

FY14

<u>Description</u>	<u>Approval</u>	<u>Closure</u>
Base Growth – Install Main	Page 1 of 193	Page 16 of 193
Base Growth – Install Services		
Base Growth – Fitting		
Base Growth – Sales Fullfillment		
Base Growth - Gas Expansion		
Base Growth – Meter Purchase/Operations	Page 23 of 193	Page 30 of 193
Purchase Meters Replacement		
Gas System Reinforcement	Page 36 of 193	Not Required
City State Construction - Non Reimbursable	Page 39 of 193	Page 46 of 193
City State Construction – Reimbursable		
I-195		
Corrosion	Page 53 of 193	Not Required
Leak Prone Pipe	Page 56 of 193	Page 67 of 193
Main Replacement – Maintenance	Page 74 of 193	Not Required
CI Joint Encapsulation	Page 77 of 193	Page 83 of 193
BS HP Leak Prone Service	Page 90 of 193	Page 96 of 193
Service Replacements – Leaks	Page 102 of 193	Page 108 of 193
Service Replacements –Non-Leaks/Other		
Gas Planning	Page 115 of 193	Page 122 of 193
Heater Program	Page 131 of 193	Not Required
I&R Reactive Program*	-	-
LNG	Page 134 of 193	Not Required
	Page 137 of 193	Not Required
Pressure Regulating Facilities	Page 140 of 193	Page 147 of 193
System Automation	Page 154 of 193	Page 160 of 193
Valve Installation/Replacement	Page 166 of 193	Not Required
Water Intrusion	Page 169 of 193	Not Required
	Page 172 of 193	Not Required
Control Line Integrity Program	Page 175 of 193	Not Required
Exeter Boil Off Compressor	Page 178 of 193	Page 185 of 193
Equipment & Tools	Page 191 of 193	Not Required

* Could not locate approval.

US Sanction Paper



Title:	FY14 Rhode Island Growth Capital Budget	Sanction Paper #:	USSC-13-137
Project #:	Various	Sanction Type:	Sanction
Operating Company:	Narragansett Electric Co	Date of Request:	03/27/2013
Author:	Peter Duggan	Sponsor:	Terry Sobolewski, VP Sales and Program Operations
Utility Service:	Gas	Project Manager:	Sean Mongan

1 Executive Summary

1.1 Sanctioning Summary:

This paper requests sanction of FY14 Rhode Island Growth Capital projects **CRCC102**, **CRCC104**, **CRCC110**, **CRSG109** in the amount of \$23.09M with a tolerance of +/- 10% for the purposes of installing mains, services and meters to serve projected customer growth in Rhode Island.

*This sanction amount is **\$23.10M** broken down into:*

\$23.10M Capex

With a CIAC/Reimbursement of \$5.33M

1.2 Brief Description:

This program involves the installation of new main, services and meters to serve projected customer growth in Rhode Island. The \$23.10M for FY14 will fund two parts of the growth program: (1) the installation of 1,998 services and 67,581 feet of main associated with new customers, including 24,600 of new gas main for a single customer, Daniele Foods Inc, 4,605 feet of growth driven re-enforcement and (2) the installation of 32,500 feet of main and 300 services as part of the \$3M RI Gas Expansion initiative approved as a pilot effort with the state to expand our gas infrastructure. The total capital including all of the above would fund the installation of 2,298 services and 97,276' of main.

The \$3M for the Pilot is included for recovery in the ISR. The pilot will call for the spending of \$4M with \$3M being reimbursed through the ISR. The additional \$1M will be funded through approximately \$130,000 in CIAC's and additional funds of approximately \$840,000 from the growth plan budget.



US Sanction Paper

1.3 Summary of Projects:

Project Number	Project Title	Estimate Amount
CRCC102	New Business Residential	\$ 10.66
CRCC104	New Business Commercial	\$ 7.49
CRCC110	Growth Reactive	\$ 0.55
CRSG109	Meter Work - CMS RI	\$ 0.09
0	RI ISR Growth Main Pilot	\$ 4.00
0	Marketing and Sales	\$ 0.30
0	CIAC's	-
Total		\$ 23.09

1.4 Associated Projects:

Project Number	Project Title	Estimate Amount
CRTC304	Naragansett Electric Co Meter Purchases	\$ 0.92
CRCC111	Naragansett Co Reinforcements	\$ 0.50
CCSN109	Meter Work - CMS - Northeast - Leaks	TBD
CCSS109	Meter Work - CMS - South & West - Leaks	TBD
Total		\$ 1.42

1.5 Prior Sanctioning History (including relevant approved Strategies):

Date	Governance Body	Sanctioned Amount	Paper Title	Sanction Type

1.6 Next Planned Sanction Review:

Date (Month/Year)	Purpose of Sanction Review
June 2014	Closure

1.7 Category:

Category	Reference to Mandate, Policy, or NPV Assumptions
X Mandatory	Regulatory agreements require National Grid to provide gas service and main. National Grid provides gas service using



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<input type="checkbox"/> Policy-Driven	consistent up charge processes with targeted IRR returns across the portfolio.
<input type="checkbox"/> Justified NPV	

1.8 Asset Management Risk Score

Asset Management Risk Score: 49

Primary Risk Score Driver: (Policy Driven Projects Only)

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

1.9 Complexity Level: (if applicable)

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

Complexity Score: 15

1.10 Process Hazard Assessment

A Process Hazard Assessment (PHA) is required for this project:

☐ Yes ☒ No

1.11 Business Plan:

Business Plan Name & Period	Project included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$)

US Sanction Paper

nationalgrid

RI Gas Capital Plan Budget 2014-2018	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input checked="" type="radio"/> Under	\$.18M
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1.12 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

1.13 Current Planning Horizon:

	Prior Yrs	Current Planning Horizon						Total
		Yr. 1 2012/13	Yr. 2 2013/14	Yr. 3 2014/15	Yr. 4 2015/16	Yr. 5 2016/17	Yr. 6+ 2017/18	
CapEx	\$ -	\$ 23.10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 23.10
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CIAC/Reimbursement	\$ -	\$ (5.33)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (5.33)
Total	\$ -	\$ 17.77	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 17.77

1.14 Resources:

Resource Sourcing			
Engineering & Design Resources to be provided	<input checked="" type="checkbox"/> Internal	<input type="checkbox"/> Contractor	
Construction/Implementation Resources to be provided	<input checked="" type="checkbox"/> Internal	<input type="checkbox"/> Contractor	
Resource Delivery			
Availability of internal resources to deliver project:	<input type="radio"/> Red	<input checked="" type="radio"/> Amber	<input type="radio"/> Green
Availability of external resources to deliver project:	<input type="radio"/> Red	<input checked="" type="radio"/> Amber	<input type="radio"/> Green
Operational Impact			
Outage impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Procurement impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green

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1.15 Key Issues (include mitigation of Red or Amber Resources):

1	Internal and external Resources need to be secured to help manage the Supported plan as well as the expected volume increases.
2	The RI ISR growth plan presents significant challenges in regards to the volume of work and resources to complete
3	

1.16 Key Milestones:

Milestone	Target Date: (Month/Year)
Approval	March 27, 2013
Closure	June , 2014

1.17 Climate Change:

Are financial incentives (e.g. carbon credits) available?	<input type="radio"/> Yes	<input checked="" type="radio"/> No
Contribution to National Grid's 2050 80% emissions reduction target:	<input type="radio"/> Neutral	<input checked="" type="radio"/> Positive <input type="radio"/> Negative
Impact on adaptability of network for future climate change:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive <input type="radio"/> Negative

1.18 List References:

1	National Grid US Gas Distribution Fiscal Year 2014 Annual Work Plan
2	
3	

US Sanction Paper



2 Decisions

The US Sanctioning Committee (USSC) at a meeting held on March 27, 2013:

- (a) APPROVED this paper and the investment of \$23.10 and a tolerance of +/- 10%
- (b) NOTED that Sean Mongan is the Project Manager and has the approved financial delegation.

Signature Lee S. Eckert Date 4/22/13
Lee S. Eckert
US Chief Financial Officer
Chairman, US Sanctioning Committee

US Sanction Paper



3 Sanction Paper Detail

Title:	FY14 RI Growth Capital Budget Plan	Sanction Paper #:	USSC-13-137
Project #:	Various	Sanction Type:	Sanction
Operating Company:	Narragansett Electric Co	Date of Request:	03/27/2013
Author:	Peter Duggan	Sponsor:	Terence Sobolewski, VP Sales and Program Operations
Utility Service:	Gas	Project Manager:	Sean Mongan

3.1 Background

The Customer organization is responsible for projecting growth rates. With the Jurisdictions, Resource Planning, Engineering, Customer Fulfillment and Operations they develop the projected growth rates and the necessary capital and O& M requirements with input from other departments of the Company including finance, operations and construction, gas planning, marketing and engineering. It is a collaborative process.

3.2 Drivers

As a regulated utility we are required to offer delivery of service to prospective customers while obtaining a return on our investment that allows us to be profitable.

There are several factors that drive overall GPM projections and the associated capital/ O&M expenditures:

- Rate Plans
- Fuel Pricing – oil versus natural gas
- Inventory levels and turnover ratios
- Saturation levels
- Marketing Lead performance
- Designs and resourcing that supports the delivery of capital at efficient pricing.
- Economic Conditions / Building Starts
- Gas system constraints

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3.3 Project Description

The proposal is intended to establish the 13/14 Customer GPM goal, \$3.34M, (excluding any GPM from the RI ISR Pilot) and the accompanying capital budgets of \$23.10M. The document takes into account current, and projected, market and pricing conditions and contains provisions should conditions worsen.

3.4 Benefits Summary

Excluding the RI ISR Pilot, the plan should generate approximately \$3.34M in incremental annual Gas Profit Margin and an IRR of 9.1% including meter purchases and reinforcement. The IRR excluding reinforcement is 9.6%

The IRR of the \$4M RI ISR pilot is being driven by the increased demand to find affordable methods to bring gas infrastructure to residents and businesses that are classified as off main. \$3M is approved as recoverable through the ISR program. The additional \$1M will be funded through CIAC's and through the gas growth budget.

The Net Gas Growth Spend of \$13.9M is \$1.8M higher than the rate year Capex. Based on the Settlement Agreement, however, we will be allowed to reconcile Rate year capital growth and then adjust the final revenue requirement (up or down) when calculating the final Revenue/customer RDM targets.

Demand is continuing to grow supported by a forecast of a significant fuel cost spread between natural gas price and oil. The impacts on capital requirements are in the residential market based on volume. This sanctioning paper requests approval for mains; services and meter installation for the anticipated growth. We have worked with Resource Planning and Customer Fulfillment in preparing this document and assessing the ability to support the anticipated level of work.

We are projecting GPM at \$3.34M for FY14. Similar to FY13 we are representing an increase in residential service related GPM and smaller gpm averages in commercial/industrial markets, due to fewer large projects.

3.5 Business Issues

- Meeting the 200% increase in project main work including the RI ISR pilot with constrained construction resources.
- Approval of a Capex spend for the RI ISR plan

US Sanction Paper



- Deploying consistent capital contribution policies while pursuing changes to existing rate provisions relating to capital contributions. Result = Increase in capital contributions and improved IRR's for gas growth.

3.6 Alternatives

Alternative 1: Provide reactive only support for gas growth requests. This would greatly reduce the most profitable commercial gas growth opportunities that are executed through our streamlined sales force. This would have an additional impact on the number customers delayed for service, impacting customer satisfaction and our relationships with the regulators.

Alternative 2:

Alternative 3:

3.7 Safety, Environmental and Project Planning Issues

It is expected that there would be no safety, environmental, or planning issues associated with this proposal.

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3.8 Execution Risk Appraisal

Number	Detailed Description of Risk / Opportunity	Probability	Impact		Score		Strategy	Pre-Trigger Mitigation Plan	Residual Risk	Post Trigger Mitigation Plan
			Cost	Schedule	Cost	Schedule				
1	SAP work flow issues exist and may result in delays in processing work	2	2	3	4	6	Accept	Work with SAP team and CF to ensure resolution	Develop work around contingency plans	Implement contingency plans as needed
2	Resource Constraints to complete Planned Growth Work	3	4	4	12	12	Accept	Work with Resource Planning and Operations to monitor	Develop work around contingency plans	Implement contingency plans as needed
3	Executing the RI ISR Plan	4	3	5	12	20	Accept	Work with Resource Planning and Operations to monitor	Develop work around contingency plans	Implement contingency plans as needed

3.9 Permitting

Permit Name	Probability Required (Certain/ Likely/ Unlikely)	Duration	Status (Complete/ In Progress Not Applied For)	Estimated Completion Date

3.10 Investment Recovery

3.10.1 Investment Recovery and Regulatory Implications

The budgetary projections contained in the appendices of this document have been developed by Sean Mongan, in conjunction with the Customer fulfillment team and resource planning. The proposal factors in requirements/ assumptions of responsibility as dictated by the applicable regulatory bodies/ tariffs.

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3.10.2 Customer Impact

The project results in an indicative first full year revenue requirement when the asset is placed in service equal to \$4.849M. 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.

3.10.3 CIAC / Reimbursement

\$M	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	
CIAC/Reimbursement	\$ -	\$ 5.33	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5.33



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3.11 Financial Impact to National Grid

3.11.1 Cost Summary Table

Project Number	Project Title	Project Estimate	Spend	Prior Yrs	Current Planning Horizon							Total
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +		
					2012/13	2013/14	2014/15	2015/16	2016/17	2017/18		
CRCC102	New Business Residential	Est Lvl	CapEx	\$ -	\$ 10.66	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 10.66
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
			Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
			Total	\$ -	\$ 10.66	\$ -	\$ -	\$ -	\$ -	\$ 10.66		
CRCC104	New Business Commercial	0	CapEx	\$ -	\$ 7.49	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7.49	
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
			Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
			Total	\$ -	\$ 7.49	\$ -	\$ -	\$ -	\$ -	\$ 7.49		
CRCC110	Growth Reactive	0	CapEx	\$ -	\$ 0.55	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.55	
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
			Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
			Total	\$ -	\$ 0.55	\$ -	\$ -	\$ -	\$ -	\$ 0.55		
CRSG109	Meter Work - CMS RI	0	CapEx	\$ -	\$ 0.10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.10	
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
			Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
			Total	\$ -	\$ 0.10	\$ -	\$ -	\$ -	\$ -	\$ 0.10		
0	RI ISR Growth Main Pilot	0	CapEx	\$ -	\$ 4.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4.00	
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
			Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
			Total	\$ -	\$ 4.00	\$ -	\$ -	\$ -	\$ -	\$ 4.00		
0	Marketing and Sales	0	CapEx	\$ -	\$ 0.30	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.30	
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
			Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
			Total	\$ -	\$ 0.30	\$ -	\$ -	\$ -	\$ -	\$ 0.30		
0	CIAC's	0	CapEx	\$ -	\$ (5.33)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (5.33)	
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
			Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
			Total	\$ -	\$ (5.33)	\$ -	\$ -	\$ -	\$ -	\$ (5.33)		
Total Project Sanction			CapEx	\$ -	\$ 23.10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 23.10	
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Total	\$ -	\$ 23.10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 23.10	

3.11.2 Project Budget Summary Table

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Project Costs per Business Plan

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2012/13	Yr. 2 2013/14	Yr. 3 2014/15	Yr. 4 2015/16	Yr. 5 2016/17	Yr. 6 + 2017/18	
CapEx	\$ -	\$ 22.92	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 22.92
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Cost in Bus. Plan	\$ -	\$ 22.92	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 22.92

Variance (Business Plan-Project Estimate)

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2012/13	Yr. 2 2013/14	Yr. 3 2014/15	Yr. 4 2015/16	Yr. 5 2016/17	Yr. 6 + 2017/18	
CapEx	\$ -	\$ (0.18)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (0.18)
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Cost in Bus. Plan	\$ -	\$ (0.18)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (0.18)

3.11.3 Cost Assumptions

The first step of the process is to determine the number of potential new customers for the upcoming sales year. These potential new customers are identified by service classification, (residential or commercial), gas application, (heating or non-heating) and location. After this number is developed, the capital spending requirements are calculated using unit costs that are supplied to Customer by the Construction and Operations area and Resource Planning to develop the estimates for main and service. Unit costs are based on the average rates for the close of the previous fiscal year.

The costs for Install meter/regulator and meter purchase are based on prior year's quantities and estimates.

The costs for the RI ISR are 75% reimbursable through the ISR program. We are proposing to spend \$4M of which \$3M is funded through ISR and the \$1M will be funded through growth budgets and CIAC's.

Marketing and Sales spend is based on the costs of capital associated with Project Management; some allocated labor and the labor and non-labor costs for a workforce that sets new meters.

3.11.4 Net Present Value / Cost Benefit Analysis

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Economic measures		5yr	10yr	20yr	Comment
NPV	@ Discount rate				
IRR					
MIRR					
Simple Payback in Years					
Total O&M					
Total Capital Investment					
Total Savings					

3.11.5 Additional Impacts

3.12 Statements of Support

3.12.1 Supporters

Role	Name	Responsibilities
Sponsor/ Asset Manager/ Asset Owner/ Process Owner	Sean Mongan	Endorses the project aligns with jurisdictional objectives
Investment Planning	Michelle Roche	Endorses relative to 5-year business plan or emergent work
Resource Planning	Artie Georgacopolous	Endorses Resources, cost estimate, schedule, and Portfolio Alignment

3.12.2 Reviewers

Reads paper for content / language. Recommends edits if necessary

Reviewer List	Name
Finance	Keith Fowler
Regulatory	Gideon Katsh
Procurement	John Kavanaugh
Jurisdictional Delegates	Walter Fromm

US Sanction Paper



4 Appendices

4.1 Project Cost Breakdown

Project Cost Breakdown		
Cost Category	Company Name (\$ Amount)	Description of Cost Category
Total:		

4.2 Other Appendices

4.3 NPV Summary (if applicable)

4.4 Customer Outreach Plan (if applicable)

USSC Closure Paper



Title:	FY14 Rhode Island Growth Capital Budget	Sanction Paper #:	USSC-13-137C
Project #:	Various (see appendix)	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	March 30, 2017
Author:	Kevin Rennick/Kerrie Doyle/Jeff Marshall/Dave Mirabella	Sponsor:	James Cross, VP Sales & Program Operations
Utility Service:	Gas	Project Manager:	Kevin Rennick/Kerrie Doyle/Jeff Marshall/Dave Mirabella

1 Executive Summary

This paper is presented to close various (see appendix) projects. The total spend was \$15.797M The sanctioned amount for this project was \$23.100M.

The final spend amount is \$15.797M broken down into:

\$15.767M Capex

\$0.000M Opex

\$0.030M Removal

With a CIAC/Reimbursement of \$6.358M CIAC

2 Project Summary

This program involved the installation of new main, services and meters to serve projected customer growth in Rhode Island. The \$23.10M for FY14 was fund two parts of the growth program: (1) the installation of 1,998 services and 67,581 feet of main associated with new customers, including 24,600 of new gas main for a single customer, Daniele Foods Inc, 4,605 feet of growth driven re-enforcement and (2) the installation of 32,500 feet of main and 300 services as part of the \$3M RI Gas Expansion initiative approved as a pilot effort with the state to expand our gas infrastructure. The total capital including all of the above funded the installation of 2,298 services and 97,276' of main.

The \$3M for the Pilot was included for recovery in the ISR. The pilot would call for the spending of \$4M with \$3M being reimbursed through the ISR. The additional \$1M was funded through approximately \$130,000 in CIAC's and additional funds of approximately \$840,000 from the growth plan budget.



USSC Closure Paper

3 Over / Under Expenditure Analysis

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
Various (see appendix)	FY14 Rhode Island Growth Capital Budget	Capex	15.767
		Opex	0.000
		Removal	0.030
		Total	15.797
Total		Capex	15.767
		Opex	0.000
		Removal	0.030
		Total	15.797

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	23.100
		Opex	0.000
		Removal	0.000
		Total Cost	23.100
Sanction Variance (\$M)			Total Spend
		Capex	7.333
		Opex	0.000
		Removal	(0.030)
		Total Variance	7.303

3.2 Analysis

Improve The FY14 Rhode Island Growth Capital Budget Blanket is 32% under plan. There are multiple contributing factors to the underruns. Resource limitations contributed to the under spend. In addition, cycle time of obtaining permits and long lead materials delayed work. There were challenges with estimates on larger projects within the blanket. Timing of restoration scheduling due to colder weather continues to effect progress of work.



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4 Improvements / Lessons Learned/Root Cause

- Improve development of estimating practices.
- Work with Finance and Resource Planning to create better financial metrics.
- Create Long Term resource requirements for future Capital planning.
- Identify carryover or deferred projects in a timely fashion.

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
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 (1)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All as-builts have been completed (2)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All lessons learned have been entered appropriately into the lesson learned database (3)	<input type="radio"/> Yes <input checked="" type="radio"/> No

(1) All work orders and funding projects have been closed
Program/Blanket projects may contain work orders and or funding projects which have not yet been closed for reasons including but not limited to:

- the same work order(s) are used annually. They will remain open until Asset Management and/or Resource Planning have determined work orders are no longer needed .
- construction may cross multiple fiscal years
- the work order closing process is within the late charge waiting period
- other accounting processes or final system closing activities have not yet completed



USSC Closure Paper

The Program/Blanket projects are approved annually for the current year expected spend and remain open until Asset Management and/or Resource Planning have determined the project is no longer required.

(2) All as-builts have been completed
Program/Blanket projects may contain work orders for which no as-builts have yet been recorded for reasons including but not limited to:

- design and/or construction have not yet completed
- construction may cross multiple fiscal years
- work has completed recently and as-builts have not yet been processed into the system
- does not apply. Work order(s) are not linked to work management systems. (example: Meter Purchases, Meter Changes, AMR Installations Purchase Misc Capital Tools/Equipment, etc.)
- does not apply to Information systems projects.

(3) All lessons learned have been entered appropriately into the lesson learned database

Program/Blanket projects usually contain short cycle work which the Company has been performing over several fiscal years. No new Lessons Learned which have not already been identified and recorded within section 4.

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 Planner	Pensabene, Patrick M.	Endorses relative to 5-year business plan or emergent work
Resource Planning	Falls, Jonathon	Endorses Resources, cost estimate, schedule, and Portfolio Alignment
Project Management	Fortier, Joseph Jr.	Endorses Resources, cost estimate, schedule
Gas Project Estimation	Paul, Art	Endorses Cost Estimate

USSC Closure Paper



6.2 Reviewers

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

Function	Individual
Finance	Easterly, Patricia
Regulatory	Zschokke, Peter
Jurisdictional Delegate	Currie, John
Procurement	Curran, Art
Control Center	Loiacono, Paul

USSC Closure Paper



7 Decisions

The US Sanctioning Committee (USSC) approved this paper on March 30, 2017.

Signature *Ross W. Turrini* Date April 27, 2017
Executive Sponsor - Ross Turrini – Senior Vice President, Gas Process & Engineering
and Chief Gas Engineer

USSC Closure Paper



8 Appendix

FP Proj No -	FP Proj Descr	Sum OfCAP	Sum OfCOR	Sum ofCAP&COR	Sum of O&M	Sum of Total Actuals Gross
C043732	RIDOT I-195 CONT 14&15 - NEW MAIN	\$175,614		\$175,614		\$175,614
CON0009	OCEAN ST-DIST-LAND/RIGHTS BLANKETS	\$8,175		\$8,175		\$8,175
CON0036	RI_GAS_MAIN REPL-SYS ENHAN-RI BLNK1	\$14	\$0	\$14		\$14
CON0050	RI-GAS-MAIN NEW GRWTH-RI BLANKET	\$416,970	\$454	\$417,424		\$417,424
CON0054	RI-GAS-NEW SERV INST-RI BLANKET	\$1,011,696	\$2,497	\$1,014,193		\$1,014,193
CRCC102	NEW BUS - RES -RI	\$9,544,625	\$20,132	\$9,564,757		\$9,564,757
CRCC104	NEW BUS - COM-RI	\$4,609,851	\$6,774	\$4,616,624		\$4,616,624
		\$15,766,944	\$29,856	\$15,796,801		\$15,796,801

Low Complexity Sanction Paper



Title:	Purchase Gas Meters	Sanction Paper #:	USSC-13-033
Project #:	CON0063	Sanction Type:	Sanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	02/27/2013
Author:	Philip DiGiglio	Sponsor:	Cheryl A Warren, VP Asset Management
Utility Service:	Gas	Project Manager:	Philip DiGiglio

1 Sanctioning Summary

This paper requests sanction of project CON0063 in the amount **3.753 M** and a tolerance of +/- **10%** for the purposes of purchase and test of new gas meters and instrumentation to support mandated and growth meter change requirements

This sanction amount is \$3.753 M broken down into:

\$ 3.753 M Capex

\$ 0.0 Opex

\$ 0.0 Removal

2 Project Detail

2.1 Project Description and Benefits

The primary driver for meter and metering instrumentation purchases is compliance with state regulations governing meter accuracy and measurement of gas usage for customer bills.

Each year, National Grid is required to change/replace meters in order to comply with the state regulations governing gas metering, to ensure the accuracy of the measurement of usage used to generate customer's consumption bills, and install new meters in support of the Company's growth initiatives.

