



Long: US Sanction Paper

Title:	Collaboration & Unified Communications	Sanction Paper #:	USSC-19-263
Project #:	INVP 5487	Sanction Type:	Partial Sanction
Capex #:	S008040		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	5/14/2019
Author:	Cappiello, Gina	Sponsor:	Olive, Stephen Chief Information Officer
Utility Service:	IT	Project Manager:	Braziel, John

Executive Summary

This paper requests Partial Sanction of INVP 5487 in the amount of \$1.539M with a tolerance of +/-10% for the purposes of Requirements & Design.

This sanction amount is \$1.539M broken down into:

- \$1.354M Capex
- \$0.185M Opex
- \$0.000M Removal

NOTE the potential investment of \$3.630M with a tolerance of +/-25, contingent upon submittal and approval of a Project Sanction paper following completion of Requirements & Design.

Project Summary

The Program of work is to provide technologies that will enable National Grid employees to increase productivity by enabling collaboration in newer and more efficient ways. Everyone will be on a unified strategic platform for communication and collaboration.

There will be an ongoing process of prioritization and efficiency improvements and more work will be included should there be capacity to do so. The current program of work is expected to include the following:

- 5487b Collaboration Migration – SharePoint to SharePoint Online
- 5487c Collaboration Migration – Box & Huddle to SharePoint Online
- 5487d Collaboration Migration - Zoom Conferencing

Background

The Collaboration & Unified Communications Program has identified a series of projects that will modernize the way National Grid will collaborate and communicate (replacing outdated, aged and unsupported equipment and streamlining processes). The purpose of this program paper is to request the funds for the

following initiatives listed under the Program INVP 5487 - Collaboration & Unified Communications:

- High Performance Workplace - Conference Room of the Future (Audio, Video, Connectivity) - INVP5487d Zoom Conferencing
High Performance Workplace - High Performance Workplace (w/ Facilities) F&A - INVP5487d Zoom Conferencing
- High Performance Workplace - Video Conferencing Upgrades - INVP5487d Zoom Conferencing
- Collaboration Migration - SharePoint Standardization
- Office 365 - Data Security Phase II
- Office 365 - Data Security Phase III
- Unified Communications transition to Zoom Conferencing
- Office 365 - Tenant Consolidation
- Office 365 - Enhanced Application Deployment
- Enterprise Mobility Management - US Infrastructure Buildout

Project Descriptions

Program of work to provide technologies that will enable National Grid employees to increase productivity by enabling collaboration in newer and more efficient ways. As National Grid continues to grow, the ability for employees to work from any location securely and the need to easily share, access and manipulate data are critical. Communication and Collaboration tools enable employee productivity by enabling efficient communication. Collaboration services that are out of support create increased security risks and the potential of reduced reliability and increased costs to support.

Summary of Benefits

- Ability for employees to work from any location securely
- Ability to easily access, share, and manipulate information in new ways
- Eliminating multiple collaboration tools to provide a unified platform to employees
- Reduced travel costs created by efficiencies in collaboration tools
- Increased productivity
- Reduced costs resulting from a strategic selection of tools

Business and Customer Issues

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

Alternatives

<i>Number</i>	<i>Title</i>
1	Defer Project/Do Nothing Rejected: This option is not viable as it will not address collaboration and communication modernization and the benefits listed in the Benefits Summary Indicative cost: N/A
2	Competitive Bids from Multiple Vendors Rejected: The alternative is more costly than the chosen approach Indicative cost: \$4.75M/ with a tolerance of +/-25%

Related Projects, Scoring and Budget

Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount(\$M)
5487		Collaboration & Unified Communications	3.630
Total:			3.630

Associated Projects

Project Number	Project Title	Estimate Amount (\$M)
4710	Data Security Project	0.072
4491	O365 Project - USSC-17-154	10.342
4714	EMM Phase 2 Managed Workplace Services - USSC-17-327_V2	1.867
		12.281

Prior Sanctioning History

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Sanction Type	Sanction Paper	Potential Investment Tolerance
		N/A	N/A		N/A	N/A

Key Milestones

Milestone	Date (Month / Year)
Start Up	April, 2019
Partial Sanction	May, 2019
Begin Requirements and Design	May, 2019
Project Sanction	September, 2019
Begin Development and Implementation	September, 2019
Begin User Acceptance Testing	February, 2020
Move to Production / Final Go Live	March, 2020
Gate E - Approval to Close Project	March, 2020
Project Closure Sanction	June, 2020

Next Planned Sanction

Date (Month/Year)	Purpose of Sanction Review
September, 2019	Sanction

Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory	The main driver of this program is to increase productivity by enabling collaboration in newer and more efficient ways.
<input type="radio"/> Policy-Driven	
<input type="radio"/> Justified NPV	
<input checked="" type="radio"/> Other	

Asset Management Risk Score: 10

PRIMARY RISK SCORE DRIVER

Reliability Environment Health & Safety Not Policy Driven

Complexity Level: 18

High Complexity Medium Complexity Low Complexity N/A

Process Hazard Assessment

A Process Hazard Assessment (PHA) is required for this project: Yes No

Current Planning Horizon

Capex	0.000	3.410	0.000	0.000	0.000	0.000	0.000	3.410
Opex	0.000	0.220	0.000	0.000	0.000	0.000	0.000	0.220
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	3.630	0.000	0.000	0.000	0.000	0.000	3.630

Resources, Operations, & Procurement

RESOURCE SOURCING

Engineering & design
Resources to be provided

Internal

Contractor

Construction/Implementation
Resources to be provided

Internal

Contractor

RESOURCE DELIVERY

Availability of internal
resources to delivery project:

Red

Amber

Green

Availability of external
resources to delivery project:

Red

Amber

Green

OPERATIONAL IMPACT

Outage impact on network
system

Red

Amber

Green

PROCUREMENT IMPACT

Procurement impact on
network system:

Red

Amber

Green

Key Issues

N/A

Climate Change

Contribution to National Grid's
2050 80% emissions reduction
target:

Neutral

Positive

Negative

Impact on adaptability of network
for future climate change:

Neutral

Positive

Negative

List References

N/A

Safety, Environmental and Project Planning Issues

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

Permitting

N/A

Investment Recovery and Customer Impact

Investment Recovery

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

Customer Impact

N/A

Execution Risk Appraisal

Risk Breakdown Structure Category	Qualitative Assessment / Risk Response Strategy				Risk Score	
	Risk ID + Title	IF Statement	THEN Statement	Risk Response Strategy		
1. Project Requirements	R1 - Zoom Risk	If there is significant and continuous change in the Digital Workplace Enterprise Domain	Then it impacts the ability to deliver effective services in a timely manner	Mitigate	Programme Governance	20
1. Project Requirements	R2 - Zoom Risk	If Multiple support Partner model across Desktop (DXC), Network (Verizon) and Microsoft 365 (Avanade)	Then will provide implementation challenges	Mitigate	New Modern Workplace supplier RFP	12
1. Project Requirements	R3 - SP Risk	The vendor we go with for discovery might not be the same vendor for migration	The new vendor might not have the information needed for the migration phase	Mitigate	Will turn to ADAM vendors	16
1. Project Requirements	R4 - SP Risk	no project team developed yet	Might cause delays	Mitigate	Hiring resources to onboard by mid May	9
1. Project Requirements	R5 - SP, Huddle, Box	Need Microsoft 365 E5 licences for Audio Conferencing	Meeting dial-in to replace WebEx	Mitigate	Acquire from Microsoft	9
1. Project Requirements	R6 - All Projects	INVP 4710 O365 External Sharing security project	Could delay and limit migration	Mitigate	Proceed without external sharing until enabled	9

Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	3.630	0.000	0.000	0.000	0.000	0.000	3.630
\$M	Prior Yrs	Yr 1 2020	Yr 2 2021	Yr 3 2022	Yr 4 2023	Yr 5 2024	Yr 6 2025	Total
Capex	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Opex	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Sanction Request Breakdown by Project

Project Number	Capex	Opex	Removal	Total
5487				

Cost Assumptions

The accuracy level of estimate for each project is identified in the Cost Summary Table

Net Present Value / Cost Benefit Analysis

N/A

NPV Assumptions & Calculations

N/A

Additional Impacts

N/A

Statement of Support

Department	Individual	Responsibilities
Business Department	Costa, Andrea	Business Representative
Business Partner (BP)	Davidson, Caitlin	Relationship Manager
Program Delivery Management (PDM)	Wermann, Kenneth	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	DeMauro, Daniel J.	Director
Digital Risk and Security (DR&S)	Shattuck, Peter	Manager
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Lyba, Svetlana	Director

Reviewers

Function	Individual
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Regulatory	Mancinelli, Lauri A.
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Smith, Amy
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego

Decisions

I:

- (a) APPROVE the investment of \$1.539M and a tolerance of +/-10% for Requirements & Design.
- (b) NOTED the potential investment of 3.63M and a tolerance of +/-25%, contingent upon submittal and approval of a Project Sanction paper following completion of final engineering and design.
- (c) NOTED that Brazier, John has the approved financial delegation to undertake the activities stated in (a).
- (d) Approved the run-the-business (RTB) of \$0.23M (per annum) for 5 years.

Signature David H. Campbell
Date 5/28/19

David H. Campbell, Vice President US Treasury, USSC Chair

Appendix

Project Cost Breakdown \$ (millions)					
Cost Category	sub-category	Value of Work to Date (VOWD)	Forecast to Complete (FTC)	Forecast At Completion (FAC=VOWD+FTC)	Name of Firm(s) providing resources
Personnel	NG Resources		0.882	0.882	
	SDC Time & Materials		0.123	0.123	IBM
			0.016	0.016	WiPro
			-	-	DXC
			0.281	0.281	Verizon
	SDC Fixed-Price		-	-	IBM
			-	-	WiPro
			-	-	DXC
		-	-	Verizon	
	All other personnel		0.064	0.064	
	TOTAL Personnel Costs	-	1.367	1.367	
Hardware	Purchase		-	-	
	Lease		-	-	
Software			0.067	0.067	
Risk Margin			-	-	
AFUDC			0.035	0.035	
Other			0.071	0.071	
	TOTAL Costs	-	1.539	1.539	

CoSeg	Company Name	SAP Co.	SAP Seg	Jurisdiction	BU
5020R	National Grid USA Parent	5020	PARENT	PARENT	
5040R	KeySpan Energy Corp.	5040	PARENT	PARENT	
5180E	National Grid Elec. Services	5180	SERVCO	SERVCO	Electric
5210E	Niagara Mohawk Power Corp.- Electric Distr.	5210	NYELEC	NY	Electric
5210G	Niagara Mohawk Power Corp. - Gas	5210	NYGASD	NY	Gas
5210T	Niagara Mohawk Power Corp. - Transmission	5210	NYTRAN	NY	Transmission
5220G	KeySpan Energy Delivery New York	5220	NYGASD	NY	Gas
5230G	KeySpan Energy Delivery Long Island	5230	NYGASD	NY	Gas
5310E	Massachusetts Electric Company	5310	MAELEC	MA	Electric

5310F	Massachusetts Electric Company - GNSC	5310	FRELEC	FERC	Electric
5310T	Massachusetts Electric Company - Transmission	5310	FRTRAN	FERC	Transmission
5320E	Nantucket Electric Company	5320	MAELEC	MA	Electric
5330G	Boston Gas Company	5330	MAGASD	MA	Gas
5340G	Colonial Gas Company	5340	MAGASD	MA	Gas
5360E	Narragansett Electric Company	5360	RIELEC	RI	Electric
5360F	Narragansett Electric Company - GNSC	5360	FRELEC	FERC	Electric
5360G	Narragansett Gas Company	5360	RIGASD	RI	Gas
5360T	Narragansett Electric Company - Transmission	5360	FRTRAN	FERC	Transmission
5410F	New England Power Company - GNSC	5410	FRELEC	FERC	Electric
5410T	New England Power Company - Transmission	5410	FRTRAN	FERC	Transmission
5411F	NE Hydro - Trans Electric Co.	5411	FRELEC	FERC	Transmission - Hydro
5412F	New England Hydro - Trans Corp.	5412	FRELEC	FERC	Transmission - Hydro
5413F	New England Electric Trans Corp	5413	FRELEC	FERC	Transmission - Hydro
5420G	NG LNG LP Regulated Entity	5420	FRGASO	FERC	Gas
5421G	NG LNG LP LLC	5421	FRGASO	FERC	Gas
5430P	KeySpan Generation LLC (PSA)	5430	FRPGEN	FERC	Transmission
5431P	KeySpan Glenwood Energy Center	5431	FRPGEN	FERC	Transmission
5432P	KeySpan Port Jefferson Energy Center	5432	FRPGEN	FERC	Transmission
5840N	KeySpan Energy Development Corporation	5840	NONREG	NONREG	
5850N	KeySpan Services Inc.	5850	NONREG	NONREG	

All figures in \$ thousands	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total
	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	
Last Sanctioned Net Impact to RTB						
Last Sanction IS Net Impact to RTB						-
Last Sanction Business Net Impact to RTB	-	-	-	-	-	-
Last Sanction Total Net Impact to RTB	-	-	-	-	-	-
Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB	230.0	230.0	230.0	230.0	230.0	1,150.0
Business Budgeted Net Impact to RTB						-
Currently Forecasted Net Impact to RTB						
IS Funded Net Impact to RTB Forecasted at Go-Live	230.0	230.0	230.0	230.0	230.0	1,150.0
Business Funded Net Impact to RTB Forecasted at Go-Live	-	-	-	-	-	-



Short: US Sanction Paper

Title:	Collaboration Migration – SharePoint to SharePoint Online	Sanction Paper #:	
Project #:	INVP 5487B	Sanction Type:	Partial Sanction
Capex #:	S008040		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	8/6/2019
Author:	Cappiello, Gina	Sponsor(s):	Olive, Stephen
Utility Service:	IT	Project Manager:	Roach, Craig

Executive Summary

This paper requests Partial Sanction of INVP 5487B in the amount of \$0.630M with a tolerance of +/-10% for the purposes of Requirements and Design.

This sanction amount is \$0.630M broken down into:

- \$0.309M Capex
- \$0.321M Opex
- \$0.000M Removal

NOTE the potential investment of \$0.995M with a tolerance of +/-25%, contingent upon submittal and approval of a Project Sanction paper following completion of Requirements and Design.

Project Summary

- Migrate SharePoint 2007, 2010 and 2013 to either SharePoint Online (SPO) or Microsoft OneDrive.
- Discovery on current SharePoint environments
- Operate in SP Online or SP 2016
- Group membership, access rights, and site owners follows to SPO
- Unused sites are decommissioned

Background

Support for both SharePoint 2007 and 2010 is expiring leading to increased instability and a high risk of failure if there are any issues with SharePoint 2007/2010. On top of that, there is a need to move off of IBM ICE as the longer National Grid stays on the IBM ICE platform the more operational costs National Grid incurs.

Project Descriptions

National Grid utilizes multiple instances of SharePoint (2007, 2010, 2013) leading to inconsistencies in control, support and site storage. To lower IT operational spend and ensure only systems within support are used, National Grid is looking to consolidate the numerous SharePoint instances into SharePoint Online.

Summary of Benefits

- Increased security
- Single, unified strategic platform
- Decommission of inactive sites
- Potential to reduce operational costs (this will be determined in the R&D phase)
- Increased collaboration and efficiency as SharePoint online allows for End Users to access their documents on any device on any network.
- Improved End User experience
- Removal of non supported systems

Business and Customer Issues

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

Alternatives

<i>Number</i>	<i>Title</i>
1	Defer Project/Do Nothing Rejected: This option is not viable as it does not align to strategic direction to rationalize collaboration and productivity tools on the O365 platform
2	Full Sanction Rejected: This option is not viable as the amount and complexity of the migrations to O365 are unknown currently, and therefore the cost and timelines for the full projects are also unknown.

Associated Projects

Key Milestones

<i>Milestone</i>	<i>Date (Month / Year)</i>
Start Up	June, 2019
Partial Sanction	July, 2019
Begin Requirements and Design	July, 2019
Project Sanction	September, 2019
Begin Development and Implementation	September, 2019
Begin User Acceptance Testing	October, 2019
Move to Production / Final Go Live	October, 2019
Gate E - Approval to Close Project	November, 2019
Project Closure Sanction	February, 2020

Next Planned Sanction

<i>Date (Month/Year)</i>	<i>Purpose of Sanction Review</i>
September, 2019	Sanction

Category

<i>Category</i>	<i>Reference to Mandate, Policy, NPV, or Other</i>
<input type="radio"/> Mandatory	Current strategy is to use O365 as the enterprise solution, so the main drivers of this project are to
<input type="radio"/> Policy-Driven	

- Justified NPV
 Other

consolidate numerous SharePoint instances over to SharePoint online and decommission old SharePoint instances.

Asset Management Risk Score: 17

PRIMARY RISK SCORE DRIVER

- Reliability Environment Health & Safety Not Policy Driven

Complexity Level: 17

- High Complexity Medium Complexity Low Complexity N/A

Investment Recovery and Customer Impact

Investment Recovery

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

Drivers

National Grid is currently using multiple cloud collaboration platforms which have led to inconsistencies in licensing, control, and support. In order to lower operational IT spend, several SharePoint environments will be consolidated

Statement of Support

Department	Individual	Responsibilities
Business Department	Olive, Stephen	Business Representative
Business Partner (BP)	Davidson, Caitlin	Relationship Manager
Program Delivery Management (PDM)	Wermann, Kenneth	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	DeMauro, Daniel J.	Director
Digital Risk and Security (DR&S)	Shattuck, Peter	Manager
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Clinchot, Joseph J.	Director
Enterprise Portfolio Management	Cronin, Daniel	Analyst

Decisions

Recommendations

The Sanctioning Authority is invited to:

- A) APPROVE the investment of \$0.630M including risk margin of \$M
- B) APPROVE the run-the-business (RTB) of \$0.076M(per annum) for 5 years
- C) NOTE that Olive, Stephen, is the Project Sponsor
- D) NOTE that Roach, Craig, is the Project Manager and has the approved financial delegation to deliver the project

Decision of the Sanctioning Authority

I hereby approve the recommendations made in this paper.

Signature 

Date 08/06/19

Premjith Singh
VP IT EPMO

Appendix

Project Costs [\$M]	Prior FYs	FY 1 19/20	FY 2 20/21	FY 3 21/22	FY 4 22/23	FY 5 23/24	FY 6 24/25	Total
Start-Up OPEX	-	0.038	-	-	-	-	-	0.038
Start-Up CAPEX	-	-	-	-	-	-	-	-
Start-Up - Risk OPEX	-	-	-	-	-	-	-	-
Start-Up - Risk CAPEX	-	-	-	-	-	-	-	-
Start-Up SUBTOTAL	-	0.038	-	-	-	-	-	0.038
R&D OPEX								
R&D OPEX	-	0.283	-	-	-	-	-	0.283
R&D CAPEX								
R&D CAPEX	-	0.309	-	-	-	-	-	0.309
R&D Risk OPEX	-	-	-	-	-	-	-	-
R&D Risk CAPEX	-	-	-	-	-	-	-	-
R&D SUBTOTAL	-	0.593	-	-	-	-	-	0.593
Development & Implementation – OPEX								
People	-	-	0.120	-	-	-	-	0.120
Software	-	-	-	-	-	-	-	-
Hardware	-	-	-	-	-	-	-	-
Other	-	-	0.001	-	-	-	-	0.001
Risk Margin	-	-	-	-	-	-	-	-
Development & Implementation – CAPEX								
People	-	-	0.234	-	-	-	-	0.234
Software	-	-	-	-	-	-	-	-
Hardware	-	-	-	-	-	-	-	-
AFUDC	-	-	0.006	-	-	-	-	0.006
Other	-	-	0.003	-	-	-	-	0.003
Risk Margin	-	-	-	-	-	-	-	-
D&I SUBTOTAL	-	-	0.364	-	-	-	-	0.364
Total Project Opex	-	0.321	0.121	-	-	-	-	0.443

Total Project Capex	-	0.309	0.243	-	-	-	-	0.552
Total Project Cost	-	0.631	0.364	-	-	-	-	0.995
Non-regulated project UPLIFT	-	-	-	-	-	-	-	-
Non-regulated project TOTAL	-	-	-	-	-	-	-	-
IS Investment Plan FY 19/20 Thru FY 24/25								
Budget OPEX	-	-	-	-	-	-	-	-
Budget CAPEX	-	-	-	-	-	-	-	-
Total Budget Cost	-	-	-	-	-	-	-	-
Total Cost Variance								
Total Variance Opex	-	(0.321)	(0.121)	-	-	-	-	(0.443)
Total Variance Capex	-	(0.309)	(0.243)	-	-	-	-	(0.552)
Total Variance Cost	-	(0.631)	(0.364)	-	-	-	-	(0.995)
Impact on RTB costs		0.076	0.076	0.076	0.076	0.076	-	0.380

CoSeg	Company Name	SAP Co.	SAP Seg	Jurisdiction	BU
5020R	National Grid USA Parent	5020	PARENT	PARENT	
5040R	KeySpan Energy Corp.	5040	PARENT	PARENT	
5210E	Niagara Mohawk Power Corp.- Electric Distr.	5210	NYELEC	NY	Electric
5210G	Niagara Mohawk Power Corp. - Gas	5210	NYGASD	NY	Gas
5210T	Niagara Mohawk Power Corp. - Transmission	5210	NYTRAN	NY	Transmission
5220G	KeySpan Energy Delivery New York	5220	NYGASD	NY	Gas
5230G	KeySpan Energy Delivery Long Island	5230	NYGASD	NY	Gas
5310E	Massachusetts Electric Company	5310	MAELEC	MA	Electric
5310T	Massachusetts Electric Company - Transmission	5310	FRTRAN	FERC	Transmission
5320E	Nantucket Electric Company	5320	MAELEC	MA	Electric
5330G	Boston Gas Company	5330	MAGASD	MA	Gas
5340G	Colonial Gas Company	5340	MAGASD	MA	Gas
5360E	Narragansett Electric Company	5360	RIELEC	RI	Electric
5360G	Narragansett Gas Company	5360	RIGASD	RI	Gas
	Narragansett Electric Company -				

5360T	Transmission	5360	FRTRAN	FERC	Transmission
5410T	New England Power Company - Transmission	5410	FRTRAN	FERC	Transmission
5411F	NE Hydro - Trans Electric Co.	5411	FRELEC	FERC	Transmission - Hydro
5412F	New England Hydro - Trans Corp.	5412	FRELEC	FERC	Transmission - Hydro
5413F	New England Electric Trans Corp	5413	FRELEC	FERC	Transmission - Hydro
5420G	NG LNG LP Regulated Entity	5420	FRGASO	FERC	Gas
5430P	KeySpan Generation LLC (PSA)	5430	FRPGEN	FERC	Transmission
5431P	KeySpan Glenwood Energy Center	5431	FRPGEN	FERC	Transmission
5432P	KeySpan Port Jefferson Energy Center	5432	FRPGEN	FERC	Transmission
5820N	KS Energy Trading	5820	PARENT	PARENT	
5840N	KeySpan Energy Development Corporation	5840	NONREG	NONREG	
5850N	KeySpan Services Inc.	5850	NONREG	NONREG	

All figures in \$ thousands	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total
	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	
Last Sanctioned Net Impact to RTB						
Last Sanction IS Net Impact to RTB						-
Last Sanction Business Net Impact to RTB	-	-	-	-	-	-
Last Sanction Total Net Impact to RTB	-	-	-	-	-	-
Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB	76.0	76.0	76.0	76.0	76.0	380.0
Business Budgeted Net Impact to RTB	-	-	-	-	-	-
Currently Forecasted Net Impact to RTB						
IS Funded Net Impact to RTB Forecasted at Go- Live	76.0	76.0	76.0	76.0	76.0	380.0
Business Funded Net Impact to RTB Forecasted at Go- Live	-	-	-	-	-	-
Variance to Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB Variance	-	-	-	-	-	-
Business Budgeted						

Net Impact to RTB	-	-	-	-	-	-
Variance	-	-	-	-	-	-





Short: US Sanction Paper

Title:	Collaboration Migration-Box & Huddle to SharePoint Online	Sanction Paper #:	
Project #:	INVP 5487C	Sanction Type:	Partial Sanction
Capex #:	S008040		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	7/30/2019
Author:	Cappiello, Gina	Sponsor(s):	Olive, Stephen
Utility Service:	IT	Project Manager:	Roach, Craig

Executive Summary

This paper requests Partial Sanction of INVP 5487C in the amount of \$0.201M with a tolerance of +/-10% for the purposes of Requirements & Design.

This sanction amount is \$0.201M broken down into:

- \$0.149M Capex
- \$0.052M Opex
- \$0.000M Removal

NOTE the potential investment of \$0.316M with a tolerance of +/-25%, contingent upon submittal and approval of a Project Sanction paper following completion of Requirements & Design.

Project Summary

Migrate Box and Huddle to either SharePoint Online or OneDrive.

Analysis to identify if something goes to SPO or ODB

Decommission Huddle

Reduce number of Box licenses to only essential personnel

Background

National Grid has exceeded the number of Box licenses which has led to unnecessary licensing fees.

The contract for Huddle expired in March 2019, although there has been a Commercial extension for 12 months the need to migrate to standardized platform still exists.

Project Descriptions

Currently National Grid is using multiple cloud collaboration platforms leading to inconsistencies in licensing, control and support. To lower operational IT spend, National Grid is planning to consolidate several SharePoint environments, Box and Huddle into Office 365. National Grid will also look to select the Microsoft

Cloud as the standardized platform for National Grid.

Summary of Benefits

- Single, unified strategic platform
- Decommission of inactive sites
- Potential to reduce operational costs (this will be determined in the R&D phase)
- Increased collaboration and efficiency as SharePoint online allows for End Users to access their documents on any device on any network.
- Improved End User experience

Business and Customer Issues

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

Alternatives

<i>Number</i>	<i>Title</i>
1	Defer Project/Do Nothing Rejected: This option is not viable as it does not align to strategic direction to rationalize collaboration and productivity tools on the O365 platform and reduce RTB costs of approximately 4k BOX users. Will not release the full benefits of the O365 implementation and will not deliver tangible and intangible benefits of migrating from Huddle.
2	Full Sanction Rejected: This option is not viable as the amount and complexity of the migrations to O365 are currently unknown and therefore the cost and timeline for the full project is also unknown. Current strategy is to use O365 as the enterprise solution and there is also a driver to reduce the number of BOX users to less than 4,000 globally.

Key Milestones

<i>Milestone</i>	<i>Date (Month / Year)</i>
Start Up	June, 2019
Partial Sanction	July, 2019
Begin Requirements and Design	July, 2019
Project Sanction	September, 2019
Begin Development and Implementation	September, 2019
Begin User Acceptance Testing	October, 2019
Move to Production / Final Go Live	October, 2019
Gate E - Approval to Close Project	November, 2019
Project Closure Sanction	February, 2020

Next Planned Sanction

<i>Date (Month/Year)</i>	<i>Purpose of Sanction Review</i>
September, 2019	Sanction

Category

Category

- Mandatory
- Policy-Driven
- Justified NPV
- Other

Reference to Mandate, Policy, NPV, or Other

The main driver of the project is to reduce the number of BOX users to less than 4000 globally

Asset Management Risk Score: 17

PRIMARY RISK SCORE DRIVER

- Reliability
- Environment
- Health & Safety
- Not Policy Driven

Complexity Level: 15

- High Complexity
- Medium Complexity
- Low Complexity
- N/A

Investment Recovery and Customer Impact

Investment Recovery

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

Drivers

National Grid is currently using multiple cloud collaboration platforms which have led to inconsistencies in licensing, control, and support. In order to lower operational IT spend, several SharePoint environments will be consolidated

Statement of Support

Department	Individual	Responsibilities
Business Department	Olive, Stephen	Business Representative
Business Partner (BP)	Davidson, Caitlin	Relationship Manager
Program Delivery Management (PDM)	Wermann, Kenneth	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	DeMauro, Daniel J.	Director
Digital Risk and Security (DR&S)	Shattuck, Peter	Manager
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Lyba, Svetlana	Director
Enterprise Portfolio Management	Cronin, Daniel	Analyst

Decisions

Recommendations

The Sanctioning Authority is invited to:

- A) APPROVE the investment of \$0.201M including risk margin of \$M
- B) APPROVE the run-the-business (RTB) of \$0.076M(per annum) for 5 years
- C) NOTE that Olive, Stephen, is the Project Sponsor
- D) NOTE that Roach, Craig, is the Project Manager and has the approved financial delegation to deliver the project

Decision of the Sanctioning Authority

I hereby approve the recommendations made in this paper.

