

**STATE OF RHODE ISLAND
PUBLIC UTILITIES COMMISSION**

The Narragansett Electric Company
d/b/a National Grid

Docket No. 5098

RE: FY 2022 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 11, 2021

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. 5098**

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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 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, D-11-94, and D-17-45. My testimony in Rhode Island has included filed and
16 live testimony on previous Electric Infrastructure, Safety and Reliability Plan Fiscal Year
17 Proposal filings by National Grid in Docket Nos. 4218, 4307, 4382, 4473, 4539, 4592,
18 4682, 4783, 4915, and 4995.

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 2022 Electric Infrastructure, Safety and
5 Reliability Plan provided to the Division August 10, 2020 (“ISR Plan”). My testimony
6 will briefly summarize the collaborative process between the Division and National Grid,
7 which resulted in preliminary consensus of the final Electric Infrastructure, Safety, and
8 Reliability Plan FY 2022 Proposal filed with the Commission by National Grid on
9 December 21, 2020. My testimony also summarizes the details of *Exhibit GLB-1* and my
10 recommendations.

III. ISR PLAN EVALUATION PROCESS

1 **Q. WOULD YOU BRIEFLY OUTLINE THE PROCESS WHICH LEADS TO THE**
2 **DIVISION’S SUPPORT OF THE NATIONAL GRID ISR PLAN FILED ON**
3 **DECEMBER 21, 2020 IN THIS DOCKET?**

4 A. Yes. An evaluation and analysis process was performed. The Division and I participated
5 in numerous conferences leading up to the filing which included many on other related
6 matters such as grid modernization plan, power sector transformation, system reliability
7 planning, COVID19 impacts, Docket 4600, FY 2021 ISR Plan quarterly reports and
8 Distributed Energy Resources (“DER”) interconnection. The following actions and
9 procedures were directly related to the Company’s FY 2022 filing:

- 10 1. On August 10, 2020, National Grid provided its ISR FY 2022 ISR Proposal Pre-filing
11 Planning Information to the Division, and Division consultants.
- 12 2. On August 13 and 18, 2020, conference calls were held between the Division,
13 Division consultants and the Company to discuss the Pre-filing Planning Information
14 and reports provided by National Grid in advance of the FY 2022 ISR Plan filing.
15 The Company also provided requested updates on its load forecasting methodology
16 and DER/COVID-19 impacts, project estimating process, Grid Modernization Plan
17 (GMP), and distributed generation interconnections.
- 18 3. On October 15, 2020 Division consultants provided preliminary areas of focus in
19 preparation for an initial call with the Company.
- 20 4. On October 26, 2020 a conference call was held between the Division, Division
21 consultants, and the Company to discuss updates on major projects both in
22 development (New Lafayette, East Providence, Warren, Providence Phase 1B-4) and
23 final engineering/construction (Aquidneck Island, Southeast Substation, Dyer St.,
24 South St.). Discussions were also held on Dyer Street site plans, Asset Condition
25 trending analysis, updates on Area Studies, COVID-19 related work, Grid Mod
26 update, and the I&M Program update.
- 27 5. On November 4, 2020, the Division provided the First Set of Data Requests to the
28 Company.
- 29 6. On November 12, 2020, the Division provided the Second Set of Data Requests to
30 the Company.

- 1 7. On November 19, 2020, a call was held between the Division, Division consultants,
2 and the Company to review the status of outstanding data request responses and to
3 establish a series of future meeting dates to discuss ISR Plan adjustments.

- 4 8. On November 20, 2020, the Division provided the Third Set of Data Requests to the
5 Company.

- 6 9. On November 25, 2020, a call was held between the Division, Division consultants,
7 and the Company to clarify data requests related to system losses, and National Grid
8 provided responses to the First Set of Data Requests.

- 9 10. On December 2, 2020, National Grid, the Division and the Division consultants held
10 a conference call to discuss responses to the initial data request, outline areas of
11 concern with the FY 2022 ISR Plan, and propose potential areas of adjustment in key
12 spending categories. In addition, the Division agreed that responses to Data Requests
13 R-II-2 and R-II-3 regarding system losses would be provided as part of the final ISR
14 Plan filing in order to provide the Company with time to perform the evaluation.

- 15 11. On December 3, 2020, National Grid provided responses to the Second Set of Data
16 Requests, excluding responses to R-II-2 and R-II-3.

- 17 12. On December 4, 2020, National Grid, the Division and the Division consultants held
18 a conference call on proposed areas of adjustment in key spending categories.
19 Discussion focused on underground cable replacement strategy and DER enabling
20 investments which the Company proposed in advance of its Grid Modernization Plan
21 filing.

- 22 13. On December 7, 2020, National Grid provided responses to a portion of the Third Set
23 of Data Requests.

- 24 14. On December 9, 2020, the Division and Division consultant recommended areas of
25 adjustment which the Company accepted, and based upon this provided a final
26 proposed FY 2022 ISR Plan budget. As customary with previous filings, the
27 Division's acceptance was contingent on a satisfactory review of the final filing, to
28 include the Company's Docket 4600 analysis on Dyer Street and VVO investments.
29 The Division and Company reached an understanding that only the portion of DER
30 enabling investments used to monitor feeder performance could advance in the FY
31 2022 ISR Plan, and that additional budget dollars would be reserved should the feeder
32 performance indicate the need for investments.

- 33 15. On December 10, 2020, The Division consultant and Company held a call to discuss
34 the base case load forecast prepared by the Company for distribution planning, in
35 addition to forecasting scenarios used to model the system under various levels of
36 DER penetration.

- 37 16. On December 11, 2020, the Division consultant and Company held a call to discuss
38 enhancements to the revised format of the ISR Plan document.

1 17. On December 11, 2020, National Grid provided responses to the remaining Third Set
 2 of Data Requests.

3 18. On December 21, 2020, National Grid filed the proposed final Electric Infrastructure,
 4 Safety, and Reliability Plan (Plan) for fiscal year 2022.

5
 6 The following charts summarize the adjustments by category and the preliminary
 7 agreement reached between the Division and National Grid, which are represented in
 8 National Grid's December 21, 2020 filing:

FY 2022 PROPOSED BUDGET by Spending Rationale	NG Initial Proposed Budget (10-2-20)	Adjustments	National Grid Proposed Budget (12-9-20)	% of Total Budget
Customer Request/Public Requirements	\$ 33,987,000	\$ (2,700,000)	\$ 31,287,000	30%
Damage/Failure Total	\$ 12,198,000		\$ 12,198,000	12%
Subtotal Non-Discretionary	\$ 46,185,000	\$ (2,700,000)	\$ 43,485,000	42%
Asset Condition	\$ 42,183,000	\$ (1,700,000)	\$ 40,483,000	39%
Non-Infrastructure	\$ 1,310,000		\$ 1,310,000	1%
System Capacity and Performance	\$ 18,622,000	\$ (250,000)	\$ 18,372,000	18%
Subtotal Discretionary	\$ 62,115,000	\$ (1,950,000)	\$ 60,165,000	58%
Grand Total	\$ 108,300,000	\$ (4,650,000)	\$ 103,650,000	--

FY 2022 Proposed Budget	NG Initial Proposed Budget (10-2-20)	Adjustments	National Grid Proposed Budget (12-9-20)	FY 2020 Forecast
Vegetation Management				
Cycle Pruning	\$ 6,600,000	\$ -	\$ 6,600,000	\$ 6,100,000
Hazard Tree	\$ 1,500,000		\$ 1,500,000	\$ 1,750,000
Sub-T	\$ 500,000		\$ 500,000	\$ 550,000
Police/Flagman Detail	\$ 775,000		\$ 775,000	\$ 775,000
All Other Activities	\$ 1,425,000		\$ 1,425,000	\$ 1,425,000
Program Total	\$ 10,800,000	\$ -	\$ 10,800,000	\$ 10,600,000

10

1 **IV. REPORT SUMMARY**

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

4 A. The Report contains an Introduction describing the overall process and summarizing the
5 adjustments, which resulted in a preliminary consensus for the FY 2022 ISR Plan Proposed
6 Budget of \$103.7 million for capital items, and proposed Vegetation Management Program
7 expense budget of \$10.8 million. The Report section on the Capital Investment Plan
8 discusses in detail each major category: Customer Request/Public Requirements;
9 Damage/Failure; Asset Condition; Non-Infrastructure; and System Capacity and
10 Performance, outlining the issues considered, the adjustments proposed, and the reasoning
11 for the adjustments as accepted by National Grid. A detailed summary chart contained in
12 *Exhibit GLB-1* as Appendix-2 shows each Spending Rationale and Budget Class with the
13 October 2, 2020 initial proposed budget, net adjustments, and the resulting final proposed
14 budget filed by the Company on December 21, 2020.

15
16 The Report discusses a Strategic Distributed Energy Resources (“DER”) Advancement
17 category added in FY 2021, and how the collaborative process between the Division and
18 the Company resulted in agreement that many of the infrastructure projects and programs
19 were closely interrelated with existing ISR Plan projects and programs. The Report
20 explains our support for a limited portion of DER enabling programs, while outlining
21 cautions concerning any adjustments since the Division believed some of the proposed
22 spending included premature installation of DER projects in advance of a fully developed
23 and filed Grid Modernization Plan (“GMP”) with Commission approval. While the GMP
24 is now filed, it has not been through the docket assessment and approval process.

1 The Report contains a conclusion which addresses the FY 2022 ISR Plan Proposal Budget
2 as filed by National Grid on December 21, 2020. The conclusion includes eleven (11)
3 recommendations related to the capital investment, O&M, and vegetation management
4 portions of the ISR Plan. Many of these recommendations are a continuation of previous
5 ISR Plan recommendations. Emphasis remains on the need for the Company to complete
6 all Area Studies to create a single Long-Range Plan that supports major System Capacity
7 and Asset Condition projects. These studies should take into account robust evaluation
8 metrics that include Non-Wires Alternatives (“NWA”), where applicable. In addition, there
9 is a continued need to develop an alignment between ISR Plan core programs and those
10 arising from external initiatives as the Company, Commission Staff, Division, and
11 stakeholders work to develop a more holistic, transparent, and forward-looking planning
12 process, including, but not limited to, the GMP. For some time now, the Company has been
13 incorporating significantly more asset condition driven projects. Due to the age and
14 condition of much of the system, these projects need to advance and are supported by the
15 area studies. The Division is concerned however, once the GMP is advanced through the
16 docket process, there will become a dramatic upward pressure on rates. The Division
17 believes that the nearly 400 percent increase in capital spending on asset condition projects
18 since the early years of the ISR Plan filings will need to be reduced in a carefully planned
19 manner in order to provide budget availability for the pending GMP programs if and when
20 they are approved. I continue to recommend that the Company and Division address
21 potential overlap between non-discretionary spend in the Damage/Failure category, and
22 discretionary spend in the Inspection & Maintenance (“I&M”) and Asset Replacement
23 programs. This includes my ongoing support for I&M capital funding that results in an
24 I&M repair cycle of 10 or more years. The Company has been successfully implementing

1 the I&M repair program at this level since FY 2015 without compromising safety or
2 reliability.

V. **CONCLUSION**

1 **Q. DO YOU AND THE DIVISION SUPPORT THE NATIONAL GRID FY 2022**
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 2022 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 eleven (11) 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. National Grid shall coordinate with the Division to monitor and report on work
18 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 2023 ISR Plan that include advancing Damage/Failure to a “fix
21 on failure” strategy.
- 22

1 2. National Grid 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. National Grid 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 System
16 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 or
22 infrastructure investment, cost-benefit to traditional safety and reliability
23 objectives, and additional operational benefits achieved, if implemented. The GMP

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

- 3 • A robust NWA evaluation for projects passing initial screening that clearly
4 identifies alternatives considered, costs, and benefits.