On an annual basis, a zero based meter purchase strategy is developed to meet the metering needs of the mandated, company change initiated and growth programs. The volume of meters to be purchased is based upon meter accuracy, age and asset condition of the meters that are planned to be /and are returned from the field. An average condemn rate based on program type and age of assets is calculated utilizing historical information from each of the areas. The meter purchase plan is developed

Low Complexity Sanction Paper



using this historical metering data, the growth forecast and the planned mandated program work volumes.

The number and mix of meter types is developed at the beginning of the year and is reviewed and adjusted as the year progresses and CMS completes its work. In the states with remediation and random sample programs the development of the forecasts is based on known meter types and sizes with the exception of the growth meters where the mix is unknown. In the states where periodic change programs exists, the on-going review of inventory and condition of meters returned from the field is essential in determining the meters to be purchased as the mandated program does not require specific volumes of a meter type (250, 210, 450, 630) be changed but is instead driven by the time the asset is in service as well as the ability to gain access to the customer's premises. The on-going review is necessary in order to ensure that the correct mix of inventory is available to meet the demands of CMS while not over purchasing.

Gas meters required for the Narragansett Electric Company are purchased, tested, and delivered to the National Grid Rhode Island Meter Operations Facilities In Providence, and Cumberland, Rhode Island.

2.1.1 Alternatives:

Alternative 1: Do Nothing

Alternative 2: Deferral or partially fund project

Alternative 3: Fully Fund Project (recommended)

Both Alternative 1 and 2 are rejected for the following reasons;

Regulatory Conformance - Alternatives 1 and 2 would result in missing mandated program replacement targets which could result in penalty or loss of the Random Sample Program Waiver.

Growth – Alternatives 1 and 2 would result in our inability to support growth targets.

Safety, Operations, and Customer Satisfaction – Alternatives 1 and 2 would limit our ability to provide replacement equipment to support meter changes for customer complaint, damage, suspected tampering, or other performance issues.

Alternative 3 is recommended as it supports operations, growth, and regulatory requirements for meter installation and performance.

Low Complexity Sanction Paper



2.2 Investment Recovery

Investment recovery will be through standard rate recovery mechanisms

2.2.1 Customer Impact

This project results in an indicative first full year revenue requirement when the asset is placed in service equal to approximately \$ 788K

. 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.

3 Related Projects and Scoring

3.1 Summary of Projects:

Project Number	Project Title	Estimate Amount
CON0063	Meter Purchases Growth	\$ 1.17
CON0063	Meter Purchase Mand	\$ 2.58
Proj Num	Proj Name	\$ -
Total		\$ 3.75

3.2 Associated Projects:

None

3.3 Prior Sanctioning History (including relevant approved Strategies):

Date	Governan ce Body	Sanctioned Amount	Paper Title	Sanction Type

Low Complexity Sanction Paper



3.4 Category:

Category	Reference to Mandate, Policy, or NPV Assumptions
<input checked="" type="radio"/> Mandatory	Support Gas Meter requirements for Mandated Meter Change Program, and system growth targets
<input type="radio"/> Policy- Driven	
<input type="radio"/> Justified NPV	

3.5 Asset Management Risk Score

Asset Management Risk Score: 49

Primary Risk Score Driver: (Policy Driven Projects Only)

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

3.6 Complexity Level:

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

Complexity Score: 15

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 (\$)
FY 2014 – 2018 Gas Capital Plan	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under	\$ 0.17 M
	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input checked="" type="radio"/> Under	

Low Complexity Sanction Paper



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 2012/13	Yr. 2 2013/14	Yr. 3 2014/15	Yr. 4 2015/16	Yr. 5 2016/17	Yr. 6 + 2017/18	Total
CIAC/Reimbursement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

4.3 Cost Summary Table

Project Number	Project Title	Project Estimate	Spend	Prior Yrs	Current Planning Horizon						
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
					2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	
CON0063	Meter Purchases Growth	0	CapEx	\$ -	\$ 1.17	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1.17
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Total	\$ -	\$ 1.17	\$ -	\$ -	\$ -	\$ -	\$ 1.17	
CON0063	Meter Purchase Mand	0	CapEx	\$ -	\$ 2.58	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2.58
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Total	\$ -	\$ 2.58	\$ -	\$ -	\$ -	\$ -	\$ 2.58	
Total Project Sanction			CapEx	\$ -	\$ 3.75	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3.75
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Total	\$ -	\$ 3.75	\$ -	\$ -	\$ -	\$ -	\$ 3.75	

4.4 Project Budget Summary Table

Project Costs per Business Plan

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2013/14	Yr. 2 2014/15	Yr. 3 2015/16	Yr. 4 2016/17	Yr. 5 2017/18	Yr. 6 + 2018/19	
CapEx	\$ -	\$ 3.58	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3.58
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Cost in Bus. Plan	\$ -	\$ 3.58	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3.58

Variance (Business Plan-Project Estimate)

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2013/14	Yr. 2 2014/15	Yr. 3 2015/16	Yr. 4 2016/17	Yr. 5 2017/18	Yr. 6 + 2018/19	
CapEx	\$ -	\$ (0.17)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (0.17)
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Cost in Bus. Plan	\$ -	\$ (0.17)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (0.17)

Low Complexity Sanction Paper




5 Key Milestones:

Milestone	Target Date: (Month/Year)
Provide meter vendors with annual requirements and product delivery schedule for first half of FY	3/1/2013
Monitor Inventory levels	6/1/2013
Provide meter vendors with delivery schedule for second half of FY	7/1/2013
Project Closure	06/30/2014

Low Complexity Sanction Paper

nationalgrid

6 Decisions:

I:	
(a) APPROVED this paper and the investment of \$3.75M and a tolerance of +/- 10%	
(b) NOTED that Philip Di Giglio has the approved financial delegation.	
Signature.....	Date.....
	
Marie Jordan	
Senior Vice President	
Network Strategy	

USSC Closure Paper



Title:	Fy 14-Purchase Gas Meters-RI	Sanction Paper #:	USSC-13-033C
Project #:	CON0063	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	3/30/2017
Author:	Saadat Khan/Ryan Geiger	Sponsor:	John Stavrakas – VP Gas Asset Management
Utility Service:	Gas	Project Manager:	Ryan Geiger

1 Executive Summary

This paper is presented to close CON0063. The total spend was \$2.893M. The sanctioned amount for this project was \$3.753M.

The final spend amount is \$2.893M broken down into:

\$2.800M Capex

\$0.000M Opex

\$0.093M Removal

2 Project Summary

The primary driver for meter and metering instrumentation purchases is compliance with state regulations governing meter accuracy and measurement of gas usage for customer bills.

New York State PSC requirements stipulate a random sample associated remediation/retirement program for installed gas meters.

Each year, National Grid is required to randomly select and remove from service a quantity of meters to be tested for accuracy. The number of meters removed and tested is sufficient to assure a statistical confidence level of 95%. Test results are entered into a program which preforms the statistical calculations based upon an approved ANSI Standard. The NYS PSC has set accuracy limits for both Residential (AQL 10%), and Commercial (AQL 20%) meter types. Meter groups which fall beyond the specified limits are placed in a retirement program and are subsequently removed from service and retired.



USSC Closure Paper

In addition to the mandated meter change program. Meters are required to support growth targets, as well as to support Customer meter Service (CMS) operational requirements (load change, meter and/or service relocations, damage, stopped meters).

This project included the purchase, test, processing, and deliver of have meters to support The Narragansett Electric Co. Mandated Meter Test/Replacement Program, growth targets, and continued CMS Operations.

3 Over / Under Expenditure Analysis

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
CON0063	GAS METER PURCHASE BLANKET-RI	Capex	2.800
		Opex	0.000
		Removal	0.093
		Total	2.893
Project #	Description		Total Spend
Total		Capex	2.800
		Opex	0.000
		Removal	0.093
		Total	2.893

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	3.753
		Opex	0.000
		Removal	0.000
		Total Cost	3.753
Sanction Variance (\$M)			Total Spend
		Capex	0.953
		Opex	0.000
		Removal	(0.093)
		Total Variance	0.860



USSC Closure Paper

3.2 Analysis

The Purchase Gas Meters blanket is 23% under plan. There are multiple contributing factors to the underruns. This blanket is for reactive work. The volume of work attributable to this underrun. In addition, there were challenges with estimates on projects within the blanket.

4 Improvements / Lessons Learned/Root Cause

Lesson Learned:

- Improve development of estimating practices.
- Work with Finance and Resource Planning to create better financial metrics.
- Create Long Term resource requirements for future Capital planning.

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
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 (1)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All as-builts have been completed (2)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All lessons learned have been entered appropriately into the lesson learned database (3)	<input type="radio"/> Yes <input checked="" type="radio"/> No

- (1) All work orders and funding projects have been closed
Program/Blanket projects may contain work orders and or funding projects which have not yet been closed for reasons including but not limited to:
- the same work order(s) are used annually. They will remain open until Asset Management and/or Resource Planning have determined work orders are no longer needed .
 - construction may cross multiple fiscal years

USSC Closure Paper



- the work order closing process is within the late charge waiting period
- other accounting processes or final system closing activities have not yet completed

The Program/Blanket projects are approved annually for the current year expected spend and remain open until Asset Management and/or Resource Planning have determined the project is no longer required.

(2) All as-builts have been completed

Program/Blanket projects may contain work orders for which no as-builts have yet been recorded for reasons including but not limited to:

- design and/or construction have not yet completed
- construction may cross multiple fiscal years
- work has completed recently and as-builts have not yet been processed into the system
- does not apply. Work order(s) are not linked to work management systems. (example: Meter Purchases, Meter Changes, AMR Installations Purchase Misc Capital Tools/Equipment, etc.)
- does not apply to Information systems projects.

(3) All lessons learned have been entered appropriately into the lesson learned database

Program/Blanket projects usually contain short cycle work which the Company has been performing over several fiscal years. No new Lessons Learned which have not already been identified and recorded within section 4.

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 Planner	Pensabene, Patrick M.	Endorses relative to 5-year business plan or emergent work
Resource Planning	Falls, Jonathon	Endorses Resources, cost estimate, schedule, and Portfolio Alignment

USSC Closure Paper



Project Management	Fortier, Joseph Jr.	Endorses Resources, cost estimate, schedule
Gas Project Estimation	Paul, Art	Endorses Cost Estimate

6.2 Reviewers

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

Function	Individual
Finance	Easterly, Patricia
Regulatory	Zschokke, Peter
Jurisdictional Delegate	Currie, John
Procurement	Curran, Art
Control Center	Loiacono, Paul

USSC Closure Paper



7 Decisions

I approve this paper.

Signature *Ross W. Turrini*

Date April 27, 2017

Executive Sponsor - Ross Turrini – Senior Vice President, Gas Process & Engineering
and Chief Gas Engineer

Funding Project Information					
Description	Growth reinforce - Proactive-RI		Funding Proj	CRCC111	
Company	5360-Narragansett Electric				
Bus Segment	RIGASD	Last Approved Rev	6		
Budget	CRCC111	Status	open	FP ID	326095536
Department	78105360G - Gas Construc	F. P. Type	P_Gas Distribution Construction RI		
Long Description	Growth reinforcement - Proactive				
Major Location	MASS PLANT - RI (Gas)	Asset Location			
Asset Loc Det					
Notes					
Reason		Approval Group	<none>		
Est Start Date	4/1/2017	Late Charge Wait	0 Months		
Est Complete	3/31/2018	In Service Date			
Est In Service	3/31/2018	Completion Date			
Est Annual Rev		First CPR Month			
Initiated By	DIACOM	Close Date			
Date Suspended		Date Initiated	11/8/2012		

Details
Accounts
Contacts
Class Codes
Justification
Tax Status
Authorizations
User Comment
Review
Related FPs

Audits
Delete FP
Cancel FP
Suspend FP

Estimates
Update
Print
Close

Record 1 of 1
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Funding Project Information			
Title	Growth reinforce - Proactive-RI	<div>Details</div> <div>Accounts</div> <div>Contacts</div> <div>Class Codes</div> <div>Justification</div> <div>Tax Status</div> <div>Authorizations</div> <div>User Comment</div> <div>Review</div> <div>Related FPs</div> <div>Audits</div> <div>Delete FP</div> <div>Cancel FP</div> <div>Suspend FP</div> <div>Estimates</div> <div>Update</div> <div>Print</div> <div>Close</div>	
Funding Project	CRCC111		
Class Codes			
Budget Plant Class	Gas Distribution PAM		
Send to SE			
<u>Miscellaneous Billing</u>			
Misc Billing Status			
<u>Required</u>			
Force Billing Flag			
RDV Allocation Eligible			
<u>Sanctioning Data</u>			
DOA Amount			
Lower Tolerance	.90		
Strategy Type Name			
Upper Tolerance	1.10		
Indicates Display Only - (d)			
Record 1 of 1		<div><<</div> <div><</div> <div>></div> <div>>></div>	

Funding Project Information					
New Approval Type		Budget Version		Default (inactive)	
Funding Project	Revision	Rev	<input type="button" value="K"/> <input type="button" value="K"/> <input type="button" value="K"/> <input type="button" value="K"/> <input type="button" value="K"/> <input type="button" value="K"/>		
CRCC111	2				
Approval Type	Amount	<input type="button" value="Send for Approval"/>			
DOA Approval - Manual	\$500,000.00	<input type="button" value="Refresh"/>			
Status	Sent By	Date Sent	Date Appr		
Approved	Roche, Michelle C	5/6/2013	5/16/2013		
+ Approver 1 -----		Approver	Required	Date Approved	Authority Limit
		Stavrakas, John S	<input checked="" type="checkbox"/>	5/16/2013	\$1,000,000
<div> <input type="button" value="Details"/> <input type="button" value="Accounts"/> <input type="button" value="Contacts"/> <input type="button" value="Class Codes"/> <input type="button" value="Justification"/> <input type="button" value="Tax Status"/> <input type="button" value="Authorizations"/> <input type="button" value="User Comment"/> <input type="button" value="Review"/> <input type="button" value="Related FPs"/> </div> <div> <input type="button" value="Audits"/> <input type="button" value="Delete FP"/> <input type="button" value="Cancel FP"/> <input type="button" value="Suspend FP"/> </div> <div> <input type="button" value="Estimates"/> <input type="button" value="Update"/> <input type="button" value="Print"/> <input type="button" value="Close"/> </div>					
Record 1 of 1 <input type="button" value="K"/> <input type="button" value="K"/> <input type="button" value="K"/> <input type="button" value="K"/>					

Low Complexity Sanction Paper



Title:	2013-14 City/State Construction Program for Narragansett Electric Company, MA Company 49 (Public Works Process)	Sanction Paper #:	USSC-13-127
Project #:	CRCC306, CRCC307, CRCC308, CRCC312, CRCC220	Sanction Type:	Sanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	March 19, 2013
Author:	Thomas Mulkeen	Sponsor:	John Donleavy, Executive Vice President US Gas and Electric Distribution
Utility Service:	Gas	Project Manager:	Thomas Mulkeen

1 Sanctioning Summary

This paper requests sanction of Project # CRCC306, CRCC307, CRCC308, CRCC312, CRCC220 the FY 2013/2014 City/State Construction Program for the Narragansett Electric Company in the amount of **\$3.12 M** and a tolerance of **+/- 10%** for the purpose of full implementation of the program. The estimated miles main replacement quantity is 17,535 liner feet (3.32 miles) at a cost of \$178/LF.

This sanction amount of \$3.12 M for the FY 2013/2014 program can be broken down into:

Public Works Reimbursable (CAPEX)	\$ 1,274,490
Public Works Non Reimbursable (CAPEX)	\$ 1,693,251
OPEX	\$ 0
Removals	\$ 153,459
Reimbursements	\$ 1,300,500

2 Project Detail

2.1 Project Description and Benefits

The City/State Construction (CSC) Program for the Narragansett Electric Company consists of work driven by the Narragansett Bay Commission (NBC), Rhode Island DOT (RIDOT) and the numerous municipalities that National Grid serves, as well as, various third party private entities within Narragansett Electric Company. The CSC budget is

Low Complexity Sanction Paper



subdivided into three components: Reimbursable, Non-Reimbursable, and Reimbursements. Projects are categorized into these buckets based on the project funding source. Capital projects initiated by RIDOT are normally 100% reimbursable. Capital projects initiated by the NBC are typically reimbursable to some degree depending on criteria.

The estimated quantity for main replacement is 17,535 liner feet (3.32 miles). Approximately 90% of the CSC Main Relays for the Narragansett Electric Company Territories will contribute ~15,781 linear feet (2.99 miles) of Leak Prone Pipe (LPP) retirement to National Grid's LPP Program. This program allows National Grid to replace approximately 53 miles of LPP annually.

2.1.1 Alternatives:

Alternative 1:

Approve the requested investment such that National Grid shall replace/relocate gas mains and services to accommodate State and Municipal capital infrastructure improvements and shall focus on elimination of leak prone pipe (LPP) in conjunction with public works activities. National Grid's Government Liaisons will work closely with State and Municipalities and Construction Engineers and consultants to minimize, to the maximum extent possible, any direct conflicts to the existing gas non-LPP infrastructure located in the Narragansett Electric Company Territory.

Alternative 2:

Doing nothing is not an option because we must comply with company policy (Damage Prevention Procedure No. 25) and regulatory requirements (220 CMR 113.00; M.G.L. c. 164).

2.2 Investment Recovery

Approximately \$1.82 M of the funds are eligible for recovery through the 2013 ISR program.

2.2.1 Customer Impact

This project results in an indicative first full year revenue requirement when the asset is placed in service equal to approximately \$0.350M. 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.

Low Complexity Sanction Paper



3 Related Projects and Scoring

3.1 Summary of Projects:

Project Number	Project Title	Estimate Amount
CRCC306	FY 13-14 City/State Construction Program- PWNONREIM	\$ 606,900
CRCC307	FY 13-14 City/State Construction Program- PWREIM	\$ 1,300,500
CRCC308	FY13-14 City/State Construction Program- ENCRCHMTPL	\$ 606,900
CRCC312	FY 13-14 City/State Construction Program- ENCRCHMTUM	\$ 606,900
CRCC220	FY 13-14 City/State Construction Program- BRIDGE	\$ -
Total		\$ 3,121,200

3.2 Associated Projects:

NA

3.3 Prior Sanctioning History (including relevant approved Strategies):

NA

3.4 Category:

Category	Reference to Mandate, Policy, or NPV Assumptions
<input checked="" type="radio"/> Mandatory	National Grid is required to relocate its facilities within the project limits that are in direct interference of the proposed construction and installation of new infrastructure facilities. National Grid is also required to follow the Regulatory Authority (220 CMR 113.00: M.G.L. c. 164), which is mandated.
<input type="radio"/> Policy- Driven	
<input type="radio"/> Justified NPV	

3.5 Asset Management Risk Score

Asset Management Risk Score: 49

Primary Risk Score Driver: (Policy Driven Projects Only)



Low Complexity Sanction Paper

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

3.6 Complexity Level:

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

Complexity Score: 15

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 (\$)
Fiscal Year 14 -18 Capital Plan -Gas	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input checked="" type="radio"/> Under	\$0

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

4.2 CIAC / Reimbursement

\$M	Prior Yrs	Yr. 1 2013/14	Yr. 2 2014/15	Yr. 3 2015/16	Yr. 4 2016/17	Yr. 5 2017/18	Yr. 6 + 2018/19	Total
CIAC/Reimbursement	\$ -	\$ 1,300,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,300,500



Low Complexity Sanction Paper

4.3 Cost Summary Table

				Current Planning Horizon							
Project Number	Project Title	Project Estimate	Spend	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
					2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	
CRCC306	FY 13-14 City/State Construction Program- PWNONREIM	Est Lvl III	CapEx	\$ -	\$ 564,417	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 564,417
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
			Removal	\$ -	\$ 42,483	\$ -	\$ -	\$ -	\$ -	\$ 42,483	
			Total	\$ -	\$ 606,900	\$ -	\$ -	\$ -	\$ -	\$ 606,900	
CRCC307	FY 13-14 City/State Construction Program- PWREIM	Est Lvl III	CapEx	\$ -	\$ 1,274,490	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,274,490
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
			Removal	\$ -	\$ 26,010	\$ -	\$ -	\$ -	\$ -	\$ 26,010	
			Total	\$ -	\$ 1,300,500	\$ -	\$ -	\$ -	\$ -	\$ 1,300,500	
CRCC308	FY13-14 City/State Construction Program- ENCRCHMTPL	Est Lvl III	CapEx	\$ -	\$ 564,417	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 564,417
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ 42,483	\$ -	\$ -	\$ -	\$ -	\$ 42,483	
			Total	\$ -	\$ 606,900	\$ -	\$ -	\$ -	\$ -	\$ 606,900	
CRCC312	FY 13-14 City/State Construction Program- ENCRCHMTUM	Est Lvl III	CapEx	\$ -	\$ 564,417	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 564,417
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ 42,483	\$ -	\$ -	\$ -	\$ -	\$ 42,483	
			Total	\$ -	\$ 606,900	\$ -	\$ -	\$ -	\$ -	\$ 606,900	
CRCC220	FY 13-14 City/State Construction Program- BRIDGE	Est Lvl	CapEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Total	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Total Project Sanction			CapEx	\$ -	\$ 2,967,741	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,967,741
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ 153,459	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 153,459
			Total	\$ -	\$ 3,121,200	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,121,200

4.4 Project Budget Summary Table

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2013/14	Yr. 2 2014/15	Yr. 3 2015/16	Yr. 4 2016/17	Yr. 5 2017/18	Yr. 6 + 2018/19	
CapEx	\$ -	\$ 2,967,741	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,967,741
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ 153,459	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 153,459
Total Cost in Bus. Plan	\$ -	\$ 3,121,200	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,121,200

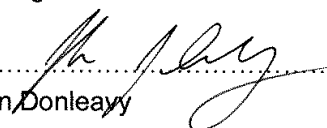
5 Key Milestones:

Milestone	Target Date: (Month/Year)
Sanction Approval	March 27, 2013
Construction Start Date	April 1, 2013
Completion	March 31, 2014
Closure Report	June 2014

Low Complexity Sanction Paper



6 Decisions:

I:
(a) APPROVE this paper and the investment of \$3.12M and a tolerance of +/- 10%
(b) NOTE that Thomas Mulkeen is the Project Manager and has the approved financial delegation.
Signature..... Date.....3-20-13
John Donleavy Executive Vice President & Chief Operating Officer



Low Complexity Sanction Paper

See appendix below for list of City State Construction projects created as of March 8, 2013.

Below is a list of BGC City State Construction work identified for FY 13-14. This list was updated on 3/8/13.
All Reimbursable Projects and Projects over \$100,000 have a separate Funding Project Number.

Program	Funding Project Number	WONUM	DESCRIPTION	Footage	Estimate
PWNONREIM	CRCC306	90000128511	Prov Water: Punganset St. - East, Prov	390	\$ 193,000
PWNONREIM	CRCC306	90000128556	Prov Water: Berkshire St, Prov	635	\$ 166,422
PWNONREIM	CRCC203	90000127706	Asylum St Area Mn Relay MAIN, Woon	1,537	\$ 120,000
PWNONREIM	C048242	90000128329	Kane Ave., Midd	1,600	\$ 98,407
PWNONREIM	CRCC306	90000126140	Blackstone Blvd Main Relay, Prov	850	\$ 86,000
PWNONREIM	CRCC306	90000128192	Broadway St, Main Relay, NPT	100	\$ 66,968
PWNONREIM	CRCC306	90000128277	Broadway at Oak, NPT	175	\$ 60,000
PWNONREIM	CRCC306	90000128116	Penston Ave BS Mn Rly MAIN, Westerly	572	\$ 47,000
PWNONREIM	CON060	90000120784	RIDOT Fruit Hill Ave Mn Rely, NP	327	\$ 37,484
PWNONREIM	CON060	90000122599	RIDOT Morgan Ave Brgd Betterment	100	\$ 30,208
PWNONREIM	CON060	90000119099	Bradford @ Hope WS Mn Relay	92	\$ 30,000
PWREIM	C44214	99600000352	NBC Contract CSO 037	5,000	\$ 700,000
PWREIM	C39553	99600000324	NBC Contract PVD-NBC-037 Completion	2,300	\$ 375,000
PWREIM	C43465	99600000346	RI DOT I-195 CONT 14 - CONST	678	\$ 187,668
PWREIM	C43875	99600000348	NBC Contract 8 OF037 North	0	\$ 150,000
PWREIM	C17142	99600000317	RIDOT Conant St Bridge Main	242	\$ 75,000
PWREIM	C37342	99600000287	Omega Pond Dam Fish Passage E. Prov	27	\$ 91,962
PWREIM	C39553	99600000311	NBC Contract PVD-NBC-037	400	\$ 75,000
PWREIM	C43465	99600000346	RI DOT I-195 CONT 14 - CONST	278	\$ 77,006
PWREIM	C43243	99600000351	NBC Manton @ San Souci; PVD	235	\$ 75,998
PWREIM	C048398	90000128678	Service Road, NBC Prov	220	\$ 25,600
PWREIM	C43243	99600000345	NBC Contract Promenade St Providenc	135	\$ 60,195
PWREIM	C42863	99600000332	RIDOT Morgan Ave Brgd Reimb - CONST	64	\$ 39,464
PWREIM	C43243	99600000344	NBC Contract Eagle St Providence RI	151	\$ 38,795
PWREIM	C42904	99600000336	RIDOT Natick Brgd - CONST	600	\$ 35,255
PWREIM	C43243	99600000358	NBC Cont 303.03C - Valley@Gennaro	105	\$ 31,377
PWREIM	C44752	99600000356	RIDOT I-195 Cont15 (Const)	448	\$ 29,088
PWREIM	C43243	99600000349	NBC Aleppo St @ Manton Ave; PVD	111	\$ 27,933
PWREIM	C44157	99600000353	Fruit Hill Ave, North Providence RI	105	\$ 22,708
PWREIM	C40803	99600000322	RIDOT Ten Mile River Bridges - MAIN	0	\$ 19,112
PWREIM	C44592	99600000354	Blackstone Ave Relay	50	\$ 13,785
PWREIM	C42484	99600000330	NBC Cont 303.04C Butler Ave Serv Re	40	\$ 9,117
PWREIM	C42484	99600000329	NBC Cont 303.04C India St Mn Aban	0	\$ 7,487
				17,566	\$ 3,103,037

USSC Closure Paper



Title:	2013-14 City/State Construction Program for Narragansett Electric Company, MA Company 49 (Public Works Process)	Sanction Paper #:	USSC-13-127C
Project #:	Various – See Appendix	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	March 30, 2017
Author:	Dave Iseler/Lae Hunt	Sponsor:	Tom Bennett, VP Gas Systems Engineering
Utility Service:	Gas	Project Manager:	Dave Iseler/Lae Hunt

1 Executive Summary

This paper is presented to close various projects – See Appendix. The total spend was \$4.555M. The sanctioned amount for this project was \$3.120M.

