dollars are spent on specific projects within these programs with contingencies, or when advancing unplanned projects requiring significant investment. This process provides the Company with the latitude to adequately address system needs according to the Plan and to involve the Division when managing critical deviations. Additionally, the Division recognizes the need to focus on optimizing asset condition and capacity projects to spread the cost out further in the future, so as to provide some capital headroom to minimize the rate impact of pending AMF/GMP and other programs to be advanced over the next decade.

The structure of the FY 2023 ISR Plan filing closely followed the prior Plan to the extent that the Company included several of its historic annual programs and continued the trend of significant discretionary spending levels for major construction, including the commencement of the dramatically altered Dyer Street project and the Providence Area projects. The FY 2023 Plan includes a blend of residual legacy capital projects previously identified by the Company, and a series of new projects emanating from completed Area Studies. As the legacy capital projects are completed, the Plan should only include those new major substation projects or large programs that have been demonstrated as necessary in a completed and fully presented Area Study. Since

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the completion of 100 percent of the 11 Area Studies, it was apparent that the legacy projects are necessary and the appropriate solutions. This provides an increased assurance these legacy projects were well established and properly advanced.

Through the analysis and assessment process, consensus on the rationale for adjustments and the preliminary dollar levels was reached between the Division and the Company, although the Division reserves its right for additional adjustments or conditions pending further evaluation. National Grid's proposed multi-year project list and capital spending estimates, along with quarterly reports³, were among the items utilized by the Company, the Division, and the Division consultant in reaching consensus on the preliminary adjustments. This data was used to compare the prior fiscal year ISR Plan proposed budgets to forecasted expenditures, as reflected in Appendix-1, along with historical budgets by spending category. Non-discretionary programs were examined to confirm that anticipated expenses were appropriately categorized and aligned with respective budget categories. Budget trends for non-discretionary categories were assessed against historical data. Planned work under recurring discretionary programs was examined to determine if the proposed level of spend was reasonable and cost effective when compared to alternatives. Additionally, discussions addressed major System Capacity and Asset Condition projects, and correlation with completed Area Studies and the CYME models delivered with each Area Study.

For the FY 2023 Plan, initial agreement was reached on adjustments resulting in a proposed capital investment budget of \$104.8 million. Appendix-2 lists a Summary of the Capital Outlays by key driver category and budget classification as originally proposed by the Company on

³ This report references capital spend in National Grid's FY 2023 Electric ISR Plan Proposal Filing, Attachment 3 (Docket 5209), and FY 2022 ISR Plan - Second Quarter Update Ending September 30, 2021 (Docket 5098).

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October 1, 2021, with adjustments and the resulting final proposed budget filed by the Company
on December 20, 2021.

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II. CAPITAL INVESTMENT PLAN

A. Overview

I have evaluated the \$104.8 million FY 2023 Capital Spending Plan proposed by the Company, along with its supporting testimony and exhibits as contained in its filing dated December 20, 2021. I first reviewed the August 6, 2021 pre-file ISR budget proposal submitted to the Division in the amount of \$109.2 million, and the initial October 1, 2021 proposed ISR Plan submitted to the Division in the amount of \$103.8 million. Over a period of approximately eleven (11) weeks, there was an iterative process in which modifications to the Company's initial proposed Capital Spending Plan were discussed. Adjustments were accepted, including some increases, for each of the Spending Rationales and the five major categories. Following is a comparison of the Company's October 1, 2021 initial proposal, net adjustments, and the Company's proposed budget as shown in Chart 13 of the FY 2023 ISR Plan as filed on December 20, 2021 in Docket No. 5209. \$104.8 million is the level reached through the evaluation process.

Proposed FY 2023 ISR Capital Outlays by Key Driver Category

FY 2023 PROPOSED BUDGET by Spending Rationale	NG Initial Proposed Budget (10-1-21)	Adjustments	National Grid Proposed Budget (12-20-21)	% of Total Budget
Customer Request/Public Requirements	\$ 27,183,000		\$ 27,183,000	26%
Damage/Failure Total	\$ 14,251,000		\$ 14,251,000	14%
Subtotal Non-Discretionary	\$ 41,434,000	\$ -	\$ 41,434,000	40%
Asset Condition	\$ 47,288,000	\$ 1,000,000	\$ 48,288,000	46%
Non-Infrastructure	\$ 1,520,000		\$ 1,520,000	1%
System Capacity and Performance	\$ 13,508,000		\$ 13,508,000	13%
Subtotal Discretionary	\$ 62,316,000	\$ 1,000,000	\$ 63,316,000	60%
Grand Total	\$ 103,750,000	\$ 1,000,000	\$ 104,750,000	

The Company projects the need for non-discretionary expenditures of \$27.2 million in Customer Request/Public Requirements spending, and \$14.3 million in Damage/Failure

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spending. Except for known major projects, the majority of projects in the Customer Request/Public Requirements category are not precisely defined but are based on the Company's best forecast since specific customer requests have not been made. The Damage/Failure category covers costs to replace equipment that unexpectedly fails or becomes damaged. Historical spending levels tend to serve as the primary method to develop a budget. Additionally, economic conditions are a factor considered in adjusting historical costs. There are both upward and downward trends in new construction activity, combined with the effects of inflation on the cost of raw materials, transportation, and labor. For FY 2023, the unique impacts due to COVID-19 on the economy, supply chain problems and the reduction in competitive bids due to staffing shortages are also considered.

The Company has identified regions where accumulation of operating Distributed Generation ("DG") may cause system anomalies requiring additional grid investments to manage the issues. The Company included investments to resolve the anomalies in previous ISR Plans, categorizing those investments as Strategic DER Advancement, as a precursor to a comprehensive GMP plan. The Company's initial work has been completed and additional spend for DER management is not included in the FY 2023 ISR Plan. Future investments will be determined once the GMP plan progresses through customary regulatory proceedings⁴.

Spending in the Damage/Failure category continues to rise despite the Company's efforts to implement revised standards that guide proper classification of work between discretionary

⁴ National Grid's GMP filing in Docket 5114 and AMF filing in Docket 5113 have been stayed (Order No. 24089 dated July 14, 2021) pending further consideration following the issuance of a final Order in Docket No. D-21-09 - PPL Corp. petition to transfer ownership of The Narragansett Electric Company to PPL Rhode Island Holdings, LLC.

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and non-discretionary spending rationales. The FY 2023 budget is \$2.1 million higher than the previous budget. The Division and its consultant have been working with the Company on enhancing the processes and definitions of Damage/Failure to improve the transparency and management of the costs in this category. It is expected that the Company will continue to refine internal processes to manage the Damage/Failure category and appropriately justify actual expenditures due to unplanned equipment failures.

For the FY 2023 ISR Plan proposal, the Company initially proposed to spend a total of \$41.4 million for all non-discretionary projects, which was not adjusted based on agreement between the Division, the Division Consultant, and the Company. This represents forty (40%) of the proposed capital budget. In Sections B and C, I discuss the Customer Request/Public Requirements and Damage/Failure categories in more detail.

The remaining three major categories of spending rationale for the FY 2023 budget are Asset Condition, Non-Infrastructure, and System Capacity and Performance. These categories, which are discretionary in the sense they are based on engineering, safety, reliability and economic analyses, are budgeted at \$63.3 million for the remaining sixty percent (60%) of the proposed capital budget. Two major multi-year projects, Aquidneck Island/Newport Area and the new Southeast Substation, are essentially complete, while projects in various phases from the East Bay, South County East, and Providence Area Studies are in early stages of development or construction. The Company is managing major capital projects separately from other discretionary projects in accordance with recommendations in the FY 2017 ISR proceeding.

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The Company has presented 100 percent of its 11 completed Area Studies to the Division as part of a Long-Range Plan, which was first recommended in the FY 2015 proceeding. A study, once completed, produces recommended projects located in discreet regions of the Company's service territory over a 10 to 15-year term. The projects are ultimately phased into the ISR Plan. Although delivery of the studies fell short of the Division's expected schedule, the Company has met its commitment to complete all the studies by December 2021. My overall evaluation considers the results of Area Studies and the need for the Company to next develop a single, comprehensive Long-Range Plan providing a holistic assessment of the now completed 11 Area Studies. I have included a discussion of the Area Study process and the Division's involvement later in this report.

For the three categories (Asset Condition, Non-Infrastructure, and System Capacity and Performance), the initial proposed budget was \$62.3 million, which has been adjusted up to \$63.3 million in the FY 2023 ISR Plan Proposal filing based on agreement between the Division, the Division Consultant, and the Company. In Sections D, E, and F, I will discuss each of these categories separately, explaining the overall increase and budget management conditions expected of the Company.

B. Customer Request/Public Requirements Category

The initial proposed FY 2023 ISR Plan included \$27.2 million of Customer Request/Public Requirements cost which was not adjusted. This compares to a FY 2022 ISR budget and forecast of \$27.2 million and \$32.5 million, respectively.

FY 2023 Proposed Budget	NG Initial Proposed Budget (10-1-21)	Adjustments	National Grid Proposed Budget (12-20-21)
Customer Request/Public Requirements	\$ 27,183,000	\$ -	\$ 27,183,000

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FY 2022 Budget Variance	Filed FY 2022	Over/(Under) Budget	FY 2022 Forecast (as of Dec 2021)
Customer Request/Public Requirements	\$ 27,237,000	\$ 5,287,000	\$ 32,524,000

The Company projects overspend in FY 2022 by \$5.3 million. Contributing factors include higher new commercial and residential public requirements than budgeted, and higher costs for distribution equipment such as transformers and meters. Although the Company has completed system work to alleviate overloads, imbalances and voltage issues due to COVID-19 related load shifts, it now must additionally focus on managing supply chain disruptions brought by the pandemic. Material availability and cost have been a factor in FY 2022 overspend, and will continue to impact FY 2023 activity. The Company has attempted to identify risks and adjust budget components for FY 2023, yet the full effect of economic impacts is unpredictable. As these uncertainties unfold, the Division's continued expectation is that the Company will adjust spend in discretionary categories to balance unplanned overspend that might occur in the non-discretionary categories.

C. Damage/Failure Category

The initial proposed FY 2023 ISR Plan included \$14.3 million in the Damage/Failure category for non-discretionary costs to replace equipment that unexpectedly fails or becomes damaged. Of this, \$11.4 million was proposed for asset replacement, with the remainder for major storms and reserves. This compares to a FY 2022 ISR Plan budget and forecast of \$12.2 million and \$16.3 million, respectively.

FY 2023 Proposed Budget	NG Initial Proposed Budget (10-1-21)	Adjustments	National Grid Proposed Budget (12-20-21)
Damage/ Failure	\$ 11,376,000		\$ 11,376,000
Major Storms – Dist	\$ 1,925,000		\$ 1,925,000
Reserves	\$ 950,000		\$ 950,000
Damage/Failure Total	\$ 14,251,000	\$ -	\$ 14,251,000

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FY 2022 Budget Variance	Filed FY 2022	Over/(Under) Budget	FY 2022 Forecast (as of Dec 2021)
Damage/ Failure	\$ 9,528,000	\$ 2,219,000	\$ 11,747,000
Major Storms – Dist	\$ 1,750,000	\$ 2,768,000	\$ 4,518,000
Reserves	\$ 920,000	\$ (920,000)	\$ -
Damage/Failure Total	\$ 12,198,000	\$ 4,067,000	\$ 16,265,000

The Company continues to incur expenses over budget in this category with an overall FY 2022 variance projected at \$4.1 million, primarily due to expenditures for major storm Henri which exceeded budget storm costs by \$2.8 million. In addition, replacement of the failed Westerly #2 transformer is expected to add \$1.5 million in expenditures for FY 2022 and \$700,000 in FY 2023. The Company considers work in this category unplanned but necessary, and budget variances are highly correlated to large equipment damage and storm activity. The derivation of the budget is somewhat subjective, as these events are unforeseen, and budgets must rely on historical trends.