Signature  _____

Date 08/01/19 _____
Premjith Singh
VP IT EPMO

SUBTOTAL	-	0.114	-	-	-	-	-	0.114
Total Project Opex	-	0.061	-	-	-	-	-	0.061
Total Project Capex	-	0.255	-	-	-	-	-	0.255
Total Project Cost	-	0.316	-	-	-	-	-	0.316
Non-regulated project UPLIFT	-	-	-	-	-	-	-	-
Non-regulated project TOTAL	-	-	-	-	-	-	-	-
IS Investment Plan FY 19/20 Thru FY 24/25								
Budget OPEX	-	-	-	-	-	-	-	-
Budget CAPEX	-	-	-	-	-	-	-	-
Total Budget Cost	-	-	-	-	-	-	-	-
Total Cost Variance								
Total Variance Opex	-	(0.061)	-	-	-	-	-	(0.061)
Total Variance Capex	-	(0.255)	-	-	-	-	-	(0.255)
Total Variance Cost	-	(0.316)	-	-	-	-	-	(0.316)
Impact on RTB costs		0.076	0.076	0.076	0.076	0.076	*	0.380

CoSeg	Company Name	SAP Co.	SAP Seg	Jurisdiction	BU
5020R	National Grid USA Parent	5020	PARENT	PARENT	
5040R	KeySpan Energy Corp.	5040	PARENT	PARENT	
5210E	Niagara Mohawk Power Corp. - Electric Distr.	5210	NYELEC	NY	Electric
5210G	Niagara Mohawk Power Corp. - Gas	5210	NYGASD	NY	Gas
5210T	Niagara Mohawk Power Corp. - Transmission	5210	NYTRAN	NY	Transmission

5220G	KeySpan Energy Delivery New York	5220	NYGASD	NY	Gas
5230G	KeySpan Energy Delivery Long Island	5230	NYGASD	NY	Gas
5310E	Massachusetts Electric Company	5310	MAELEC	MA	Electric
5310T	Massachusetts Electric Company - Transmission	5310	FRTRAN	FERC	Transmission
5320E	Nantucket Electric Company	5320	MAELEC	MA	Electric
5330G	Boston Gas Company	5330	MAGASD	MA	Gas
5340G	Colonial Gas Company	5340	MAGASD	MA	Gas
5360E	Narragansett Electric Company	5360	RIELEC	RI	Electric
5360G	Narragansett Gas Company	5360	RIGASD	RI	Gas
5360T	Narragansett Electric Company - Transmission	5360	FRTRAN	FERC	Transmission
5410T	New England Power Company - Transmission	5410	FRTRAN	FERC	Transmission
5411F	NE Hydro - Trans Electric Co.	5411	FRELEC	FERC	Transmission - Hydro
5412F	New England Hydro - Trans Corp.	5412	FRELEC	FERC	Transmission - Hydro
5413F	New England Electric Trans Corp	5413	FRELEC	FERC	Transmission - Hydro
5420G	NG LNG LP Regulated Entity	5420	FRGASO	FERC	Gas
5430P	KeySpan Generation LLC (PSA)	5430	FRPGEN	FERC	Transmission
5431P	KeySpan Glenwood Energy Center	5431	FRPGEN	FERC	Transmission
5432P	KeySpan Port Jefferson Energy Center	5432	FRPGEN	FERC	Transmission
5820N	KS Energy Trading	5820	PARENT	PARENT	
5840N	KeySpan Energy Development Corporation	5840	NONREG	NONREG	
5850N	KeySpan Services Inc.	5850	NONREG	NONREG	

All figures in \$ thousands	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total
		FY 1/1	FY 2/2	FY 3/3	FY 4/4	
Last Sanctioned Net Impact to RTB						
Last Sanction IS Net Impact to RTB						-
Last Sanction Business Net Impact to RTB	-	-	-	-	-	-
Last Sanction Total Net Impact to RTB	-	-	-	-	-	-
Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB	76.0	76.0	76.0	76.0	76.0	380.0
Business Budgeted Net Impact to RTB	-	-	-	-	-	-
Currently Forecasted Net Impact to RTB						
IS Funded Net Impact to RTB Forecasted at Go-Live	76.0	76.0	76.0	76.0	76.0	380.0
Business Funded Net Impact to RTB Forecasted at Go-Live	-	-	-	-	-	-
Variance to Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB Variance	-	-	-	-	-	-

Business Budgeted Net Impact to
RTB Variance

-	-	-	-	-	-
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Short: US Sanction Paper

Title:	Collaboration Migration - Zoom Conferencing	Sanction Paper #:	
Project #:	INVP 5487d	Sanction Type:	Partial Sanction
Capex #:	S008040		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	5/29/2019
Author:	Cappiello, Gina	Sponsor:	Olive, Stephen Chief Information Officer
Utility Service:	IT	Project Manager:	Braziel, John

Executive Summary

This paper requests Partial Sanction of INVP 5487d in the amount of \$0.734M with a tolerance of +/-10% for the purposes of Requirements & Design.

This sanction amount is \$0.734M broken down into:

- \$0.647M Capex
- \$0.087M Opex
- \$0.000M Removal

NOTE the potential investment of \$0.939M with a tolerance of +/-25, contingent upon submittal and approval of a Project Sanction paper following completion of Requirements & Design.

Project Summary

Zoom meetings will replace WebEx as the corporate teleconferencing tool to provide a more efficient and cost effective solution to meetings throughout the National Grid Estate.

Background

Implement the Zoom video conferencing product to leverage it's simplified video conferencing and messaging capabilities across any device within National Grid's estate. Enable internal and external communications, all-hands meetings, and trainings through one communications platform. Zoom Meetings is to sync with MS Outlook calendar system and provide the foundation for one button conference room scheduling and deliver streamlined enterprise-grade video conferencing.

Project Descriptions

National Grid is moving the End User experience to the forefront of IT designs and building IT tools for the needs of today as well as innovating for the future; therefore, an integrated, cost efficient solution is required

to improve End User collaboration.

National Grid will utilize Zoom Meetings as a collaboration tool to provide a unified workspace for communications, collaboration, task management and other productivity services to End Users. The End User experience and ease of use is paramount at National Grid.

This is an Agile project with the intent on addressing the following:

- Understanding customer needs by meeting with Zoom to understand the customer experience, creating use cases and deploying Zoom to the project team for testing
- Obtain Zoom Best Practices by collecting best practices from Verizon and reaching out to Zoom for documentation
- Submitting service request to change firewall and testing communications after the change
- Obtain Zoom licensing after agreeing on service terms, cost, & license type so contract can be signed
- ARB team will need conceptual approval, business case with Opex/Capex, IT security endorsement & updated roadmaps
- Receive approval for standard support model and validate SLA's align to NG requirements
- Identify what type of communications will be sent, collect templates, review best practices, and present project during Business Engagement Forum
- Service transition plan- identify what materials are needed to enable support, review current process, and determine what approvals are needed to Go Live by Epic and not at end of project

Summary of Benefits

- Better End User experience
- Cost savings expected by avoiding future WebEx costs (exact savings TBD which will be finalized once contract negotiations are complete)
- Simplified workspace for communications and collaboration
- Integrates with the Office 365 suite
- Zoom is the current industry leading cloud-based conferencing service

Business and Customer Issues

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

Alternatives

Number	Title
1	Defer Project/Do Nothing Rejected: This option is not viable as it will not address collaboration and communication modernization and the benefits listed in the Benefits Summary, which includes improved user experience via One touch join from meeting room Video Endpoints and simplified commodity video conference equipment for future Video enabled meeting rooms Indicative cost: N/A
2	Continuing with Current Provider Rejected: The alternative is more costly and offers less functionality and fewer benefits than the chosen approach. Zoom is the current industry leading cloud-based conferencing service in the marketplace and there are no other products that can deliver this level of capabilities. There are anticipated long-term cost savings for both telephony and video conference calls. The potential annual savings of ~\$143K is anticipated by implementing Zoom. The exact amount will be finalized during this R&D phase. Indicative cost: \$1.025M/with a tolerance of +/-25%

Key Milestones

Milestone	Date (Month / Year)
Start Up	May, 2019
Sprint	May, 2019

Sprint	June, 2019
Sprint	July, 2019
Sprint	August, 2019
Sprint	September, 2019
Project Sanction	September, 2019
Sprint	October, 2019
Sprint	November, 2019
Sprint	December, 2019
Sprint	January, 2020
Sprint	February, 2020
Project Closure Sanction	June, 2020

Next Planned Sanction

Date (Month/Year)
September, 2019

Purpose of Sanction Review
Sanction

Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory	The main driver of the program is to increase productivity by enabling collaboration in newer and more efficient ways.
<input type="radio"/> Policy-Driven	
<input type="radio"/> Justified NPV	
<input checked="" type="radio"/> Other	

Asset Management Risk Score: 10

PRIMARY RISK SCORE DRIVER

- Reliability Environment Health & Safety Not Policy Driven

Complexity Level: 10

- High Complexity Medium Complexity Low Complexity N/A

Investment Recovery and Customer Impact

Investment Recovery

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

Drivers

To implement Zoom Meetings as a collaboration tool that will provide a unified workspace for communications, collaboration, task management and other productivity services to End Users.

Statement of Support

Department	Individual	Responsibilities
Business Department		Business Representative

	Olive, Stephen	
Business Partner (BP)	Davidson, Caitlin	Relationship Manager
Program Delivery Management (PDM)	Wermann, Kenneth	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	DeMauro, Daniel J.	Director
Digital Risk and Security (DR&S)	Shattuck, Peter	Manager
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Lyba, Svetlana	Director
Enterprise Portfolio Management	Cronin, Daniel	Analyst

Decisions

Recommendations

The Sanctioning Authority is invited to:

- A) APPROVE the investment of \$0.734M including risk margin of \$M
- B) APPROVE the run-the-business (RTB) of \$-0.143M(per annum) for 5 years
- C) NOTE that Olive, Stephen, Chief Information Officer is the Project Sponsor
- D) NOTE that Braziel, John, is the Project Manager and has the approved financial delegation to deliver the project

Decision of the Sanctioning Authority

I hereby approve the recommendations made in this paper.

Signature  (VP EPMD)

Date 02/11/19

Appendix

Project Costs [\$M]	Prior FYs	FY 1 20/21	FY 2 21/22	FY 3 22/23	FY 4 23/24	FY 5 24/25	FY 6 25/26	Total
Start-Up OPEX	-	0.086	-	-	-	-	-	0.086
Start-Up CAPEX	-	-	-	-	-	-	-	-
Start-Up - Risk OPEX	-	-	-	-	-	-	-	-
Start-Up - Risk CAPEX	-	-	-	-	-	-	-	-
Start-Up SUBTOTAL	-	0.086	-	-	-	-	-	0.086
R&D								
R&D OPEX	-	0.001	-	-	-	-	-	0.001
R&D CAPEX	-	0.638	-	-	-	-	-	0.638
R&D Risk OPEX	-	-	-	-	-	-	-	-
R&D Risk CAPEX	-	-	-	-	-	-	-	-
R&D SUBTOTAL	-	0.639	-	-	-	-	-	0.639
Development & Implementation – OPEX								
People	-	-	-	-	-	-	-	-
Software	-	-	-	-	-	-	-	-
Hardware	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-
Risk Margin	-	-	-	-	-	-	-	-
Development & Implementation – CAPEX								
People	-	-	-	-	-	-	-	-
Software	-	-	0.200	-	-	-	-	0.200
Hardware	-	-	-	-	-	-	-	-
AFUDC	-	-	0.002	-	-	-	-	0.002
Other	-	-	-	-	-	-	-	-
Risk Margin	-	-	-	-	-	-	-	-
D&I SUBTOTAL	-	-	0.202	-	-	-	-	0.202
Total Project Opex	-	0.087	-	-	-	-	-	0.087
Total Project Capex	-	0.638	0.202	-	-	-	-	0.840

Total Project Cost	-	0.725	0.202	-	-	-	-	0.927
Non-regulated project UPLIFT	-	-	-	-	-	-	-	-
Non-regulated project TOTAL	-	-	-	-	-	-	-	-
IS Investment Plan FY 20/21 Thru FY 25/26								
Budget OPEX	-	-	-	-	-	-	-	-
Budget CAPEX	-	-	-	-	-	-	-	-
Total Budget Cost	-	-	-	-	-	-	-	-
Total Cost Variance								
Total Variance Opex	-	(0.087)	-	-	-	-	-	(0.087)
Total Variance Capex	-	(0.638)	(0.202)	-	-	-	-	(0.840)
Total Variance Cost	-	(0.725)	(0.202)	-	-	-	-	(0.927)
Impact on RTB costs		(0.060)	(0.143)	(0.143)	(0.143)	(0.143)	-	(0.632)

Company Name	SAP Co.	SAP Seg	Jurisdiction	BU
Niagara Mohawk Power Corp. - Electric Distr.	5210	NYELEC	NY	Electric
Niagara Mohawk Power Corp. - Gas	5210	NYGASD	NY	Gas
Niagara Mohawk Power Corp. - Transmission	5210	NYTRAN	NY	Transmission
KeySpan Energy Delivery New York	5220	NYGASD	NY	Gas
KeySpan Energy Delivery Long Island	5230	NYGASD	NY	Gas
Massachusetts Electric Company	5310	MAELEC	MA	Electric
Nantucket Electric Company	5320	MAELEC	MA	Electric
Boston Gas Company	5330	MAGASD	MA	Gas
Colonial Gas Company	5340	MAGASD	MA	Gas
Narragansett Electric Company	5360	RIELEC	RI	Electric
Narragansett Gas Company	5360	RIGASD	RI	Gas
NG LNG LP Regulated Entity	5420	FRGASO	FERC	Gas
KeySpan Generation LLC (PSA)	5430	FRPGEN	FERC	Transmission
Transgas Inc	5825	NONREG	NONREG	

All figures in \$ thousands	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total
	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25	
Last Sanctioned Net Impact to RTB						
Last Sanction IS Net Impact to RTB						-
Last Sanction Business Net Impact to RTB	-	-	-	-	-	-

Last Sanction Total Net Impact to RTB	-	-	-	-	-	-
Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB						-
Business Budgeted Net Impact to RTB	-	-	-	-	-	-
Currently Forecasted Net Impact to RTB						
IS Funded Net Impact to RTB Forecasted at Go-Live	(59.6)	(143.0)	(143.0)	(143.0)	(143.0)	(631.6)
Business Funded Net Impact to RTB Forecasted at Go-Live	-	-	-	-	-	-
Variance to Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB Variance	59.6	143.0	143.0	143.0	143.0	631.6
Business Budgeted Net Impact to RTB Variance	-	-	-	-	-	-



Long: US Sanction Paper

Title:	UNIX51 Phase 2	Sanction Paper #:	USSC-19-298
Project #:	INVP 5502	Sanction Type:	Partial Sanction
Capex #:	5008064		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	6/25/2019
Author:	Bucceri, Michael Brosnan, William	Sponsor:	Lemire, Kristen US Dir UK Snr Mgr UK Entrp Srvc Divry
Utility Service:	IT	Project Manager:	Brosnan, William

Executive Summary

This paper requests Partial Sanction of INVP 5502 in the amount of \$0.447M with a tolerance of +/-10% for the purposes of partial sanction..

This sanction amount is \$0.447M broken down into:
\$0.438M Capex
\$0.009M Opex
\$0.000M Removal

NOTE the potential investment of \$1.141M with a tolerance of +/-10%, contingent upon submittal and approval of a Project Sanction paper following completion of partial sanction..

Project Summary

UNIX51 is operating on a platform that has been out of support for 15 years. This project will deliver the upgrade of the remaining set of business-critical interfaces from the unsupported UNIX51 platform to the selected National Grid strategic middleware platform and decommission the UNIX51 server from the Melville data center.

Background

At National Grid, many of the file transfers are facilitated through the UNIX51 File Transfer Service (FTS) tool. There are over 20 third parties receiving and sending critical data to National Grid via this service. The business-critical interfaces that utilize UNIX 51 from CRIS and CSS systems to numerous third parties are at risk of failure due to the reasons outlined below, with no viable contingency plan in place.

- The UNIX51 server is obsolete and operating on an unsupported platform. The version of MQ (messaging middleware) on UNIX51 has been out of support for 15 years.
- Large file transfers cannot be processed. They need to be broken into smaller files and processed separately which increases the memory usage of the server and reduces the performance.
- There is no Disaster Recovery for this solution. If the UNIX51 server were to fail, this would result in lengthy delays in the restoration of services.

The incidents are generally raised for the applications and not for the UNIX51 server directly. Accordingly, the number of incidents that have occurred due to issues on UNIX51 are difficult to identify. Since 2018, there were ten (10) high priority tickets and four (4) critical priority tickets. A major incident (P2) was reported on March 25, 2017, that lasted 18 hours where CRIS, Experian and third-party Novitex were impacted in terms of jobs unable to run or reach UNIX51. The business was impacted for approximately 5 hours.

Project Descriptions

In Phase 1, the upgrade of the initial set of 67 interfaces was completed in FY19. This project, Phase 2 is required to complete the upgrade of interfaces from UNIX51 File Transfer Service ("FTS") legacy services to strategic services. There are over 68 to 100 individual files and over 20 third parties receiving and sending critical data to National Grid via this service.

By leveraging the experience, processes and infrastructure setup from Phase 1, the Phase 2 interfaces are expected to be implemented more efficiently.

The following activities will be performed in Phase 2:

- Development and Configuration of remaining interfaces onto the Oracle Middleware platform.
- Integration of the Service Oriented Architecture (SOA) and Managed File Transfer (MFT) middleware components.
- Testing of upgraded Interfaces (Connectivity, Integration, Performance and Security).
- Work with External Business Partners (Trading Partners) to Configure and Test external interfaces including firewall rules.
- Implementation of the remaining 50% Business Critical Interfaces in production.
- Decommissioning of the UNIX51 server from Melville datacenter.

Summary of Benefits

With upgrade to a supported middleware platform, this investment:

- Mitigates the risk of critical systems failure from running on out of support infrastructure.
- Mitigates the cybersecurity risk of running un-patchable software.
- Provides a centralized expandable environment for additional interfaces to be implemented.
- Enables the decommissioning of obsolete UNIX51 platform.
- Provides functional benefits which will enable improvements in the efficiency of data and file transfer.
- Project provides a positive impact on RTB.

Business and Customer Issues

Issue - Availability of external Business Partner (Trading Partner) resources from Pitney Bowes, Great Eastern, Western Union etc. to support the End to End Testing and Implementation of the External Interfaces.

Mitigation Action – Proactively understand the needs of the Business Partners participation and submit Rough Order of Magnitude (ROM) estimates early.

Alternatives

Number	Title
1	<p>Do Nothing</p> <p>Do not upgrade interfaces from UNIX51 from legacy to strategic services. This option is not recommended as there will be high business impact when any interface fails. In addition, the existing interfaces will not have a reliable support model and there is a risk associated with aged infrastructure which may lead to failure of the system that could jeopardize the functionality of National Grid application systems, such as CRIS and CSS.</p>

Migrate UNIX51 interfaces from National Grid Data Center to DXC Data Center

The FTP infrastructure UNIX51 is out of support and due to aged hardware infrastructure, the interfaces cannot be migrated to the DXC Datacenter. This would require implementation of new hardware infrastructure in the National Grid legacy datacenter which is not recommended. This option does not resolve the cybersecurity risk of running un-patchable software either.

Related Projects, Scoring and Budget

Summary of Projects

<i>Project Number</i>	<i>Project Type (Elec only)</i>	<i>Project Title</i>	<i>Estimate Amount(\$M)</i>
5502		UNIX51 Phase 2	1.141
Total:			1.141

Associated Projects

<i>Project Number</i>	<i>Project Title</i>	<i>Estimate Amount (\$M)</i>
4461	UNIX 51 Migration	1.539
		1.539

Prior Sanctioning History

<i>Date</i>	<i>Governance Body</i>	<i>Sanctioned Amount</i>	<i>Potential Project Investment</i>	<i>Sanction Type</i>	<i>Sanction Paper</i>	<i>Potential Investment Tolerance</i>
						10%

Key Milestones

<i>Milestone</i>	<i>Date (Month / Year)</i>
Partial Sanction	June, 2019
Start Up	June, 2019
Begin Requirements and Design	July, 2019
Begin Development and Implementation	August, 2019
Project Sanction	September, 2019
Move to Production / Final Go Live	November, 2019
Post Implementation Support	December, 2019
Project Closure Sanction	January, 2020

Next Planned Sanction

<i>Date (Month/Year)</i>	<i>Purpose of Sanction Review</i>
September, 2019	Sanction

Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory	IS Standard 3.3: Adhere to the defined Asset Management Lifecycle Policy and usage policies for

- Policy-Driven
- Justified NPV
- Other

IT assets to which the policies apply; and Asset Management and Engineering Standard 2.2: Measure the condition, criticality and performance of assets to allow effective decision-making consistent with the requirements for the asset class, and manage the information resulting from these measurements. The criticality (i.e. impact on failure), condition, failure mode (inherent risk) and deterioration rate of such assets or asset classes shall be understood (even when only statistically assessed) for a given utilization and performance.

Asset Management Risk Score: 42

PRIMARY RISK SCORE DRIVER

- Reliability
- Environment
- Health & Safety
- Not Policy Driven

Complexity Level: 24

- High Complexity
- Medium Complexity
- Low Complexity
- N/A

Process Hazard Assessment

A Process Hazard Assessment (PHA) is required for this project: Yes No

Current Planning Horizon

Capex	0.000	1.043	0.000	0.000	0.000	0.000	0.000	1.043
Opex	0.000	0.098	0.000	0.000	0.000	0.000	0.000	0.098
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	1.141	0.000	0.000	0.000	0.000	0.000	1.141

Resources, Operations, & Procurement

RESOURCE SOURCING

Engineering & design Resources to be provided Internal Contractor

Construction/Implementation Resources to be provided Internal Contractor

RESOURCE DELIVERY

Availability of internal resources to delivery project: Red Amber Green

Availability of external resources to delivery project: Red Amber Green

OPERATIONAL IMPACT

Outage impact on network system Red Amber Green

PROCUREMENT IMPACT

Procurement impact on network system: Red Amber Green

Key Issues

- 1 **Issue**
Availability of external Business Partner (Trading Partner) resources from Pitney Bowes, Great Eastern, Western Union etc. to support the End to End Testing and Implementation of the External Interfaces.

- 2 **Mitigation Action**
Proactively understand the needs of the Business Partners participation and submit Rough Order of Magnitude (ROM) estimates early.

Climate Change

Contribution to National Grid's 2050 80% emissions reduction target: Neutral Positive Negative

Impact on adaptability of network for future climate change: Neutral Positive Negative

List References

N/A

Safety, Environmental and Project Planning Issues

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

Permitting

N/A

Investment Recovery and Customer Impact

Investment Recovery

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

Customer Impact

N/A

Execution Risk Appraisal

Risk Breakdown Structure Category	Qualitative Assessment / Risk Response Strategy				Risk Score	
	Risk ID + Title	IF Statement	THEN Statement	Risk Response Strategy		
5. Environmental	R1 - Disaster Recovery (DR) not yet tested on Oracle CIS platform	If Disaster Recovery (DR) not tested on Oracle CIS platform before go-live.	Then review exception received from Disaster Recovery (DR) team with Service Transition for approval to proceed with go-live.	Avoid	Risk Response / Action	1

Total	0.000	1.141	0.000	0.000	0.000	0.000	0.000	0.000	1.141
--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------	--------------

Total Project Sanction

Capex	0.000	1.043	0.000	0.000	0.000	0.000	0.000	0.000	1.043
Opex	0.000	0.098	0.000	0.000	0.000	0.000	0.000	0.000	0.098
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	1.141	0.000	0.000	0.000	0.000	0.000	0.000	1.141

Project Costs per Business Plan

\$M	Prior Yrs	Yr 1 2020	Yr 2 2021	Yr 3 2022	Yr 4 2023	Yr 5 2024	Yr 6 2025	Total
Capex	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Opex	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000							

Variance

\$M	Prior Yrs	Yr 1 2020	Yr 2 2021	Yr 3 2022	Yr 4 2023	Yr 5 2024	Yr 6 2025	Total
Capex	0.000	(1.043)	0.000	0.000	0.000	0.000	0.000	(1.043)
Opex	0.000	(0.098)	0.000	0.000	0.000	0.000	0.000	(0.098)
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Variance	0.000	(1.141)	0.000	0.000	0.000	0.000	0.000	(1.141)

Sanction Request Breakdown by Project

Project Number	Capex	Opex	Removal	Total
5502	99,000.000	1,042,000.000	0.000	1,141,000.000

Cost Assumptions

The accuracy level of estimate for each project is identified in the Cost Summary Table

Net Present Value / Cost Benefit Analysis

N/A

NPV Assumptions & Calculations

N/A

Additional Impacts

N/A

Statement of Support		
Department	Individual	Responsibilities
Business Department	Bergelson, Gregory	Business Representative
Business Partner (BP)	Davidson, Caitlin	Relationship Manager
Program Delivery Management (PDM)	Granata, Chris	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	DeMauro, Daniel J.	Director
Digital Risk and Security (DR&S)	Wilson, Elaine	Director
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Lyba, Svetlana	Director
Enterprise Portfolio Management	Cronin, Daniel	Analyst

Reviewers	
Function	Individual
Regulatory	Mancinelli, Lauri A.
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Smith, Amy
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego

Decisions

l:

- (a) APPROVE the investment of \$0.447M and a tolerance of +/-10% for partial sanction..
- (b) NOTED the potential investment of 1.141M and a tolerance of +/-10%%, contingent upon submittal and approval of a Project Sanction paper following completion of final engineering and design.
- (c) NOTED that Brosnan, William has the approved financial delegation to undertake the activities stated in (a).
- (d) Approved the run-the-business (RTB) of \$-0.004M (per annum) for 5 years.

Signature

David H. Campbell

Date

7/12/19

David H. Campbell, Vice President US Treasury, USSC Chair

Appendix

Project Cost Breakdown \$ (millions)					
Cost Category	sub-category	Value of Work to Date (VOWD)	Forecast to Complete (FTC)	Forecast At Completion (FAC=VOWD+FTC)	Name of Firm(s) providing resources
Personnel	NG Resources		0.251	0.251	
	SDC Time & Materials		-	-	IBM
			-	-	WiPro
			0.043	0.043	DXC
			0.022	0.022	Verizon
	SDC Fixed-Price		0.282	0.282	IBM
			0.413	0.413	WiPro
			-	-	DXC
			-	-	Verizon
	All other personnel		-	-	
TOTAL Personnel Costs		1.011	1.011		
Hardware	Purchase		-	-	
	Lease		-	-	
Software			-	-	
Risk Margin			0.098	0.098	
AFUDC			0.007	0.007	
Other			0.025	0.025	
TOTAL Costs			1.141	1.141	

Vendor	\$ millions		
	VOWD	FTC	FAC=VOWD+FTC
IBM	0.000	0.282	0.282
WiPro	0.000	0.413	0.413

DXC	0.000	0.043	0.043
Verizon	0.000	0.022	0.022
Other	0.000	0.000	0.000
User Defined #1	0.000	0.020	0.020
User Defined #2	0.000	0.000	0.000
User Defined #3	0.000	0.000	0.000
User Defined #4	0.000	0.000	0.000
User Defined #5	0.000	0.000	0.000

NG Resources	0.000	0.251	0.251
AFUDC	0.000	0.007	0.007
Risk		0.098	0.098
Shared Overhead		0.005	0.005
Total	0.000	1.141	1.141
Variance to Proj Cost Breakdown	0.000	0.000	0.000

All figures in \$ thousands	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total
	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	
Last Sanctioned Net Impact to RTB						
Last Sanction IS Net Impact to RTB						-
Last Sanction Business Net Impact to RTB	-	-	-	-	-	-
Last Sanction Total Net Impact to RTB	-	-	-	-	-	-
Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB						-
Business Budgeted Net Impact to RTB	-	-	-	-	-	-
Currently Forecasted Net Impact to RTB						
IS Funded Net Impact to RTB Forecasted at Go-Live	(1.3)	(4.0)	(4.0)	(4.0)	(4.0)	(17.3)
Business Funded Net Impact to RTB Forecasted at Go-Live	-	-	-	-	-	-
Variance to Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB Variance	1.3	4.0	4.0	4.0	4.0	17.3
Business Budgeted Net Impact to RTB Variance	-	-	-	-	-	-

National Grid USA Parent	5020	PARENT	PARENT	
KeySpan Energy Corp.	5040	PARENT	PARENT	
Niagara Mohawk Power Corp.- Electric Distr.	5210	NYELEC	NY	Electric
Niagara Mohawk Power Corp. - Gas	5210	NYGASD	NY	Gas
Niagara Mohawk Power Corp. - Transmission	5210	NYTRAN	NY	Tranmission
KeySpan Energy Delivery New York	5220	NYGASD	NY	Gas
KeySpan Energy Delivery Long Island	5230	NYGASD	NY	Gas
Massachusetts Electric Company	5310	MAELEC	MA	Electric
Massachusetts Electric Company - Transmission	5310	FRTRAN	FERC	Tranmission
Nantucket Electric Company	5320	MAELEC	MA	Electric
Boston Gas Company	5330	MAGASD	MA	Gas
Colonial Gas Company	5340	MAGASD	MA	Gas
Narragansett Electric Company	5360	RIELEC	RI	Electric
Narragansett Gas Company	5360	RIGASD	RI	Gas
Narragansett Electric Company - Transmission	5360	FRTRAN	FERC	Tranmission
New England Power Company - Transmission	5410	FRTRAN	FERC	Tranmission
NE Hydro - Trans Electric Co.	5411	FRELEC	FERC	Transmission - Hydro
New England Hydro - Trans Corp.	5412	FRELEC	FERC	Transmission - Hydro
New England Electric Trans Corp	5413	FRELEC	FERC	Transmission - Hydro
NG LNG LP Regulated Entity	5420	FRGASO	FERC	Gas
KeySpan Generation LLC (PSA)	5430	FRPGEN	FERC	Transmission
KeySpan Glenwood Energy Center	5431	FRPGEN	FERC	Transmission
KeySpan Port Jefferson Energy Center	5432	FRPGEN	FERC	Transmission
KS Energy Trading	5820	PARENT	PARENT	



US Sanction Paper

Title:	Customer Information Systems Replacement	Sanction Paper #:	USSC-19-063
Project #:	INVP 5503 Capex: S008011	Sanction Type:	Partial Sanction
Operating Company:	National Grid USA Svc. Co.	Date of Request:	3/25/2019
Author:	Tejal Patel	Sponsor:	Chris McConnachie, VP Finance Services
Utility Service:	IT	Project Manager:	Joel Semel

1 Executive Summary

1.1 Sanctioning Summary

This paper requests the partial sanction of INVP 5503 in the amount of \$92.206M with a tolerance of +/- 10% for the purposes of Prepare and Enterprise Design (appendix 4.7).