The final spend amount is \$4.555M broken down into:

\$4.430M Capex

\$0.000M Opex

\$0.125M Removal

With a CIAC/Reimbursement of \$0.537M

2 Project Summary

The City/State Construction (CSC) Program for the Narragansett Electric Company consists of work driven by the Narragansett Bay Commission (NBC), Rhode Island DOT (ROOT) and the numerous municipalities that National Grid serves, as well as, various third party private entities within Narragansett Electric Company. The CSC budget was subdivided into three components: Reimbursable, Non-Reimbursable, and Reimbursements. Projects are categorized into these buckets based on the project funding source. Capital projects initiated by ROOT are normally 100% reimbursable. Capital projects initiated by the NBC are typically reimbursable to some degree depending on criteria.

The estimated quantity for main replacement was 17,535 liner feet (3.32 miles). Approximately 90% of the CSC Main Relays for the Narragansett Electric Company Territories will contribute -15,781 linear feet (2.99 miles) of Leak Prone Pipe (LPP)



USSC Closure Paper

retirement to National Grid's LPP Program. This program allowed National Grid to replace approximately 53 miles of LPP annually.

3 Over / Under Expenditure Analysis

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
Various - See Appendix	Various - See Appendix	Capex	4.430
		Opex	0.000
		Removal	0.125
		Total	4.555
Total		Capex	4.430
		Opex	0.000
		Removal	0.125
		Total	4.555

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	3.120
		Opex	0.000
		Removal	0.000
		Total Cost	3.120
Sanction Variance (\$M)			Total Spend
		Capex	(1.310)
		Opex	0.000
		Removal	(0.125)
		Total Variance	(1.435)

3.2 Analysis

The 2013-14 City/State Construction Program for Narragansett Electric Company, MA Company 49 program is 46% over plan. Multiple unforeseen influences caused an increase in the overall spend of this project. Government municipalities amended the overall scope of their public improvement project, resulting in additional gas interferences, requiring the scope of gas relocation work to increase. In addition,



USSC Closure Paper

inclement weather and resource allocation challenges required additional weekend and overtime work.

4 Improvements / Lessons Learned/Root Cause

- Improve development of estimating practices.
- Work with Finance and Resource Planning to create better financial metrics.
- Create Long Term resource requirements for future Capital planning.
- Identify carryover or deferred projects in a timely fashion.

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
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 (1)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All as-builts have been completed (2)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All lessons learned have been entered appropriately into the lesson learned database (3)	<input type="radio"/> Yes <input checked="" type="radio"/> No

(1) All work orders and funding projects have been closed

Program/Blanket projects may contain work orders and or funding projects which have not yet been closed for reasons including but not limited to:

- the same work order(s) are used annually. They will remain open until Asset Management and/or Resource Planning have determined work orders are no longer needed .
- construction may cross multiple fiscal years
- the work order closing process is within the late charge waiting period

USSC Closure Paper



- other accounting processes or final system closing activities have not yet completed

The Program/Blanket projects are approved annually for the current year expected spend and remain open until Asset Management and/or Resource Planning have determined the project is no longer required.

(2) All as-builts have been completed

Program/Blanket projects may contain work orders for which no as-builts have yet been recorded for reasons including but not limited to:

- design and/or construction have not yet completed
- construction may cross multiple fiscal years
- work has completed recently and as-builts have not yet been processed into the system
- does not apply. Work order(s) are not linked to work management systems. (example: Meter Purchases, Meter Changes, AMR Installations Purchase Misc Capital Tools/Equipment, etc.)
- does not apply to Information systems projects.

(3) All lessons learned have been entered appropriately into the lesson learned database

Program/Blanket projects usually contain short cycle work which the Company has been performing over several fiscal years. No new Lessons Learned which have not already been identified and recorded within section 4.

USSC Closure Paper



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 Planner	Pensabene, Patrick M.	Endorses relative to 5-year business plan or emergent work
Resource Planning	Falls, Jonathon	Endorses Resources, cost estimate, schedule, and Portfolio Alignment
Project Management	Fortier, Joseph Jr.	Endorses Resources, cost estimate, schedule
Gas Project Estimation	Paul, Art	Endorses Cost Estimate

6.2 **Reviewers**

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

Function	Individual
Finance	Easterly, Patricia
Regulatory	Zschokke, Peter
Jurisdictional Delegate	Currie, John
Procurement	Curran, Art
Control Center	Loiacono, Paul

USSC Closure Paper



7 Decisions

I approve this paper.

Ross W. Turrini

Signature

Date April 27, 2017

Executive Sponsor - Ross Turrini – Senior Vice President, Gas Process & Engineering
and Chief Gas Engineer



USSC Closure Paper

8 Appendix

USSC-13-127	\$3,120,000	C017142	RIDOT CONANT ST RAILROAD BRIDGE#15	\$21,281	\$0,300	\$27,641	\$27,641
		C037342	OMEGA POND DAM FISH PASSAGE MN RELY	\$10,800	\$0	\$10,800	\$10,800
		C041683	FAP-CENTRAL BRIDGE IN BARRINGTON	\$10,534	\$0	\$10,534	\$10,534
		C042484	NBC SEEKONK RIVER CSO CONT 303 04C	\$11,421	\$3,233	\$14,654	\$14,654
		C042904	RIDOT NATICK BRIDGE MN RELAY	\$47,772	\$3,340	\$51,118	\$51,118
		C043243	NBC WOONASQUATUCKET CSO MN RELAYS	\$150,075	\$327	\$150,402	\$150,402
		C047830	RIDOT SCHOOL ST CULVERT	\$228	\$0	\$228	\$228
		C051526	RIDOT APPONAUG CURCULATOR	\$10,240		\$10,240	\$10,240
		CON0000	RI-GAS-MAIN REPL GOVT-RI BLANKET	\$9,842	\$1,290	\$11,132	\$11,132
		CRCC306	MAIN REPL PUB WORK NON-REIMB-RI	\$1,374,359	\$0,094	\$1,469,454	\$1,469,454
		CRCC307	MAIN REPL PUB WORK REIMB-RI	\$13,287		\$13,287	\$13,287
		CRCC308	GAS MAIN ENCROACH PARALLEL-RI	\$546,674	\$560	\$547,235	\$547,235
		CRCC312	GAS MAIN ENCROACH UNDERMINED-RI	\$253,607	\$545	\$254,212	\$254,212
		C018926	BRANCH AVI/W RIVER BRIDGE 976-BUD	\$3,060	\$0	\$3,060	\$3,060
		C017038	UNION AVENUE BRIDGE NO 452 PVD	\$69		\$69	\$69
		C033051	POCASSET RIVER BRIDGE	\$17	\$0	\$17	\$17
		C037442	NBC CONTRACT OF027 RELAY	\$81		\$81	\$81
		C039553	PVD-NBC 037	\$322,942	\$2,324	\$325,266	\$325,266
		C040543	WATER ST MAIN REPLACEMENT	\$857		\$857	\$857
		C042863	RIDOT MORGAN AVE BRDG MN RELAY	\$9,231	\$1,072	\$10,903	\$10,903
		C042868	RIDOT LAUREL AVE BRIDGE MN INSTALL		\$684	\$684	\$684
		C043375	Melida ave Main Relay	\$614		\$614	\$614
		C044167	NBC Contract No 8	\$937,070	\$8,048	\$545,127	\$545,127
		C044214	RIDOT Fruit Hill Ave Mn Rely	\$519		\$519	\$519
		C044593	NBC Contract No 7 South Main relay	\$797,278	\$585	\$797,862	\$797,862
		C044606	Front St Main Relay	\$11,127	\$0	\$11,127	\$11,127
		C045095	Lorimer Ave main relay	\$249	\$0	\$249	\$249
		C048242	JOHNSON BLVD MN RELAY CULVERT	\$1,281	\$0	\$1,281	\$1,281
		C048398	KANE AVE	\$124,718		\$124,718	\$124,718
		C048578	NBC SERVICE RD	\$72,800		\$72,800	\$72,800
		C050067	RIDOT GREENE LANE MN VALVE RELY	\$7,397		\$7,397	\$7,397
		C051017	ATWOOD AVE AT WALNUT GROVE	\$4,627		\$4,627	\$4,627
		CON0066	SHIPYARD ST	(\$3,787)		(\$3,787)	(\$3,787)
		C031771	GAS MAIN ENCROACHMENT	\$67,819	\$907	\$68,726	\$68,726
			Sakonnet River Bridge Rapids current	\$2,620		\$2,620	\$2,620
USSC-13-127 Total				\$4,429,942	\$124,078	\$4,554,018	\$4,554,018

Funding Project Information				
Description	RI-03891 (MWLY0021)		Funding Proj	CRRC301
Company	5360-Narragansett Electric			
Bus Segment	RIGASD	Last Approved Rev	6	
Budget	CRRC301	Status	open	FP ID 326095575
Department	43705360G - Corrosion Con	F. P. Type	P_Gas Distribution Construction RI	
Long Description	Raise or replace test box			
Major Location	MASS PLANT - RI (Gas)	Asset Location		
Asset Loc Det				
Notes				
Reason		Approval Group	<none>	
Est Start Date	4/1/2017	Late Charge Wait	9 Months	
Est Complete	3/31/2018	In Service Date		
Est In Service	3/31/2018	Completion Date		
Est Annual Rev		First CPR Month		
Initiated By	DIACOM	Close Date		
Date Suspended		Date Initiated	11/8/2012	

Details

Accounts

Contacts

Class Codes

Justification

Tax Status

Authorizations

User Comment

Review

Related FPs

Audits

Delete FP

Cancel FP

Suspend FP

Estimates

Update

Print

Close

Record 1 of 1

Funding Project Information		<input type="button" value="-"/> <input type="button" value="□"/> <input type="button" value="X"/>	
<div> <div>Title</div> <div>RI-03891 (MWLY0021)</div> </div> <div> <div>Funding Project</div> <div>CRRC301</div> </div>		<div>Details</div> <div>Accounts</div> <div>Contacts</div> <div>Class Codes</div> <div>Justification</div> <div>Tax Status</div> <div>Authorizations</div> <div>User Comment</div> <div>Review</div> <div>Related FPs</div>	
<div>Class Codes</div> <div> <div>Budget Plant Class</div> <div>Gas Distribution PAM</div> </div> <div> <div>Send to SE</div> <div></div> </div> <div> <div>Miscellaneous Billing</div> <div> <div>Misc Billing Status</div> <div></div> </div> </div> <div> <div>Required</div> <div> <div>Force Billing Flag</div> <div></div> </div> <div> <div>RDV Allocation Eligible</div> <div></div> </div> </div> <div> <div>Sanctioning Data</div> <div> <div>DOA Amount</div> <div></div> </div> <div> <div>Lower Tolerance</div> <div>.90</div> </div> <div> <div>Strategy Type Name</div> <div></div> </div> <div> <div>Upper Tolerance</div> <div>1.10</div> </div> </div>			

Indicates Display Only - (d) ▾

Funding Project Information					
New Approval Type		Budget Version Default (inactive)			
Funding Project	Revision	Rev			
CRRC301	2				
Approval Type	Amount	Send for Approval			
DOA Approval - Manual	\$510,000.00	Refresh			
Status	Sent By	Date Sent	Date Appr		
Approved	Roche, Michelle C	5/6/2013	5/22/2013		
+ Approver 1 -----		Approver	Required	Date Approved	Authority Limit
		Small, Timothy F	<input checked="" type="checkbox"/>	5/22/2013	\$1,000,000
<div> <div>Details</div> <div>Accounts</div> <div>Contacts</div> <div>Class Codes</div> <div>Justification</div> <div>Tax Status</div> <div>Authorizations</div> <div>User Comment</div> <div>Review</div> <div>Related FPs</div> </div> <div> <div>Audits</div> <div>Delete FP</div> <div>Cancel FP</div> <div>Suspend FP</div> </div> <div> <div>Estimates</div> <div>Update</div> <div>Print</div> <div>Close</div> </div>					
<div>Record 1 of 1</div> <div> <div>K</div> <div><</div> <div>></div> <div>>I</div> </div>					

Short Form Sanction Paper



Title:	Rhode Island Proactive Main Replacement Program	Sanction Paper #:	USSC-13-111
Project #:	CON0034, CRCC207	Sanction Type:	Sanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	March 27, 2013
Author:	James Finnerty	Sponsor:	Timothy Small – VP, Gas System Engineering
Utility Service:	Gas	Project Manager:	James Finnerty

1 Sanctioning Summary

This paper requests sanction of Project CON0034 and CRCC207, for the FY2013/14 Rhode Island Proactive Main Replacement Programs in the amount of \$33.361M, with a tolerance of +/- 10%, for the purpose of replacing fifty (50) miles of leak prone gas mains (and associated services) in the Rhode Island service territory.

This sanction amount of \$33.361M is broken down into:

- \$32.027M Capex
- \$0.000M Opex
- \$1.334M Removal

2 Project Detail

2.1 Project Description and Benefits

Leak Prone Pipe (LPP) is defined as non-cathodically protected (“unprotected”) steel whether bare or coated (collectively “unprotected steel”) as well as cast or wrought iron mains. Annual replacements are prioritized based on performance issues related to leaks and breaks.

The current inventory of LPP is 1,393 miles [534 miles (38%) of unprotected steel and 859 miles (62%) of cast iron/wrought iron], which represents approximately 44% of the distribution system in Rhode Island. As demonstrated in Appendix A-1 Rhode Island Rate Graph, the current leak rate for all distribution piping is 0.50 leaks per mile, reduced from 0.53 leaks per mile in 2004. The current leak rate for LPP is 1.14 leaks per mile, higher than the 0.95 leaks per mile in 2004.



Short Form Sanction Paper

The replacement of LPP and associated services is also supported by the Company's recently developed Distribution Integrity Management Plan (DIMP), which specifies that the Company implement measures to: know its system; understand the threats to its distribution piping system; and evaluate risks and prepare replacement programs to help mitigate the risks to its leak prone mains and services inventory.

2.1.1 Alternatives:

Alternative 1: Reduce this program to a lower rate of replacement. This option would replace only the quantity of main required to hold leak rates to present levels. This will also result in a loss of credibility with the Rhode Island Division of Public Utilities and Carriers (RI DPUC).

2.2 Investment Recovery

The remuneration method for costs included in this FY13-14 program, and for future years, will be provided through the Gas Infrastructure, Safety and Reliability (ISR) Plan.

2.2.1 Customer Impact

This project results in an indicative first full year revenue requirement when the asset is placed in service equal to approximately \$7.006M. 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.

3 Related Projects and Scoring

3.1 Summary of Projects:

Project Number	Project Title	Estimate Amount
CON0034	Leak Prone Pipe Main Replacement Program	\$ 27.42
CRCC207	Cast Iron Main Replacement<10"	\$ 5.95
Total		\$ 33.36



Short Form Sanction Paper

3.2 Associated Projects: N/A

Project Number	Project Title	Estimate Amount
Total		\$ -

3.3 Prior Sanctioning History (including relevant approved Strategies): N/A

Date	Governance Body	Sanctioned Amount	Paper Title	Sanction Type

3.4 Category:

Category	Reference to Mandate, Policy, or NPV Assumptions
<input type="radio"/> Mandatory	The classification of this program is policy. The program is in accordance with the Company's policy to deliver safe and reliable gas service to its customers.
<input checked="" type="radio"/> Policy- Driven	The program is also in accordance with the Company's recently developed DIM Plan (as specified by US DOT, 49 CFR Part 192, Subpart P, entitled; "Gas Distribution Pipeline Integrity Management Plan")
<input type="radio"/> Justified NPV	The program meets the requirements set forth in the RI Gas Infrastructure, Safety and Reliability ("ISR") Plan.

3.5 Asset Management Risk Score

Asset Management Risk Score: 44

Primary Risk Score Driver: (Policy Driven Projects Only)

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



Short Form Sanction Paper

3.6 Complexity Level:

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

Complexity Score: 16

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 (\$)
FY14 - FY18 Capital Plan - Gas	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input checked="" type="radio"/> Under	\$0

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

N/A

4.2 CIAC / Reimbursement

\$M	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	
CIAC/Reimbursement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -



Short Form Sanction Paper

4.3 Cost Summary Table

					Current Planning Horizon						
Project Number	Project Title	Project Estimate	Spend	Prior Yrs	Yr. 1 2013/14	Yr. 2 2014/15	Yr. 3 2015/16	Yr. 4 2016/17	Yr. 5 2017/18	Yr. 6 + 2018/19	Total
CON0034	Leak Prone Pipe Main Replacement Program	Level 4	CapEx	\$ -	\$ 26.32	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 26.32
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ 1.10	\$ -	\$ -	\$ -	\$ -	\$ 1.10	
			Total	\$ -	\$ 27.42	\$ -	\$ -	\$ -	\$ -	\$ 27.42	
CRCC207	Cast Iron Main Replacement<10"	Level 4	CapEx	\$ -	\$ 5.71	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5.71
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ 0.24	\$ -	\$ -	\$ -	\$ -	\$ 0.24	
			Total	\$ -	\$ 5.95	\$ -	\$ -	\$ -	\$ -	\$ 5.95	
Total Project Sanction			CapEx	\$ -	\$ 32.03	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 32.03
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ 1.33	\$ -	\$ -	\$ -	\$ -	\$ 1.33	
			Total	\$ -	\$ 33.36	\$ -	\$ -	\$ -	\$ -	\$ 33.36	

4.4 Project Budget Summary Table

Project Costs per Business Plan

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2013/14	Yr. 2 2014/15	Yr. 3 2015/16	Yr. 4 2016/17	Yr. 5 2017/18	Yr. 6 + 2018/19	
CapEx	\$ -	\$ 32.03	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 32.03
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ 1.33	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1.33
Total Cost in Bus. Plan	\$ -	\$ 33.36	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 33.36

Variance (Business Plan-Project Estimate)

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2013/14	Yr. 2 2014/15	Yr. 3 2015/16	Yr. 4 2016/17	Yr. 5 2017/18	Yr. 6 + 2018/19	
CapEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Cost in Bus. Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Short Form Sanction Paper



5 Key Milestones:

Milestone	Target Date: Month/Year
Final Engineering Complete	December 2012
Start Applying for Permits	January 2013
Engage Required Resources	January 2013
Construction Start Date	April 2013
Construction Complete	March 2014
Commissioning	March 2014
Project Close-out	June 2014

Short Form Sanction Paper

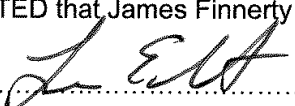
nationalgrid

6 Decisions:

The US Sanctioning Committee (USSC) at a meeting held on March 27, 2013:

(a) APPROVED this paper and the investment of \$33.361M and a tolerance of +/- 10 percent.

(b) NOTED that James Finnerty has the approved financial delegation.

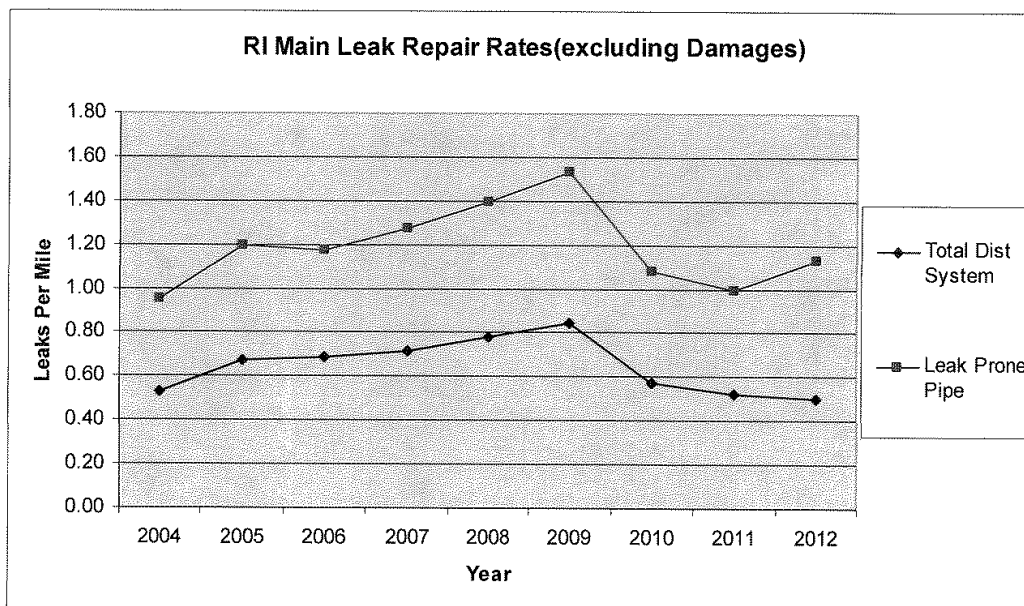
Signature..........Date.....4/22/13
Lee S. Eckert
US Chief Financial Officer
Chairman, US Sanctioning Committee

Short Form Sanction Paper



Appendices

A-1 Rhode Island Leak Rate Graph





Short Form Sanction Paper

A-2: Project

Work Order	Town	Retired Material	Retired Diameter	Retired Footage	Retired Operating Pressure	Upgrade to HP?
9000100320	Coventry	BS	3	2240	35#	No
9000099891	Coventry	BS	3	728	35#	No
9000102996	Warwick	BS	2	2500	35#	No
9000100197	Warwick	BS	2	1000	35#	No
9000102994	Warwick	BS	2	411	35#	No
9000103146	Warwick	BS	2	1450	35#	No
9000103234	Warwick	BS	2	1860	35#	No
9000103857	Warwick	BS	2	1197	35#	No
9000104331	Warwick	BS	2	3559	35#	No
9000092282	Cranston	CI	4	4050	Low	No
9000073654	Providence	CI	12	1505	Low	No
9000092590	Warwick	CI	4	770	Low	No
9000098930	Providence	CI	4	400	Low	No
9000104314	Providence	CI	6	2276	Low	No
9000104981	Newport	BS	2	1879	Low	No
9000108547	Middletown	CI	4	3565	8#	No
9000065190	Providence	CI	3	232	Low	No
9000073654	Providence	CI	12	1505	Low	No
9000110966	Cranston	CI	6	3878	LP to 99#	Yes
9000106150	Providence	CI	3	1327	Low	No
9000105023	Warwick	BS	2	1383	35#	No
9000105027	Warwick	BS	2	2102	35#	No
9000091321	Coventry	BS	3	8099	35#	No
9000110443	Johnston	BS	2	3202	35#	No
9000111829	Warwick	BS	2	1878	35#	No
9000112033	Providence	BS	4	795	Low	No
9000110187	Woonsocket	CI	4	450	Low	No
9000110980	Cranston	CI	6	5186	Low	No
9000112035	Providence	CI	8	228	Low	No
9000111832	Warwick	BS	2	557	35#	No
9000109217	Warwick	BS	2	5585	35#	No
9000109153	Johnston	CI	6	120	Low	No
9000110189	Woonsocket	CI	6	1532	Low	No
9000110191	Woonsocket	BS	2	2129	Low	No
9000110193	Woonsocket	BS	2	2563	35#	No
9000110340	Newport	CI	4	1315	Low	No
9000110345	Newport	BS	2.50	1602	Low	No
9000110348	Newport	BS	2.00	268	Low	No
9000110246	Pawtucket	BS	6	1382	LP to 60#	Yes
9000110597	Lincoln	CI	4	625	Low	No
9000110599	Lincoln	BS	1	517	60#	No
9000110834	East	BS	4	4720	35#	No
9000110840	East	BS	3	1198	35#	No
9000110844	East	BS	3	1091	35#	No
9000110847	East	BS	2	1978	35#	No
9000110849	East	BS	2	1348	35#	No
9000110984	Cranston	BS	2	1800	35#	No
9000110988	Cranston	BS	2	2205	35# to 99#	Yes

