

March 13, 2019

VIA HAND DELIVERY & ELECTRONIC MAIL

Luly E. Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

**RE: Docket 4915 - Proposed FY 2020 Electric Infrastructure, Safety, and Reliability Plan
Supplemental Response to Division 1-2**

Dear Ms. Massaro:

On behalf of National Grid,¹ I have enclosed ten (10) copies of the Company's supplemental response to Division 1-2.

This filing also contains a Motion for Protective Treatment of Confidential Information in accordance with 810-RICR-00-00-1-1.3(H)(3) (Rule 1.3(H)) of the PUC's Rules of Practice and Procedure and R.I. Gen. Laws § 38-2-2(4)(A), -(B). National Grid seeks protection from public disclosure of certain confidential and privileged information in Attachment DIV 1-2-2 (Supp.). Specifically, the information in Attachment DIV 1-2-2 contains Critical Energy Infrastructure Information (CEII). In compliance with Rule 1.3(H), National Grid has provided the PUC with one complete, unredacted copy of Attachment DIV 1-2-2 in an envelope marked, "**Contains Privileged and Confidential Information – Do Not Release.**" The Company is also providing the redacted version of Attachment DIV 1-2-2 (Supp.) (formerly submitted as Attachment DIV 1-2) for the public filing.

Thank you for your attention to this transmittal. If you have any questions, please contact me at 401-784-7288.

Very truly yours,



Jennifer Brooks Hutchinson

Enclosures

cc: Docket 4915 Service List
John Bell, Division
Greg Booth, Division
Leo Wold, Esq.
Christy Hetherington, Esq.
Al Contente, Division

¹ The Narragansett Electric Company d/b/a National Grid (National Grid or the Company).

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

RHODE ISLAND PUBLIC UTILITIES COMMISSION

Fiscal Year 2020 Electric Infrastructure,
Safety and Reliability Plan

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Docket No. 4915

**MOTION OF THE NARRAGANSETT ELECTRIC
COMPANY D/B/A NATIONAL GRID FOR PROTECTIVE
TREATMENT OF CONFIDENTIAL INFORMATION**

National Grid¹ hereby requests that the Rhode Island Public Utilities Commission (PUC) grant protection from public disclosure of certain confidential, competitively sensitive, and proprietary information submitted in this proceeding, as permitted by PUC Rule 810-RICR-00-00-1-1.3(H)(3) (Rule 1.3(H)) and R.I. Gen. Laws § 38-2-2(4)(B). National Grid also hereby requests that, pending entry of that finding, the PUC preliminarily grant National Grid's request for confidential treatment pursuant to Rule 1.3(H)(2).

I. BACKGROUND

On December 21, 2018, National Grid submitted its Fiscal Year (FY) 2020 Electric Infrastructure, Safety, and Reliability (ISR) Plan filing in the above-captioned docket. As part of its filing this year, National Grid included all data requests issued by the Division of Public Utilities and Carriers (Division) and answered by National Grid between November 18, 2018 and December 19, 2018. Some of National Grid's responses to the Division's data requests during this timeframe include confidential information and/or Critical Energy Infrastructure Information (CEII). Specifically, Division Data Request 1-2 requested copies of closure papers for all projects greater than \$1.0 million completed in FY 2018. In its response to Division Data

¹ The Narragansett Electric Company d/b/a National Grid (National Grid or the Company).

Request 1-2, the Company provided redacted versions of Attachment DIV 1-2 to the Division, which consisted of the closure papers and/or short form sanction papers, as applicable, for the projects listed in the Company's response to Division Data Request 1-2. The closure paper and short form sanction paper for the Kent County 2nd Transformer project (Kent County Sanction Papers) contains confidential information and/or CEII, as noted in the response. Since providing this response, National Grid and the Division have entered into a Confidentiality and Nondisclosure Agreement for the protection of such confidential information and/or CEII. To complete the record in this proceeding, the Company is supplementing its response to Division Data Request 1-2 to provide the unredacted versions of the Kent County Sanction Papers to the PUC and the Division as Attachment DIV 1-2-2 (Supp.).

Therefore, the Company requests that, pursuant to Rule 1.3(H), the PUC afford confidential treatment to the confidential and proprietary information and/or CEII contained in the unredacted version of Attachment DIV 1-2-2 (Supp.). For the PUC's convenience, the Company is also resubmitting the redacted version of Attachment DIV 1-2-2 (Supp.) (formerly provided as Attachment DIV 1-2) for the public filing.

II. LEGAL STANDARD

Rule 1.3(H) of the PUC's Rules of Practice and Procedure provides that access to public records shall be granted in accordance with the Access to Public Records Act (APRA), R.I. Gen. Laws § 38-2-1, *et seq.* Under APRA, all documents and materials submitted in connection with the transaction of official business by an agency is deemed to be a "public record," unless the information contained in such documents and materials falls within one of the exceptions specifically identified in R.I. Gen. Laws § 38-2-2(4). To the extent that information provided to the PUC falls within one of the designated exceptions to the public records law, the PUC has the

authority under the terms of APRA to deem such information as confidential and to protect that information from public disclosure.

In that regard, R.I. Gen. Laws § 38-2-2(4)(B) provides that the following types of records shall not be deemed public:

Trade secrets and commercial or financial information obtained from a person, firm, or corporation which is of a privileged or confidential nature.

The Rhode Island Supreme Court has held that this confidential information exemption applies where the disclosure of information would be likely either (1) to impair the government's ability to obtain necessary information in the future; or (2) to cause substantial harm to the competitive position of the person from whom the information was obtained. *Providence Journal Company v. Convention Center Authority*, 774 A.2d 40 (R.I. 2001).

The first prong of the test is satisfied when information is voluntarily provided to the governmental agency and that information is of a kind that would customarily not be released to the public by the person from whom it was obtained. *Providence Journal*, 774 A.2d at 47.

National Grid meets the first prong of this test, which applies here.

III. BASIS FOR CONFIDENTIALITY

The information contained in Attachment DIV 1-2-2 (Supp.) should be protected from public disclosure. The information provided in this attachment is confidential and privileged information of the type that National Grid does not ordinarily make public. The Kent County Sanction Papers included in Attachment DIV 1-2-2 (Supp.) contain proprietary and commercially sensitive business information, such as CEII. Public disclosure of the information identified as CEII in Attachment DIV 1-2-2 (Supp.) would negatively impact National Grid's

ability to effectively operate to provide safe and reliable service to its customers. As such, this information is of a kind that National Grid would customarily not release to the public.

Therefore, this information satisfies the exception found in R.I. Gen. Laws § 38-2-2(4)(B).

Accordingly, National Grid is providing the unredacted version of Attachment DIV 1-2-2 (Supp.) on a voluntary basis to assist the PUC with its decision-making in this proceeding, but respectfully requests that the PUC provide confidential treatment to the information.

IV. CONCLUSION

For the foregoing reasons, National Grid respectfully requests that the PUC grant its Motion for Protective Treatment of Confidential Information.

Respectfully submitted,
**THE NARRAGANSETT ELECTRIC
COMPANY d/b/a NATIONAL GRID**
By its attorney,



Jennifer Brooks Hutchinson, Esq. (#6176)
National Grid
280 Melrose Street
Providence, RI 02907
(401) 784-7288
Dated: March 13, 2019

The Narragansett Electric Company
d/b/a National Grid
In Re: Division's Review of FY 2020 Proposed Electric ISR Plan
Responses to Division's First Set of Data Requests
Issued November 1, 2018

Division 1-2 – Supplemental

Request:

Please identify all projects greater than \$1.0 million completed in FY 2018 and provide closure papers for each project.

Response:

The Company has defined a “project greater than \$1M completed in FY2018” as: *A project sanctioned either individually or as cumulative group of projects over \$1M which had its final spending incurred in FY2018 with no significant or forecasted spending planned in FY2019 or beyond.*

The projects listed in the table below meet this criteria. Please see Attachment DIV 1-2 for the relevant documentation related to each project, as noted in the “Closure Comment” column. Attachment DIV 1-2 has been redacted for Critical Energy Infrastructure Information (CEII).

USSC Number	Funding Project #	Project Description	Discretionary / Non-Discretionary	Complex/Non-Complex	TOTAL PROJECT SPEND (excludes Customer Contributions)	Closure Comment
USSC-12-355C	CD01101	KENT COUNTY 2ND TRANSFORMER (D-SUB)	Discretionary	Complex	2,476,967	The Closure Paper and last Sanction Paper are attached within "DIV 1-2 Attachment 1.pdf" beginning on page 2 of 62.
USSC-12-355C	CD01102	HUNT RIVER SUBSTATION RETIREMENT (D-SUB)	Discretionary	Complex	524,057	
USSC-12-355C	CD01104	KENT COUNTY 2ND TRANSFORMER (D-LINE)	Discretionary	Complex	170,044	
USSC-15-147	C056850	RIAC TF GREEN RUNWAY EXPANSION (D-LINE)	Non-Discretionary	Complex	1,605,209	The Closure Paper for this project has not been submitted yet. However, the project was completed within the threshold of +/-10% on its sanction amount of \$1.728M. The Company has included the latest sanction information within "DIV 1-2 Attachment 1.pdf" beginning on page 33 of 62.
USSC-16-147 v2	C050006	HYDE AVE MC RETIREMENT (D-LINE)	Discretionary	Non-Complex	3,011,163	The Closure Paper for this project has not been submitted yet. However, the project was completed within the threshold of +/-10% on its sanction amount of \$3.163M. The Company has included the latest sanction information within "DIV 1-2 Attachment 1.pdf" beginning on page 44 of 62.
USSC-16-147 v2	C051271	HYDE AVE MC RETIREMENT (D-SUB)	Discretionary	Non-Complex	102,467	
USSC-16-148 v2	C050017	DAGGETT AVE MC RETIREMENT (D-LINE)	Discretionary	Non-Complex	2,627,291	While construction is complete, one work order (out of 7 total work orders) for the project has not been closed, therefore a closure paper would not be required. The Company has included the latest sanctioning information within "DIV 1-2 Attachment 1.pdf" beginning on page 51 of 62.
USSC-16-157 v2	C049910	SOUTHEAST SUB MC RETIREMENT (D-LINE)	Discretionary	Non-Complex	1,543,050	Project C049910 was approved with other funding projects in sanction paper USS-16-157. The distribution substation portion of the sanctioned project is open and has incurred charges in FY2019 and therefore was not subject to a closure paper. The Company has included the latest sanctioning information for this overall project in "DIV 1-2 Attachment 1.pdf" page 56 of 62.

Division 1-2 – Supplemental, page 2

Supplemental Response:

Please see Attachment DIV 1-2-1 (Supp.) for relevant documentation that has become available since the original response was filed with the Public Utilities Commission.

The Company is also providing the confidential versions of the closure paper and short form sanction paper for the Kent County 2nd Transformer project as Attachment DIV 1-2-2 (Supp.), subject to a Motion for Protective Treatment of Confidential Information.

The Company provided the redacted versions of these papers with the original response to the Division as Attachment DIV 1-2; however, for the PUC's convenience, the Company is resubmitting the redacted version of these papers with the public version of this supplemental response.



Closure Paper

Title:	RIAC TF Green Runway Expansion	Sanction Paper #:	USSC-15-147C
Project #:	C056850	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	2/26/2019
Author:	Kathleen Hurley	Sponsor:	Carol A. Sedewitz, VP Distribution Asset Management & Planning
Utility Service:	Electricity T&D	Project Manager:	Kathleen Hurley

1 Executive Summary

This paper is presented to close C056850. The total spend was \$1.605M. The original sanctioned amount for this project was \$1.728M at +/- 10%, with a CIAC/Reimbursement of \$1.888M.

2 Project Summary

This project was implemented to accommodate the extension of the TF Green Airport Runway located in Warwick, RI.

Construction under this project was broken into two components. Phase One temporarily relocated poles across Main Avenue, in preparation for the relocation of Main Ave. Phase Two installed UG Primary Cable on the 2222 and the 3F1 Feeders, installed and replaced new poles and the removed the existing overhead infrastructure on Main Avenue.

The customer, Rhode Island Airport Corp. (RIAC) was responsible for installing the manholes, riser poles, the conduit system and the relocation of Main Ave.

3 Variance Analysis

3.1 Cost Summary Table

Actual Spending (\$M) vs. Sanction (\$M)				
Project	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
C056850	Capex	1.185	1.052	(0.133)
	Opex	0.264	0.236	(0.028)
	Removal	0.156	0.440	0.284
	Total	1.605	1.728	0.123



Closure Paper

3.2 Cost Variance Analysis

This is a customer reimbursement project (CIAC). The variance was a result of the actual material costs (cable) being lower than the original estimate created in Storms. The costs are based on the Storms Estimates established at the beginning of the project. This was not reconciled with the customer, work requests are only reconciled if requested by the customer.