5
6 4. National Grid shall continue to develop a System Capacity Load Study and a 10-year
7 Long-Range Plan in order to increase the level of support and transparency for the
8 capital budget. The Company shall submit and present the outcome of Area Studies to
9 the Division and its consultant at the time of completion. These studies shall include a
10 separate Non-Wire Alternative analysis of the projects consistent with the requirements
11 of other program commitments. The Company shall submit a report with updates on
12 modeling activities and Area Study status at least 120 days prior to filing its FY 2023
13 ISR Plan Proposal, but in any event no later than August 31, 2021.

14
15 5. National Grid shall manage major Asset Replacement and System Capacity &
16 Performance project budgets separate from other discretionary projects, such that any
17 budget variances (underspend) will not be utilized in other areas of the ISR Plan. The
18 Company shall provide quarterly budget and project management reports.

19
20 6. National Grid will continue to manage (underspend/overspend management) individual
21 project costs within the ISR Plan discretionary category (comprised of Asset Condition
22 and System Capacity and Performance projects), such that total portfolio costs are
23 aligned within a discretionary budget target that excludes major substation projects.

24

- 1 7. National Grid shall continue to provide quarterly reporting on Damage/Failure
2 expenditures to include the details of completed projects by operating region. The
3 Company will separately identify Level I projects repaired as a result of the I&M
4 program.
- 5
- 6 8. National Grid shall continue to provide a detailed budget for System Capacity &
7 Performance and Asset Condition in order to provide transparency on a project level
8 basis for the current and future 4-year period. The budget shall be provided in advance
9 of the FY 2023 ISR Plan Proposal filing, and in any event no later than August 31,
10 2021.
- 11
- 12 9. National Grid shall submit an evaluation of future proposed Asset Condition projects
13 as compared to the Company's Long-Range Plan in advance of the FY 2023 ISR Plan
14 Proposal filing, and in any event no later than August 31, 2021.
- 15
- 16 10. National Grid shall continue to submit its detailed substation capacity expansion plans
17 and load projections, and include an evaluation of proposed projects against the
18 Company's Long-Range Plan, in advance of the FY 2023 ISR Plan Proposal filing, and
19 in any event no later than August 31, 2021.
- 20
- 21 11. National Grid shall continue to submit a cost-benefit analysis on the Vegetation
22 Management Cycle Clearing Program and a separate cost-benefit analysis on the
23 Enhanced Hazard Tree Management program for the Division's review prior to

1 submitting the Company's FY 2023 ISR Plan Proposal, and in any event no later than
2 August 31, 2021.

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

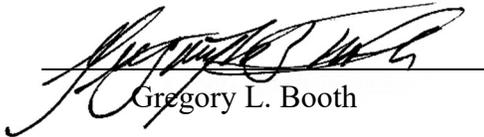
4 **A. Yes.**

AFFIDAVIT OF GREGORY L. BOOTH, PE

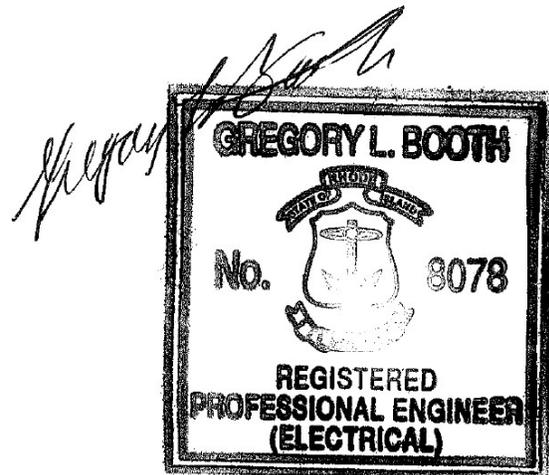
Gregory L. Booth, does hereby depose and say as follows:

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 11th day of February, 2021.


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
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February 11, 2021

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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 2022 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
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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 2022 Proposal (the “ISR Plan” or “Plan”) dated October 2, 2020, and the final Electric Infrastructure, Safety, and Reliability Plan FY 2022 Proposal dated December 21, 2020 filed in Docket 5098. The evaluation followed the same process of analysis completed for each ISR Plan filed from FY 2012 through FY 2021. This Report includes an explanation of the process for the initial FY 2022 ISR Plan proposal evaluations and collaborative efforts, resulting in a preliminary reduction of proposed FY 2022 capital spending in several areas, including Customer Request/Public Requirements, capital expenses for asset replacement and load relief projects, and for a continuation of proposed Strategic Distributed Energy Resources (“DER”) Advancement investments. The reductions were applied to the proposed spending levels initially presented as part of the Company’s August 10, 2020 pre-file documents, further revised in the Company’s initial FY 2022 ISR Plan Proposal submitted to the Division on October 2, 2020, and which are finalized in the subsequent ISR Plan Proposal dated December 21, 2020.

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

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

EXHIBIT GLB-1

REPORT OF GREGORY L. BOOTH, PE

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, 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 Division's ongoing concern with ISR Plan costs that are reaching unacceptable levels considering the increasing capital needs to support other Company initiatives. I discuss the Company's Complex Capital Delivery ("CCD") process and the growing complexity of the ISR Plan process, and the Division's desire for a more transparent and cohesive Plan presentation. I also 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.

The Company's initial proposed October 2, 2020 FY 2022 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, along with 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 analysis, detailed budgets for major projects, completed Area Studies, Quarterly ISR Plan Reports, and other supplemental information. The

EXHIBIT GLB-1

REPORT OF GREGORY L. BOOTH, PE

Company's quarterly updates for the FY 2021 ISR Plan were also utilized to provide trending analysis and benchmarks for proposed levels of spending. An in-depth analysis of the pre-file planning information and each component of the proposed FY 2022 ISR Plan was undertaken. The evaluation and analysis included the following actions and procedures:

1. On August 10, 2020, National Grid provided its ISR FY 2022 ISR Proposal Pre-filing Planning Information to the Division, and Division consultants.
2. On August 13 and 18, 2020, conference calls were 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 2022 ISR Plan filing. The Company also provided requested updates on its load forecasting methodology and DER/COVID-19 impacts, project estimating process, Grid Modernization Plan (GMP), and distributed generation interconnections.
3. On October 15, 2020 Division consultants provided preliminary areas of focus in preparation for an initial call with the Company.
4. On October 26, 2020 a conference call was held between the Division, Division consultants, and the Company to discuss updates on major projects both in development (New Lafayette, East Providence, Warren, Providence Phase 1B-4) and final engineering/construction (Aquidneck Island, Southeast Substation, Dyer St., South St.). Discussions were also held on Dyer Street site plans, Asset Condition trending analysis, updates on Area Studies, COVID-19 related work, Grid Mod update, and the I&M Program update.
5. On November 4, 2020, the Division provided the First Set of Data Requests to the Company.
6. On November 12, 2020, the Division provided the Second Set of Data Requests to the Company.
7. On November 19, 2020, a call was held between the Division, Division consultants, and the Company to review the status of outstanding data request responses and to establish a series of future meeting dates to discuss ISR Plan adjustments.
8. On November 20, 2020, the Division provided the Third Set of Data Requests to the Company.
9. On November 25, 2020, a call was held between the Division, Division consultants, and the Company to clarify data requests related to system losses, and National Grid provided responses to the First Set of Data Requests.
10. On December 2, 2020, National Grid, the Division and the Division consultants held a conference call to discuss responses to the initial data request, outline areas of concern

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with the FY 2022 ISR Plan, and propose potential areas of adjustment in key spending categories. In addition, the Division agreed that responses to Data Requests R-II-2 and R-II-3 regarding system losses would be provided as part of the final ISR Plan filing in order to provide the Company with time to perform the evaluation.

11. On December 3, 2020, National Grid provided responses to the Second Set of Data Requests, excluding responses to R-II-2 and R-II-3.
12. On December 4, 2020, National Grid, the Division and the Division consultants held a conference call on proposed areas of adjustment in key spending categories. Discussion focused on underground cable replacement strategy and DER enabling investments which the Company proposed in advance of its Grid Modernization Plan filing.
13. On December 7, 2020, National Grid provided responses to a portion of the Third Set of Data Requests.
14. On December 9, 2020, the Division and Division consultant recommended areas of adjustment which the Company accepted, and based upon this provided a final proposed FY 2022 ISR Plan budget. As customary with previous filings, the Division's acceptance was contingent on a satisfactory review of the final filing, to include the Company's Docket 4600 analysis on Dyer Street and VVO investments. The Division and Company reached an understanding that only the portion of DER enabling investments used to monitor feeder performance could advance in the FY 2022 ISR Plan, and that additional budget dollars would be reserved should the feeder performance indicate the need for investments.
15. On December 10, 2020, The Division consultant and Company held a call to discuss the base case load forecast prepared by the Company for distribution planning, in addition to forecasting scenarios used to model the system under various levels of DER penetration.
16. On December 11, 2020, the Division consultant and Company held a call to discuss enhancements to the revised format of the ISR Plan document.
17. On December 11, 2020, National Grid provided responses to the remaining Third Set of Data Requests.
18. On December 21, 2020, National Grid filed the proposed final Electric Infrastructure, Safety, and Reliability Plan (Plan) for fiscal year 2022.

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 included each of its area experts in the discussions as we worked toward preliminary adjustments

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in the proposed FY 2022 Plan. This series of virtual web meetings, PowerPoint presentations, telephone conferences and data requests were utilized in discussions with various individuals in the Company to provide full assessment and gain clarification in each area. The formal data requests and responses referred to above, excluding those that are considered confidential or critical energy infrastructure information, are to be submitted to the Commission by National Grid and have been included in the Company's filing as Book 2 of 2.

In their analysis, the Division and its consultant gave significant consideration to information shared and filings by the Company including, but not limited to, Automated Metering Functionality/Grid Modernization Plan ("AMF/GMP") status and preliminary documents, System Reliability Procurement ("SRP") and Power Sector Transformation ("PST") materials, Interconnection guidelines, FY 2021 ISR Plan Quarterly Reports, COVID19 conferences, non-wires alternatives ("NWA") discussions, and Docket 4600. The Division and its consultant considered the significant interrelationship between numerous programs and the pending GMP. These programs and the future impacts have been taken into consideration both for the FY 2022 ISR Plan and ongoing programs. The Division remains very engaged with the Company throughout the year. As was discussed in the Company's filing and in this report, several programs have contingency dollars which may be used for certain programs yet to fully develop. 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 GMP and other programs to be advanced over the next decade.

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The structure of the FY 2022 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 completion of Southeast substation and Aquidneck Island related projects, and the commencement of Dyer Street and Providence Area projects. The FY 2022 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. In addition, the Company proposes additional projects in the Strategic Distributed Energy Resources Advancement (“Strategic DER”) program which was previously considered a reliability-based program, but reclassified as non-discretionary in the FY 2022 Plan. The Strategic DER program targets system investments that enable DER integration and is essentially pre-spending of the Company’s GMP.

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 reserved 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 reports², were among the items utilized by the Company, the Division, and the Division consultant in reaching a 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

² This report references capital spend in National Grid’s FY 2022 Electric ISR Plan Proposal Filing, Attachment 3 (Docket 5098), and FY 2021 ISR Plan - Second Quarter Update Ending September 30, 2020 (Docket 4995)

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were examined to confirm that anticipated expenses were appropriately categorized and aligned with respective budget categories. There was continued discussion concerning correlations between the Damage/Failure category and the I&M Asset Replacement program costs, along with the Company's proposed budget realignment in both 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. The scope and need for Strategic DER Advancement investments were evaluated extensively considering the lack of an approved GMP. Additionally, discussions addressed major System Capacity and Asset Condition projects, and correlation with completed Area Studies.