Elements of Damage Failure which are unrelated to major storms or clear equipment failures are also budgeted based on historical work. These projects and their associated costs have been steadily increasing and contributing to overspend in the Damage Failure category. This trend has been recognized for several years and I have documented areas of concern including: a) whether the Company is accurately reflecting the type and level of work performed under Damage/Failure which should be non-discretionary as opposed to discretionary work captured under the I&M Program or Asset Replacement program, and b) whether the Company uses appropriate methodologies to estimate the Damage/Failure budget. I recommended that the Company and Division explore the option of retaining a portion of the budget in the non-discretionary category to address only failed equipment and collapsing the remaining Damage/Failure and I&M budget under the discretionary category. The Commission adopted

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the recommendation, and the Company responded by implementing a new practice of categorizing work meant to create more clarity around how to charge work in the field for damaged assets. The Company continues to transition to the new process in FY 2022 and is forecasting this category to exceed budget by \$2.2 million, or \$700,000 when excluding the costs for Westerly #2 transformer replacement. Although it is too early to determine the effectiveness of the Company's enhancements, expenditure levels for core work appear reasonable and I am satisfied that the Company is closely monitoring work to validate classifications. The FY 2022 results will determine the need for further enhancements. Discussions culminated in approval of the Company's proposed \$14.3 million budget in the Damage/Failure category comprised of \$11.4 million for asset replacements, \$950,000 in reserves, and \$2 million for major storms.

This brings the total non-discretionary categories of Customer Request/Public Requirements and Damage/Failure to \$41.4 million, which is forty (40%) of the total Capital Investment Budget by Key Driver Category.

D. Asset Condition Category

The Asset Condition category, with an initial proposed budget of \$47.3 million, represents a combination of strategies and programs targeting equipment replacement to maintain reliability performance. Spending is further divided into Asset Replacement and Inspection and Maintenance components, which are generally a combination of multi-year major substation upgrade projects and programs designed to replace groups of equipment throughout the system. Projects and programs in the Asset Replacement category have become increasingly significant in scope and budget. The Company continues to track major projects separately, which provides transparency and enables the Division to monitor budget estimates,

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scope, and actual construction spend from inception to completion. It also mitigates the Company's tendency to shift budgets between discretionary projects in order to meet an overall target, rather than managing independent projects based on need.

Evaluation of the Asset Condition category separately considers major projects from remaining budget areas. Within the Major Projects category, Dyer St. Substation and Providence Area construction are currently the most significant projects. Remaining projects capture costs to replace infrastructure under recurring programs or the I&M program. Discussion with the Company for Asset Condition resulted in adjustments of \$1 million, and a final proposed budget of \$48.3 million, which is forty-six (46%) of the overall ISR Plan budget. This compares to the FY 2022 budget and forecasted actuals of \$40.6 million and \$38.7 million respectively. A detailed evaluation of each category follows.

FY 2023 Proposed Budget	NG Initial Proposed Budget (10-1-21)	Adjustments	National Grid Proposed Budget (12-20-21)
Asset Condition - Major Projects			
Southeast	223,000		223,000
Dyer Street	\$ 500,000	\$ 3,000,000	3,500,000
Providence LT Study	\$ 19,586,000		19,586,000
Major Projects Total	\$ 20,309,000	\$ 3,000,000	\$ 23,309,000
Asset Replacement - Recurring Programs	\$ 23,979,000	\$ (2,000,000)	\$ 21,979,000
Asset Replacement - I&M (NE)	\$ 3,000,000		\$ 3,000,000
Asset Replacement / I&M Total	\$ 26,979,000	\$ (2,000,000)	\$ 24,979,000
Total Asset Condition	\$ 47,288,000	\$ 1,000,000	\$ 48,288,000

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FY 2022 Budget Variance	Filed FY 2022	Over/(Under) Budget	FY 2022 Forecast (as of Dec 2021)
Asset Condition - Major Projects			
South Street	297,000	(123,000)	\$ 174,000
Southeast	\$ 2,082,000	\$ 821,000	\$ 2,903,000
Dyer Street	\$ 9,717,000	\$ (1,956,000)	\$ 7,761,000
Providence LT Study	\$ 8,353,000	\$ (911,000)	\$ 7,442,000
Major Projects Total	\$ 20,449,000	\$ (2,169,000)	\$ 18,280,000
Asset Replacement - Recurring Programs	\$ 17,119,000	\$ 1,703,000	\$ 18,822,000
Asset Replacement - I&M (NE)	\$ 3,000,000	\$ (1,413,000)	\$ 1,587,000
Asset Replacement / I&M Total	\$ 20,119,000	\$ 290,000	\$ 20,409,000
Total Asset Condition	\$ 40,568,000	\$ (1,879,000)	\$ 38,689,000

Asset Condition spend has steadily increased due to aging equipment throughout the service territory and the need for significant upgrades in highly loaded corridors. Major multi-year investments are included in the ISR Plan and, as legacy projects are completed, new projects are naturally phased in and aligned with previously performed Area Studies. It should be emphasized that portfolios of projects associated with Area Studies are categorized in either the Asset Replacement budget category or System Capacity budget category, and both of these categories are projected to drive future discretionary spend.

1. Asset Replacement - Major Projects

The Company is proposing continued work on multi-year major projects driven by asset condition. The status of major projects and correlation to Area Studies are as follows:

Asset Condition Major Projects

Study Area	Project	Status
Legacy-Providence	Dyer Street - Indoor Sub	Construction
Providence	Prov-Phase 1A	4.4B - Construction
Providence	Prov-Phase 1B	4.4A - Final Eng
Providence	Prov-Phase 2	4.3 - Dev & Sanction
Providence	Prov-Phase 3	4.3 - Dev & Sanction
Providence	Prov-Phase 4	4.3 - Dev & Sanction
Legacy - Blackstone Valley North	New Southeast Substation	4.4 - Final Eng & Construction

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I have reviewed the justification for each project either through previous ISR Plan evaluations or Area Studies, and continue to support inclusion in the Company's capital investment plan. The Company manages, tracks and reports on significant complex projects separately. Currently, these include Dyer Street and Providence Area with Southeast in final stages of project closure.

Dyer Street is an indoor station initially constructed in 1924, and one of six older stations supplying the downtown Providence Area. The Company identified multiple operational, condition and safety issues within the station, and ranked it as the highest priority for replacement. The recommended plan includes retiring all equipment, replacing the station, rehabilitating a historically significant structure co-located on the site, and converting/replacing multiple underground circuits. As the project moved through initial engineering, the Company encountered complexities involving the historical building rehabilitation and revised the plan to rebuild the station on land located at the South Street site. Project development was paused in FY 2021 and has since moved into construction. The Company forecasts a \$2 million underspend in FY 2022 due to delayed substation metal-clad switchgear shipment. The FY 2023 ISR Plan budget was adjusted upward by \$3 million to account for the shift, bringing the proposed budget to \$3.5 million for Dyer Street.

I previously reviewed this legacy project and updated the scope, design and budget estimate, and had no concerns with the optimal solution to rectify issues identified at the existing Dyer Street substation. As noted in my previous report, the Company had an aggressive schedule to complete main construction in FY 2022 and delays were anticipated.

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These delays have transpired and based on a February 4, 2022 conference continue to occur. The Company has appropriately shifted work and the budget will be further impacted by FY 2022 costs shifting to FY 2023.

In my FY 2022 report I also noted that the scope change increased the cost estimate by nearly \$8 million, and that Dyer is now a \$22 million project. My primary concern is that the actual costs will substantially exceed the initial estimate, which has customarily occurred with the Company's major projects. As the project moves through the internal sanctioning process there remains a 50% chance of the project coming in above the approved estimate⁵. I have discussed issues with the Company's project estimating process at length in prior proceedings and noted that the Company is striving to drive improvements through its complex capital delivery process. Dyer Street is an initial test of these improvements. A review of Company filings⁶ indicates that \$5.2 million has been expended in previous years, FY 2022 forecasted spend is \$7.8 million, and the final construction year budget in FY 2023 is \$3.5 million for a total of \$16.5 million. The Company is tracking below the \$22 million cost estimate which is a positive trend, but the work is not complete and outstanding costs, including removals, must be included before this review can be finalized.

Overall, I continue to support the Dyer Street scope and schedule. I will continue to monitor both project execution and cost. A detailed analysis will be performed once the project is

⁵ Docket 5098, FY 2022 ISR Plan proposal R-I-21: The Company generates a P50 estimate and contingency value used to for internal approvals. P50 is the value at which there is a 50% chance of project coming in above cost or 50% chance below cost.

⁶ Docket 5209, FY 2023 RI Elec 5 Yr. Budget – Att. 3

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complete and the Company prepares Closure Papers, with outcomes provided in this annual report. Based on my current review, the Company's proposed \$3.5 million for FY 2023 was not further adjusted.

The Asset Replacement category of the ISR Plan also includes condition-based projects identified in the Providence Area Study, which was completed in 2017. The study considered the Providence urban region consisting of older, underground distribution facilities and indoor substations dating back to when the system was originally installed in the 1920's. Applying the Area Study as a forecasting metric indicates that the Company will spend over \$120 million over twelve years for planned Providence Area projects. This estimate is based on the Company's high level engineering information and will change as projects progress through project development. For instance, Phase 1B (Admiral Street) cost estimates nearly doubled from \$24.4 million in FY 2022 to \$46.2 million in FY 2023⁷ once the Company refined the design and costs. Although the Company is attempting to improve the accuracy of early estimates, the results are not yet evident. The real implication of dramatic increases is that the Company will need to lengthen complex project implementation schedules or moderate spend in other discretionary programs in order to maintain reasonable overall budgets. I have addressed these issues at length in prior reports and continue to expect that the Company will exercise diligence in managing annual budgets for complex projects without compromising necessary reliability programs.

⁷ Docket 5098, FY 2022 ISR Plan Second Quarterly Update, page 17.

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I have previously evaluated the Providence Area study and concurred with the resulting solutions that will ultimately be completed as part of the ISR Plan. For FY 2023 the Company proposed, and the Division concurred, with a budget of \$19.6 million designated for three projects in various phases including development, final engineering, and construction. Two additional phases are included in the Plan with proposed spend in future years. This multi-year comprehensive project involves newly constructed, rebuilt and retired substations, in addition to substantial overhead and underground circuit work. As a historical note, I had prepared an asset condition report for the Division as far back as early 2000. This is when it was very apparent that the Providence area and its extremely old distribution plant would need major upgrades over decades. The existing Area Study and Providence plans with a multi-year implementation is an outgrowth of this need which can no longer be deferred.

Project execution for Providence Area will be critical since construction involves sequencing of multiple interrelated phases. The complexities of the project are underscored by the level of funding, with a project segment, Providence Phase 1B, budgeted at \$16.5 million in FY 2023, which is nearly sixteen percent (16%) of the total ISR Plan budget. Consistent with other major projects, I will continue to monitor sanctioned projects emanating from the Providence Area Studies to ensure that scopes and costs are reasonable and aligned with the outcome of the study. As the projects advance through construction, I will also examine actual expenditures against budgeted amounts to determine the Company's success at managing multi-year projects to budgets while maintaining reasonable discretionary investment levels.

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In summary, the major projects within the Asset Replacement category are a combination of legacy and Area Study projects. Dyer Street substation is in the final stages of construction and Providence Area projects are commencing which will drive significant capital needs going forward. As the Providence Area projects are sanctioned, detailed reviews will be performed to confirm that scope and cost estimates align with solutions identified in the Company's previously performed Area Studies and numerous asset condition assessments. Additionally, cost estimates will be monitored to determine if the Company has improved its internal processes to mitigate significant variances between initially budgeted and sanctioned amounts, and if actual expenditures track to approved spend. Cost risk management will be increasingly important due to inflationary pressures and the Company's project execution will be evaluated as these complex projects move through construction. Over the course of this ISR review the Company's proposal of \$23.3 million for major asset condition projects was accepted.