List

Short Form Sanction Paper

nationalgrid

9000111279	North	CI	4	512	Low	No
9000106799	North	CI	6	3148	Low	No
9000111289	North	BS	2	2174	60#	No
9000111291	North	WS	2	1859	60#	No
9000111807	West Warwick	BS	4	757	35#	No
9000111809	West Warwick	BS	2	1411	35#	No
9000111813	West Warwick	BS	2	3476	35#	No
9000111840	Coventry	BS	3	3439	35#	No
9000111842	Coventry	BS	2	2155	35#	No
9000111844	Coventry	BS	2	1061	35#	No
9000118388	Middletown	CI	4	1979	10#	No
9000118390	Middletown	CI	4	2458	10#	No
9000118394	Middletown	CI	4	4479	10#	No
9000118398	Middletown	CI	4	2336	10#	No
9000118093	Bristol	CI	4	525	8#	No
9000118095	Bristol	CI	4	500	8#	No
9000118099	Warren	BS	3	997	8#	No
9000118365	East	CI	8	4041	5#	No
9000118367	East	CI	8	1018	5#	No
9000116872	East	CI	6	2739	5#	No
9000118479	Providence	CI	4	2019	Low	No
9000118481	Providence	CI	4	2687	LP	No
9000118019	Newport	CI	4	3124	Low	No
9000118024	Newport	CI	4	1442	Low	No
9000118155	Warwick	CI	6	4293	LP to 35#	Yes
9000118168	Warwick	BS	2	2998	35#	No
9000118170	Warwick	BS	2	1341	35#	No
9000118174	Warwick	BS	2	368	35#	No
9000118177	Warwick	BS	2	2272	35#	No
9000118179	Warwick	BS	2	3152	35#	No
9000118181	Warwick	BS	8	1963	35#	No
9000118183	Warwick	BS	2	2699	35#	No
9000118187	Warwick	BS	2	3006	35#	No
9000118191	Warwick	BS	2	1806	35#	No
9000118195	Warwick	BS	2	2763	35#	No
9000118199	Warwick	BS	2	2445	35#	No
9000118104	Barrington	BS	4	1890	25#	No
9000118117	Barrington	BS	3	1291	25#	No
9000118119	Barrington	BS	2	2408	25#	No
9000118123	Barrington	BS	4	839	25#	No
9000118125	Barrington	BS	2	357	25#	No
9000118127	Barrington	BS	2	662	25#	No
9000118129	Barrington	BS	2	657	25#	No
9000118131	Barrington	BS	2	1946	25#	No
9000118133	Barrington	BS	2	1750	25#	No
9000118135	Barrington	BS	2	647	25#	No
9000118138	Barrington	BS	4	2731	25#	No
9000116889	Providence	CI	4	993	LP	No
9000118030	Newport	BS	2	183	Low	No
9000118035	Newport	BS	2	100	Low	No



Short Form Sanction Paper

9000118037	Newport	CI	4	2263	Low	No
9000118043	Newport	CI	4	3026	Low	No
9000118070	North	BS	12	1721	35#	No
9000118074	North	BS	2	1492	35#	No
9000118489	Westerly	BS	3	476	LP to 60#	No
9000118491	Westerly	BS	4	5929	LP to 60#	Yes
9000118495	Westerly	BS	4	2161	60#	No
9000118499	Westerly	BS	4	3365	LP and 60#	No
9000118863	Lincoln	BS	6	4390	Low	No
9000120603	East	CI	4	425	Low	No
9000118316	Cranston	BS	2	1793	35#	No
9000118327	East	BS	2	945	35#	No
9000118330	East	BS	2	4206	35#	No
9000118703	North	CI	6	2284	LP and 35#	No
9000121164	Bristol	DI	6	651	8#	No
9000121171	Newport	CI	4	2279	LP	No
9000121166	Newport	CI	4	947	LP	No
90000125459	Providence	CI	4	1070	LP	No
90000125503	Providence	CI	6	1939	LP	No
90000126944	Newport	BS	1	413	LP	No
90000126958	North	BS	8	6606	35#	No
90000125395	Providence	CI	4	6525	LP	No
90000125401	Providence	CI	4	630	LP	No
90000125403	Providence	CI	4	2283	LP	No
90000125408	Providence	CI	4	529	LP	No
90000125410	Providence	CI	4	969	LP	No
90000125412	Providence	CI	4	375	LP	No
90000125414	Providence	CI	4	7428	LP	No
90000125416	Providence	CI	4	2357	LP	No
90000125435	Providence	CI	4	1629	LP	No
90000125437	Providence	CI	4	2834	LP	No
90000125439	Providence	CI	6	901	LP to 35#	Yes
90000125441	Providence	CI	6	467	LP to 35#	Yes
90000125445	Providence	CI	6	870	LP to 35#	Yes
90000125448	Providence	CI	6	820	LP to 35#	Yes
90000125451	Providence	CI	4	2165	LP	No
90000125453	Providence	CI	4	871	LP to 35#	Yes
90000125455	Providence	CI	6	534	LP	No
90000125457	Providence	CI	4	996	LP to 99#	Yes
90000125508	Providence	CI	4	1187	LP	No
90000125514	Providence	CI	4	1638	LP	No
90000125516	Providence	CI	4	308	LP	No
90000125519	Providence	CI	4	462	LP	No
90000125522	Providence	CI	4	1368	LP	No
90000125525	Providence	CI	6	460	LP	No
90000125531	Providence	CI	4	1112	LP	No
90000125534	Providence	CI	4	741	LP	No
90000125540	Providence	CI	4	638	LP	No
90000125557	Providence	CI	2	601	LP	No
90000125562	Providence	CI	4	378	LP	No
90000125564	Providence	CI	4	442	LP	No
90000125568	Providence	CI	4	2043	LP	No
90000125571	Providence	CI	4	2311	LP to 35#	Yes
90000125576	Providence	CI	4	305	LP	No



USSC Closure Paper

Title:	FY 14-Rhode Island Proactive Main Replacement Program-RI	Sanction Paper #:	USSC-13-111C
Project #:	Various (see appendix)	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	3/30/2017
Author:	Saadat Khan/Dana Wolkiewicz	Sponsor:	John Stavrakas, – VP Gas Asset Management
Utility Service:	Gas	Project Manager:	Saadat Khan/Dana Wolkiewicz

1 Executive Summary

This paper is presented to close Various projects (see appendix). The total spend was \$44.983M. The sanctioned amount for this project was \$33.361M.

The final spend amount is \$44.983M broken down into:

*\$44.719M Capex
\$0.000M Opex
\$0.264M Removal*

2 Project Summary

Leak Prone Pipe (LPP) is defined as non-cathodically protected ("unprotected") steel whether bare or coated (collectively "unprotected steel") as well as cast or wrought iron mains. Annual replacements are prioritized based on performance issues related to leaks and breaks.

The replacement of LPP and associated services is also supported by the Company's recently developed Distribution Integrity Management Plan (DIMP), which specifies that the Company implement measures to: know its system; understand the threats to its distribution piping system; and evaluate risks and prepare replacement programs to help mitigate the risks to its leak prone mains and services inventory.



USSC Closure Paper

3 Over / Under Expenditure Analysis

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
Various (see Appendix)	Rhode Island Proactive Main Replacement Program	Capex	44.719
		Opex	0.000
		Removal	0.264
		Total	44.983
Total		Capex	44.719
		Opex	0.000
		Removal	0.264
		Total	44.983

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	32.027
		Opex	0.000
		Removal	1.334
		Total Cost	33.361
Sanction Variance (\$M)			Total Spend
		Capex	(12.692)
		Opex	0.000
		Removal	1.070
		Total Variance	(11.622)

3.2 Analysis

The Rhode Island Proactive Main Replacement Program is 35% over plan. There are multiple contributing factors to the overruns. There were challenges with estimates on larger projects within the program. Lack of communications around job scope changes affected the estimates. Restoration/municipality cost requirements continue to increase. Several carryover jobs were not included in total program costs. In addition, continued Safety requirement improvements caused delays/increases in costs.



USSC Closure Paper

4 Improvements / Lessons Learned/Root Cause

- Improve development of estimating practices.
- Work with Finance and Resource Planning to create better financial metrics.
- Create Long Term resource requirements for future Capital planning.
- Identify carryover or deferred projects in a timely fashion.

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
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 (1)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All as-builts have been completed (2)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All lessons learned have been entered appropriately into the lesson learned database (3)	<input type="radio"/> Yes <input checked="" type="radio"/> No

- (1) All work orders and funding projects have been closed
Program/Blanket projects may contain work orders and or funding projects which have not yet been closed for reasons including but not limited to:
- the same work order(s) are used annually. They will remain open until Asset Management and/or Resource Planning have determined work orders are no longer needed .
 - construction may cross multiple fiscal years
 - the work order closing process is within the late charge waiting period
 - other accounting processes or final system closing activities have not yet completed

The Program/Blanket projects are approved annually for the current year expected spend and remain open until Asset Management and/or Resource Planning have determined the project is no longer required.



USSC Closure Paper

(2) All as-builts have been completed

Program/Blanket projects may contain work orders for which no as-builts have yet been recorded for reasons including but not limited to:

- design and/or construction have not yet completed
- construction may cross multiple fiscal years
- work has completed recently and as-builts have not yet been processed into the system
- does not apply. Work order(s) are not linked to work management systems. (example: Meter Purchases, Meter Changes, AMR Installations Purchase Misc Capital Tools/Equipment, etc.)
- does not apply to Information systems projects.

(3) All lessons learned have been entered appropriately into the lesson learned database

Program/Blanket projects usually contain short cycle work which the Company has been performing over several fiscal years. No new Lessons Learned which have not already been identified and recorded within section 4.

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 Planner	Pensabene, Patrick M.	Endorses relative to 5-year business plan or emergent work
Resource Planning	Falls, Jonathon	Endorses Resources, cost estimate, schedule, and Portfolio Alignment
Project Management	Fortier, Joseph Jr.	Endorses Resources, cost estimate, schedule
Gas Project Estimation	Paul, Art	Endorses Cost Estimate

USSC Closure Paper



6.2 Reviewers

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

Function	Individual
Finance	Easterly, Patricia
Regulatory	Zschokke, Peter
Jurisdictional Delegate	Currie, John
Procurement	Curran, Art
Control Center	Loiacono, Paul



USSC Closure Paper

7 Decisions

The Senior Executive Sanctioning committee (SESC) approved this paper on 3/30/2017.

Signature  Date 
Margaret Smyth
US Chief Financial Officer
Chair, Senior Executive Sanctioning Committee



USSC Closure Paper

Appendix

FP Proj No	FP Proj Descr	Sum Of CAP	Sum Of COR	Sum of CAP & COR	Sum of O&M	Sum of Total Actuals Gross
CON0034	RI-GAS-MAIN REPL-AGE-RI BLNKT	\$27,911,284	\$80,775	\$27,992,059		\$27,992,059
CON0040	RI-GAS-REPL SERV INSTALL-RI BLANKET	\$288,715	\$627	\$289,342		\$289,342
CRCC203	BARE STEEL MAIN REPLACE-RI	\$6,953,846	\$17,045	\$6,970,891		\$6,970,891
CRCC207	CI MAIN REPLACE < 10'-RI	\$9,560,939	\$165,231	\$9,726,169		\$9,726,169
CRCC208	PLASTIC MAIN REPLACEMENT-RI	\$4,150		\$4,150		\$4,150
		\$44,718,934	\$263,677	\$44,982,611		\$44,982,611

Funding Project Information			
Description	React Main & Serv Work Nonleak-F		
Funding Proj	CRCC210		
Company	5360-Narragansett Electric		
Bus Segment	RIGASD	Last Approved Rev	6
Budget	CRCC210	Status	open
Department	78105360G - Gas Construc	FP ID	326095543
F. P. Type	P_Gas Distribution Construction RI		
Long Description	Reactive Main & Service Work Non leak		
Major Location	MASS PLANT - RI (Gas)	Asset Location	
Asset Loc Det			
Notes			
Reason		Approval Group	<none>
Est Start Date	4/1/2017	Late Charge Wait	0 Months
Est Complete	3/31/2018	In Service Date	
Est In Service	3/31/2018	Completion Date	
Est Annual Rev		First CPR Month	
Initiated By	DIACOM	Close Date	
Date Suspended		Date Initiated	11/8/2012

Details

Accounts

Contacts

Class Codes

Justification

Tax Status

Authorizations

User Comment

Review

Related FPs

Audits

Delete FP

Cancel FP

Suspend FP

Estimates

Update

Print

Close

Record 1 of 1

Funding Project Information		<input type="button" value="-"/> <input type="button" value="□"/> <input type="button" value="X"/>	
<div> <div>Title</div> <div>React Main & Serv Work Nonleak-RI</div> </div> <div> <div>Funding Project</div> <div>CRCC210</div> </div>		<div>Details</div> <div>Accounts</div> <div>Contacts</div> <div>Class Codes</div> <div>Justification</div> <div>Tax Status</div> <div>Authorizations</div> <div>User Comment</div> <div>Review</div> <div>Related FPs</div>	
<div>Class Codes</div> <div> <div>Budget Plant Class</div> <div>Gas Distribution PAM</div> </div> <div> <div>Send to SE</div> <div></div> </div> <div> <div>Miscellaneous Billing</div> <div></div> </div> <div> <div>Misc Billing Status</div> <div></div> </div> <div> <div>Required</div> <div></div> </div> <div> <div>Force Billing Flag</div> <div></div> </div> <div> <div>RDV Allocation Eligible</div> <div></div> </div> <div> <div>Sanctioning Data</div> <div></div> </div> <div> <div>DOA Amount</div> <div></div> </div> <div> <div>Lower Tolerance</div> <div></div> </div> <div> <div>Strategy Type Name</div> <div></div> </div> <div> <div>Upper Tolerance</div> <div></div> </div>		<div> <div>Audits</div> <div>Delete FP</div> <div>Cancel FP</div> <div>Suspend FP</div> </div> <div> <div>Estimates</div> <div>Update</div> <div>Print</div> <div>Close</div> </div>	
<div>Indicates Display Only - (d)</div>			
<div>Record 1 of 1</div> <div> <input type="button" value="K"/> <input type="button" value="←"/> <input type="button" value="→"/> <input type="button" value=">I"/> </div>			

Funding Project Information

New Approval Type

Budget Version

Default (inactive)

Funding Project

CRCC210

Revision

2

Rev

<

<

>

>

Approval Type

USSC Approval

Amount

\$500,000.00

Send for Approval

Refresh

Status

Approved

Sent By

Roche, Michelle C

Date Sent

5/29/2013

Date Appr

5/29/2013

Approver	Required	Date Approved	Authority Limit

Details

Accounts

Contacts

Class Codes

Justification

Tax Status

Authorizations

User Comment

Review

Related FPs

Audits

Delete FP

Cancel FP

Suspend FP

Estimates

Update

Print

Close

Record

1

of 1

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Short Form Sanction Paper



Title:	FY14 CI Joint Encapsulation	Sanction Paper #:	USSC-13-203
Project #:	Various	Sanction Type:	Sanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	April 23, 2013
Author:	Fred Amaral, Director M&C	Sponsor:	William Akley, SVP of Operations
Utility Service:	Gas	Project Manager:	Fred Amaral, Director M&C

1 Sanctioning Summary

This paper requests the sanctioning of \$2.90m and a tolerance of +/- 10% for the purposes of providing funding for the reactive repair of leaking cast iron bell joints.

The sanction amount of \$2.9m is broken down into;

Cast Iron Joint Encapsulation	\$2.84m Capex
Cost of Removal	\$0.06m Removal
	\$0.00m Opex

2 Project Detail

2.1 Project Description and Benefits

This proposed blanket investment is to provide approved funding for the repair of cast iron bell joints that occur randomly during the proactive leakage surveys or discovered following public odor calls. The US proactive reactive main replacement programs are prioritized by risk based on pressure, material, vintage, location, and select other variables, the potential for bell joint leakage and repair requirements on the remaining main segments exists and requires a reactive response to correct the deficiency.

2.1.1 Alternatives:

These work activities are random, emergency driven and mandated, therefore, there is not an alternative to completing the activities.



Short Form Sanction Paper

2.2 Investment Recovery

Investment recovery will be through the standard rate recovery mechanisms.

2.2.1 Customer Impact

This project results in an indicative first full year revenue requirement when the asset is placed in service equal to approximately \$0.60m. This is indicative. 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.

3 Related Projects and Scoring

3.1 Summary of Projects:

Project Number	Project Title	Estimate Amount
CRFN211	Leak Repair/Services	\$ 0.44
CRFS211	Leak Repair/Services	\$ 2.46
Total		\$ 2.90

3.2 Associated Projects:

3.3 Prior Sanctioning History (including relevant approved Strategies):

Date	Governance Body	Sanctioned Amount	Paper Title	Sanction Type



Short Form Sanction Paper

3.4 Category:

Category	Reference to Mandate, Policy, or NPV Assumptions
<input checked="" type="radio"/> Mandatory	The work activities that are proposed for funding are both mandated and policy driven.
<input type="radio"/> Policy- Driven	It is mandated under DOT part 192 that the Company have a maintenance plan and address leakage repair per that plan.
<input type="radio"/> Justified NPV	

3.5 Asset Management Risk Score

Asset Management Risk Score: 49

Primary Risk Score Driver: (Policy Driven Projects Only)

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

3.6 Complexity Level:

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

Complexity Score: 15

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 (\$)
FY14-FY18 Capital Plan - Gas	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input checked="" type="radio"/> Under	\$0.00



Short Form Sanction Paper

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

4.2 CIAC / Reimbursement

\$M	Prior Yrs	Yr. 1 2012/13	Yr. 2 2013/14	Yr. 3 2014/15	Yr. 4 2015/16	Yr. 5 2016/17	Yr. 6 + 2017/18	Total
CIAC/Reimbursement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

4.3 Cost Summary Table

Project Number	Project Title	Project Estimate	Spend	Prior Yrs	Current Planning Horizon						
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
					2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	
CRFN211	Leak Repair/Services	Level 1	CapEx	\$ -	\$ -	\$ 0.43	\$ -	\$ -	\$ -	\$ -	\$ 0.43
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ -	\$ 0.01	\$ -	\$ -	\$ -	\$ 0.01	
			Total	\$ -	\$ -	\$ 0.44	\$ -	\$ -	\$ -	\$ 0.44	
CRFS211	Leak Repair/Services	Level 1	CapEx	\$ -	\$ -	\$ 2.41	\$ -	\$ -	\$ -	\$ -	\$ 2.41
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ -	\$ 0.05	\$ -	\$ -	\$ -	\$ 0.05	
			Total	\$ -	\$ -	\$ 2.46	\$ -	\$ -	\$ -	\$ 2.46	
Total Project Sanction			CapEx	\$ -	\$ -	\$ 2.84	\$ -	\$ -	\$ -	\$ -	\$ 2.84
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ -	\$ 0.06	\$ -	\$ -	\$ -	\$ 0.06	
			Total	\$ -	\$ -	\$ 2.90	\$ -	\$ -	\$ -	\$ 2.90	



Short Form Sanction Paper

4.4 Project Budget Summary Table

Project Costs per Business Plan

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2012/13	Yr. 2 2013/14	Yr. 3 2014/15	Yr. 4 2015/16	Yr. 5 2016/17	Yr. 6 + 2017/18	
CapEx	\$ -	\$ -	\$ 2.84	\$ -	\$ -	\$ -	\$ -	\$ 2.84
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ -	\$ 0.06	\$ -	\$ -	\$ -	\$ -	\$ 0.06
Total Cost in Bus. Plan	\$ -	\$ -	\$ 2.90	\$ -	\$ -	\$ -	\$ -	\$ 2.90

Variance (Business Plan-Project Estimate)

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2012/13	Yr. 2 2013/14	Yr. 3 2014/15	Yr. 4 2015/16	Yr. 5 2016/17	Yr. 6 + 2017/18	
CapEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Cost in Bus. Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

5 Key Milestones:

Milestone	Target Date: (Month/Year)
Start Work	April 2013
Complete Work	March 2014
Closure	June 2014



Short Form Sanction Paper



6 Decisions:

The US Sanctioning Committee (USSC) at a meeting held on April 24, 2013:

- (a) APPROVED this paper and the investment of \$2.90M and a tolerance of +/- 10%
- (b) NOTED that Fred Amaral is the Project Manager and has the approved financial delegation.

Signature  Date 

Lee S. Eckert
Chief Financial Officer
Chairman, US Sanctioning Committee

USSC Closure Paper



Title:	FY14 CI Joint Encapsulation	Sanction Paper #:	USSC-13-203C
Project #:	Various (See Appendix)	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	March 30, 2017
Author:	Kevin Browne/Fred Pisani	Sponsor:	Neil Proudman, VP Operations, NE
Utility Service:	Gas	Project Manager:	Kevin Browne/Fred Pisani

1 Executive Summary

This paper is presented to close various (see appendix). The total spend was \$1.219M. The sanctioned amount for this project was \$2.900M.

The final spend amount is \$1.219M broken down into:

*\$1.178M Capex
\$0.000M Opex
\$0.041M Removal*

2 Project Summary

This closure blanket is for the repair of cast iron bell joints that occurred randomly during the proactive leakage surveys or discovered following public odor calls. The US proactive reactive main replacement programs were prioritized by risk based on pressure, material, vintage, location, and select other variables, the potential for bell joint leakage and repair requirements on the remaining main segments exists and required a reactive response to correct the deficiency.

USSC Closure Paper



3 Over / Under Expenditure Analysis

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
Various (see appendix)	FY14 CI Joint Encapsulation	Capex	1.178
		Opex	0.000
		Removal	0.041
		Total	1.219
Total		Capex	1.178
		Opex	0.000
		Removal	0.041
		Total	1.219

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	2.840
		Opex	0.000
		Removal	0.060
		Total Cost	2.900
Sanction Variance (\$M)			Total Spend
		Capex	1.662
		Opex	0.000
		Removal	0.019
		Total Variance	1.681

3.2 Analysis

FY14 CI Joint Encapsulation blanket is 58% under plan. There are multiple contributing factors to the underruns. Resource limitations contributed to the under spend. In addition, cycle time of obtaining permits and long lead materials delayed work. There were challenges with estimates on larger projects within the blanket. Timing of restoration scheduling due to colder weather continues to effect progress of work.



USSC Closure Paper

4 Improvements / Lessons Learned/Root Cause

- Improve development of estimating practices.
- Work with Finance and Resource Planning to create better financial metrics.
- Create Long Term resource requirements for future Capital planning.
- Identify carryover or deferred projects in a timely fashion.

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
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 (1)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All as-builts have been completed (2)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All lessons learned have been entered appropriately into the lesson learned database (3)	<input type="radio"/> Yes <input checked="" type="radio"/> No

(1) All work orders and funding projects have been closed

Program/Blanket projects may contain work orders and or funding projects which have not yet been closed for reasons including but not limited to:

- the same work order(s) are used annually. They will remain open until Asset Management and/or Resource Planning have determined work orders are no longer needed .
- construction may cross multiple fiscal years
- the work order closing process is within the late charge waiting period
- other accounting processes or final system closing activities have not yet completed

The Program/Blanket projects are approved annually for the current year expected spend and remain open until Asset Management and/or Resource Planning have determined the project is no longer required.

USSC Closure Paper



(2) All as-builts have been completed
Program/Blanket projects may contain work orders for which no as-builts have yet been recorded for reasons including but not limited to:

- design and/or construction have not yet completed
- construction may cross multiple fiscal years
- work has completed recently and as-builts have not yet been processed into the system
- does not apply. Work order(s) are not linked to work management systems. (example: Meter Purchases, Meter Changes, AMR Installations Purchase Misc Capital Tools/Equipment, etc.)
- does not apply to Information systems projects.

(3) All lessons learned have been entered appropriately into the lesson learned database

Program/Blanket projects usually contain short cycle work which the Company has been performing over several fiscal years. No new Lessons Learned which have not already been identified and recorded within section 4.

6 Statements of Support

6.1 Supporters

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

Department	Individual	Responsibilities
<i>Investment Planner</i>	Pensabene, Patrick M.	Endorses relative to 5-year business plan or emergent work
<i>Resource Planning</i>	Falls, Jonathon	Endorses Resources, cost estimate, schedule, and Portfolio Alignment
Project Management	Fortier, Joseph Jr.	Endorses Resources, cost estimate, schedule
Gas Project Estimation	Paul, Art	Endorses Cost Estimate

USSC Closure Paper



6.2 Reviewers

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

Function	Individual
Finance	Easterly, Patricia
Regulatory	Zschokke, Peter
Jurisdictional Delegate	Currie, John
Procurement	Curran, Art
Control Center	Loiacono, Paul



USSC Closure Paper

7 Decisions

I approve this paper.