For the FY 2022 Plan, agreement was reached on adjustments, resulting in a proposed capital investment budget of \$103.7 million. Appendix-2 lists a Summary of the Capital Outlays by key driver category and budget classification as originally proposed by the Company on October 2, 2020, with adjustments and the resulting final proposed budget filed by the Company on December 21, 2020. Following is a detailed discussion of the categories and preliminary adjustments included in the Company's ISR Plan filing, in addition to observations and conditions recommended by the Division.

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II. CAPITAL INVESTMENT PLAN

A. Overview

I have evaluated the \$103.7 million FY 2022 Capital Spending Plan proposed by the Company, along with its supporting testimony and exhibits as contained in its filing dated December 21, 2020. I first reviewed the August 10, 2020 pre-file ISR budget proposal submitted to the Division in the amount of \$109 million, and the initial October 2, 2020 proposed ISR Plan submitted to the Division in the amount of \$108.3 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 for each of the Spending Rationales and the five major categories. Following is a comparison of the Company's October 2, 2020 initial proposal, net adjustments, and the Company's proposed budget as shown in Chart 13 of the FY 2022 ISR Plan as filed on December 21, 2020 in Docket No. 5098. \$103.7 million is the level reached through the evaluation process.

Table 1: Proposed FY 2022 ISR Capital Outlays by Key Driver Category

FY 2022 PROPOSED BUDGET by Spending Rationale	NG Initial Proposed Budget (10-2-20)	Adjustments	National Grid Proposed Budget (12-9-20)	% of Total Budget
Customer Request/Public Requirements	\$ 33,987,000	\$ (2,700,000)	\$ 31,287,000	30%
Damage/Failure Total	\$ 12,198,000		\$ 12,198,000	12%
Subtotal Non-Discretionary	\$ 46,185,000	\$ (2,700,000)	\$ 43,485,000	42%
Asset Condition	\$ 42,183,000	\$ (1,700,000)	\$ 40,483,000	39%
Non-Infrastructure	\$ 1,310,000		\$ 1,310,000	1%
System Capacity and Performance	\$ 18,622,000	\$ (250,000)	\$ 18,372,000	18%
Subtotal Discretionary	\$ 62,115,000	\$ (1,950,000)	\$ 60,165,000	58%
Grand Total	\$ 108,300,000	\$ (4,650,000)	\$ 103,650,000	---

The Company projects the need for non-discretionary expenditures of \$31.3 million in Customer Request/Public Requirements spending, and \$12.2 million in Damage/Failure spending. Except for known major projects, the majority of projects in the Customer

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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 2022, the unique impacts due to COVID-19 on the economy and customer requirements are also considered. The Company continues to experience increasing distributed generation ("DG") interconnection requests, which are unpredictable, have varying cost requirements, and are customarily offset by construction reimbursements from the generator owners.

The Company has also identified regions where accumulation of operating DG may cause system anomalies requiring additional grid investments to manage or resolve the issues. The Company has identified and categorized these investments as Strategic DER Advancement, which is a precursor to a comprehensive GMP plan. For these reasons, it is reasonable that the overall Customer Request/Public Requirements will trend upward over time, but with some volatility due to economic cycles and DG activity.

It is anticipated that the Damage/Failure category will be similarly influenced by inflation costs, but that total spend would eventually taper once the system is fully inspected and major system projects and asset replacements under the I&M program are completed. This expectation has not fully materialized. Spending in the Damage/Failure category, excluding major storms, achieved a steep incline from \$7.8 million in FY 2013 to over \$13 million in FY

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2017. Since that time, I have closely evaluated spending trends and rationale for individual projects, concluding that the Company incorporated work in the Damage/Failure category that is normally captured under I&M. The Company has implemented revised standards to guide Damage/Failure work which has reduced expected spend to \$11 million in FY 2021, but more improvement is expected. For the FY 2022 ISR Plan proposal, the Company initially proposed to spend a total of \$46.2 million for all non-discretionary projects, which was adjusted to \$43.5 million based on agreement between the Division, the Division Consultant, and the Company. This represents forty-two (42%) of the proposed capital budget. I will discuss the Damage/Failure category, non-discretionary cost trends, Strategic DER, and correlation with discretionary spend in more detail in Sections C and D.

The remaining three major categories of spending rationale for the FY 2022 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 \$60.2 million for the remaining fifty-eight percent (58%) of the proposed capital budget. Two major multi-year projects, Aquidneck Island/Newport Area and the new Southeast Substation, are in the final stages of construction. The Company is managing major capital projects separately from other discretionary projects in accordance with recommendations in the FY 2017 ISR proceeding. The Company is also continuing to perform individual Area Studies 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 15-year term. The projects are ultimately phased into the ISR Plan. Projects in various phases from the East Bay Area, South County East, and Providence Area Studies are included in the FY 2022 ISR Plan. The Area

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Study projects are in various stages of early engineering, permitting and procurement. Delivery of the studies continues to fall short of the Division’s expected schedule. Only four Area Studies representing forty-seven percent (47%) of the total system load have been completed, which is the same status achieved in the FY 2021 Plan. The Company indicates, however, that all studies will be completed by December 2021. My overall evaluation considers the delays in Areas Studies and the Company’s prior commitment to include in the ISR Plan only those future projects that are supported by system studies.

For the three categories (Asset Condition, Non-Infrastructure, and System Capacity and Performance), the initial proposed budget was \$62.1 million, which has been adjusted down to \$60.2 million in the FY 2022 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 reduction and budget management conditions expected of the Company.

B. Customer Request/Public Requirements Category

The initial proposed FY 2022 ISR Plan included \$34 million of Customer Request/Public Requirements cost, which the Company ultimately adjusted to \$31.3 million. This compares to a FY 2021 ISR budget and forecast of \$26.5 million and \$22.6 million, respectively.

FY 2022 Proposed Budget	NG Initial Proposed Budget (10-2-20)	Adjustments	National Grid Proposed Budget (12-9-20)
Customer Request/Public Requirements	\$ 33,987,000	\$ (2,700,000)	\$ 31,287,000

FY 2021 Budget Variance	Filed FY 2021	Over/(Under) Budget	FY 2021 Forecast (as of 12/17/20)
Customer Request/Public Requirements	\$ 26,540,000	\$ (3,972,000)	\$ 22,568,000

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The Company projects underspend in FY 2021 by \$4 million. Contributing factors include higher credits under joint-owned pole agreements than budgeted, reduced meter activity due to COVID pandemic work rules, and lower new commercial and public requirements than budgeted. It is reasonable to expect reduced customer requirements due to economic impacts from COVID 19, but those trends should reverse as the company moves into FY 2022 ISR Plan implementation. Actual system impacts due to longer term load shifts between commercial and residential customer classes raises a separate concern. To this end, the Company proposes \$2 million in FY 2022 for system feeder analysis that will determine potential issues such as overloads, imbalances or voltage issues due to these load shifts. Mitigation actions and solutions will be immediately implemented and funded through the non-discretionary COVID-19 category. The analysis has resulted in multiple small-scale projects in addition to ten large scale projects (over \$100,000) that are being evaluated in more detail. The Company has committed to deriving the least cost option that aligns with long term planning and presenting the solutions to the Division before implementation. I find the Company's approach proactive and prudent.

Similar to FY 2022, the Company proposes \$1 million for DG interconnection. The Company indicates zero spend against the FY 2021 ISR Plan budget, but forecasts spending to be on target at the conclusion of the fiscal year. The DG interconnection budget and spend reflect only costs incurred by the Company to manage the interconnection process and any actual construction costs that exceed Contribution in Aid of Construction ("CIAC") payments. In previous ISR Plans, the Company received and booked CIAC prior to commencement of construction which resulted in budget distortions and reconciliation challenges when projects

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spanned multiple years. The Company’s new accounting process has thus far produced a more streamlined approach with enhanced alignment between budget and CIAC.

1. Strategic DER Advancement

For the FY 2022 ISR Plan year the Company expanded its Strategic DER Advancement program and proposed spend under the non-discretionary category. Strategic DER first appeared in the ISR Plan in FY 2021 as a discretionary reliability-based program. The program was proposed by the Company to position it to more readily respond to Distributed Energy Resources (“DER”) interconnections. The Company explained that increasing amounts of DER brings complexities in managing the distribution system to meet core compliance obligations, such as system load, voltage, and protection schemes, which are key to safety and reliability. The effort put forth in the Strategic DER program would proactively install or upgrade equipment on select feeders to maintain required system performance and reliability needs, while accommodating additional DER. The Company initially proposed a \$5.4 million budget for Strategic DER which was reduced to \$2.7 million upon the conclusion of extensive discussions. For FY 2021, the Company budget and forecast are \$2 million.

FY 2022 Proposed Budget	NG Initial Proposed Budget (10-2-20)	Adjustments	National Grid Proposed Budget (12-9-20)
Strategic DER Advancement	\$ 5,400,000	\$ (2,700,000)	\$ 2,700,000

FY 2021 Budget Variance	Filed FY 2021	Over/(Under) Budget	FY 2021 Forecast (as of 12/17/20)
Strategic DER Advancement	\$ 2,000,000	\$ -	\$ 2,000,000

I performed a comprehensive evaluation of Strategic DER in the FY 2021 ISR Plan under Docket 4995, which focused on reasonableness of proposed solutions, potential alignment

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with current programs or initiatives, and level of investment. For the FY 2021 ISR Plan, the Company initially proposed a \$5 million annual program budget that lacked project scopes and estimates. As discussions commenced, the Company detailed four initiatives: (1) Accelerated 3V0, (2) Mobile 3V0, (3) Advanced Capacitor/Regulator Controls and Feeder Monitor Sensors, and (4) Advanced Recloser Controls. The Company also presented a draft white paper for each component. My analysis revealed duplication between the proposed Strategic DER budget and existing reliability-based programs for VVO, 3V0, and recloser replacement programs. Taking this overlap into account along with Company cost refinement, a final proposed budget of \$2 million was included in FY 2021 for Advanced Field Devices at Chopmist Substation under Strategic DER.

My evaluation of the FY 2021 Strategic DER raised multiple concerns. First, a formal program document did not accompany the proposal and would be expected should the investments be approved as part of the ISR Plan. Second, the Advanced Field Devices proposed under Strategic DER were nearly identical to components in the GMP. In effect, the Company was advancing GMP components in the ISR Plan before the GMP had been filed, fully vetted and approved. The Company acknowledged these actions and advocated that the investments, although reflected in the GMP, met both core business needs and enabled DER. The Division, upon further reflection, determined that it was not prudent to prematurely approve programmatic investment in Advanced Field Devices that were part of the pending GMP. The Division endorsed a process where the PUC and stakeholders are afforded the opportunity to review the Company's proposals in the context of the GMP, rather than signing off on an independent component. The Division ultimately supported limited funding of \$2 million for one substation feeder in the FY 2021 ISR Plan, but

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recommended that the Company defer additional work until the GMP was approved and adequately correlated with these Strategic DER projects.