2. Asset Replacement – Recurring Programs

The Asset Replacement category contains recurring programs that have been included and reviewed in prior ISR Plan filings. Proposed budgets in this discretionary category are generally based on equipment age, condition, criticality rankings, and the Company's planned level of work. For FY 2023, the Company initially proposed a \$24 million budget for customarily recurring programs to replace infrastructure such as substation batteries, substation breakers and reclosers, underground and Underground Residential Distribution ("URD"), line reclosers, and miscellaneous blanket projects.

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Over the past seven years, the Company has also been performing several system Area Studies. The outcome of Area Studies tends to impact major projects in the Asset Replacement category more so than recurring programs, but the study status must be considered when evaluating condition-based programs. My evaluation of the proposed spend for various programs first determines if work is aligned with an Area Study. This ensures that equipment replacement considers broader area needs, is sufficiently sized for load growth, and includes compatible technology for future grid modernization. Next, I evaluate projects in terms of level of spend and criticality. Unless there is an emerging need, the Company relies on historical work completed and associated spend as a metric for current budgets. As each year progresses, the Company methodically replaces the most critical assets, which is practical given that system reliability has not been sacrificed under this strategy. In fact, the Company's strategy has allowed it to achieve System Average Interruption Duration Index ("SAIDI") first quartile results when utilizing IEEE benchmarking, which means it is among the best of the best in reliability statistics. Furthermore, for the past 10 years the Company's SAIDI has remained below (better than) the target level. Additionally, the continuation of aged and deteriorated infrastructure replacement before failure in a systematic manner is essential to avoid massive replacement requirements through an emergency response which adds excessive unnecessary costs.

To evaluate the need for projects within this category, the Company customarily provides studies, condition assessments, criticality rankings, or other planning documents containing updated support information. For FY 2023, discussions focused on the Company's rationale to increase spend on the URD Program to \$7 million from \$5 million in FY 2022, and the proposed \$5.7 million for underground cable replacements, increased

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from \$5 million in FY 2022. The Company responded to data requests indicating that URD related outages have steadily increased since 2017 and also outlined a strategy to expand the injection process which extends the life span of faulty cable and is more cost effective than replacement⁸. Separately, the Company provided a criticality scoring and risk matrix to support approximately 11.2 miles of cable replacements of the remaining 38 miles identified in the Underground Cable Replacement Program⁹.

Based on the updated information, I remain supportive of both programs. The Company ultimately reduced the URD budget by \$2 million, a level that more appropriately aligns with resources to perform the work. I agree with the adjustment and encourage the Company to continue efforts to regulate discretionary spending by deferring projects to accommodate more emergent work while meeting an overall budget target. This creates a lag time in project completion but, as I noted in previous reports, this is a prudent strategy when more critical projects within the ISR Plan require capital investment. Additionally, there has been no safety or reliability degradation, therefore the Company's monitoring of safety and reliability concerns related to these projects has worked adequately.

The Company also proposes \$5.2 million for Blanket Projects and \$2.9 million for Other Asset Replacement. The Blanket category captures spend for projects identified and remedied by field personnel which is routine and acceptable work. The Other category includes emerging projects such as those identified through system condition assessments. Here, the Company has proposed \$1.25 million in FY 2023 to replace 69 kV concrete line

⁸ Docket 5209, FY 2023 ISR Plan Proposal; DIV 1-11.

⁹ Docket 5209, FY 2023 ISR Plan Proposal; DIV 1-10 and DIV 2-4.

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structures in Newport, Rhode Island. The Company provided minimal information on the project at the time of the ISR Plan filing. Concerns are that this is a transmission level project that should not be funded in a distribution capital investment plan, the project should align with its respective Area Study, and there is no rationale for prioritization of this project over other discretionary spend. On a January 28, 2022 call, the Company provided additional clarification on the 69 kV project which were reflected in responses to DIV 4-1. The Company stated that a bi-annual visual helicopter inspection identified major deterioration of the concrete poles resulting in the need to replace 10 concrete structures with light duty steel and the removal of one structure. While it would seem the cost should be in transmission, this 69 kV line was originally installed with the purpose of serving the Naval Base and was classified as distribution by the original installing utility. National Grid maintained this classification after its acquisition of Eastern Utilities Associates. National Grid did not see any need to perform a FERC Seven Factor test in order to determine if this line section should be reclassified from distribution to transmission. Additionally, this is the only identified case of 69 kV which is classified as distribution on the Narragansett Electric system. Based on these clarifications, the Division supports this project which will be implemented in FY 2023.

The proposed budget for remaining programs was found acceptable. Agreement was reached on the Company's reduction of \$2 million for a total budget of \$20 million for Asset Condition recurring programs.

3. Inspection & Maintenance Program & Other O&M

The I&M Program is designed to provide the Company with comprehensive system-wide

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information on the condition of overhead and underground components. The program includes a capital component for strategic replacement of deteriorated assets identified during inspections, operational expenses related to asset replacement, and for costs to inspect the system. The Company also incurs O&M expenses related to a Volt-VAR Optimization and Conservation Voltage Reduction (“VVO/CVR”) expansion program, continuation of mobile elevated voltage testing, and Long-Range planning study costs. The initial proposed FY 2023 ISR Plan included \$3 million for I&M capital costs and \$1.6 million for all O&M expenses, for a total program budget of \$4.6 million. This compares to a total FY 2022 ISR budget of \$4.4 million with a forecast of \$2.7 million. Discussions with the Company did not result in adjustments for a final proposed program budget of \$4.6 million for FY 2023.

FY 2023 Proposed Budget I&M Capital and O&M	NG Initial Proposed Budget (10-1-21)	Adjustments	National Grid Proposed Budget (12-20-21)
Capital Costs (included in capital budget)	\$ 3,000,000		\$ 3,000,000
Opex Related Capex	\$ 540,000		\$ 540,000
Inspections and Repair Related Costs	\$ 475,000		\$ 475,000
Removal Costs	\$ 300,000		\$ 300,000
Long Range Plan Study	\$ 25,000		\$ 25,000
VVO/CVR Program O&M	\$ 224,000		\$ 224,000
Total Operation and Maintenance Expenses	\$ 1,564,000	\$ -	\$ 1,564,000
Total Program Costs	\$ 4,564,000	\$ -	\$ 4,564,000

FY 2022 Budget Variance I&M Capital and O&M	Filed FY 2022	Over/(Under) Budget	FY 2022 Forecast (as of Dec 2021)
Capital Costs (included in capital budget)	\$ 3,000,000	\$ (1,413,000)	\$ 1,587,000
Opex Related to Capex	\$ 421,000	\$ (276,000)	\$ 145,000
Inspections and Repair Related Costs	\$ 475,000	\$ -	\$ 475,000
Long Range Plan Study	\$ 25,000	\$ -	\$ 25,000
Removal Costs	\$ 240,000	N/A	\$ 240,000
VVO/CVR Program	\$ 262,000	\$ (43,000)	\$ 219,000
Total O&M Expenses	\$ 1,423,000	\$ (319,000)	\$ 1,104,000
Total Program Costs	\$ 4,423,000	\$ (1,732,000)	\$ 2,691,000

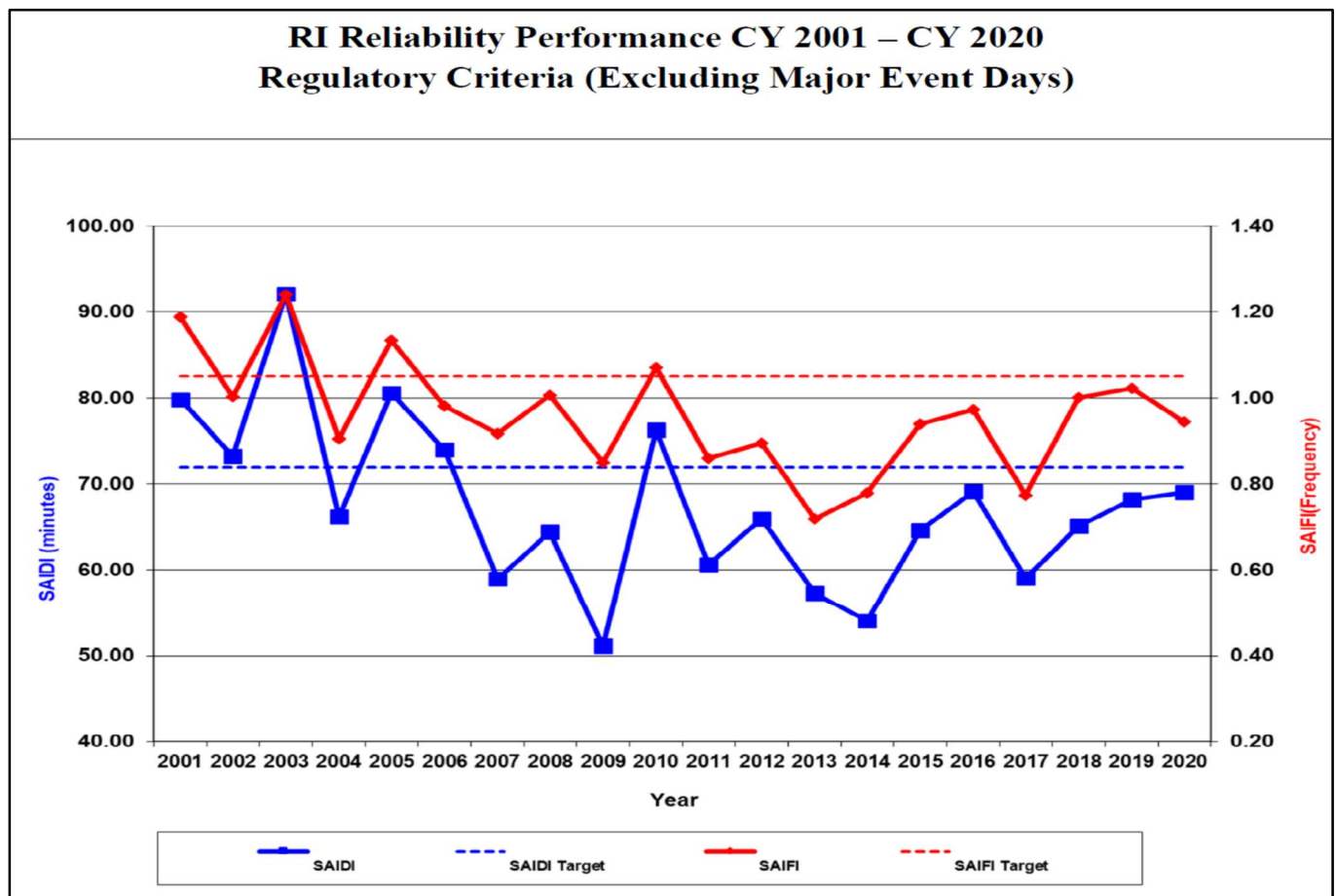
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The I&M Program funds a five-year inspection cycle with a goal to replace assets over ten years. The Company will be in year two of the third five-year inspection cycle FY 2023 with the continuation of repair work identified in previous cycles. The Company is not meeting the ten-year replacement goal due to the backlog of identified work. This is primarily due to budget reductions in previous years that were suggested by the Division, and implemented by the Company, in order to meet overall discretionary spending needs driven by major projects. I have evaluated the I&M program in detail and maintain that it is mature and successful implementation has produced excellent reliability results at the current pace of asset replacement. I have also been recommending the inspection cycle be adjusted to ten years for the past several ISR Plans. This ten-year inspection cycle recommendation applies to the overhead line plant and poles. Other components such as Contact Voltage testing, streetlights, and underground components will remain on the current cycles which vary. Should the Company be deficient in implementing the program, the impacts would be visible in reliability performance, yet the Company has continued to post results that meet or exceed annual service reliability targets since 2010, as shown in the following chart:¹⁰

¹⁰ Docket 5209, FY 2023 ISR Plan Proposal, Section 2, page 64.