3.3 Schedule Variance Table

Schedule Variance	
Project Grade - Ready for Use Date	12/31/2016
Actual Ready for Use Date	9/5/2017
Schedule Variance	0 years, 8 months, 5 days

3.4 Schedule Variance Explanation

The approval process for National Grid's poles heights from the FAA took several months longer than anticipated and the relocation of Main St constructed by RIAC was delayed a few months. The FAA has height restrictions for pole heights, the poles were located near and around the runway

4 Final Cost by Project

Actual Spending (\$M) vs. Sanction (\$M)				
Project	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over)/ Under
C056850	Capex	1.185	1.052	(0.133)
	Opex	0.264	0.236	(0.028)
	Removal	0.156	0.440	0.284
	Total	1.605	1.728	0.123

5 Improvements / Lessons Learned/Root Cause

This project is located in and near the TF Green Airport. The project was implemented to accommodate extending the runway to a total of 8,700 feet. New poles were located near and around the new run way. The FAA has height restrictions for pole heights, all new poles in and around the airport, had to go through an approval process. The FAA didn't inform the customer or National Grid's engineer of the pole height restrictions. Because National Grid's Engineer was not informed of the height restrictions, engineering had to re-design some the poles to accommodate the height restrictions. In addition, the FAA approval process for our poles took several months longer than anticipated to approve.



Closure Paper

To move the project forward the project manager worked with the engineer, the customer and the FAA to push the approval process forward.

Lessons Learned ID is 44.

6 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All as-builts have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No

7 Statements of Support

7.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Investment Planning	DiConza, Glen	Endorses relative to 5-year business plan or emergent work
Resource Planning	Wyman, Anne	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Asset Management / Planning	Hayduk, Brian	Endorses scope, estimate, and schedule with the company's goals, strategies, and objectives
Engineering and Design	Hellmuth, Kevin	Endorses scope, design, conformance with design



Closure Paper

		standards
Project Management	Arthur, Dave	Endorses resources, cost estimate, schedule
Electric Project Estimation	Lutz, Sara	Endorses Cost Estimate

7.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

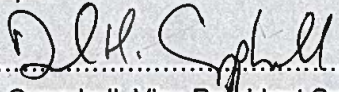
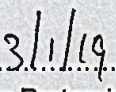
Function	Individual
Finance	Bostic, Christina
Regulatory	Turieto, Ed
Jurisdictional Delegate(s)	Easterly, Patricia
Procurement	Chevere, Diego
Control Centers (CC)	Gallagher, Michael



Closure Paper

8 Decisions

I approve this paper.

Signature..........Date..........
David H. Campbell, Vice President ServCo Business Partnering, USSC Chair



Closure Paper

Title:	Hyde Ave Metal Clad Retirement	Sanction Paper #:	USSC-16-147C
Project #:	C050006, C051271	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	12/11/2018
Author:	Sean McGovern	Sponsor:	Carol A. Sedewitz, VP Distribution Asset Management & Planning
Utility Service:	Electricity T&D	Project Manager:	Sean McGovern

1 Executive Summary

This paper is presented to close C050006 and C051271. The total spend was \$3.114M. The original sanctioned amount for this project was \$0.860M at +/- 10%. The latest sanctioned amount was \$3.169M.

2 Project Summary

Hyde Ave substation was a 1950's-era metalclad 13.8kV to 4.16kV substation in Pawtucket, RI with asset condition concerns. The Company converted the existing load to 13.8kV and retired the station. The retirement was consistent with the area plan to retire the 4kV metalclad substations in the Pawtucket area.

3 Variance Analysis

3.1 Cost Summary Table

Project Sanction Summary (\$M)				
Title	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
Hyde Ave Retirement (D-Line)	Capex	2.218	0.585	(1.633)
	Opex	0.342	0.060	(0.282)
	Removal	0.554	0.215	(0.339)
	Total	3.114	0.860	(2.254)

3.2 Cost Variance Analysis

The primary driver was increased labor cost. Field conditions proved more challenging than expected. The Company needed to replace many more poles than expected and significant vertical construction needed to be flattened. One customer could not be converted as designed due to poor asset condition of their equipment, resulting in the Company needing to complete a more costly option. The increased labor costs resulted in a significant increase in associated transportation costs.



Closure Paper

Unexpected field conditions drove a need for additional tree trimming and removals. Taller poles and altering overhead wire construction required additional clearance to allow crews to work safely and ensure reliability against future outages.

3.3 Schedule Variance Table

Schedule Variance	
Project Grade - Ready for Use Date	10/31/2017
Actual Ready for Use Date	11/1/2017
Schedule Variance	0 years, 0 months, 1 days

3.4 Schedule Variance Explanation

N/A

4 Final Cost by Project

Actual Spending (\$M) vs. Sanction (\$M)				
Project	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
C050006	Capex	2.218	0.580	(1.638)
	Opex	0.342	0.060	(0.282)
	Removal	0.451	0.070	(0.381)
	Total	3.011	0.710	(2.301)

Actual Spending (\$M) vs. Sanction (\$M)				
Project	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
C051271	Capex	0.000	0.005	0.005
	Opex	0.000	0.000	0.000
	Removal	0.103	0.145	0.042
	Total	0.103	0.150	0.047

Actual Spending (\$M) vs. Sanction (\$M)				
Project	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
Total	Capex	2.218	0.585	(1.633)
	Opex	0.342	0.060	(0.282)
	Removal	0.554	0.215	(0.339)
	Total	3.114	0.860	(2.254)



Closure Paper

5 Improvements / Lessons Learned/Root Cause

A comprehensive review of the area in which the work will be performed must occur as part of the detailed-design phase. Age and condition of all equipment should be considered. Specific issues with the work zone, such as traffic conditions, safety concerns and the ability to schedule outages are factors that need to be given more consideration during the design phase. Early identification of issues that may arise during customer conversions will improve the accuracy of estimates and limit costly delays.

6 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All as-builts have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No



Closure Paper

7 Statements of Support

7.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Investment Planning	Glen DiConza	Endorses relative to 5-year business plan or emergent work
Resource Planning	Anne Wyman	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Asset Management	Al Labarre	Endorses scope, estimate, and schedule with the company's goals, strategies, and objectives
Engineering and Design	Kevin Hellmuth	Endorses resources, cost estimate, schedule

7.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

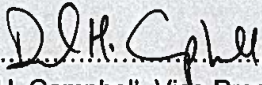
Function	Individual
Finance	Felicia Midkiff
Regulatory	Ed Turieo
Jurisdiction Delegate	Patricia Easterly
Procurement	Chevere, Diego



Closure Paper

8 Decisions

I approve this paper.

Signature..........Date 12/20/18
David H. Campbell, Vice President ServCo Business Partnering, USSC Chair



Closure Template

Title:	Kent County 2 nd Transformer	Sanction Paper #:	USSC-12-355 v5C
Project #:	CD01101, CD01102 CD01104, C043894	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	6/12/2018
Author:	Todd Kopoyan / Shaun Vacher	Sponsor:	Carol A. Sedewitz, VP Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	Todd Kopoyan / Shaun Vacher

1 Executive Summary

This paper is presented to close project numbers CD01101, CD01102, CD01104 and C043894. The total spend was \$3.933M. The original sanctioned amount for this project was \$4.600M at +/- 10% (project grade).

Project Sanction Summary (\$M)				
Title	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
Kent County 2nd Transformer	Capex	3.368	4.046	0.678
	Opex	0.139	0.114	(0.025)
	Removal	0.426	0.440	0.014
	Total	3.933	4.600	0.667

1.1 Variance Analysis

The underrun is mainly attributable to:

1. The substation construction effort was estimated based on the anticipated productivity of the crews coupled with the expected construction plan. The crews were able to work more efficiently than expected and, as a result, construction was completed ahead of schedule. Also primary crews were able to work other short duration projects in the area while the Kent County project focus was on the wiring.
2. The AFUDC amount was estimated using the rate in effect at the time. The actual rate turned out to be lower than the forecast which resulted in lower AFUDC charges.
3. Unused contingency and risk dollars.
4. The actual feeder material charges were less than the STORMS estimate.

Closure Template

1.2 Schedule Variance

Schedule Variance	
Project Grade - Ready for Use Date	3/25/2017
Actual Ready for Use Date	3/11/2017
Schedule Variance	- 0 years, 0 months, 14 days

2 Project Summary

This project was delivered to mitigate load at risk for loss of the Kent County Substation transformer, T6, and to address flooding and environmental risks that existed at Hunt River Substation in Warwick, RI.

- Mitigating Load at Risk: The installation of the second transformer, T5, (115/13.2 kV; 24/32/40 MVA) at Kent County Substation along with three 15 kV tie circuit breakers results in no un-served load exposure for loss of one of the two station transformers, T5 or T6.
- Addressing Flood and Environmental Risks: Hunt River Substation was located adjacent to the Hunt River and within a wellhead protection area that supplies drinking water to the Towns of East Greenwich and North Kingstown and the City of Warwick. The substation was also located in the flood plain; was flooded in 2010; and had a high risk of flooding in the future. The installation of an additional feeder, 22F6, at Kent County Substation provided capacity to retire Hunt River Substation, which addressed the flood and environmental risks.

The project was delivered successfully, on schedule and under the allowed delegation of authority (DOA).

3 Final Cost by Project

Actual Spending (\$M) vs. Sanction (\$M)				
Kent County (D-Sub)	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over)/ Under
CD01101	Capex	2.445	2.850	0.405
	Opex	0.017	0.019	0.002
	Removal	0.015	0.031	0.016
	Total	2.477	2.900	0.423

Closure Template

Actual Spending (\$M) vs. Sanction (\$M)				
Hunt River (D-Sub)	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
CD01102	Capex	0.000	0.000	0.000
	Opex	0.126	0.081	(0.045)
	Removal	0.398	0.399	0.001
	Total	0.524	0.480	(0.044)

Actual Spending (\$M) vs. Sanction (\$M)				
Kent County (D-Line)	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
CD01104	Capex	0.167	0.212	0.045
	Opex	(0.005)	0.013	0.018
	Removal	0.008	0.005	(0.003)
	Total	0.170	0.230	0.060

Actual Spending (\$M) vs. Sanction (\$M)				
Kent County (T-Sub)	Breakdown	Total Actual Spend	Original Project Sanction Approval	Variance (Over) / Under
C043894	Capex	0.756	0.984	0.228
	Opex	0.001	0.001	0.000
	Removal	0.005	0.005	0.000
	Total	0.762	0.990	0.228

4 Improvements / Lessons Learned/Root Cause

Kent County Substation T5 and 22F6 Feeder and Hunt River Removal Projects – Lessons Learned Log			
Item	What Happened	Lesson Learned	Recommendation
1.			
2.			
	Construction and Protection and Telecommunications Operations (PTO) identified that incorrect equipment was received on multiple occasions despite the orders being correct. In all cases this was identified early	The equipment being supplied may not match what was ordered regardless of what shipping documents and engineering drawings show.	Even though the documentation may say one thing, it's good practice to review the model number on the equipment against that on the project material lists. This should be done in time to be able to recover in the event of

Closure Template

	enough in the project to recover with little impact.		a manufacturer error.
3.	The substation's/project's asset ownership (i.e. transmission vs. distribution) was not obvious. This led to some equipment being charged to the wrong accounting initially. Such charges were later corrected through requests to Plant Accounting to transfer the charges to the correct work orders.	Asset ownership is not always obvious. Guidance from accounting may be needed.	Obtain guidance and create a list early in the project that clearly identifies which assets are distribution and which are transmission to avoid any confusion or ambiguity. Refer to it frequently during the project and include it in the Technical Scope Document.
4.	The need for a property transaction review (PTR) was identified late in the Hunt River Substation Removal project. This extended the project's closeout and created some additional costs.	Removal projects (that result in an empty lot) now require a PTR.	Removal projects, resulting in an empty lot, should plan for a PTR and the associated due diligence when scoping, scheduling and sanctioning the project.

5 Closeout Activities

The following closeout activities have been completed.

Activity	Completed
All work has been completed in accordance with all National Grid policies	<input checked="" type="radio"/> Yes <input type="radio"/> No
Gate E checklist completed (appl. only to CCD)	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> No
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All as-builts have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> No

Closure Template

6 Statements of Support

6.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Investment Planning – Distribution	DiConza, Glen	Endorses relative to 5-year business plan or emergent work
Investment Planning - Transmission	McColgan, Karen	Endorses relative to 5-year business plan or emergent work
Resource Planning – Distribution Line	Marceau, Daniel	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Resource Planning – Transmission Line and Substation	Phillips, Mark	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Asset Management / Planning – Trans Line / Substation	Hayduk, Brian	Endorses scope, estimate, and schedule with the company's goals, strategies, and objectives
Asset Management / Planning – Dist Line / Substation	Constable, Ryan	Endorses scope, estimate, and schedule with the company's goals, strategies, and objectives
Engineering and Design – Substations	Larrabee, Mark	Endorses scope, design, conformance with design standards
Engineering and Design – Distribution Line	Helmuth, Kevin	Endorses scope, design, conformance with design standards
Engineering and Design – Protection and Telecom.	Swanson, Leonard	Endorses scope, design, conformance with design standards
Project Management	Vacher, Shaun	Endorses resources, cost estimate , schedule
Electric Project Estimation	Duffy, John	Endorses Cost Estimate

Closure Template

6.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

Function	Individual
Finance	Midkiff, Felicia
Finance	Byrne, Andrew
Regulatory	Turleo, Ed
Regulatory	Artuso, Michael
Jurisdictional Delegate	Anand, Sonny
Jurisdictional Delegate	Hill, Terron
Procurement	Chevere, Diego
Control Center	Gallagher, Michael
Control Center	Lavallee, Philip

Closure Template

7 Decisions

I approve this paper.