Now that construction under the FY 2021 ISR Plan is progressing and the Company has filed its FY 2022 ISR Plan, Strategic DER continues to raise concerns. As of the second quarter of FY 2021, the Company reports that no spending has taken place at Chopmist substation under Strategic DER, but the fiscal year forecast remains at \$2 million³. Separately in a FY 2022 ISR Plan data request response, the Company states that it is likely that work being considered at Chopmist in the FY 2021 plan will not be completed in FY 2021⁴. These two statements viewed together indicate that the need for FY 2021 funding was not as emergent as the Company proposed, and that the expected system issues have not materialized to the point of causing a reliability concern. At this juncture, the Division's reluctance to fund Strategic DER without adequate support appears warranted, although the fiscal year is not complete and the investments may occur.

For FY 2022, the Company again requested funding for Strategic DER in coordination with its expected upcoming GMP filing. The funding targets two substations, Chopmist and Hopkins Hill, anticipated to have system issues due to high levels of solar generation. The Company initially proposed \$5.4 million for advanced devices and monitors on eight feeders. This is in addition to the \$2 million budget for Chopmist in FY 2021. Extensive discussions were again held with the Company concerning the justification to deploy GMP projects in advance of the plan filing or approval by the Commission as the Division

³ Docket 4995, FY 2021 ISR Plan Second Quarter Update, page 2.

⁴ Docket 5098, FY 2022 ISR Plan proposal, DIV R-III-1 and R-I-11

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previously recommended. The Company asserted that system reviews and studies indicated emerging issues due to the proliferation of small scale DER, and that causation could not be assigned to any single facility. The Division requested detailed cost estimates and system analysis to support proposed investments. In response, the Company provided an updated budget by line item that resulted in reduced capital of \$4.3 million in FY 2022. The budget breakdown also confirmed that the Company did not include duplicative programs such as VVO or 3V0. In addition, the Company provided engineering models indicating voltage violations as current and proposed DER facilities are added to Chopmist feeders. The Company assumed a low load day with high DER production. The model results show voltage levels exceeding the Company’s acceptable range. The Company then modeled two feeders with Strategic DER investments that resolve the voltage stability issues, concluding that the advanced devices are the solution to manage current and proposed DER. A summary of the targeted feeders, DER levels and estimated costs are as follows:

<i>source----></i>	<i>R-I-11 (g)</i>		<i>Attachment R-I-11</i>		<i>R-III-1</i>	<i>R-I-11 (l)</i>	
Substation	Feeder	DER In Operation (MW)	DER Proposed (MW)	Total (MW)	Strategic DER Capex Cost Estimate	Strategic DER Opex + Removal Cost Estimate	Strategic DER Total Cost Estimate
Chopmist	34F1	3.461	0.128	3.589	\$ 1,235,000		
	34F2	0.778	2.315	3.093	\$ 440,000		
	34F3	2.141	4.634	6.775	\$ 600,000		
Hopkins Hill	63F2	0.081	N/A	0.081	\$ 730,000		
	63F3	0.192	N/A	0.192	\$ 670,000		
	63F4	0.427	N/A	0.427	\$ 690,000		
	63F5	0.257	N/A	0.257	\$ 750,000		
	63F6	5.238	N/A	5.238	\$ 1,210,000		
	Total	12.6	7.1	19.7	\$ 6,325,000	\$ 1,036,000	\$ 7,361,000

Strategic DER Cost (\$/MW): \$7,361,000/12.6MW = \$ 585,368 DER In Operation
 Strategic DER Cost (\$/MW): 7,361,000/19.7MW = \$ 374,567 DER In Operation + Proposed

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I reviewed the Company's data in detail and observe that many utilities face system stability issues when intermittent generation achieves high production during low load periods. The optimal solution depends on the location, severity, frequency, and duration of the violation. However, the Company has not documented specific anomalies or attributes. Further, the Company confirmed that no issues identified have caused outages, resulted in equipment or other damages to the grid or customer side of a meter, or caused power quality complaints from customers⁵. The problem is model based and caused by third-party owned DER, yet the Company has determined that \$7.4 million of ratepayer funds are necessary to manage this DER. That is equivalent to over \$585,000 per MW of installed solar, or \$375,000 per MW when considering the addition of proposed DER. This is an extremely costly solution to maintain grid stability that appears to indicate a preference for DER owners without analyzing other alternatives. My position on Strategic DER investments continues to be that the Company is implementing solutions to resolve system issues without adequate justification. Their \$7.4 million proposal assumes that system issues will occur, a single source of the issues cannot be identified since there are many small-scale DER facilities contributing, and that the economic solution is to begin programmatic investment of what could be a \$1 billion GMP which has not been approved.

The Company's proposed solutions to integrate and manage DER are a series of traditional investments which have not been adequately compared to alternatives. The Strategic DER investments should be evaluated for NWA, just as the Company evaluates "wires" solutions that meet specific criteria. Potential solutions, such as DG curtailment, have not

⁵ Docket 5098, FY 2022 ISR Plan proposal, DIV R-I-11

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been explored partly due to the fact that the Company does not know the severity, frequency and duration of the potential system issue. For instance, anomalies could be over two hours during two months of the year, which could be solved with limited curtailment at select sites and is permissible under interconnection agreements. The Company desires to avoid curtailment, but that strategy prioritizes renewable generation to meet State and Company decarbonization goals over economically balanced solutions. Another option, at no cost, is short term release of the voltage standards by 1% to 2% which would allow a voltage anomaly to occur without sacrificing reliability. The voltage standard adjustment can also be used in the COVID19 short term load issue. These alternatives may require adjustments to policies or new programs, all of which should be explored by the Company to mitigate costly long term capital investments implemented to solve short term issues. A more tailored solution may also defer the need for capital to a point that technology, such as storage, becomes economically viable. A full evaluation of options and benefit-cost analysis must transpire prior to endorsing \$7.4 million for Strategic DER within this ISR Plan, in addition to the longer term GMP investments.

The Division anticipates that the GMP filing will be crucial in addressing its many concerns. Until the GMP is approved, the Division supports limited Strategic DER investments of \$2.7 million in FY 2022 for funding feeder monitoring sensors at Chopmist and Hopkins Hill substations to provide the Company better insights on actual system performance. The budget also allows engineering to progress for one substation. Future system improvements would commence under an approved GMP. Under this agreement, the Company is not precluded from installing necessary equipment on feeders to maintain system compliance should actual performance jeopardize safety or reliability. Furthermore,

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short periods of curtailment would allow system reliability and safety to be maintained until more data is available, thus avoiding potential massive capital investment without adequate justification. The joint Division and Company decision does not increase risk to safety or reliability.

I found the remaining categories of proposed spend in Customer Requests/Public Requirements to be reasonable and consistent with historical levels. Overall, consensus was reached on a proposed budget of \$31.3 million which is \$4.7 million higher than FY 2021 due to COVID-19 (\$2 million) and Strategic DER (\$2.7 million). The Division expects the Company to provide detailed project justification, scopes, and estimates before expending capital on significant COVID-19 related projects (over \$100,000) or for additional investments beyond monitoring equipment and engineering in the Strategic DER category.

C. Damage Failure Category

The initial proposed FY 2022 ISR Plan included \$12.2 million in the Damage/Failure category for non-discretionary costs to replace equipment that unexpectedly fails or becomes damaged. Of this, \$9.5 million was proposed for asset replacement, with the remainder for major storms and reserves. This compares to a FY 2021 ISR Plan budget and forecast of \$12.4 million and \$16.3 million, respectively.

FY 2022 Proposed Budget	NG Initial Proposed Budget (10-2-20)	Adjustments	National Grid Proposed Budget (12-9-20)
Damage/ Failure	\$ 9,528,000		\$ 9,528,000
Major Storms – Dist	\$ 1,750,000		\$ 1,750,000
Reserves	\$ 920,000		\$ 920,000
Damage/Failure Total	\$ 12,198,000	\$ -	\$ 12,198,000

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FY 2021 Budget Variance	Filed FY 2021	Over/(Under) Budget	FY 2021 Forecast (as of 12/17/20)
Damage/ Failure	\$ 9,740,000	\$ 1,216,000	\$ 10,956,000
Major Storms – Dist	\$ 1,725,000	\$ 3,111,000	\$ 4,836,000
Reserves	\$ 900,000	\$ (416,000)	\$ 484,000
Damage/Failure Total	\$ 12,365,000	\$ 3,911,000	\$ 16,276,000

The Company continues to incur expenses over budget in this category with an overall FY 2021 variance projected at \$4 million, primarily due to expenditures for major storms. The Company considers work in this category unplanned but necessary, which may be impacted by large, single equipment failures, such as a substation transformer. The derivation of the budget is somewhat subjective, as equipment damage is unforeseen and levels of failure are generally based on historical trends.

There are, however, elements of Damage Failure which are unrelated to storms or clear equipment failures where work is more subjective. 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 then 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 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

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the field for damaged assets. The Company is transitioning to the new process in FY 2021 and it is too early to determine the effectiveness of the enhancements. Although the asset replacement portion of Damage/Failure is over budget by \$1.2 million in FY 2021, the Company states that further work reclassifications should move actual spending closer to budget by the end of the fiscal year⁶. I am satisfied that the Company is closely monitoring work to validate classifications and I will continue detailed evaluation based on results of FY 2021. Implications on the FY 2021 ISR Plan and the need for further enhancements will be considered for the FY 2023 Plan. I concur with the proposed level of funding in FY 2022 which is closely aligned with FY 2021. Discussions culminated in approval of the Company's proposed \$12.2 million budget in the Damage/Failure category comprised of \$9.5 million for asset replacements, \$920,000 in reserves, and \$1.8 million for major storms.

This brings the total non-discretionary categories of Customer Request/Public Requirements and Damage/Failure to \$43.5 million, which is forty-two percent (42%) of the total Capital Investment Budget by Key Driver Category.

D. Asset Condition Category

The Asset Condition category, with an initial proposed budget of \$42.2 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

⁶ Docket 4995 FY 2021 ISR Plan Second Quarter Update, page 3

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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, 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 \$1.7 million, and a final proposed budget of \$40.5 million, which is thirty-nine (39%) of the overall ISR Plan budget. This compares to the FY 2021 budget and forecasted actuals of \$41.6 million and \$42.7 million respectively. A detailed evaluation of each category follows.

FY 2022 Proposed Budget	NG Initial Proposed Budget (10-2-20)	Adjustments	National Grid Proposed Budget (12-9-20)
Asset Condition - Major Projects			
South Street	297,000		\$ 297,000
Southeast	\$ 2,082,000		\$ 2,082,000
Dyer Street	\$ 9,717,000		\$ 9,717,000
Providence LT Study	\$ 8,356,000		\$ 8,356,000
Major Projects Total	\$ 20,452,000	\$ -	\$ 20,452,000
Asset Replacement - Recurring Program	\$ 18,731,000	\$ (1,700,000)	\$ 17,031,000
Asset Replacement - I&M (NE)	\$ 3,000,000		\$ 3,000,000
Asset Replacement / I&M Total	\$ 21,731,000	\$ (1,700,000)	\$ 20,031,000
Total Asset Condition	\$ 42,183,000	\$ (1,700,000)	\$ 40,483,000

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FY 2021 Budget Variance	Filed FY 2021	Over/Under Budget	FY 2021 Forecast (as of 12/17/20)
Southeast	\$ 10,080,000	\$ 2,715,000	\$ 12,795,000
Dyer Street	\$ 7,160,000	\$ (4,300,000)	\$ 2,860,000
Remaining Major Projects	\$ 4,240,000	\$ 332,000	\$ 4,572,000
Asset Replacement - Recurring Programs	\$ 17,240,000	\$ 2,324,000	\$ 19,564,000
Asset Replacement - I&M (NE)	\$ 2,900,000	\$ -	\$ 2,900,000
Total Asset Condition	\$ 41,620,000	\$ 1,071,000	\$ 42,691,000

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 alignment 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:

Study Area	Project	Status
Legacy - Providence	Dyer Street - Indoor Sub	Project Development
Legacy - Providence	South Street Completion	Final Cut-overs & Project Closeout
Providence	Prov Ph1A Dist Line Retire/Rebuild Admiral/Clarkson/Lippitt Hill	Final Design & Construction
Providence	Prov Ph1B-Construction Admiral St Substation	Project Development
Providence	Prov Ph4-Construction-Knightsville Substation	Project Development to Start FY2022
Providence	Prov Ph3-Substation Ret - Harris/Olneyville/Rochambeau	Pre-Project development
Providence	Prov Ph2-Dist Line Retire Harris/Olneyville/Rochambeau	Pre-Project development
Legacy - Blackstone Valley North	Southeast Substation	Final Cut-overs & Project Closeout

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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, this includes Southeast which is in final stages of construction. In FY 2021, the Company projects an overspend of \$2.7 million for Southeast due to work shifted from the prior fiscal year. For FY 2022, \$2 million is proposed for final work with project close-out scheduled for December 2022. Completion of this major project enables further planned work for Dyer Street and Providence Area.