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The Company has modified its repair program that drives capital investment to only address priority items, including Level 1 and Level 9 conditions, potted porcelain cutouts, and some guying issues. These modifications allow the Company to manage the backlog of work as the need and budget allow, rather than imposing a ten-year replacement cycle. This strategy only reduces the list of repairs by removing Level 2 and Level 3 conditions but does not make for a more streamlined I&M program. I note that the Company is successfully managing minor asset replacements under this I&M repair program, Damage/Failure, and the discretionary Asset Replacement program. The suite of programs has the same objective, which is small scale, proactive infrastructure replacement to maintain safety and reliability. The Company is not solely relying on the I&M repair program to address asset condition across the system, and there is no indication that system conditions

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have suffered from an extended I&M repair cycle. The Division continues to find the Company's modified repair cycle an acceptable approach, and concurs with the proposed \$3 million I&M capital budget which is consistent with the FY 2022 budget that is projected to be underspent by nearly fifty percent (50%). Given the Company's lower spend in FY 2022 and ability to modulate costs in this discretionary category without detriment to reliability, future improvements that reduce the funding level should be considered since there are multiple programs addressing similar small-scale work. Additionally, the continuation of the Company's efforts to enhance its Damage/Failure category documentation and process may ultimately result in adjustments in the I&M category.

For the O&M component of the I&M program, the Division reiterates its previous recommendation to consider increasing the inspection cycle to ten years since the same system deficiencies were likely being repeatedly documented. The Company has petitioned to maintain the current five-year cycle, since it is aligned with contact voltage testing, consistent with its Massachusetts and New York requirements, and an effective method to proactively address deteriorated equipment before failure. The Division and the Company have not agreed on this point. Although agreement was reached on the I&M budget, I continue to recommend a ten-year inspection cycle as proposed in past plans.

The remaining O&M components of the ISR Plan relate to the mobile elevated voltage testing program and system planning study costs, with no adjustments, and VVO/CVR expansion. I will address elevated voltage testing in this section, and VVO/CVR in the System Capacity section.

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The Company's mobile elevated testing program is required under the Rhode Island Contact Voltage statute § 39-2-25(b)(6). The program has now transitioned to a survey and testing schedule based on the statutory minimum of 20% of designated areas. Where municipalities own streetlights, the Company continues testing but municipalities are responsible for remediation work. The Company issues vendor requests for proposals (RFP) on a five-year cycle. The most recent RFP resulted in a new vendor starting in FY 2021. The vendor agreed to a 100% testing and repair cycle in the first year to allow the Company and the Division to assess the vendor's performance and then returning to the 20% testing requirement. I evaluated the results of the initial survey and vendor performance¹¹, finding multiple discrepancies between recorded readings and actual contact voltage measured in the field when performing repairs. In short, the vendor recorded elevated voltages that do not exist. This calls into question the accuracy of the vendor testing equipment. My report recommends that the Company continue to pursue with the vendor why its process is yielding false event readings which require a second trip to sites for repairs that are not necessary. Otherwise, I concur that the Company's approach to the Contact Voltage Program is acceptable and appropriately balances statutory obligations with safety requirements. I will evaluate the Company's vendor and monitor program progress as part of the Division's annual review of the Contact Voltage Program under Docket 4237.

In summary, concurrence was reached on I&M program and all O&M budget line items, resulting in a FY 2023 proposed capital budget of \$3 million for I&M capital and \$1.6

¹¹ Gregory L. Booth, PLLC Memorandum to Division, August 31, 2021: Docket 4237; National Grid August 18, 2021 Contact Voltage Annual Report.

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million for O&M. This brings the total FY 2023 ISR proposed capital budget for Asset Condition to \$48.3 million, comprised of \$23.3 million for major projects, \$22 million for recurring projects, and \$3 million for the I&M program.

E. Non-Infrastructure Category

This category is for telecommunications and other capital expenditures needed for operation, which are neither related to condition nor system capacity. I consider this \$1.5 million of capital expenditures prudent and necessary, while consistent with prior costs.

F. System Capacity and Performance Category

The System Capacity and Performance category is comprised of both Load Relief and Reliability Projects. A significant portion of this discretionary budget is dedicated to substation capacity expansion projects. The Company proposes to expend \$13.5 million in FY 2023, or thirteen percent (13%) of the total ISR Plan budget, which was not adjusted during the course of my evaluation. The FY 2022 budget and forecast for this same category are \$20.3 million and \$16.6 million respectively. I will separately address the Major Projects and Reliability projects.

FY 2023 Proposed Budget	NG Initial Proposed Budget (10-1-21)	Adjustments	National Grid Proposed Budget (12-20-21)
Load Relief Major Projects			
Aquidneck Island (Newport projects)	\$ 730,000		\$ 730,000
Aquidneck Island (Jepson projects)	\$ -		\$ -
New Lafayette	\$ 2,914,000		\$ 2,914,000
Warren Substation	\$ 1,824,000		\$ 1,824,000
East Providence Substation	\$ 2,495,000		\$ 2,495,000
Major Projects Total	\$ 7,963,000	\$ -	\$ 7,963,000
Reliability Total	\$ 5,545,000	\$ -	\$ 5,545,000
Total System Capacity & Performance	\$ 13,508,000	\$ -	\$ 13,508,000

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FY 2022 Budget Variance	Filed FY 2022	Over/(Under) Budget	FY 2022 Forecast (as of Dec 2021)
Load Relief Major Projects			
Aquidneck Island (Newport projects)	\$ 6,434,000	\$ (1,960,000)	\$ 4,474,000
Aquidneck Island (Jepson projects)			
Warren Substation	\$ 621,000	\$ (329,000)	\$ 292,000
East Providence Substation	\$ 731,000	\$ (194,000)	\$ 537,000
New Lafayette	\$ 1,857,000	\$ (113,000)	\$ 1,744,000
Major Projects Total	\$ 9,643,000	\$ (2,596,000)	\$ 7,047,000
Reliability Total	\$ 10,643,000	\$ (1,115,000)	\$ 9,528,000
Total System Capacity & Performance	\$ 20,286,000	\$ (3,711,000)	\$ 16,575,000

1. Load Relief - Major Projects

The Load Relief category is a mixture of legacy projects, or those projects that have been independently studied and historically considered for inclusion in the ISR Plan, in addition to three projects associated with the Area Studies. Major projects are managed separately to encourage the Company to focus on transparency and accountability for projects within this specific category. For FY 2022, the Company forecasts overall actual costs to be under budget by \$3.7 million, driven by \$2 million underspend for Aquidneck Island due to work shifting from FY 2022 into FY 2021 and actuals coming in less than estimates. The Aquidneck Island projects (Jepson and Newport projects) have dominated spend in the System Capacity category and will be completed in FY 2023 when final distribution improvements and retirements are finalized. Emerging projects are Warren and East Providence substations from the East Bay Area Study, and New Lafayette from the South County East Area Study. All proposed projects are aligned with the recommended solutions identified in the studies that I previously evaluated. These are multi-year projects in various phases of development as follows:

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System Capacity Major Projects

Study Area	Project	Status
Legacy Project - Newport	Aquidneck Island: Improvements + Retirements	4.3 - Dev & Sanction/4.4 - Final Eng
South County East	New Lafayette	4.4B - Construction & 4.5 Closeout
East Bay	Warren Substation	4.3 - Dev & Sanction
East Bay	East Providence Substation	4.3 - Dev & Sanction

The East Providence project consists of a new 115/12.47 kV substation to reduce loading and dependence on the 23 kV sub-transmission system. The Company currently estimates a total project cost of \$16 million and proposes a budget of \$2.5 million in FY 2023 to progress preliminary engineering and procurement. Warren is the expansion of an existing station to provide additional capacity to local municipalities. Completion of the station will also facilitate retirement of two area substations and sub-transmission with safety and asset condition issues. The Company is coordinating work with RIDOT's Warren Bridge relocation and estimates a total project cost of \$8.7 million with \$1.8 million proposed in FY 2023 to progress preliminary engineering. New Lafayette Substation was identified in the South County East Area Study with an estimated total project cost of \$13.3 million and a proposed FY 2023 budget of \$2.9 million for engineering, design, and advanced construction. The new substation addresses regional reliability and condition issues by expanding the 12.47 kV distribution system. The Company will also retire the existing Lafayette substation and deteriorated 34.5 kV sub-transmission, some of which is constructed in wetlands. The Company has accelerated aspects of site work to create efficiencies with the Wickford Junction generation project located on the same parcel.

Together, these three projects comprise the majority of proposed spending for Major Load Relief projects. Although the projects are aligned with recommended solutions identified in Area Studies, I have emphasized that the decision to advance a Load Relief project must

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also consider whether actual loading or system conditions have materialized to the levels identified in the original Area Study that prompted the need for the project. During the course of the FY 2023 ISR Plan evaluation, the Company was asked to demonstrate that this re-evaluation was occurring¹². The Company confirmed that system loads are reviewed annually and that although overall forecasts have decreased in recent years, there are various localized loading concerns. The Company emphasized that major projects categorized in the System Capacity spending rationale also have significant asset condition drivers, and that delaying load relief portions of a project would require progressing asset replacement projects out of line with study recommendations. Given the information provided, I am satisfied that the proposed projects are appropriately scheduled. The Company is adhering to the principles of Area Studies which are designed to proactively identify and remedy regional system issues in a systematic fashion as opposed to reactive solutions. Implementing projects out of sequence can add significant and unnecessary costs and I consider the Company's approach reasonable. I expect the Company to rigorously re-analyze all future Load Relief major projects with updated load forecasts during the preliminary engineering phase to justify inclusion in the ISR Plan.

Lastly, I note that major projects in the development phase are subject to overall cost estimate revisions as final design and engineering are complete. It is in this phase that significant increases have occurred with many projects the Company has advanced in the past. As the process progresses throughout the year, I will evaluate the Company's updated analysis, monitor project estimates and evaluate sanctioning papers to ensure that scope

¹² Docket 5209, FY 2023 ISR Plan Proposal; DIV 1-15.

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and costs are reasonable and remain aligned with the outcome of Area Studies. As the projects advance through construction, I will also examine actual expenditures against budgeted amounts to determine the Company's success in managing multi-year projects to budgets. To assist in this ongoing evaluation the Company has proactively initiated quarterly meetings with the Division to update ISR projects and budgets. Emerging issues that shift work or budgets between current and prospective ISR plans are addressed along with updates on interrelated dockets and programs. The regular meetings provide the Division with an additional level of oversight and I expect the Company to continue scheduled communication throughout the year, or as needed when unexpected planning deviations develop.

My analysis and discussions of Area Study related projects in the Load Relief category did not result in adjustment, and concurrence was reached on a final proposed FY 2023 ISR Plan budget of \$7.23 million. Combined with the \$730,000 for legacy projects, the overall Load Relief category reached a final proposed budget of \$7.96 million without adjustment.

2. Reliability – Recurring Programs

In the Reliability category, the Company proposed a \$5.5 million budget for several recurring programs. Overall, the Company is \$1.1 million below its FY 2022 budget of \$10.6 million, with individual projects experiencing both over- and under-spend. I evaluated each project in the FY 2023 ISR Plan and concur with the proposed level of spend without adjustment. I address the programs in more detail below.