This sanction amount is \$92.206M broken down into:

- \$58.159M Capex*
- \$34.047M Opex*
- \$0.000 M Removal*

NOTE the potential investment of \$646.470M with a tolerance of +/- 20%, contingent upon submittal and approval of a Project Sanction paper following completion of Prepare and Enterprise Design.

1.2 Project Summary

This project will implement a modern Customer Information System (CIS) by replacing both the Customer Response Information System (CRIS) and the Customer Service System (CSS). A new CIS is needed to replace legacy systems nearing end of useful life and to enable expanded functionality to meet increasing customer expectation and regulatory requirements. Customer facing capabilities to be enabled through programs such as Gas Business Enablement (GBE) and Customer Experience Transformation (CXT) require the core CIS to keep pace with a customer-central, digital-first customer service delivery model.



US Sanction Paper

1.3 Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
INVP 5503 Capex: S008011		Customer Information Systems Replacement	646.470
Total			646.470

1.4 Associated Projects

NA

1.5 Prior Sanctioning History

NA

1.6 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
November 2020	Partial Sanction

1.7 Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory <input type="radio"/> Policy- Driven <input type="radio"/> Justified NPV <input checked="" type="radio"/> Other	This is a program to invest in our customer information systems in order to mitigate out of support technology, meet increasing regulatory expectations, and enable customer digital technology expectations.

1.8 Asset Management Risk Score

Asset Management Risk Score: 49



US Sanction Paper

Primary Risk Score Driver: (Policy Driven Projects Only)

- Reliability
 Environment
 Health & Safety
 Not Policy Driven

1.9 Complexity Level

- High Complexity
 Medium Complexity
 Low Complexity
 N/A

Complexity Score: 33

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 (\$M)
IT Investment Plan FY20 -24	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input type="radio"/> Under <input checked="" type="radio"/> NA	\$646.470

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

NA

US Sanction Paper**1.13 Current Planning Horizon**

		Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
\$M	Prior Yrs	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	
CapEx	0.000	0.199	36.032	44.072	52.386	37.641	108.312	278.642
OpEx	0.000	4.140	69.830	72.619	57.168	49.392	94.266	347.415
Removal	0.000	0.000	0.000	0.000	2.552	5.103	12.758	20.413
CIAC/Reimbursement	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	4.339	105.862	116.691	112.106	92.136	215.336	646.470

1.14 Key Milestones

Milestone	Target Date: (Month Year)
Start Up	January 2017
Enterprise Design Sanction	June 2019
Partial Sanction Release 1 (R1)	November 2020
Begin Requirements and Design	February 2021
Begin Development and Implementation	March 2021
Begin User Acceptance Testing	October 2021
Partial Sanction Release 2 (R2)	August 2022
Move to Production / Go Live Release 1	October 2022
Begin Requirements and Design	February 2023
Begin Development and Implementation	March 2023
Begin User Acceptance Testing	October 2023
Project Sanction Release 3 (R3)	September 2024
Move to Production / Go Live Release 2	November 2024
Begin Requirements and Design	March 2025
Begin Development and Implementation	April 2025
Begin User Acceptance Testing	November 2025
Move to Production / Last Go Live Release 3	November 2026
Project Closure	June 2027



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1.15 Resources, Operations and Procurement

Resource Sourcing			
Engineering & Design Resources to be provided	<input checked="" type="checkbox"/> Internal	<input checked="" type="checkbox"/> Contractor	
Construction/Implementation Resources to be provided	<input checked="" type="checkbox"/> Internal	<input checked="" 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			
Procurement impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green

1.16 Key Issues (include mitigation of Red or Amber Resources)

1	To successfully deliver a program of this scale requires a strong internal team. CIS will require a dedicated Human Resource Business Partner and recruiter to support the team in hiring these resources, and a resource plan has been developed which includes sufficient lead time to hire resources as they are needed. Availability of internal resources to deliver the program is marked amber to acknowledge the significant ramp up in resources required, although appropriate sourcing plans are in place. In addition, we will need to closely work with and hold accountable our software integrators to make sure the skillset, certifications and experience of our external resources is met.
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1.17 Climate Change

Contribution to National Grid's 2050 80% emissions reduction target:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative
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US Sanction Paper

Impact on adaptability of network for future climate change:	<input checked="" type="radio"/> Neutral	<input type="radio"/> Positive	<input type="radio"/> Negative
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1.18 ***List References***

NA



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2 Decisions

The Senior Executive Sanctioning Committee (SESC) at a meeting held on 04/22/2019:

- (a) APPROVED this paper and the investment of \$92.206M and a tolerance of +/- 10% for the purposes of Prepare and Enterprise Design.
- (b) NOTED the potential run-the-business (RTB) savings impact of \$ 6.247M over the 10 year period FY20-FY29.
- (c) NOTED the potential investment \$ 646.470M and a tolerance of +/- 20%, contingent upon submittal and approval of a Project Sanction paper following completion of Prepare and Enterprise Design.
- (d) NOTED that Joel Semel has the approved financial delegation to undertake the activities stated in (a).

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

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



US Sanction Paper

3 Sanction Paper Detail

Title:	Customer Information Systems Replacement	Sanction Paper #:	USSC-19-063
Project #:	INVP 5503 Capex: S008011	Sanction Type:	Partial Sanction
Operating Company:	National Grid USA Svc. Co.	Date of Request:	3/25/2019
Author:	Tejal Patel	Sponsor:	Chris McConnachie, VP Finance Services
Utility Service:	IT	Project Manager:	Joel Semel

3.1 *Background*

National Grid’s legacy customer information systems were implemented decades ago and are nearing end of life. The technologies used in these systems are approaching obsolescence and lack vendor support. The case for change is driven by the Company’s need to meet the complex requirements of its customer programs. Digital and emerging technologies as well as progressive rate design are increasingly complex to manage in the current systems. Evolving customer expectations demand a significantly enhanced technology platform designed to meet the information needs of customers in the current (and future) environment and one that supports policy goals related to improved customer choice, deployment of advanced metering technologies and increased reliance on distributed energy resources. Replacement of key business and billing functions with the proposed Customer Information System (CIS) solution will provide a multitude of benefits, including enabling National Grid to more effectively implement new customer programs and rate options, and providing customers with a significantly improved, customer-centric service experience. Modernization of National Grid’s legacy systems will transform the business and thereby elevate the service and support customers receive. Initiating the transition to a modern CIS platform must begin in the near term given the current state of the legacy systems and the timeline required for the replacement.

3.2 *Drivers*

Specific systemic and infrastructure challenges are the drivers and have been identified as follows:

Delivery Risk:

National Grid’s legacy customer systems have become less stable and less reliable due, in part, to technology obsolescence, a continued deployment of increasingly complex rates and other regulatory requirements, and an exponential increase in the

US Sanction Paper

amount of data processing required by the system since the legacy systems were deployed. Also contributing to the instability is the number and complexity of integrations between the legacy CIS systems and subsystems that have been added over two decades as the energy market, regulatory requirements and customer-utility relationship have transformed. Current customer systems are increasingly difficult to adapt to meet the needs of the new digitally equipped customer and to meet regulatory and company demands that they were never prepared to serve, such as new products and services, virtual net metering, etc.

Operational Risk:

Technologies and skillsets in the current systems are largely unsupported, obsolete, and difficult to find in the current market, due to imminent retirement of key resources and outdated code programming. In addition, there is a wide range of system-driven operational and technology pain points. For example, the business is challenged to keep up with Distributed Generation requirements due to system and resource limitations. A lack of business configurable self-service capabilities drives significant dependence on IS for simple business rule and configuration value changes creating unnecessary lags in deploying such changes (e.g. rate changes).

Business Risk:

A significant digital consumer technology revolution is underway and presents both challenges and opportunities for the utility industry. The rapid pace of change is accelerating market convergence, reducing barriers for new market entrants, driving down the cost of product innovation, and increasing the speed at which consumers adopt new technologies. Smart and distributed technologies, such as home energy management, solar, electric vehicle, and storage, mobile applications, and data-driven products and services are coming to market and evolving quickly. Such drivers and emerging offerings in Distributed Generation, Retail Choice, and EV require business agility to bring them to market and quickly operationalize in a manner that currently is not achievable due to the current infrastructure.

3.3 *Project Description*

The goal of this program is to replace the current legacy customer information systems (CSS, CRIS) with a modern, flexible application capable of performing critical meter-to-cash processes with greater efficiency, scalability, and extensibility for future products and services.

This program will be a multi-year journey that involves many aspects of the business and IT.



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Solution Strategy

The proposed program to replace National Grid's customer information system infrastructure will include the following activities:

- Implement core CIS functions on future state platform for all customer types and jurisdictions
- Integrate the core CIS platform with the retained systems and vendors
- Integrate the core CIS with the CXT, GBE, Advanced Metering Infrastructure (AMI), Grid Modernization and other project solutions where needed
- Enhance / extend the Customer Relationship Management (CRM) for functionality that is enabled by the new core CIS where needed

Implementation Strategy

The implementation strategy is to utilize a multiple release approach to mitigate risk.

- **Leveraging Agile development techniques.** In agile development, the business and IT teams work more collaboratively in short-cycle sprints to prioritize functionality and get to a minimum viable product (MVP). This is the simplest solution that can be implemented, with future enhancements continuously prioritized by value and added as the team learns with the solution. This approach provides many benefits over traditional "waterfall" delivery methods, such as stakeholder engagement, transparency, focus on business value and users.

Lessons from previous programs have been incorporated into CIS planning phases and will continue throughout the program. National Grid's Critical Success Factors have also been embedded into the CIS program.

When the CIS Program has been implemented the following will be indicators of success:

- Implementation completed of a new Customer Information System that provides leading, flexible, and scalable capabilities
- National Grid delivering lower cost revenue cycle services (meter reading, billing, credit and collections, payments) while being able to grow and flex with customer, business and regulator emerging needs (e.g. new products and services), Distributed Generation, Energy Efficiency, and Demand Response programs
- The Customer Experience with National Grid is enhanced
- The new CIS allowing employees to deliver revenue cycle services with fewer exceptions or manual workarounds to customers, getting it right the first time.



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3.4 Benefits Summary

The primary benefit of the CIS Replacement Program is to provide for our customers and mitigate the risks of our current systems.

Measurable Benefit	
Benefit	Benefit Value
Combine gas and electric bills for Massachusetts and Rhode Island	Eliminate approximately six hundred thousand customer bills per month
IT RTB cost reduction moving legacy CIS to SAP cloud PaaS + AMS (App Maint, Licenses, Mainframe, Server/Storage)	Application Outsourcing and Infrastructure Outsourcing costs – reduction in the range of \$5MM - \$7MM
Reduce or eliminate Special Billing Group	2-3 FTEs (Full Time Employees)
Infrastructure Expenses (shut down two platforms and bring one up)	Cost reduction across customer applications: Customer applications spend (Maintenance/support, Licensing, Mainframe, Server/storage)
Move to single outsourced EDI (Electronic Data Interchange) vendor	Lower application maintenance, higher stability
Reduced USPS costs for CRIS diverted bills	Reduction in overall postage (daily shipping fees)
Operational Benefits	
Benefit	Benefit Value
Billing Ops & Receivables Management (AMO)	AMO: Decrease volume of billing exceptions Reduced handling time of CRIS pull bills (diverts).
Reduced cost to implement future projects - (More configuration based instead of active development)	Reduced regulatory project spend (IT + business): Implementing rate cases, non-rate case mandates Discretionary projects.
Avoid future cost of increasing legacy application maintenance.	Maintenance, support, increasing downtime, etc.
Improved billing processes for lighting	Receive actual metered usage from "smart controller" and bill, interface with an MDM to bill for individually metered lighting locations but bill the different components in an aggregate manner, and apply billing and other attribute changes in bulk.

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Intangible Benefits	
Benefit	Benefit Value
Enables completion and value realization of GBE and CXT	GBE (CRM and work management) CXT (My Account, Grid force, DG (Distributed Generation) portal)
Enable all employees (contact center, back office, field) with relevant and appropriate view of the customer to make informed decisions	Improved CSAT (Customer Satisfaction) and JD Powerhouse scores
Reduce time and outages (eliminate CRIS Seibel offline processing)	Benefits on the CRIS side with more transactions and increased availability. Improved CSAT
Improved channel availability and self-service via alignment with CXT	Improved CSAT

3.5 **Business and Customer Issues**

The Company spends a significant amount of time resolving operational issues which affect customers and take away time from value-added activities. There are numerous issues in both CSS and CRIS due to the need for manual intervention, operator error, lack of system flexibility/compatibility, and similar issues what create operational challenges.

3.6 **Alternatives**

Alternative 1: Do Nothing

Current operations are adversely impacted on a routine basis by outages experienced in the legacy CRIS and CSS systems. This has a negative impact on customer service and customer satisfaction and does not support National Grid's objective to improve satisfaction. Another disadvantage of doing nothing is the inability to quickly respond and complete programming changes to reflect new rate and tariff changes in customer bills. This is viewed negatively by both the regulator and customer, and this would be improved with the replacement of a new CIS system.

Rejected: Doing nothing is not an acceptable option, as delaying and prolonging the inevitable need to replace the current systems, which are nearing obsolescence and no longer able to provide reliable service, will only cause further exposure to operational failure, customer dissatisfaction, and risk regulatory noncompliance.

Indicative cost \$ 15.550M per annum (10 year \$155.5M) with a tolerance of +/-25% with RTB costs expected to increase.

US Sanction Paper**Alternative 2: Minimum Cost Alternative - Consolidate Legacy Systems**

This alternative was attempted in 2015 in "INVP 2583 CRIS Migration," which looked at migrating CRIS to CSS. Upon completion of the Requirements and Design phase of that project, the Company began an extensive review to validate the approach, timing and strategic priorities of the initiative and others in the customer space.

Rejected: The recommendation of the study was for the Company to pursue other strategic priorities, including the acquisition of a new customer information system. The team agreed that continuing to run the CRIS and CSS systems was not sustainable. The company took a write-down of the expense already put into the CRIS consolidation and began developing a new CIS strategy in 2017.

Indicative cost \$77.784M with a tolerance of +/-25% based on 2015 analysis (INVP 2583 CRIS Migration).

Alternative 3: Outsourcing / Insourcing

An additional option considered outsourcing / insourcing. Revenue Cycle Management handles the meter to cash work streams which have a direct impact on the Company's bottom line. These are also key touchpoints with customers that often involve both complex and sensitive issues. Being able to provide these services in an efficient, reliable and cost-effective manner is imperative. There may be a case for outsourcing some parts of the revenue cycle management process, but this would only be effective if the processes and systems that are critical to the successful execution of this work were in place and had matured to a point where transactions could be outsourced in a seamless way, without adverse impact to customers or increased risk. Revenue cycle is closely monitored by the regulators, and National Grid must meet key quality of service measures that are in place for billing, payment processing and credit and collections.

Rejected: From a regulatory perspective, the ability to accurately and promptly respond to what can be complex rate and tariff changes requires that rules and regulations be fully understood and followed. Attempting to move to an outsource model in this area of utility operations would require detailed analysis, and any interested outsource provider would require that the technology in place to provide these services meet industry standards and have full functionality, which is not the case with the existing systems. Regulatory and union restrictions limit the company's ability to even consider such outsourcing arrangements. In addition, the Revenue Cycle Management team has already examined and implemented outsourcing of key services such as Print and Mail and Payments Processing.



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Total Indicative costs for outsourcing/insourcing were considered but were not developed due since they do not meet business model needs.

3.7 *Safety, Environmental and Project Planning Issues*

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



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3.8 Execution Risk Appraisal

Risk Breakdown Structure Category	Qualitative Assessment / Risk Response Strategy				Risk Score	
	Risk ID + Title	IF Statement	THEN Statement	Risk Response Strategy		
17. Unknown Unknowns	R1 - Scope	Undocumented/unrealized needs identified too late driving scope changes	Scope could potentially increase and impact other key programs such as GBE, CXT, CIS, AML and other IT enabling programs	Avoid	Agile Delivery Methodology with key checkpoints on a frequent cadence through Agile Program Increments Sessions.	16
13. Project Management	R2 - Schedule	Unplanned dependencies causing delays, IS unable to adapt	There could be a potential slippage in the timeline	Reduce	Agile Delivery Methodology and setting up program management office that has visibility across all critical path programs.	9
13. Project Management	R3 - Budget	Cost overruns due to unplanned needs and resource demands	Assess cost overrun and communicate across dependent programs	Reduce	Agile delivery approach allows for flexibility and early identification of system issues and remediation.	9
18. Specific Risk	R4 - Customer	CSAT will go down during implementation as CSR's are adapting to changes driven by multiple programs.	Prepare adequate CSR training and comprehensive support plan and staffing	Reduce	Establish detailed go-live plan, adequate CSR training and comprehensive support plan and staffing.	9
18. Specific Risk	R5 - Operational	Increase in call volume and talk time	Staff up the Contact Center and Revenue Cycle operations to be ready for "storm period".	Reduce	Plan to staff up the Contact Center and Revenue Cycle operations to be ready for "storm period" before stabilization occurs. Leverage robotics and analytics to pinpoint key processes that can leverage automation.	9
18. Specific Risk	R6 - Stabilization	Operational impact larger than planned for; change fatigue from users of the systems.	Apply leading practice and lessons learned from Utilities/cross-industry prior CIS implementations.	Avoid	Make change management a core capability early in the program.	9
2. Public Local Government	R7 - PUC Complaints	Due to operational issues (e.g. collections errors)	Proactively work with the Commissions on implementation timeline, expected impacts and establish a protocol for how to address operational issues that impact the customers.	Accept	Plan early stand up of a Command Center to manage any post-go live issues. Practice how to analyze and address issues before go-live with senior leadership. Establish one lead with overall authority to make decisions on how to resolve operational issues.	16
18. Specific Risk	R8 - Commercial and Industrial Customers	Impacts to relationships with large & strategic accounts	Create customized training program for major account representatives to answer questions that this customer segment might have	Accept	Establish and execute plan for proactive management of C&I Customers as well as other Customer Segments.	9



US Sanction Paper

Risk Breakdown Structure Category	Qualitative Assessment / Risk Response Strategy				Risk Score	
	Risk ID + Title	IF Statement	THEN Statement	Risk Response Strategy		
18. Specific Risk	R9 - Advocacy Groups	Complaints from advocacy groups	Establish and execute plan for management advocacy groups.	Avoid	Establish and execute plan for proactive management advocacy groups.	9
18. Specific Risk	R10 - Press	Negative press (e.g. due to billing errors)	Work with National Grid Public Relations department to handle any potential negative press.	Accept	Work with National Grid Public Relations department to establish a protocol for how to handle any potential negative press.	9

3.9 Permitting

NA

3.10 Investment Recovery

3.10.1 Investment Recovery and Regulatory Implications

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

3.10.2 Customer Impact

NA

3.10.3 CIAC / Reimbursement

NA

US Sanction Paper

3.11 Financial Impact to National Grid

3.11.1 Cost Summary Table

Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Current Planning Horizon						Total
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
INVP 5503 Capex: S008011	Customer Information Systems Replacement	Est Lvl (e.g. +/- 25%)	CapEx	0.000	0.199	36.032	44.072	52.386	37.641	108.312	278.642
			OpEx	0.000	4.140	69.830	72.619	57.168	49.392	94.266	347.415
			Removal	0.000	0.000	0.000	0.000	2.552	5.103	12.758	20.413
			Total	0.000	4.339	105.862	116.691	112.106	92.136	215.336	646.470
Total Project Sanction			CapEx	0.000	0.199	36.032	44.072	52.386	37.641	108.312	278.642
			OpEx	0.000	4.140	69.830	72.619	57.168	49.392	94.266	347.415
			Removal	0.000	0.000	0.000	0.000	2.552	5.103	12.758	20.413
			Total	0.000	4.339	105.862	116.691	112.106	92.136	215.336	646.470

3.11.2 Project Budget Summary Table

Project Costs per Business Plan

\$M	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
CapEx	0.000	0.199	36.032	44.072	52.386	37.641	108.312	278.642
OpEx	0.000	4.140	69.830	72.619	57.168	49.392	94.266	347.415
Removal	0.000	0.000	0.000	0.000	2.552	5.103	12.758	20.413
Total Cost in Bus. Plan	0.000	4.339	105.862	116.691	112.106	92.136	215.336	646.470

Variance (Business Plan-Project Estimate)

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

3.11.3 Cost Assumptions

The original cost forecasts were developed using proprietary tools from an experienced consulting partner, and further validated by the National Grid program team and an experienced design assurance partner. These have been updated as actual costs for the software vendor provider, however software integrator cost are based on assumptions and will be updated as better insight becomes available.



US Sanction Paper

3.11.4 Net Present Value / Cost Benefit Analysis

3.11.4.1 NPV Summary Table

This is not an NPV project.

3.11.4.2 NPV Assumptions and Calculations

NA

3.11.5 Additional Impacts

Noted elsewhere in the investment paper.

3.12 Statements of Support

3.12.1 Supporters

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

Department	Individual	Responsibilities
Business Department	Jeff Martin	Business Representative
Business Partner (BP)	Joel Semel	Relationship Manager
Program Delivery Management (PDM)	Michael Pawlowski	Program Delivery Director
IT Finance	Michelle Harris	Manager
IT Regulatory	Dan DeMauro	Director
Digital Risk and Security (DR&S)	Elaine Wilson	Director
Service Delivery	Mark Mirizio	Manager
Enterprise Architecture	Joe Clinchot	Director

3.12.2 Reviewers

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

Function	Individual
Regulatory	Harvey, Maria
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Currie, John



US Sanction Paper

Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego

4 Appendices

4.1 Sanction Request Breakdown by Project/Release

\$M	INVP 5503 (P&ED)	INVP 5503 (R1)	INVP 5503 (R2)	INVP 5503 (R3)	Total
CapEx	58.159	84.490	116.764	84.061	343.474
OpEx	34.047	50.198	100.822	97.516	282.583
Removal			8.931	11.482	20.413
Total	92.206	134.688	226.517	193.059	646.470

4.2 Project Cost Breakdown

NA

4.3 Benefiting Operating Companies

Operating Company Name	Business Area	State
Niagara Mohawk Power Corp – Electric (NM)	Electric Distribution	NY
Niagara Mohawk Power Corp – Gas (NM)	Gas Distribution	NY
Massachusetts Electric Company	Electric Distribution	MA
Nantucket Electric Company	Electric Distribution	MA
Narragansett Gas Company	Gas Distribution	RI
Narragansett Electric Company	Electric Distribution	RI
KeySpan Energy Delivery New York (KEDNY)	Gas Distribution	NY
KeySpan Energy Delivery Long Island (KEDLI)	Gas Distribution	NY
Boston Gas Company	Gas Distribution	MA
Colonial Gas Company	Gas Distribution	MA

4.4 IT Ongoing Operational Costs (RTB):

Application Maintenance costs will decrease over time. After Release 1 is implemented, we will incur RTB costs from both the legacy systems as well as the RTB costs for the new CIS system which includes software vendor application maintenance services plus application development and application maintenance costs.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
\$ 15,549,713	\$ 15,549,713	\$ 15,549,713	\$ 18,232,756	\$ 18,502,756	\$ 18,502,756	\$ 18,903,256	\$ 9,486,502	\$ 9,486,502	\$ 9,486,502

US Sanction Paper

4.5 NPV Summary (if applicable)

NA

4.6 Customer Outreach Plan

The project's Change Management team will develop a comprehensive Customer and Stakeholder outreach and communications plan. Details of this plan will be available once the team is formed and can develop its strategy.

4.7 Prepare and Enterprise Design

The Enterprise Design phase will comprise of 2 phases that will ensure the following:

Prepare Phase (2 Months):

- Final Confirmation of Scope
- Mobilization and Training of Core Team
- Planning for Design and Configuration Sprints
- Agile and Delivery Methodology Training
- SAP CR&B Training
- Additional training to project team on Hybrid Agile methods, governance, implementation plan, tools and design thinking
- Method and Tools Adoption Workshop
- Pre-Assembly demos using IBM IMPACT and SAP Mode Office

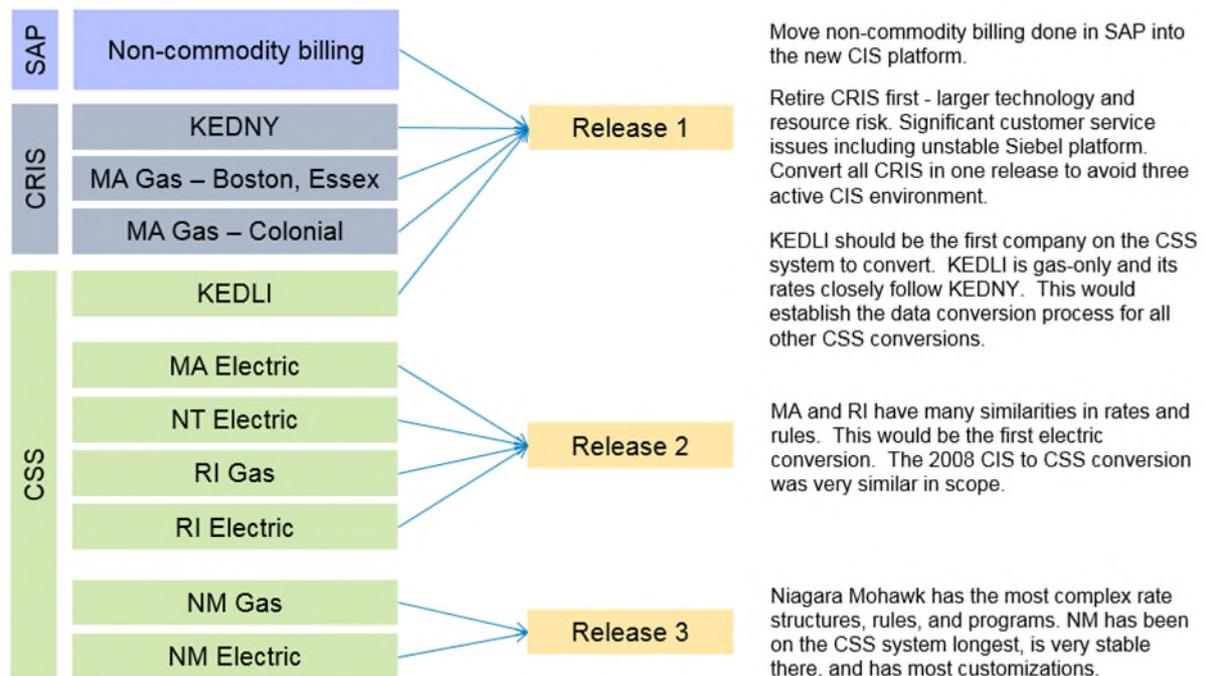
Process Validation and Enterprise Design Phase (8 Months):

- Process Validation – Confirm business processes against Pre-Assembly model (“Adopt” processes)
- Enterprise Design – prepare common design attributes of all three project releases (10 operating companies)
 - Gap Resolution
 - Design Confirmation
- Baseline Configuration

US Sanction Paper



4.8 Phased Deployment Approach



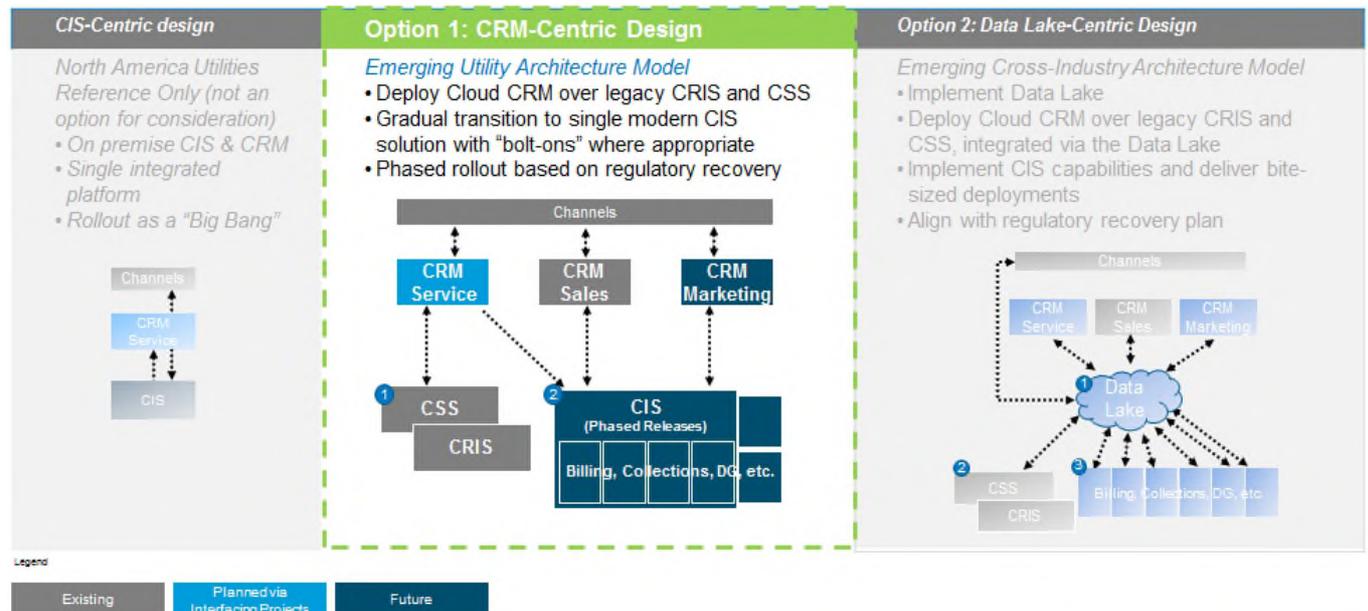
US Sanction Paper

4.9 Timeline Overview



4.10 To Be Platform Overview

The Steering Committee confirmed Option 1: CRM – Centric Design as the strategic CIS Technology Solution.