Signature..........Date..........

David H. Campbell, Vice President ServCo Business Partnering, USSC Chair

Short Form Sanction Paper

Title:	Kent County 2 nd Transformer	Sanction Paper #:	USSC-12-355 v4
Project #:	CD01101, CD01102, CD01104, C043894	Sanction Type:	Sanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	February 23, 2016
Author:	Todd Kopoyan/Sonny Anand	Sponsor:	John Gavin VP Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	Todd Kopoyan

1 Executive Summary

1.1 Sanctioning Summary

This paper requests sanction in the amount of \$4.600M with a tolerance of +/- 10% for the purpose of full implementation.

This sanction amount is \$4.600M broken down into:

4.046M Capex
0.114M Opex
0.440M Removal

1.2 Project Summary

This project is required to mitigate load at risk for loss of the Kent County Substation transformer, T6, and to address flooding and environmental risks that currently exists at Hunt River Substation.

- **Mitigating Load at Risk:** To address the load at risk exposure, this paper recommends installing the second distribution transformer, T5, (115/13.2 kV; 24/32/40 MVA) at Kent County Substation (Appendix A). The installation of the second transformer along with three 15 kV tie circuit breakers will result in no unserved load exposure for loss of one of the two station transformers.
- **Addressing Flood and Environmental Risk:** To address flood issues at Hunt River Substation, this paper recommends installing a new feeder, 22F6, at Kent County Substation and retiring the Hunt River Substation (Appendix B).

Short Form Sanction Paper

2 Project Detail

2.1 Background

Kent County 115/12.47kV facilities were built in 2002 to supply distribution load in the City of Warwick and West Warwick. It is a 115/12.47kV low profile substation with a single 24/32/40MVA transformer supplying four distribution feeders. It was designed and permitted for two 24/32/40MVA power transformers and six distribution feeders. Loss of the existing transformer results in unserved load and exposure levels that don't satisfy the Distribution Planning Criteria.

Hunt River Substation was built in Warwick in 1946 and supplies an overhead distribution system in the Town of East Greenwich. It is a 34.5/12.47kV substation consisting of a 16/20MVA transformer supplying a single 12.47kV feeder, 40F1. The station supplies approximately 1,000 customers with a peak load of 4.4MW.

Hunt River Substation is located adjacent to the Hunt River and within a wellhead protection area that supplies drinking water to the Towns of East Greenwich and North Kingstown and the City of Warwick. The substation is also located in the flood plain, has a recent history of flooding and has a high risk of flooding in the future.

The assets associated with this project are non-PTF.

2.2 Drivers

Kent County Substation supplies approximately 9,400 customers with a peak load of 42MW (as of the time of the planning study). Upon contingency approximately 27MW of load (or approximately 6,000 customers) would be unserved until a spare or mobile transformer is installed resulting in an exposure of approximately 700MWh. The Distribution Planning Criteria recommends mitigating any exposure greater than 240MWh or more than 10MW of un-served load during peak load periods.

Kent County Substation Low Profile 115/12.47 kV Substation				
Kent County 2nd Transformer Project (Installation of T5, tie breakers and 22F6)				
(table reflects data at time of planning study)				
Scenario 1 - Pre-Project Loading and Load at Risk				
	Pre Contingency Loading (MW)	Post Contingency (MW)	Post Contingency % Loading	Post Contingency Unserved Load (MW)
T6	42	0	0%	27 (after field switching to transfer 15 MW)
Scenario 2 - Post-Project Loading and Load at Risk				
	Pre Contingency Loading (MW)	Post Contingency (MW)	Post Contingency Loading (% of SE Rating)	Post Contingency Unserved Load (MW)
T5	25	42	72%	0
T6	17	42	72%	0

Short Form Sanction Paper

Hunt River Substation is located adjacent to the Hunt River and within a wellhead protection area that supplies drinking water to the Towns of East Greenwich and North Kingstown and the City of Warwick. In March 2010 flood waters reached an elevation of three feet in the station yard. After the March 2010 flooding, a review was performed of this site for risk of future flooding. This review concluded the station elevation is approximately four feet below the base flood elevation and the station is at a high risk of future flooding.

2.3 Project Description

A second transformer, T5 (115/13.2kV; 24/32/40MVA), three 15 kV tie circuit breakers and a new feeder position, 22F6, will be added at Kent County Substation. The transformer will be tapped off the existing G-185S Line. All substation work, including the transmission tap, will be installed within the existing fence line. The new 22F6 feeder getaway cable will connect to one leg of the formally bifurcated 22F4 feeder to make the new 22F6 feeder.

Area feeders, 22F4 and 61F2, out of Kent County Substation and Division Street Substation, respectively, will be reconfigured to off load the only Hunt River Substation Feeder, 40F1. Hunt River Substation will be retired and completely removed, including all sub-surface facilities and the fence. The site will be loamed and seeded.

2.4 Benefits

The installation of the second transformer along with the three 15 kV tie circuit breakers at Kent County will result in no un-served load exposure for loss of one of the two station transformers.

The installation of an additional feeder, 22F6, at Kent County Substation provides capacity to retire Hunt River Substation. The Hunt River Substation removal addresses both the flood issues and environmental risk in a cost effective manner when compared to station reconstruction. In addition, there are asset concerns at Hunt River. The existing wooden pole structure is in poor condition and should be rebuilt to comply with current standards. The feeder oil circuit recloser is a Westinghouse PR type which is unreliable and spare parts are no longer available. The retirement of Hunt River Substation eliminates the need to replace these obsolete assets.

2.5 Business & Customer Issues

Existing foundations supporting oil-filled equipment at Hunt River Substation were pre-characterized for the presence of polychlorinated biphenyls (PCBs) in October 2014.

Short Form Sanction Paper

Regulated concentrations of PCBs were detected on three (3) foundations. This will require soil sampling in the immediate vicinity. Additional soil sampling, as stipulated in Environmental Procedure No. 17, will also be required as the Project is expected to remove the substation fence. Should soil impacts be realized as a result of said sampling efforts, state and/or federal soil management plans will be developed and, depending on the extent of the contamination, an immediate response (i.e. submit soil management plan, receive approval and start remediation in approximately 3-4 months) may be necessary.

To avoid triggering the need for an immediate response prior to the de-energization of Hunt River Substation, the soil sampling and analysis will be delayed until the new 22F6 feeder is ready for load and the Hunt River Substation is off-loaded. This will allow for an immediate response, if needed, without compromising the system's reliability. An amount of contamination has been assumed. The corresponding remediation cost included in this sanction paper is \$80,000 (opex). A more accurate estimate of the remediation cost will be made after the testing is completed in the spring of 2017. This refined estimate will be compared to the sanctioned amount at that time.

2.6 Alternatives

Similar to the recommended plan, the alternative analysis evaluates options that address the two project drivers: contingency load at risk and flood risk mitigation.

Alternative 1 (\$6.5M): Expand New London Ave Sub and Retire Hunt River Sub

In this alternative the component to address flood risk mitigation is comparable in scope and investment grade cost (\$0.70M) to that for the recommended plan. They both include the addition of a feeder position, distribution work and the retirement of Hunt River Substation.

However, to address load at risk, this plan would recommend expansion of the proposed New London Ave Substation. The plan includes the installation of the second half of the station consisting of the second 115/13.2kV, 24/32/40MVA transformer and metal-clad switchgear. This alternative is not recommended because it offers little benefit over the recommended plan and it is \$2.1M higher in estimated cost.

Alternative 2 (\$0M): Defer the Project

Deferring the work is not recommended because it would not address:

- the load at risk associated with a contingency at Kent County Substation;
- the flood risk due to Hunt River Substation's location in a flood plain;
- the environmental risk associated with Hunt River Substation's location in a wellhead protection area; and
- the poor asset condition at Hunt River Substation.

Short Form Sanction Paper

2.7 Investment Recovery

Investment recovery will be through standard rate recovery mechanisms.

2.7.1 Customer Impact

The distribution portion of this project results in an indicative first full year revenue requirement when the asset is placed in service equal to approximately \$0.612M. This is indicative only. The actual revenue requirement will differ, depending upon the timing of the next rate case and/or the timing of the next filing in which the project is included in rate base.

The transmission portion of this project results in an indicative first full year revenue requirement when the asset is placed in service equal to approximately \$0.197M. This is indicative only. Recovery is through Local Network Service (LNS) rates.

3 Related Projects, Scoring, Budgets

3.1 Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
CD01101	D-Sub	Kent County (D-Sub)	2.900
CD01102	D-Sub	Hunt River (D-Sub)	0.480
CD01104	D-Line	Kent County (D-Line)	0.230
C043894	T-Sub	Kent County (T-Sub)	0.990
Total			4.600

3.2 Associated Projects – N/A

3.3 Prior Sanctioning History

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Paper Title	Sanction Type	Tolerance
2/17/15	USSC	\$1.500M (material procurement and preliminary construction activities)	\$3.725	Kent County 2 nd Transformer	Partial	+/-25%

Short Form Sanction Paper

2/7/14	USSC	\$0.800M (final engineering and materials)	\$3.350M	Kent County 2 nd Transformer	Partial	+/-25%
8/2/12	USSC	\$0.450M (preliminary engineering)	\$4.400M	Kent County 2 nd Transformer	Partial Sanction	+/-25%

3.4 Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory <input checked="" type="radio"/> Policy- Driven <input type="radio"/> Justified NPV <input type="radio"/> Other	Distribution Planning Criteria Strategy, February 2011

3.5 Asset Management Risk Score

Asset Management Risk Score: 41

Primary Risk Score Driver: (Policy Driven Projects Only)

☒ Reliability
 ☐ Environment
 ☐ Health & Safety
 ☐ Not Policy Driven

3.6 Complexity Level

☐ High Complexity
 ☒ Medium Complexity
 ☐ Low Complexity
 ☐ N/A

Complexity Score: 24

3.7 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
Dec 2017	Closure Paper

Short Form Sanction Paper

4 Financial

4.1 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
FY17-21 NE Distribution Capital Plan	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	0.275M
FY 17-21 NE Transmission Capital Plan	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	0.021M

4.1.1 If cost > approved Business Plan how will this be funded?

Re-allocation of funds within the portfolio will be managed by Resource Planning to meet jurisdictional budgetary, statutory and regulatory requirements.

4.2 CIAC / Reimbursement – N/A

4.3 Cost Summary Table

Project Number	Project Title	Project Estimate Level (%)	Spend	Prior Yrs	Current Planning Horizon (\$M)						Total
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
					2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	
CD01101	Kent County (D-Sub)	+/- 10%	CapEx	0.788	1.905	0.157	-	-	-	-	2.850
			OpEx	0.016	0.003	-	-	-	-	0.019	
			Removal	-	0.031	-	-	-	-	0.031	
			Total	0.804	1.939	0.157	-	-	-	2.900	
CD01102	Hunt River (D-Sub)	+/- 10%	CapEx	-	-	-	-	-	-	-	
			OpEx	0.002	-	0.079	-	-	-	0.081	
			Removal	0.098	0.020	0.281	-	-	-	0.399	
			Total	0.100	0.020	0.360	-	-	-	0.480	
CD01104	Kent County (D-Line)	+/- 10%	CapEx	0.028	0.170	0.014	-	-	-	0.212	
			OpEx	0.005	0.008	-	-	-	-	0.013	
			Removal	0.001	0.004	-	-	-	-	0.005	
			Total	0.034	0.182	0.014	-	-	-	0.230	
C043894	Kent County (T-Sub)	+/- 10%	CapEx	0.466	0.493	0.025	-	-	-	-	0.984
			OpEx	0.001	-	-	-	-	-	0.001	
			Removal	-	0.005	-	-	-	-	0.005	
			Total	0.467	0.498	0.025	-	-	-	0.990	
Total Project Sanction			CapEx	1.282	2.568	0.196	-	-	-	-	4.046
			OpEx	0.024	0.011	0.079	-	-	-	-	0.114
			Removal	0.099	0.060	0.281	-	-	-	-	0.440
			Total	1.405	2.639	0.556	-	-	-	-	4.600