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FY 2023 Proposed Budget	NG Initial Proposed Budget (10-1-21)	Adjustments	National Grid Proposed Budget (12-20-21)
Reliability			
Volt/Var	\$ 10,000		\$ 10,000
EMS/RTU	\$ 1,165,000	\$ -	\$ 1,165,000
OH Line Transformer Replacement	\$ 1,500,000		\$ 1,500,000
Other Load Relief & Reliability	\$ 100,000		\$ 100,000
3VO	\$ 740,000		\$ 740,000
Blanket Projects - SCP	\$ 2,030,000		\$ 2,030,000
Reliability Total	\$ 5,545,000	\$ -	\$ 5,545,000

FY 2022 Budget Variance	Filed FY 2022	Over/Under Budget	FY 2022 Forecast (as of Dec 2021)
Reliability			
Volt/Var	\$ 3,227,000	\$ (264,000)	2,963,000
EMS/RTU	\$ 1,215,000	\$ (362,000)	\$ 853,000
OH Line Transformer Replacement	\$ 700,000	\$ 54,000	\$ 754,000
3VO	\$ 1,435,000	\$ (1,068,000)	367,000
Blanket Projects - SCP	\$ 1,730,000	\$ (60,000)	\$ 1,670,000
COVID	\$ 2,000,000	\$ (320,000)	\$ 1,680,000
Other	\$ 336,000	\$ 905,000	\$ 1,241,000
Reliability Total	\$ 10,643,000	\$ (1,115,000)	\$ 9,528,000

For the FY 2023 ISR Plan, the Company continues funding customary programs including EMS/RTU (SCADA) expansion, overhead transformer replacements, and blanket projects. Forecasted spend for these categories in FY 2022 is close to budget with the exception of EMS/RTU, which is expected to be over \$800,000 underbudget to align work with results of Area Studies. Additionally, the Company proposes \$100,000 for other projects and programs in FY 2023. This same category is budgeted at \$336,000 but forecasted to be \$900,000 above budget in FY 2022. The FY 2022 variance is driven by the additional costs incurred to complete all Area Studies by December 31, 2021 which was a commitment made by the Company in the previous ISR Plan proceeding. Work related to system modifications to manage load shifts from COVID (increasing remote workforce) is scheduled to be complete in FY 2022 although the Company has signaled that some work

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may shift into FY 2023. Overall, I find the proposed funding categories and respective budget levels for FY 2023 appropriate and fully support the Company's efforts to synergize work with Area Studies to increase efficiencies. The total budget for these categories was unadjusted at \$4.8 million.

The remaining budget is primarily allocated to zero sequence overvoltage (3V0) protection proposed at \$740,000 in FY 2023. The FY 2022 forecast for this category is nearly \$1 million under-budget due to removal of planned installations at substations impacted by future retirements. The 3V0 program provides system fault protection to prevent DER generation from contributing to transmission faults and is required once DER capacity reaches certain thresholds on distribution feeders. Once the threshold is met, additional DER projects may not advance until 3V0 is installed. The Company currently installs 3V0 protection in newly constructed substations and has been retrofitting select existing substations with 3V0 in the ISR Plan since FY 2019. Timelines to complete retrofits are 60-72 weeks, which delays DER interconnections while construction is completed. To accommodate DER interconnection at a faster pace, the Company has accelerated 3V0 retrofits at priority substations and purchased four mobile 3V0 units¹³ that may be installed in less time and remain in place until permanent facilities are installed.

The Company has completed 3V0 installations at 11 of 15 substations and plans completion of two additional installations through FY 2023¹⁴. While I continue to support the program, I reiterate my previous observations that although the Company's 3V0 program protects

¹³ Docket 5098, FY 2022 ISR Plan Proposal; R-III-3.

¹⁴ Docket 5209, FY 2023 ISR Plan Proposal; DIV 1-14.

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the system while advancing the goal of facilitating greater amounts of DER, it also raises a question regarding future categories and the magnitude of investments that are absorbed in the ISR Plan to support a subset of DER projects. At some point, the customer benefits may not outweigh the costs. These concerns will ultimately be vetted through multiple proceedings, including the future GMP or otherwise the Company's proposal to expand the program beyond the currently scheduled 15 installations. Pending resolution of these concerns, the Company's proposed investment of \$740,000 in FY 2023 for 3V0 is supported, recognizing that system protection is a priority for safety and reliability.

Lastly, the Company proposes minor funding for Volt/Var ("VVO/CVR") expansion to complete work in progress and to maintain existing systems. Going forward, the ISR Plan includes only O&M attributable to installed VVO/CVR. Plans to end VVO/CVR investments within the ISR Plan have been in place for some time as the Company expected to incorporate future work within the proposed GMP. As discussed in this report, the GMP filings are stayed, which effectively halts VVO/CVR installations. I have opined in previous Plan reviews that this initiative is an example of technology deployment which brings necessary grid enhancements and an ongoing net benefit to the consumer. The pilot on Volt/Var Optimization has produced positive net benefits but a delay in GMP proceedings has adversely impacted the Company's efforts to expand this valuable program. While the Company could consider adding VVO/CVR on additional feeders in the interim, a more cost-effective strategy would be designing a system-wide program that leverages feeder monitors and distribution automation as proposed in the GMP. However, not only is the timing of a subsequent GMP filing unknown, the actual plan itself may be

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drastically different from the Company's previous filing. I address this dilemma and Division expectations in more detail in Section G.

The comprehensive evaluation and discussions with the Company on all Load Relief and Reliability based projects in the System Capacity and Performance category resulted in a total unadjusted budget of \$13.5 million, comprised of \$8 million for major load relief projects and \$5.5 million for recurring reliability programs. The Company has not proposed new projects originating from unrelated external initiatives, such as GMP, and appears to be in a holding pattern on advancing these significant system investments until the proposed PPL acquisition is decided. As is customary, to the extent future projects enter the ISR Plan I will continue to analyze the proposed scope and spend, including the following areas of evaluation:

- Confirm that the proposed project is approved for inclusion in the ISR Plan if required by an external initiative, such as studies, regulatory proceedings, or legislative actions,
- Determine whether the proposed project is aligned with core safety and reliability objectives,
- Determine whether the proposed project compliments or conflicts with other ISR Plan projects,
- Verify alignment with Area Studies,
- Verify that the proposed project takes into account similar studies performed by the Company to leverage "lessons learned" and avoid duplicative costs,
- Verify that the project is not subject to cost recovery outside the ISR Plan,
- Determine reasonableness of budget and impact on current and future years,

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- Identify ISR Plan work that may be deferred by the project, and
- Consider the applicability of parameters of Docket No. 4600.

As discussed in Section G, the Division will also evaluate future projects to determine if synergies with other Company jurisdictions have been fully leveraged, thereby reducing costs to ratepayers, or alternately, if efficiencies are lost due to restructuring or delays in project implementation resulting in higher costs to ratepayers.

Through the course of discussions and data analysis, concurrence was reached on a total proposed discretionary budget of \$63.3 million comprised of the Asset Condition, Non-Infrastructure, and System Capacity & Performance categories, or sixty (60%) of the total Capital Investment of the ISR Plan budget.

G. Additional Assessments

1. Non-Wires Alternatives

As part of the Company's Area Studies, projects are screened for non-wires alternatives (NWA). The thresholds that determine when a NWA should be considered are established through the Company's SRP plans and incorporated into the Company's distribution planning guidelines. Projects meeting the thresholds are evaluated against alternatives through a bid process. The Company selects the least cost, fit-for purpose option which advances through the SRP if a NWA is chosen, or through the ISR Plan if a traditional capital solution is selected. The Company has completed efforts to consider six NWAs and

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has evaluated two projects twice¹⁵. Currently, there are two open NWA solicitations with no impact on this ISR Plan. The process has significantly evolved, yet it remains unclear what might be the requirement or rationale for having a customer implement a NWA strategy when a system capacity project is driven by that same customer's increasing load. This is predominantly relevant for municipalities that are served by the Company through delivery points that may require upgrades due to load growth or contingency needs. The Company is positioned to offer a traditional capital investment solution, to be funded by the municipality, or to facilitate a process for the municipality to explore NWA. There is not a defined path for implementation of these types of analysis by the Company, or for the Division's involvement. The Division recommends that the Company put forth a straw proposal on planning enhancements to explore and/or facilitate customer implementation of a NWA when a system capacity project is driven by that same customer's increasing load.

2. ISR Plan Development and Area Studies

Over the course of many proceedings, I detailed several observations that impact the Company's ISR Plan and raised concerns with the Company's efforts to manage those issues. These generally included the lack of transparency and cohesiveness between the Company's design criteria, System Reliability Procurement, and Area Studies, in addition to delays in completing Area Studies.

¹⁵ Docket 5209, FY 2023 ISR Plan Proposal; DIV 1-6 (Supplemental).

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I have continually encouraged the Company to take a proactive stance in proposing improvements that integrate various planning requirements and allow for a transparent and forward-looking ISR Plan. As part of these efforts, the Division offered specific proposals to the Company during previous ISR Plan discussions to enhance the development, presentation and execution of the Plan. The Company has been responsive to Division recommendations, and has incorporated improvements such as streamlining pre-file information, reorganizing the Plan presentation, enhancing Area Study components, and adding detail on proposed projects to increase transparency and correlation with external initiatives. Additionally, the Company has incorporated, at the Division's direction, a description of the entire planning process to assist the Commission and stakeholders in understanding the complexity of what goes into the planning and how the Division is involved throughout each step.

As part of these efforts, the Company has expanded its discussion of the Area Study process and incorporated charts in Section 2 of the ISR Plan filing to assist the Commission and stakeholders in gaining a clear picture of the process, steps and outcomes. These suggestions were at the recommendation of the Division during collaborative discussions with the Company. The Division and Company will continue to strive to make the Area Study process and documentation as transparent and understandable as possible. While it is impractical for the Commission and stakeholders to be involved in the details of each step, the Division wants to ensure the parties are aware of the process and outcomes. The Area Studies are a major component of the analysis that establishes the ISR Plan projects and implementation schedule to achieve a safe and reliable electric distribution system at a reasonable cost, both capital and operating. The Division wants the dissemination of the

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Area Study process to improve the confidence of all parties concerning the ISR Plan and particularly the multi-year projects such as new or upgraded substations.

The Company has also provided the Division and its consultant with the existing system and proposed system CYME models associated with each Area Study. These engineering models contain system attributes and are used to identify the capacity and voltage problems which are forecasted to occur due to load variations. The models also demonstrate the effectiveness of the proposed solution and allow for the assessment of alternative solutions. The Division's consultant has independently analyzed the models provided with each Area Study. This free exchange of significant system detail not only provides a much clearer picture of the dynamics of each ISR Plan major project solution, it also creates a database for future plans and enhanced holistic system assessment. Additionally, the Company's completion of its COVID impact per distribution feeder further enhanced the visibility of feeder capabilities even under a dramatically different load profile.

An additional engineering assessment tool which the Company has not emphasized are the numerous CYME modules it uses to perform two-way feed analysis of DER to determine the impacts of DER on each feeder and substation. The Company held a session with the Division and its consultant during early development of the GMP to demonstrate how the Company uses these sophisticated modeling tools in order to provide a more granular analysis of the Company's feeders under varying levels of DER penetration. By running iterative scenarios, the Company is able to determine the impacts of DER and identify improvements that can create a more resilient system while allowing for the expansion of more DER on the feeders. This type of modeling also supports publicly available hosting

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capacity maps and enhances the NWA assessment process. The Division is fully supportive and encourages the Company to continue investing in tools that provide system planning insights that can be used across multiple programs.