Signature *Ross W. Turrini*

Date April 27, 2017

Executive Sponsor – Ross Turrini, Senior Vice President, Gas Process & Engineering
and Chief Gas Engineer

USSC Closure Paper



8 Appendix

FP Proj No	FP Proj Descr	Sum OfCAP	Sum OfCOR	Sum ofCAP&COR
C039267	CI JOINT ENCAPSULATION	\$121,775	\$10,107	\$131,882
CON0030	LEAK REPAIR SCHEDULED/UNSCHEDULED	\$637,243	\$30,964	\$668,207
CRFN211	CI JOINT ENCAPSULATE (RI HUB RULE)	\$26,203	\$0	\$26,203
CRFN219	LEAK INVEST/REPAIR SERV & MAIN-RI	\$873		\$873
CRFS201	MAIN EXPOSR-RI	\$2,356		\$2,356
CRFS211	CI JOINT ENCAPSULATE (RI HUB RULE)	\$11,783	\$0	\$11,783
CRFS219	LEAK INVEST/REPAIR SERV & MAIN-RI	\$377,231		\$377,231
		\$1,177,463	\$41,071	\$1,218,535

Short Form Sanction Paper



Title:	Rhode Island Proactive Service Replacement Program	Sanction Paper #:	USSC-13-116
Project #:	CRCC218	Sanction Type:	Sanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	March 26, 2013
Author:	James Finnerty	Sponsor:	Timothy Small – VP, Gas System Engineering
Utility Service:	Gas	Project Manager:	James Finnerty

1 Sanctioning Summary

This paper requests sanction of Project CRCC218, for the FY2013/14 Rhode Island Proactive Service Replacement Program in the amount of \$3.100M, with a tolerance of +/- 10%, for the purpose of replacing 1,100 high pressure, unprotected steel services with inside meters/regulators located in the Rhode Island service territory.

This sanction amount of \$3.100M is broken down into:

- \$2.728M Capex
- \$0.000M Opex
- \$0.372M Removal

2 Project Detail

2.1 Project Description and Benefits

Following an engineering assessment of National Grid's steel gas service assets in 2007, a determination was made to replace all high pressure, unprotected steel services with meter/regulators located inside a building. The engineering assessment included both detailed asset inventory analyses (i.e. age, material, inside vs. outside, etc.), as well as pressure testing on services throughout the enterprise. Although test results varied throughout the enterprise, test program results indicate the "wall piece" is of integrity concern. A total of 548 services were pressure tested in RI with a failure rate of 5.1%. The purpose of the service replacement is to mitigate the risk of failure of the "wall piece", which is the section of service piping that penetrates through the foundation wall of the building. Since this section of pipe is embedded in the foundation wall (or in a sleeve in the foundation wall) it cannot be visually inspected and there is the potential for undetected corrosion of the steel pipe to take place. The method of replacement involves replacing the steel service with plastic tubing, typically by inserting the plastic inside the existing steel service and relocating the meter/regulator outside the building.

Short Form Sanction Paper



The replacement of these services is also supported by the Company's recently developed Distribution Integrity Management Plan (DIMP), which specifies that the Company implement measures to: know its system; understand the threats to its distribution piping system; and evaluate risks and prepare replacement programs to help mitigate the risks to its leak prone mains and services inventory.

2.1.1 Alternatives:

Alternative 1: Reduce this program to a lower rate of replacement. This option will result in an increased risk of a service failure, potentially providing a path for gas to enter the customer's dwelling. Negative impact on relationship with RI DPUC as we must adhere to the safety replacement program commitments agreed to in the Rhode Island Gas ISR.

2.2 Investment Recovery

The remuneration method for costs included in this FY13-14 program, and for future years, will be provided through the Gas Infrastructure, Safety and Reliability (ISR) Plan.

2.2.1 Customer Impact

This project results in an indicative first full year revenue requirement when the asset is placed in service equal to approximately \$.651M. 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.

3 Related Projects and Scoring

3.1 Summary of Projects:

Project Number	Project Title	Estimate Amount
CRCC218	Rhode Island Proactive Service Replacement P	\$ 3.10
Total		\$ 3.10



Short Form Sanction Paper

3.2 Associated Projects: N/A

Project Number	Project Title	Estimate Amount
Total		\$ -

3.3 Prior Sanctioning History (including relevant approved Strategies): N/A

Date	Governance Body	Sanctioned Amount	Paper Title	Sanction Type

3.4 Category:

Category	Reference to Mandate, Policy, or NPV Assumptions
<input type="radio"/> Mandatory	The classification of this program is policy. The program is in accordance with the Company's policy to deliver safe and reliable gas service to its customers.
<input checked="" type="radio"/> Policy- Driven	The program is also in accordance with the Company's recently developed DIM Plan (as specified by US DOT, 49 CFR Part 192, Subpart P, entitled; "Gas Distribution Pipeline Integrity Management Plan")
<input type="radio"/> Justified NPV	The program meets the requirements set forth in the RI Gas Infrastructure, Safety and Reliability ("ISR") Plan.

3.5 Asset Management Risk Score

Asset Management Risk Score: 44

Primary Risk Score Driver: (Policy Driven Projects Only)

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



Short Form Sanction Paper

3.6 Complexity Level:

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

Complexity Score: 11

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 (\$)
FY14 - FY18 Capital Plan - Gas	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input checked="" type="radio"/> Under	\$0

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

N/A

4.2 CIAC / Reimbursement: N/A

\$M	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	
CIAC/Reimbursement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -



Short Form Sanction Paper

4.3 Cost Summary Table

Project Number	Project Title	Project Estimate	Spend	Prior Yrs	Current Planning Horizon						
					Yr. 1 2013/14	Yr. 2 2014/15	Yr. 3 2015/16	Yr. 4 2016/17	Yr. 5 2017/18	Yr. 6 + 2018/19	Total
CRCC218	Rhode Island Proactive Service Replacement Program	Est Lvl	CapEx	\$ -	\$ 2.73	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2.73
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ 0.37	\$ -	\$ -	\$ -	\$ -	\$ 0.37	
			Total	\$ -	\$ 3.10	\$ -	\$ -	\$ -	\$ -	\$ 3.10	
Total Project Sanction			CapEx	\$ -	\$ 2.73	\$ -	\$ -	\$ -	\$ -	\$ 2.73	
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ 0.37	\$ -	\$ -	\$ -	\$ -	\$ 0.37	
			Total	\$ -	\$ 3.10	\$ -	\$ -	\$ -	\$ -	\$ 3.10	

4.4 Project Budget Summary Table

Project Costs per Business Plan

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2013/14	Yr. 2 2014/15	Yr. 3 2015/16	Yr. 4 2016/17	Yr. 5 2017/18	Yr. 6 + 2018/19	
CapEx	\$ -	\$ 2.73	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2.73
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ 0.37	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.37
Total Cost in Bus. Plan	\$ -	\$ 3.10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3.10

Variance (Business Plan-Project Estimate)

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2013/14	Yr. 2 2014/15	Yr. 3 2015/16	Yr. 4 2016/17	Yr. 5 2017/18	Yr. 6 + 2018/19	
CapEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Cost in Bus. Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

5 Key Milestones:

Milestone	Target Date: Month/Year
Final Engineering Complete	December 2012
Start Applying for Permits	January 2013
Engage Required Resources	January 2013
Construction Start Date	April 2013
Construction Complete	March 2014
Commissioning	March 2014
Project Close-out	June 2014


Short Form Sanction Paper



6 Decisions:

I:

- (a) APPROVE this paper and the investment of \$3.100M and a tolerance of +/- 10%
- (b) NOTE that James Finnerty is the Project Manager and has the approved financial delegation.

Signature..........Date 4/8/2013

Marie Jordan
Senior Vice President
Network Strategy



USSC Closure Paper

Title:	FY 14- Rhode Island Proactive Service Replacement Program-RI	Sanction Paper #:	USSC-13-116C
Project #:	CRCC218 and C031892	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	March 30, 2017
Author:	Saadat Khan/Dana Wolkiewicz	Sponsor:	John Stavrakas, – VP Gas Asset Management
Utility Service:	Gas	Project Manager:	Saadat Khan/Dana Wolkiewicz

1 Executive Summary

This paper is presented to close CRCC218 and C031892. The total spend was \$2.547M . The sanctioned amount for this project was \$3.100M.

The final spend amount is \$2.547M broken down into:

\$2.494M Capex

\$0.000M Opex

\$.0053M Removal

2 Project Summary

Following an engineering assessment of National Grid's steel gas service assets in 2007, a determination was made to replace all high pressure, unprotected steel services with meter/regulators located inside a building. The engineering assessment included both detailed asset inventory analyses (i.e. age, material, inside vs. outside, etc.), as well as pressure testing on services throughout the enterprise. Although test results varied throughout the enterprise, test program results indicate the "wall piece" is of integrity concern. A total of 548 services were pressure tested in NYC with a failure rate of 5.1%. The purpose of the service replacement is to mitigate the risk of failure of the "wall piece", which is the section of service piping that penetrates through the foundation wall of the building. Since this section of pipe is embedded in the foundation wall (or in a sleeve in the foundation wall), it cannot be visually inspected and there is the potential for undetected corrosion of the steel pipe to take place. The method of replacement involves replacing the steel service with plastic tubing, typically by inserting the plastic inside the existing steel service and relocating the meter/regulator outside the building.

The replacement of leak prone services is also supported by the Company's recently developed Distribution Integrity Management Plan (DIMP), which specifies that the Company implement measures to: know its system; understand the threats to its



USSC Closure Paper

distribution piping system; and evaluate risks and prepare replacement programs to help mitigate the risks to its leak prone mains and services inventory.

3 Over / Under Expenditure Analysis

Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
CRCC218	PROACT SERV REPLACE PROG-RI	Capex	1.564
		Opex	0.000
		Removal	0.045
		Total	1.609
Project #	Description		Total Spend
C031892	SERVICE REPLACEMENT PROGRAM	Capex	0.930
		Opex	0.000
		Removal	0.008
		Total	0.938
Total		Capex	2.494
		Opex	0.000
		Removal	0.053
		Total	2.547

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	2.728
		Opex	0.000
		Removal	0.372
		Total Cost	3.100
Sanction Variance (\$M)			Total Spend
		Capex	0.234
		Opex	0.000
		Removal	0.319
		Total Variance	0.553

USSC Closure Paper



3.2 Analysis

The Rhode Island Proactive Service Replacement Program is 18% under plan. There are multiple contributing factors to the underruns. Resource limitations contributed to the under spend. In addition, cycle time of obtaining permits and long lead materials delayed work. There were challenges with estimates on larger projects within the program. Timing of restoration scheduling due to colder weather continues to effect progress of work.

4 Improvements / Lessons Learned/Root Cause

- Improve development of estimating practices.
- Work with Finance and Resource Planning to create better financial metrics.
- Create Long Term resource requirements for future Capital planning.
- Identify carryover or deferred projects in a timely fashion.

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
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 (1)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All as-builts have been completed (2)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All lessons learned have been entered appropriately into the lesson learned database (3)	<input type="radio"/> Yes <input checked="" type="radio"/> No

- (1) All work orders and funding projects have been closed
Program/Blanket projects may contain work orders and or funding projects which have not yet been closed for reasons including but not limited to:



USSC Closure Paper

- the same work order(s) are used annually. They will remain open until Asset Management and/or Resource Planning have determined work orders are no longer needed .
- construction may cross multiple fiscal years
- the work order closing process is within the late charge waiting period
- other accounting processes or final system closing activities have not yet completed

The Program/Blanket projects are approved annually for the current year expected spend and remain open until Asset Management and/or Resource Planning have determined the project is no longer required.

(2) All as-builts have been completed

Program/Blanket projects may contain work orders for which no as-builts have yet been recorded for reasons including but not limited to:

- design and/or construction have not yet completed
- construction may cross multiple fiscal years
- work has completed recently and as-builts have not yet been processed into the system
- does not apply. Work order(s) are not linked to work management systems. (example: Meter Purchases, Meter Changes, AMR Installations Purchase Misc Capital Tools/Equipment, etc.) does not apply to Information systems projects.

(3) All lessons learned have been entered appropriately into the lesson learned database

Program/Blanket projects usually contain short cycle work which the Company has been performing over several fiscal years. No new Lessons Learned which have not already been identified and recorded within section 4.



USSC Closure Paper

6 Statements of Support

6.1 Supporters

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

Department	Individual	Responsibilities
<i>Investment Planner</i>	Pensabene, Patrick M.	Endorses relative to 5-year business plan or emergent work
<i>Resource Planning</i>	Falls, Jonathon	Endorses Resources, cost estimate, schedule, and Portfolio Alignment
Project Management	Fortier, Joseph Jr.	Endorses Resources, cost estimate, schedule
Gas Project Estimation	Paul, Art	Endorses Cost Estimate

6.2 Reviewers

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

Function	Individual
Finance	Easterly, Patricia
Regulatory	Zschokke, Peter
Jurisdictional Delegate	Currie, John
Procurement	Curran, Art
Control Center	Loiacono, Paul

USSC Closure Paper



7 Decisions

I approve this paper.

Signature *Ross W. Turrini*

Date April 27, 2017

Executive Sponsor - Ross Turrini – Senior Vice President, Gas Process & Engineering
and Chief Gas Engineer

Short Form Sanction Paper



Title:	FY14 Service Replacement - Reactive	Sanction Paper #:	USSC-13-204
Project #:	Various	Sanction Type:	Sanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	April 23, 2013
Author:	Fred Amaral, Director M&C	Sponsor:	William Akley, SVP of Operations
Utility Service:	Gas	Project Manager:	Fred Amaral, Director M&C

1 Sanctioning Summary

This paper requests the sanctioning of various project numbers in the amount of \$7.45m for the FY14 Service Replacement – Reactive Program with a tolerance of +/- 10% for the purposes of providing funding for the reactive repair, replacement and abandonment of existing underground services.

The sanction amount of \$7.45m is broken down into;

Service Replacement – Leaks	\$5.63m Capex
Service Replacement – Non-Leaks/Other	\$0.65m Capex
Cost of Removal	\$1.17m Capex
	\$0.00m Opex

2 Project Detail

2.1 Project Description and Benefits

This proposed blanket investment is to provide approved funding for the reactive replacement of gas services to address leaks and non-leak work activities that fall outside the normal scope of the integrity, reliability, public works and growth programs. These activities include; randomly occurring underground service leaks, damages, service abandonments due to inactivity or demolition requests, customer driven relocations of existing services, and other substandard conditions.

The proactive main and service replacement programs upgrade existing customer services prioritized by risk based on pressure, material, vintage, location, and select other variables. The potential for leakage and other maintenance activities on the remaining services exists and requires a reactive response to correct the deficiency which is the focus of this request.

Short Form Sanction Paper



2.1.1 Alternatives:

These work activities are random, emergency driven, mandated and customer driven in nature, therefore, there is not an alternative to completing the activities.

2.2 Investment Recovery

Investment recovery will be through the standard rate recovery mechanisms.

2.2.1 Customer Impact

This project results in an indicative first full year revenue requirement when the asset is placed in service equal to approximately \$1.32m. This is indicative. 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.

3 Related Projects and Scoring

3.1 Summary of Projects:

Project Number	Project Title	Estimate Amount
CRFN219	Leak Repair/Services	\$ 1.21
CRFS219	Leak Repair/Services	\$ 4.84
CRFN310	Capped Alive-IRA/IRMA	\$ 0.03
CRFS310	Capped Alive-IRA/IRMA	\$ 0.28
CRFN210	Non Leak Service Work	\$ 0.09
CRFS210	Non Leak Service Work	\$ 0.49
CRFN309	Service Demolitions	\$ 0.08
CRFS309	Service Demolitions	\$ 0.43
Total		\$ 7.45

3.2 Associated Projects:



Short Form Sanction Paper

3.3 Prior Sanctioning History (including relevant approved Strategies):

Date	Governance Body	Sanctioned Amount	Paper Title	Sanction Type

3.4 Category:

Category	Reference to Mandate, Policy, or NPV Assumptions
<input checked="" type="radio"/> Mandatory	Mandatory work activities related to emergency response and regulatory compliance as stipulated in the National Grid Maintenance Plan, DOT192 and State Requirements.
<input type="radio"/> Policy- Driven	There is also Policy-Driven work included in this sanctioning related to customer driven requests.
<input type="radio"/> Justified NPV	

3.5 Asset Management Risk Score

Asset Management Risk Score: 49

Primary Risk Score Driver: (Policy Driven Projects Only)

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

3.6 Complexity Level:

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

Complexity Score: 15



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 (\$)
FY14-FY18 Capital Plan - Gas	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input checked="" type="radio"/> Under	\$0.00

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

4.2 CIAC / Reimbursement

\$M	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	
CIAC/Reimbursement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -



Short Form Sanction Paper

4.4 Project Budget Summary Table

Project Costs per Business Plan

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	
CapEx	\$ -	\$ -	\$ 6.28	\$ -	\$ -	\$ -	\$ -	\$ 6.28
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ -	\$ 1.17	\$ -	\$ -	\$ -	\$ -	\$ 1.17
Total Cost in Bus. Plan	\$ -	\$ -	\$ 7.45	\$ -	\$ -	\$ -	\$ -	\$ 7.45

Variance (Business Plan-Project Estimate)

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	
CapEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Cost in Bus. Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

5 Key Milestones:

Milestone	Target Date: (Month/Year)
Start Work	April 2013
Complete Work	March 2014
Closure	June 2014

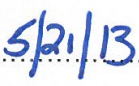


Short Form Sanction Paper

6 Decisions:

The US Sanctioning Committee (USSC) at a meeting held on April 24, 2013:

- (a) APPROVED this paper and the investment of \$7.45M and a tolerance of +/- 10%
- (b) NOTED that Fred Amaral is the Project Manager and has the approved financial delegation.

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

Lee Eckert
Chief Financial Officer
Chairman, US Sanctioning Committee

USSC Closure Paper



Title:	FY14 Service Replacement – Reactive	Sanction Paper #:	USSC-13-204C
Project #:	Various (see appendix)	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	March 30, 2017
Author:	Kevin Browne/Fred Pisani	Sponsor:	Neil Proudman, VP Operations, NE
Utility Service:	Gas	Project Manager:	Kevin Browne/Fred Pisani

1 Executive Summary

This paper is presented to close various projects (see appendix). The total spend was \$12.994M. The sanctioned amount for this project was \$7.450M.

The final spend amount is \$12.994M broken down into:

\$11.426M Capex

\$0.000M Opex

\$1.568M Removal

2 Project Summary

This closure blanket is for the reactive replacement of gas services to address leaks and non-leak work activities that fall outside the normal scope of the integrity, reliability, public works and growth programs. These activities included; randomly occurring underground service leaks, damages, service abandonments due to inactivity or demolition requests, customer driven relocations of existing services, and other substandard conditions.

The proactive main and service replacement programs upgraded existing customer services prioritized by risk based on pressure, material, vintage, location, and select other variables. The potential for leakage and other maintenance activities on the remaining services existed and required a reactive response to correct the deficiency.

USSC Closure Paper



3 Over / Under Expenditure Analysis

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
Various (see appendix)	FY14 Service Replacement – Reactive	Capex	11.426
		Opex	0.000
		Removal	1.568
		Total	12.994
Total		Capex	11.426
		Opex	0.000
		Removal	1.568
		Total	12.994

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	6.280
		Opex	0.000
		Removal	1.170
		Total Cost	7.450
Sanction Variance (\$M)			Total Spend
		Capex	(5.146)
		Opex	0.000
		Removal	(0.398)
		Total Variance	(5.544)



USSC Closure Paper

3.2 Analysis

The FY14 Service Replacement – Reactive Blanket is 74% over plan. There are multiple contributing factors to the underruns. This blanket is for reactive work. The volume of work attributable to this underrun. In addition, there were challenges with estimates on projects within the blanket.

4 Improvements / Lessons Learned/Root Cause

- Improve development of estimating practices.
- Work with Finance and Resource Planning to create better financial metrics.
- Create Long Term resource requirements for future Capital planning.
- Identify carryover or deferred projects in a timely fashion.

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
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 (1)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All as-builts have been completed (2)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All lessons learned have been entered appropriately into the lesson learned database (3)	<input type="radio"/> Yes <input checked="" type="radio"/> No

(1) All work orders and funding projects have been closed
Program/Blanket projects may contain work orders and or funding projects which have not yet been closed for reasons including but not limited to:

- the same work order(s) are used annually. They will remain open until Asset Management and/or Resource Planning have determined work orders are no longer needed .
- construction may cross multiple fiscal years
- the work order closing process is within the late charge waiting period

USSC Closure Paper



- other accounting processes or final system closing activities have not yet completed

The Program/Blanket projects are approved annually for the current year expected spend and remain open until Asset Management and/or Resource Planning have determined the project is no longer required.

(2) All as-builts have been completed

Program/Blanket projects may contain work orders for which no as-builts have yet been recorded for reasons including but not limited to:

- design and/or construction have not yet completed
- construction may cross multiple fiscal years
- work has completed recently and as-builts have not yet been processed into the system
- does not apply. Work order(s) are not linked to work management systems. (example: Meter Purchases, Meter Changes, AMR Installations Purchase Misc Capital Tools/Equipment, etc.)
- does not apply to Information systems projects.

(3) All lessons learned have been entered appropriately into the lesson learned database

Program/Blanket projects usually contain short cycle work which the Company has been performing over several fiscal years. No new Lessons Learned which have not already been identified and recorded within section 4.



USSC Closure Paper

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 Planner	Pensabene, Patrick M.	Endorses relative to 5-year business plan or emergent work
Resource Planning	Falls, Jonathon	Endorses Resources, cost estimate, schedule, and Portfolio Alignment
Project Management	Fortier, Joseph Jr.	Endorses Resources, cost estimate, schedule
Gas Project Estimation	Paul, Art	Endorses Cost Estimate

6.2 **Reviewers**

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

Function	Individual
Finance	Easterly, Patricia
Regulatory	Zschokke, Peter
Jurisdictional Delegate	Currie, John
Procurement	Curran, Art
Control Center	Loiacono, Paul



USSC Closure Paper

7 Decisions

The US Sanctioning Committee (USSC) approved this paper on March 30, 2017.

Signature *Ross W. Turrini*

Date April 27, 2017

Executive Sponsor – Ross Turrini, Senior Vice President, Gas Process & Engineering
and Chief Gas Engineer

USSC Closure Paper



8 Appendix:

Sanction Paper No	Original Approved	FP Proj No	FP Proj Descr	Sum of CAP	Sum of COR	Sum of CAP&COR	Sum of O&M	Sum of Total Actuals Gross
USSC-13-204	\$7,450,000	CON0029	MANDATED SERVICE & SERVICE CUTOFF	\$130,000	(\$750)	\$135,348		\$135,348
		CRCC210	REACT MAIN & SERV WORK NONLEAK-RI	\$224,388		\$224,388		\$224,388
		CRFN210	REACT MAIN & SERV WORK NONLEAK-RI	\$120,949	\$708	\$121,657		\$121,657
		CRFN210	LEAK INVEST/REPAIR SERV & MAIN-RI	\$678,812	\$38,143	\$716,956		\$716,956
		CRFN309	SERVICE DEMOLITIONS-RI	\$11,777	\$82,100	\$93,877		\$93,877
		CRFN310	CAPPD ALVE (RA/RMA- RI	\$982	\$12,061	\$13,043		\$13,043
		CRFS210	REACT MAIN & SERV WORK NONLEAK-RI	\$1,522,014	\$45,649	\$1,567,663		\$1,567,663
		CRFS210	LEAK INVEST/REPAIR SERV & MAIN-RI	\$8,885,334	\$187,312	\$9,072,646		\$9,072,646
		CRFS309	SERVICE DEMOLITIONS-RI	\$44,888	\$1,105,105	\$1,230,833		\$1,230,833
		CRFS310	CAPPD ALVE (RA/RMA- RI	\$1,107	\$7,285	\$8,392		\$8,392
USSC-13-204 Total				\$11,426,129	\$1,567,674	\$12,993,803		\$12,993,803

Low Complexity Sanction Paper



Title:	Gas Planning – Reliability Narragansett Gas FY 2013-14	Sanction Paper #:	USSC-13-035
Project #:	CRCC401	Sanction Type:	Sanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	02/27/2013
Author:	Adnan Malik & John Stavrakas – Director Long Term Planning & Project Development	Sponsor:	Timothy F. Small VP Gas Systems Engineering
Utility Service:	Gas	Project Manager:	Thomas J. Finneral

1 Sanctioning Summary

This paper requests sanction of FY2013/14 System Reliability (Gas Planning) program in the amount of \$1,136,000 and a tolerance of +/- 10% for the purposes engineering & design, permitting, procurement of materials/services, construction, and/or other project related activities or full implementation.

This sanction amount of \$1.136M is broken into:

\$1.114M	Capex
\$0	Opex
\$0.022M	Removal

2 Project Detail

2.1 Project Description and Benefits

The Long Term Planning reliability projects are identified and developed to improve the overall reliability of the company transmission and distribution systems. The Rhode Island distribution network consists of over fifty (50) independent distribution and feeder systems. Pressure and flow on the system is controlled through a network of cascading feeder and distribution systems fed by eighteen (18) take stations and production facilities and consisting of one hundred eighty three (183) regulator stations. Reliability is defined in this context as the likelihood or probability of experiencing customer service outages on all or portions of these systems. The distribution network layout and operation of these systems vary significantly by area. Differences in design practices of legacy companies over many decades have resulted in significant variation in levels of reliability throughout Rhode Island, and the entire US gas distribution service territory. In some cases, expansion of both the customer base and distribution mains has resulted in changes on the system that impact reliability over time (i.e., probability and number of customers at risk increases). Reliability is assessed by reviewing the ability of various operating systems to respond to abnormal operating conditions (e.g., shutdown of pipeline or facility). Gas system reliability concerns include transmission and distribution systems with limited number of feeds (i.e.,

Low Complexity Sanction Paper



take stations or regulator stations), systems that are either weakly integrated or consist of long single-feed laterals, networks that contain a wide variety of operating pressures, pressure regulating equipment in areas prone to flooding, and varying design philosophies associated with system and equipment redundancy (e.g., production plants, take stations, regulator stations).