Long: US Sanction Paper

Title:	LAN Wi-Fi Infrastructure	Sanction Paper #:	USSC-19-305
Project #:	INVP 5521	Sanction Type:	Partial Sanction
Capex #:	S008062		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	6/25/2019
Author:	Yee, Andrew	Sponsor:	Olive, Stephen Chief Information Officer
Utility Service:	IT	Project Manager:	Drury, Elisabeth

Executive Summary

This paper requests Partial Sanction of INVP 5521 in the amount of \$2.607M with a tolerance of +/-10% for the purposes of Requirements & Design.

This sanction amount is \$2.607M broken down into:
\$2.550M Capex
\$0.057M Opex
\$0.000M Removal

NOTE the potential investment of \$3.270M with a tolerance of +/-25%, contingent upon submittal and approval of a Project Sanction paper following completion of Requirements & Design.

Project Summary

The LAN (Local-Area Network)/Wi-Fi Infrastructure Program has identified a series of projects that will refresh the network infrastructure to improve network performance, mobility and user experience. The paper requests funds for the following initiatives listed under the Program INVP 5521 – LAN/Wi-Fi Infrastructure Program:

- 5521A: Verizon – Aruba LAN and Wireless LAN (Waltham)
- 5521B: Verizon – Us Wi-Fi Refresh

Background

The LAN/Wi-Fi Infrastructure Program will deliver both refreshes to the existing LAN and wireless LAN (Wi-Fi) and expand the use of the wireless services to locations without sufficient wireless capability to ensure continued reliability of the LAN service and to push National Grid's strategy to drive the use of Wi-Fi as the primary method for all network connectivity with National Grid.

From a Wi-Fi perspective there is a demand from the business to have all office spaces Wi-Fi enabled in a high density design, this project will progress down the path of expanding Wi-Fi at locations based on priority while ensuring existing Wi-Fi infrastructure remains operational and supportable. From a LAN perspective this program will be ensure that the LAN can continue to support the needs of the Business and any new

requirements to be met in support of the Wi-Fi services. Given the expected rate of growth of network connected devices, this program will also deliver automation capabilities.

It is anticipated that the resources (funds, and people) will not be sufficient to bring all of the estate into support within one year, therefore a multi-year program of work is required. The program will prioritize the work and deliver the most critical first. Considering current and future needs of the business. Rationalization of the number of LAN ports along with rollout of wireless so we can minimize the number of LAN ports needed to support the environment.

Project Descriptions

The Lan/Wi-Fi Infrastructure Program has identified a series of projects that will refresh the network infrastructure to improve network performance, mobility and user experience.

INVP 5521A: Verizon – Aruba LAN and Wireless LAN (Waltham)

Deployment of Cisco LAN and Aruba WLAN/Wi-Fi services in place of the existing Cisco LAN and WLAN (Wireless Local Area Network) equipment. The LAN equipment is EOL (End of Life) and needs to be replaced and the WLAN will provide enhanced WLAN capability to the Reservoir Woods building. The infrastructure deployed will support the full wireless user environment required by the Smart Workspace Initiative.

INVP 5521B: Verizon – Us Wi-Fi Refresh

Annual refresh of wireless network assets. There are 21 sites where 30% or less of the APs (Application Protocol) will be EOL by 30th June 2020. In these sites the existing EOL Cisco WAPs (Wireless Application Protocol) will be replaced with a newer model of Cisco WAP. In sites where more than 30% of the WAP's are EOL or will be by June 2020 all the WAPs will be replaced with Aruba hardware.

Deployment of Aruba LAN and WLAN/WiFi services in place of and enhancing the current Cisco network in the Syracuse Office Building.

This project will support the expansion of WLAN into new locations in the US. In total there are 44 sites identified for WLAN enhancement or expansion. All sites will require a wireless survey and LAN evaluation. Project assumes that more than 700 new APs will be installed.

Summary of Benefits

- Reduce risk of End of Life Equipment
- Improved Performance
- Improve end user experience through the delivery of Wi-Fi services
- Supports more efficient use of the National Grid facilities
- Rightsizing the LAN to support wireless and wired
- Support of more device types in the environment
- Increase mobility
- More effective collaboration
- Reduce risk & improve service performance
- The preemptive fixes to field devices
- Technology that allows IT to engage employees ahead of problems to repair issues
- Ability to identify threat vectors ahead of vendor notification

Business and Customer Issues

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

Alternatives

<i>Number</i>	<i>Title</i>
1	Alternative 1: Defer project/ Do Nothing Rejected: This option is not viable as it will not address refresh network infrastructure to improve network performance, mobility and user experience listed in section 3.4
2	Alternative 2: Competitive Bid From Multiple Vendors Rejected: The LAN/Wi-Fi Infrastructure Program will be implemented through existing competitively bid contract with an existing IT framework partner

Related Projects, Scoring and Budget

Summary of Projects

<i>Project Number</i>	<i>Project Type (Elec only)</i>	<i>Project Title</i>	<i>Estimate Amount(\$M)</i>
5521		LAN/Wi-Fi Infrastructure Program	3.270
Total:			3.270

Associated Projects

<i>Project Number</i>	<i>Project Title</i>	<i>Estimate Amount (\$M)</i>
N/A		0.000

Prior Sanctioning History

<i>Date</i>	<i>Governance Body</i>	<i>Sanctioned Amount</i>	<i>Potential Project Investment</i>	<i>Sanction Type</i>	<i>Sanction Paper</i>	<i>Potential Investment Tolerance</i>
		N/A				10%

Key Milestones

<i>Milestone</i>	<i>Date (Month / Year)</i>
Start Up	June, 2019
Partial Sanction	June, 2019
Begin Requirements and Design	June, 2019
Project Sanction	October, 2019
Move to Production / Final Go Live	February, 2020
Project Closure Sanction	May, 2020

Next Planned Sanction

<i>Date (Month/Year)</i>	<i>Purpose of Sanction Review</i>
October, 2019	Sanction

Category

<i>Category</i>	<i>Reference to Mandate, Policy, NPV, or Other</i>
<input type="radio"/> Mandatory	The main driver of this program is to provide new

- Policy-Driven
- Justified NPV
- Other

capabilities and refresh to the network environment.

Asset Management Risk Score: 41

PRIMARY RISK SCORE DRIVER

- Reliability
- Environment
- Health & Safety
- Not Policy Driven

Complexity Level: 18

- High Complexity
- Medium Complexity
- Low Complexity
- N/A

Process Hazard Assessment

A Process Hazard Assessment (PHA) is required for this project: Yes No

Current Planning Horizon

Capex	0.000	3.213	0.000	0.000	0.000	0.000	0.000	3.213
Opex	0.000	0.057	0.000	0.000	0.000	0.000	0.000	0.057
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	3.270	0.000	0.000	0.000	0.000	0.000	3.270

Resources, Operations, & Procurement

RESOURCE SOURCING

Engineering & design
Resources to be provided

Internal

Contractor

Construction/Implementation
Resources to be provided

Internal

Contractor

RESOURCE DELIVERY

Availability of internal
resources to delivery project:

Red

Amber

Green

Availability of external
resources to delivery project:

Red

Amber

Green

OPERATIONAL IMPACT

Outage impact on network
system

Red

Amber

Green

PROCUREMENT IMPACT

Procurement impact on
network system:

Red

Amber

Green

Key Issues

N/A

Climate Change

Contribution to National Grid's

2050 80% emissions reduction target: Neutral Positive Negative
Impact on adaptability of network for future climate change: Neutral Positive Negative

List References

N/A

Safety, Environmental and Project Planning Issues

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

Permitting

N/A

Investment Recovery and Customer Impact

Investment Recovery

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

Customer Impact

N/A

Execution Risk Appraisal

Risk Breakdown Structure Category	Qualitative Assessment / Risk Response Strategy					Risk Score
	Risk ID + Title	IF Statement	THEN Statement	Risk Response Strategy		
1. Project Requirements	R1 - Site Requirements	If the requirements are not fully vetted out	Then the site deployments will be either lengthen or postpone	Avoid	Risk Response / Action	15
16. Estimating	R2 - Individual Site Work & timescales	If the actual elements of work needed by site to improve the WIFI response is not accurately determined	Then the end user will not have the defined end user experience	Transfer	Risk Response / Action	20
13. Project Management	R3 - Deployment Resource allocation	If the vendors don't have the needed resources to deploy site by site	Then the schedule will slip past the pre-determined end date	Mitigate	Risk Response / Action	9

Business Plan

Business Plan Name & Period	Project Included in approved Business Plan?	Over / Under Business Plan	Project Cost relative to approved Business Plan (\$M)
IT Investment Plan FY20	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input type="radio"/> Under <input checked="" type="radio"/> N/A	0.000

If Cost > Approved

if costs > approved Business Plan how will this be funded?

N/A

Drivers

The main driver of this program is a modernized network for Infrastructure.

CIAC Reimbursement

N/A

Cost Summary Table

Project Number	5521	Project Title	LAN/Wi-Fi Infrastructure Program						Project Estimate Level
			Prior Yrs	Yr 1 2020	Yr 2 2021	Yr 3 2022	Yr 4 2023	Yr 5 2024	
Spend									
Capex		0.000	3.213	0.000	0.000	0.000	0.000	0.000	3.213
Opex		0.000	0.057	0.000	0.000	0.000	0.000	0.000	0.057
Removal		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total		0.000	3.270	0.000	0.000	0.000	0.000	0.000	3.270

Total Project Sanction

Capex	0.000	3.213	0.000	0.000	0.000	0.000	0.000	3.213
Opex	0.000	0.057	0.000	0.000	0.000	0.000	0.000	0.057
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	3.270	0.000	0.000	0.000	0.000	0.000	3.270

Project Costs per Business Plan

\$M	Prior Yrs	Yr 1 2020	Yr 2 2021	Yr 3 2022	Yr 4 2023	Yr 5 2024	Yr 6 2025	Total
Capex	0.000	3.140	0.000	0.000	0.000	0.000	0.000	3.140
Opex	0.000	0.130	0.000	0.000	0.000	0.000	0.000	0.130
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	3.270	0.000	0.000	0.000	0.000	0.000	3.270

Variance

\$M	Prior Yrs	Yr 1 2020	Yr 2 2021	Yr 3 2022	Yr 4 2023	Yr 5 2024	Yr 6 2025	Total
-----	-----------	--------------	--------------	--------------	--------------	--------------	--------------	-------

Capex	0.000	(0.073)	0.000	0.000	0.000	0.000	0.000	(0.073)
Opex	0.000	0.073	0.000	0.000	0.000	0.000	0.000	0.073
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Sanction Request Breakdown by Project

Project Number	Capex	Opex	Removal	Total
5521				0.000

Cost Assumptions

The accuracy level of estimate for each project is identified in the Cost Summary Table.

Net Present Value / Cost Benefit Analysis

N/A

NPV Assumptions & Calculations

N/A

Additional Impacts

N/A

Statement of Support

Department	Individual	Responsibilities
Business Department	Antiquera, Adriano	Business Representative
Business Partner (BP)	Davidson, Caitlin	Relationship Manager
Program Delivery Management (PDM)	Campbell, Douglas	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	DeMauro, Daniel J.	Director
Digital Risk and Security (DR&S)	Shattuck, Peter	Manager
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Lyba, Svetlana	Director
Enterprise Portfolio Management	Cronin, Daniel	Analyst

Reviewers

Function	Individual
Regulatory	Mancinelli, Lauri A.

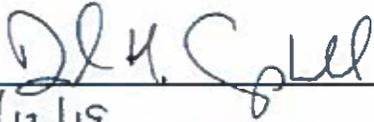
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Smith, Amy
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego

Decisions

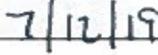
i:

- (a) APPROVE the investment of \$2.607M and a tolerance of +/-10% for Requirements & Design.
- (b) NOTED the potential investment of 3.27M and a tolerance of +/-25%%, contingent upon submittal and approval of a Project Sanction paper following completion of final engineering and design.
- (c) NOTED that Drury, Elisabeth has the approved financial delegation to undertake the activities stated in (a).

Signature



Date



David H. Campbell, Vice President US Treasury, USSC Chair

Appendix

Company Name	SAP Co.	SAP Seg	Jurisdiction	BU
National Grid USA Parent	5020	PARENT	PARENT	
KeySpan Energy Corp.	5040	PARENT	PARENT	
National Grid Elec. Services	5180	SERVCO	SERVCO	Electric
Niagara Mohawk Power Corp.- Electric Distr.	5210	NYELEC	NY	Electric
Niagara Mohawk Power Corp. - Gas	5210	NYGASD	NY	Gas
Niagara Mohawk Power Corp. - Transmission	5210	NYTRAN	NY	Transmission
KeySpan Energy Delivery New York	5220	NYGASD	NY	Gas
KeySpan Energy Delivery Long Island	5230	NYGASD	NY	Gas
Massachusetts Electric Company	5310	MAELEC	MA	Electric
Massachusetts Electric Company - GNSC	5310	FRELEC	FERC	Electric
Massachusetts Electric Company - Transmission	5310	FRTRAN	FERC	Transmission
Nantucket Electric Company	5320	MAELEC	MA	Electric
Boston Gas Company	5330	MAGASD	MA	Gas
Colonial Gas Company	5340	MAGASD	MA	Gas
Narragansett Electric Company	5360	RIELEC	RI	Electric
Narragansett Electric Company - GNSC	5360	FRELEC	FERC	Electric
Narragansett Gas Company	5360	RIGASD	RI	Gas
Narragansett Electric Company - Transmission	5360	FRTRAN	FERC	Transmission
New England Power Company - GNSC	5410	FRELEC	FERC	Electric
New England Power Company - Transmission	5410	FRTRAN	FERC	Transmission
NE Hydro - Trans Electric Co.	5411	FRELEC	FERC	Transmission - Hydro
New England Hydro - Trans Corp.	5412	FRELEC	FERC	Transmission - Hydro
New England Electric Trans Corp	5413	FRELEC	FERC	Transmission - Hydro
NG LNG LP Regulated Entity	5420	FRGASO	FERC	Gas
NG LNG LP LLC	5421	FRGASO	FERC	Gas
KeySpan Generation LLC (PSA)	5430	FRPGEN	FERC	Transmission
KeySpan Glenwood Energy Center	5431	FRPGEN	FERC	Transmission
KeySpan Port Jefferson Energy Center	5432	FRPGEN	FERC	Transmission
NG Transmission Services Corp	5802	NONREG	NONREG	
Metrowest Realty LLC	5803	NONREG	NONREG	
Wayfinder Group	5804	NONREG	NONREG	
NEES Energy, Inc.	5810	NONREG	NONREG	
KS Energy Trading	5820	PARENT	PARENT	
Transgas Inc	5825	NONREG	NONREG	
KeySpan Energy Development Corporation	5840	NONREG	NONREG	
KeySpan Services Inc.	5850	NONREG	NONREG	
NG Energy Management LLC	5860	NONREG	NONREG	
KS Energy Devlp Co.	5885	NONREG	NONREG	
Valley Appliance & Merch	5970	NONREG	NONREG	

Project Cost Breakdown \$ (millions)

Cost Category	sub-category	Value of Work to Date (VOWD)	Forecast to Complete (FTC)	Forecast At Completion (FAC=VOWD+FTC)	Name of Firm(s) providing resources
	NG Resources		-	-	
			-	-	IBM

Personnel	SDC Time & Materials		-	-	WiPro
			-	-	DXC
			-	-	Verizon
	SDC Fixed-Price		-	-	IBM
			-	-	WiPro
			-	-	DXC
			-	-	Verizon
	All other personnel		-	-	
	TOTAL Personnel Costs		-	-	
Hardware	Purchase		-	-	
	Lease		-	-	
Software			-	-	
Risk Margin			-	-	
AFUDC			-	-	
Other			3.270	3.270	
TOTAL Costs			3.270	3.270	

RTB - TO BE DETERMINED DURING REQUIREMENTS AND DESIGN PHASE OF THE PROGRAM.



Short: US Sanction Paper

Title:	Verizon – Aruba LAN and Wireless LAN (Waltham)	Sanction Paper #:	
Project #:	INVP 5521A	Sanction Type:	Partial Sanction
Capex #:	S008062		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	7/9/2019
Author:	Yee, Andrew	Sponsor:	Olive, Stephen Chief Information Officer
Utility Service:	IT	Project Manager:	Drury, Elisabeth

Executive Summary

This paper requests Partial Sanction of INVP 5521A in the amount of \$0.573M with a tolerance of +/-10% for the purposes of Requirements and Design.

This sanction amount is \$0.573M broken down into:

- \$0.550M Capex
- \$0.023M Opex
- \$0.000M Removal

NOTE the potential investment of \$0.831M with a tolerance of +/-25, contingent upon submittal and approval of a Project Sanction paper following completion of Requirements and Design.

Project Summary

This project will upgrade the network at the Reservoir Woods facility to provide ubiquitous, high capacity Wireless Local Area Network (WLAN) services that will provide 100% coverage and support personal voice and video applications.

Background

The Local Area Network (LAN) equipment at Res Woods is approximately 10 years old and was installed when the building was first constructed. The hardware no longer provides the network throughput required to support the wired and wireless demands of the modern workforce in this location. In addition, the hardware is end of support and the location is at risk of additional outage time if there was a hardware failure of this aged equipment.

Project Descriptions

Deployment of Cisco LAN and Aruba WLAN/Wi-Fi services in place of the existing Cisco LAN and WLAN

equipment. The LAN equipment is End of Life (EOL) and needs to be replaced and the WLAN will provide enhanced WLAN capability to the Reservoir Woods building. The infrastructure deployed with support the full wireless user environment required by the Smart Workspace Initiative.

Summary of Benefits

- Reduce risk of End of Life Equipment
- Improved Performance
- Improve of end user experience through the delivery of Wi-Fi services
- Supports more efficient use of the National Grid facility
- Rightsizing the LAN to support wireless and wired
- Support of more device types in the environment
- Increase mobility
- More effective collaboration
- Reduce risk & improve service performance

Business and Customer Issues

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

Alternatives

Number	Title
1	Alternative 1: Defer project/ Do Nothing Rejected: This option is not viable as it will not address refresh network infrastructure to improve network performance, mobility and user experience listed in section 3.4
2	Alternative 2: Competitive Bid From Multiple Vendors Rejected: The LAN/Wi-Fi Infrastructure Program will be implemented through existing competitively bid contract with an existing IT framework partner

Key Milestones

Milestone	Date (Month / Year)
Start Up	June, 2019
Partial Sanction	July, 2019
Begin Requirements and Design	July, 2019
Project Sanction	December, 2019
Begin Development and Implementation	December, 2019
Move to Production / Final Go Live	February, 2020
Project Closure Sanction	May, 2020

Next Planned Sanction

Date (Month/Year)	Purpose of Sanction Review
December, 2019	Sanction

Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory	IS Standard 3.3: Adhere to the defined Asset Management Lifecycle Policy and usage policies for

- Policy-Driven
- Justified NPV
- Other

IT assets to which the policies apply; and Asset Management and Engineering Standard 2.2: Measure the condition, criticality and performance of assets to allow effective decision-making consistent with the requirements for the asset class, and manage the information resulting from these measurements. The criticality (i.e. impact on failure), condition, failure mode (inherent risk) and deterioration rate of such assets or asset classes shall be understood (even when only statistically assessed) for a given utilization and performance.

Asset Management Risk Score: 39

PRIMARY RISK SCORE DRIVER

- Reliability
- Environment
- Health & Safety
- Not Policy Driven

Complexity Level: 14

- High Complexity
- Medium Complexity
- Low Complexity
- N/A

Investment Recovery and Customer Impact

Investment Recovery

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

Drivers

The users will have their network upgraded to provide ubiquitous, high capacity WLAN services that will provide 100% coverage and support personal voice and video applications. The network design will be aligned with the sites new flexible work space that will support a high density of workers and more personal mobility and collaborative workspaces.

Statement of Support

Department	Individual	Responsibilities
Business Department	Antiquera, Adriano	Business Representative
Business Partner (BP)	Davidson, Caitlin	Relationship Manager
Program Delivery Management (PDM)	Campbell, Douglas	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	DeMauro, Daniel J.	Director
Digital Risk and Security (DR&S)	Shattuck, Peter	Manager
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Clinchot, Joseph J.	Director
Enterprise Portfolio Management	Cronin, Daniel	Analyst

Decisions

Recommendations

The Sanctioning Authority is invited to:

- A) APPROVE the investment of \$0.573M including risk margin of \$0.14325M
- B) APPROVE the run-the-business (RTB) of \$0M(per annum) for 5 years
- C) NOTE that Olive, Stephen, Chief Information Officer is the Project Sponsor
- D) NOTE that Drury, Elisabeth, is the Project Manager and has the approved financial delegation to deliver the project

Decision of the Sanctioning Authority

I hereby approve the recommendations made in this paper.

Signature  (PREMJIT SINGH - VP EPMO)

Date 07/11/19

Total Project Opex		0.023							0.023
Total Project Capex	-	0.808	-	-	-	-	-	-	0.808
Total Project Cost	-	0.831	-	-	-	-	-	-	0.831
Non-regulated project UPLIFT	-	-	-	-	-	-	-	-	-
Non-regulated project TOTAL	-	-	-	-	-	-	-	-	-
IS Investment Plan FY 20/21 Thru FY 25/26									
Budget OPEX	-	-	-	-	-	-	-	-	-
Budget CAPEX	-	-	-	-	-	-	-	-	-
Total Budget Cost	-	-	-	-	-	-	-	-	-
Total Cost Variance									
Total Variance Opex	-	(0.023)	-	-	-	-	-	-	(0.023)
Total Variance Capex	-	(0.808)	-	-	-	-	-	-	(0.808)
Total Variance Cost	-	(0.831)	-	-	-	-	-	-	(0.831)
Impact on RTB costs		-	-	-	-	-	-	-	-

Company Name	SAP Co.	SAP Seg	Jurisdiction	BU
National Grid USA Parent	5020	PARENT	PARENT	
KeySpan Energy Corp.	5040	PARENT	PARENT	
National Grid Elec. Services	5180	SERVCO	SERVCO	Electric
Niagara Mohawk Power Corp.- Electric Distr.	5210	NYELEC	NY	Electric
Niagara Mohawk Power Corp. - Gas	5210	NYGASD	NY	Gas
Niagara Mohawk Power Corp. - Transmission	5210	NYTRAN	NY	Transmission
KeySpan Energy Delivery New York	5220	NYGASD	NY	Gas
KeySpan Energy Delivery Long Island	5230	NYGASD	NY	Gas
Massachusetts Electric Company	5310	MAELEC	MA	Electric
Massachusetts Electric				

Company - GNSC	5310	FRELEC	FERC	Electric
Massachusetts Electric Company - Transmission	5310	FRTRAN	FERC	Transmission
Nantucket Electric Company	5320	MAELEC	MA	Electric
Boston Gas Company	5330	MAGASD	MA	Gas
Colonial Gas Company	5340	MAGASD	MA	Gas
Narragansett Electric Company	5360	RIELEC	RI	Electric
Narragansett Electric Company - GNSC	5360	FRELEC	FERC	Electric
Narragansett Gas Company	5360	RIGASD	RI	Gas
Narragansett Electric Company - Transmission	5360	FRTRAN	FERC	Transmission
New England Power Company - GNSC	5410	FRELEC	FERC	Electric
New England Power Company - Transmission	5410	FRTRAN	FERC	Transmission
NE Hydro - Trans Electric Co.	5411	FRELEC	FERC	Transmission - Hydro
New England Hydro - Trans Corp.	5412	FRELEC	FERC	Transmission - Hydro
New England Electric Trans Corp	5413	FRELEC	FERC	Transmission - Hydro
NG LNG LP Regulated Entity	5420	FRGASO	FERC	Gas
NG LNG LP LLC	5421	FRGASO	FERC	Gas
KeySpan Generation LLC (PSA)	5430	FRPGEN	FERC	Transmission
KeySpan Glenwood Energy Center	5431	FRPGEN	FERC	Transmission
KeySpan Port Jefferson Energy Center	5432	FRPGEN	FERC	Transmission
NG Transmission Services Corp	5802	NONREG	NONREG	
Metrowest Realty LLC	5803	NONREG	NONREG	
Wayfinder Group	5804	NONREG	NONREG	
NEES Energy, Inc.	5810	NONREG	NONREG	
KS Energy Trading	5820	PARENT	PARENT	
Transgas Inc	5825	NONREG	NONREG	
KeySpan Energy Development Corporation	5840	NONREG	NONREG	
KeySpan Services Inc.	5850	NONREG	NONREG	
NG Energy Management LLC	5860	NONREG	NONREG	
KS Energy Devlp Co.	5885	NONREG	NONREG	
Valley Appliance &				

Merch	5970	NONREG	NONREG
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nationalgrid			
Short: US Sanction Paper			
Title:	Verizon – US Wi-Fi Refresh	Sanction Paper #:	
Project #:	INVP 5521B	Sanction Type:	Partial Sanction
Capex #:	S008062		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	7/9/2019
Author:	Yee, Andrew	Sponsor:	Olive, Stephen Chief Information Officer
Utility Service:	IT	Project Manager:	Drury, Elisabeth

Executive Summary

This paper requests Partial Sanction of INVP 5521B in the amount of \$2.193M with a tolerance of +/-10% for the purposes of Requirements and Desgn.

This sanction amount is \$2.193M broken down into:
\$2.159M Capex
\$0.034M Opex
\$0.000M Removal

NOTE the potential investment of \$2.439M with a tolerance of +/-25, contingent upon submittal and approval of a Project Sanction paper following completion of Requirements and Desgn.

Project Summary

This program will deliver both refreshes to the existing LAN and wireless LAN (Wi-Fi) and expand the use of wireless services to locations without sufficient wireless capability to ensure continued reliability of the LAN service and to progress National Grid's strategy to drive the use of Wi-Fi as the primary access method for all network connectivity within National Grid.

Background

Given the expected growth of network connected devices it is essential that National Grid increase its Wi-Fi services to meet the needs of the Business. In addition, National Grid need to ensure the underpinning local area networks continue to be reliable, secure and manageable.

Project Descriptions

Annual refresh of wireless network assets. There are 21 sites where 30% or less of the APs (Application Protocol) will be EOL by 30th June 2020. In these sites the existing EOL Cisco WAPs (Wireless Application Protocol) will be replaced with a newer model of Cisco WAP. In sites where more than 30% of the WAP's are EOL or will be by June 2020 all the WAPs will be replaced with Aruba hardware

Summary of Benefits

- Improve of end user experience through the delivery of Wi-Fi services
 - Supports more efficient use of National Grid facilities
 - Rightsizing the LAN to support wireless and wired
 - Support of more device types in the environment
-

Business and Customer Issues

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

Alternatives

<i>Number</i>	<i>Title</i>
1	Alternative 1: Defer project/ Do Nothing – Rejected: This option is not viable as it will not address refresh network infrastructure to improve network performance, mobility and user experience listed in section 3.4
2	Alternative 2: Competitive Bid From Multiple Vendors Rejected: The LAN/Wi-Fi Infrastructure Program will be implemented through existing competitively bid contract with an existing IT framework partner

Key Milestones

<i>Milestone</i>	<i>Date (Month / Year)</i>
Start Up	June, 2019
Partial Sanction	July, 2019
Begin Requirements and Design	July, 2019
Project Sanction	December, 2019
Begin Development and Implementation	December, 2019
Begin User Acceptance Testing	January, 2020
Move to Production / Final Go Live	February, 2020
Project Closure Sanction	May, 2020

Next Planned Sanction

<i>Date (Month/Year)</i>	<i>Purpose of Sanction Review</i>
December, 2019	Sanction

Category

Category <input type="radio"/> Mandatory <input checked="" type="radio"/> Policy-Driven <input type="radio"/> Justified NPV <input type="radio"/> Other	Reference to Mandate, Policy, NPV, or Other IS Standard 3.3: Adhere to the defined Asset Management Lifecycle Policy and usage policies for IT assets to which the policies apply; and Asset Management and Engineering Standard 2.2: Measure the condition, criticality and performance of assets to allow effective decision-making consistent with the requirements for the asset class, and manage the information resulting from these measurements. The criticality (i.e. impact on failure), condition, failure mode (inherent risk) and deterioration rate of such assets or asset classes
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shall be understood (even when only statistically assessed) for a given utilization and performance.

Asset Management Risk Score: 41

PRIMARY RISK SCORE DRIVER

Reliability Environment Health & Safety Not Policy Driven

Complexity Level: 18

High Complexity Medium Complexity Low Complexity N/A

Investment Recovery and Customer Impact

Investment Recovery

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

Drivers

Expected growth of network connected devices it is essential that National Grid increase its Wi-Fi services to meet the needs of the Business. National Grid needs to ensure the underpinning local area networks continue to be reliable, secure and manageable.

Statement of Support

Department	Individual	Responsibilities
Business Department	Antiquera, Adriano	Business Representative
Business Partner (BP)	Davidson, Caitlin	Relationship Manager
Program Delivery Management (PDM)	Campbell, Douglas	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	DeMauro, Daniel J.	Director
Digital Risk and Security (DR&S)	Shattuck, Peter	Manager
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Clinchot, Joseph J.	Director
Enterprise Portfolio Management	Cronin, Daniel	Analyst

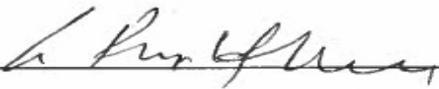
Decisions

Recommendations

The Sanctioning Authority is invited to:

- A) APPROVE the investment of \$2.193M including risk margin of \$0.5325M
- B) APPROVE the run-the-business (RTB) of \$0M(per annum) for 5 years
- C) NOTE that Olive, Stephen, Chief Information Officer is the Project Sponsor
- D) NOTE that Drury, Elisabeth, is the Project Manager and has the approved financial delegation to deliver the project

Decision of the Sanctioning Authority
I hereby approve the recommendations made in this paper.