Short Form Sanction Paper

4.4 Project Budget Summary Table

Project Costs Per Business Plan

DISTRIBUTION	Prior Yrs (Actual)	Current Planning Horizon (\$M)						Total
		Yr. 1 2016/17	Yr. 2 2017/18	Yr. 3 2018/19	Yr. 4 2019/20	Yr. 5 2020/21	Yr. 6 + 2021/22	
\$M								
CapEx	0.816	1.940	0.000	0.000	0.000	0.000	0.000	2.756
OpEx	0.023	0.072	0.000	0.000	0.000	0.000	0.000	0.095
Removal	0.099	0.070	0.315	0.000	0.000	0.000	0.000	0.484
Total Cost in Bus. Plan	0.938	2.082	0.315	0.000	0.000	0.000	0.000	3.335

TRANSMISSION	Prior Yrs (Actual)	Current Planning Horizon (\$M)						Total
		Yr. 1 2016/17	Yr. 2 2017/18	Yr. 3 2018/19	Yr. 4 2019/20	Yr. 5 2020/21	Yr. 6 + 2021/22	
\$M								
CapEx	0.466	0.462	0.030	0.000	0.000	0.000	0.000	0.958
OpEx	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Removal	0.000	0.005	0.005	0.000	0.000	0.000	0.000	0.010
Total Cost in Bus. Plan	0.467	0.467	0.035	0.000	0.000	0.000	0.000	0.969

Variance (Business Plan-Project Estimate)

DISTRIBUTION	Prior Yrs (Actual)	Current Planning Horizon (\$M)						Total
		Yr. 1 2016/17	Yr. 2 2017/18	Yr. 3 2018/19	Yr. 4 2019/20	Yr. 5 2020/21	Yr. 6 + 2021/22	
\$M								
CapEx	0.000	(0.135)	(0.171)	0.000	0.000	0.000	0.000	(0.306)
OpEx	0.000	0.061	(0.079)	0.000	0.000	0.000	0.000	(0.018)
Removal	0.000	0.015	0.034	0.000	0.000	0.000	0.000	0.049
Total Cost in Bus. Plan	0.000	(0.059)	(0.216)	0.000	0.000	0.000	0.000	(0.275)

TRANSMISSION	Prior Yrs (Actual)	Current Planning Horizon (\$M)						Total
		Yr. 1 2016/17	Yr. 2 2017/18	Yr. 3 2018/19	Yr. 4 2019/20	Yr. 5 2020/21	Yr. 6 + 2021/22	
\$M								
CapEx	0.000	(0.031)	0.005	0.000	0.000	0.000	0.000	(0.026)
OpEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Removal	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.005
Total Cost in Bus. Plan	0.000	(0.031)	0.010	0.000	0.000	0.000	0.000	(0.021)

5 Key Milestones

Milestone	Target Date: (Month/Year)
Project Sanction	Feb 2016
Kent County Substation Construction Start	Mar 2016
New 22F6 Feeder Ready for Load	Mar 2017
Reconfigure Area Feeders	Apr 2017

Short Form Sanction Paper

Milestone	Target Date: (Month/Year)
Off-load and De-energize Hunt River Substation	Apr 2017
Hunt River Substation Removal Start	Jun 2017
Hunt River Substation Removal Completed	Aug 2017
Project Closure	Dec 2017

6 Statements of Support

6.1.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Role	Individual	Responsibilities
Investment Planning - Distribution	DiConza, Glen	Endorses relative to 5-year business plan or emergent work
Investment Planning - Transmission	Park, Michelle	Endorses relative to 5-year business plan or emergent work
Resource Planning – Distribution Line	Wyman, Anne	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Resource Planning – Transmission Line and Substation	Phillips, Mark	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Transmission Planning and Asset Management - NE	Kulbacka, Kasia J.	Endorses scope, estimate, and schedule with the company's goals, strategies and objectives.
Distribution Planning and Asset Management	LaBarre, Alan T.	Endorses scope, estimate, and schedule with the company's goals, strategies and objectives.
Engineering and Design - Substations	Martuscello, Suzan E.	Endorses scope, design, conformance with design standards
Engineering and Design – Protection and Telecommunication	Swanson, Leonard G.	Endorses scope, design, conformance with design standards
Project Management	Anand, Sonny	Endorses resources, cost estimate, schedule

Short Form Sanction Paper

6.1.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

Reviewer List	Individual
Finance	Fowler, Keith
Finance	Horowitz, Philip
Regulatory	Zschokke, Peter
Jurisdictional Delegate – New England	Patterson, Jim
Jurisdictional Delegate – FERC	Sedewitz, Carol
Procurement	Curran, Art
Control Center – New England Transmission Regional	Houston, Will
Control Center – New England Regional	Gallagher, Michael

6.1.3 List References


1	Distribution Planning Criteria Strategy, Feb 2011
2	Kent County Conceptual Engineering Report Substation, Sep 2011
3	Ocean State Flood Mitigation Report, Jun 2010
4	System Impact Study Report (draft): Kent County #22 Substation 115/12.47 kV 2 nd Transformer Installation, Aug 2012

Short Form Sanction Paper

7 Decisions

I:

- (a) APPROVE this paper and the investment of \$4.600M and a tolerance of +/-10%
- (b) NOTE that Todd Kopoyan is the Project Manager and Sonny Anand has the approved financial delegation.

Signature..........Date.....3/2/16.....
Executive Sponsor – Marie Jordan, Senior Vice President
Electric Process and Engineering

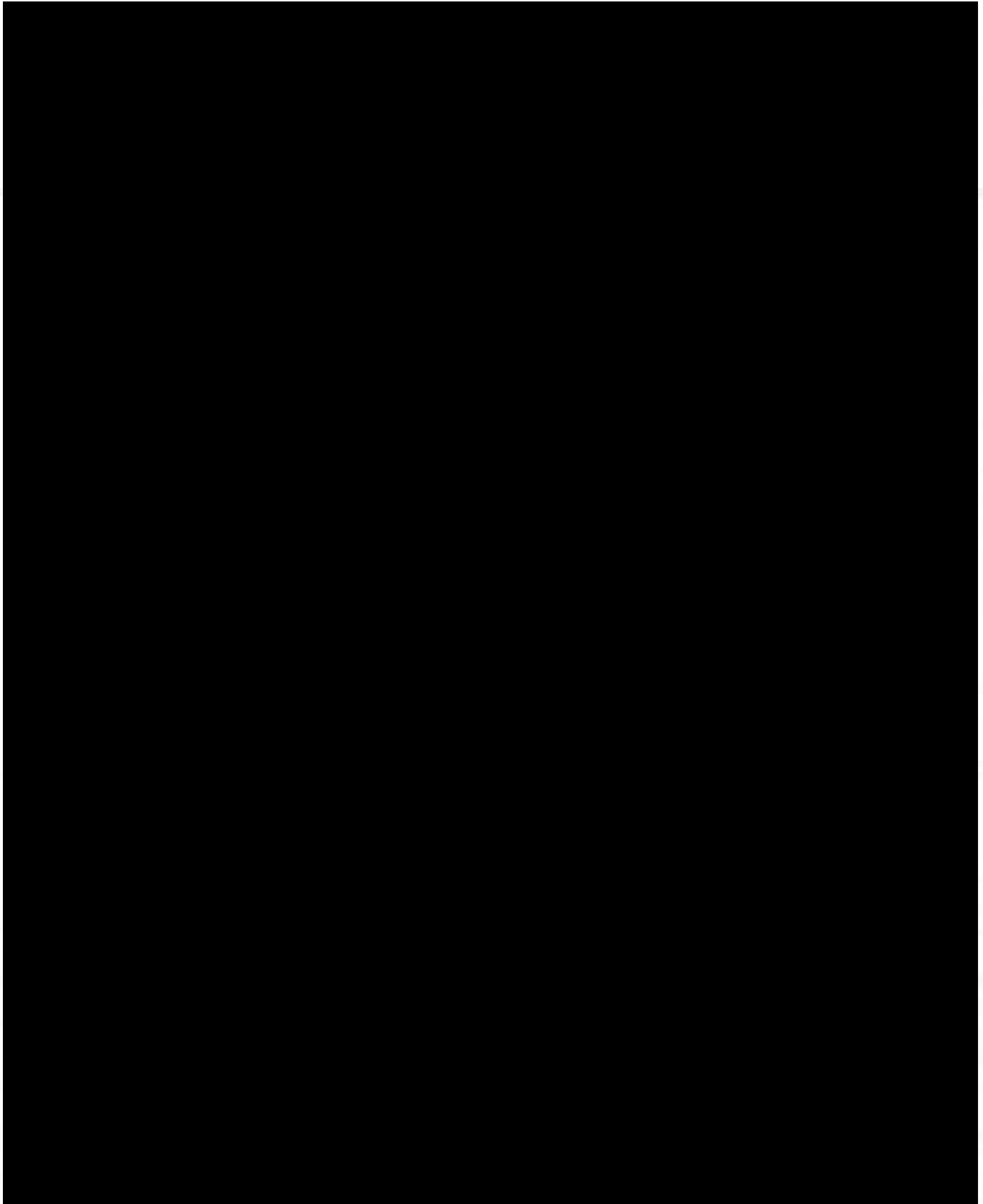
Short Form Sanction Paper

8 Other Appendices

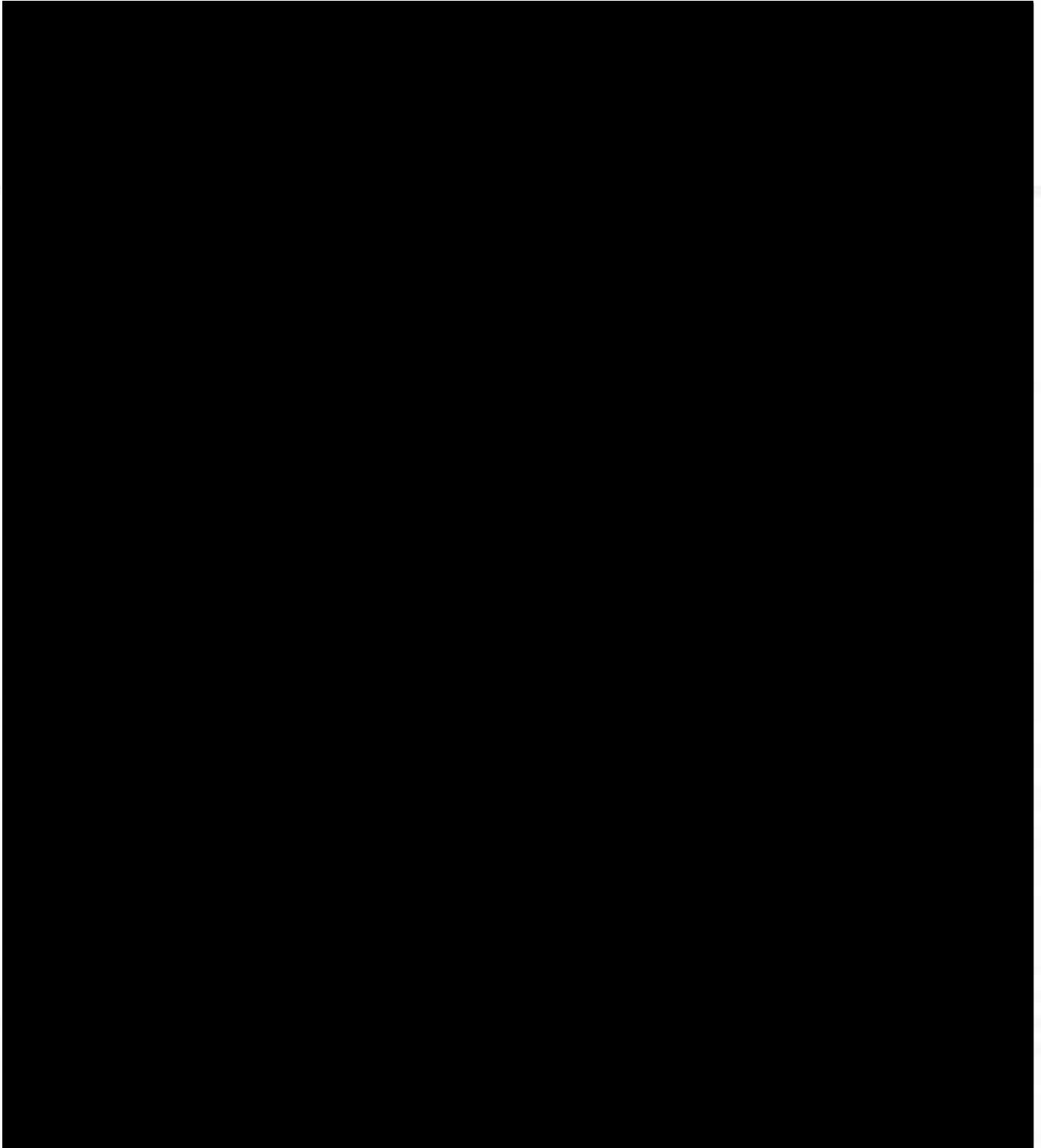
APPENDIX A

KENT COUNTY SUBSTATION FIGURES

Short Form Sanction Paper



Short Form Sanction Paper



Short Form Sanction Paper

APPENDIX B

**22F6 DISTRIBUTION LINE WORK
& HUNT RIVER SUBSTATION RETIREMENT FIGURES**

Short Form Sanction Paper

KENT COUNTY NEW 22F6 FEEDER SCOPE OF WORK (D-Line)

From the new 22F6 breaker position to MH2945 install 3-1/C 1000 CU EPR CN 15kV Cable (~1000Ft). Intercept existing 22F4 cable at MH 2945 going to riser pole P68 Coweset Rd and utilized it as the new 22F6 feeder.