Reliability projects which improve reliability and operation of the distribution system in a cost-efficient manner are identified and proposed for construction. Prospective projects are evaluated for additional system benefits and synergy with other proposed capital projects and often have the added benefit of increasing system capacity and improving operability of the network. In addition, many of these projects also create the opportunity to replace or abandon aging infrastructure (e.g., "leak-prone pipe"), providing a benefit to the integrity program or be combined with public works activities.

The goal and primary driver of the program is to improve overall system reliability. The program includes a variety of types of projects that create flexibility in how the system is operated and adaptability for abnormal system operation scenarios.

A major driver in the FY 2013/14 Program looks to improve reliability in operability and maintenance of system regulators under adverse conditions while removing risks of customer outages. Although some single-feed systems cannot be integrated with other systems due to locations, the program looks to increase reliability by other means. This includes a project to relocate pressure-regulating equipment out of flood zones that are known to be adversely affected during periods of extreme flooding. While not only increasing operability, this project looks to decrease deterioration of pipeline and facility assets.

This program includes the design, procurement, construction, testing and completion of capital additions. The projects are organized by the following project types:

- **Flood Zone Remediation – One (1) Project \$1.12M**
This project addresses pipeline facilities (district regulators) that have experienced severe flooding and that would impact a substantial number of customers if out of service. This year's regulator relocation/reconfiguration projects address reliability concerns that arose at the Canal Street take station in Westerly, Rhode Island, during the severe flood that occurred in the spring of 2010. This involves the installation of three (3) prefabricated vaults for the relocation of regulator stations RIS-OOBH, RIS-OOBL, & RIS-OOG along with 2,318ft of new pipe, and the abandonment of 344ft of "leak-prone" pipe.
- **Engineering Costs for Fiscal Year 2014/15 Projects - \$0.02M**
These are costs associated with the design of complex projects that are planned for construction during 2014/15. The Level 1 estimate was determined by Project Engineering and based on historical data.

Low Complexity Sanction Paper



In summary, the above mentioned work will improve reliability to approximately 4,280 customers. The relocation/reconfiguration of three (3) district regulators also benefits System Integrity's risk assessment program.

2.1.1 Alternatives:

Alternative 1: Construct reliability projects – Recommended

This option provides the greatest benefit because it improves overall system reliability by:

1. Reducing the possibility of unforeseen events that have the potential to cause customer outages.

This option also reduces potential O&M costs associated with regulator station repairs incurred by I&R.

Alternative 2: Do Nothing / Deferral

The consequences of not completing the proposed work would result in a failure to take advantage of cost-effective ways to improve distribution system reliability in a proactive manner as discussed above. It could also potentially result in disruption of service for up to approximately 4,280 customers with adverse operation conditions.

2.2 Investment Recovery

2.2.1 Customer Impact

This program results in an indicative first full year revenue requirement when the asset is placed in service equal to approximately \$0.234M. 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 the rate base.

3 Related Projects and Scoring

3.1 Summary of Projects:

Project Number	Project Title	Estimate Amount
CRCC401	Gas Planning - Reliability	\$ 0.02
C048063	Canal St Relocation	\$ 1.12
Total		\$ 1.14



Low Complexity Sanction Paper

3.2 Associated Projects:

Project Number	Project Title	Estimate Amount
N/A		\$ -
Total		\$ -

3.3 Prior Sanctioning History (including relevant approved Strategies):

Date	Governance Body	Sanctioned Amount	Paper Title	Sanction Type
N/A				

3.4 Category:

Category	Reference to Mandate, Policy, or NPV Assumptions
<input type="radio"/> Mandatory <input checked="" type="radio"/> Policy- Driven <input type="radio"/> Justified NPV	National Grid's goal is to operate a reliable gas distribution system and thus maintain continuous, uninterrupted service to all customers throughout the year.

3.5 Asset Management Risk Score

Asset Management Risk Score: 37

Primary Risk Score Driver: (Policy Driven Projects Only)

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

3.6 Complexity Level:

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

Complexity Score: 15

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 (\$)

Low Complexity Sanction Paper

nationalgrid

FY14-FY18 Capital Plan – Gas	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under	+\$207,000
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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 2012/13	Yr. 2 2013/14	Yr. 3 2014/15	Yr. 4 2015/16	Yr. 5 2016/17	Yr. 6 + 2017/18	Total
CIAC/Reimbursement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

4.3 Cost Summary Table

Project Number	Project Title	Project Estimate	Spend	Prior Yrs	Current Planning Horizon						Total	
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +		
					2013/14	2014/15	2015/16	2016/17	2017/18	2018+		
CRCC401	Gas Planning - Reliability	1	CapEx	\$ -	\$ 0.02	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.02
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Total	\$ -	\$ 0.02	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.015	

Project Number	Project Title	Project Estimate	Spend	Prior Yrs	Current Planning Horizon						Total
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
					2013/14	2014/15	2015/16	2016/17	2017/18	2018+	
C048063	Canal St Relocation	3	CapEx	\$ -	\$ 1.10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1.10
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ 0.02	\$ -	\$ -	\$ -	\$ -	\$ 0.02	
			Total	\$ -	\$ 1.12	\$ -	\$ -	\$ -	\$ -	\$ 1.121	

Total Project Sanction	CapEx	\$ -	\$ 1.11	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1.11
	OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Removal	\$ -	\$ 0.02	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.02
	Total	\$ -	\$ 1.14	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1.136

4.4 Project Budget Summary Table

Project Costs per Business Plan

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2013/14	Yr. 2 2014/15	Yr. 3 2015/16	Yr. 4 2016/17	Yr. 5 2017/18	Yr. 6 + 2018+	
CapEx	\$ -	\$ 0.91	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.91
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ 0.02	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.02
Total Cost in Bus. Plan	\$ -	\$ 0.93	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.93

Variance (Business Plan-Project Estimate)

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2013/14	Yr. 2 2014/15	Yr. 3 2015/16	Yr. 4 2016/17	Yr. 5 2017/18	Yr. 6 + 2018+	
CapEx	\$ -	\$ (0.20)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (0.20)
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ (0.00)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (0.00)
Total Cost in Bus. Plan	\$ -	\$ (0.21)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (0.21)

Low Complexity Sanction Paper



5 Key Milestones:

Milestone	Target Date: (Month/Year)
Sanctioning Approval	02/2013
Begin Construction	04/2013
Projects in Service	11/2013
Construction Complete	03/2014
Project Close Out	07/2014

Low Complexity Sanction Paper



6 Decisions:

I:

- (a) APPROVED this paper and the investment of \$1.136M & a tolerance of +/- 10%
- (b) NOTED that Thomas J. Finneral has the approved financial delegation.

Signature.....

Date.....2/25/2013

Marie Jordan
Senior Vice President
Network Strategy

USSC Closure Paper



Title:	FY 14 Gas Planning – Reliability Narragansett Gas	Sanction Paper #:	USSC-13-035C
Project #:	Various - (see appendix)	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	3/30/2017
Author:	Eric Aprigliano/Adnan Malik	Sponsor:	John Stavrakas, – VP Gas Asset Management
Utility Service:	Gas	Project Manager:	Tom Finneral

1 Executive Summary

This paper is presented to close various projects - (see appendix) projects. The total spend was \$0.553M. The sanctioned amount for this project was \$1.136M

The final spend amount is \$0.553M broken down into:

\$0.553M Capex

\$0.000M Opex

\$0.000M Removal

USSC Closure Paper



2 Project Summary

The Long Term Planning reliability projects are identified and developed to improve the overall reliability of the company transmission and distribution systems. The Rhode Island distribution network consists of over fifty (50) independent distribution and feeder systems. Pressure and flow on the system is controlled through a network of cascading feeder and distribution systems fed by eighteen (18) take stations and production facilities and consisting of one hundred eighty three (183) regulator stations. Reliability is defined in this context as the likelihood or probability of experiencing customer service outages on all or portions of these systems. The distribution network layout and operation of these systems vary significantly by area. Differences in design practices of legacy companies over many decades have resulted in significant variation in levels of reliability throughout Rhode Island, and the entire US gas distribution service territory. In some cases, expansion of both the customer base and distribution mains has resulted in changes on the system that impact reliability over time (i.e., probability and number of customers at risk increases). Reliability is assessed by reviewing the ability of various operating systems to respond to abnormal operating conditions (e.g., shutdown of pipeline or facility). Gas system reliability concerns include transmission and distribution systems with limited number of feeds (i.e.,

take stations or regulator stations), systems that are either weakly integrated or consist of long single-feed laterals, networks that contain a wide variety of operating pressures, pressure regulating equipment in areas prone to flooding, and varying design philosophies associated with system and equipment redundancy (e.g., production plants, take stations, regulator stations).

Reliability projects which improve reliability and operation of the distribution system in a cost-efficient manner are identified and proposed for construction. Prospective projects are evaluated for additional system benefits and synergy with other proposed capital projects and often have the added benefit of increasing system capacity and improving operability of the network. In addition, many of these projects also create the opportunity to replace or abandon aging infrastructure (e.g., "leak-prone pipe"), providing a benefit to the integrity program or be combined with public works activities.

The goal and primary driver of the program is to improve overall system reliability. The program includes a variety of types of projects that create flexibility in how the system is operated and adaptability for abnormal system operation scenarios.

USSC Closure Paper



A major driver in the FY 2013/14 Program looks to improve reliability in operability and maintenance of system regulators under adverse conditions while removing risks of customer outages. Although some single-feed systems cannot be integrated with other systems due to locations, the program looks to increase reliability by other means. This includes a project to relocate pressure-regulating equipment out of flood zones that are known to be adversely affected during periods of extreme flooding. While not only increasing operability, this project looks to decrease deterioration of pipeline and facility assets.

This program includes the design, procurement, construction, testing and completion of capital additions. The projects are organized by the following project types:

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This project addresses pipeline facilities (district regulators) that have experienced severe flooding and that would impact a substantial number of customers if out of service. This year's regulator relocation/reconfiguration projects address reliability concerns that arose at the Canal Street take station in Westerly, Rhode Island, during the severe flood that occurred in the spring of 2010. This involves the installation of three (3) prefabricated vaults for the relocation of regulator stations RIS-OOBH, RIS-OOBL, & RIS-OOG along with 2,318ft of new pipe, and the abandonment of 344ft of "leak-prone" pipe.
- **Engineering Costs for Fiscal Year 2014/15 Projects - \$0.02M**
These are costs associated with the design of complex projects that are planned for construction during 2014/15. The Level 1 estimate was determined by Project Engineering and based on historical data.

USSC Closure Paper



3 Over / Under Expenditure Analysis

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
Various (see appendix)	Gas Planning – Reliability Narragansett Gas FY 2013-14	Capex	0.553
		Opex	0.000
		Removal	0.000
		Total	0.553
Total		Capex	0.553
		Opex	0.000
		Removal	0.000
		Total	0.553

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	1.114
		Opex	0.000
		Removal	0.022
		Total Cost	1.136
Sanction Variance (\$M)			Total Spend
		Capex	0.561
		Opex	0.000
		Removal	0.022
		Total Variance	0.583

3.2 Analysis

Gas Planning – Reliability Narragansett Gas FY 2013-14 program is 51% under plan. There are multiple contributing factors to the underruns. Resource limitations contributed to the under spend. In addition, cycle time of obtaining permits and long lead materials delayed work. There were challenges with estimates on larger projects within the program. Timing of restoration scheduling due to colder weather continues to effect progress of work.

4 Improvements / Lessons Learned/Root Cause

- Improve development of estimating practices.
- Work with Finance and Resource Planning to create better financial metrics.



USSC Closure Paper

- Create Long Term resource requirements for future Capital planning.
- Identify carryover or deferred projects in a timely fashion.

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
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 (1)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All as-builts have been completed (2)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All lessons learned have been entered appropriately into the lesson learned database (3)	<input type="radio"/> Yes <input checked="" type="radio"/> No

- (1) All work orders and funding projects have been closed
Program/Blanket projects may contain work orders and or funding projects which have not yet been closed for reasons including but not limited to:
- the same work order(s) are used annually. They will remain open until Asset Management and/or Resource Planning have determined work orders are no longer needed .
 - construction may cross multiple fiscal years
 - the work order closing process is within the late charge waiting period
 - other accounting processes or final system closing activities have not yet completed

The Program/Blanket projects are approved annually for the current year expected spend and remain open until Asset Management and/or Resource Planning have determined the project is no longer required.

- (2) All as-builts have been completed

USSC Closure Paper



Program/Blanket projects may contain work orders for which no as-builts have yet been recorded for reasons including but not limited to:

- design and/or construction have not yet completed
- construction may cross multiple fiscal years
- work has completed recently and as-builts have not yet been processed into the system
- does not apply. Work order(s) are not linked to work management systems. (example: Meter Purchases, Meter Changes, AMR Installations Purchase Misc Capital Tools/Equipment, etc.)
- does not apply to Information systems projects.

(3) All lessons learned have been entered appropriately into the lesson learned database

Program/Blanket projects usually contain short cycle work which the Company has been performing over several fiscal years. No new Lessons Learned which have not already been identified and recorded within section 4.

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	Pensabene, Patrick M.	Endorses relative to 5-year business plan or emergent work
Resource Planning	Falls, Jonathon	Endorses relative to 5-year business plan or emergent work
Project Management	Fortier, Joseph Jr.	Endorses Resources, cost estimate, schedule
Gas Project Estimation	Paul, Art	Endorses Cost Estimate



USSC Closure Paper

6.2 Reviewers

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

Function	Individual
Finance	Easterly, Patricia
Regulatory	Zschokke, Peter
Jurisdictional Delegate	Currie, John
Procurement	Curran, Art
Control Center	Loiacono, Paul

USSC Closure Paper



7 Decisions

I approve this paper.

Signature *Ross W. Turrini* Date April 27, 2017
Executive Sponsor - Ross Turrini – Senior Vice President, Gas Process & Engineering
and Chief Gas Engineer

USSC Closure Paper



8 Appendix

FP Proj No	FP Proj Descr	Sum OfCAP	Sum OfCOR	Sum ofCAP&COR
C033090	RI UPRATINGS/DERATINGS FY09/10	(\$1,016)		(\$1,016)
C048063	CANAL STREET - REGULATOR RELOC	\$330,436	\$272	\$330,708
CON0036	RI-GAS-MAIN REPL-SYS ENHAN-RI BLNKT	\$215,129	\$0	\$215,129
CON0038	RI-GAS-REGLTR STAT REPL-RI BLANKET	\$190		\$190
CRCC401	GAS PLANNING - RELIABILITY-RI	\$8,465		\$8,465
C029210	CROSS COMPANY PROJECT MANAGEMENT RI	\$1		\$1
		\$553,205	\$272	\$553,477

Funding Project Information			
Description GRS Heater Program-RI		Funding Proj CRIC214	
Company 5360-Narragansett Electric			
Bus Segment RIGASD	Last Approved Rev 8		
Budget CRIC214	Status open	FP ID 326095568	
Department 78155360G - NE I&R	F. P. Type P_Gas Distribution Construction RI		
Long Description GRS Heater Program			
Major Location MASS PLANT - RI (Gas)	Asset Location RIG1000 - Burriville - 0641		
Asset Loc Det RIG1000 - Burriville - 0641 - Gas Distribution Mass Accounts			
Notes			
Reason	Approval Group <none>		
Est Start Date 4/1/2017	Late Charge Wait 0 Months		
Est Complete 3/31/2018	In Service Date		
Est In Service 3/31/2018	Completion Date		
Est Annual Rev	First CPR Month		
Initiated By DIACOM	Close Date		
Date Suspended	Date Initiated 11/8/2012		

Details

Accounts

Contacts

Class Codes

Justification

Tax Status

Authorizations

User Comment

Review

Related FPs

Audits

Delete FP

Cancel FP

Suspend FP

Estimates

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Record **1** of 1

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Funding Project Information			
Title	GRS Heater Program-RI		
Funding Project	CRIC214		
Class Codes		<div> Details Accounts Contacts Class Codes Justification Tax Status Authorizations User Comment Review Related FPs </div>	
Budget Plant Class	Gas Distribution PAM		
Send to SE			
<u>Miscellaneous Billing</u>			
Misc Billing Status			
<u>Required</u>			
Force Billing Flag			
RDV Allocation Eligible			
<u>Sanctioning Data</u>			
DOA Amount			
Lower Tolerance			
Strategy Type Name			
Upper Tolerance			
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Funding Project Information					
New Approval Type		Budget Version		Default (inactive)	
Funding Project	Revision	Rev			
CRIC214	2	<input type="button" value="K"/> <input type="button" value="<"/> <input type="button" value=">"/> <input type="button" value="I"/>			
Approval Type	Amount		<input type="button" value="Send for Approval"/>		
DOA Approval - Manual	\$534,000.00		<input type="button" value="Refresh"/>		
Status	Sent By	Date Sent	Date Appr		
Approved	Werther, Walter J	3/4/2013	3/7/2013		
+ Approver 1 -----		Approver	Required	Date Approved	Authority Limit
		Small, Timothy F	<input checked="" type="checkbox"/>	3/7/2013	\$1,000,000

Record of 1

Funding Project Information			
Description LNG - Cumberland LNG		Funding Proj CRLC406	
Company 5360-Narragansett Electric			
Bus Segment RIGASD	Last Approved Rev 7		
Budget CRLC406	Status open	FP ID 326095572	
Department 61505360G - LNG Operatio	F. P. Type P_Gas Distribution Construction RI		
Long Description LNG - Cumberland LNG			
Major Location MASS PLANT - RI (Gas)	Asset Location		
Asset Loc Det			
Notes			
Reason	Approval Group <none>		
Est Start Date 4/1/2017	Late Charge Wait 0 Months		
Est Complete 3/31/2018	In Service Date		
Est In Service 3/31/2018	Completion Date		
Est Annual Rev	First CPR Month		
Initiated By DIACOM	Close Date		
Date Suspended	Date Initiated 11/8/2012		

Details

Accounts

Contacts

Class Codes

Justification

Tax Status

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Record **1** of 1
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Funding Project Information		<input type="button" value="-"/> <input type="button" value="□"/> <input type="button" value="X"/>	
<div> <div>Title</div> <div>LNG - Cumberland LNG</div> </div> <div> <div>Funding Project</div> <div>CRLC406</div> </div>		<div>Details</div> <div>Accounts</div> <div>Contacts</div> <div>Class Codes</div> <div>Justification</div> <div>Tax Status</div> <div>Authorizations</div> <div>User Comment</div> <div>Review</div> <div>Related FPs</div>	
<div>Class Codes</div> <div> <div>Budget Plant Class</div> <div>Gas Distribution PAM</div> </div> <div> <div>Send to SE</div> <div></div> </div> <div> <div>Miscellaneous Billing</div> <div></div> </div> <div> <div>Misc Billing Status</div> <div></div> </div> <div> <div>Required</div> <div></div> </div> <div> <div>Force Billing Flag</div> <div></div> </div> <div> <div>RDV Allocation Eligible</div> <div></div> </div> <div> <div>Sanctioning Data</div> <div></div> </div> <div> <div>DOA Amount</div> <div></div> </div> <div> <div>Lower Tolerance</div> <div>.90</div> </div> <div> <div>Strategy Type Name</div> <div></div> </div> <div> <div>Upper Tolerance</div> <div>1.10</div> </div>		<div>Audits</div> <div>Delete FP</div> <div>Cancel FP</div> <div>Suspend FP</div> <div>Estimates</div> <div>Update</div> <div>Print</div> <div>Close</div>	
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Funding Project Information

New Approval Type

Budget Version

Default (inactive)

Funding Project

CRLC406

Revision

2

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Approval Type

DOA Approval - Manual

Amount

\$644,999.70

Send for Approval

Status

Approved

Sent By

Roche, Michelle C

Date Sent

5/6/2013

Date Appr

5/8/2013

Refresh

+ Approver 1

Approver

Su, Fikret

Required

☒

Date Approved

5/8/2013

Authority Limit

\$1,000,000

Details

Accounts

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Related FPs

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Funding Project Information				
Description	LNG - Exeter LNG		Funding Proj	CRLC407
Company	5360-Narragansett Electric			
Bus Segment	RIGASD	Last Approved Rev	6	
Budget	CRLC407	Status	open	FP ID 326095573
Department	61505360G - LNG Operatio	F. P. Type	P_Gas Distribution Construction RI	
Long Description	LNG - Exeter LNG			
Major Location	MASS PLANT - RI (Gas)	Asset Location		
Asset Loc Det				
Notes				
Reason		Approval Group	<none>	
Est Start Date	4/1/2017	Late Charge Wait	0 Months	
Est Complete	3/31/2018	In Service Date		
Est In Service	3/31/2018	Completion Date		
Est Annual Rev		First CPR Month		
Initiated By	DIACOM	Close Date		
Date Suspended		Date Initiated	11/8/2012	

Details

Accounts

Contacts

Class Codes

Justification

Tax Status

Authorizations

User Comment

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Related FPs

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Funding Project Information		<input type="button" value="-"/> <input type="button" value="□"/> <input type="button" value="X"/>																									
<div> <div>Title</div> <div>LNG - Exeter LNG</div> </div> <div> <div>Funding Project</div> <div>CRLC407</div> </div>		<div>Details</div> <div>Accounts</div> <div>Contacts</div> <div>Class Codes</div> <div>Justification</div> <div>Tax Status</div> <div>Authorizations</div> <div>User Comment</div> <div>Review</div> <div>Related FPs</div>																									
<div>Class Codes</div> <table border="1"> <tr> <td>Budget Plant Class</td> <td>Gas Distribution PAM</td> </tr> <tr> <td>Send to SE</td> <td></td> </tr> <tr> <td colspan="2"><u>Miscellaneous Billing</u></td> </tr> <tr> <td>Misc Billing Status</td> <td></td> </tr> <tr> <td colspan="2"><u>Required</u></td> </tr> <tr> <td>Force Billing Flag</td> <td></td> </tr> <tr> <td>RDV Allocation Eligible</td> <td></td> </tr> <tr> <td colspan="2"><u>Sanctioning Data</u></td> </tr> <tr> <td>DOA Amount</td> <td></td> </tr> <tr> <td>Lower Tolerance</td> <td>.90</td> </tr> <tr> <td>Strategy Type Name</td> <td></td> </tr> <tr> <td>Upper Tolerance</td> <td>1.10</td> </tr> </table> <div>Indicates Display Only - (d) ▾</div>		Budget Plant Class	Gas Distribution PAM	Send to SE		<u>Miscellaneous Billing</u>		Misc Billing Status		<u>Required</u>		Force Billing Flag		RDV Allocation Eligible		<u>Sanctioning Data</u>		DOA Amount		Lower Tolerance	.90	Strategy Type Name		Upper Tolerance	1.10	<div>Audits</div> <div>Delete FP</div> <div>Cancel FP</div> <div>Suspend FP</div> <div>Estimates</div> <div>Update</div> <div>Print</div> <div>Close</div>	
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Funding Project Information									
New Approval Type				Budget Version		Default (inactive)			
Funding Project	Revision	Rev		K		<		>	
CRLC407	2								
Approval Type		Amount		Send for Approval					
DOA Approval - Manual		\$104,999.96		Refresh					
Status	Sent By	Date Sent	Date Appr						
Approved	Roche, Michelle C	5/6/2013	5/8/2013						
+ Approver 1 -----		Approver	Required	Date Approved	Authority Limit				
		Su, Fikret	<input checked="" type="checkbox"/>	5/8/2013	\$1,000,000				
<div> Details Accounts Contacts Class Codes Justification Tax Status Authorizations User Comment Review Related FPs </div> <div> Audits Delete FP Cancel FP Suspend FP </div> <div> Estimates Update Print Close </div>									
Record 1 of 1 <div> K < > >I </div>									

Low Complexity Sanction Paper



Title:	Proactive Pressure Regulator Station Management Program	Sanction Paper #:	USSC-13-045
Project #:	CRIC402	Sanction Type:	Sanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	February 27, 2013
Author:	Walter Werther – Lead Engineer, Pressure Regulation Engineering	Sponsor:	Timothy F, Small – Vice President, Gas System Engineering
Utility Service:	Gas	Project Manager:	Stephen Greco – Manager, Pressure Regulation Engineering

1 Sanctioning Summary

This paper requests sanction of Project # CRIC402 the Narragansett Electric Company Proactive Regulator Station management program in the amount of \$3.2M and a tolerance of +/- 10% for the purposes of full implementation for the necessary capital improvements to the pressure regulation facilities during fiscal year 2013-14.

*This sanction amount is \$ **3.2M** broken down into:*

*\$3.17M Capex
\$0.0M Opex
\$.03M Removal*

2 Project Detail

2.1 Project Description and Benefits

Pressure regulating facilities have been designed to safely and reliably control system pressures and maintain continuity of supply during normal and peak gas demand periods.

Using data from the annual Performance Testing (PT), Cathodic Protection (CP) testing, risk assessments and on-site inspections; technical assessments were made for each pressure regulating station taking into account: pipe and equipment condition, operating pressure, regulator performance, and corrosion data. This information combined with the potential customer impact resulting from a station outage was used to prioritize and schedule projects within the Capital Improvement Plan.