Signature 

Date 09/18/19
Premjith Singh
VP IT EPMO

Total Project Opex		0.034						0.034
Total Project Capex	-	2.405	-	-	-	-	-	2.405
Total Project Cost	-	2.439	-	-	-	-	-	2.439
Non-regulated project UPLIFT	-	-	-	-	-	-	-	-
Non-regulated project TOTAL	-	-	-	-	-	-	-	-
IS Investment Plan FY 20/21 Thru FY 25/26								
Budget OPEX	-	-	-	-	-	-	-	-
Budget CAPEX	-	-	-	-	-	-	-	-
Total Budget Cost	-	-	-	-	-	-	-	-
Total Cost Variance								
Total Variance Opex	-	(0.034)	-	-	-	-	-	(0.034)
Total Variance Capex	-	(2.405)	-	-	-	-	-	(2.405)
Total Variance Cost	-	(2.439)	-	-	-	-	-	(2.439)
Impact on RTB costs		-	-	-	-	-	-	-

	SAP Co.	SAP Seg	Jurisdiction	BU
National Grid USA Parent	5020	PARENT	PARENT	
KeySpan Energy Corp.	5040	PARENT	PARENT	
National Grid Elec. Services	5180	SERVCO	SERVCO	Electric
Niagara Mohawk Power Corp.- Electric Distr.	5210	NYELEC	NY	Electric
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NG LNG LP LLC	5421	FRGASO	FERC	Gas
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KeySpan Port Jefferson Energy Center	5432	FRPGEN	FERC	Transmission
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Wayfinder Group	5804	NONREG	NONREG	
NEES Energy, Inc.	5810	NONREG	NONREG	
KS Energy Trading	5820	PARENT	PARENT	
Transgas Inc	5825	NONREG	NONREG	
KeySpan Energy Development Corporation	5840	NONREG	NONREG	
KeySpan Services Inc.	5850	NONREG	NONREG	
NG Energy Management LLC	5860	NONREG	NONREG	
KS Energy Devlp Co.	5885	NONREG	NONREG	
Valley Appliance & Merch	5970	NONREG	NONREG	

nationalgrid

Short: US Sanction Paper

Title:	Verizon - End User VPN Replacement	Sanction Paper #:	
Project #:	INVP 5522A	Sanction Type:	Partial Sanction
Capex #:			
Operating Company:	National Grid USA Svc. Co.	Date of Request:	6/14/2019
Author:	Yee, Andrew	Sponsor:	Olive, Stephen Chief Information Officer
Utility Service:	IT	Project Manager:	Gatland, Chris

Executive Summary

This paper requests Partial Sanction of INVP 5522A in the amount of \$0.634M with a tolerance of +/-10% for the purposes of Requirements and Design..

This sanction amount is \$0.634M broken down into:
\$0.614M Capex
\$0.020M Opex
\$0.000M Removal

NOTE the potential investment of \$0.850M with a tolerance of +/-25%, contingent upon submittal and approval of a Project Sanction paper following completion of Requirements and Design..

Project Summary

The existing Juniper Remote Access Server (RAS) Virtual Private Network (VPN) is at it's end of life (EOL) and needs to be replaced. Zscaler Private Access (ZPA) will be used to replace the existing Juniper platform. The ZPA deployment also includes the deployment of the Zscaler Application (ZAPP) and support for split tunneling.

Background

The existing Juniper RAS VPN is EOL and needs to be replaced. Zscaler Private Access (ZPA) will be used to replace the existing Juniper platform. The ZPA deployment also includes the deployment of the Zscaler ZAPP and support for split tunneling.

Project Descriptions

Replace the existing RAS VPN solution with a more modern platform that has improved device compatibility and functionality. The targeted solution ZScaler Private Access (ZPA) will leverage the investment National

Grid has made in the ZScaler product suite.

Summary of Benefits

- Cloud based service is easier to scale to meet Business Demands
- Increased Business and enterprise service performance and availability
- Better way to support Jurisdictional and business function
- Better mobile support
- Improved user experience (i.e. more transparent and faster login times)

Business and Customer Issues

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

Alternatives

<i>Number</i>	<i>Title</i>
1	Alternative 1: Defer Project/Do Nothing Rejected: This option is not viable as it will not address collaboration and communication modernization and the benefits listed in the Benefits Summary Indicative Cost: N/A
2	Alternative 2: Competitive Bids From Multiple Vendors Rejected: The Network Security Infrastructure Program will be partnered with an existing competitively bid contract with an existing IT framework partner. Indicative Costs: N/A

Key Milestones

<i>Milestone</i>	<i>Date (Month / Year)</i>
Start Up	May, 2019
Partial Sanction	June, 2019
Begin Requirements and Design	June, 2019
Project Sanction	December, 2019
Begin Development and Implementation	December, 2019
Move to Production / Final Go Live	March, 2020
Project Closure Sanction	June, 2019

Next Planned Sanction

<i>Date (Month/Year)</i>	<i>Purpose of Sanction Review</i>
December, 2019	Sanction

Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory	The main driver of this program is to provide new capabilities and refresh to the network environment.
<input type="radio"/> Policy-Driven	
<input type="radio"/> Justified NPV	
<input checked="" type="radio"/> Other	

Asset Management Risk Score: 41

PRIMARY RISK SCORE DRIVER

Reliability Environment Health & Safety Not Policy Driven

Complexity Level: 16

High Complexity Medium Complexity Low Complexity N/A

Investment Recovery and Customer Impact

Investment Recovery

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

Drivers

The existing Juniper RAS VPN is EOL and needs to be replaced.

Statement of Support

Department	Individual	Responsibilities
Business Department	Antiquera, Adriano	Business Representative
Business Partner (BP)	Davidson, Caitlin	Relationship Manager
Program Delivery Management (PDM)	Campbell, Douglas	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	DeMauro, Daniel J.	Director
Digital Risk and Security (DR&S)	Shattuck, Peter	Manager
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Lyba, Svetlana	Director
Enterprise Portfolio Management	Cronin, Daniel	Analyst

Decisions

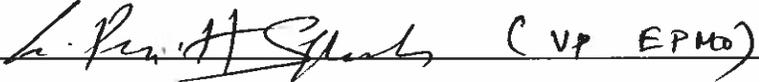
Recommendations

The Sanctioning Authority is invited to:

- A) APPROVE the investment of \$0.634M including risk margin of \$0.1585M
- B) APPROVE the run-the-business (RTB) of \$0M(per annum) for 5 years
- C) NOTE that Olive, Stephen, Chief Information Officer is the Project Sponsor
- D) NOTE that Gatland, Chris, is the Project Manager and has the approved financial delegation to deliver the project

Decision of the Sanctioning Authority

I hereby approve the recommendations made in this paper.

Signature  (VP EPMO)

Date 08/11/19

SUBTOTAL	-	0.212	-	-	-	-	-	0.212
Total Project Opex	-	0.020	-	-	-	-	-	0.020
Total Project Capex	-	0.830	-	-	-	-	-	0.830
Total Project Cost	-	0.850	-	-	-	-	-	0.850
Non-regulated project UPLIFT	-	-	-	-	-	-	-	-
Non-regulated project TOTAL	-	-	-	-	-	-	-	-
IS Investment Plan FY 20/21 Thru FY 25/26								
Budget OPEX	-	-	-	-	-	-	-	-
Budget CAPEX	-	-	-	-	-	-	-	-
Total Budget Cost	-	-	-	-	-	-	-	-
Total Cost Variance								
Total Variance Opex	-	(0.020)	-	-	-	-	-	(0.020)
Total Variance Capex	-	(0.830)	-	-	-	-	-	(0.830)
Total Variance Cost	-	(0.850)	-	-	-	-	-	(0.850)
Impact on RTB costs	-	-	-	-	-	-	-	-

COSEG	COMPANY NAME	SAP CO.	SAP SEG	JURISDICTION	BU
5020R	NATIONAL GRID USA PARENT	5020	PARENT	PARENT	
5040R	KEYSPAN ENERGY CORP.	5040	PARENT	PARENT	
5180E	NATIONAL GRID ELEC. SERVICES	5180	SERVCO	SERVCO	ELECTRIC

5210E	NIAGARA MOHAWK POWER CORP.- ELECTRIC DISTR.	5210	NYELEC	NY	ELECTRIC
5210G	NIAGARA MOHAWK POWER CORP. - GAS	5210	NYGASD	NY	GAS
5210T	NIAGARA MOHAWK POWER CORP. - TRANSMISSION	5210	NYTRAN	NY	TRANSMISSION
5220G	KEYSPAN ENERGY DELIVERY NEW YORK	5220	NYGASD	NY	GAS
5230G	KEYSPAN ENERGY DELIVERY LONG ISLAND	5230	NYGASD	NY	GAS
5310E	MASSACHUSETTS ELECTRIC COMPANY	5310	MAELEC	MA	ELECTRIC
5310F	MASSACHUSETTS ELECTRIC COMPANY - GNSC	5310	FRELEC	FERC	ELECTRIC
5310T	MASSACHUSETTS ELECTRIC COMPANY - TRANSMISSION	5310	FRTRAN	FERC	TRANSMISSION
5320E	NANTUCKET ELECTRIC COMPANY	5320	MAELEC	MA	ELECTRIC
5330G	BOSTON GAS COMPANY	5330	MAGASD	MA	GAS
5340G	COLONIAL GAS COMPANY	5340	MAGASD	MA	GAS
5360E	NARRAGANSETT ELECTRIC COMPANY	5360	RIELEC	RI	ELECTRIC
5360F	NARRAGANSETT ELECTRIC COMPANY - GNSC	5360	FRELEC	FERC	ELECTRIC
5360G	NARRAGANSETT GAS COMPANY	5360	RIGASD	RI	GAS
5360T	NARRAGANSETT ELECTRIC COMPANY - TRANSMISSION	5360	FRTRAN	FERC	TRANSMISSION
	NEW ENGLAND POWER COMPANY -				

5410F	GNSC	5410	FRELEC	FERC	ELECTRIC
5410T	NEW ENGLAND POWER COMPANY - TRANSMISSION	5410	FRTRAN	FERC	TRANSMISSION
5411F	NE HYDRO - TRANS ELECTRIC CO.	5411	FRELEC	FERC	TRANSMISSION - HYDRO
5412F	NEW ENGLAND HYDRO - TRANS CORP.	5412	FRELEC	FERC	TRANSMISSION - HYDRO
5413F	NEW ENGLAND ELECTRIC TRANS CORP	5413	FRELEC	FERC	TRANSMISSION - HYDRO
5420G	NG LNG LP REGULATED ENTITY	5420	FRGASO	FERC	GAS
5421G	NG LNG LP LLC	5421	FRGASO	FERC	GAS
5430P	KEYSPAN GENERATION LLC (PSA)	5430	FRPGEN	FERC	TRANSMISSION
5431P	KEYSPAN GLENWOOD ENERGY CENTER	5431	FRPGEN	FERC	TRANSMISSION
5432P	KEYSPAN PORT JEFFERSON ENERGY CENTER	5432	FRPGEN	FERC	TRANSMISSION
5840N	KEYSPAN ENERGY DEVELOPMENT CORPORATION	5840	NONREG	NONREG	
5850N	KEYSPAN SERVICES INC.	5850	NONREG	NONREG	



Long: US Sanction Paper

Title:	Network Security Infrastructure Program	Sanction Paper #:	USSC-19-295
Project #:	INVP 5522	Sanction Type:	Partial Sanction
Capex #:	S008063		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	6/25/2019
Author:	Yee, Andrew	Sponsor:	Olive, Stephen Chief Information Officer
Utility Service:	IT	Project Manager:	Gatland, Chris

Executive Summary

This paper requests Partial Sanction of INVP 5522 in the amount of \$1.636M with a tolerance of +/-10% for the purposes of Requirements & Design.

This sanction amount is \$1.636M broken down into:
\$1.556M Capex
\$0.080M Opex
\$0.000M Removal

NOTE the potential investment of \$3.272M with a tolerance of +/-25%, contingent upon submittal and approval of a Project Sanction paper following completion of Requirements & Design.

Project Summary

The Network Security Infrastructure Program will provide new capabilities and refresh the Network environment.

This program will deliver refresh and capability improvements to the Network Security Infrastructure. To ensure that the services continue to be secure, reliable and efficient it is important that services are maintained within support and new capabilities are added as technology advances. In addition, the changing threat landscape and expanding use of cloud based services requires a change from premise based security appliances towards more agile cloud and virtual security platforms. The program will prioritize work and deliver the most critical first, considering current and future needs of the business.

The purpose of this program paper is to requests funds for the following initiatives listed under the Program INVP 5522 - Network Security Infrastructure Program:

- 5522A: Verizon – End User Virtual Private Network (VPN) Replacement
- 5522C: Verizon – Verizon Strategic Internet Gateway (vSTIG) Device Refresh
- 5522D: Verizon – Verizon - Tufin Upgrade
- 5522F: Verizon – vSTIG re-architecture - New Core Firewall

Background

The Network Security Infrastructure Program has identified a series of projects that will refresh the network infrastructure to improve network performance, mobility and user experience.

Project Descriptions

5522A: Verizon – End User VPN Replacement

The existing Juniper Remote Access Server (RAS) Virtual Private Network (VPN) is end of life (EOL) and needs to be replaced. Zscaler Private Access (ZPA) will be used to replace the existing Juniper platform. The ZPA deployment also includes the deployment of the Zscaler Application (ZAPP) and support for split tunneling.

5522C: Verizon – vSTIG Device Refresh

This project is to replace EOL devices in the VSTIG. These devices include: Secured Socket Layer (SSL) Visibility appliance, Secure Analytics Capture, and Bluecoat Forward Proxy.

5522D: Verizon – Tufin Upgrade

The Tufin equipment that Verizon utilizes to model the impact of firewall and other security devices changes and the policy updates are EOL, needing to be replaced. Without replacing this equipment, Verizon cannot meet all security service level agreements (SLA). This project will provision new Tufin servers (on VMs if possible) with an Application Programming Interface (API) to Snow to allow automated/self service MACD (Move Adds Changes Deletions) and modelling.

5522F: Verizon – vSTIG re-architecture - New Core Firewall

This project is to review the requirements of the VSTIG core firewall and implement hardware capable of meeting these requirements in alignment with the new VSTIG/borderless security design.

Summary of Benefits

- Support more efficient use of National Grid facilities
- More effective collaboration
- Increase end user experience
- This program of work is aligned to the strategies and the other efforts within National Grid

Business and Customer Issues

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

Alternatives

<i>Number</i>	<i>Title</i>
1	Alternative 1: Defer Project/Do Nothing Rejected: This option is not viable as it will not address collaboration and communication modernization and the benefits listed in the Benefits Summary Indicative Cost: N/A
2	Alternative 2: Competitive Bids From Multiple Vendors Rejected: The Network Security Infrastructure Program will be partnered with an existing competitively bid contract with an existing IT framework partner. Indicative Costs: N/A

Related Projects, Scoring and Budget

Summary of Projects

<i>Project Number</i>	<i>Project Type (Elec only)</i>	<i>Project Title</i>	<i>Estimate Amount(\$M)</i>
5522		Network Security Infrastructure Program	3.272
Total:			3.272

Associated Projects

<i>Project Number</i>	<i>Project Title</i>	<i>Estimate Amount (\$M)</i>
N/A		0.000

Prior Sanctioning History

<i>Date</i>	<i>Governance Body</i>	<i>Sanctioned Amount</i>	<i>Potential Project Investment</i>	<i>Sanction Type</i>	<i>Sanction Paper</i>	<i>Potential Investment Tolerance</i>
N/A						

Key Milestones

<i>Milestone</i>	<i>Date (Month / Year)</i>
Start Up	May, 2019
Begin Requirements and Design	June, 2019
Partial Sanction	June, 2019
Begin Development and Implementation	December, 2019
Project Sanction	December, 2019
Move to Production / Final Go Live	March, 2020
Project Closure Sanction	June, 2020

Next Planned Sanction

<i>Date (Month/Year)</i>	<i>Purpose of Sanction Review</i>
December, 2019	Sanction

Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory	The main driver of this program is to provide new capabilities and refresh to the network environment.
<input checked="" type="radio"/> Policy-Driven	
<input type="radio"/> Justified NPV	
<input type="radio"/> Other	

Asset Management Risk Score: 41

PRIMARY RISK SCORE DRIVER

Reliability Environment Health & Safety Not Policy Driven

Complexity Level: 18

High Complexity Medium Complexity Low Complexity N/A

Process Hazard Assessment

A Process Hazard Assessment (PHA) is required for this project: Yes No

Current Planning Horizon

Capex	0.000	3.191	0.000	0.000	0.000	0.000	0.000	3.191
Opex	0.000	0.081	0.000	0.000	0.000	0.000	0.000	0.081
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	3.272	0.000	0.000	0.000	0.000	0.000	3.272

Resources, Operations, & Procurement

RESOURCE SOURCING

Engineering & design Resources to be provided Internal Contractor

Construction/Implementation Resources to be provided Internal Contractor

RESOURCE DELIVERY

Availability of internal resources to delivery project: Red Amber Green

Availability of external resources to delivery project: Red Amber Green

OPERATIONAL IMPACT

Outage impact on network system Red Amber Green

PROCUREMENT IMPACT

Procurement impact on network system: Red Amber Green

Key Issues

N/A

Climate Change

Contribution to National Grid's 2050 80% emissions reduction target: Neutral Positive Negative

Impact on adaptability of network for future climate change: Neutral Positive Negative

List References

N/A

Safety, Environmental and Project Planning Issues

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

Permitting

N/A

Investment Recovery and Customer Impact

Investment Recovery

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

Customer Impact

N/A

Execution Risk Appraisal

Risk Breakdown Structure Category	Qualitative Assessment / Risk Response Strategy				Risk Score	
	Risk ID + Title	IF Statement	THEN Statement	Risk Response Strategy		
1. Project Requirements	R1 - Identifying user groups	If all user groups are not fully identified or if users are missed in the transition planning	Then the users they will not be migrated and their needs will not be met	Mitigate	Any user group missed will be managed by a project in early life support phase	3
7. Procurement Contracts	R2 - Poor user experience	If the user experience is not great and easy	Then the users will be reluctant to use zscaler private access and continue using Juniper RAS	Mitigate	If users fail to addop the new RAS VPN we will seek support to remove their access to Juniper network connect after a period of time	6
13. Project Management	R3 - Training and communications	If the training and communications does not reach everyone	Then the user experience will be bad and help desk will be swamped with calls	Mitigate	If helpdesk is swamped with calls we would halt the roll out and examine the gaps in training and or communications and rectify	4
	R4 -	If the requirements proved to be	Then this will lead		Product owner to get 2 day CSPO training course and learn how to	

1. Project Requirements	Unstable requirements	difficult to lock down between competing I&O and DR&S strategies,	to delay and additional work and costs	Mitigate	manage competing requirement and priorities from all stakeholders	6
1. Project Requirements	R5 - Layer 2 VPN users	If users need a layer 2 RAS VPN for their job requirements	Then they will not be able to be migrated to Zscaler Private Access	Accept	Keep Juniper RAS for small number of users or purchase a small Cisco RAS VPN concentrator	6
18. Specific Risk	R6 - Juniper VPN failure	If the Juniper RAS VPN fails and cannot be recovered	Then we will have a major RAS VPN outage which will drive a unstructured highly risky implementation strategy	Accept	Agile will not be fast enough to meet resolve a major outage and a "war room " approach should be enacted to replace the normal project lifecycle.	2
7. Procurement Contracts	R7 - Application conflicts	If the Zscaler app, conflicts with other security software and impacts the performance of the end user desktops in a negative way	Then the performance of the end user desktops will be impacted in a very negative way like slow performance	Accept	If the Zscaler app conflicts and lead to a performance issue then we will disable one or the other applications.	1
7. Procurement Contracts	R8 - DR&S logging	If the the out of the box logging data supplied by Zscaler does not meet the DR&S requirements	Then this will lead to delay and additional work and costs	Accept	Risk remains low as if there is a gap between service definition and requirement we cannot change as is SaaS	1

Business Plan

<i>Business Plan Name & Period</i>	<i>Project Included in approved Business Plan?</i>	<i>Over / Under Business Plan</i>	<i>Project Cost relative to approved Business Plan (\$M)</i>
IT Investment Plan FY20	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input type="radio"/> Under <input checked="" type="radio"/> N/A	0.000

If Cost > Approved

if costs > approved Business Plan how will this be funded?

	0.000	0.050	0.000	0.000	0.000	0.000	0.000	0.050
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Sanction Request Breakdown by Project

Project Number	Capex	Opex	Removal	Total
5522				0.000

Cost Assumptions

The accuracy level of estimate for each project is identified in the Cost Summary Table.

Net Present Value / Cost Benefit Analysis

N/A

NPV Assumptions & Calculations

N/A

Additional Impacts

N/A

Statement of Support

Department	Individual	Responsibilities
Business Department	Antiquera, Adriano	Business Representative
Business Partner (BP)	Davidson, Caitlin	Relationship Manager
Program Delivery Management (PDM)	Campbell, Douglas	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	DeMauro, Daniel J.	Director
Digital Risk and Security (DR&S)	Shattuck, Peter	Manager
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Lyba, Svetlana	Director
Enterprise Portfolio Management	Cronin, Daniel	Analyst

Reviewers

Function	Individual
Regulatory	Mancinelli, Lauri A.
Jurisdictional Delegate - Electric NE	Easterly, Patricia

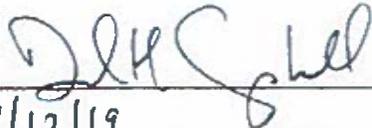
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Smith, Amy
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego

Decisions

I:

- (a) APPROVE the investment of \$1.636M and a tolerance of +/-10% for Requirements & Design.
- (b) NOTED the potential investment of 3.272M and a tolerance of +/-25%, contingent upon submittal and approval of a Project Sanction paper following completion of final engineering and design.
- (c) NOTED that Gatland, Chris has the approved financial delegation to undertake the activities stated in (a).

Signature



Date

7/12/19

David H. Campbell, Vice President US Treasury, USSC Chair

Appendix

RTB - TO BE DETERMINED DURING REQUIREMENTS AND DESIGN PHASE OF PROGRAM.

Project Cost Breakdown \$ (millions)

Cost Category	sub-category	Value of Work to Date (VOWD)	Forecast to Complete (FTC)	Forecast At Completion (FAC=VOWD+FTC)	Name of Firm(s) providing resources
Personnel	NG Resources	-	-	-	
	SDC Time & Materials	-	-	-	IBM
		-	-	-	WiPro
		-	-	-	DXC
		-	-	-	Verizon
	SDC Fixed-Price	-	-	-	IBM
		-	-	-	WiPro
		-	-	-	DXC
All other personnel	-	-	-	Verizon	
TOTAL Personnel Costs	-	-	-		
Hardware	Purchase	-	-	-	
	Lease	-	-	-	
Software		-	-	-	
Risk Margin		-	-	-	
AFUDC		-	-	-	
Other			3.272	3.272	
TOTAL Costs		-	3.272	3.272	

COSEG	COMPANY NAME	SAP CO.	SAP SEG	JURISDICTION	BU
5020R	NATIONAL GRID USA PARENT	5020	PARENT	PARENT	
5040R	KEYSPAN ENERGY CORP.	5040	PARENT	PARENT	
5180E	NATIONAL GRID ELEC. SERVICES	5180	SERVCO	SERVCO	ELECTRIC
5210E	NIAGARA MOHAWK POWER CORP.- ELECTRIC DISTR.	5210	NYELEC	NY	ELECTRIC
5210G	NIAGARA MOHAWK POWER CORP. - GAS	5210	NYGASD	NY	GAS
	NIAGARA				

5210T	MOHAWK POWER CORP. - TRANSMISSION	5210	NYTRAN	NY	TRANSMISSION
5220G	KEYSPAN ENERGY DELIVERY NEW YORK	5220	NYGASD	NY	GAS
5230G	KEYSPAN ENERGY DELIVERY LONG ISLAND	5230	NYGASD	NY	GAS
5310E	MASSACHUSETTS ELECTRIC COMPANY	5310	MAELEC	MA	ELECTRIC
5310F	MASSACHUSETTS ELECTRIC COMPANY - GNSC	5310	FRELEC	FERC	ELECTRIC
5310T	MASSACHUSETTS ELECTRIC COMPANY - TRANSMISSION	5310	FRTRAN	FERC	TRANSMISSION
5320E	NANTUCKET ELECTRIC COMPANY	5320	MAELEC	MA	ELECTRIC
5330G	BOSTON GAS COMPANY	5330	MAGASD	MA	GAS
5340G	COLONIAL GAS COMPANY	5340	MAGASD	MA	GAS
5360E	NARRAGANSETT ELECTRIC COMPANY	5360	RIELEC	RI	ELECTRIC
5360F	NARRAGANSETT ELECTRIC COMPANY - GNSC	5360	FRELEC	FERC	ELECTRIC
5360G	NARRAGANSETT GAS COMPANY	5360	RIGASD	RI	GAS
5360T	NARRAGANSETT ELECTRIC COMPANY - TRANSMISSION	5360	FRTRAN	FERC	TRANSMISSION
5410F	NEW ENGLAND POWER COMPANY - GNSC	5410	FRELEC	FERC	ELECTRIC
5410T	NEW ENGLAND POWER COMPANY - TRANSMISSION	5410	FRTRAN	FERC	TRANSMISSION
5411F	NE HYDRO - TRANS ELECTRIC CO.	5411	FRELEC	FERC	TRANSMISSION - HYDRO
5412F	NEW ENGLAND HYDRO - TRANS CORP.	5412	FRELEC	FERC	TRANSMISSION - HYDRO
	NEW ENGLAND				

5413F	ELECTRIC TRANS CORP	5413	FRELEC	FERC	TRANSMISSION - HYDRO
	NG LNG LP REGULATED ENTITY	5420	FRGASO	FERC	GAS
5420G					
5421G	NG LNG LP LLC	5421	FRGASO	FERC	GAS
	KEYSPAN GENERATION LLC (PSA)	5430	FRPGEN	FERC	TRANSMISSION
5430P					
	KEYSPAN GLENWOOD ENERGY CENTER	5431	FRPGEN	FERC	TRANSMISSION
5431P					
	KEYSPAN PORT JEFFERSON ENERGY CENTER	5432	FRPGEN	FERC	TRANSMISSION
5432P					
	KEYSPAN ENERGY DEVELOPMENT CORPORATION	5840	NONREG	NONREG	
5840N					
	KEYSPAN SERVICES INC.	5850	NONREG	NONREG	
5850N					

Long: US Sanction Paper		nationalgrid	
Title:	Voice Infrastructure Program	Sanction Paper #:	USSC-19-319
Project #:	INVP 5523	Sanction Type:	Partial Sanction
Capex #:	S008072		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	7/16/2019
Author:	Yee, Andrew	Sponsor(s):	Olive, Stephen Chief Information Officer
Utility Service:	IT	Project Manager:	Davidson, Ginelle

Executive Summary

This paper requests Partial Sanction of INVP 5523 in the amount of \$0.430M with a tolerance of +/-10% for the purposes of Requirements and Design.

This sanction amount is \$0.430M broken down into:

- \$0.400M Capex
- \$0.030M Opex
- \$0.000M Removal

NOTE the potential investment of \$1.089M with a tolerance of +/-25%, contingent upon submittal and approval of a Project Sanction paper following completion of Requirements and Design.

Project Summary

This program will focus on the delivery to modernize legacy Private Branch Exchange (PBX) platforms to Internet Protocol Telephony (IPT), specifically this includes control room environments and other key services still running on legacy PBX's that are out of support and at risk of failure. In addition, this program will look to advance the use of IP telephony towards other platforms that support increased mobility and collaboration and integration with Microsoft productivity tools.

The purpose of this program paper is to request funds for the following initiatives listed under the program INVP 5523 - Voice Infrastructure Program:

- 5523A: Upstate NY PBX Replacement/Upgrade
- 5523B: Northborough PBX Replacement/Upgrade

Background

Several mission-critical environments are operating on telephony platforms that are at end of service life and without spare parts available their continued operation cannot be guaranteed. Also, by moving these high risk environments to IPT we can ensure that these critical environments can take advantage of modern services that are not available on the end of life PBX's. In addition, to support National Grid's modern workforce and flexible work styles, this program will pursue a roadmap that delivers unified communications

platform using our preferred productivity suite.

Project Descriptions

5523A: Upstate NY PBX Replacement/Upgrade

The phone systems in the Upstate NY Control Room locations are legacy Nortel systems, end of life and at risk of extended failure. The project assumes that all control room users were migrated to IPT as part of an FY19 project, and this effort is the follow up project to migrate all existing users and services at these locations (Henry Clay Blvd (HCB), Syracuse (SYR), Guilderland, Buffalo) of the legacy end of life (EOL) Nortel platforms and on to the current, supportable IP Telephony (IPT) platform.

5523B: Northborough PBX Replacement/Upgrade

The phone systems in Northborough and Lincoln RI are legacy Avaya systems, they are at end of life and at risk of extended failure. The project is to migrate the existing control room telephony users off the Avaya and on to the IPT platform.

In addition, National Grid has a number of user groups that leverage the Avaya PBXs in various locations for advanced telephony capabilities despite being located in IP Telephony locations. This project will migrate the remaining use cases off the legacy Avaya platforms on to the IPT platform and decommission the Avaya PBXs.