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 began in FY 2021, but activity has paused while the Company re-assesses costs and options. FY 2021 is projected to be \$4.7 million underbudget, since work will move into future years. For FY 2022, the Company proposed, and the Division concurred with a budget of \$9.7 million for Dyer Street.

I previously reviewed this legacy project and requested an updated scope, design and budget estimate for this ISR Plan review. The Company provided a high-level scope,

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detailed descriptions for four phases of substation and line work, and conceptual drawings⁷. The plan includes a new 2-transformer substation at the existing South Street site, a complex series of underground cable removals, tie-ins and conversions, and demolition of the old substation building. Consistent with my initial review of this project, I have no concerns with the proposed scope as the optimal solution to solve issues identified at the existing Dyer Street substation. The impacts on project estimate, timing and reliability were further evaluated. First, the project is clearly delayed due to scope changes. The Company has an aggressive schedule to complete main construction in FY 2022 which will be difficult to meet and delays are anticipated. Second, the scope change increased the cost estimate by nearly \$8 million with the breakdown as follows:

Dyer Street Project Estimate Comparison (\$M)

<i>Source----></i>	<i>Attachment R-I-19</i>	<i>R-I-18</i>	
Project Type	2/8/2017 Original Sanction	5/28/2020 Revised Plan	Change
Distribution Substation	\$12.98	\$15.00	
Distribution Line	\$1.17	\$6.99	
Total	\$14.15	\$21.99	\$7.84

A cost increase is realistic since the previous estimate is outdated and the revised scope requires additional underground ties, but the level is sizable. The current ISR Plan reflects \$9.7 million in FY 2022 and a limited budget in FY 2023, although the Company now estimates Dyer as a \$22 million project. The ISR Plan appears to be underfunded and should be adjusted once the Company re-sanctions the 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. Although the Company is refining its efforts to use a standard cost book for estimates with added contingencies, there remains a 50%

⁷ Docket 5098, FY 2022 ISR Plan proposal, DIV R-I-18

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chance of the project coming in above cost⁸. In addition, the level of overrun could be significant if previous major projects reflect future performance. 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 CCD process. Dyer Street will serve as a test of these improvements which I will monitor closely. Lastly, I examined changes in reliability due to the revised scope. The Company submits, and I concur, that there are no expected reliability differences between the original and revised scope, since underground mainline lengths have minor differences.

Overall, I agree with the revised Dyer Street scope as a reliable alternative. I have concerns with the Company's aggressive construction schedule and am cautious that actual costs may significantly exceed budget. I will continue to monitor both project execution and cost as it progresses through the Company's new CCD process into construction, and recommend that the Company separately track and report on Dyer Street in accordance with Recommendation 5 of Section IV. The Company proposed \$9.7 million for FY 2022 was not 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

⁸ 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.

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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. I have previously evaluated the Providence Area study and have concurred with the resulting solutions that will ultimately be completed as part of the ISR Plan. For FY 2022, the Company proposed, and the Division concurred, with a budget of \$8.4 million designated for final design and project development on three project phases. Two additional phases are included in the Plan with proposed spend in future years. Cost estimates are in various phases and are now subject to the Company's new CCD process. Project execution for Providence Area will be critical since construction involves sequencing of multiple interrelated phases. This multi-year comprehensive project involves newly constructed, rebuilt and retired substations, in addition to substantial overhead and underground circuit work. Due to the complexities of the correlated projects and timeline, the Division requires that Providence Area projects to be separately tracked and reported in accordance with Recommendation 5 of Section IV. 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.

In summary, the major projects within the Asset Replacement category are a combination of legacy and Area Study projects. Dyer Street substation is the predominant near-term project and Providence Area projects are commencing which will drive significant capital needs going forward. As the Providence Area projects are sanctioned, detailed reviews will

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be performed to confirm that scope and cost estimates align with solutions identified in the Company's previously performed Area Studies. Additionally, cost estimates will be monitored to determine if the Company has improved its internal processes to mitigate significant variances between initially budgeted amounts and actual expenditures. Over the course of this ISR review, the Company's initial proposal of \$20.5 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 2022, the Company proposed a \$20 million budget for customarily recurring programs to replace infrastructure such as substation batteries, substation breakers and reclosers, underground and URD cable, line reclosers, and miscellaneous blanket projects.

To evaluate the need and support for projects within this category, the Company was requested to provide studies, condition assessments, criticality rankings, or other planning documents containing updated information. While the Company has provided much of this information in the past, it has become apparent that many legacy programs previously supported have not advanced. The pace of completion has been controlled by the Company's decision to regulate discretionary spending, and projects are often deferred to accommodate more emergent work while meeting an overall budget target. This creates a lag time in project completion, but is a prudent strategy when more critical projects within

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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.

Over the past six 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.

My review of the FY 2022 ISR Plan found that the Company's proposed infrastructure replacements and associated budgets were reasonable, with the exception of underground cable replacements. For the URD program that replaces or rehabilitates residential cable, the Company originally proposed \$6 million, which was reduced to \$4.7 million, or a level aligned with the most recent historical spending levels. Further discussions focused on the UG Cable Replacement program, proposed at \$5.5 million, which prioritizes cable replacement based on performance and potential for failure. Data request responses

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indicated that the Company desired to return to previous levels of recommended spend for the program, and work was planned to replace 24,500 feet of primary and 31,600 feet of secondary underground cable in FY 2022⁹. Discussions with the Company focused on parallel efforts to replace significant amounts of underground as part of Area Study projects. Since work customarily planned in the UG Cable Replacement strategy is being performed under other ISR Plan projects, there is limited rationale to increase the UG Replacement budget. The Company ultimately agreed to a \$500,000 reduction for a total budget of \$20 million for Asset Condition recurring programs.

3. Inspection & Maintenance Program and Other O&M

The I&M Program is designed to provide the Company with comprehensive system-wide 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 2022 ISR Plan included \$3 million for I&M capital costs and \$1.4 million for all O&M expenses, for a total program budget of \$4.4 million. This compares to a total FY 2021 ISR budget of \$4.7 million with a forecast of \$4.4 million. Discussions with the Company did not result in adjustments for a final proposed program budget of \$4.4 million for FY 2022.

⁹ Docket 5098, FY 2022 ISR Plan proposal R-I-24

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FY 2022 Proposed Budget I&M Capital and O&M	NG Initial Proposed Budget (10-2-20)	Adjustments	National Grid Proposed Budget (12-9-20)
Capital Costs (included in capital budget)	\$ 3,000,000		\$ 3,000,000
Opex Related Capex	\$ 421,000		\$ 421,000
Inspections and Repair Related Costs	\$ 475,000		\$ 475,000
Removal Costs	\$ 240,000		\$ 240,000
Long Range Plan Study	\$ 25,000		\$ 25,000
WO/CVR Program O&M	\$ 262,000		\$ 262,000
Total Operation and Maintenance Expenses	\$ 1,423,000	\$ -	\$ 1,423,000
Total Program Costs	\$ 4,423,000	\$ -	\$ 4,423,000

FY 2021 Budget Variance I&M Capital and O&M	Filed FY 2021	Over/(Under) Budget	FY 2021 Forecast (as of 12/17/20)
Capital Costs (included in capital budget)	\$ 2,900,000	\$ -	\$ 2,900,000
Opex Related to Capex	\$ 435,000	\$ -	\$ 435,000
Inspections and Repair Related Costs	\$ 600,000	\$ -	\$ 600,000
Long Range Plan Study	\$ 25,000	\$ -	\$ 25,000
Removal Costs	\$ 291,000	N/A	\$ 291,000
WO/CVR Program	\$ 432,000	\$ (308,000)	\$ 124,000
Total O&M Expenses	\$ 1,783,000	\$ (308,000)	\$ 1,475,000
Total Program Costs	\$ 4,683,000	\$ (308,000)	\$ 4,375,000

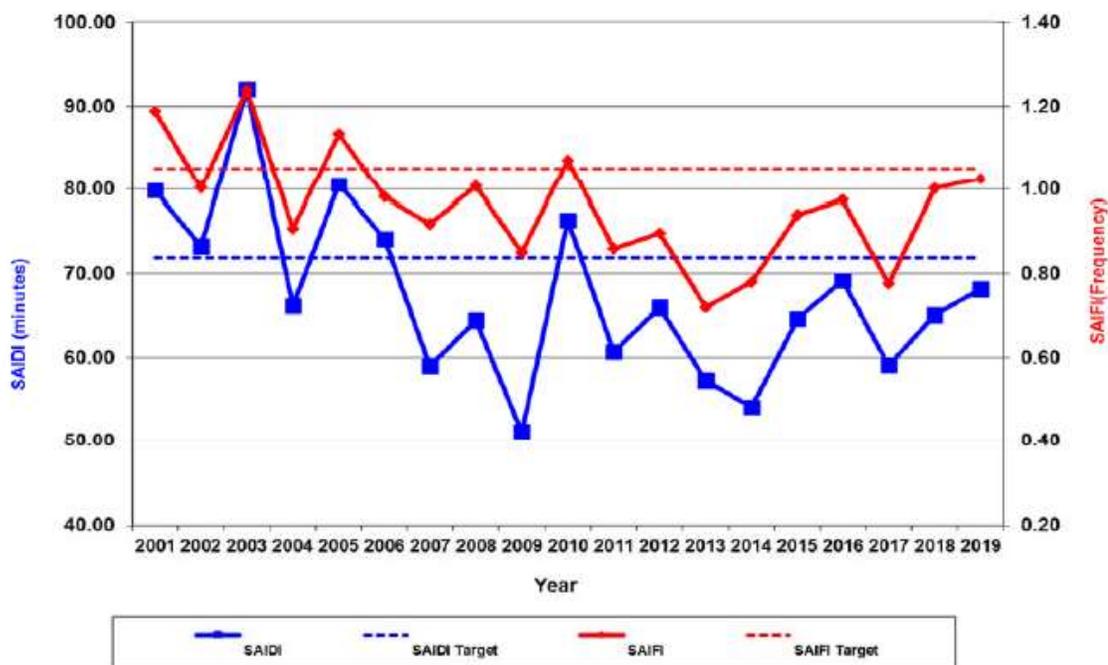
The I&M Program funds a five-year inspection cycle with a goal to replace assets over ten years. The Company will be completing its second cycle of inspections in FY 2021, but is not meeting the ten-year replacement goal due to the backlog of identified work. This is primarily due to budget reductions 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. For several years, the Company has lobbied to increase the capital budget to achieve a ten-year replacement cycle. Over the same time, 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. Should the Company be deficient in implementing the program, the impacts would

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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

RI Reliability Performance
CY 2001 – CY 2019
Regulatory Criteria (Excluding Major Event Days)



As a result of extensive discussions, 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

¹⁰ Docket 5098, FY 20221 ISR Plan Proposal, Section 2, page 62.