3. Long-Range Plan

The Company has now completed all Area Studies, although the pace of completion has not met expectations. The Division has requested that the Company now develop a comprehensive strategic spending plan (Long-Range Plan) based on the results of Area Studies and include a method to track the status of each proposed project. The Company has committed to develop Long-Range Plan concepts in which the Company presented preliminary options at a February 4, 2022 conference. Further discussion will be held with the Division and a preliminary document will be presented at an August 2022 conference. The Division would also like the Company to propose a tracking mechanism that compares original cost estimates developed within the Area Study to revised cost estimates as the projects progress through internal sanctioning and, ultimately, to actual incurred costs.

4. Docket 4600

The Company identifies new or incremental programs in the proposed ISR Plan and describes how each advances, detracts, or is neutral to each goal in Docket 4600¹⁶. The Company also applies a benefit-cost analysis (“BCA”) to new or incremental programs using the Docket 4600 Framework.

¹⁶ Docket No. 4600A – Guidance on Goals, Principles and Values for Matters Involving The Narragansett Electric Company d/b/a National Grid, dated October 27, 2017.

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For the FY 2023 ISR Plan, the Company applied the Docket 4600 benefit-cost framework to the Newport (3763 Line) 69 kV structure replacement project. The BCA Framework, although much more comprehensive, is consistent with my overall philosophy that the Company should support specific programs with a cost-benefit analysis. I have recommended this in the past when the Company proposed incremental discretionary spend, whether expanding a current program or proposing a new initiative that did not have a clear alignment with existing programs or an Area Study.

My observations of the BCA Framework continue to be that it is a complex process that the Company must now apply to its core investments for safety and reliability, and that many categories, such as societal impacts, are not ordinarily assessed in my engineering review of ISR Plans nor are they incorporated by the Company. The BCA for the 3763 Line Pole Replacements, a project driven by asset condition, reveals that the majority of categories are not applicable. The Company is essentially performing the same analysis as it would in determining the optimal solution for issues identified in Area Studies, part of asset replacement programs, or for new initiatives otherwise. In my role as Division consultant, I approach the Framework as an additional measure of support for programs, and consistent with the PUC, "...not an exclusive measure of whether a specific proposal should be approved."¹⁷ Overall, it is not clear how the data, as presented by the Company, shapes, influences, augments, complements, or otherwise supports the ISR Plan.

¹⁷ Docket 4995, FY 2021 ISR Plan Proposal, Joint Testimony, page 20.

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Irrespective of these observations, I do find value in requiring Docket 4600 analysis for the simple fact that it forces the Company to bring forth projects for review that may not have been highlighted in the Plan or discussed with the Division. For example, the initial proposed FY 2023 ISR Plan did not elaborate on the new 3763 Line Pole Replacement project, particularly the transmission aspect or its estimated cost. The Docket 4600 analysis in the final proposed filing elaborated on the project enabling the Division to perform a complete review. Given the inherent difficulty in assessing the reasonableness of an investment plan comprised of hundreds of complex projects, any mechanism to draw attention to new projects is helpful for all stakeholders. The Docket 4600 analysis is not a substitute for the data that the Company should produce to support the inclusion of new projects in the ISR Plan, and the Division expects the Company to continue proactively providing information during the Division's review.

5. AMF, GMP, and PPL Acquisition

National Grid filed AMF and GMP plans in Rhode Island in Dockets 5113 and 5114, respectively. Since that time, PPL petitioned to acquire Narragansett Electric and the AMF and GMP dockets have been stayed. Should the acquisition be approved, PPL has signaled that updated GMP and AMF plans will be filed. At this juncture, the state of Rhode Island's progress towards a modernized grid and advanced metering is at a complete standstill. The strategy and components of any future GMP and AMF plans are unknown and impacts on the ISR Plan are completely unpredictable. Leading up to this point, National Grid had forecasted \$27 million to \$32 million annual spend for an unapproved GMP beginning in FY 2023. Clearly those plans are not advancing and the FY 2023 ISR Plan appropriately

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excludes any GMP funding. These developments, along with other matters raised by the PPL petition, will impact future ISR Plans, including:

- a. National Grid's GMP, and particularly the AMF filings, identified cost efficiencies due to concurrent implementation with the Company's New York jurisdiction. Now that programs in Rhode Island are not advancing those synergies will likely be diminished. For instance, economies of scale for meters and common infrastructure will not be achieved, nor would the efficiencies of simultaneous implementation and shared IT systems among jurisdictions. Assuming Rhode Island advances GMP and AMF at a later date, the Company cannot retroactively capture those savings, which adds costs. Conversely, if PPL acquires Narragansett and files GMP and AMF plans, synergies with National Grid New York will be lost. Although PPL has stated that it can provide cost efficiencies due to its experience in operating utilities across multiple jurisdictions, future ISR Plans will have to be carefully vetted to ensure cost efficiencies are realized.

- b. National Grid's distribution planning process and ISR Plan filings have evolved to their current state after nearly 15 years of iterative improvements. As the Division's consultant, I have been highly involved in the ISR Plan and related proceedings and note that the Company has now achieved what I consider top tier planning proficiencies. The transparency of the process along with the Company's willing engagement has resulted in a distribution capital investment plan that is supported by robust system assessments and engineering analysis.

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The plan is driving top quartile reliability results in a cost-effective manner. It takes an extraordinary number of employees, both at the corporate and state jurisdictional level, to prepare and implement the ISR Plan. Regardless of the outcome of the PPL acquisition petition, the Division expects Narragansett to continue ISR Plan development in a manner that is consistent with the procedures and best practices adopted over many years including Area Studies, Long-Range Plans, cost-benefit analyses, and other methods that demonstrate the need and timing of capital investments required to support safety and reliability objectives. In addition, efforts to improve project planning and execution cannot be compromised.

- c. While it is impossible to predict outcomes should ownership transfer to PPL, it is certain that changes will occur. New internal practices may be imposed that appear as minor adjustments, such as revised construction or vegetation management standards, but in reality could have considerable implications on Narragansett's cost of providing service. Therefore, Company philosophies and guidelines must be closely monitored to ensure that ratepayers are not subject to unnecessary costs for services that add little or no value.

The Company must remain engaged throughout the year to keep the Division and its consultant apprised of developments that impact the ISR Plan. The Division will be vigilant in its oversight of these impacts to ensure that: 1) changes are necessary and produce quantifiable benefits that accrue to ratepayers which outweigh costs, 2) there is no degradation to service, and 3) ratepayers do not incur excess or duplicative costs.

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III. VEGETATION MANAGEMENT

The Company's initial FY 2023 ISR Plan proposed expenditures of \$11.4 million for the Vegetation Management Program, which includes the Enhanced Hazard Tree Mitigation (EHTM) program, which was adjusted by \$500,000 for a final proposed spend of \$11.9 million. The FY 2023 budget is ten percent (10%) higher than the FY 2022 budget and forecasted spend of \$10.8 million.

FY 2023 Proposed Budget	NG Initial Proposed Budget (10-1-21)	Adjustments	National Grid Proposed Budget (12-20-21)	FY 2022 Forecast
Vegetation Management				
Cycle Pruning	\$ 6,800,000	\$ 500,000	\$ 7,300,000	\$ 6,600,000
Hazard Tree	\$ 1,750,000		\$ 1,750,000	\$ 1,500,000
Sub-T	\$ 350,000		\$ 350,000	\$ 500,000
Police/Flagman Detail	\$ 775,000		\$ 775,000	\$ 775,000
Pockets of Poor Performance	\$ 200,000		\$ 200,000	\$ 200,000
All Other Activities	\$ 1,500,000		\$ 1,500,000	\$ 1,225,000
Program Total	\$ 11,375,000	\$ 500,000	\$ 11,875,000	\$ 10,800,000

Consistent with historical budgets, the major spending component is Cycle Pruning with a proposed budget of \$7.3 million which is \$700,000 higher than FY 2022 funding levels. A shortage in qualified tree workers, rising fuel costs and inflation have increased cycle pruning bid pricing. The Company forecasts continued spend for hazard tree removals, sub-transmission clearing, police detail and core activities such as customer requests at levels consistent with or moderately higher than the previous year. In addition, funding to address pockets of poor performance is proposed for the third year. Overall, the Company is successfully executing the Vegetation Management program while meeting budget targets. During the course of discussions, the Company proposed, and Division accepted a \$500,000 increase to address rising cycle pruning costs. No additional adjustments were recommended, and concurrence was reached on the proposed Vegetation Management Program budget of \$11.9 million for FY 2023.

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I have evaluated the Vegetation Management Program in detail and on multiple levels in prior ISR Plan assessments and continue to support the Company's funding level and frequency of cycle pruning work, which is consistent with industry practices in the region. The Company reports¹⁸ that, on average, a ten (10%) improvement in customer interruptions (CI) per circuit occurs in the first year after pruning. The Company implements a four-year pruning cycle to maintain adequate clearances on approximately 5,137 miles of overhead distribution circuits. Reliability indices indicate that the Company continues to meet or exceed annual goals. The Company has adopted best practices in this category, including frequent competitive bidding for contractor services. The bids for FY 2023 average \$6,150 per mile compared to \$5,200 per mile in FY 2022¹⁹. Although the most recent cycle pruning bid prices will increase FY 2023 costs, I continue to support this activity that is critical to managing tree related outages, along with the proposed \$7.3 million for cycle pruning.

EHTM is another program component that the Company continues to perform and justify with favorable reliability statistics. The ISR Plan filing states²⁰ that three years of tree-related interruption data for Rhode Island indicates that fallen trees account for fifty-two percent (52%) of tree-related events and fifty-three percent (53%) of tree-related customer interruptions. Reliability data indicates that, with few exceptions, trees account for the majority of customer interruptions each year.

¹⁸ Docket 5209, FY 2023 ISR Plan Proposal; Section 3, page 77.

¹⁹ *Id.* Section 3, page 78.

²⁰ *Id.* Section 3, page 78.

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The EHTM program accounts for fifteen percent (15%) of the proposed Vegetation Management budget. Under the program, the Company identifies and removes dying or structurally weakened trees along the three-phase sections of the worst performing circuits, and beyond the mainline portion of feeders that are experiencing multiple interruptions. The Company reports²¹ that from FY 2008 to FY 2021, tree-related customer interruptions improved on an average of fifty-six percent (56%) for the first year following completion of EHTM work.

I continue to believe that hazard tree identification and removal, particularly on the worst performing feeders, remains critical. The Company increased the EHTM budget from FY 2018 to FY 2020 to manage tree mortality expected from the spread of the Gypsy Moth. After successful removal of oak trees in targeted areas, the Company has since reduced the annual EHTM budget. Efforts to coordinate with municipalities continues, which has resulted in lower police detail costs and improved communication with customers prior to tree removals. The Company is also monitoring the Emerald Ash Borer infestation in coordination with state and municipal entities. Risks are presently community specific and not widespread. The Company will continue proactive but methodical tree removals in following years. This strategy is consistent with my prior recommendation that the Company take a measured approach in managing pest infestation, as opposed to removing massive amounts of trees before the effects materialize. I continue to expect that when future ISR Plan budget requests are submitted for Emerald Ash Borer management; the Company will be prepared to reduce discretionary spend in other categories to offset vegetation management increases. Any budget request should be accompanied by a clear, collaborative

²¹ *Id.* Section 3, page 79.

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statewide strategy, outlining the utility's role and estimated cost responsibility relative to other stakeholders. I support the proposed FY 2023 EHTM budget of \$1.75 million.