Summary of Benefits

- Supports more efficient use of National Grid facilities
- More effective collaboration
- Increase end user experience
- This program of work is aligned to the strategies and other efforts within National Grid.
- IPT Systems will afford greater potential to support integration of voice, data services and applications

Business and Customer Issues

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

Alternatives

<i>Number</i>	<i>Title</i>
1	Alternative 1: Defer Project/Do Nothing Rejected: This option is not viable as it will not address collaboration and communication modernization and the benefits listed in the Benefits Summary Indicative Cost: N/A
2	Alternative 2: Competitive Bids From Multiple Vendors Rejected: The Voice Infrastructure Program will be partnered with an existing competitively bid contract with an existing IT framework partner. Indicative Costs: N/A
3	Alternative 3: Additional alternatives will be explored during the requirements and design phase.

Related Projects, Scoring and Budget

Summary of Projects

<i>Project Number</i>	<i>Project Type (Elec only)</i>	<i>Project Title</i>	<i>Estimate Amount(\$M)</i>
5523		Voice Infrastructure Program	1.089

Total:

1.089

Associated Projects

<i>Project Number</i>	<i>Project Title</i>	<i>Estimate Amount (\$M)</i>
N/A		0.000

Prior Sanctioning History

<i>Date</i>	<i>Governance Body</i>	<i>Sanctioned Amount</i>	<i>Potential Project Investment</i>	<i>Sanction Type</i>	<i>Sanction Paper</i>	<i>Potential Investment Tolerance</i>
N/A						

Key Milestones

<i>Milestone</i>	<i>Date (Month / Year)</i>
Start Up	July, 2019
Partial Sanction	July, 2019
Begin Requirements and Design	September, 2019
Project Sanction	September, 2019
Begin Development and Implementation	October, 2019
Move to Production / Final Go Live	March, 2020
Project Closure Sanction	June, 2020

Next Planned Sanction

<i>Date (Month/Year)</i>	<i>Purpose of Sanction Review</i>
September, 2019	Sanction

Category

<p>Category</p> <p><input type="radio"/> Mandatory</p> <p><input checked="" type="radio"/> Policy-Driven</p> <p><input type="radio"/> Justified NPV</p> <p><input type="radio"/> Other</p>	<p>Reference to Mandate, Policy, NPV, or Other IS Standard 3.3: Adhere to the defined Asset Management Lifecycle Policy and usage policies for IT assets to which the policies apply; and Asset Management and Engineering Standard 2.2: Measure the condition, criticality and performance of assets to allow effective decision-making consistent with the requirements for the asset class, and manage the information resulting from these measurements. The criticality (i.e. impact on failure), condition, failure mode (inherent risk) and deterioration rate of such assets or asset classes shall be understood (even when only statistically assessed) for a given utilization and performance.</p>
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Asset Management Risk Score: 39

PRIMARY RISK SCORE DRIVER

Reliability Environment Health & Safety Not Policy Driven

Complexity Level: 15

High Complexity Medium Complexity Low Complexity N/A

Process Hazard Assessment

A Process Hazard Assessment (PHA) is required for this project: Yes No

Current Planning Horizon

Capex	0.000	1.047	0.000	0.000	0.000	0.000	0.000	1.047
Opex	0.000	0.042	0.000	0.000	0.000	0.000	0.000	0.042
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	1.089	0.000	0.000	0.000	0.000	0.000	1.089

Resources, Operations, & Procurement

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 checked="" type="checkbox"/> Contractor

RESOURCE DELIVERY

Availability of internal resources to delivery project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Availability of external resources to delivery project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green

OPERATIONAL IMPACT

Outage impact on network system	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
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PROCUREMENT IMPACT

Procurement impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
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Key Issues

N/A

Climate Change

Contribution to National Grid's 2050 80% emissions reduction target:	<input checked="" type="radio"/> Neutral	<input 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

List References

N/A

Safety, Environmental and Project Planning Issues

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

Permitting

N/A

Investment Recovery and Customer Impact

Investment Recovery

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

Customer Impact

N/A

Execution Risk Appraisal

Risk Breakdown Structure Category	Qualitative Assessment / Risk Response Strategy					Risk Score
	Risk ID + Title	IF Statement	THEN Statement	Risk Response Strategy		
1. Project Requirements	R1 - Stakeholder engagement	If all user groups are not fully identified or if users are missed in the transition planning	Then the users they will not be migrated and their needs will not be met	Avoid	Risk Response / Action	15
13. Project Management	R2 - Implementation	If proposed solution is not tested mirroring production	Then there is a risk solution will fail and call center misses calls	Transfer	Risk Response / Action	4
13. Project Management	R3 - Training and communications	If the training and communications does not reach everyone	Then the user experience will be bad and help desk will be swamped with calls	Mitigate	Risk Response / Action	6
1. Project Requirements	R4 - Clear business requirements	If business requirements are not clearly defined and documented	Then final solution delivered will impact call response	Mitigate	Risk Response / Action	8
7. Procurement Contracts	R5 - DR&S vulnerability test	If the phone system does not meet the DR&S requirements for security	Then this will lead to delay and additional work and costs	Mitigate	Risk Response / Action	8
13. Project Management	R6 - Equipment ordering	If phone equipment is not ordered timely and align to deployment schedule	Then project will be delayed and incur cost	Mitigate	Risk Response / Action	12
	R7 -	If vendors do not	Then project will be		Risk	

7. Procurement Contracts	Vendor non disclosure contract	comply or update existing NDA	delayed and incur cost	Mitigate	Response / Action	8
1. Project Requirements	R8 - CNI Requirements	If CNI decides against using the corporate system	Then the project will incur indicative costs.	Mitigate	Risk Response / Action	8

Business Plan

Business Plan Name & Period	Project Included in approved Business Plan?	(Over) / Under Business Plan	Project Cost relative to approved Business Plan (\$M)
IT Investment Plan FY20	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input type="radio"/> Under <input checked="" type="radio"/> N/A	0.000

If Cost > Approved
if costs > approved Business Plan how will this be funded?
N/A

Drivers
Due to the EOL phone systems, the service at these sites is at risk of extended failure.

CIAC Reimbursement
N/A

Cost Summary Table

Project Number	Project Title	Voice Infrastructure Program						Project Estimate Level	Total
		Prior Yrs	Yr 1 2020	Yr 2 2021	Yr 3 2022	Yr 4 2023	Yr 5 2024		
5523									
Spend									
Capex	0.000	1.047	0.000	0.000	0.000	0.000	0.000	1.047	
Opex	0.000	0.042	0.000	0.000	0.000	0.000	0.000	0.042	
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Total	0.000	1.089	0.000	0.000	0.000	0.000	0.000	1.089	

Total Project Sanction

Capex	0.000	1.047	0.000	0.000	0.000	0.000	0.000	1.047
Opex	0.000	0.042	0.000	0.000	0.000	0.000	0.000	0.042
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	1.089	0.000	0.000	0.000	0.000	0.000	1.089

Project Costs per Business Plan

\$M	Prior Yrs	Yr 1 2020	Yr 2 2021	Yr 3 2022	Yr 4 2023	Yr 5 2024	Yr 6 2025	Total
Capex	0.000	1.047	0.000	0.000	0.000	0.000	0.000	1.047
Opex	0.000	0.042	0.000	0.000	0.000	0.000	0.000	0.042
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	1.089	0.000	0.000	0.000	0.000	0.000	1.089

Variance								
\$M	Prior Yrs	Yr 1 2020	Yr 2 2021	Yr 3 2022	Yr 4 2023	Yr 5 2024	Yr 6 2025	Total
Capex	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Opex	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Sanction Request Breakdown by Project				
Project Number	Capex	Opex	Removal	Total
5523				0.000

Cost Assumptions

The accuracy level of estimate for each project is identified in the Cost Summary Table.

Net Present Value / Cost Benefit Analysis
N/A

NPV Assumptions & Calculations
N/A

Additional Impacts

N/A

Statement of Support		
Department	Individual	Responsibilities
Business Department	Antiquera, Adriano	Business Representative
Business Partner (BP)	Davidson, Caitlin	Relationship Manager
Program Delivery Management (PDM)	Davidson, Ginelle	Program Delivery Director
IT Finance	Harris, Michelle	Manager

IT Regulatory	DeMauro, Daniel J.	Director
Digital Risk and Security (DR&S)	Shattuck, Peter	Manager
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Lyba, Svetlana	Director
Enterprise Portfolio Management	Cronin, Daniel	Analyst

Reviewers	
<i>Function</i>	<i>Individual</i>
Regulatory	Mancinelli, Lauri A.
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Smith, Amy
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego

Appendix

RTB - TO BE DETERMINED DURING THE REQUIREMENT & DESIGN PHASE OF THE PROGRAM.

Project Cost Breakdown \$ (millions)					
Cost Category	sub-category	Value of Work to Date (VOWD)	Forecast to Complete (FTC)	Forecast At Completion (FAC=VOWD+FTC)	Name of Firm(s) providing resources
Personnel	NG Resources		-	-	
	SDC Time & Materials		-	-	IBM
			-	-	WiPro
			-	-	DXC
			-	-	Verizon
	SDC Fixed-Price		-	-	IBM
			-	-	WiPro
			-	-	DXC
All other personnel		-	-	Verizon	
TOTAL Personnel Costs		-	-		
Hardware	Purchase		-	-	
	Lease		-	-	
Software			-	-	
Risk Margin			-	-	
AFUDC			-	-	
Other			1.089	1.089	
TOTAL Costs		-	1.089	1.089	

COSEG	COMPANY NAME	SAP CO.	SAP SEG	JURISDICTION	BU
5020R	NATIONAL GRID USA PARENT	5020	PARENT	PARENT	
5040R	KEYSPAN ENERGY CORP.	5040	PARENT	PARENT	
5180E	NATIONAL GRID ELEC. SERVICES	5180	SERVCO	SERVCO	ELECTRIC
5210E	NIAGARA MOHAWK POWER CORP. - ELECTRIC DISTR.	5210	NYELEC	NY	ELECTRIC
5210G	NIAGARA MOHAWK POWER CORP. - GAS	5210	NYGASD	NY	GAS
5210T	NIAGARA MOHAWK POWER CORP. - TRANSMISSION	5210	NYTRAN	NY	TRANSMISSION
	KEYSPAN				

5220G	ENERGY DELIVERY NEW YORK	5220	NYGASD	NY	GAS
5230G	KEYSPAN ENERGY DELIVERY LONG ISLAND	5230	NYGASD	NY	GAS
5310E	MASSACHUSETTS ELECTRIC COMPANY	5310	MAELEC	MA	ELECTRIC
5310F	MASSACHUSETTS ELECTRIC COMPANY - GNSC	5310	FRELEC	FERC	ELECTRIC
5310T	MASSACHUSETTS ELECTRIC COMPANY - TRANSMISSION	5310	FRTRAN	FERC	TRANSMISSION
5320E	NANTUCKET ELECTRIC COMPANY	5320	MAELEC	MA	ELECTRIC
5330G	BOSTON GAS COMPANY	5330	MAGASD	MA	GAS
5340G	COLONIAL GAS COMPANY	5340	MAGASD	MA	GAS
5360E	NARRAGANSETT ELECTRIC COMPANY	5360	RIELEC	RI	ELECTRIC
5360F	NARRAGANSETT ELECTRIC COMPANY - GNSC	5360	FRELEC	FERC	ELECTRIC
5360G	NARRAGANSETT GAS COMPANY	5360	RIGASD	RI	GAS
5360T	NARRAGANSETT ELECTRIC COMPANY - TRANSMISSION	5360	FRTRAN	FERC	TRANSMISSION
5410F	NEW ENGLAND POWER COMPANY - GNSC	5410	FRELEC	FERC	ELECTRIC
5410T	NEW ENGLAND POWER COMPANY - TRANSMISSION	5410	FRTRAN	FERC	TRANSMISSION
5411F	NE HYDRO - TRANS ELECTRIC CO.	5411	FRELEC	FERC	TRANSMISSION - HYDRO
5412F	NEW ENGLAND HYDRO - TRANS CORP.	5412	FRELEC	FERC	TRANSMISSION - HYDRO
	NEW ENGLAND				

5413F	ELECTRIC TRANS CORP	5413	FRELEC	FERC	TRANSMISSION - HYDRO
5420G	NG LNG LP REGULATED ENTITY	5420	FRGASO	FERC	GAS
5421G	NG LNG LP LLC	5421	FRGASO	FERC	GAS
5430P	KEYSPAN GENERATION LLC (PSA)	5430	FRPGEN	FERC	TRANSMISSION
5431P	KEYSPAN GLENWOOD ENERGY CENTER	5431	FRPGEN	FERC	TRANSMISSION
5432P	KEYSPAN PORT JEFFERSON ENERGY CENTER	5432	FRPGEN	FERC	TRANSMISSION
5840N	KEYSPAN ENERGY DEVELOPMENT CORPORATION	5840	NONREG	NONREG	
5850N	KEYSPAN SERVICES INC.	5850	NONREG	NONREG	

		nationalgrid	
Long: US Sanction Paper			
Title:	WAN Infrastructure Program	Sanction Paper #:	USSC-19-321
Project #:	INVP 5524	Sanction Type:	Partial Sanction
Capex #:	S008073		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	7/16/2019
Author:	Yee, Andrew	Sponsor(s):	Olive, Stephen Chief Information Officer
Utility Service:	IT	Project Manager:	Arista, Tina

Executive Summary

This paper requests Partial Sanction of INVP 5524 in the amount of \$2.662M with a tolerance of +/-10% for the purposes of Requirements & Design.

This sanction amount is \$2.662M broken down into:
\$2.581M Capex
\$0.081M Opex
\$0.000M Removal

NOTE the potential investment of \$3.272M with a tolerance of +/-25%, contingent upon submittal and approval of a Project Sanction paper following completion of Requirements & Design.

Project Summary

This program will deliver refresh and updates to the Wide Area Network (WAN) infrastructure through the implementation of a modern SD-WAN (Software Defined Wide Area Network) architecture. This will ensure that the services continue to be secure, reliable, and efficient while migrating to a modern platform that can support future applications and capacity requirements. The SD-WAN provides the ability to leverage multiple and diverse WAN access methods (e.g. MPLS, Internet and cellular to transport corporate applications) which will provide a more cost effective service.

The purpose of the this program paper is to request funds for the following initiatives listed under the Program INVP 5524- WAN Infrastructure Program:

- 5524A: Verizon – WAN Diversity for Regional Storm Sites
- 5524G: Verizon – US SD-WAN expansion.

Background

The WAN Infrastructure Program has identified a series of projects that will provide new capabilities and refresh the Network Environment to improve network. The paper request funds for the following initiatives listed under the Program INVP 5522 – Network Security Infrastructure Program:

- 5524A: Verizon – WAN Diversity for Regional Storm Sites
- 5524G: Verizon – US SD-WAN expansion

Project Descriptions

INVP 5524A: Verizon – WAN Diversity for Regional Storm Sites

Over the past several years National Grid has experienced a number of unexpected network outages during storms. In many cases this was due to network circuit failure that would not have been experienced with improved network diversity. This project is to upgrade the circuit delivery at the US Storm Sites to Platinum or Gold+ Service Level Agreement (SLA) to remediate these failure scenarios.

National Grid sites are categorized in the (4) following site types that have a particular SLA associated with that type:

- **Platinum:** Critical storm sites, contact centers, office HQs requiring a 99.999% availability (only allowing 5 minutes/year downtime)
- **Gold:** Power plants, office/operations centers, regional storm sites requiring 99.99% availability (only allowing 52 minutes/year downtime)
- **Silver:** Customer offices, LNGs, warehouse, training centers, power plant GT requiring 99.95% availability (only allowing 263 minutes/year downtime)
- **Bronze:** Small office/operations, barns, substations requiring 99.75% availability (only allowing for 1314 minutes/year downtime)

INVP 5524G: Verizon - US SD-WAN expansion

This project will continue the delivery of SD-WAN to additional sites, following from the initial deployment of SD-WAN associated with the NetMod Program. This architecture is to improve the network performances and capacity issues, and to successfully manage the growing demand for cloud-based digital IT solutions by replacing the existing WAN architecture that is not able to deliver the desired network performance and capabilities. This project will support all (4) SLA National Grid type sites.

Summary of Benefits

- Supports more efficient use of National Grid facilities
- More effective collaboration
- Support of more device types in the environment
- Increase of end user experience

Business and Customer Issues

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

Alternatives

<i>Number</i>	<i>Title</i>
1	Alternative 1: Defer project/ Do Nothing
	Rejected: This option is not viable as it will not address refresh network infrastructure to improve network performance, mobility and user experience listed in section 3.4
2	

Alternative 2: Competitive Bid From Multiple Vendors

Rejected: The WAN Infrastructure Program will be implemented through existing competitively bid contract with an existing IT framework partner

Related Projects, Scoring and Budget

Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount(\$M)
5524		WAN Infrastructure Program	3.272
Total:			3.272

Associated Projects

Project Number	Project Title	Estimate Amount (\$M)
N/A		0.000

Prior Sanctioning History

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Sanction Type	Sanction Paper	Potential Investment Tolerance
N/A						

Key Milestones

Milestone	Date (Month / Year)
Start Up	July, 2019
Partial Sanction	July, 2019
Begin Requirements and Design	July, 2019
Project Sanction	December, 2019
Begin Development and Implementation	December, 2019
Begin User Acceptance Testing	January, 2020
Move to Production / Final Go Live	February, 2020
Project Closure Sanction	May, 2020

Next Planned Sanction

Date (Month/Year)	Purpose of Sanction Review
December, 2019	Sanction

Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory	IS Standard 3.3: Adhere to the defined Asset Management Lifecycle Policy and usage policies for IT assets to which the policies apply; and Asset Management and Engineering Standard 2.2:
<input checked="" type="radio"/> Policy-Driven	
<input type="radio"/> Justified NPV	

Other

Measure the condition, criticality and performance of assets to allow effective decision-making consistent with the requirements for the asset class, and manage the information resulting from these measurements. The criticality (i.e. impact on failure), condition, failure mode (inherent risk) and deterioration rate of such assets or asset classes shall be understood (even when only statistically assessed) for a given utilization and performance.

Asset Management Risk Score: 45

PRIMARY RISK SCORE DRIVER

Reliability Environment Health & Safety Not Policy Driven

Complexity Level: 18

High Complexity Medium Complexity Low Complexity N/A

Process Hazard Assessment

A Process Hazard Assessment (PHA) is required for this project: Yes No

Current Planning Horizon

Capex	0.000	3.188	0.000	0.000	0.000	0.000	0.000	3.188
Opex	0.000	0.084	0.000	0.000	0.000	0.000	0.000	0.084
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	3.272	0.000	0.000	0.000	0.000	0.000	3.272

Resources, Operations, & Procurement

RESOURCE SOURCING

Engineering & design Resources to be provided Internal Contractor

Construction/Implementation Resources to be provided Internal Contractor

RESOURCE DELIVERY

Availability of internal resources to delivery project: Red Amber Green

Availability of external resources to delivery project: Red Amber Green

OPERATIONAL IMPACT

Outage impact on network system Red Amber Green

PROCUREMENT IMPACT

Procurement impact on network system: Red Amber Green

Key Issues

N/A

Climate Change

Contribution to National Grid's 2050 80% emissions reduction target:

Neutral Positive Negative

Impact on adaptability of network for future climate change:

Neutral Positive Negative

List References

N/A

Safety, Environmental and Project Planning Issues

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

Permitting

N/A

Investment Recovery and Customer Impact

Investment Recovery

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

Customer Impact

N/A

Execution Risk Appraisal

Breakdown Structure Category	Qualitative Assessment / Risk Response Strategy					Risk Score
	Risk ID + Title	IF Statement	THEN Statement	Risk Response Strategy		
12. Materials	R1 - Verizon	If the materials take longer than expected to be delivered	Then the site deployments will be lengthened or postpone.	Avoid	Risk Response / Action	15
16. Estimating	R2 - Individual Site Work	If the site surveys come back with more work required	Then the cost and schedule could be impacted.	Transfer	Risk Response / Action	20
13. Project Management	R3 - Deployment Resource allocation	Then the schedule will slip past the pre-determined end date	Then the schedule will slip past the pre-determined end date	Mitigate	Risk Response / Action	9

Business Plan

Business Plan Name & Period	Project Included in approved Business Plan?	(Over) / Under Business Plan	Project Cost relative to approved Business Plan (\$M)
IT Investment Plan FY 20-24	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input type="radio"/> Under <input checked="" type="radio"/> N/A	0.000

If Cost > Approved

if costs > approved Business Plan how will this be funded?

N/A

Drivers

The main driver of this program is a modernized network for Infrastructure.

CIAC Reimbursement

N/A

Cost Summary Table

Project Number 2024	Project Title	WAN Infrastructure Program						Project Estimate Level	
		Prior Yrs	Yr 1 2020	Yr 2 2021	Yr 3 2022	Yr 4 2023	Yr 5 2024	Yr 6 2025	Total
Spend									
Capex	0.000	3.188	0.000	0.000	0.000	0.000	0.000	0.000	3.188
Opex	0.000	0.084	0.000	0.000	0.000	0.000	0.000	0.000	0.084
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	3.272	0.000	0.000	0.000	0.000	0.000	0.000	3.272

Total Project Sanction

Capex	0.000	3.188	0.000	0.000	0.000	0.000	0.000	0.000	3.188
Opex	0.000	0.084	0.000	0.000	0.000	0.000	0.000	0.000	0.084
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	3.272	0.000	0.000	0.000	0.000	0.000	0.000	3.272

Project Costs per Business Plan

\$M	Prior Yrs	Yr 1 2020	Yr 2 2021	Yr 3 2022	Yr 4 2023	Yr 5 2024	Yr 6 2025	Total
Capex	0.000	3.141	0.000	0.000	0.000	0.000	0.000	3.141
Opex	0.000	0.131	0.000	0.000	0.000	0.000	0.000	0.131
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Total Cost in Bus.

Plan	0.000	3.272	0.000	0.000	0.000	0.000	0.000	3.272
Variance								
	Prior Yrs	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Total
\$M		2020	2021	2022	2023	2024	2025	
Capex	0.000	(0.047)	0.000	0.000	0.000	0.000	0.000	(0.047)
Opex	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.047
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Sanction Request Breakdown by Project

Project Number	Capex	Opex	Removal	Total
5524				0.000

Cost Assumptions

The accuracy level of estimate for each project is identified in the Cost Summary Table.

Net Present Value / Cost Benefit Analysis

N/A

NPV Assumptions & Calculations

N/A

Additional Impacts

N/A

Statement of Support

Department	Individual	Responsibilities
Business Department	Antiquera, Adriano	Business Representative
Business Partner (BP)	Davidson, Caitlin	Relationship Manager
Program Delivery Management (PDM)	Campbell, Douglas	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	DeMauro, Daniel J.	Director
Digital Risk and Security (DR&S)	Shattuck, Peter	Manager
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Lyba, Svetlana	Director

Enterprise Portfolio Management Cronin, Daniel Analyst

Reviewers

<i>Function</i>	<i>Individual</i>
Regulatory	Mancinelli, Lauri A.
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Smith, Amy
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego

Decisions

- (a) APPROVE the investment of \$2.662M and a tolerance of +/-10% for Requirements & Design.
- (b) NOTED the potential investment of 3.272M and a tolerance of +/-25%%, contingent upon submittal and approval of a Project Sanction paper following completion of final engineering and design.
- (c) NOTED that Arista, Tina has the approved financial delegation to undertake the activities stated in (a).

Signature



Date



David H. Campbell, Vice President US Treasury, USSC Chair

Appendix

RTB - TO BE DETERMINED DURING REQUIREMENTS AND DESIGN PHASE OF THE PROGRAM

Project Cost Breakdown \$ (millions)					
Cost Category	sub-category	Value of Work to Date (VOWD)	Forecast to Complete (FTC)	Forecast At Completion (FAC=VOWD+FTC)	Name of Firm(s) providing resources
Personnel	NG Resources		-	-	
	SDC Time & Materials		-	-	IBM
			-	-	WiPro
			-	-	DXC
			-	-	Verizon
	SDC Fixed-Price		-	-	IBM
			-	-	WiPro
			-	-	DXC
			-	-	Verizon
	All other personnel		-	-	
TOTAL Personnel Costs	-	-	-		
Hardware	Purchase		-	-	
	Lease		-	-	
Software			-	-	
Risk Margin			-	-	
AFUDC			-	-	
Other			3.272	3.272	
TOTAL Costs			3.272	3.272	

Company Name	SAP Co.	SAP Seg	Jurisdiction	BU
National Grid USA Parent	5020	PARENT	PARENT	

KeySpan Energy Corp.	5040	PARENT	PARENT	
National Grid Elec. Services	5180	SERVCO	SERVCO	Electric
Niagara Mohawk Power Corp.- Electric Distr.	5210	NYELEC	NY	Electric
Niagara Mohawk Power Corp. - Gas	5210	NYGASD	NY	Gas
Niagara Mohawk Power Corp. - Transmission	5210	NYTRAN	NY	Transmission
KeySpan Energy Delivery New York	5220	NYGASD	NY	Gas
KeySpan Energy Delivery Long Island	5230	NYGASD	NY	Gas
Massachusetts Electric Company	5310	MAELEC	MA	Electric
Massachusetts Electric Company - GNCS	5310	FELEC	FERC	Electric
Massachusetts Electric Company - Transmission	5310	FRTRAN	FERC	Transmission
Nantucket Electric Company	5320	MAELEC	MA	Electric
Boston Gas Company	5330	MAGASD	MA	Gas
Colonial Gas Company	5340	MAGASD	MA	Gas
Narragansett Electric Company	5360	RIELEC	RI	Electric
Narragansett Electric Company - GNCS	5360	FELEC	FERC	Electric
Narragansett Gas Company	5360	RI GASD	RI	Gas
Narragansett Electric Company - Transmission	5360	FRTRAN	FERC	Transmission
New England Power Company - GNCS	5410	FELEC	FERC	Electric
New England Power Company - Transmission	5410	FRTRAN	FERC	Transmission
NE Hydro - Trans Electric Co.	5411	FELEC	FERC	Transmission - Hydro
New England Hydro - Trans Corp.	5412	FELEC	FERC	Transmission - Hydro
New England Electric Trans Corp	5413	FELEC	FERC	Transmission - Hydro
NG LNG LP Regulated Entity	5420	FRGASO	FERC	Gas
NG LNG LP LLC	5421	FRGASO	FERC	Gas
KeySpan Generation LLC (PSA)	5430	FRPGEN	FERC	Transmission
KeySpan Glenwood Energy Center	5431	FRPGEN	FERC	Transmission
KeySpan Port Jefferson Energy Center	5432	FRPGEN	FERC	Transmission
NG Transmission Services Corp	5802	NONREG	NONREG	
Metrowest Realty LLC	5803	NONREG	NONREG	
Wayfinder Group	5804	NONREG	NONREG	
NEES Energy, Inc.	5810	NONREG	NONREG	
KS Energy Trading	5820	PARENT	PARENT	
Transgas Inc	5825	NONREG	NONREG	
KeySpan Energy Development Corporation	5840	NONREG	NONREG	
KeySpan Services Inc.	5850	NONREG	NONREG	
NG Energy Management LLC	5860	NONREG	NONREG	
KS Energy Devlp Co.	5885	NONREG	NONREG	
Valley Appliance & Merch	5970	NONREG	NONREG	

Short: US Sanction Paper

Title:	Integration with SAP SuccessFactor's LearningLink	Sanction Paper #:	
Project #:	INVP 5545	Sanction Type:	Sanction
Capex #:			
Operating Company:	National Grid USA Svc. Co.	Date of Request:	
Author:	Garg, Anil Weisbord, Ella	Sponsor(s):	Hutchison, Keith SVP HR & Chief Diversity Officer
Utility Service:	IT	Project Manager:	Parikh, Samir

Executive Summary

This paper requests Sanction of INVP 5545 in the amount of \$0.500M with a tolerance of +/-10% for the purposes of Development and Implementation.

This sanction amount is \$0.500M broken down into:
\$0.000M Capex
\$0.500M Opex
\$0.000M Removal

Project Summary

This project will integrate SAP SuccessFactors' (myHub) with various additional services, such as the RollCall mobile application, the onTrack Pipeline Safety solution and Sterling's Background check. This integration will allow National Grid to improve the quality and integrity of data and remove manual data exchanges.

Background

The National Grid Academy, with IT support, introduced the mobile application, RollCall, as a stand-alone solution in December 2018. The RollCall application provides ability to record attendance for MyHub-LearningLink courses using National Grid Security Badges. Currently, course, Instructor, and employee information is manually transferred from MyHub-LearningLink to RollCall. Attendance is recorded in RollCall via mobile devices, and along with Learning History data is manually uploaded back to MyHub-LearningLink. RollCall supports the Virtual Learning Initiative to bring required training to field locations and bring National Grid in compliance with regulatory requirements. Currently, data is transferred daily between RollCall and MyHub-LearningLink manually and this project will automate the process.

In addition, National Grid pipeline operators are using the tool, onTrack, provided by the Northeast Gas Association (NGA). NGA requires all pipeline operator members of the association to take mandatory certification / qualifications testing using their tool in certified facilities (Prometric). Currently employee data from National Grid and test / certification results are being exchanged on demand, with manual requests. This project will automate this process to

automated weekly data transferring.