Low Complexity Sanction Paper

2.1.1 Alternatives:

Recommended Option:

Install work:

This option provides the greatest benefit because it reduces the risk of over-pressurizing the system, improves the operation and performance of these stations, improves the maintainability of these stations and reduces the potential for customer outages.

Alternative 1 (Not Recommended):

Do Nothing/Defer Project:

Doing nothing or deferring this program does not meet our obligation to provide safe and reliable gas service, nor the longer term objective of improving the operation and performance of the pressure regulating stations. The consequences of not completing the work scheduled will result in increased risks associated with the failure of station equipment, and/or the stations associated piping. Specifically, failure to complete identified work would reduce the integrity of the system and potentially result in significant customer outages.

2.2 Investment Recovery

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

2.2.1 Customer Impact

This project results in an indicative first full year revenue requirement when the asset is placed in service equal to approximately \$0.67 million. 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.

3 Related Projects and Scoring

3.1 Summary of Projects:

Project Number	Project Title	Estimate Amount
CRIC402	Proactive Regulator Stations	\$ 3.20
Total		\$ 3.20

Low Complexity Sanction Paper



3.2 Associated Projects:

Project Number	Project Title	Estimate Amount
	N/A	\$ -
Total		\$ -

3.3 Prior Sanctioning History (including relevant approved Strategies):

Date	Governance Body	Sanctioned Amount	Paper Title	Sanction Type

3.4 Category:

Category	Reference to Mandate, Policy, or NPV Assumptions
<input type="radio"/> Mandatory	National Grid Policy PL-020020 "Design of Gas Regulator Stations"
<input checked="" type="radio"/> Policy- Driven	National Grid Technical Instruction TI-020021 "Design of Gas Regulator Stations"
<input type="radio"/> Justified NPV	

3.5 Asset Management Risk Score

Asset Management Risk Score: 35

Primary Risk Score Driver: (Policy Driven Projects Only)

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

3.6 Complexity Level:

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

Complexity Score: 15



Low Complexity 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 (\$)
FY14 – FY18 Capital Plan - Gas	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under	\$205,000

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

This funding request is \$205,000 over the budgeted amount. Several of this year's projects are carryover work from FY12-13. In addition, Pressure Regulation Engineering reprioritized the work plan using available resources such as risk assessment, on-site inspections and technical assessments. A reallocation of dollars from other programs within Pressure Regulation that have projected under runs (heater program and control line integrity program) has been performed to fund the projects in this program.

4.2 CIAC / Reimbursement

\$M	Prior Yrs	Yr. 1 2013/14	Yr. 2 2014/15	Yr. 3 2015/16	Yr. 4 2016/17	Yr. 5 2017/18	Yr. 6 + 2018/19	Total
CIAC/Reimbursement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

4.3 Cost Summary Table

Project Number	Project Title	Project Estimate	Spend	Prior Yrs	Current Planning Horizon						Total
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
					2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	
CRIC402	Proactive Regulator Stations	Est Lvl	CapEx	\$ -	\$ 3.17	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3.17
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ 0.03	\$ -	\$ -	\$ -	\$ -	\$ 0.03	
			Total	\$ -	\$ 3.20	\$ -	\$ -	\$ -	\$ -	\$ 3.20	
Total Project Sanction			CapEx	\$ -	\$ 3.17	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3.17
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ 0.03	\$ -	\$ -	\$ -	\$ -	\$ 0.03	
			Total	\$ -	\$ 3.20	\$ -	\$ -	\$ -	\$ -	\$ 3.20	



Low Complexity Sanction Paper

4.4 Project Budget Summary Table

Project Costs per Business Plan

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	
CapEx	\$ -	\$ 2.97	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2.97
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ 0.03	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.03
Total Cost in Bus. Plan	\$ -	\$ 3.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3.00

Variance (Business Plan-Project Estimate)

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	
CapEx	\$ -	\$ (0.20)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (0.20)
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Cost in Bus. Plan	\$ -	\$ (0.20)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (0.20)

5 Key Milestones:

Milestone	Target Date: (Month/Year)
Approval	February 2013
Delivery of Materials	April 2013
Construction Start	May 2013
Construction Completion	November 2013
Project Closure	June 2014


Low Complexity Sanction Paper

nationalgrid

6 Decisions:

I:

- (a) APPROVED this paper and the investment of \$3.2M and a tolerance of +/- 10%
- (b) NOTE that Stephen Greco is the Project Manager and has the approved financial delegation.

Signature..........Date.....2/25/2013

Marie Jordan
Senior Vice President
Network Strategy

Low Complexity Sanction Paper



Appendix 1:

Work Plan for FY 2013/2014

Station	Scope of Work	Estimated Cost
RIS026-40 Elliot St, No. Providence	Prefab installation	\$280,000
RIS027-40 Smithfield @ Gentian, No. Providence	Prefab installation	\$280,000
RIS063-40 Hartford @ Wilson, Johnston	Prefab installation	\$280,000
RIS013-40 Summit @ Taunton, East Providence	Prefab installation	\$280,000
RIS079-40 Ship @ Chestnut, Providence	Prefab installation	\$280,000
RIS-RBW-001/2-40 Franklin @ Wood (LP / 8 PSIG), Bristol	Water issue (Identified by I and R - separate system feed into two diff. stations)	\$450,000
RISN209-40 Walcott @ St. Georges, Middletown	Reg station project in response to public intrusion	\$150,000
RISTIV1-40 Tiverton Gate Station, Tiverton	Complete Tiverton TS upgrade	\$350,000
Allens Av, Providence	Station retirement, cap piping.	\$500,000
RIS-311 Dey St, East Providence	Install relief valve	\$75,000
RIS093-40 Division St, East Greenwich	Prefab installation	\$280,000
Total		\$3,205,000



USSC Closure Paper

Title:	FY14 Proactive Pressure Regulator Station Management Program-RI	Sanction Paper #:	USSC-13-045C
Project #:	Various (see appendix)	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	March 30, 2017
Author:	Steve Greco/Stephen Soroka	Sponsor:	John Stavrakas, VP- VP Gas Asset Management
Utility Service:	Gas	Project Manager:	Steve Greco/Stephen Soroka

1 Executive Summary

This paper is presented to close various projects (see appendix). The total spend was \$3.865M. The latest sanctioned amount for this project was \$3.200M.

The final spend amount is \$3.865M broken down into:

\$3.846M Capex

\$0.000M Opex

\$0.019M Removal

2 Project Summary

Pressure regulating facilities have been designed to safely and reliably control system pressures and maintain continuity of supply during normal and peak gas demand periods.

Using data from the annual Performance Testing (PT), Cathodic Protection (CP) testing, risk assessments and on-site inspections; technical assessments were made for each pressure regulating station taking into account: pipe and equipment condition, operating pressure, regulator performance, and corrosion data. This information combined with the potential customer impact resulting from a station outage was used to prioritize and schedule projects within the Capital Improvement Plan.

USSC Closure Paper



3 Over / Under Expenditure Analysis

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
Various (see appendix)	Proactive Pressure Regulator Station Management Program	Capex	3.846
		Opex	0.000
		Removal	0.019
		Total	3.865
Total		Capex	3.846
		Opex	0.000
		Removal	0.019
		Total	3.865

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	3.170
		Opex	0.000
		Removal	0.030
		Total Cost	3.200
Sanction Variance (\$M)			Total Spend
		Capex	(0.676)
		Opex	0.000
		Removal	0.011
		Total Variance	(0.665)

3.2 Analysis

The Proactive Pressure Regulator Station Management Program is 21% over plan. There are multiple contributing factors to the overruns. There were challenges with estimates on larger projects within the program. Lack of communications around job scope changes affected the estimates. Several carryover jobs were not included in total program costs. In addition, continued Safety requirement improvements caused delays/increases in costs.

USSC Closure Paper



4 Improvements / Lessons Learned/Root Cause

- Improve development of estimating practices.
- Work with Finance and Resource Planning to create better financial metrics.
- Create Long Term resource requirements for future Capital planning.
- Identify carryover or deferred projects in a timely fashion.

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
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 (1)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All as-builts have been completed (2)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All lessons learned have been entered appropriately into the lesson learned database (3)	<input type="radio"/> Yes <input checked="" type="radio"/> No

(1) All work orders and funding projects have been closed
Program/Blanket projects may contain work orders and or funding projects which have not yet been closed for reasons including but not limited to:

- the same work order(s) are used annually. They will remain open until Asset Management and/or Resource Planning have determined work orders are no longer needed .
- construction may cross multiple fiscal years
- the work order closing process is within the late charge waiting period
- other accounting processes or final system closing activities have not yet completed



USSC Closure Paper

The Program/Blanket projects are approved annually for the current year expected spend and remain open until Asset Management and/or Resource Planning have determined the project is no longer required.

(2) All as-builts have been completed

Program/Blanket projects may contain work orders for which no as-builts have yet been recorded for reasons including but not limited to:

- design and/or construction have not yet completed
- construction may cross multiple fiscal years
- work has completed recently and as-builts have not yet been processed into the system
- does not apply. Work order(s) are not linked to work management systems. (example: Meter Purchases, Meter Changes, AMR Installations Purchase Misc Capital Tools/Equipment, etc.)
- does not apply to Information systems projects.

(3) All lessons learned have been entered appropriately into the lesson learned database

Program/Blanket projects usually contain short cycle work which the Company has been performing over several fiscal years. No new Lessons Learned which have not already been identified and recorded within section 4.

6 Statements of Support

6.1 Supporters

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

Department	Individual	Responsibilities
<i>Investment Planner</i>	Pensabene, Patrick M.	Endorses relative to 5-year business plan or emergent work
<i>Resource Planning</i>	Falls, Jonathon	Endorses Resources, cost estimate, schedule, and Portfolio Alignment
Project Management	Fortier, Joseph Jr.	Endorses Resources, cost estimate, schedule
Gas Project Estimation	Paul, Art	Endorses Cost Estimate



USSC Closure Paper

6.2 Reviewers

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

Function	Individual
Finance	Easterly, Patricia
Regulatory	Zschokke, Peter
Jurisdictional Delegate	Currie, John
Procurement	Curran, Art
Control Center	Loiacono, Paul

USSC Closure Paper



7 Decisions

I approve this paper.

Signature *Ross W. Turrini*

Date April 27, 2017

Executive Sponsor - Ross Turrini – Senior Vice President, Gas Process & Engineering
and Chief Gas Engineer

USSC Closure Paper



8 Appendix

FP Proj No	FP Proj Descr	Sum OfCAP	Sum OfCOR	Sum ofCAP&COR
CON0036	RI-GAS-MAIN REPL-SYS ENHAN-RI BLNKT	\$98,488	(\$1)	\$98,487
CON0038	RI-GAS-REGLTR STAT REPL-RI BLANKET	\$472,366	(\$1,710)	\$470,655
CRIC402	PRES REG FACIL - PROACTIVE-RI	\$3,142,966	\$20,500	\$3,163,467
C039265	VALVE/INSTALLATION REPLACEMENT	\$15,676		\$15,676
C039268	PRESSURE REGULATING FACILITIES	\$116,437	\$0	\$116,437
		\$3,845,933	\$18,789	\$3,864,722

Low Complexity Sanction Paper



Title:	System Automation and Control	Sanction Paper #:	USSC-13-016
Project #:	CRGC403	Sanction Type:	Sanction
Operating Company:	The Narragansett Electric Co.	Date of Request:	January 23, 2013
Author:	Walter Werther	Sponsor:	Tim Small – VP Gas System Engineering
Utility Service:	Gas	Project Manager:	Stephen Greco

1 Sanctioning Summary

This paper requests the sanction of the Narragansett Electric Company System Automation program in the amount of \$1M and a tolerance of +/- 10% to install system automation equipment during fiscal year 2013-14. The primary purpose of this program is to increase the level of system automation by monitoring and controlling gas pressure, temperature and flow rate at gas regulator stations.

This sanction amount is \$ 1M broken down into:

*\$1M Capex
\$0.0M Opex
\$0 Removal*

2 Project Detail

2.1 Project Description and Benefits

This project will install Remote Terminal Units (RTU's) at multiple pressure regulator stations located throughout the Narragansett Electric Company Service territory. RTU's are installed locally at the pressure regulating facilities and transmit temperature, pressure, and flow data primarily via cellular technology back to the Gas Control Room. In some cases the RTU's can also monitor other sensors such as gas detectors, and intrusion alarms. Data provided by the RTU's will allow Gas Control to respond to current system operating conditions and remotely adjust the pressure set point at the regulator stations when necessary.

The company objective is to standardize operations, maintain custody check metering and increase control and monitoring at city gate stations and regulator stations. This program is policy driven and will increase the overall reliability and integrity of the gas system. Delivering the program supports the Narragansett Electric Company rate case. Program delivery also serves to increase operational understanding of the system to identify abnormal operating conditions and to facilitate a proactive approach to alarm



Low Complexity Sanction Paper

management. The system automation program supports the Pipeline and Hazardous Materials Safety Administration (PHMSA) requirement that "each operator must provide its controllers with the information, tools, processes and procedures necessary for the controllers to carry out the roles and responsibilities the operator has defined."

2.1.1 Alternatives:

Alternative 1 (Not Recommended):

Defer Project: The company objective is to standardize operations, maintain custody check metering and increase levels of automation, monitoring, and control at city gate stations and pressure regulator stations. Deferring this program does not meet long term objective to actively manage system pressures and leak activity. Not having the capability to monitor system pressure in real time increases risk to the gas system and our customers.

Alternative 2 (Not Recommended):

Do Nothing: The company objective is to standardize operations, maintain custody check metering and increase control and monitoring at city gate stations and regulator stations. Doing nothing does not meet the long term company objective to actively manage system pressures and leak activity. Also this alternative will leave approximately 30% of this region without the ability to remotely manage SOP's.

2.2 Investment Recovery

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

2.2.1 Customer Impact

This project results in an indicative first full year revenue requirement when the asset is placed in service equal to approximately \$0.215 million. 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.

3 Related Projects and Scoring

3.1 Summary of Projects:

Project Number	Project Title	Estimate Amount
CRGC403	System Automation	\$ 1.00
Total		\$ 1.00

Low Complexity Sanction Paper



3.2 Associated Projects:

Project Number	Project Title	Estimate Amount
	N/A	\$ -
Total		\$ -

3.3 Prior Sanctioning History (including relevant approved Strategies):

Date	Governance Body	Sanctioned Amount	Paper Title	Sanction Type
N/A				

3.4 Category:

Category	Reference to Mandate, Policy, or NPV Assumptions
<input type="radio"/> Mandatory <input checked="" type="radio"/> Policy- Driven <input type="radio"/> Justified NPV	National Grid Policy PL 030002 – SCADA Instrument & Control requires that new telemetry points are approved by Gas Control in accordance with the U.S. Department of Transportation - Pipeline and Hazardous Materials Safety Administration (PHMSA) Control Room Management standards (49CFR 192.631).

3.5 Asset Management Risk Score

Asset Management Risk Score: 35

Primary Risk Score Driver: (Policy Driven Projects Only)

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

3.6 Complexity Level:

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



Low Complexity Sanction Paper

Complexity Score: 14

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 (\$)
FY14 – FY18 Budget File - Gas	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input checked="" type="radio"/> Under	

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

N/A – Consistent with planned amount.

4.2 CIAC / Reimbursement – N/A

\$M	Prior Yrs	Yr. 1 2012/13	Yr. 2 2013/14	Yr. 3 2014/15	Yr. 4 2015/16	Yr. 5 2016/17	Yr. 6 + 2017/18	Total
CIAC/Reimbursement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

4.3 Cost Summary Table

			Current Planning Horizon								
Project Number	Project Title	Project Estimate	Spend	Prior Yrs	Yr. 1 2013/14	Yr. 2 2014/15	Yr. 3 2015/16	Yr. 4 2016/17	Yr. 5 2017/18	Yr. 6 + 2018/19	Total
CRGC403	System Automation	N/A	CapEx	\$ -	\$ 1.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1.00
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Total	\$ -	\$ 1.00	\$ -	\$ -	\$ -	\$ -	\$ 1.00	
Total Project Sanction			CapEx	\$ -	\$ 1.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1.00
			OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
			Total	\$ -	\$ 1.00	\$ -	\$ -	\$ -	\$ -	\$ 1.00	



Low Complexity Sanction Paper

4.4 Project Budget Summary Table

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2013/14	Yr. 2 2014/15	Yr. 3 2015/16	Yr. 4 2016/17	Yr. 5 2017/18	Yr. 6 + 2018/19	
CapEx	\$ -	\$ 1.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1.00
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Cost in Bus. Plan	\$ -	\$ 1.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1.00

Variance (Business Plan-Project Estimate)

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2013/14	Yr. 2 2014/15	Yr. 3 2015/16	Yr. 4 2016/17	Yr. 5 2017/18	Yr. 6 + 2018/19	
CapEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Cost in Bus. Plan	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

5 Key Milestones:

Milestone	Target Date: (Month/Year)
Develop details project list	Completed
Identify I&R resources	March/April 2013
Issue Bid Specification for standard telemetry cabinets	March 2013
Order Equipment	April 2013
Execute Work Plan	April – March 2014
Closeout	May 2014

Low Complexity Sanction Paper

nationalgrid

6 Decisions:

The US Sanctioning Committee (USSC) at a meeting held on January 23, 2013:

- (a) APPROVED this paper and the investment of \$1M and a tolerance of +/- 10%
- (b) NOTED that Steve Greco is the Project Manager and has the approved financial delegation.

Signature.....



Date.....

2/27/13

Lee S. Eckert
US Chief Financial Officer
Chairman, US Sanctioning Committee

USSC Closure Paper



Title:	System Automation and Control	Sanction Paper #:	USSC-13-016C
Project #:	CRGC403, C039264, CON0064	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	3/30/2017
Author:	Steve Greco/Stephen Soroka	Sponsor:	John Stavrakas – VP Gas Asset Management
Utility Service:	Gas	Project Manager:	Stephen Greco

1 Executive Summary

This paper is presented to close CRGC403, C039264, and CON0064. The total spend was \$1.397M The sanctioned amount for this project was \$1.000M.

The final spend amount is \$1.397M broken down into:

\$1.397M Capex

\$0.000M Opex

\$0.000M Removal

2 Project Summary

This project installed Remote Terminal Units (RTU's) at multiple pressure regulator stations located throughout the Narragansett Electric Company Service territory. RTU's are installed locally at the pressure regulating facilities and transmit temperature, pressure, and flow data primarily via cellular technology back to the Gas Control Room. In some cases the RTU's can also monitor other sensors such as gas detectors, and intrusion alarms. Data provided by the RTU's will allow Gas Control to respond to current system operating conditions and remotely adjust the pressure set point the regulator station when necessary.

The company's objective was to standardize operations, maintain custody checking metering and increase control and monitoring at city gate stations and regulator stations. This program was policy driven and increased the overall reliability and integrity of the gas system. Delivering the program supported the Narragansett Electric Company rate case. Program delivery also served to increase operational understanding of the system to identify abnormal operating conditions and to facilitate a proactive approach to alarm management. The system automation program supported the Pipeline and Hazardous Materials Safety Administration (PHMSA) requirement that "each operator must provide it's controllers with the information, tools, processes, and



USSC Closure Paper

procedures necessary for the controllers to carry out the roles and responsibilities the operator has defined."

3 Over / Under Expenditure Analysis

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
C039264	SYSTEM AUTOMATION	Capex	0.083
		Opex	0.000
		Removal	0.000
		Total	0.083
Project #	Description		Total Spend
CRGC403	SYSTEM AUTOMATION-RI	Capex	1.313
		Opex	0.000
		Removal	0.000
		Total	1.313
Project #	Description		Total Spend
CON0064	SCADA-OCEAN STATE	Capex	0.001
		Opex	0.000
		Removal	0.000
		Total	0.001
Total		Capex	1.397
		Opex	0.000
		Removal	0.000
		Total	1.397

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	1.000
		Opex	0.000
		Removal	0.000
		Total Cost	0.000
Sanction Variance (\$M)			Total Spend
		Capex	(0.397)
		Opex	0.000
		Removal	0.000
		Total Variance	(0.397)



USSC Closure Paper

3.2 Analysis

The System Automation and Control Program is 33% over plan. There are multiple contributing factors to the overruns. There were challenges with estimates on larger projects within the program. Lack of communications around job scope changes affected the estimates.

4 Improvements / Lessons Learned/Root Cause

- Improve development of estimating practices.
- Work with Finance and Resource Planning to create better financial metrics.

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
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 (1)	<input type="radio"/> Yes <input checked="" type="radio"/> No
All unused materials have been returned	<input checked="" type="radio"/> Yes <input type="radio"/> No
All as-builts have been completed (2)	<input checked="" type="radio"/> Yes <input type="radio"/> No
All lessons learned have been entered appropriately into the lesson learned database (3)	<input type="radio"/> Yes <input checked="" type="radio"/> No

(1) All work orders and funding projects have been closed

Program/Blanket projects may contain work orders and or funding projects which have not yet been closed for reasons including but not limited to:

- the same work order(s) are used annually. They will remain open until Asset Management and/or Resource Planning have determined work orders are no longer needed .
- construction may cross multiple fiscal years
- the work order closing process is within the late charge waiting period
- other accounting processes or final system closing activities have not yet completed



USSC Closure Paper

The Program/Blanket projects are approved annually for the current year expected spend and remain open until Asset Management and/or Resource Planning have determined the project is no longer required.

(2) All as-builts have been completed

Program/Blanket projects may contain work orders for which no as-builts have yet been recorded for reasons including but not limited to:

- design and/or construction have not yet completed
- construction may cross multiple fiscal years
- work has completed recently and as-builts have not yet been processed into the system
- does not apply. Work order(s) are not linked to work management systems. (example: Meter Purchases, Meter Changes, AMR Installations Purchase Misc Capital Tools/Equipment, etc.)
- does not apply to Information systems projects.

(3) All lessons learned have been entered appropriately into the lesson learned database

Program/Blanket projects usually contain short cycle work which the Company has been performing over several fiscal years. No new Lessons Learned which have not already been identified and recorded within section 4.

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 Planner	Pensabene, Patrick M.	Endorses relative to 5-year business plan or emergent work
Resource Planning	Falls, Jonathon	Endorses Resources, cost estimate, schedule, and Portfolio Alignment
Project Management	Fortier, Joseph Jr.	Endorses Resources, cost estimate, schedule

USSC Closure Paper



Gas Project Estimation	Paul, Art	Endorses Cost Estimate
------------------------	-----------	------------------------

6.2 Reviewers

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

Function	Individual
Finance	Easterly, Patricia
Regulatory	Zschokke, Peter
Jurisdictional Delegate	Currie, John
Procurement	Curran, Art
Control Center	Loiacono, Paul

USSC Closure Paper



7 Decisions

I approve this paper.