For FY 2023, the Company requests a continuation of the \$200,000 spend to target pockets of poor performance. These are circuits that have experienced significant customer outages due to trees which would benefit from additional clearing between customary cycles. The Company first proposed the program in FY 2021 and indicates that the funding has successfully enabled tree removals and trimming in areas prone to outages in response to customer concerns. Although there is not enough data to determine the effectiveness of the program, the Company indicates that areas addressed in FY 2021 have seen a fifty-one percent (51%) reduction in tree events and sixty percent (60%) reduction in customers interrupted in the same areas when compared to the monthly average prior to beginning work²². While these are positive trends, reliability benefits cannot be based on a narrow set of data. The program must be implemented and measured over an extended time to determine whether the program should continue and/or be expanded. I support the third year of \$200,000 funding for pockets of poor performance work in FY 2023 and expect the Company to collect and report on reliability benefits achieved through this targeted vegetation management initiative. To date, the Company has demonstrated this program has significant benefit to troubled area reliability while avoiding expensive capital projects.

The remaining components of Vegetation Management include sub-transmission work, police detail, and other core activities which are collectively budgeted at \$2.6 million compared to

²² Docket 5209, FY 2023 ISR Plan Proposal; DIV 2-2.

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\$2.5 million in FY 2022. All categories are reasonable and consistent with recent historical levels of spend. This brings the total Vegetation Management Program proposed budget to \$11.9 million.

Overall, the Company's vegetation management planning and implementation has evolved into one of its most effective programs for storm hardening and grid resiliency. However, despite the robustness of the program, customer interruptions due to trees continue to trend upward. The Company notes a correlation between increasing storm activity in the state and a substantial increase in the number of days with more than 10 tree events, days that have more than 1,000 customers interrupted, and days with over 100,000 customer minutes interrupted²³. The Company also attributes climate change with increasing temperatures, growth rates, drought and invasive species as factors which all play a role in tree-related outages. I have previously commented on the importance of vegetation management since protecting core distribution facilities from the dangers of falling limbs and trees will be more critical as grid connected technologies are deployed that rely on an intact and functioning system to provide intended benefits. There are no cost-effective substitutes for robust vegetation management and the Company's proactive approach, balanced with cost management, continues to be integral to system reliability. The Division expects the Company to continue prescriptive approaches while evaluating strategic program enhancements that proactively address growing distribution system service interruptions. Going forward, material changes to the vegetation management program are expected to be presented with a cost benefit analysis that is well supported by quantifiable metrics.

²³ Docket 5209, FY 2023 ISR Plan Proposal; DIV 2-1.

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IV. SUMMARY AND RECOMMENDATIONS

The process between the Company and the Division resulted in a FY 2023 Electric ISR Plan which sets forth a capital budget, Vegetation Management Program and I&M Program, and associated O&M activities that balance the need for safety and reliability with efficient benefit/cost considerations. Appendix-2, Summary of Capital Outlays by Key Driver Category and Budget Classification, summarizes by spending rationale (category) and individual budget class within each category, differences between the Company's initially proposed ISR Plan of October 1, 2021, and the resulting December 20, 2021 filing of the FY 2023 ISR Plan Proposal. The consensus ISR Plan reflects a two percent (2%) increase of \$1 million in the discretionary capital spending budget, for an overall capital budget of \$104.8 million.

For FY 2023, review of the proposed ISR Plan and discussions with the Company continued to address the reasonableness of budget levels for customary projects, many of which are part of mature programs. For the non-discretionary category, the Company included customary programs based on historical budget trends. The budget did not reflect the Company's previously forecasted \$27 million spend for GMP related initiatives, including Strategic DER Advancement, since both AMF and GMP filings are essentially stalled pending the outcome of PPL's petition to acquire Narragansett Electric. The potential PPL acquisition raises many questions, including how the Division's insight into the scope and costs of future AMF and GMP investments within the ISR Plan will be changed.

For the discretionary category, the Company continues to pursue a portfolio of capital investments for load relief and to replace aging and obsolete infrastructure. Multiple complex projects from Area Studies, including Dyer Street and Providence Area, are advancing through

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development stages and will dominate spend in future years. The Division expects that major load relief projects will be re-analyzed with current forecasts to justify inclusion in the Plan before significant expenditures are incurred. The Company has presented 100 percent of its 11 completed Area Studies to the Division and is in the process of developing a holistic system Long-Range Plan which will be instrumental in guiding sequencing of major discretionary projects and associated ISR Plan spend. The Division encourages continued improvement in project estimating and execution along with the development of tracking mechanisms to gauge Company performance. It is also recommended that the Company put forth a straw proposal on planning enhancements to explore and/or facilitate customer implementation of a NWA when a system capacity project is driven by that same customer's increasing load.

The Division Consultant supports ongoing investment in proposed categories and continues to evaluate work performed between discretionary and non-discretionary categories. To manage increasing costs, including short term inflationary impacts, the Company will need to lengthen complex project implementation schedules or moderate spend in other discretionary programs in order to maintain reasonable overall budgets without compromising necessary reliability programs.

The longer-term challenge continues to be how the Company globally prioritizes and schedules projects informed from the pending Long-Range Plan while incorporating other requirements arising from separate but interrelated dockets. There will be significant upward pressure on the ISR Plan budget to accommodate future projects and initiatives while balancing the competing interests of safety and reliability with economic impacts to its ratepayers. Planning uncertainties are exacerbated by PPL's potential acquisition of Narragansett Electric. While it is

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impossible to predict outcomes should ownership transfer to PPL, it is certain that changes will occur. Ratepayers are already negatively impacted by foregone cost efficiencies that would have been achieved if AMF/GMP had been implemented concurrent with the Company's New York jurisdiction. Staffing changes and new internal practices compelled by PPL ownership could easily disrupt the ISR Plan process and filings that have evolved to their current state after nearly 15 years of iterative improvements.

The uncertainties and cost impacts brought forth by the potential acquisition must be closely monitored by the Division. Should the acquisition transpire, the Company is expected to develop a formal process to keep the Division informed of changes or developments which may impact the ISR Plan and process. The Division will be vigilant in its oversight of these impacts to ensure that: 1) changes are necessary and produce quantifiable benefits that accrue to ratepayers which outweigh costs, 2) there is no degradation to service, and 3) ratepayers do not incur excess or duplicative costs.

For FY 2023, I support the ISR Plan Capital Budget as proposed at \$104.8 million, the proposed Vegetation Management Program at \$11.9 million and the I&M Program Operations and Maintenance Expenses at \$1.6 million. I continue to emphasize the need to complete a Long-Range Plan, and that projects driven by or correlated with external initiatives must be fully justified, including sufficient analysis on cost-effective alternatives, before inclusion within the ISR Plan. I expect that my remaining recommendations accepted during prior ISR Plan proceedings will continue to be followed by the Company.

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Recommendations

1. The Company shall continue to coordinate with the Division to monitor and report on work performed under Damage/Failure, I&M, and related Asset Replacement blanket programs to validate proper classifications. The Company shall put forth program adjustments in the FY 2024 ISR Plan that include advancing Damage/Failure to a “fix on failure” strategy.
2. The Company shall develop an alignment between various planning and project evaluation processes, with consideration as to how a grid modernization strategy may be incorporated. This includes, but is not limited to, the System Reliability Procurement (“SRP”) plans, Area Studies, ISR Plan, non-wires alternatives (“NWA”) options and internal Design Criteria.
3. The Company shall continue enhancing current and future study documents supporting Asset Replacement and System Capacity programs or projects as applicable to include, at a minimum:
 - The traditional elements included in the Company’s current studies including, but not limited to, purpose and problem statement, scope and program description, condition assessment/criticality rankings, alternatives considered, solution, cost and timeline.
 - Discussion on the impact to related Company initiatives, Commission programs, the various pilot projects, or other requirements driven by SRP, Distribution System Planning (“DSP”), Heat Maps, and emerging initiatives.
 - A detailed comparison of recommendations to Area Studies to determine if solutions are aligned with study outcomes, noting adjustments required to avoid redundancy in planning.

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- An evaluation of potential incremental investments that support the Company's long - term grid modernization strategy. This includes description of technology or infrastructure investment, cost-benefit to traditional safety and reliability objectives, and additional operational benefits achieved, if implemented. The GMP should be closely correlated with all ISR Plan investments, including both recurring and newly proposed programs.
 - A robust NWA evaluation for projects passing initial screening that clearly identifies alternatives considered, costs, and benefits.
 - A correlation of the 11 Area Studies to each other for the development of a holistic system Long-Range Plan which further informs the ISR Plan.
4. The Company shall continue to develop a System Capacity Load Study and a 10-year Long-Range Plan in order to increase the level of support and transparency for the capital budget. The Company shall analyze the overall system in a holistic manner using the now completed 11 Area Studies to establish enhancements in the Area Study solutions. The Company shall use the completed Area Studies to re-prioritize and sequence all solutions and major projects in the Long-Range Plan. The Company shall submit and present the outcome of each revised Area Study to the Division and its consultant at the time of completion. These studies shall include a separate Non-Wire Alternative analysis of the projects consistent with the requirements of other program commitments. The Company shall submit a report with updates on modeling activities, holistic system long range plan development and revision of each Area Study status at least 120 days prior to filing its FY 2024 ISR Plan Proposal, but in any event no later than August 31, 2022.

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5. The Company shall manage major Asset Replacement and System Capacity & Performance project budgets separate from other discretionary projects, such that any budget variances (underspend) will not be utilized in other areas of the ISR Plan. The Company shall provide quarterly budget and project management reports.
6. The Company will continue to manage (underspend/overspend management) individual project costs within the ISR Plan discretionary category (comprised of Asset Condition and System Capacity and Performance projects), such that total portfolio costs are aligned within a discretionary budget target that excludes major substation projects.
7. The Company shall continue to provide quarterly reporting on Damage/Failure expenditures to include the details of completed projects by operating region. The Company will separately identify Level I projects repaired as a result of the I&M program.
8. The Company shall continue to provide a detailed budget for System Capacity & Performance and Asset Condition in order to provide transparency on a project level basis for the current and future 4-year period. The budget shall be provided in advance of the FY 2024 ISR Plan Proposal filing, and in any event no later than August 31, 2022.
9. The Company shall submit an evaluation of future proposed Asset Condition projects as compared to the Company's Long-Range Plan in advance of the FY 2024 ISR Plan Proposal filing, and in any event no later than August 31, 2022.

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10. The Company shall continue to submit its detailed substation capacity expansion plans and load projections, and include an evaluation of proposed projects against the Company's Long-Range Plan, in advance of the FY 2024 ISR Plan Proposal filing, and in any event no later than August 31, 2022.
11. The Company shall continue to submit a cost-benefit analysis on the Vegetation Management Cycle Clearing Program and a separate cost-benefit analysis on the Enhanced Hazard Tree Management program for the Division's review prior to submitting the Company's FY 2024 ISR Plan Proposal, and in any event no later than August 31, 2022.
12. In the event the PPL acquisition of Narragansett transpires, Narragansett Electric shall provide within 60 days of closing a comprehensive report addressing, at a minimum: an organizational chart identifying the new ISR Plan team members and responsibilities as compared to the current organization, any changes in the project sanctioning process; any proposed changes to the ISR Plan process; and a schedule for the quarterly presentations of the quarterly reports. The Company shall provide report updates at each quarterly presentation.