Project Description

As part of this project, the following activities will be implemented:

- Complete design assessment to determine the best solution for RollCall integration
- Define requirements and scope for integration points for RollCall integration
- Define requirements, scope and confirm the integration with ITS
- Review Data flows and agree on support model for both requests
- Design the future state solution
- Define testing strategy

Summary of Benefits

Keeping National Grid training / testing requirements in compliance with various regulatory bodies

Business and Customer Issues

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

Alternatives

<i>Number</i>	<i>Title</i>
1	Use manual file transfer process (do nothing)
	While US Academy is currently using secure sites for data file transfers and application internal capability to upload the data, the manual process increases the risk of error and is not compliant with National Grid DR&S Policies.

Associated Projects - N/A

Key Milestones

<i>Milestone</i>	<i>Date (Month / Year)</i>
Start Up	February, 2019
Partial Sanction	April, 2019
Begin Requirements and Design	April, 2019
Sanction	September, 2019
Begin Development and Implementation	September, 2019
Move to Production / Final Go Live	September, 2019
Project Closure Sanction	December, 2019

Next Planned Sanction

<i>Date (Month/Year)</i>	<i>Purpose of Sanction Review</i>
December, 2019	Closure

Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory	National Grid Digital Risk and Security prescribes data exchange of Personal Identifiable Information to be done using Secure File Transformation Protocol as define in ISMS 102 Security Standard.
<input checked="" type="radio"/> Policy-Driven	This project will ensure that integration between various systems will be done in accordance with this policy.
<input type="radio"/> Justified NPV	

Asset Management Risk Score: 42

PRIMARY RISK SCORE DRIVER

Reliability Environment Health & Safety Not Policy Driven

Complexity Level: 21

High Complexity Medium Complexity Low Complexity N/A

Investment Recovery and Customer Impact

Investment Recovery

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

Drivers

Statement of Support

Department	Individual	Responsibilities
Business Department	Quedens, Anna	Business Representative
Business Partner (BP)	Semel, Joel	Relationship Manager
Program Delivery Management (PDM)	Parikh, Samir	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	Gill, Thomas F.	Manager
Digital Risk and Security (DR&S)	Wilson, Elaine	Director
Service Delivery	Mirizio, Mark	Principal Analyst
ARB Verification	Clinchot, Joseph J.	Director
Enterprise Portfolio Management	Cronin, Daniel	Analyst

Decisions

Recommendations

The Sanctioning Authority is invited to:

- A) APPROVE the investment of \$0.500M including risk margin of \$M
- B) APPROVE the run-the-business (RTB) of \$M(per annum) for 5 years
- C) NOTE that Hutchison, Keith, SVP HR & Chief Diversity Officer is the Project Sponsor
- D) NOTE that Parikh, Samir, is the Project Manager and has the approved financial delegation to deliver the project

Decision of the Sanctioning Authority

I hereby approve the recommendations made in this paper.

Signature _____

Date _____

Premjith Singh

VP IT EPMO

Appendix

RTB COST

N/A

Company Name	SAP Co.	SAP Seg	Jurisdiction	BU
National Grid USA Parent	5020	PARENT	PARENT	
KeySpan Energy Corp.	5040	PARENT	PARENT	
National Grid Elec. Services	5180	SERVCO	SERVCO	Electric
Niagara Mohawk Power Corp.- Electric Distr.	5210	NYELEC	NY	Electric
Niagara Mohawk Power Corp. - Gas	5210	NYGASD	NY	Gas
Niagara Mohawk Power Corp. - Transmission	5210	NYTRAN	NY	Transmission
KeySpan Energy Delivery New York	5220	NYGASD	NY	Gas
KeySpan Energy Delivery Long Island	5230	NYGASD	NY	Gas
Massachusetts Electric Company	5310	MAELEC	MA	Electric
Massachusetts Electric Company - GNSC	5310	FRELEC	FERC	Electric
Massachusetts Electric Company - Transmission	5310	FRTRAN	FERC	Transmission
Nantucket Electric Company	5320	MAELEC	MA	Electric
Boston Gas Company	5330	MAGASD	MA	Gas
Colonial Gas Company	5340	MAGASD	MA	Gas
Narragansett Electric Company	5360	RIELEC	RI	Electric
Narragansett Electric Company - GNSC	5360	FRELEC	FERC	Electric
Narragansett Gas Company	5360	RIGASD	RI	Gas
Narragansett Electric Company - Transmission	5360	FRTRAN	FERC	Transmission
New England Power Company - GNSC	5410	FRELEC	FERC	Electric
New England Power Company - Transmission	5410	FRTRAN	FERC	Transmission
NE Hydro - Trans Electric Co.	5411	FRELEC	FERC	Transmission - Hydro
New England Hydro - Trans Corp.	5412	FRELEC	FERC	Transmission - Hydro
New England Electric Trans Corp	5413	FRELEC	FERC	Transmission - Hydro
NG LNG LP Regulated Entity	5420	FRGASO	FERC	Gas
NG LNG LP LLC	5421	FRGASO	FERC	Gas
KeySpan Generation LLC (PSA)	5430	FRPGEN	FERC	Transmission
KeySpan Glenwood Energy Center	5431	FRPGEN	FERC	Transmission
KeySpan Port Jefferson Energy Center	5432	FRPGEN	FERC	Transmission
NG Transmission Services Corp	5802	NONREG	NONREG	
Metrowest Realty LLC	5803	NONREG	NONREG	
Wayfinder Group	5804	NONREG	NONREG	
NEES Energy, Inc.	5810	NONREG	NONREG	
KS Energy Trading	5820	PARENT	PARENT	
Transgas Inc	5825	NONREG	NONREG	
KeySpan Energy Development Corporation	5840	NONREG	NONREG	
KeySpan Services Inc.	5850	NONREG	NONREG	
NG Energy Management LLC	5860	NONREG	NONREG	
KS Energy Devlp Co.	5885	NONREG	NONREG	
Valley Appliance & Merch	5970	NONREG	NONREG	



Long: US Sanction Paper

Title:	Gas Business Enablement Cyber Security Enhancements	Sanction Paper #:	USSC-19-248
Project #:	INVP 5571	Sanction Type:	Partial Sanction
Capex #:	S008031		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	7/2/2019
Author:	Call, Robert	Sponsor:	Ravipaty, Mukund US Dir UK Snr Mgr Security Services
Utility Service:	IT	Project Manager:	DiForte, Carmella

Executive Summary

This paper requests Partial Sanction of INVP 5571 in the amount of \$1.075M with a tolerance of +/-10% for the purposes of Requirements and Design.

This sanction amount is \$1.075M broken down into:
\$0.936M Capex
\$0.139M Opex
\$0.000M Removal

NOTE the potential investment of \$1.833M with a tolerance of +/-25%, contingent upon submittal and approval of a Project Sanction paper following completion of Requirements and Design.

Project Summary

This investment is required to reduce the risk and vulnerabilities due to identified security gaps within the Gas Business Enablement (GBE) program. Failing to address the identified security gaps exposes key National Grid systems, applications, processes and data to potential cyber threats.

Background

Gas Business Enablement (GBE) is a key program that focuses on optimizing National Grid's gas systems, applications and data to enable the company to meet and exceed customer expectations. Following an internal assessment, findings revealed that the GBE program lacks the robust cyber security services to comprehensively mitigate potential cyber threats and vulnerabilities. This investment will implement measures to protect, detect and respond to security threats as well as provide recovery actions should the GBE systems, applications or data be compromised. This alternative will leverage and fully realize the benefits of the associated projects listed in Section 1.4.

Project Descriptions

This project is part of National Grid's Cyber Security 2 program that sets out to provide a comprehensive cyber security package delivering awareness, policies, and most importantly, tools to protect the Company's enterprise assets.

The initiative will focus on the identified security risks and gaps specific to GBE and do it by addressing:

- **Identity & Access Management** – ensuring the appropriate people can be properly identified in order to accurately manage the joiner, mover, and leaver process for GBE-related systems and applications.
 - Use of Role Based Access Control (RBAC) to grant access to GBE entitlements (systems, applications and data) based on roles that are driven by HR attributes pertinent to Gas Business employees and contingent workers.
 - Use of Identity and Access Management (IAM) tools to automate the assignment of roles and associated entitlements, and removal of entitlements when the role has changed or employee/contingent worker has terminated.
 - Privileges and permissions need to be monitored, recertified on a regular basis and maintained to avoid data security risks caused by individuals with inappropriate or conflicting levels of application rights.
 - A two-level factor authentication to confirm identity of GBE application administrators is necessary to avoid potential compromises to applications and data.
- **Threat & Vulnerability Management** – establishing a process to scan and harden GBE servers is necessary to prevent potential breach of information, malware and data integrity issues.
- **Penetration testing performed to identify vulnerabilities. Remediation steps identified and implemented to address vulnerabilities.**
- **Security Operation Services** – providing a comprehensive set of security services is critical to protecting against, detecting and responding to potential cyber threats as well as recovering from the impacts of cyber attacks.
 - Monitoring and logging activity to identify anomalies and trigger alerts / incidents is crucial to detecting and investigating breaches to the GBE systems and applications.
 - Full-scale testing, remediation and vulnerability scanning needs to be employed to confirm vulnerabilities have been accounted for within the GBE environment.
- **Incident Response Management** – developing and maintaining a GBE specific incident response plan and ensure periodic tests of plan through table top exercises is vital.
 - Integrating with a 24/7 Cyber Security Operations Center (CSOC) is necessary to monitor and respond to incidents that could otherwise go undetected.
 - A cloud cyber incident response plan, specific to GBE, is vital to make sure response is appropriate and timely enough to minimize potential impacts

Summary of Benefits

This investment will deliver the following benefits:

Cyber security mitigations that are aligned to support GBE work streams and identified risks.

- Security governance reviews, scalable security service capabilities, internal threat hunting and testing as well as onboarded Digital Risk & Security support for GBE.
- An overall cyber security service fully integrated, comprehensive and specific to GBE.
- GBE solutions are secure and compliant.

Specifically, the project will deliver Multi-Factor Authentication (MFA), Single Sign-On (SSO), Privilege Access Management (PAM), business resilience, threat & vulnerability, security operation and incident response management services for the following GBE critical and supporting applications:

Business and Customer Issues

Due to the complexity of the program, there could be issues that arise over the course of the program beyond what is noted.

Alternatives

Number	Title
1	Do nothing
	Rejected: Fails to provide adequate cyber security services to protect, detect and respond to cyber security threats. Fines, penalties, non-compliant reputational risk could be assigned to National Grid.

Related Projects, Scoring and Budget

Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount(\$M)
5571		Gas Business Enablement Cyber Security Enhancement	1.833
Total:			1.833

Associated Projects

Project Number	Project Title	Estimate Amount (\$M)
4975C	Multi-Factor Authentication	0.824
3683P	IAM: Role Based Access Controls	0.944
3683AQ	Cloud Access Security Broker	1.321
3683AP	IAM: Privilege Access Management	0.952
3683AR	Cloud Vulnerability Scanning	0.390
3683N	Security Information & Event Management: Phase 4 (SIEM)	1.347
		5.778

Prior Sanctioning History

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Sanction Type	Sanction Paper	Potential Investment Tolerance
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Total 0.008 1.825 0.000 0.000 0.000 0.000 0.000 1.833

Resources, Operations, & Procurement

RESOURCE SOURCING

Engineering & design Resources to be provided Internal Contractor
Construction/Implementation Resources to be provided Internal Contractor

RESOURCE DELIVERY

Availability of internal resources to delivery project: Red Amber Green
Availability of external resources to delivery project: Red Amber Green

OPERATIONAL IMPACT

Outage impact on network system Red Amber Green

PROCUREMENT IMPACT

Procurement impact on network system: Red Amber Green

Key Issues

- 1 Time availability of GBE and Cyber Security Operation resources
- 2 Compatibility of Active Directory design configurations
- 3 Security Testing (Securicon) required capabilities

Climate Change

Contribution to National Grid's 2050 80% emissions reduction target: Neutral Positive Negative
Impact on adaptability of network for future climate change: Neutral Positive Negative

List References

N/A

Safety, Environmental and Project Planning Issues

Due to the complexity of the program, there could be issues that arise over the course of the program beyond what is noted.

Permitting

N/A

Investment Recovery and Customer Impact

Investment Recovery

Recovery will occur at the time of the next rate case for any operating company receiving allocations of

these costs.

Customer Impact

N/A

Execution Risk Appraisal

Risk Breakdown Structure Category	Qualitative Assessment / Risk Response Strategy					Risk Score
	Risk ID + Title	IF Statement	THEN Statement	Risk Response Strategy		
1. Project Requirements	R1 - Comprehensive Application List	If all the priority and supporting applications are not accounted for	Then the requirements with additional applications will need to be amended	Avoid	Risk Response / Action	1
13. Project Management	R2 - Resourcing Availability	If internal necessary resources are not available during D&I	Then the project may need to be delayed	Avoid	Risk Response / Action	6
13. Project Management	R3 - Inter-project dependencies	If associated projects are delayed	Then this project will likely be delayed in order to fully realize benefits of associated projects	Share	Risk Response / Action	6
18. Specific Risk	R4 - Lack of stakeholder engagement	If GBE program is not fully engaged	Then the project may fail to delivery full benefits to GBE	Share	Risk Response / Action	2
18. Specific Risk	R5 - Incompatibility of tool selection	If tools obtained fail to support project needs	Then additional tools may need to be procured	Avoid	Risk Response / Action	3

Business Plan

<i>Business Plan Name & Period</i>	<i>Project Included in approved Business Plan?</i>	<i>(Over) / Under Business Plan</i>	<i>Project Cost relative to approved Business Plan (\$M)</i>
IT Investment Plan FY20 – 24	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> N/A	(0.975)

If Cost > Approved

if costs > approved Business Plan how will this be funded?

Reallocation of funds within the IT Business Plan has been managed to meet jurisdictional, budgetary, statutory and regulatory requirements.

Drivers

This investment is required to reduce the security risk of potential attacks and vulnerabilities due to the lack of cyber security services aligned to support GBE. Without the proper security service capabilities, GBE is at risk on multiple levels and could result in negative financial and / or reputational impacts and non-compliance.

CIAC Reimbursement

N/A

Cost Summary Table

Project Number 5571	Project Title	Gas Business Enablement Cyber Security Enhancement						Project Estimate Level	+/-10%
Spend	Prior Yrs	Yr 1 2020	Yr 2 2021	Yr 3 2022	Yr 4 2023	Yr 5 2024	Yr 6 2025	Total	
Capex	0.000	1.608	0.000	0.000	0.000	0.000	0.000	1.608	
Opex	0.008	0.217	0.000	0.000	0.000	0.000	0.000	0.225	
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Total	0.008	1.825	0.000	0.000	0.000	0.000	0.000	1.833	

Total Project Sanction

Capex	0.000	1.608	0.000	0.000	0.000	0.000	0.000	1.608
Opex	0.008	0.217	0.000	0.000	0.000	0.000	0.000	0.225
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.008	1.825	0.000	0.000	0.000	0.000	0.000	1.833

Project Costs per Business Plan

\$M	Prior Yrs	Yr 1 2020	Yr 2 2021	Yr 3 2022	Yr 4 2023	Yr 5 2024	Yr 6 2025	Total
Capex	0.000	0.585	0.000	0.000	0.000	0.000	0.000	0.585
Opex	0.008	0.265	0.000	0.000	0.000	0.000	0.000	0.273
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.008	0.850	0.000	0.000	0.000	0.000	0.000	0.858

Variance

\$M	Prior Yrs	Yr 1 2020	Yr 2 2021	Yr 3 2022	Yr 4 2023	Yr 5 2024	Yr 6 2025	Total
Capex	0.000	(1.023)	0.000	0.000	0.000	0.000	0.000	(1.023)
Opex	0.000	0.048	0.000	0.000	0.000	0.000	0.000	0.048
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Variance	0.000	(0.975)	0.000	0.000	0.000	0.000	0.000	(0.975)

Sanction Request Breakdown by Project

Project Number	Capex	Opex	Removal	Total
5571	1.608	0.225	0.000	1.833

Cost Assumptions

The accuracy level of estimate for each project is identified in the Cost Summary Table.

Net Present Value / Cost Benefit Analysis

N/A

NPV Assumptions & Calculations

N/A

Additional Impacts

N/A

Statement of Support

Department	Individual	Responsibilities
Business Department	Connolly, Christopher	Business Representative
Business Partner (BP)	Seetharam, Krishna	Relationship Manager
Program Delivery Management (PDM)	Cooper, Tammy	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	Gill, Thomas F.	Manager
Digital Risk and Security (DR&S)	Wilson, Elaine	Director
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Clinchot, Joseph J.	Director
Enterprise Portfolio Management	Cronin, Daniel	Analyst

Reviewers

Function	Individual
Regulatory	Mancinelli, Lauri A.
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Smith, Amy
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego

Decisions

- (a) APPROVE the investment of \$1.075M and a tolerance of +/-10% for Requirements and Design.
- (b) NOTED the potential investment of 1.833M and a tolerance of +/-25%%, contingent upon submittal and approval of a Project Sanction paper following completion of final engineering and design.
- (c) NOTED that DiForte, Carmella has the approved financial delegation to undertake the activities stated in (a).
- (d) Approved the run-the-business (RTB) of \$0.645M (per annum) for 5 years.

Signature D.H. Campbell
Date 7/22/19

David H. Campbell, Vice President US Treasury, USSC Chair

Appendix

Project Cost Breakdown \$ (millions)					
Cost Category	sub-category	Value of Work to Date (VOWD)	Forecast to Complete (FTC)	Forecast At Completion (FAC=VOWD+FTC)	Name of Firm(s) providing resources
Personnel	NG Resources		0.749	0.749	
	SDC Time & Materials		-	-	IBM
			-	-	WiPro
			-	-	DXC
			-	-	Verizon
	SDC Fixed-Price		-	-	IBM
			-	-	WiPro
			-	-	DXC
			-	-	Verizon
	All other personnel		0.753	0.753	
TOTAL Personnel Costs		1.502	1.502		
Hardware	Purchase		-	-	
	Lease		-	-	
Software			0.082	0.082	
Risk Margin			0.157	0.157	
AFUDC			0.040	0.040	
Other			0.051	0.051	
TOTAL Costs			1.833	1.833	

Operating Company Name	Business Area	State
Key Span Energy Delivery New York	Gas Distribution	NY
Key Span Energy Delivery Long Island	Gas Distribution	NY
Boston Gas Company	Gas Distribution	MA
Niagara Mohawk Power Corp. - Gas	Gas Distribution	NY
Narragansett Gas Company	Gas Distribution	RI
Colonial Gas Company	Gas Distribution	MA
NG LNG LP Regulated Entity	Gas Distribution	MA, NY, RI

All figures in \$ thousands	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total
	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25	
Last Sanctioned Net Impact to RTB						
Last Sanction IS Net Impact to RTB						-
Last Sanction Business Net Impact to RTB						-
Last Sanction Total Net Impact to RTB	-	-	-	-	-	-
Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB	104.0	104.0	104.0	104.0	104.0	520.0
Business Budgeted Net Impact to RTB						-
Currently Forecasted Net Impact to RTB						
IS Funded Net Impact to RTB Forecasted at Go-Live	322.0	645.2	645.2	645.2	645.2	2,902.8
Business Funded Net Impact to RTB Forecasted at Go-Live	-	-	-	-	-	-
Variance to Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB Variance	(218.0)	(541.2)	(541.2)	(541.2)	(541.2)	(2,382.8)
Business Budgeted Net Impact to RTB Variance	-	-	-	-	-	-



US Sanction Paper

Title:	Data Visualization tools - Licenses	Sanction Paper #:	
Project #:	INVP 5582 Capex S008012	Sanction Type:	Sanction
Operating Company:	National Grid USA Svc. Co.	Date of Request:	3/8/2019
Author:	Ella Weisbord	Sponsor:	John Gilbert, Head of Data Management
Utility Service:	IT	Project Manager:	Jeffrey Dailey

1 Executive Summary

1.1 Sanctioning Summary

This paper requests sanction of INVP5582 in the amount of \$0.450M with a tolerance of +/- 10% for the purposes of Full Implementation.

This sanction amount is \$0.450M broken down into:

- \$0.320M Capex*
- \$0.130M Opex*
- \$0.000M Removal*

1.2 Project Summary

This project supports the purchase of licenses for data visualization tools Tableau and Alteryx, as the trial licenses originally acquired by the data analytics team, are expiring.

1.3 Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
INVP 5582 Capex S008012		Data Visualization tools - Licenses	0.450
Total			0.450

1.4 Associated Projects

N/A

1.5 Prior Sanctioning History

N/A



US Sanction Paper

1.6 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
March 2019	Project Closure Sanction

1.7 Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory <input checked="" type="radio"/> Policy- Driven <input type="radio"/> Justified NPV <input type="radio"/> Other	This project is driven by National Grid policy to keep compliant with software agreement.

1.8 Asset Management Risk Score

Asset Management Risk Score: 47

Primary Risk Score Driver: (Policy Driven Projects Only)

- Reliability
 Environment
 Health & Safety
 Not Policy Driven

1.9 Complexity Level

- High Complexity
 Medium Complexity
 Low Complexity
 N/A

Complexity Score: _____

1.10 Process Hazard Assessment

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

- Yes
 No



US Sanction Paper

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 (\$)
IT Investment Plan FY19 - 23	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	0.450 M

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

Re-allocation of budget within the IT business has been managed to meet jurisdictional budgetary, statutory and regulatory requirements.

1.13 Current Planning Horizon

\$M	Prior Yrs	Current Planning Horizon						Total
		Yr. 1 2018/19	Yr. 2 2019/20	Yr. 3 2020/21	Yr. 4 2021/22	Yr. 5 2022/23	Yr. 6 + 2023/24	
CapEx	0.000	0.320	0.000	0.000	0.000	0.000	0.000	0.320
OpEx	0.000	0.130	0.000	0.000	0.000	0.000	0.000	0.130
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CIAC/Reimbursement	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	0.450	0.000	0.000	0.000	0.000	0.000	0.450

1.14 Key Milestones

Milestone	Target Date: (Month Year)
Start Up	November 2018
Project Sanction	February 2019
Move to Production / Last Go Live	February 2019
Project Closure	March 2019



US Sanction Paper

1.15 Resources, Operations and Procurement

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 checked="" type="checkbox"/> Contractor	
Resource Delivery			
Availability of internal resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Availability of external resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" 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			
Procurement impact on network system:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green

1.16 Key Issues (include mitigation of Red or Amber Resources)

N/A

1.17 Climate Change

Contribution to National Grid's 2050 80% emissions reduction target:	<input checked="" type="radio"/> Neutral	<input 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

N/A



US Sanction Paper

2 Decisions

The US IT Sanctioning Committee (ITSC) and Executive Sponsor have reviewed and approved this paper:

- (a) APPROVED this paper and the investment of \$0.450M and a tolerance of +/- 10% for the purposes of Licenses Purchase .
- (b) NOTE the potential run-the-business (RTB) impact of \$0.130 per annum
- (c) NOTED that Jeffrey Dailey is the Project Manager and has the approved financial delegation.

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

Premjith Singh
VP IT Tower Lead – Gas Business Partner



US Sanction Paper

3 Sanction Paper Detail

Title:	Data Visualization tools – Licenses	Sanction Paper #:	
Project #:	INVP 5582 Capex S008012	Sanction Type:	Sanction
Operating Company:	National Grid USA Svc. Co.	Date of Request:	2/27/2018
Author:	Ella Weisbord	Sponsor:	John Gilbert, Head of Data Management
Utility Service:	IT	Project Manager:	Jeffrey Dailey

3.1 *Background*

Tableau and Alteryx solutions have been introduced in National Grid in 2017 and are used across the company. Both tools allow the data analytics and visualization and were successfully used for various needs. The trial licenses, originally acquired by Data Analytics team are expiring. This investment will allow a purchase of perpetual licenses (250 Desktop Professional User licenses of Tableau and 15 licenses of Alteryx Designer) to ensure National Grid is not losing the rights to use the tools and avoid negatively impact existing production workflows and processes.

Currently, tools are used across 190 various business group for supporting various programs, such as Customer Income Eligibility Program; Call Center Personalization; Add alerts for weather, call volume and outages; Process Engineering; various dashboards; Safety Notifications; Electric Crew Productivity Metrics.

3.2 *Drivers*

The main driver of this request is to ensure uninterrupted usage of the tools and compliance with software licensing agreement.

3.3 *Project Description*

During the implementation of the project, the following will be accomplished:
- Provisioning of perpetual licenses

3.4 *Benefits Summary*

This project will deliver the following benefits:

- Ensure non-interrupted services for existing production workflows and reports
- Confirm supportability of the solution

US Sanction Paper

3.5 Business and Customer Issues

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

3.6 Alternatives

Alternative 1: Do not purchase licenses

Rejected: This no-cost alternative cannot be considered. National Grid implemented various solution using Data Visualization tools. National Grid must stay compliant with software licensing agreement.

Indicative cost: Was not assessed as the alternative was not acceptable

3.7 Safety, Environmental and Project Planning Issues

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

3.8 Execution Risk Appraisal

N/A

3.9 Permitting

N/A

3.10 Investment Recovery

3.10.1 Investment Recovery and Regulatory Implications

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

3.10.2 Customer Impact

N/A

3.10.3 CIAC / Reimbursement

N/A.

US Sanction Paper

3.11 Financial Impact to National Grid

3.11.1 Cost Summary Table

Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Current Planning Horizon						Total	
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +		
INVP5582 CAPEX S008012	Data Visualization tools - Licenses	+/- 10%	CapEx	0.000	0.320	0.000	0.000	0.000	0.000	0.000	0.000	0.320
			OpEx	0.000	0.130	0.000	0.000	0.000	0.000	0.000	0.000	0.130
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.000	0.450	0.000	0.000	0.000	0.000	0.000	0.000	0.450

3.11.2 Project Budget Summary Table

Project Costs per Business Plan

\$M	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2018/19	Yr. 2 2019/20	Yr. 3 2020/21	Yr. 4 2021/22	Yr. 5 2022/23	Yr. 6 + 2023/24	
CapEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OpEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Variance (Business Plan-Project Estimate)

\$M	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2018/19	Yr. 2 2019/20	Yr. 3 2020/21	Yr. 4 2021/22	Yr. 5 2022/23	Yr. 6 + 2023/24	
CapEx	0.000	(0.320)	0.000	0.000	0.000	0.000	0.000	(0.320)
OpEx	0.000	(0.130)	0.000	0.000	0.000	0.000	0.000	(0.130)
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	(0.450)	0.000	0.000	0.000	0.000	0.000	(0.450)

3.11.3 Cost Assumptions

N/A

3.11.4 Net Present Value / Cost Benefit Analysis

N/A

3.11.4.1 NPV Summary Table

N/A



US Sanction Paper

3.11.4.2 NPV Assumptions and Calculations

N/A

3.11.5 Additional Impacts

N/A

3.12 Statements of Support

3.12.1 Supporters

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

Department	Individual	Responsibilities
Business Department	Mark Bradley	Commercials
Business Partner (BP)	Joel Semel	Relationship Manager
Program Delivery Management (PDM)	Jeffrey Dailey	Program Delivery Director
IT Finance	Michelle Harris	Manager
IT Regulatory	Tom Gill	Manager
Digital Risk and Security (DR&S)	Elaine Wilson	Director
Service Delivery	Mark Mirizio	Manager
Enterprise Architecture	Joe Clinchot	Director

3.12.2 Reviewers

N/A



US Sanction Paper

4 Appendices

4.1 Sanction Request Breakdown by Project

N/A

4.2 Project Cost Breakdown

Project Cost Breakdown \$ (millions)					
Cost Category	sub-category	Value of Work to Date (VOWD)	Forecast to Complete (FTC)	Forecast At Completion (FAC=VOWD+FTC)	Name of Firm(s) providing resources
Personnel	NG Resources		-	-	
	SDC Time & Materials		-	-	IBM
			-	-	WiPro
			-	-	DXC
			-	-	Verizon
	SDC Fixed-Price		-	-	IBM
			-	-	WiPro
			-	-	DXC
		-	-	Verizon	
All other personnel		-	-		
TOTAL Personnel Costs		-	-	-	
Hardware	Purchase		-	-	
	Lease		-	-	
Software			0.360	0.360	
Risk Margin			-	-	
AFUDC			0.003	0.003	
Other			0.064	0.064	
TOTAL Costs		-	0.427	0.427	

US Sanction Paper**4.3 Benefiting Operating Companies**

Benefiting Operating Companies	Business Area	State
Niagara Mohawk Power Corp.- Electric Distr.	Electric Distribution	NY
Massachusetts Electric Company	Electric Distribution	MA
KeySpan Energy Delivery New York	Gas Distribution	NY
KeySpan Energy Delivery Long Island	Gas Distribution	NY
Boston Gas Company	Gas Distribution	MA
Narragansett Electric Company	Electric Distribution	RI
Niagara Mohawk Power Corp. - Transmission	Transmission	NY
Niagara Mohawk Power Corp. - Gas	Gas Distribution	NY
New England Power Company – Transmission	Transmission	MA, NH, RI, VT
KeySpan Generation LLC (PSA)	Generation	NY
Narragansett Gas Company	Gas Distribution	RI
Colonial Gas Company	Gas Distribution	MA
Narragansett Electric Company – Transmission	Transmission	RI
National Grid USA Parent	Parent Company	
Nantucket Electric Company	Electric Distribution	MA
NE Hydro - Trans Electric Co.	Inter Connector	MA,NH
KeySpan Energy Development Corporation	Non-Regulated	NY
KeySpan Port Jefferson Energy Center	Generation	NY
KeySpan Services Inc. Service Company	Service Company	
KeySpan Glenwood Energy Center	Generation	NY
Massachusetts Electric Company – Transmission	Transmission	MA
NG LNG LP Regulated Entity	Gas Distribution	MA, NY, RI
KeySpan Energy Corp. Service Company	Service Company	



US Sanction Paper

4.4 IT Ongoing Operational Costs (RTB):

This project will potentially increase IT ongoing operations support costs as per the following table. These are also known as Run the Business (RTB) costs.

all figures in \$ thousands						
INV ID:	5582				Date RTB Last Forecasted	02/11/2019
Investment Name:	Data Visualization Licenses					
Project Manager:	Frank Marullo			PDM:	Jeff Dailey	
All figures in \$ thousands	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total
	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	
Last Sanctioned Net Impact to RTB						
Last Sanction IS Net Impact to RTB						-
Last Sanction Business Net Impact to RTB						-
Last Sanction Total Net Impact to RTB	-	-	-	-	-	-
Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB						-
Business Budgeted Net Impact to RTB						-
Currently Forecasted Net Impact to RTB						
IS Funded Net Impact to RTB Forecasted at Go-Live	130.0	136.5	143.3	150.5	158.0	718.3
Business Funded Net Impact to RTB Forecasted at Go-Live	-	-	-	-	-	-
Variance to Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB Variance	(130.0)	(136.5)	(143.3)	(150.5)	(158.0)	(718.3)
Business Budgeted Net Impact to RTB Variance	-	-	-	-	-	-

4.5 NPV Summary (if applicable)

N/A

4.6 Customer Outreach Plan

N/A



Short: US Sanction Paper

Title:	ESG Migration to SFTP	Sanction Paper #:	
Project #:	INVP 5600	Sanction Type:	Sanction
Capex #:	S008039		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	7/5/2019
Author:	Rodriques, Suzanne	Sponsor:	McConnachie, Chris
Utility Service:	IT	Project Manager:	Cruz-Bower, Riziel

Executive Summary

This paper requests Sanction of INVP 5600 in the amount of \$0.436M with a tolerance of +/-10% for the purposes of Development and Implementation.