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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 have suffered from an extended I&M repair cycle. Although the Division finds the Company's modified repair cycle an acceptable approach, and concurs with the proposed \$3 million I&M capital budget, additional improvements are expected to further reduce the funding level since there are multiple programs addressing similar small-scale work.

For the O&M component of the I&M program, additional discussions were held on my FY 2021 recommendation to consider increasing the inspection cycle to ten years since the same system deficiencies were likely being repeatedly documented. The Company 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 a total I&M budget of \$4.1 million comprised of \$3 million for capital and \$1.1 million for O&M, 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

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expansion. I will address elevated voltage testing in this section, and VVO/CVR in the System Capacity section.

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 on a five-year cycle, and the recent contract renewal has resulted in an agreed-to interim 100% testing and repairs in the designated area. This change is only an interim adjustment based on an agreement with a new testing vendor while the Company and the Division assess this vendor's performance.

Overall, 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 subsequent vendor contract 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 line items, resulting in a FY 2022 proposed capital budget of \$3 million for I&M capital and \$1.4 million for O&M. This brings the total FY 2022 ISR proposed capital budget for Asset Condition to \$40.5 million, comprised of \$20.5 million for major projects, \$17 million for recurring projects, and \$3 million for the I&M program.

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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 \$1.3 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 \$18.4 million in FY 2022, or eighteen percent (18%) of the total FY 2022 ISR Plan budget, which was not adjusted during the course of my evaluation. The FY 2021 budget and forecast for this same category are \$21.5 million and \$17.7 million respectively. I will separately address the Major Projects and Reliability projects.

FY 2022 Proposed Budget	NG Initial Proposed Budget (10-2-20)	Adjustments	National Grid Proposed Budget (12-9-20)
Load Relief Major Projects			
Aquidneck Island (Newport projects)	\$ 5,784,000		\$ 5,784,000
Aquidneck Island (Jepson projects)	\$ 650,000		\$ 650,000
New Lafayette	\$ 1,857,000		\$ 1,857,000
Warren Substation	\$ 621,000		\$ 621,000
East Providence Substation	\$ 731,000		\$ 731,000
Major Projects Total	\$ 9,643,000	\$ -	\$ 9,643,000
Reliability Total	\$ 8,979,000	\$ (250,000)	\$ 8,729,000
Total System Capacity & Performance	\$ 18,622,000	\$ (250,000)	\$ 18,372,000

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FY 2021 Budget Variance	Filed FY 2021	Over/Under Budget	FY 2021 Forecast (as of 12/17/20)
Load Relief Major Projects			
Aquidneck Island (Newport projects)	\$ 13,485,000	\$ (4,357,000)	\$ 9,128,000
Aquidneck Island (Jepson projects)			
Warren Substation	\$ 465,000	\$ (273,000)	\$ 192,000
East Providence Substation	\$ 1,550,000	\$ (1,310,000)	\$ 240,000
New Lafayette	\$ 390,000	\$ 1,614,000	\$ 2,004,000
Major Projects Total	\$ 15,890,000	\$ (4,326,000)	\$ 11,564,000
Reliability Total	\$ 5,555,000	\$ 530,000	\$ 6,085,000
Total System Capacity & Performance	\$ 21,445,000	\$ (3,796,000)	\$ 17,649,000

Consistent with my previous recommendation, major projects in System Capacity and Performance are managed separately to encourage the Company to focus on transparency and accountability for projects within this specific category. For FY 2021, the Company forecasts overall actual costs to be under budget by \$3.8 million, driven by a \$4.4 million underspend for the Aquidneck Island projects due to COVID-19 work requirements shifting some construction costs into FY 2022.

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. The Aquidneck Island projects (formerly Jepson and Newport projects) have dominated spend in the System Capacity category and are in the final stages of completion. Emerging projects are Warren and East Providence substations from the East Bay Area Study and New Lafayette from the South County East Area Study. The status of major projects and correlation to Area Studies are as follows:

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System Capacity Major Projects

Study Area	Project	Status
Legacy - Newport	Aquidneck Island (Newport projects)	Final Cut-overs & Project Closeout/Minor Work
South County East	New Lafayette	Project Development
East Bay	Warren Substation	Project Development
East Bay	East Providence Substation	Project Development

The FY 2022 ISR Plan Load Relief category includes the East Providence and Warren Substations projects supported by the East Bay Area Study, which is the first regional planning study to be completed by the Company. The projects are aligned with the recommended solutions identified in the study that I previously evaluated. The Area Study projects a six-year timeline for both projects, which are currently in the early project development stage. 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 \$731,000 in FY 2022 for preliminary engineering and procurement. Warren is 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 also coordinating work with RIDOT's Warren Bridge relocation. The Company currently estimates a total project cost of \$8.7 million and proposes \$621,000 in FY 2022 for preliminary engineering. Concurrence was reached on the proposed budgets without adjustment.

The Company also included the New Lafayette Substation identified in the South County East Area Study with an estimated total project cost of \$13.3 million and a proposed FY 2022 budget of \$1.9 million for engineering, design, and construction commencement. The new substation addresses reliability and condition issues by expanding the 12.47 kV

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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 is designing aspects of site work to create efficiencies with the Wickford Junction generation project located on the same parcel. The project is aligned with the recommended solutions identified in the study that I previously evaluated, and I concur with the proposed FY 2022 budget.

Like major projects in the Asset Condition category, the Company is experiencing upward pressure on funding requirements for complex System Capacity projects. A new CCD process may improve future estimates and project management to aid in overall planning and transparency, but this does not change the capital requirement. To manage discretionary spend within an overall reasonable budget, the Company must methodically advance Area Study projects while completing major legacy projects. The Company customarily prioritizes discretionary major projects based on budget availability and severity of asset condition or system issues that require solutions. However, the decision to advance a Load Relief project must 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. For example, the Company uses a load forecast to model system performance over a 15-year period. If a projected load increase causes capacity constraints at a substation eight years in the future, the Company develops alternatives to solve the constraint and selects a recommended project for inclusion in the ISR Plan. Assuming the solution is a major substation upgrade, it falls under the Load Relief category of the ISR Plan but would not automatically commence eight years in the future and/or if there is budget availability. It should only advance when actual loading on the system

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achieves the projected level in the original Area Study. This is a critical piece of analysis, specifically since the Company's load forecasts historically indicated nominal annual increases but now reflect declining system loads. In the example provided, applying a revised load forecast would likely defer or mitigate the substation upgrade unless there are unrelated asset condition issues. This has a direct impact on distribution planning, including the need and timing of significant capital investments. Since loading drives the project need, I expect the Company to rigorously re-analyze all Load Relief major projects with updated load forecasts during the preliminary engineering phase to justify inclusion in the ISR Plan. I will evaluate the Company's updated analysis, monitor project estimates and evaluate sanctioning papers to ensure that scope and costs are reasonable and aligned with the outcome of Area Studies prior to the Company expending major capital. 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. Due to the ongoing nature of the Company's Area Study work and related projects, my reviews may occur throughout the year and not exclusively during the ninety-day ISR Plan review. The Division anticipates that the Company will participate or otherwise proactively initiate discussions to address major project planning and status. Furthermore, as stated previously, the Division remains engaged in many interrelated dockets and programs, not the least of which is the GMP. Because of the upward pressure on retail rates from GMP and other programs, the Division and Company must collaborate to lengthen the implementation schedule for asset condition and capacity projects in order to provide some budget flexibility for the new emerging programs, such as GMP. The asset condition spending alone has increased nearly 400 percent since the inception of the ISR

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Plan process. While necessary, there must be a tempering of this level of capital investment given what is now on the horizon.

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 2022 ISR Plan budget of \$3.2 million. Combined with the \$6.4 million for legacy projects, the overall Load Relief category reached a final proposed budget of \$9.6 million.

2. Reliability – Recurring Programs

In the Reliability category, the Company proposed a \$8.7 million budget for several recurring programs. Overall, the Company is tracking close to its total FY 2021 budget of \$5.6 million, with individual projects experiencing both over- and under-spend. I evaluated each project in the FY 2022 ISR Plan and, based on additional information provided by the Company, adjustments of \$250,000 were applied bringing the final proposed total down to \$8.7 million. I address the programs in more detail below.

FY 2022 Proposed Budget	NG Initial Proposed Budget (10-2-20)	Adjustments	National Grid Proposed Budget (12-9-20)
Reliability		\$ -	
Volt/Var	\$ 3,227,000		\$ 3,227,000
EMS/RTU	\$ 1,551,000	\$ (250,000)	\$ 1,301,000
Storm Hardening	\$ 59,000		\$ 59,000
OH Line Transformer Replacement	\$ 700,000		\$ 700,000
Other Load Relief & Reliability	\$ 277,000		\$ 277,000
3VO	\$ 1,435,000		\$ 1,435,000
Recloser Replacement Program	\$ -		\$ -
Blanket Projects - SCP	\$ 1,730,000		\$ 1,730,000
Reliability Total	\$ 8,979,000	\$ (250,000)	\$ 8,729,000

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FY 2021 Budget Variance	Filed FY 2021	Over/Under Budget	FY 2021 Forecast (as of 12/17/20)
Reliability			
Volt/Var	\$ 1,135,000	\$ 49,000	1,184,000
EMS/RTU	\$ 980,000	\$ (429,000)	\$ 551,000
Recloser Replacement Program	\$ 500,000	\$ (111,000)	\$ 389,000
OH Line Transformer Replacement	\$ 650,000	\$ -	\$ 650,000
Other Load Relief & Reliability	\$ 365,000	\$ 1,133,000	\$ 1,498,000
3VO	\$ 540,000	\$ 1,153,000	1,693,000
Blanket Projects - SCP	\$ 1,385,000	\$ (1,265,000)	\$ 120,000
Reliability Total	\$ 5,555,000	\$ 530,000	\$ 6,085,000

For the FY 2022 ISR Plan, the Company continues funding additional Volt/Var (“VVO/CVR”) projects which I reviewed in prior reports and opined that this initiative was an example of technology deployment which brings necessary grid enhancements. The program targets three substations in the upcoming year. Although VVO/CVR is a component of the Company’s GMP, there are no proposed investments in the ISR Plan that overlap the pending GMP. I continue to support VVO/CVR based on the power loss savings achieved on targeted circuits, and the Company’s proposed investment of \$3.2 million in FY 2022 was not adjusted. This is a program with ongoing net benefit to the consumer.

The Company proposes continued funding for accelerated investments in zero sequence overvoltage (3V0) protection. 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

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completed. To accommodate DER interconnection at a faster pace, the Company has accelerated 3V0 retrofits at priority substations and purchased a mobile 3V0 solution that may be installed in less time and remain in place until permanent facilities are installed.

The accelerated 3V0 installations are an extension of core 3V0 initiatives in the ISR Plan Reliability category. For FY 2022, the Company proposes a budget of \$1.4 million to primarily address four locations. The FY 2021 budget included \$500,000 for core 3V0 investments and an additional \$540,000 for accelerated 3V0, for a total of \$1.04 million as compared to a forecast of \$1.7 million. In my FY 2021 report, I discussed in detail several issues with the Company's accelerated 3V0 program, including concerns with implementing GMP related projects in advance of the plan being filed and approved. In addition, I advocated for the use of mobile 3V0 as an economic alternative that provides a temporary solution should the industry produce viable alternatives. Lastly, I observed that the Company is accepting the responsibility and cost for 3V0 where groups of DER projects may benefit, and those costs are normally assigned to the DER owners. Although the Company's 3V0 program protects 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 GMP. Pending resolution of these concerns, and the Company's proposed investment of \$1.4 million in FY 2022 for accelerated 3V0 is supported, recognizing that system protection is a priority for safety and reliability.