Reconfigure 22F4, 61F2 & 40F1 feeders as shown on the one-lines. Relocate Pole Top Recloser from P57 Love Lane to P41 Division St.

Retire Hunt River substation and remove all substation equipment.

FY2020 ISR: DIV 1-2 Attachment 1 Page 25 of 62

Short Form Sanction Paper

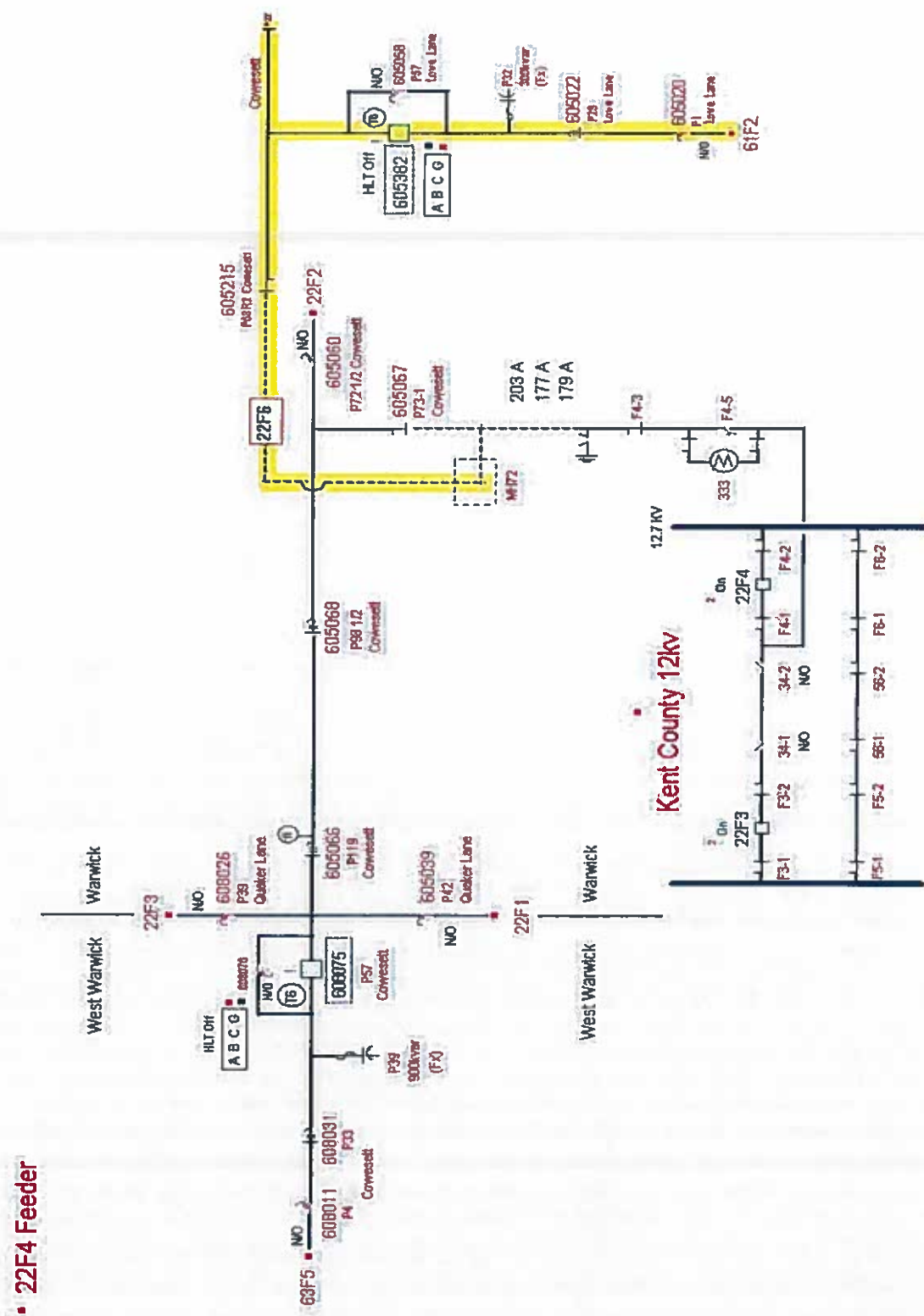
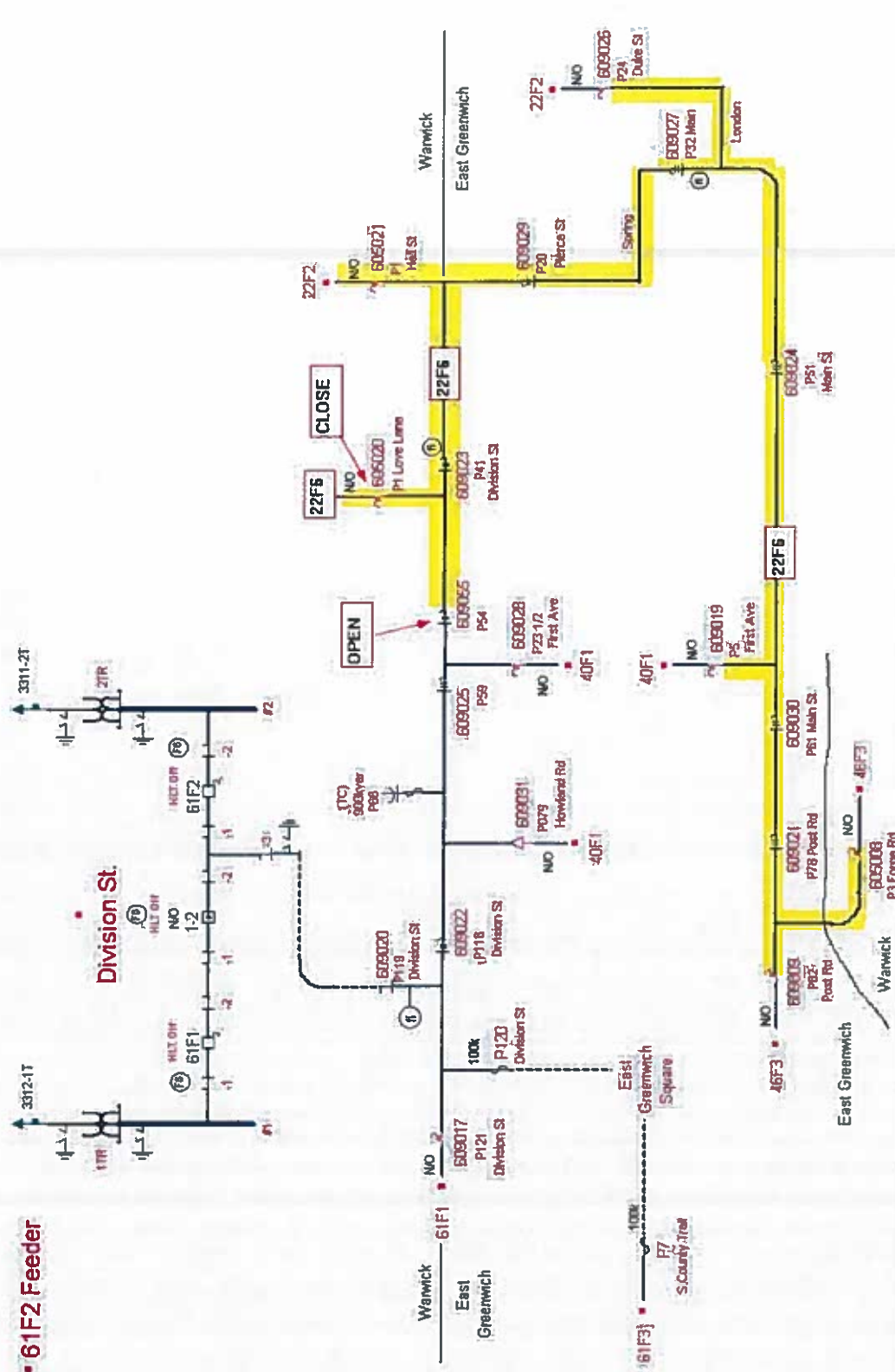