Signature *Ross W. Turrini*

Date April 27, 2017

Executive Sponsor – Ross Turrini, Senior Vice President, Gas Process & Engineering
and Chief Gas Engineer

Funding Project Information			
Description	Valve installation/Replacement-RI		
Funding Proj	CRIC215		
Company	5360-Narragansett Electric		
Bus Segment	RIGASD	Last Approved Rev	6
Budget	CRIC215	Status	open
Department	78155360G - NE I&R	F. P. Type	P_Gas Distribution Construction RI
FP ID	326095569		
Long Description	Valve installation/Replacement		
Major Location	MASS PLANT - RI (Gas)	Asset Location	
Asset Loc Det			
Notes			
Reason		Approval Group	<none>
Est Start Date	4/1/2017	Late Charge Wait	0 Months
Est Complete	3/31/2018	In Service Date	
Est In Service	3/31/2018	Completion Date	
Est Annual Rev		First CPR Month	
Initiated By	DIACOM	Close Date	
Date Suspended		Date Initiated	11/8/2012

Details

Accounts

Contacts

Class Codes

Justification

Tax Status

Authorizations

User Comment

Review

Related FPs

Audits

Delete FP

Cancel FP

Suspend FP

Estimates

Update

Print

Close

Record 1 of 1

Funding Project Information		<input type="button" value="-"/> <input type="button" value="□"/> <input type="button" value="X"/>	
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<div>Class Codes</div> <div> <div>Budget Plant Class</div> <div>Gas Distribution PAM</div> </div> <div> <div>Send to SE</div> <div></div> </div> <div> <div>Miscellaneous Billing</div> <div></div> </div> <div> <div>Misc Billing Status</div> <div></div> </div> <div> <div>Required</div> <div></div> </div> <div> <div>Force Billing Flag</div> <div></div> </div> <div> <div>RDV Allocation Eligible</div> <div></div> </div> <div> <div>Sanctioning Data</div> <div></div> </div> <div> <div>DOA Amount</div> <div></div> </div> <div> <div>Lower Tolerance</div> <div>.90</div> </div> <div> <div>Strategy Type Name</div> <div></div> </div> <div> <div>Upper Tolerance</div> <div>1.10</div> </div>		<div> <div>Audits</div> <div>Delete FP</div> <div>Cancel FP</div> <div>Suspend FP</div> </div> <div> <div>Estimates</div> <div>Update</div> <div>Print</div> <div>Close</div> </div>	
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Funding Project	Revision	Rev		K		<		>	
CRIC215	2								
Approval Type		Amount		Send for Approval					
DOA Approval - Manual		\$529,564.00		Refresh					
Status	Sent By	Date Sent	Date Appr						
Approved	Roche, Michelle C	5/14/2013	6/18/2013						
+ Approver 1 -----		Approver	Required	Date Approved	Authority Limit				
		Small, Timothy F	<input checked="" type="checkbox"/>	6/18/2013	\$1,000,000				
<div> Details Accounts Contacts Class Codes Justification Tax Status Authorizations User Comment Review Related FPs </div> <div> Audits Delete FP Cancel FP Suspend FP </div> <div> Estimates Update Print Close </div>									
Record 1 of 1				K < > >I					

Funding Project Information				
Description	Water Intrusion-RI		Funding Proj	CRFN212
Company	5360-Narragansett Electric			
Bus Segment	RIGASD	Last Approved Rev	5	
Budget	CRFN212	Status	open	FP ID 326095552
Department	78305360G - FieldOp-NE-N	F. P. Type	P_Gas Distribution Construction RI	
Long Description	Water Intrusion			
Major Location	MASS PLANT - RI (Gas)	Asset Location		
Asset Loc Det				
Notes				
Reason		Approval Group	<none>	
Est Start Date	4/1/2016	Late Charge Wait	0 Months	
Est Complete	3/31/2017	In Service Date		
Est In Service	3/31/2017	Completion Date		
Est Annual Rev		First CPR Month		
Initiated By	DIACOM	Close Date		
Date Suspended		Date Initiated	11/8/2012	

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Contacts

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Review

Related FPs

Audits

Delete FP

Cancel FP

Suspend FP

Estimates

Update

Print

Close

Record 1 of 1

Funding Project Information			
<div> <div>Title</div> <div>Water Intrusion-RI</div> </div> <div> <div>Funding Project</div> <div>CRFN212</div> </div>		<div>Details</div> <div>Accounts</div> <div>Contacts</div> <div>Class Codes</div> <div>Justification</div> <div>Tax Status</div> <div>Authorizations</div> <div>User Comment</div> <div>Review</div> <div>Related FPs</div>	
<div>Class Codes</div> <div> <div>Budget Plant Class</div> <div>Gas Distribution PAM</div> </div> <div> <div>Send to SE</div> <div></div> </div> <div> <div>Miscellaneous Billing</div> <div> <div>Misc Billing Status</div> <div></div> </div> </div> <div> <div>Required</div> <div> <div>Force Billing Flag</div> <div></div> </div> <div> <div>RDV Allocation Eligible</div> <div></div> </div> </div> <div> <div>Sanctioning Data</div> <div> <div>DOA Amount</div> <div></div> </div> <div> <div>Lower Tolerance</div> <div>.90</div> </div> <div> <div>Strategy Type Name</div> <div></div> </div> <div> <div>Upper Tolerance</div> <div>1.10</div> </div> </div>		<div> <div>Audits</div> <div>Delete FP</div> <div>Cancel FP</div> <div>Suspend FP</div> </div> <div> <div>Estimates</div> <div>Update</div> <div>Print</div> <div>Close</div> </div>	
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<div>Record 1 of 1</div>		<div> <div>K</div> <div><</div> <div>></div> <div>>I</div> </div>	

Funding Project Information				
New Approval Type		Budget Version		
<div></div>		Default (inactive)		
Funding Project	Revision	Rev		
CRFN212	2	<div> <div>⏮</div> <div><</div> <div></div> <div>></div> <div>⏭</div> </div>		
Approval Type	Amount	Send for Approval		
DOA Approval - Manual	\$200,000.00	Refresh		
Status	Sent By	Date Sent	Date Appr	
Approved	Roche, Michelle C	4/30/2013	6/18/2013	
+ Approver 1 -----		Approver	Required	Date Approved
		Small, Timothy F	<input checked="" type="checkbox"/>	6/18/2013
				Authority Limit
				\$1,000,000
<div> <div>Audits</div> <div>Delete FP</div> <div>Cancel FP</div> <div>Suspend FP</div> <div>Estimates</div> <div>Update</div> <div>Print</div> <div>Close</div> </div>				
Record 1 of 1				
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Funding Project Information					
Description	Water Intrusion-RI		Funding Proj	CRFS212	
Company	5360-Narragansett Electric				
Bus Segment	RIGASD	Last Approved Rev	4		
Budget	CRFS212	Status	open	FP ID	326095589
Department	78505360G - FieldOp-NE-S	F. P. Type	P_Gas Distribution Construction RI		
Long Description	Water Intrusion				
Major Location	MASS PLANT - RI (Gas)	Asset Location			
Asset Loc Det					
Notes					
Reason		Approval Group	<none>		
Est Start Date	4/1/2015	Late Charge Wait	0 Months		
Est Complete	3/31/2016	In Service Date			
Est In Service	3/31/2016	Completion Date			
Est Annual Rev		First CPR Month			
Initiated By	DIACOM	Close Date			
Date Suspended		Date Initiated	11/8/2012		

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Cancel FP

Suspend FP

Estimates

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Record 1 of 1

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Funding Project Information			
Title	Water Intrusion-RI		
Funding Project	CRFS212		
Class Codes		Details Accounts Contacts Class Codes Justification Tax Status Authorizations User Comment Review Related FPs	
Budget Plant Class	Gas Distribution PAM		
Send to SE			
Miscellaneous Billing			
Misc Billing Status			
Required			
Force Billing Flag			
RDV Allocation Eligible			
Sanctioning Data			
DOA Amount			
Lower Tolerance	.90		
Strategy Type Name			
Upper Tolerance	1.10		
Indicates Display Only - (d)		Audits Delete FP Cancel FP Suspend FP Estimates Update Print Close	
Record 1 of 1		< < > >	

Funding Project Information					
New Approval Type		Budget Version		Default (inactive)	
Funding Project	Revision	Rev	<input type="button" value="K"/> <input type="button" value="<"/> <input type="text"/> <input type="button" value=">"/> <input type="button" value="I"/>		
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Approved	Roche, Michelle C	4/30/2013	6/18/2013		
+ Approver 1 -----		Approver	Required	Date Approved	Authority Limit
		Small, Timothy F	<input checked="" type="checkbox"/>	6/18/2013	\$1,000,000
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Record <input type="text" value="1"/> of 1 <input type="button" value="K"/> <input type="button" value="<"/> <input type="button" value=">"/> <input type="button" value="I"/>					

Funding Project Information					
Description	Control Line Integrity Prog-RI		Funding Proj	CRIC216	
Company	5360-Narragansett Electric				
Bus Segment	RIGASD	Last Approved Rev	3		
Budget	CRIC216	Status	open	FP ID	326095570
Department	78155360G - NE I&R	F. P. Type	P_Gas Distribution Construction RI		
Long Description	Control Line Integrity Program				
Major Location	MASS PLANT - RI (Gas)	Asset Location			
Asset Loc Det					
Notes					
Reason		Approval Group	<none>		
Est Start Date	4/1/2015	Late Charge Wait	0 Months		
Est Complete	3/31/2016	In Service Date			
Est In Service	3/31/2016	Completion Date			
Est Annual Rev		First CPR Month			
Initiated By	DIACOM	Close Date			
Date Suspended		Date Initiated	11/8/2012		

Details

Accounts

Contacts

Class Codes

Justification

Tax Status

Authorizations

User Comment

Review

Related FPs

Audits

Delete FP

Cancel FP

Suspend FP

Estimates

Update

Print

Close

Record 1 of 1

Funding Project Information			
Title	Control Line Integrity Prog-RI		
Funding Project	CRIC216		
Class Codes		Details Accounts Contacts Class Codes Justification Tax Status Authorizations User Comment Review Related FP's	
Budget Plant Class	Gas Distribution PAM		
Send to SE			
Miscellaneous Billing			
Misc Billing Status			
Required			
Force Billing Flag			
RDV Allocation Eligible			
Sanctioning Data			
DOA Amount			
Lower Tolerance			
Strategy Type Name			
Upper Tolerance			
Indicates Display Only - (d)		Audits Delete FP Cancel FP Suspend FP	
		Estimates Update Print Close	
Record 1 of 1		< < > >	

Funding Project Information					
New Approval Type		Budget Version Default (active)			
Funding Project	Revision	Rev			
CRIC216	2				
Approval Type	Amount	Send for Approval			
DOA Approval - Manual	\$120,000.00	Refresh			
Status	Sent By	Date Sent	Date Appr		
Approved	Werther, Walter J	3/4/2013	3/7/2013		
+ Approver 1 -----		Approver	Required	Date Approved	Authority Limit
		Small, Timothy F	<input checked="" type="checkbox"/>	3/7/2013	\$1,000,000
<div> <div>Audits</div> <div>Delete FP</div> <div>Cancel FP</div> <div>Suspend FP</div> <div>Estimates</div> <div>Update</div> <div>Print</div> <div>Close</div> </div>					
<div> <div>Record 1 of 1</div> <div> <div><</div> <div>></div> </div> </div>					



Resanction Request

Title:	Exeter Boiloff Compressor	Sanction Paper #:	USSC-12-440 v2
Project #:	C-041203	Sanction Type:	Resanction
Operating Company:	Narragansett Electric Co	Date of Request:	09-17-13
Author:	Ed Wencis, Kathleen Sullivan	Sponsor:	Fikret Su – Director LNG
Utility Service:	Gas	Project Manager:	Ed Wencis

1 Sanctioning Summary

This paper requests the resanction of project # C-041203 in the amount of \$2.4M for the purpose of turnkey implementation (engineering design, materials procurement, construction, testing, commissioning and training) for a new boil off compressor at the Exeter LNG plant.

This sanction amount is \$2,400,000 broken down into:

\$2,400,000 Capex

\$0 Opex

\$0 Removal

Original Sanction Amount \$1,250,000

2 Re-sanction Details

2.1 Brief Summary:

This project proposes to design, procure material and install one new boil off compressor and associated apparatus (piping, valves, fittings, controls, electrical, instrumentation and building) that can handle the total load at the Exeter LNG plant. The LNG plant, 53 South County Trail, Exeter, R.I., has two existing boil off compressors that are obsolete. Replacement parts for these compressors are not available from the manufacturer and must be obtained through machine shops. As a result, access to parts is becoming more difficult. To date, there has not been a compressor failure; however, the risk of failure going forward is a major concern. One of the machines operates continuously (to facilitate tank boiloff) and the second compressor is needed under the following two conditions: (1) when LNG trucks are being unloaded into the tank and (2) when there is a change in barometric pressure. If one of the boil off compressors were to fail during condition (1), the facility will not have the ability to fill the LNG tank. If condition (2) is experienced during a single compressor failure, cold gas vapor will be released to the atmosphere in order to relieve pressure in the LNG tank.



Resanction Request

The installation of the new compressor will ensure the availability of the LNG plant to vaporize, unload trucks and eliminate venting at all times.

The Project Team seeks to resanction the project due to a total variance of \$1,150,000, driven primarily by changes in Engineering/Design, Material, Construction/Integration, Overhead, Contingency and other cost (see Key Variances listed below) as compared to the original project sanction.

2.2 Summary of Projects:

Project Number	Project Type (Elect only)	Project Title	Estimate Amount (\$M)
C-041203	Project type	Exeter Boiloff Compressor	\$ 2.400
Total			\$ 2.400

2.3 Prior Sanctioning History

Previously approved sanctions are attached.

Date	Governance Body	Sanctioned Amount	Paper Title	Sanction Type	Paper Reference Number
10-24-12	USSC	\$1,250,000	Exeter Boiloff Compressor	Sanction	USSC-12-440

Over / Under Expenditure Analysis

Summary Analysis (M's)	Capex	Opex	Removal	Total
Latest approval	\$1.25	\$	\$	\$1.25
Resanction Amount	\$2.4	\$	\$	\$2.4
Change*	\$1.15	\$	\$	\$1.15

*Change = (Latest Approval – Resanction Amount)



Resanction Request

Revised Planning Horizon

(\$M)	Prior Yrs	Revised Planning Horizon						Total
		Yr. 1 2013/14	Yr. 2 2014/15	Yr. 3 2015/16	Yr. 4 2016/17	Yr. 5 2017/18	Yr. 6 + 2018/19	
CapEx	\$ -	\$ 0.900	\$ 1.500	\$ -	\$ -	\$ -	\$ -	\$ 2.400
OpEx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Removal	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CIAC/Reimbursement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ -	\$ 0.900	\$ 1.500	\$ -	\$ -	\$ -	\$ -	\$ 2.400

2.4 Drivers

2.4.1 Detailed Analysis Table

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

Detail Analysis (M's)	Over/Under Expenditure?	Amount
Engineering/Design	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0.089
Material	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0.196
Construction/Integration	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0.215
Startup/Training/Manuals	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0.039
Labor/Cap/Trans Overhead	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0.263
Labor/Material Contingency	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0.183
AFUDC	<input checked="" type="checkbox"/> Over <input type="checkbox"/> Under	\$0.068

2.4.2 Explanation of Key Variations

The original project sanction was based on the following assumptions for the items listed above:

1. Engineering/Design would be done in part by a third party and National Grid.
2. National Grid would perform Design oversight and review.
3. Higher value materials such as compressor, building and MCC, requiring longer lead times, would be procured by National Grid.
4. The engaged installation contractor would procure balance of material and install all mechanical equipment, valves and fittings.
5. Another contractor would be responsible for installation of electrical, controls and instrumentation.
6. All project management including construction oversight and process/controls integration would be performed by National Grid.



Resanction Request

7. Pre/post commission training and project data books were not included in original estimate since the original scope assumed National Grid would perform this work.
8. The project scope assumed running two boiloff lines from the tank (one for existing compressors, one for new compressor) without a preheat process. New scope requires the removal of existing run and installation of one run with preheat.
9. The total project cost was based on a somewhat similar but less complex project at the Haverhill, MA, LNG facility. Approximately 70% of actual cost was available for the Haverhill project at the time of original project sanctioning. The Haverhill project utilized multiple contractors (design, electrical, controls, and construction) which became more difficult for National Grid to manage.

The Resanction is based on the following:

The project will be administered as EPC (Engineer, Procure, and Construct) where one contractor will be responsible for all engineering, material procurement, construction, testing, commissioning and training. This contractor will essentially manage all of these project aspects. In addition, by having one party responsible for all project aspects, a performance warrantee for one year will be provided. National Grid resources are dedicated to other projects during this period and are unavailable for this project. The Project Team recommends the EPC contract format since the low incremental cost justifies the provision of a warranty on work and materials for this project.

Key Variances:

Engineering/Design – Safety related analysis (SIS, PHA) and related installation cost, internal engineering design and design oversight were not included in the original cost estimate.

Material – Original material pricing was estimated with 2011 values. Inflation in material since then contributed to a portion of the increase. Procurement related administrative cost (order placement, delivery scheduling, shipping cost), EPC contractor markup, and change in assumed compressor type resulted in material cost increase as compared to original estimate.

Construction/Integration – Contractor labor and markup as compared to National Grid labor. Original estimate assumed National Grid would have been the integrator for the installation process.

Training/Manuals – Not included in the original cost estimate

Startup – Originally assumed all National Grid labor and the amount of hours was estimated too low for the effort. The revised effort includes contractor labor and a new scope for startup which increase the amount of labor hours above the original estimate for a shorter duration



Resanction Request

Labor/Capital/Transportation Overhead – Not included in the original cost estimate

Labor/Material Contingency Component – Not included in the original cost estimate

AFUDC – Not included in the original cost estimate

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 (\$)
FY2014 – FY2018 Gas Capital Plan	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over	\$1,400,000

2.6 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.

2.7 Key Milestones:

Milestone	Target Date: (Month/Year)
Re-Sanction Approval	09/13
Engage EPC Contractor	09/13
Begin Design	10/13
Procure long lead materials	11/13
Begin Construction	04/14
Commission Boiloff Compressor	08/14
Project Closeout	10/14

2.8 Next Planned Sanction Review:

Date (Month/Year)	Purpose of Sanction Review
10/14	Closure Paper



Resanction Request

3 Statements of Support

3.1 Supporters

Role	Name	Responsibilities
<i>Investment Planner</i>	Pensabene, Patrick M.	Endorses relative to 5-year business plan or emergent work
<i>Resource Planning</i>	Georgacopoulos, Artie	Endorses Resources, cost estimate, schedule, and Portfolio Alignment
<i>Project Management</i>	King, Kevin	Endorses Resources, cost estimate and schedule
<i>LNG</i>	SU, Fikret	Endorses scope, design, conformance with design standards

3.2 Reviewers

Reads paper for content / language. Recommends edits if necessary

Reviewer List	Name
Finance	Fowler, Keith
Regulatory	Katsh, Gideon N
Jurisdictional Delegates	Fromm, Walter
Control Center	Amerige, Thomas
Procurement	Curran, Art



Resanction Request

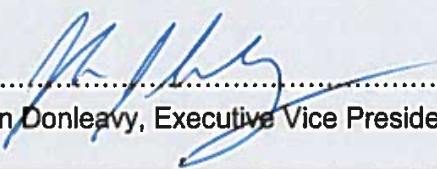
4 Decisions:

Short Form Re-sanction (\$1M<X<\$8M):

I:

(a) APPROVE this paper and the investment of \$2.4M

(b) NOTE that Ed Wencis is the Project Manager and has the approved financial delegation.

Signature..........Date.....9/26/13.....

John Donleavy, Executive Vice President & Chief Operating Officer



USSC Closure Paper

Title:	Exeter Boil-off Compressor	Sanction Paper #:	USSC-12-440-v2c
Project #:	C041203	Sanction Type:	Closure
Operating Company:	The Narragansett Electric Co.	Date of Request:	June 7, 2016
Author:	Agnieszka Przybysz	Sponsor:	Fikret Su – Director LNG
Utility Service:	Gas	Project Manager:	Agnieszka Przybysz

1 Executive Summary

This paper is presented to close project # C041203. The latest sanctioned amount for this project was \$2.400M.

The final spend amount is \$3.145M broken down into:

\$3.129 Capex
\$0.016 Opex
\$0.000 Removal

2 Project Summary

The purpose of this project was to design, procure materials and install a new boil off compressor and associated apparatus (piping, valves, fittings, controls, electrical, instrumentation and building) that could handle the total load at the Exeter LNG plant.

Two compressors were successfully replaced with a new one that began operating December 2014. In 2015 the final records review and as-built information were finalized and completed.



USSC Closure Paper

3 Over / Under Expenditure Analysis

3.1 Summary Table

Actual Spending (\$M)			
Project #	Description		Total Spend
		Capex	3.129
		Opex	0.016
		Removal	0.000
		Total	3.145
Total		Capex	3.129
		Opex	0.016
		Removal	0.000
		Total	3.145

Project Sanction Summary Table			
Project Sanction Approval (\$M)			Total Spend
		Capex	2.400
		Opex	0.000
		Removal	0.000
		Total Cost	2.400
Sanction Variance (\$M)			Total Spend
		Capex	(0.729)
		Opex	(0.016)
		Removal	0.000
		Total Variance	(0.745)



USSC Closure Paper

3.2 Analysis

The sanction amount for the Exeter Boil-off Compressor project was \$2.400M and the project was closed out at \$3.145M, which resulted in an overrun of \$0.745. The table below summarizes the major cost differences.

Exeter Boil-off Compressor Cost Comparison (\$M)		
Classification	Project Cost Estimate	Actual Cost
National Grid Labor	\$0.05	\$0.04
Contractor Labor	\$0.92	-
• Contractor - CHI ENGINEERING SERVICES INC.	-	\$1.86
• Other Contractors and Consultants	-	\$0.09
Materials	\$1.07	-
Capital Overheads	\$0.33	\$0.96
Other Expenses (Not assigned)	\$0.00	\$0.18
Asbestos removal and replacement	-	\$0.01
Total	\$2.37	\$3.14

The major difference between the project estimate and the actual costs is due to Capital Overhead. Capital overhead account for \$0.63M (85%) of the \$0.745M overrun.

- The estimate did not account for capital overhead to be accrued on contractor labor; the accounting system applied capital overhead to both contractor labor and materials.

The remaining \$100K of the \$0.745M overrun is within the 10% (\$0.24M) tolerance of the project sanction amount.

Overall, all major objectives for the project were met and all close out activities have been completed.

4 Improvements / Lessons Learned

- Project Management was not involved in the project;
- Revised version of the project estimating tool now accounts for capital overhead on contractor labor;
- Labor and material charges are identified as separate line items on contractors' invoices; this allows for appropriate application of capital overhead costs.



USSC Closure Paper

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"/> N/A
All relevant costs have been charged to project	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All work orders and funding projects have been closed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All unused materials have been returned	<input type="radio"/> Yes <input checked="" type="radio"/> N/A
All as-builts have been completed	<input checked="" type="radio"/> Yes <input type="radio"/> N/A
All lessons learned have been entered appropriately into the lesson learned database	<input checked="" type="radio"/> Yes <input type="radio"/> N/A

The funding project is in closed status.



USSC Closure Paper

6 Statements of Support

6.1 **Supporters**

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

Department	Individual	Responsibilities
<i>Investment Planner</i>	Pensabene, Patrick	Endorses relative to 5-year business plan or emergent work
<i>Resource Planning</i>	Vidal, Alfredo	Endorses Resources, cost estimate, schedule, and Portfolio Alignment
<i>Project Management</i>	Michel, Michael	Endorses Resources, cost estimate and schedule
<i>LNG</i>	Su, Fikret	Endorses scope, design, conformance with design standards
<i>Gas Project Estimation</i>	Paul, Art	Endorses Cost Estimates

6.2 **Reviewers**

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

Function	Individual
Finance	Dennis Urban
Regulatory	Zschokke Peter
Jurisdictional Delegates	Iseler David G.
Procurement	Curran, Art
Control Center	Eagan, Mark J.

USSC Closure Paper



7 Decisions

I approve this paper.

Signature Ross W. Turrini Date 7/16/2016
Executive Sponsor – Ross Turrini, Senior Vice President
Gas Process & Engineering

Funding Project Information					
Description	Discretionary - Construction RI		Funding Proj	CRCC501	
Company	5360-Narragansett Electric				
Bus Segment	RIGASD	Last Approved Rev	5		
Budget	CRCC501	Status	open	FP ID	326095585
Department	78105360G - Gas Construc	F. P. Type	P_Gas Distribution Construction RI		
Long Description	General Equipment				
Major Location	MASS PLANT - RI (Gas)	Asset Location			
Asset Loc Det					
Notes					
Reason		Approval Group	<none>		
Est Start Date	4/1/2015	Late Charge Wait	0 Months		
Est Complete	3/31/2016	In Service Date			
Est In Service	3/31/2016	Completion Date			
Est Annual Rev		First CPR Month			
Initiated By	DIACOM	Close Date			
Date Suspended		Date Initiated	11/8/2012		

Details

Accounts

Contacts

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Related FPs

Audits

Delete FP

Cancel FP

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Estimates

Update

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Record 1 of 1

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Funding Project Information		<input type="button" value="-"/> <input type="button" value="□"/> <input type="button" value="X"/>	
<div> <div>Title</div> <div>Discretionary - Construction RI</div> </div> <div> <div>Funding Project</div> <div>CRCC501</div> </div>		<div>Details</div> <div>Accounts</div> <div>Contacts</div> <div>Class Codes</div> <div>Justification</div> <div>Tax Status</div> <div>Authorizations</div> <div>User Comment</div> <div>Review</div> <div>Related FPs</div>	
<div>Class Codes</div> <div> <div>Budget Plant Class</div> <div>Gas Distribution PAM</div> </div> <div> <div>Send to SE</div> <div></div> </div> <div> <div>Miscellaneous Billing</div> <div></div> </div> <div> <div>Misc Billing Status</div> <div></div> </div> <div> <div>Required</div> <div></div> </div> <div> <div>Force Billing Flag</div> <div></div> </div> <div> <div>RDV Allocation Eligible</div> <div></div> </div> <div> <div>Sanctioning Data</div> <div></div> </div> <div> <div>DOA Amount</div> <div></div> </div> <div> <div>Lower Tolerance</div> <div>.90</div> </div> <div> <div>Strategy Type Name</div> <div></div> </div> <div> <div>Upper Tolerance</div> <div>1.10</div> </div>		<div> <div>Audits</div> <div>Delete FP</div> <div>Cancel FP</div> <div>Suspend FP</div> </div> <div> <div>Estimates</div> <div>Update</div> <div>Print</div> <div>Close</div> </div>	
<div>Indicates Display Only - (d)</div>			
<div>Record 1 of 1</div> <div> <input type="button" value="K"/> <input type="button" value="<"/> <input type="button" value=">"/> <input type="button" value="I"/> </div>			

Funding Project Information					
New Approval Type		Budget Version		Default (inactive)	
Funding Project	Revision	Rev			
CRCC501	2	K < > >			
Approval Type	Amount		Send for Approval		
DOA Approval - Manual	\$531,000.00		Refresh		
Status	Sent By	Date Sent	Date Appr		
Approved	Roche, Michelle C	5/7/2013	5/7/2013		
+ Approver 1 -----		Approver	Required	Date Approved	Authority Limit
		Marsocci Jr, Albert A	<input checked="" type="checkbox"/>	5/7/2013	\$1,000,000
<div> <div>Audits</div> <div>Delete FP</div> <div>Cancel FP</div> <div>Suspend FP</div> <div>Estimates</div> <div>Update</div> <div>Print</div> <div>Close</div> </div>					
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