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My review of the remaining Reliability projects resulted in concurrence for all programs and associated budgets. Minor adjustments put forth by the Company resulted in a proposed budget of \$8.7 million in the Reliability category for smaller initiatives such as EMS/RTU expansion, overhead transformer replacement, and blanket projects. 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 budget of \$18.4 million, comprised of \$9.7 million for major load relief projects and \$8.7 million for recurring reliability programs.

Overall, my evaluation of Reliability projects continues to determine that proposed projects within the ISR Plan originate from multiple and unrelated external initiatives. The Company may be recovering capital requirements outside the ISR Plan, or the external initiative may result in projects within the ISR Plan. The Strategic DER Advancement initiative is an excellent example of how the Company proposes programmatic spend within the ISR Plan to meet an objective, in this case increased DER, that is not purely aligned with core safety and reliability but has duplicative investments to current projects in the ISR Plan. To the extent the project enters the ISR, 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 compliments or conflicts with other ISR Plan projects,
- Verify alignment with Area Studies,

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- Verify that the proposed project takes into account similar studies performed by the Company to leverage “lessons learned” and avoid duplicative costs,
- Determine reasonableness of budget and impact on current and future years, and
- Identify ISR Plan work that may be deferred by the project.

Through the course of discussions and data analysis, concurrence was reached on a total proposed discretionary budget of \$60.2 million comprised of the Asset Condition, Non-Infrastructure, and System Capacity & Performance categories, or fifty-eight (58%) of the total Capital Investment of the ISR Plan budget.

G. Non-Wires Alternatives and Integrated Planning Requirements

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. 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

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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.

2. ISR Plan Development, Presentation and Execution

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:

- a. Delays in completing Area Studies and deficient NWA analyses,
- b. The lack of transparency and cohesiveness between the Company's design criteria, System Reliability Procurement, and Area Studies,
- c. The Company's lack of a grid modernization strategy and determination of how ISR projects either reflect or complement that strategy.

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. For the FY 2022 Plan, the Company has taken initial steps to meet prior recommendations by streamlining pre-file information and reorganizing its Plan presentation. Enhancements include additional information provided on Area Study status, restructured Plan components for improved flow, and added detail on proposed projects to increase transparency and correlation with external initiatives.

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Additionally, the Company has incorporated, at the Division's direction, an enhanced 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. The Company has been collaborative and responsive to Plan improvement recommendations, but the Division seeks further enhancements. For completed Area Studies, the Company should develop a comprehensive strategic spending plan and method to track the status of each proposed project. 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 the CCD process, internal sanctioning and advance in the ISR Plan. Lastly, the Company has filed its GMP and the Division anticipates expanded discussions as the plan progresses through a docketed proceeding to understand distribution planning impacts and correlation with future ISR Plans.

3. 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 4600. The Company also applies a benefit-cost analysis ("BCA") to new or incremental programs using the Docket 4600 Framework.

For the FY 2022 ISR Plan, the Company applied the Docket 4600 benefit-cost framework to Dyer Street, each VVO project, and to incremental spend associated with Hazardous Tree Removal which the Company has prepared since 2012 and submitted as part of its pre-planning documents each year. The Division made recommendations as they relate to

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presenting a clear comparison between each project alternative being evaluated, including, when possible, a “do nothing” scenario.

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. A most recent example is VVO, where the Company documented energy reductions on targeted feeders that resulted in benefits exceeding program costs. The Company is validating the benefits through actual project implementation, and the results support further expansion of the VVO program. The proposed VVO projects continue to indicate a net positive benefit.

The Dyer Street BCA compares the preferred solution of relocating the substation to the alternative of current site rehabilitation. The preferred solution analysis quantifies eight categories of benefits, while the majority of the remaining twenty-nine categories are not applicable. The Company included the benefits of reduced line losses, consistent with my recommendation, which results from converting low voltage circuits to higher voltages. The alternate plan quantified the project cost while the remaining thirty-six categories were predominately not applicable or had no quantifiable cost or benefit. Both solutions result in net costs, with the preferred solution estimated at \$25 million (NPV) less than the alternative.

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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. The BCA for Dyer Street, a major 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. 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."¹¹ Given the Company's continued efforts to apply the BCA Framework in the ISR Plan, I offer the following observations:

- a. The Framework is complex, covering thirty-seven categories of BCA. The underlying data is not apparent and would require extensive consultation with the Company to analyze. It is not clear if this would occur under Docket 4600, the ISR proceedings, or under an alternative format.
- b. The incremental spend for hazardous tree removals has been included in the ISR Plan since 2012. The Company has developed a robust BCA for the program which is not identical to the Framework format, but is a thorough and acceptable alternative.
- c. The Company will have multiple complex projects in future ISR Plans which emanate from Area Studies. The Company must be prepared to refine the Framework application and determine if projects are viewed collectively for an area, or independently.

¹¹ Docket 4995, FY 2021 ISR Plan Proposal, Joint Testimony, page 20

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- d. Project costs increase as projects mature and BCA's should reflect these adjustments.
- e. Where possible, benefits should ultimately be measured to verify assumptions in the BCA.
- f. Overall, it is not clear how the data, as presented by the Company, shapes, influences, augments, complements, or otherwise supports the ISR Plan. It is yet another example of how requirements under a separate, but related, regulatory docket are introduced in the ISR Plan without being fully integrated. In addition, the Framework extends beyond the ISR Plan, and should be similarly addressed within the Company's pending cross program statement or template.

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III. VEGETATION MANAGEMENT

The Company’s initial FY 2022 ISR Plan proposed expenditures of \$10.8 million for the Vegetation Management Program, which includes the Enhanced Hazard Tree Mitigation (EHTM) program, are two percent (2%) higher than the FY 2020 budget and forecasted spend of \$10.6 million.

FY 2022 Proposed Budget	NG Initial Proposed Budget (10-2-20)	Adjustments	National Grid Proposed Budget (12-9-20)	FY 2020 Forecast
Vegetation Management				
Cycle Pruning	\$ 6,600,000	\$ -	\$ 6,600,000	\$ 6,100,000
Hazard Tree	\$ 1,500,000		\$ 1,500,000	\$ 1,750,000
Sub-T	\$ 500,000		\$ 500,000	\$ 550,000
Police/Flagman Detail	\$ 775,000		\$ 775,000	\$ 775,000
All Other Activities	\$ 1,425,000		\$ 1,425,000	\$ 1,425,000
Program Total	\$ 10,800,000	\$ -	\$ 10,800,000	\$ 10,600,000

Consistent with historical budgets, the major spending component is Cycle Pruning with a proposed budget of \$6.6 million. The Company forecasts a lower level of spend in the EHTM category after having managed increased tree mortality due to the spread of the Gypsy Moth throughout Rhode Island. The EHTM program will continue to be impacted in the future as the Company prepares a strategy to address pest-related tree damage. Overall, the Company is successfully executing the Vegetation Management program while meeting budget targets. No adjustments were recommended, and concurrence was reached on the proposed Vegetation Management Program budget of \$10.8 million for FY 2022.

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

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of cycle pruning work, which is consistent with industry practices. The Company reports¹² that, on average, an eleven (11%) improvement in customer interruptions (CI) per circuit occurs in the first year after pruning. The Company implements a four-year pruning cycle to maintain approximately 5,116 miles of overhead distribution circuits. Reliability indices indicate that the Company continues to meet or exceed annual goals, suggesting that significant budget increases, unless warranted by upward pressure in contractor labor, are not required since the cycle pruning is not expanding or changing. I continue to support this core critical activity and the Company's proposed \$6.6 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 states¹³ that three years of tree-related interruption data for Rhode Island indicates that fallen trees account for forty-eight percent (48%) of tree-related events and sixty-two percent (62%) of tree-related customer interruptions. Reliability data indicates that, with few exceptions, trees account for the majority of customer interruptions each year.

The EHTM program accounts for fourteen percent (14%) 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

¹² Docket 5098, FY 2022 ISR Plan Proposal; Section 3, page 70.

¹³ *Id.* Section 3, page 71.

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reports¹⁴ that from FY 2008 to FY 2020, tree-related customer interruptions improved on an average of sixty-nine percent (69%) 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 spread of the Gypsy Moth. After successful removal of oak trees in targeted areas, the Company has 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 statewide strategy, outlining the utility's role and estimated cost responsibility relative to other stakeholders. I support the proposed FY 2022 EHTM budget of \$1.75 million.

For FY 2022, the Company requests a continuation of the \$200,000 spend within the core activity budget to target pockets of poor performance. These are circuits that have experienced

¹⁴ *Id.* Section 3, page 72.

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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. I continue to find the additional budget and associated work reasonable.

The remaining components of Vegetation Management include sub-transmission work and police detail which are collectively budgeted at \$1.3 million. All categories are reasonable and consistent with recent historical levels of spend. This brings the total Vegetation Management Program proposed budget to \$10.8 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. 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. While meeting system reliability goals is important, the Division has continued to also focus on major storm event performance improvement. The evolution of the vegetation management program has been a significant contributor to the major storm performance improvement as well as maintaining system reliability goals.

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IV. SUMMARY AND RECOMMENDATIONS

The process between the Company and the Division resulted in a FY 2022 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 2, 2020, and the resulting December 21, 2020 filing of the FY 2022 ISR Plan Proposal. The consensus ISR Plan is a six percent (6%) reduction of \$2.7 million in the non-discretionary capital spending budget, and a three percent (3%) reduction of \$2 million in the discretionary capital spending budget, for an overall reduction of \$4.7 million, or over four percent (4%).

For FY 2022, 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 in addition to system feeder analysis to determine potential issues from load shifts that have developed during the pandemic. The Company continued proposed spend for Strategic DER Advancement, previously a discretionary program, which is essentially preliminary spend for an unapproved Grid Modernization Plan. My extensive evaluation concluded that Company proposed extremely costly solutions to resolve distribution grid issues that have not been documented or materialized. The Company has not fully evaluated alternatives, including non-wires strategies such as curtailment, which may provide cost-effective solutions to short term issues while mitigating the need for premature capital investments. The Division ultimately agreed to scope and budget adjustments to provide feeder monitoring and

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engineering support, while future system improvements would commence under an approved GMP, which is expected to be accompanied by sufficient analysis on cost-effective alternatives.

For the discretionary category, the Company continues to pursue a portfolio of capital investments for load relief and to replace aging and obsolete infrastructure. The Southeast Substation and Aquidneck Island projects are in the final stages of construction, while multiple projects from Area Studies are advancing through development stages and will dominate spend over the next five 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. Recurring programs to replace deteriorated equipment continue to be screened against major projects to identify overlapping work and ensure that the level of criticality justifies replacement.

The Company continues work to complete remaining Area Studies by December 2021, a timeline that remains below expectations. The Company has shown minimal progress in its ability to produce more accurate cost estimates as projects emerge from Area Studies. The tendency to underestimate project scope and/or cost fails to provide a realistic view of future capital needs, which becomes more critical as additional upward pressure from AMF/GMP emerges. Efforts to improve project management to meet scope and budgets have produced incremental changes, such as a new Complex Capital Delivery process, but the resulting improvements to the ISR Plan will not be evident until newly proposed major projects advance.