FIGURE B2 – 22F4 FEEDER TRANSFER TO 22F6

Short Form Sanction Paper



Short Form Sanction Paper

nationalgrid

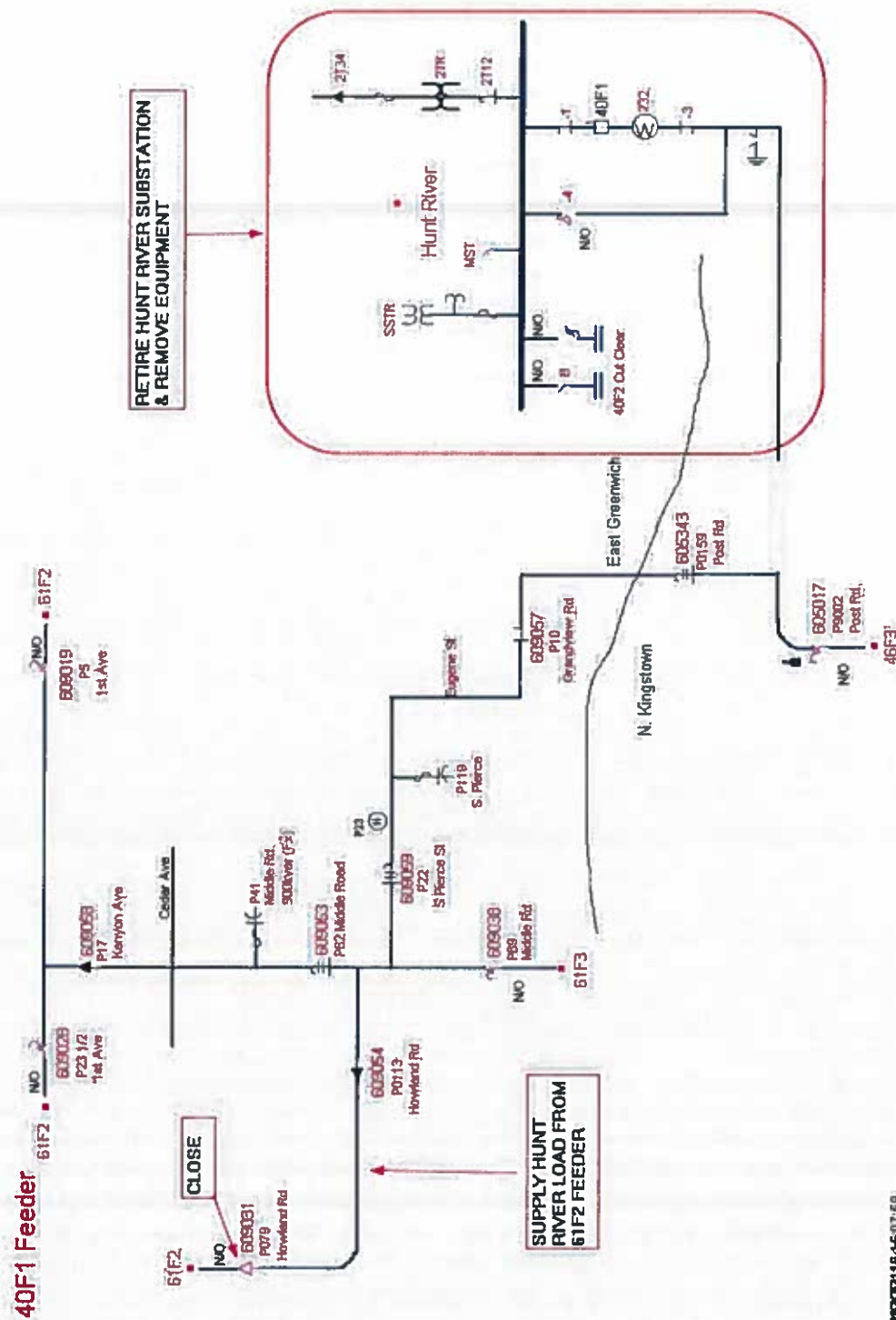


FIGURE B4 – 40F1 FEEDER TRANSFER TO 61F2 & HUNT RIVER RETIREMENT

Short Form Sanction Paper

nationalgrid

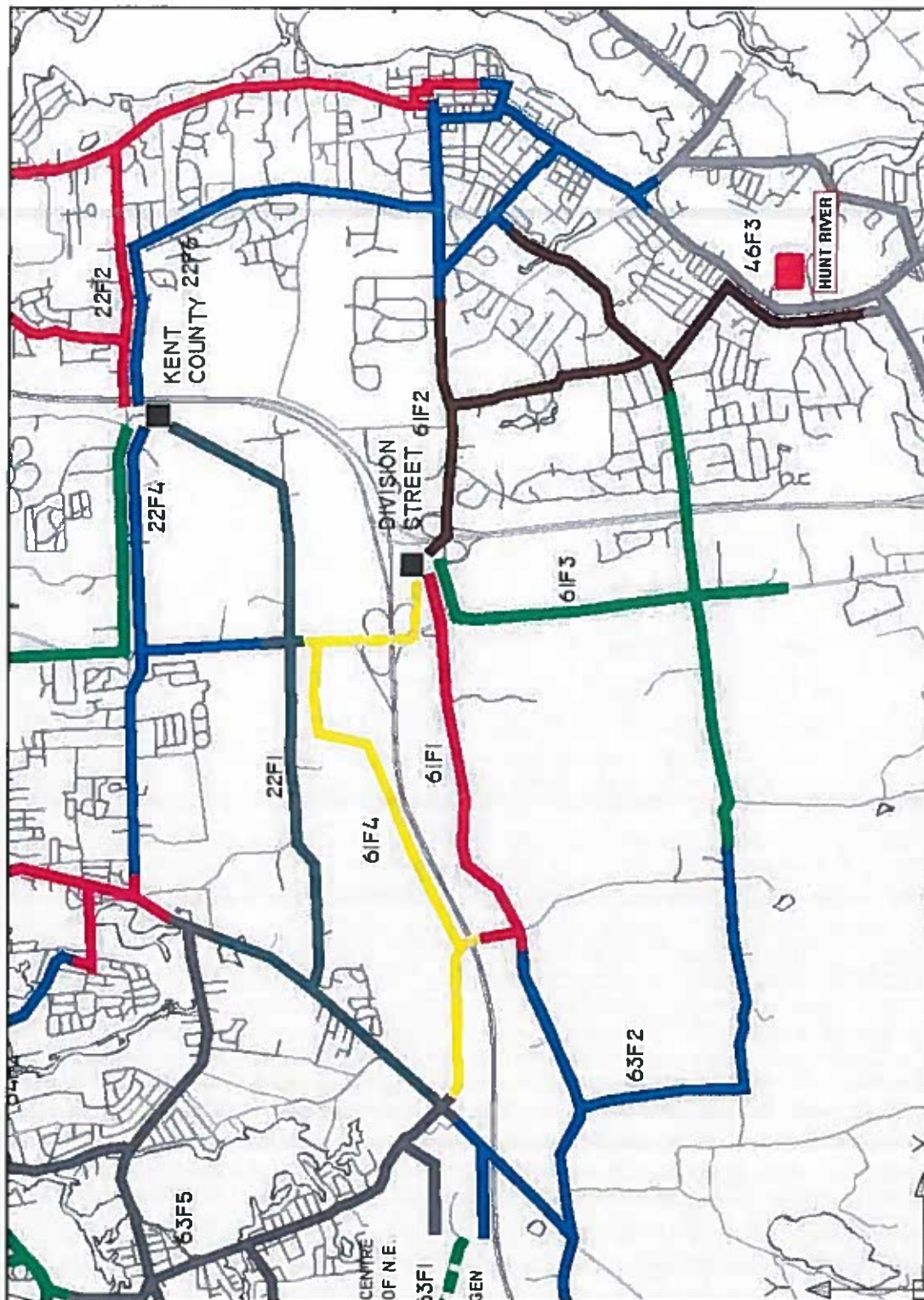


FIGURE B5 – PROPOSED MAINLINE

Short Form Sanction Paper

nationalgrid



FIGURE B6 – HUNT RIVER SUBSTATION

Short Form Sanction Paper

nationalgrid

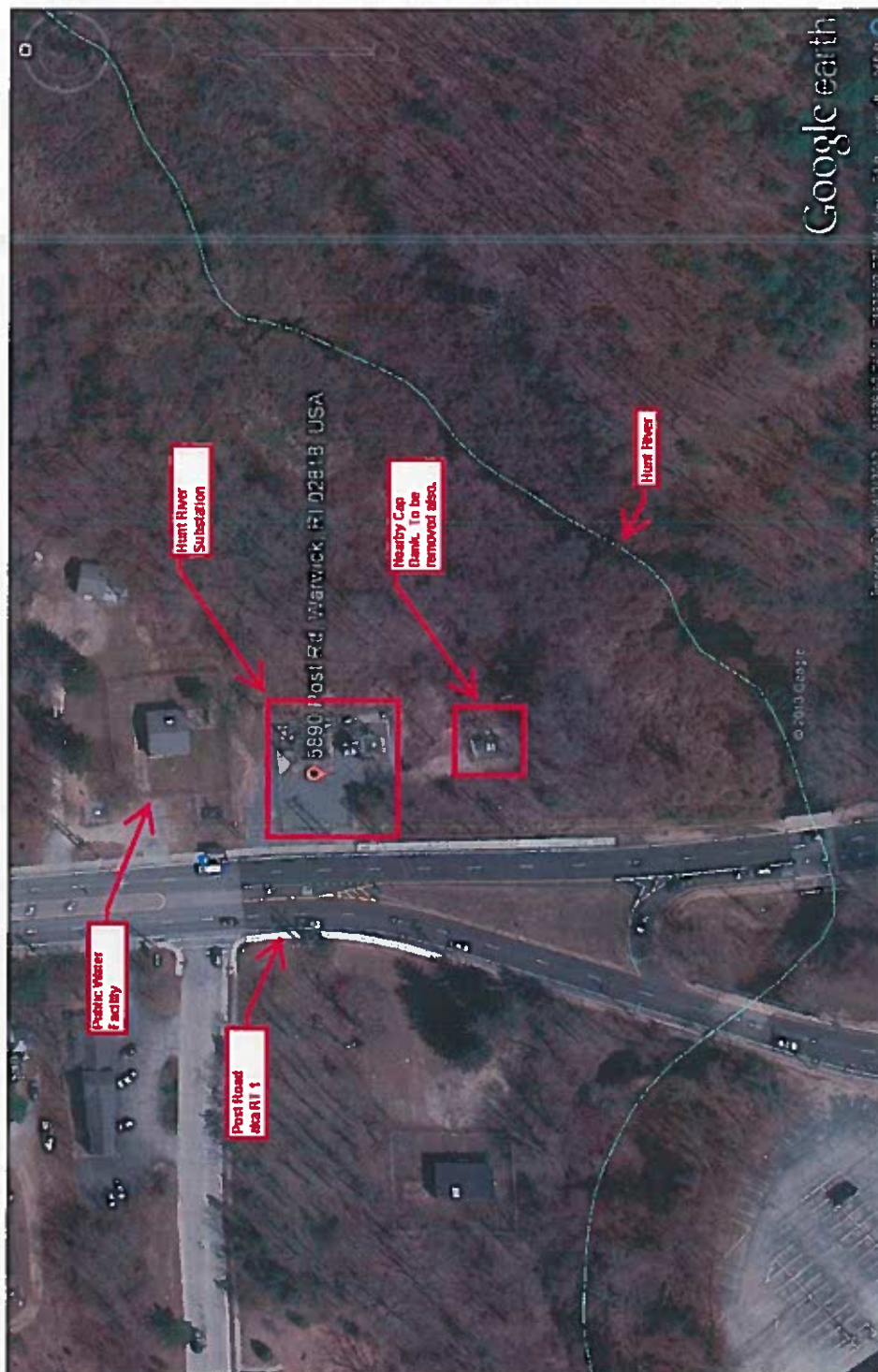


FIGURE B7 – HUNT RIVER SUBSTATION AERIAL

Short Form Sanction Paper

8.1 Sanction Request Breakdown by Project – N/A

Short Form Sanction Paper

Title:	RIAC TF Green Runway Expansion	Sanction Paper #:	USSC-15-147
Project #:	C056850	Sanction Type:	Sanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	July 7, 2015
Author:	Kathleen Hurley	Sponsor:	John Gavin, Vice President Asset Management
Utility Service:	Electricity T&D	Project Manager:	Kathleen Hurley

1 Executive Summary

1.1 Sanctioning Summary

This paper requests a sanction of C056850 in the amount \$1.728M with a tolerance of +/- 10% for the purposes of Engineering Activities, Purchasing Material and Construction.

This sanction amount is \$ 1.728M broken down into:

\$1.052M Capex

\$0.236M Opex

\$0.440M Removal

With a CIAC/Reimbursement of \$1.728M.

1.2 Project Summary

This project is being implemented to accommodate extension of the TF Green Airport Runway located in Warwick, RI.

Construction under this project has been broken into two components. Phase One calls for temporarily relocating poles across Main Avenue, in preparation for the relocation of Main Ave. Phase Two calls for the installation of UG Primary Cable on the 2222 and the 3F1 Feeders and the removal of the existing overhead infrastructure on the existing Main Avenue.

Short Form Sanction Paper

The customer, Rhode Island Airport Corp. (RIAC) will be responsible for installing the manholes, riser poles and conduit system.

2 Project Detail

2.1 Background

RIAC was formed on December 9, 1992 and continues to operate and maintain the state's airport system. RIAC is responsible for the design, construction, operation, and maintenance of the six state-owned airports including T. F. Green Airport.

The T. F. Green Airport Improvement Program is the result of a detailed study by the airport to enhance the safety areas around Runway 16-34 and to lengthen the primary Runway 5-23 to a total of 8,700 feet. The Federal Aviation Administration (FAA) conducted an Environmental Impact Statement (EIS) and issued a Record of Decision (ROD) allowing for the airport to implement the T. F. Green Airport Improvement Program (AIP), which consists of safety and efficiency projects.

The lengthening of Runway 5-23 falls into the category of an efficiency project. The length of Runway 5-23 is inadequate to accommodate coast to coast and international flights. Lengthening of the runway will further enhance the efficiency of the New England Regional Airport System since studies have concluded that a runway length of 8,700 feet will meet long term business needs. Program work began in July 2013 and will continue through December 2017.

Extension of runway 5-23 requires the relocation of a portion of Main Avenue in the area between Warwick Industrial Drive and just west of Greeley Avenue. Relocation of Main Avenue includes design of the roadway elements such as paving, drainage, relocation of utilities, traffic signals, property acquisition, and removal of the existing road. Roadway construction is expected to begin in July 2015 and take approximately one year to complete.

2.2 Drivers

This project is being implemented to accommodate the extension of the TF Green Airport Runway located in Warwick, RI.

2.3 Project Description

The project will be constructed in two phases.

Short Form Sanction Paper

Phase One: Temporarily Re-Locate Poles

Phase One is to temporarily relocate the existing assets on Main Avenue to maintain service to the existing overhead load, while the customer constructs a new relocated Main Avenue. This phase will require the relocation of at least 11 poles, the installation of a new secondary pole, the replacement of 10 poles, the replacement and the installation of 19 anchors and the installation of two transformers.

Phase Two

Phase Two of the project will take place after the customer (RIAC) has completed the relocation of Main Avenue and will be completed in two phases. Phase 2A is dedicated to the Underground Work and Phase 2B is dedicated the Overhead Work.

The customer (RIAC) will be responsible for installing the manholes, riser poles and installing conduit system.

Phase 2A

This phase entails the installation of approximately 5000 circuit feet of UG Primary Cable for the 2222 Feeder and for the 3F1 Feeder and associated equipment.

Phase 2B

Phase 2B of the project entails the removal of approximately 3200' of the Primary and Secondary wire on the 3F1 Feeder and the 2222 Feeder positions and the replacement of nine (9) wood poles, the installation of one (1) new pole and the removal of thirty-two (32) poles and the installation of two transformers.

2.4 Benefits

This project will accommodate and meet the T.F. Green Airport Improvement Program construction schedule.

2.5 Business & Customer Issues

There are no significant business issues beyond what has been described elsewhere.

2.6 Alternatives

Alternative 1: Replacement of existing overhead distribution facilities with proposed overhead distribution facilities.

Given the RIAC T. F. Green Runway 5-23 expansion limits of construction, and FAA allowable pole height plan, an overhead re-location project is not feasible.

Short Form Sanction Paper

Alternative 2: Leave as is

"Leave as is" is not a viable alternative given that RIAC has requested National Grid re-locate existing overhead distribution facilities on Main Avenue to accommodate the T. F. Green Runway 5-23 expansion project.

2.7 Investment Recovery

Investment recovery will be through standard rate recovery mechanisms approved by appropriate regulatory agencies.

2.7.1 Customer Impact

This project is subject to a contribution in aid of construction (CIAC) and will have no rate impact on customers.