This sanction amount is \$0.436M broken down into:

- \$0.391M Capex
- \$0.045M Opex
- \$0.000M Removal

Project Summary

This project will upgrade the security protocol for file transfers with our 3rd party Electronic Data Integration (EDI) service provider, Energy Services Group (ESG), for Rhode Island Gas and Long Island Gas. The files contain information on usage, payments, drops and enrollments for the Retail Access programs.

Background

Our Energy Services Group reached out to National Grid that files were still being transferred via FTP. National Grid has required all suppliers to be on a Secure FTP. This project will close the gap so that National Grid is not at risk and on a secure FTP process for Rhode Island Gas and Long Island Gas.

Project Descriptions

Currently, RI and LI EDI file transactions are using the File Transfer Process (FTP) when exchanging PGP encrypted files with 3rd party ESCOs. It has been recommended by DR&S that all remaining 32 EDI files in RI and LI be converted to a Secure File Transfer Process Protocol (SFTP) which facilitates data access and data transfer over a Secure Shell (SSH) data stream. SFTP requires that the client user must be authenticated by the server and the data transfer must take place over a secure channel.

High Complexity Medium Complexity Low Complexity N/A

Complexity Level: 15

Reliability Environment Health & Safety Not Policy Driven

PRIMARY RISK SCORE DRIVER

Asset Management Risk Score: 49

Category
 Other
 Justified NPV
 Policy-Driven
 Mandatory
Reference to Mandate, Policy, NPV, or Other
DR&S Policy to move all file transfer protocols to
secure file transfer protocols.

Category
Next Planned Sanction
Date (Month/Year)
December, 2019
Purpose of Sanction Review
Closure

Key Milestones	Milestone	Date (Month / Year)
Start Up	Partial Sanction	April, 2019
Begin Requirements and Design	Begin Development and Implementation	April, 2019
Project Sanction	Begin Development and Implementation	June, 2019
Move to Production / Final Go Live	Project Sanction	July, 2019
Project Closure Sanction	Project Closure Sanction	September, 2019
Next Planned Sanction	Project Closure Sanction	December, 2019

This alternative was not chosen due to the fact that we need to comply with our own DR&S policy.

Alternatives	Number	Title
Do Nothing	1	

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

Business and Customer Issues

Compliance with latest DR&S standards.

Summary of Benefits

Investment Recovery and Customer Impact

Investment Recovery

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

Drivers

The primary driver is to be in compliance with DR&S policy.

Statement of Support

Department	Individual	Responsibilities
Business Department	Scannell, Lynda	Business Representative
Business Partner (BP)	Semel, Joel	Relationship Manager
Program Delivery Management (PDM)	Cruz-Bower, Riziel	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	Gill, Thomas F.	Manager
Digital Risk and Security (DR&S)	Shattuck, Peter	Manager
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Clinchot, Joseph J.	Director
Enterprise Portfolio Management	Cronin, Daniel	Analyst

Decisions

Recommendations
The Sanctioning Authority is invited to:
A) APPROVE the investment of \$0.436M including risk margin of \$0.029M
B) APPROVE the run-the-business (RTB) of \$M(per annum) for 5 years
C) NOTE that McConnachie, Chris, is the Project Sponsor
D) NOTE that Cruz-Bower, Riziel, is the Project Manager and has the approved financial delegation to deliver the project

Decision of the Sanctioning Authority
I hereby approve the recommendations made in this paper.

Signature _____
Date 08/11/19
Premjith Singh
VP IT EPMO

Appendix

Project Cost Breakdown \$ (millions)					
Cost Category	sub-category	Value of Work to Date (VOWD)	Forecast to Complete (FTC)	Forecast At Completion (FAC=VOWD+FTC)	Name of Firm(s) providing resources
Personnel	NG Resources	0.029	0.068	0.097	
	SDC Time & Materials		-	-	IBM
			-	-	WiPro
			-	-	DXC
			-	-	Verizon
	SDC Fixed-Price		-	-	IBM
			0.230	0.230	WiPro
			0.018	0.018	DXC
			-	-	Verizon
	All other personnel		0.028	0.028	
TOTAL Personnel Costs	0.029	0.344	0.373		
Hardware	Purchase		-	-	
	Lease		-	-	
Software			-	-	
Risk Margin			0.029	0.029	
AFUDC			0.004	0.004	
Other			0.031	0.031	
TOTAL Costs		0.029	0.407	0.436	

Benefiting Operating Companies

KeySpan Energy Delivery Long Island
Narragansett Gas Company

INV ID:	5600	Date RTB Last Forecasted	02/27/2019			
Investment Name:	ESG Migration to SFTP					
Project Name:	Cindy Tomeny					
Manager:	PDM: Riziel Cruz-Bower					
All figures in \$ thousands	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total
	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	
Last Sanctioned Net Impact to RTB	-	-	-	-	-	-
Last Sanction IS Net Impact to RTB	-	-	-	-	-	-
Last Sanction Business Net Impact to RTB	-	-	-	-	-	-
Last Sanction Total Net Impact to RTB	-	-	-	-	-	-
Planned/Budgeted Net Impact to RTB	-	-	-	-	-	-
IS Investment Plan Net Impact to RTB	-	-	-	-	-	-
Business Net Impact to RTB	-	-	-	-	-	-
Business Budgeted Net Impact to RTB	-	-	-	-	-	-
Currently Forecasted Net Impact to RTB	-	-	-	-	-	-
IS Funded Net Impact to RTB	-	-	-	-	-	-
Business Go-Live Forecasted at Impact to RTB	-	-	-	-	-	-
Business Funded Net Impact to RTB	-	-	-	-	-	-
Business Go-Live Forecasted at Impact to RTB	-	-	-	-	-	-
Variance to Planned/Budgeted Net Impact to RTB	-	-	-	-	-	-
IS Investment Plan Net Impact to RTB	-	-	-	-	-	-
Business Budgeted Net Impact to RTB	-	-	-	-	-	-
Business Net Impact to RTB	-	-	-	-	-	-
Business Budgeted Net Impact to RTB	-	-	-	-	-	-

THERE ARE NO RTB IMPACTS AS A RESULT OF THIS PROJECT.

Impact to RTB	-	-	-	-	-	-
Variance						

Vendor	\$ millions		
	VOWD	FTC	FAC=VOWD+FTC
IBM	0.000	0.000	0.000
WiPro	0.000	0.230	0.230
DXC	0.000	0.018	0.018
Verizon	0.000	0.000	0.000
Other	0.000	0.055	0.055
User Defined #1	0.000	0.000	0.000
User Defined #2	0.000	0.000	0.000
User Defined #3	0.000	0.000	0.000
User Defined #4	0.000	0.000	0.000
User Defined #5	0.000	0.000	0.000

NG Resources	0.029	0.068	0.097
AFUDC	0.000	0.004	0.004
Risk		0.029	0.029
Shared Overhead		0.004	0.004
Total	0.029	0.407	0.436
Variance to Proj Cost Breakdown	0.000	0.000	0.000



US Sanction Paper

Title:	Storage Capacity Purchase and Configure For Use	Sanction Paper #:	USSC-19-095
Project #:	INVP 5636 Capex: S008013	Sanction Type:	Sanction
Operating Company:	National Grid USA Svc. Co.	Date of Request:	3/13/2019
Author:	Andrew Yee	Sponsor:	Barry Sheils VP IT Infrastructure & Operations
Utility Service:	IT	Project Manager:	Ken Little

1 Executive Summary

1.1 Sanctioning Summary

This paper requests sanction of INVP 5636 in the amount of \$6.853M with a tolerance of +/- 10% for the purpose of Full Implementation.

This sanction amount is \$ 6.853M broken down into:

- \$ 6.811M Capex
- \$ 0.042M Opex
- \$ 0.000M Removal

1.2 Project Summary

The scope of the project is to purchase, install and configure for use a new SAN (Storage Area Network) infrastructure that will be hosted in the Newark DXC datacenter and the Norwich DXC datacenter. The new SAN infrastructure will be used to accommodate net new capacity requests, accommodate growth and to replace the legacy SAN infrastructure that hosts business applications and shared drives. The majority of the current legacy SAN infrastructure is at end of life (EOL) or at end of service life (EOSL) that limits the support that can be provided by the SAN hardware vendor.

The new SAN infrastructure will include 323TBe (effective capacity in Terabytes) storage that is approximately 25% of the current SAN storage footprint. The new SAN storage infrastructure is expandable allowing additional capacity to be added to meet demand. The legacy SAN infrastructure will be decommissioned as part of a separate project.

This paper requests full sanction for the purchase, installation and the configuration for use of a new SAN infrastructure.



US Sanction Paper

1.3 Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
INVP 5636 Capex: S008013		Storage Capacity Purchase and Configure For Use	6.853

1.4 Associated Projects

N/A

1.5 Prior Sanctioning History

N/A

1.6 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
January 2020	Project Closure Sanction

1.7 Category

Category	Reference to Mandate, Policy, NPV, or Other
<input type="radio"/> Mandatory <input type="radio"/> Policy- Driven <input type="radio"/> Justified NPV <input checked="" type="radio"/> Other	This project will upgrade and improve National Grid’s SAN infrastructure platform. The investment will provide capacity for growth, replacement of end of life SAN infrastructure and provide increased availability of business applications that utilize the SAN infrastructure.

1.8 Asset Management Risk Score

Asset Management Risk Score: 48

Primary Risk Score Driver: (Policy Driven Projects Only)

- Reliability
 Environment
 Health & Safety
 Not Policy Driven



US Sanction Paper

1.9 Complexity Level

High Complexity Medium Complexity Low Complexity N/A

Complexity Score: 23

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 (\$)
IT Investment Plan FY20 - 24	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	\$6.853M

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

Re-allocation of budget within the IT business has been managed to meet jurisdictional budgetary, statutory and regulatory requirements.

1.13 Current Planning Horizon

\$M	Prior Yrs	Current Planning Horizon						Total
		Yr. 1 2019/20	Yr. 2 2020/21	Yr. 3 2021/22	Yr. 4 2022/23	Yr. 5 2023/24	Yr. 6 + 2024/25	
CapEx	0.000	6.811	0.000	0.000	0.000	0.000	0.000	6.811
OpEx	0.000	0.042	0.000	0.000	0.000	0.000	0.000	0.042
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CIAC/Reimbursement	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.000	6.853	0.000	0.000	0.000	0.000	0.000	6.853



US Sanction Paper

1.14 Key Milestones

Milestone	Target Date: (Month Year)
Start Up	March 2019
Project Sanction	March 2019
Begin Requirements and Design	April 2019
Begin Development and Implementation	June 2019
Move to Production / Last Go Live	October 2019
Project Closure	January 2020

1.15 Resources, Operations and Procurement

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 checked="" type="checkbox"/> Contractor	
Resource Delivery			
Availability of internal resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" type="radio"/> Green
Availability of external resources to deliver project:	<input type="radio"/> Red	<input type="radio"/> Amber	<input checked="" 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			
Procurement impact on network system:	<input type="radio"/> Red	<input checked="" type="radio"/> Amber	<input type="radio"/> Green

1.16 Key Issues (include mitigation of Red or Amber Resources)

N/A

1.17 Climate Change

Contribution to National Grid's 2050 80% emissions reduction target:	<input checked="" type="radio"/> Neutral	<input 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



US Sanction Paper

1.18 *List References*

N/A



US Sanction Paper

2 Decisions

This paper was approved using the fast track approval process and will be noted at the next USSC meeting to be held on 3/13/2019.

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

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



US Sanction Paper

3 Sanction Paper Detail

Title:	Storage Capacity Purchase and Configure For Use	Sanction Paper #:	USSC-19-095
Project #:	INVP 5636 Capex: S008013	Sanction Type:	Sanction
Operating Company:	National Grid USA Svc. Co.	Date of Request:	3/13/2019
Author:	Andrew Yee	Sponsor:	Barry Sheils VP IT Infrastructure & Operations
Utility Service:	IT	Project Manager:	Ken Little

3.1 *Background*

The current legacy SAN infrastructure that hosts business applications and shared drives has reached end of life (EOL) and/or end of service life (EOSL) and does not allow for growth to accommodate future requests for business applications and data. The majority of the current legacy SAN infrastructure is at end of life and/or at end of service life that limits the support that can be provided by the SAN hardware vendor. The new SAN (Storage Area Network) infrastructure will provide capacity for growth, improved resiliency and availability for hosted business applications and data.

3.2 *Drivers*

- The current legacy SAN storage infrastructure has no capability to be expanded to account for future growth as the current infrastructure is near end of life or at the end of service life
- Improve the availability and resiliency of data that is stored on the SAN infrastructure
- Supports the modernization of National Grid's SAN infrastructure

3.3 *Project Description*

This paper request sanction to purchase, install and configure for use a new SAN (Storage Area Network) infrastructure that will be hosted in the Newark DXC datacenter and the Norwich DXC datacenter. The new SAN infrastructure will provide capacity for growth and high availability of hosted business applications and data.

- Document Business and Technical Requirements
- Document Key Business Issues, Pain Points and Challenges

US Sanction Paper

- Create Business Requirements Document
- Document Key Capabilities Required
- Develop Solution Design
- Develop Solution Implementation Roadmap
- Develop Financial Workbook and a Detailed Implementation Plan

3.4 Benefits Summary

- Business applications and data hosted on supported and modern SAN infrastructure
 - Upgrading the SAN infrastructure supports high availability and reduces the risk for hardware failure
 - Allows for requests for SAN storage capacity of existing hosted business applications and data
 - Allows for requests for SAN storage capacity for new business applications and data
- Improved resiliency, reliability and performance
 - Upgraded SAN infrastructure provides a robust environment for reducing outages and increasing resiliency for hosted business applications and data

3.5 Business and Customer Issues

N/A

3.6 Alternatives

Alternative 1: Defer Project/ Do Nothing

Rejected: Failure to provide the investment could result in significant impact to the business as applications fail due to insufficient storage capacity or legacy SAN components being unobtainable. This would create a state where there will be a need to delete data or applications to provide immediate capacity should the investment be delayed.

Indicative Costs: N/A

Alternative 2: Competitive Bids From Multiple Vendors

Rejected: The new SAN storage equipment will be purchased through an existing competitively bid contract with an existing IT framework partner.

Indicative Costs: N/A



US Sanction Paper

3.7 Safety, Environmental and Project Planning Issues

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

3.8 Execution Risk Appraisal

Risk Breakdown Structure Category	Qualitative Assessment / Risk Response Strategy				Risk Score
	Risk ID + Title	IF Statement	THEN Statement	Risk Response Strategy	
18. IT Vendor	R1 - Sanction	The sanction process is delayed or not completed	The project schedule will be negatively impacted	Reduce Monitor the progress of the sanction workflows and approvals. Request updates as required.	12
18. IT Vendor	R2 - Vendor	There are delays by the vendor with delivery of the equipment or the configuration of the solution	The project schedule will be negatively impacted	Reduce Monitor the progress of vendor performance and adherence to milestones. Determine what actions can be taken to minimize delays.	9
17. Project Resources	R3 - Resources	There is limited availability of National Grid resources to work on the project	The completion of project activates may be delayed	Reduce Monitor the availability of assigned resources throughout the lifecycle of the project. Engage resource managers as needed to ensure resources are assigned as needed.	4



US Sanction Paper

3.9 Permitting

N/A

3.10 Investment Recovery

3.10.1 Investment Recovery and Regulatory Implications

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

3.10.2 Customer Impact

N/A

3.10.3 CIAC / Reimbursement

N/A

3.11 Financial Impact to National Grid

3.11.1 Cost Summary Table

Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Current Planning Horizon						Total	
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +		
INVP 5636 Capex: S00	Storage Capacity Purchase and Configure For Use	Est Lvl (e.g. +/- 10%)	CapEx	0.000	6.811	0.000	0.000	0.000	0.000	0.000	0.000	6.811
			OpEx	0.000	0.042	0.000	0.000	0.000	0.000	0.000	0.000	0.042
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.000	6.853	0.000	0.000	0.000	0.000	0.000	0.000	6.853

3.11.2 Project Budget Summary Table

Project Costs Per Business Plan

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



US Sanction Paper

Variance (Business Plan-Project Estimate)

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1 2019/20	Yr. 2 2020/21	Yr. 3 2021/22	Yr. 4 2022/23	Yr. 5 2023/24	Yr. 6 + 2024/25	
\$M								
CapEx	0.000	(6.811)	0.000	0.000	0.000	0.000	0.000	(6.811)
OpEx	0.000	(0.042)	0.000	0.000	0.000	0.000	0.000	(0.042)
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	(6.853)	0.000	0.000	0.000	0.000	0.000	(6.853)

3.11.3 Cost Assumptions

N/A

3.11.4 Net Present Value / Cost Benefit Analysis

3.11.4.1 NPV Summary Table

N/A

3.11.4.2 NPV Assumptions and Calculations

N/A

3.11.5 Additional Impacts

N/A

3.12 Statements of Support

3.12.1 Supporters

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

Department	Individual	Responsibilities
Business Department	Steve Maxwell	Business Representative
Business Partner (BP)	Caitlin Davidson	Relationship Manager
Program Delivery Management (PDM)	Chris Granata	Program Delivery Director
IT Finance	Michelle Harris	Manager
IT Regulatory	Dan DeMauro	Director
Digital Risk and Security (DR&S)	Peter Shattuck	Manager
Service Delivery	Mark Mirizio	Manager
Enterprise Architecture	Svetlana Lyba	Manager



US Sanction Paper

3.12.2 Reviewers

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

Function	Individual
Regulatory	Harvey, Maria
Jurisdictional Delegate - Electric NE	Easterly, Patricia
Jurisdictional Delegate - Electric NY	Harbaugh, Mark A.
Jurisdictional Delegate - FERC	Hill, Terron
Jurisdictional Delegate - Gas NE	Currie, John
Jurisdictional Delegate - Gas NY	Wolf, Don
Procurement	Chevere, Diego

4 Appendices

4.1 Sanction Request Breakdown by Project

N/A

4.2 Project Cost Breakdown

Project Cost Breakdown \$ (millions)					
Cost Category	sub-category	Value of Work to Date (VOWD)	Forecast to Complete (FTC)	Forecast At Completion (FAC=VOWD+FTC)	Name of Firm(s) providing resources
Personnel	NG Resources		0.104	0.104	
	SDC Time & Materials		-	-	IBM
			-	-	WiPro
			-	-	DXC
			-	-	Verizon
	SDC Fixed-Price		-	-	IBM
			-	-	WiPro
			0.503	0.503	DXC
	-	-	Verizon		
	All other personnel		-	-	
	TOTAL Personnel Costs	-	0.607	0.607	
Hardware	Purchase		5.641	5.641	
	Lease		-	-	
Software			-	-	
Risk Margin			0.121	0.121	
AFUDC			0.220	0.220	
Other			0.264	0.264	
	TOTAL Costs	-	6.853	6.853	



US Sanction Paper

4.3 Benefiting Operating Companies

Operating Company Name	Business Area	State
National Grid USA Parent	Parent	
KeySpan Energy Development Corporation	Non-Regulated	NY
KeySpan Services Inc.	Service Company	
KeySpan Energy Corp.	Service Company	
KeySpan Energy Delivery New York	Gas Distribution	NY
KeySpan Energy Delivery Long Island	Gas Distribution	NY
KeySpan Generation LLC (PSA)	Generation	NY
KeySpan Glenwood Energy Center	Generation	NY
KeySpan Port Jefferson Energy Center	Generation	NY
Keyspan Energy Trading Services	Other	NY
Niagara Mohawk Power Corp.- Electric Distr.	Electric Distribution	NY
Niagara Mohawk Power Corp. - Gas	Gas Distribution	NY
Niagara Mohawk Power Corp. - Transmission	Transmission	NY
Massachusetts Electric Company	Electric Distribution	MA
Massachusetts Electric Company – Transmission	Transmission	MA
Nantucket Electric Company	Electric Distribution	MA
Boston Gas Company	Gas Distribution	MA
Colonial Gas Company	Gas Distribution	MA
Narragansett Gas Company	Gas Distribution	RI
Narragansett Electric Company	Electric Distribution	RI
Narragansett Electric Company – Transmission	Transmission	RI
New England Power Company – Transmission	Transmission	MA,NH,RI,VT
New England Hydro - Trans Corp.	Inter Connector	MA, NH
New England Electric Trans Corp	Inter Connector	MA
NG LNG LP Regulated Entity	Gas Distribution	MA,NY,RI
Trans Gas Inc.	Non-Regulated	NY



US Sanction Paper

4.4 IT Ongoing Operational Costs (RTB):

This project will increase IT ongoing operations support costs as per the following table. These are also known as Run the Business (RTB) costs.

All figures in \$ thousands	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total
	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	
Last Sanctioned Net Impact to RTB						
Last Sanction IS Net Impact to RTB						-
Last Sanction Business Net Impact to RTB						-
Last Sanction Total Net Impact to RTB	-	-	-	-	-	-
Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB						-
Business Budgeted Net Impact to RTB						-
Currently Forecasted Net Impact to RTB						
IS Funded Net Impact to RTB Forecasted at Go-Live	366.6	366.6	366.6	366.6	366.6	1,832.9
Business Funded Net Impact to RTB Forecasted at Go-Live	-	-	-	-	-	-
Variance to Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB Variance	(366.6)	(366.6)	(366.6)	(366.6)	(366.6)	(1,832.9)
Business Budgeted Net Impact to RTB Variance	-	-	-	-	-	-

4.5 NPV Summary (if applicable)

N/A

4.6 Customer Outreach Plan

N/A

4.7 Glossary

Terminology/Jargon/Abbreviation	Meaning
EOL	End Of Life
EOSL	End Of Service Life
SAN	Storage Area Network
TBe	Effective Capacity in Terabytes



Short: US Sanction Paper

Title:	Tax Exemption for NY Delivery Charges for ESCO customers	Sanction Paper #:	
Project #:	INVP 5685	Sanction Type:	Sanction
Capex #:	C083392		
Operating Company:	National Grid USA Svc. Co.	Date of Request:	5/31/2019
Author:	Patel, Tejal	Sponsor:	McConnachie, Chris Vice President, Finance Services, Financ
Utility Service:	IT	Project Manager:	Cruz-Bower, Riziel

Executive Summary

This paper requests Sanction of INVP 5685 in the amount of \$0.452M with a tolerance of +/-10% for the purposes of Full Implementation.

This sanction amount is \$0.452M broken down into:
\$0.352M Capex
\$0.100M Opex
\$0.000M Removal

Project Summary

This project will update the Customer Response Information System (CRIS) to assess and include all sales taxes on accounts with Energy Service Companies (ESCO) rates. The sales tax must be billed and included on all applicable reports and external data feeds. This will require modifications and updates to the existing billing calculations within CRIS as well as modifications and testing of downstream revenue reporting sub-systems.

Background

Per the updates to the NYS law in April 2019, the exemption for accounts with ESCO rates is expiring effective June 1, 2019. CRIS needs to be updated so that these taxes are now assessed and included on all applicable reports and external data feeds.

Project Descriptions

This project will update the CRIS system to collect sales tax on ESCO accounts. This update will need to be verified by the following impacted areas:

- The CRIS system will need to be updated to assess taxes on ESCO accounts.
- Process flows and data feeds will need to ensure that tax data flows to all the downstream data revenue sub-systems.
- Update the TSO (Time Sharing Option) bill calculation tool to reflect the new tax rules
- Update R&S(Revenue and Statistics) files to include the new tax values

Summary of Benefits



Compliance with NYS legislation

Business and Customer Issues

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

Alternatives

Number	Title
1	Do Nothing This is not viable option since National Grid would be in non compliance with a New York State Law. MCA: per month missed sales tax collection 75K to 120K starting June 1, 2019.
2	Delayed Start - Minimum Cost Alternative This bill was passed in April 2019 with an effective date of June 1, 2019. National Grid needs to be in compliance and every effort has been made to meet the tight schedule. MCA: June 75K, July 120K, August 75K, September 120K (these are estimates)

Key Milestones

Milestone	Date (Month / Year)
Start Up	May, 2019
Project Sanction	May, 2019
Begin Requirements and Design	May, 2019
Begin Development and Implementation	July, 2019
Move to Production / Final Go Live	September, 2019
Project Closure Sanction	February, 2020

Next Planned Sanction

Date (Month/Year)	Purpose of Sanction Review Closure
February, 2020	

Category

Category	Reference to Mandate, Policy, NPV, or Other
<input checked="" type="radio"/> Mandatory	New York State Assembly
<input type="radio"/> Policy-Driven	BILL NO S01509C
<input type="radio"/> Justified NPV	
<input type="radio"/> Other	

Asset Management Risk Score: 49

PRIMARY RISK SCORE DRIVER

Reliability Environment Health & Safety Not Policy Driven

Complexity Level: 18

High Complexity Medium Complexity Low Complexity N/A

Investment Recovery and Customer Impact

Investment Recovery

Recovery will occur at the time of the next rate case for any operating company receiving allocations of these costs.

Drivers

The primary driver is to be in compliance with New York State Laws.

Statement of Support		
Department	Individual	Responsibilities
Business Department	Florczyk, Charles	Business Representative
Business Partner (BP)	Semel, Joel	Relationship Manager
Program Delivery Management (PDM)	Cruz-Bower, Riziel	Program Delivery Director
IT Finance	Harris, Michelle	Manager
IT Regulatory	Gill, Thomas F.	Manager
Digital Risk and Security (DR&S)	Isenberg, Michael	Manager
Service Delivery	Mirizio, Mark	Manager
Enterprise Architecture	Clinchot, Joseph J.	Director

Decisions

Recommendations

The Sanctioning Authority is invited to:

- A) APPROVE the investment of \$0.452M including risk margin of \$0.045M
- B) APPROVE the run-the-business (RTB) of \$0M(per annum) for 5 years
- C) NOTE that McConnachie, Chris, Vice President, Finance Services, Financ is the Project Sponsor
- D) NOTE that Cruz-Bower, Riziel, is the Project Manager and has the approved financial delegation to deliver the project

Decision of the Sanctioning Authority

I hereby approve the recommendations made in this paper.

Signature  _____

Date 06/12/19
Premjith Singh
VP IT EPMO

Appendix

COST BREAKDOWN STRUCTURE:

Project Cost Breakdown \$ (millions)					
Cost Category	sub-category	Value of Work to Date (VOWD)	Forecast to Complete (FTC)	Forecast At Completion (FAC=VOWD+FTC)	Name of Firm(s) providing resources
Personnel	NG Resources		0.012	0.012	
	SDC Time & Materials		0.411	0.411	IBM
					WiPro
					DXC
					Verizon
	SDC Fixed-Price				IBM
			0.010	0.010	WiPro
					DXC
					Verizon
	All other personnel				
TOTAL Personnel Costs		0.433	0.433		
Hardware	Purchase				
	Lease				
Software					
Risk Margin			0.010	0.010	
AFUDC			0.004	0.004	
Other			0.004	0.004	
TOTAL Costs			0.452	0.452	

**BENEFITING OPERATING COMPANIES:
KEYSPAN ENERGY DELIVERY NEW YORK**

RTB TABLE:

INV ID:	INVP5685				Date RTB Last Forecasted	05/28/2019
Investment Name:	ESCO Tax Exemption Changes					
Project Manager:	Dan Luby			PDM:	Riziel Cruz-Bower	
All figures in \$ thousands	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total
	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	
Last Sanctioned Net Impact to RTB						
Last Sanction IS Net Impact to RTB						-
Last Sanction Business Net Impact to RTB						-
Last Sanction Total Net Impact to RTB	-	-	-	-	-	-
Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB						-
Business Budgeted Net Impact to RTB						-
Currently Forecasted Net Impact to RTB						
IS Funded Net Impact to RTB Forecasted at Go-Live	-	-	-	-	-	-
Business Funded Net Impact to RTB Forecasted at Go-Live	-	-	-	-	-	-
Variance to Planned/Budgeted Net Impact to RTB						
IS Investment Plan Net Impact to RTB Variance	-	-	-	-	-	-
Business Budgeted Net Impact to RTB Variance	-	-	-	-	-	-