The Division Consultant supports ongoing investment in proposed categories and continues to evaluate work performed between discretionary and non-discretionary categories. The Company, at the Division's recommendation, has made efforts to combine and manage a

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discretionary budget for repairs completed in the Damage/Failure and I&M categories separately from a budget required to replace failed equipment in the non-discretionary category. New processes have been established in FY 2021, and the Company is assessing how refined Damage/Failure definitions and process implementation are impacting spending in these areas. I expect continued monitoring and reporting of the associated budget categories to validate that work is properly justified and classified.

The longer-term challenge continues to be how the Company globally prioritizes and schedules projects arising from pending Area Studies, 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 such as AMF/GMP, while balancing the competing interests of safety and reliability with economic impacts to its ratepayers. The Company must be diligent in preparing and adhering to planning criteria that supports orderly development of the system, and rigorously re-evaluating project need when actual system conditions deviate from those assumptions used in the planning process. The Company must continue to monitor its core ISR Plan spending strategies, which will require modulation of discretionary program spend to avoid excessive ISR Plan funding needs. Emphasis on creating a cohesive and transparent long-term planning process, combined with enhanced budgeting and project management, are critical to successful ISR Plan execution. In this report, I have commented on the Company's application of a BCA using the Docket 4600 Framework, recommended that the Company inform the Division prior to advancing significant (greater than \$1 million) unbudgeted projects during implementation of an ISR Plan, and recommended that Area Study load relief projects are re-analyzed using updated forecasts before inclusion in the Plan. In addition, I expect the Company to consult with the Division before spending contingency budgets on

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Strategic DER investments or advancing significant system upgrades in response to COVID-19 impacts. These do not translate to formal recommendations but will serve to guide ongoing collaborative discussions between the Division and the Company prior to the subsequent ISR Plan filings.

I support the FY 2022 ISR Plan Capital Budget as proposed at \$103.7 million, the proposed Vegetation Management Program at \$10.8 million and the I&M Program Operations and Maintenance Expenses at \$1.4 million. I continue to emphasize that projects driven by or correlated with external initiatives, such as GMP, 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.

Recommendations

1. National Grid shall 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 2023 ISR Plan that include advancing Damage/Failure to a “fix on failure” strategy.
2. National Grid 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 SRP, Area Studies, ISR Plan, NWA options and internal Design Criteria.

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3. National Grid 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.
- 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.

4. National Grid 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 submit and present the outcome of Area Studies to the Division and its

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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 and Area Study status at least 120 days prior to filing its FY 2023 ISR Plan Proposal, but in any event no later than August 31, 2021.

5. National Grid 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. National Grid 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. National Grid 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. National Grid 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 2023 ISR Plan Proposal filing, and in any event no later than August 31, 2021.

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9. National Grid shall submit an evaluation of future proposed Asset Condition projects as compared to the Company's Long-Range Plan in advance of the FY 2023 ISR Plan Proposal filing, and in any event no later than August 31, 2021.

10. National Grid 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 2023 ISR Plan Proposal filing, and in any event no later than August 31, 2021.

11. National Grid 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 2023 ISR Plan Proposal, and in any event no later than August 31, 2021.

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

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

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
	Budget	Forecast	Proposed
Customer Request/Public Requirements	24,540,000	22,568,000	31,287,000
Damage/Failure	12,365,000	16,275,000	12,198,000
Total Discretionary	36,905,000	38,843,000	43,485,000
Asset Condition	41,120,000	42,691,000	40,483,000
Non-Infrastructure	580,000	634,000	1,310,000
System Capacity & Performance	25,145,000	18,344,000	18,372,000
Total Non-Discretionary	66,845,000	61,669,000	60,165,000
Grand Total	103,750,000	100,512,000	103,650,000
Vegetation Management	10,600,000	10,600,000	10,800,000
Inspection & Maintenance Program	1,492,000	1,184,000	1,183,000

APPENDIX 2

EXHIBIT GLB-1

REPORT OF GREGORY L. BOOTH, PE

FY2022 ISR Plan Adjustments								
Capital Outlays by Key Driver Category and Budget Classification								
SPENDING RATIONALE	BUDGET CLASS	FY2022						
		NG Initial Proposed Budget (8-10-20)	NG Adjustments (10-2-20)	NG Revised Proposed Budget (10-2-20)	NG Adjustments (12-9-20)	Division Adjustments (12-9-20)	Notes	National Grid Proposed Budget (12-9-20)
Customer Request/ Public Requirements	3rd Party Attachments	231,000	50,000	281,000				281,000
	Distributed Generation	1,000,000		1,000,000				1,000,000
	Land and Land Rights - Dist	393,000		393,000				393,000
	Meter Programs	600,000		600,000				600,000
	Meters – Dist	2,775,000		2,775,000				2,775,000
	New Business - Commercial	8,974,000	92,000	9,066,000				9,066,000
	New Business - Residential	3,995,000	25,000	4,020,000				4,020,000
	Outdoor Lighting - Capital	527,000	50,000	577,000				577,000
	Public Requirements	3,016,000	(56,000)	2,960,000				2,960,000
	Transformers & Related Equipment	4,915,000		4,915,000				4,915,000
	DER- Non-Discretionary	4,000,000	1,400,000	5,400,000		(2,700,000)		2,700,000
	Meters-AMR & Landline Projects	-		-				-
	COVID - WORK	2,000,000		2,000,000				2,000,000
Customer Request/ Public Requirements		32,426,000	1,561,000	33,987,000		(2,700,000)		31,287,000
Damage/ Failure	Damage/ Failure	9,528,000		9,528,000				9,528,000
	Major Storms – Dist	1,750,000		1,750,000				1,750,000
	Reserves	920,000		920,000				920,000
Damage/Failure Total		12,198,000		12,198,000				12,198,000
Subtotal Non-Discretionary		44,624,000	1,561,000	46,185,000		(2,700,000)		43,485,000
Asset Condition	Major Projects						(1)	-
	South Street	297,000		297,000				297,000
	Southeast	2,091,000	(9,000)	2,082,000				2,082,000
	Flood - Westerly							-
	Flood - Hope Substation							-
	Dyer Street-Indoor Substation	8,118,000	1,599,000	9,717,000				9,717,000
	Prov - Ph1A – Admiral/Clarkson/Lippitt Hill Dist							-
	Line Retirement/Rebuild	5,415,000	(449,000)	4,966,000				4,966,000
	Prov - Ph1B – Admiral St Substation							-
	Construction	5,580,000	(2,685,000)	2,895,000				2,895,000
	Prov - Ph2 – Harris/Olneyville/Rochambeau Dist							-
	Line Retire	-		-				-
	Prov - Ph3 – Harris/Olneyville/Rochambeau							-
	Substation Retirement	-		-				-
	Prov - Ph4 – Knightsville Substation Construction	1,469,000	(974,000)	495,000				495,000
	Major Projects Total	22,970,000	(2,518,000)	20,452,000			-	20,452,000
	Asset Replacement							
	Battery Replacement	150,000		150,000				150,000
	Metalclad Switchgear							-
	Substation Transformer Replacement							-
	Substation Breakers & Reclosers	2,025,000		2,025,000				2,025,000
	Network Arc Flash							-
	URD Cable Strategy	6,000,000		6,000,000		(1,300,000)		4,700,000
	UG Cable Replacement	5,500,000		5,500,000		(500,000)		5,000,000
	UG Improvements	400,000		400,000				400,000
	Recloser Replacement	961,000	(696,000)	265,000	100,000			365,000
	Others	481,000	318,000	799,000				799,000
	Blanket Projects	3,502,000	90,000	3,592,000				3,592,000
	Reserves	511,000	(511,000)	-				-
	Asset Replacement Total	19,530,000	(799,000)	18,731,000	100,000	(1,800,000)		17,031,000
	Asset Replacement - I&M (NE)	3,000,000		3,000,000				3,000,000
Asset Condition Total		45,500,000	(3,317,000)	42,183,000	100,000	(1,800,000)		40,483,000
Non-Infrastructure	General Equipment	250,000		250,000				250,000
	Telecommunications Capital - Dist	260,000	800,000	1,060,000				1,060,000
Non-Infrastructure Total		510,000	800,000	1,310,000				1,310,000

EXHIBIT GLB-1

REPORT OF GREGORY L. BOOTH, PE

FY2022 ISR Plan Adjustments									
Capital Outlays by Key Driver Category and Budget Classification									
SPENDING RATIONALE	BUDGET CLASS	FY2022						Notes	National Grid Proposed Budget (12-9-20)
		NG Initial Proposed Budget (8-10-20)	NG Adjustments (10-2-20)	NG Revised Proposed Budget (10-2-20)	NG Adjustments (12-9-20)	Division Adjustments (12-9-20)			
System Capacity and Performance	Load Relief							(1)	
	Aquidneck Island	6,409,000	(1,345,000)	5,064,000					5,064,000
	Aquidneck Island - Other Sub Improvements		720,000	720,000					720,000
	Jepson Substation		650,000	650,000					650,000
	East Providence Substation	731,000		731,000					731,000
	New Lafayette Substation	1,698,000	159,000	1,857,000					1,857,000
	New London Ave Substation #150								-
	Warren Substation								621,000
	Weaver Hill Rd.	621,000		621,000					-
	New London Expansion								-
	Load Relief Total	9,459,000	184,000	9,643,000					9,643,000
	Reliability								-
	Volt/Var	3,227,000		3,227,000					3,227,000
	Storm Hardening	58,000	1,000	59,000					59,000
	EMS/RTU	1,551,000		1,551,000	(250,000)				1,301,000
	Flood Contingency								-
	OH Line Transformer Replacement	700,000		700,000					700,000
Other Load Relief & Reliability	277,000		277,000					277,000	
3V0	1,310,000	125,000	1,435,000					1,435,000	
Blanket Projects - SCP Strategic DER Advancement (moved to non-Discretionary)	1,783,000	(53,000)	1,730,000					1,730,000	
Reliability Total	8,906,000	73,000	8,979,000	(250,000)				8,729,000	
System Capacity and Performance Total	18,365,000	257,000	18,622,000	(250,000)				18,372,000	
Subtotal Discretionary	64,375,000	(2,260,000)	62,115,000	(150,000)	(1,800,000)			60,165,000	
Total Electric Distribution	108,999,000	(699,000)	108,300,000	(150,000)	(4,500,000)			103,650,000	
Vegetation Management Program	Cycle Trimming	6,600,000		6,600,000					6,600,000
	Hazard Tree	1,500,000		1,500,000					1,500,000
	Sub-T	500,000		500,000					500,000
	Police/Flagman Detail	775,000		775,000					775,000
	Pockets of Poor Performance	200,000		200,000					200,000
	All Other Activities	1,225,000		1,225,000					1,225,000
Vegetation Management Program Total		10,800,000		10,800,000					10,800,000
Inspection and Maintenance Program	Operation and Maintenance Expenses:								
	Opex related to Capex	421,000		421,000					421,000
	Repair - Related Costs	-		-					-
	Inspections and Repair- Related Costs	475,000		475,000					475,000
	Removal Costs	-		-					-
	System Planning & Protection Coordination Study	25,000		25,000					25,000
	VVO/CVR Program O&M	262,000		262,000					262,000
	Sub-total Operations & Maintenance Expense	1,183,000		1,183,000					1,183,000
	Cost of Removal for I&M Capex	240,000		240,000					240,000
Inspection and Maintenance Program Total		1,423,000		1,423,000					1,423,000
Grand Total ISR- All Programs		121,222,000	(699,000)	120,523,000	(150,000)	(4,500,000)			115,873,000

NOTES:

(1) National Grid will manage (underspend/overspend management) on 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 projects.