3 Related Projects, Scoring, Budgets

3.1 Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
C056850	D-Line	RIAC TF Green Runway Expansion	1.728
Total			1.728

3.2 Associated Projects –N/A

Project Number	Kilvert St - New Feeders	Estimate Amount (\$M)
C036516	Kilvert St - New Feeders	3.830
Total		3.830

Prior Sanctioning History

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Paper Title	Sanction Type	Tolerance
09/15/2014	PowerPlan	\$200,000	N/A	RIAC TF Green	Partial	N/A

Short Form Sanction Paper

				Runway Expansion		
08/14/2014	PowerPlan	\$ 15,000	N/A	RIAC TF Green Runway Expansion	Partial	N/A

3.3 Category

Category	Reference to Mandate, Policy, NPV, or Other
<input checked="" type="radio"/> Mandatory <input type="radio"/> Policy- Driven <input type="radio"/> Justified NPV <input type="radio"/> Other	<p>Project C056850 is customer requested and is being implemented to accommodate extension of the TF Green Airport Runway. All costs shall be borne by the customer. A CIAC shall be applied against this project.</p>

3.4 Asset Management Risk Score

Asset Management Risk Score: 49

Primary Risk Score Driver: (Policy Driven Projects Only)

☐ Reliability
 ☐ Environment
 ☐ Health & Safety
 ☒ Not Policy Driven

Short Form Sanction Paper

3.5 Complexity Level

☐ High Complexity ☒ Medium Complexity ☐ Low Complexity ☐ N/A

Complexity Score: 23

3.6 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
April 2017	Project Closure

4 Financial

4.1 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
FY16-FY20 New England Distribution and Sub-T Business Plan	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	\$1.728M

4.1.1 If cost > approved Business Plan how will this be funded?

Re-allocation of funds within the portfolio will be managed by Resource Planning to meet jurisdictional budgetary, statutory and regulatory requirements.

4.2 CIAC / Reimbursement

\$M	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
CIAC/Reimbursement	(0.323)	(1.405)	0.000	0.000	0.000	0.000	0.000	(1.728)



Short Form Sanction Paper

4.3 Cost Summary Table

					Current Planning Horizon (\$M)						
Project Number	Project Title	Project Estimate Level (%)	Spend	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
					2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	
C056850	RAIC TF Green Runway Expansion	Est Lvl (e.g. +/- 10%)	CapEx	0.016	0.248	0.768	0.020	-	-	-	1.052
			OpEx	-	0.057	0.179	-	-	-	-	0.236
			Removal	-	0.107	0.333	-	-	-	-	0.440
			Total	0.016	0.412	1.280	0.020	-	-	-	1.728
Total Project Sanction			CapEx	0.016	0.248	0.768	0.020	-	-	-	1.052
			OpEx	-	0.057	0.179	-	-	-	-	0.236
			Removal	-	0.107	0.333	-	-	-	-	0.440
			Total	0.016	0.412	1.280	0.020	-	-	-	1.728

4.4 Project Budget Summary Table

Project Costs Per Business Plan

\$M	Prior Yrs (Actual)	Current Planning Horizon (\$M)						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
CapEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OpEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Variance (Business Plan-Project Estimate)

\$M	Prior Yrs (Actual)	Current Planning Horizon (\$M)						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
CapEx	(0.016)	(0.248)	(0.768)	(0.020)	0.000	0.000	0.000	(1.052)
OpEx	0.000	(0.057)	(0.179)	0.000	0.000	0.000	0.000	(0.236)
Removal	0.000	(0.107)	(0.333)	0.000	0.000	0.000	0.000	(0.440)
Total Cost in Bus. Plan	(0.016)	(0.412)	(1.280)	(0.020)	0.000	0.000	0.000	(1.728)

5 Key Milestones

Milestone	Target Date: (Month/Year)
Preliminary Engineering	October 2014
EDC Complete	June 2015
Project Sanction	July 2015
Construction Start –Phase 1	July 2015
Construction Start – Phase 2	April 2016
Ready For Load	December 2016
Construction Complete	December 2016
Project Closure	April 2017

Short Form Sanction Paper

6 Statements of Support

6.1.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Role	Individual	Responsibilities
<i>Investment Planner</i>	Park, Michelle	Endorses relative to 5-year business plan or emergent work
<i>Resource Planning</i>	Wyman, Anne	Endorses construction resources, cost estimate, schedule, and portfolio alignment
Asset Management / Planning	Labarre, Alan T.	Endorses scope, estimate, and schedule with the company's goals, strategies, and objectives
Engineering and Design	Browne, Mark	Endorses scope, design, conformance with design standards
Project Management	Schneller, Andrew	Endorses resources, cost estimate, schedule

6.1.2 Reviewers

The reviewers have provided feedback on the content/language of the paper.

Reviewer List	Individual
Finance	Fowler, Keith
	Horowitz, Philip
Regulatory	Zschokke, Peter
Jurisdictional Delegate(s)	Patterson, Jim
Procurement	Curran, Art
Control Centers (CC)	Michael Gallagher

6.1.3 List References- N/A

Short Form Sanction Paper

7 Decisions

I:

- (a) APPROVE this paper and the investment of \$1.728M and a tolerance of +/- 10%
- (b) NOTE that Kathleen Hurley is the Project Manager and has the approved financial delegation.

Signature Ross W. Turrini Date 7/8/2019
Executive Sponsor – Ross Turrini, Acting Senior Vice President, Network
Strategy

Phase 2: One-Line Diagram





Resanction Request

Title:	Hyde Ave MC Retirement (D-Line)	Sanction Paper #:	USSC-16-147V2
Project #:	C050006, C051271	Sanction Type:	Resanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	October 31, 2017
Author:	Sean McGovern	Sponsor:	Carol Sedewitz, VP Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	Sean McGovern

1 Executive Summary

This paper requests the resanction of **C05006 & C051271** in the amount **\$3.169M** with a tolerance of +/- 10% for the purposes of **Full implementation**.

This sanction amount is \$3.169M broken down into:

\$2.203M Capex

\$0.347M Opex

\$0.619M Removal

Note the originally requested sanction amount of \$2.544M

2 Resanction Details

2.1 Project Summary

Hyde Avenue substation is a 13.8/4.16kV station with a single 5.25 MVA transformer supplying two feeders. It was built in 1959 and supplies distribution load in the City of Pawtucket. It serves approximately 1,745 customers with 2.90MW of load. This station is one of eleven 13.8/4.16kV substations in the Pawtucket area. These stations are primarily single metal-clad switchgear modules supplied by a single LTC transformer. They are all supplied from 13.8kV distribution circuits.

It is difficult to take stations of this type out of service for routine maintenance due to the single transformer nature of the design. The loads on the 4.16kV distribution stations are backed up through the use of feeder ties from adjacent stations. The existing feeder tie capacity is not always sufficient to offload a station to facilitate maintenance. In addition, there is no metering in these stations to accurately determine feeder or station loading making operating these stations even more difficult.



Resanction Request

The 1950's vintage metal-clad switchgear at Hyde Avenue substation has been identified for replacement in accordance with the Metal-clad Switchgear Strategy. The bus insulation in this switchgear is prone to failure, the gaskets are at the end-of-life and there are signs of moisture ingress and rust on the flooring. The flooring is warped making it difficult to rack the breakers in and out. The low side of the transformer is connected via enclosed bus, known as throat connected, and this is difficult to spare in case of an inadvertent failure.

The recommended plan to address the concerns at Hyde Avenue is to retire the station. The station load will be supplied from the existing area 13.8kV distribution system through conversions and the use of pole mounted step-down transformers. This is the most economical approach for this area and in-line with the long term plan for this area to continue to expand the 13.8kV distribution system.

2.2 Summary of Projects

Project Number	Project Type (Elect only)	Project Title	Estimate Amount (\$M)
C050006	D-Line	Hyde Ave MC Retirement (D-Line)	3.019
C051271	D-Line	Hyde Ave MC Retirement (D-Sub)	0.150
Total			3.169

2.3 Prior Sanctioning History

Previously approved sanctions are attached and listed below (Newest to Oldest).

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Paper Title	Sanction Type	Paper Reference Number	Tolerance
3/22/16	USSC	\$2.544M	\$2.544M	Hyde Avenue MC Retirement	Resanction	USSC-16-147	±10%
6/13/13	Powerplant DOA (<1M)	\$0.960M	\$0.960M	Hyde Ave MC Retirement	Full	N/A	±10%



Resanction Request

Over / Under Expenditure Analysis

Summary Analysis (\$M)	Capex	Opex	Removal	Total
Resanction Amount	2.203	0.347	0.619	3.169
Latest Approval	1.672	0.348	0.524	2.544
Change*	0.531	-0.001	0.095	0.625

*Change = (Re-sanction – Amount Latest Approval)

2.4 Cost Summary Table

Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Current Planning Horizon						Total
					Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6 +	
					2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	
C05C006	Hyde Ave 110 Retirement (C-Line)	++ 10%	CapEx	1.614	0.354	0.000	0.300	0.000	0.000	0.000	2.268
			OpEx	0.347	0.000	0.000	0.300	0.000	0.000	0.000	0.647
			Removal	0.435	0.045	0.000	0.300	0.000	0.000	0.000	0.780
			Total	2.403	0.399	0.000	0.600	0.000	0.000	0.000	3.047
C05C071	Hyde Ave 110 Retirement (C-Side)	++ 10%	CapEx	0.000	0.000	0.000	0.300	0.000	0.000	0.000	0.300
			OpEx	0.000	0.000	0.000	0.300	0.000	0.000	0.000	0.600
			Removal	0.000	0.145	0.000	0.300	0.000	0.000	0.000	0.445
			Total	0.000	0.145	0.000	0.600	0.000	0.000	0.000	0.745
Total Project Sanction			CapEx	1.614	0.354	0.000	0.600	0.000	0.000	0.000	2.968
			OpEx	0.347	0.000	0.000	0.600	0.000	0.000	0.000	0.947
			Removal	0.435	0.189	0.000	0.600	0.000	0.000	0.000	1.224
			Total	2.403	0.543	0.000	1.200	0.000	0.000	0.000	3.647

2.5 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
FY18-22 NE Distribution & Transmission Capital Plan	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> N/A	\$0.546M

Resanction Request

2.6 Drivers

2.6.1 Detailed Analysis Table

The following table indicates the major key variations that account for the difference between the original sanction amount and the requested resanction amount.

Detail Analysis (M's)	Over/Under Expenditure?	Amount
Labor	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0.419M
Transportation	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0.137M
Tree Services	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0.069M

2.6.2 Explanation of Key Variations

The primary driver was increased labor cost. Field conditions proved more challenging than expected. Many more poles needed to be replaced than expected and significant vertical construction needed to be flattened. One customer could not be converted as designed due to poor asset condition of their equipment resulting in a more costly option. The increased labor time resulted in a significant increase in associated transportation costs.

The as-builts required by the unexpected field conditions drove a need for unexpected additional tree services. Removal of poles and altering overhead wire construction required additional clearance to allow crews to work safely and ensure reliability against future outages.

2.7 If cost > approved Business Plan how will this be funded?

Re-allocation of funds within the portfolio has been managed by Resource Planning to meet jurisdictional budgetary, statutory and regulatory requirements.



Resanction Request

2.8 Key Milestones

Milestone	Target Date: (Month/Year)
Construction start	2/2015
Construction complete	3/2017
Sanction	6/2013
Resanction	3/2016
Resanction	10/2017
Closure Paper	3/2018

2.9 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
3/18	Closure

3 Statements of Support

3.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Role	Individual	Responsibilities
Investment Planning	Glen DiConza	New England Distribution Electric Investment Planner
Resource Planning	Dan Marceau	Endorses Resources, cost estimate, schedule, and Portfolio Alignment
Asset Management	Ryan Constable	Endorses scope, design, conformance with design standards

3.2 Reviewers

The reviewers have provided feedback on the content/language of the paper

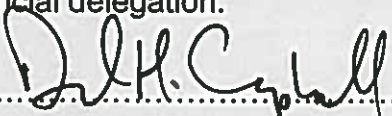
Function	Individual
Finance	Mark Collison
Regulatory	Renee Gurry
Jurisdictional Delegate	Sonny Anand
Procurement	Steve DeRosa

Resanction Request

4 Decisions

I:

- (a) APPROVE this paper and the investment of \$3.169M and a tolerance of +/- 10%
- (b) NOTE that Sean McGovern is the Project Manager and has the approved financial delegation.

Signature..........Date...11/7/17.....

David H. Campbell, Vice President ServCo Business Partnering, USSC



Resanction Request

5 Appendices

N/A

Resanction Request

Title:	Daggett Ave Metal Clad Retirement	Sanction Paper #:	USSC-16-148v2
Project #:	C050017, C051274	Sanction Type:	Resanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	5/30/17
Author:	Heather Moran	Sponsor:	Carol Sedewitz, Vice President, Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	Heather Moran

1 Executive Summary

This paper requests the resanction of C050017 and C051274 in the amount \$3.150M with a tolerance of +/-10% for the purposes of final construction and project close out.