APPENDIX 1

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Historical Budgets versus Actual

Spending Rationale	FY 2006	FY 2006	FY 2007	FY 2007	FY 2008	FY 2008
	Budget	Actual	Budget	Actual	Budget	Actual
Customer Request/Public Requirements	20,302,000	22,885,193	17,902,500	21,012,048	24,630,000	23,887,492
Damage/Failure	3,250,000	8,264,656	4,550,000	7,442,272	5,660,000	7,642,277
Total Discretionary	23,552,000	31,149,849	22,452,500	28,454,320	30,290,000	31,529,769
Asset Condition	9,323,000	5,828,465	8,641,000	8,342,907	10,020,000	12,559,436
Non-Infrastructure	793,000	(2,196,297)	990,000	3,041,061	75,000	385,109
System Capacity & Performance	10,276,500	10,980,393	12,961,500	11,545,608	12,434,000	13,558,424
Total Non-Discretionary	20,392,500	14,612,561	22,592,500	22,929,576	22,529,000	26,502,969
Grand Total	43,944,500	45,762,410	45,045,000	51,383,896	52,819,000	58,032,738
Vegetation Management	-	-	-	-	-	6,630,000
Inspection & Maintenance Program	-	-	-	-	-	-

Spending Rationale	FY 2009	FY 2009	FY 2010	FY 2010	FY 2011	FY 2011
	Budget	Actual	Budget	Actual	Budget	Actual
Customer Request/Public Requirements	24,022,668	21,171,756	23,726,000	19,311,885	21,014,000	14,631,340
Damage/Failure	6,596,000	8,345,442	7,919,000	9,031,133	9,365,000	13,194,101
Total Discretionary	30,618,668	29,517,198	31,645,000	28,343,018	30,379,000	27,825,441
Asset Condition	10,090,732	10,941,238	14,253,000	13,065,303	7,201,000	5,830,800
Non-Infrastructure	242,600	284,808	168,000	(590,138)	685,000	705,603
System Capacity & Performance	16,707,000	14,595,922	22,434,000	17,454,290	8,635,000	10,758,714
Total Non-Discretionary	27,040,332	25,821,968	36,855,000	29,929,455	16,521,000	17,295,117
Grand Total	57,659,000	55,339,166	68,500,000	58,272,473	46,900,000	45,120,558
Vegetation Management	-	7,857,000	-	6,882,000	-	4,829,000
Inspection & Maintenance Program	-	-	-	-	-	-

Spending Rationale	FY 2012	FY 2012	FY 2013	FY 2013	FY 2014	FY 2014
	Budget	Actual	Budget	Actual	Budget	Actual
Customer Request/Public Requirements	21,636,500	13,075,154	20,006,000	10,410,223	16,509,000	17,137,642
Damage/Failure	9,705,000	12,992,859	10,422,000	17,515,452	10,050,000	14,373,392
Total Discretionary	31,341,500	26,068,013	30,428,000	27,925,675	26,559,000	31,511,034
Asset Condition	12,318,050	11,520,099	11,863,000	8,070,832	20,242,000	20,904,838
Non-Infrastructure	278,000	266,545	336,000	2,269,065	255,000	(346,246)
System Capacity & Performance	17,962,450	13,955,240	13,913,000	11,249,210	12,544,000	25,972,338
Total Non-Discretionary	30,558,500	25,741,884	26,112,000	21,589,107	33,041,000	46,530,930
Grand Total	61,900,000	51,809,897	56,540,000	49,514,782	59,600,000	78,041,964
Vegetation Management	9,826,000	8,176,000	8,256,000	8,248,749	8,476,000	8,529,815
Inspection & Maintenance Program	2,479,230	1,465,884	2,270,900	1,480,205	3,779,000	3,611,958

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Historical Budgets versus Actual (Continued)

Spending Rationale	FY 2015	FY 2015	FY 2016	FY 2016	FY 2017	FY 2017
	Budget	Actual	Budget	Actual	Budget	Actual
Customer Request/Public Requirements	14,537,000	17,759,797	15,647,000	17,412,295	19,450,550	20,232,661
Damage/Failure	9,816,000	3,044,445	11,177,000	14,531,159	11,467,000	15,614,335
Total Discretionary	24,353,000	20,804,242	26,824,000	31,943,454	30,917,550	35,846,996
Asset Condition	19,511,000	25,140,871	24,053,000	27,178,961	33,280,427	31,274,161
Non-Infrastructure	277,000	1,216,345	275,000	457,389	275,000	621,795
System Capacity & Performance	21,759,000	25,889,850	22,148,000	19,919,705	18,968,000	16,370,536
Total Non-Discretionary	41,547,000	52,247,066	46,476,000	47,556,055	52,523,427	48,266,492
Grand Total	65,900,000	73,051,308	73,300,000	79,499,509	83,440,977	84,113,488
Vegetation Management	7,726,000	8,029,095	8,884,000	8,893,000	8,719,000	8,719,000
Inspection & Maintenance Program	2,995,000	2,022,743	3,333,000	1,196,756	1,611,750	1,611,750

Spending Rationale	FY 2018	FY 2018	FY 2019	FY 2019	FY 2020	FY 2020
	Budget	Actual	Budget	Actual	Budget	Actual
Customer Request/Public Requirements	21,853,000	19,627,243	19,005,000	23,989,000	27,025,000	29,148,000
Damage/Failure	11,379,000	19,184,118	13,674,000	13,998,000	13,505,000	15,463,000
Total Discretionary	33,232,000	38,811,361	32,679,000	37,987,000	40,530,000	44,611,000
Asset Condition	42,744,000	17,241,994	29,768,000	30,708,000	39,675,000	34,965,000
Non-Infrastructure	553,000	362,242	556,000	673,000	550,000	361,000
System Capacity & Performance	24,092,000	50,642,444	39,764,000	41,704,000	21,045,000	25,463,000
Total Non-Discretionary	67,389,000	68,246,680	70,088,000	73,085,000	61,270,000	60,789,000
Grand Total	100,621,000	107,058,041	102,767,000	111,072,000	101,800,000	105,400,000
Vegetation Management	9,400,000	9,515,300	9,800,000	9,800,000	10,400,000	10,400,000
Inspection & Maintenance Program	1,230,800	684,744	1,289,000	1,289,000	1,243,000	1,243,000

Spending Rationale	FY 2021	FY 2021	FY 2022	FY 2022	FY 2023
	Budget	Forecast	Proposed	Forecast	Proposed
Customer Request/Public Requirements	24,540,000	22,568,000	27,237,000	32,524,000	27,183,000
Damage/Failure	12,365,000	16,275,000	12,198,000	16,265,000	14,251,000
Total Discretionary	36,905,000	38,843,000	39,435,000	48,789,000	41,434,000
Asset Condition	41,120,000	42,691,000	40,569,000	38,689,000	48,288,000
Non-Infrastructure	580,000	634,000	1,310,000	1,359,000	1,520,000
System Capacity & Performance	25,145,000	18,344,000	20,286,000	16,575,000	13,508,000
Total Non-Discretionary	66,845,000	61,669,000	62,165,000	56,623,000	63,316,000
Grand Total	103,750,000	100,512,000	101,600,000	105,412,000	104,750,000
Vegetation Management	10,600,000	10,600,000	10,800,000	10,800,000	11,875,000
Inspection & Maintenance Program	1,492,000	1,184,000	1,423,000	1,104,000	1,564,000

APPENDIX 2

EXHIBIT GLB-1

REPORT OF GREGORY L. BOOTH, PE

FY2023 ISR Plan Division Adjustments						
Capital Outlays by Key Driver Category and Budget Classification						
SPENDING RATIONALE	BUDGET CLASS	FY2023				
		Initial Proposed Budget (8/6/21)	Adjustments	Budget Filed with Division 10/1/21	Adjustments (12-1-21)	Budget Filed with PUC (12-XX-21)
Customer Request/ Public Requirements	3rd Party Attachments	260	-	260		260
	Distributed Generation	1,000	-	1,000		1,000
	Land and Land Rights	475	-	475		475
	Meters and Meter Work	2,590	-	2,590		2,590
	New Business - Commercial	8,950	-	8,950		8,950
	New Business - Residential	7,025	35	7,060		7,060
	Outdoor Lighting - Capital	560	-	560		560
	Public Requirements	1,346	(8)	1,338		1,338
	Transformers & Related Equipment	4,800	-	4,800		4,800
	Meters Programs	150	-	150		150
Cust Req/Public Req		27,156	27	27,183	-	27,183
Damage/ Failure	Damage/ Failure	11,376	0	11,376		11,376
	Reserve for Damage/Failure	950	-	950		950
	Major Storms	1,925	-	1,925		1,925
Damage/Failure Total		14,251	0	14,251	-	14,251
Subtotal Non-Discretionary		41,406	28	41,434	-	41,434
Asset Condition	Major Projects					
	Southeast	223	(0)	223		223
	Phillipsdale Substation	535	(535)	-		-
	Centredale Substation	100	(100)	-		-
	Dyer Street Substation	3,635	(3,135)	500	3,000	3,500
	Prov LT Study - Ph1A	1,484	(0)	1,484		1,484
	Prov LT Study - Ph1B	16,585	(0)	16,585		16,585
	Prov LT Study - Ph2	300	-	300		300
	Prov LT Study - Ph4	1,267	(50)	1,217		1,217
Major Projects Total		24,130	(3,821)	20,309	3,000	23,309
	Asset Replacement					
	Battery Replacement	130	-	130		130
	Substation Breakers & Reclosers	2,450	(0)	2,450		2,450
	Recloser Replacement	130	-	130		130
	URD Cable Strategy	7,000	0	7,000	(2,000)	5,000
	UG Cable Replacement	5,700	0	5,700		5,700
	UG Improvements	447	78	525		525
	Others	2,814	70	2,884		2,884
	Blanket Projects	5,160	-	5,160		5,160
Asset Replacement Total		23,831	148	23,979	(2,000)	21,979
Asset Replacement - I&M (NE)		3,000	-	3,000		3,000
Asset Condition Total		50,961	(3,673)	47,288	1,000	48,288
Non-Infrastructure	General Equipment	275	(25)	250		250
	Telecommunications Capital	1,270	-	1,270		1,270
Non-Infrastructure Total		1,545	(25)	1,520	-	1,520
System Capacity and Performance	Large Projects					
	Aquidneck Island (Newport projects)	721	9	730		730
	New Lafayette Substation	2,914	0	2,914		2,914
	Warren Substation	1,183	641	1,824		1,824
	Nasonville Sub	135	(135)	-		-
	East Providence Substation	4,061	(1,566)	2,495		2,495
Large Projects Total		9,014	(1,051)	7,963	-	7,963
	Other work -					
	Volt/Var	9	1	10		10
	EMS/RTU	1,165	0	1,165		1,165
	OH Line Transformer Repl (LR)	1,500	-	1,500		1,500
	Other Load Relief & Reliability	100	-	100		100
	3VO	1,470	(730)	740		740
Blanket Projects - SCP		2,030	-	2,030		2,030
Reliability Total		6,273	(728)	5,545	-	5,545
System Capacity and Performance Total		15,287	(1,779)	13,508	-	13,508
Subtotal Discretionary		67,793	(5,477)	62,316	1,000	63,316
FY23 Capital Spending		109,200	(5,450)	103,750	1,000	104,750

EXHIBIT GLB-1

REPORT OF GREGORY L. BOOTH, PE

FY2023 ISR Plan Division Adjustments						
Capital Outlays by Key Driver Category and Budget Classification						
SPENDING RATIONALE	BUDGET CLASS	FY2023				
		Initial Proposed Budget (8/6/21)	Adjustments	Budget Filed with Division 10/1/21	Adjustments (12-1-21)	Budget Filed with PUC (12-XX-21)
Vegetation Management Program	Cycle Pruning	0	6,800	6,800	500	7,300
	Hazard Tree/EHTM	0	1,750	1,750		1,750
	Sub-T	0	350	350		350
	Police/Flagman Detail	0	775	775		775
	Pockets of Poor Performance	0	200	200		200
	All Other Activities	0	1,500	1,500		1,500
FY23 Vegetation Management		-	11,375	11,375	500	11,875
I&M Program and Other O&M costs	Inspections and Repair Related Costs	0	475	475		475
	Opex Related to Capex	0	540	540		540
	VVO/CVR	0	224	224		224
	System Planning & Protection Coordination	0	25	25		25
FY23 Other O&M*		-	1,264	1,264	-	1,264
FY23 Cost of Removal		-	16,500	16,500	(200)	16,300

* Total is \$1,564M with \$300,000 Cost of Removal included