This sanction amount is \$3.150M broken down into:

\$1.807M Capex

\$0.345M Opex

\$0.998M Removal

Note the originally requested sanction amount of \$2.185M.

2 Resanction Details

2.1 Project Summary

Daggett Avenue substation is a 13.8/4.16kV station with a single 3.1 MVA transformer supplying two feeders. It was built in 1950's and supplies distribution load in the City of Pawtucket. It serves approximately 1,300 customers with 2.60MW of load. This station is one of eleven 13.8/4.16kV substations in the Pawtucket area. These stations are primarily single metal-clad switchgear modules supplied by a single LTC transformer. They are all supplied from 13.8kV distribution circuits.

The 1950's vintage metal-clad switchgear at Daggett Avenue substation has been identified for replacement in accordance with the Metal-clad Switchgear Strategy. The bus insulation in this switchgear is prone to failure, the gaskets are at the end-of-life and there are signs of moisture ingress and rust on the flooring. The flooring is warped making it difficult to rack the breakers in and out. The low side of the transformer is connected via enclosed bus, known as throat connected, and this is difficult to spare in case of an inadvertent failure.

Resanction Request

The recommended plan to address the concerns at Daggett Avenue is to retire the station. The station load will be supplied from the existing area 13.8kV distribution system through conversions and the use of pole mounted step-down transformers. The scope of work consists of converting a portion of the 113J1 feeder to the 107W61, then supplying the rest of the load from the Lee St Sub, 30J3 circuit, also converting the 113J2 circuit to the 107W61 feeder. This work consisted of reconductoring roughly 5800 feet of mainline and side tap conductor and upgrading associated transformers and equipment for the new 13.8kV feeder.

2.2 Summary of Projects

Project Number	Project Type (Elect only)	Project Title	Estimate Amount (\$M)
C051274	D-Sub	Daggett Ave Metal Clad Retirement (Dsub)	0.105
C050017	D-Line	Daggett Ave Metal Clad Retirement (Dline)	2.450
Total			2.555

2.3 Prior Sanctioning History

Previously approved sanctions are attached and listed below (Newest to Oldest).

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Paper Title	Sanction Type	Paper Reference Number	Tolerance
3/22/16	USSC <\$8M	\$2.185M	\$2.185M	Daggett Ave MC Retirement	Re - sanction	USSC-16-148	+/-10%
6/13/13	PowerPlant DOA <\$1M	\$0.935M	\$0.935M	N/A	Sanction	N/A	+/-10%

Over / Under Expenditure Analysis

Summary Analysis (\$M)	Capex	Opex	Removal	Total
Resanction Amount	1.807	0.345	0.403	3.150
Latest Approval	1.791	0.193	0.201	2.185
Change*	0.016	0.152	0.202	0.370

*Change = (Re-sanction – Amount Latest Approval)

Resanction Request

2.4 Cost Summary Table

Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Current Planning Horizon						Total
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
C051274	Daggett Ave Metal Clad Retirement (Dsub)	+/- 10%	CapEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			OpEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
			Removal	0.000	0.105	0.000	0.000	0.000	0.000	0.105	
			Total	0.000	0.105	0.000	0.000	0.000	0.000	0.105	
C050017	Daggett Ave Metal Clad Retirement (Dline)	+/- 10%	CapEx	1.775	0.032	0.000	0.000	0.000	0.000	0.000	1.807
			OpEx	0.342	0.003	0.000	0.000	0.000	0.000	0.000	0.345
			Removal	0.297	0.001	0.000	0.000	0.000	0.000	0.000	0.298
			Total	2.414	0.036	0.000	0.000	0.000	0.000	0.000	2.450
Total Project Sanction			CapEx	1.775	0.032	0.000	0.000	0.000	0.000	0.000	1.807
			OpEx	0.342	0.003	0.000	0.000	0.000	0.000	0.000	0.345
			Removal	0.297	0.106	0.000	0.000	0.000	0.000	0.000	0.403
			Total	2.414	0.141	0.000	0.000	0.000	0.000	0.000	2.555

2.5 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
FY18-22 NE Distribution Budget	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> N/A	\$0.041M

2.6 Drivers

2.6.1 Detailed Analysis Table

The following table indicates the major key variations that account for the difference between the original sanction amount and the requested resanction amount.

Detail Analysis	Over/Under Expenditure?	Amount (M's)
Labor	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	0.370M

2.6.2 Explanation of Key Variations

In order to deliver the retirement of the circuit in time for the target end of the FY17 fiscal year, more crews were added to the project based on availability. Also, due to the large area that was to be converted, several conversion outages were needed and all were performed on nights and weekends to accommodate the customer base in each area resulting in higher costs than estimated.

Resanction Request

2.7 If cost > approved Business Plan how will this be funded?

Re-allocation of funds within the portfolio has been managed by Resource Planning to meet jurisdictional budgetary, statutory, and regulatory requirements.

2.8 Key Milestones

Milestone	Target Date: (Month/Year)
Construction Start	February 2016
Project Resanction	March 2016
Project Resanction	May 2017
Construction Complete	November 2017
Closure Paper	February 2018

2.9 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
February 2018	Closure Paper

3 Statements of Support

3.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Department	Individual	Responsibilities
Investment Planning	Glen DiConza	Endorses relative to distribution 5-year plan or emergent work
Resource Planning	Anne Wyman/ Mark Phillips	Endorses Resources, cost estimate, schedule, and Portfolio Alignment
Distribution Asset Management	Alan LaBarre	Endorses scope, design, conformance with design standards

3.2 Reviewers

The reviewers have provided feedback on the content/language of the paper

Function	Individual
Finance	Collison, Mark
Regulatory	Zschokke, Peter
Jurisdictional Delegates	Anand, Sonny
Procurement	Curran, Art
Control Center	Gallagher, Mike

Resanction Request

4 Decisions

I:

- (a) APPROVE this paper and the investment of \$3.150M and a tolerance of +/-10%
- (b) NOTE that Heather Moran is the Project Manager and has the approved financial delegation.

Signature..........Date..........

Executive Sponsor – Christopher Kelly,
Senior Vice President, Electric Process and Engineering



Resanction Request

Title:	Southeast Sub MC Retirement (Dline)	Sanction Paper #:	USSC-16-157V2
Project #:	C049910, C051272	Sanction Type:	Resanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	10-31-17
Author:	Sean McGovern	Sponsor:	Carol Sedewitz, VP Electric Asset Management
Utility Service:	Electricity T&D	Project Manager:	Sean McGovern

1 Executive Summary

This paper requests the resanction of **C049910** and **C051272** in the amount **\$1.634M** with a tolerance of +/- 10% for the purposes of **Full implementation**.

This sanction amount is \$1.634M broken down into:

\$0.996M Capex

\$0.235M Opex

\$0.403M Removal

Note the originally requested sanction amount of \$1.420M

2 Resanction Details

2.1 Project Summary

Southeast substation is a 13.8/4.16kV station with a single 7 MVA transformer supplying three feeders. It was built in the 1950's and supplies distribution load in the City of Pawtucket. It serves approximately 780 customers with 2.74MW of load. This station is one of eleven 13.8/4.16kV substations in the Pawtucket area. These stations are primarily single metal-clad switchgear modules supplied by a single LTC transformer. They are all supplied from 13.8kV distribution circuits.

It is difficult to take stations of this type out of service for routine maintenance due to the single transformer nature of the design. The loads on the 4.16kV distribution stations are backed up through the use of feeder ties from adjacent stations. The existing feeder tie capacity is not always sufficient to offload a station to facilitate maintenance. In addition, there is no metering in these stations to accurately determine feeder or station loading making operating these stations even more difficult.

The 1950's vintage metal-clad switchgear at Southeast substation has been identified for replacement in accordance with the Metal-clad Switchgear Strategy. The bus insulation in this switchgear is prone to failure, the gaskets are at the end-of-life and there are signs of

Resanction Request

moisture ingress and rust on the flooring. The flooring is warped making it difficult to rack the breakers in and out. The low side of the transformer is connected via enclosed bus, known as throat connected, and this is difficult to spare in case of an inadvertent failure.

The recommended plan to address the concerns at Southeast is to retire the station. The station load will be supplied from the existing area 13.8kV distribution system thru conversions and the use of pole mounted step-down transformers. This is the most economical approach for this area and in-line with the long term plan for this area to continue to expand the 13.8kV distribution system.

2.2 Summary of Projects

Project Number	Project Type (Elect only)	Project Title	Estimate Amount (\$M)
C049910	D-Line	Southeast Sub MC Retirement (Dline)	1.534
C051272	D-Line	Southeast 60 Metalclad - Sub Retirement	0.100
Total			1.634

2.3 Prior Sanctioning History

Previously approved sanctions are attached and listed below (Newest to Oldest).

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Paper Title	Sanction Type	Paper Reference Number	Tolerance
3/29/2016	USSC	\$1.420M	\$1.420M	Southeast Sub MC Retirement	Resanction	USSC-16-157	±10%
06/07/2013	Powerplant DOA (<1M)	\$0.808M	\$0.808M	Southeast Sub MC Retirement	Full	N/A	±10%



Resanction Request

Over / Under Expenditure Analysis

Summary Analysis (\$M)	Capex	Opex	Removal	Total
Resanction Amount	0.996	0.235	0.403	1.634
Latest Approval	1.070	0.120	0.230	1.420
Change*	-0.074	0.115	0.173	0.214

*Change = (Re-sanction – Amount Latest Approval)

2.4 Cost Summary Table

Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Current Planning Horizon						Total
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
					2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	
C049910	Southeast Sub MC Retirement (Dline)	Est Lvl (e.g. +/- 10%)	CapEx	0.784	0.197	0.000	0.000	0.000	0.000	0.000	0.981
			OpEx	0.227	0.008	0.000	0.000	0.000	0.000	0.235	
			Removal	0.303	0.015	0.000	0.000	0.000	0.000	0.318	
			Total	1.314	0.220	0.000	0.000	0.000	0.000	1.534	
C051272	Southeast 60 Metalclad - Sub Retirement	Est Lvl (e.g. +/- 10%)	CapEx	0.000	0.015	0.000	0.000	0.000	0.000	0.000	0.015
			OpEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
			Removal	0.000	0.085	0.000	0.000	0.000	0.000	0.085	
			Total	0.000	0.100	0.000	0.000	0.000	0.000	0.100	
Total Project Sanction			CapEx	0.784	0.212	0.000	0.000	0.000	0.000	0.996	
			OpEx	0.227	0.008	0.000	0.000	0.000	0.000	0.235	
			Removal	0.303	0.100	0.000	0.000	0.000	0.000	0.403	
			Total	1.314	0.320	0.000	0.000	0.000	0.000	1.634	

2.5 Business Plan

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)
FY18-22 NE Distribution & Transmission Capital Plan	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input checked="" type="radio"/> Under <input type="radio"/> N/A	\$0.407M

Resanction Request

2.6 Drivers

2.6.1 Detailed Analysis Table

The following table indicates the major key variations that account for the difference between the original sanction amount and the requested resanction amount.

Detail Analysis (M's)	Over/Under Expenditure?	Amount
Labor	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0.075M
Police	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0,073M
Transportation	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0.053M

2.6.2 Explanation of Key Variations

The primary driver for the overrun was labor costs. Many more poles were replaced than originally scoped. Additionally, the majority of the poles were in sidewalks requiring more time than typical pole replacement. The increased labor time resulted in an associated increase in transportation costs.

The work area for this project is a high-traffic zone resulting in higher than expected police protection costs.

2.7 If cost > approved Business Plan how will this be funded?

Re-allocation of funds within the portfolio has been managed by Resource Planning to meet jurisdictional budgetary, statutory and regulatory requirements.

2.8 Key Milestones

Milestone	Target Date: (Month/Year)
Construction start	4/2016
Construction complete	3/2017
Sanction	6/2013
Resanction	3/2016
Resanction	10/2017
Closure Paper	3/2018

Resanction Request

2.9 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
3/18	Closure

3 Statements of Support

3.1 Supporters

The supporters listed have aligned their part of the business to support the project.

Role	Individual	Responsibilities
Investment Planning	Glen DiConza	New England Distribution Electric Investment Planner
Resource Planning	Dan Marceau	Endorses Resources, cost estimate, schedule, and Portfolio Alignment
Asset Management	Ryan Constable	Endorses scope, design, conformance with design standards

3.2 Reviewers

The reviewers have provided feedback on the content/language of the paper


Function	Individual
Finance	Mark Collison
Regulatory	Renee Gurry
Jurisdictional Delegate	Sonny Anand
Procurement	Steve DeRosa

Resanction Request

4 Decisions

I:

- (a) APPROVE this paper and the investment of \$1.634M and a tolerance of +/-10 %
- (b) NOTE that Sean McGovern is the Project Manager and has the approved financial delegation.

Signature..........Date..11/7/17....

David H. Campbell, Vice President ServCo Business Partnering, USSC



Resanction Request

5 Appendices

N/A