

Division 9-5

Request:

Referring to Schedules ISP-1, ISP-2, and ISP-3, please provide the following:

- a. Detailed documentation for each project, including project authorization forms or work orders, that shows how the total investment cost of each project was calculated.
- b. Implementation timeline for each project.
- c. Confirm that all the projects listed in ISP-2 and ISP-3 are listed in ISP-1. If a project is not listed in ISP-1, please provide the documentation asked for in (a) and (b).

Response:

- a. Please see Attachment DIV 9-5-1 for a cross reference to the supporting documentation.

Per the Information Services (IS) Investment Planning process, a sanction paper or Investment Request Summary document is required for each IS investment. The Investment Request Summary document contains conceptual grade estimates along with a high level scope, benefits, and project timeline and are used to facilitate IS planning and budgeting. As projects progress in their lifecycle, a formal proposed project sanction paper describing associated costs and benefits is produced and presented to the appropriate Sanctioning Committee for consideration. Please see Attachments DIV 9-5-2 through DIV 9-5-6 for the sanction papers and Investment Request Summary documents.

In addition, there are two projects that were run independently of the IS function; thus, the typical sanction paper or Investment Request Summary document was not prepared. The M112 Systemic Improvements project was governed by the USFP Business Improvement Steering Group, which provided oversight of the project costs and deliverables. A presentation describing the project is included in the above attachments. The Physical Security project represents a number of capital improvement initiatives that follow the governance process of the National Grid Facilities department that do not require a sanction paper for projects under \$1 million. Instead, the work was approved under the Delegation of Authority process. A description of the planned work with costs estimates is included in the above attachments.

- b. Please see Attachment DIV 9-5-2 through Attachment DIV 9-5-6 for the project timelines, which are shown on the sanction papers, Investment Request Summary documents, and supporting documentation.

- c. All costs for projects listed on Schedule ISP-2 and Schedule ISP-3 are included on Schedule ISP-1. Schedule ISP-1 is a summary view of the all the IS capital costs included in this proceeding. For a mapping of the Schedule ISP-1 projects to the projects shown on Schedule ISP-2 and Schedule ISP-3, please refer to Attachment DIV 9-5-1.

Narragansett Electric  
Post Test Year Information System Investments

Project	Individual project components	Individual In-Service Date	Amount	Reference	Total Investment	In Service Date
Regulatory Mandates Placeholder	Regulatory Mandates - FY21	3/31/2021	20,000,000.00	Attachment DIV 9-5-2 2	1-4	\$61,869,000
	Regulatory Mandates - FY20	3/31/2020	20,000,000.00	Attachment DIV 9-5-2 2	1-4	
	Regulatory Mandates - FY19	3/31/2019	19,140,000.00	Attachment DIV 9-5-2 2	1-4	
	Regulatory Mandates - FY18	3/31/2018	2,729,000.00	Attachment DIV 9-5-2 2	5-15	
INVP 3932 Call Center Customer Contact Center/SDC Technology Upgrade Implement Solution				Attachment DIV 9-5-2 2	16-33	\$27,725,000
INVP 3737 US CNI GMS SCADA Upgrade & Consolidation				Attachment DIV 9-5-2 2	34-49	\$21,474,909
Technology Modernization Program	INVP 4825 DR Priority 3 Apps Remediation	12/31/2020	1,000,000.00	Attachment DIV 9-5-2 2	50-53	\$20,736,317
	INVP 4377 Data Centre Migration & Capacity Increase	3/31/2019	856,480.00	Attachment DIV 9-5-2 2	54-69	
	INVP 4676 Hix D/C Improvement Server Refresh	3/31/2018	849,682.01	Attachment DIV 9-5-2 2	70-74	
	INVP 4824 DR Priority 2 Apps Remediation	12/31/2019	750,000.00	Attachment DIV 9-5-2 2	75-78	
	INVP 4981 Cloud Orchestration, Self service and Broker	3/31/2019	750,000.00	Attachment DIV 9-5-2 2	79-82	
	INVP 4713 EMM Licenses	12/31/2018	660,000.00	Attachment DIV 9-5-2 2	83-86	
	INVP 4760 Mainframe DR Machine	3/31/2018	650,000.00	Attachment DIV 9-5-2 2	87-100	
	INVP 4714-EMM Phase2	3/31/2018	616,677.00	Attachment DIV 9-5-2 2	101-115	
	INVP 4836 Network Transformation Continuation-Substations and Security Sites	12/31/2020	600,000.00	Attachment DIV 9-5-2 2	116-119	
	INVP 4828 Hicksville Fiber	3/31/2019	600,000.00	Attachment DIV 9-5-2 2	120-123	
	INVP 4826 EMM Single Sign on	12/31/2018	600,000.00	Attachment DIV 9-5-2 2	124-127	
	INVP 4269 RAS/VPN Re-Platform/Mobile	3/31/2018	600,000.00	Attachment DIV 9-5-2 2	128-139	
	INVP 4577 Call Manager Upgrade	12/31/2017	588,997.64	Attachment DIV 9-5-2 2	140-143	
	INVP 4710 Data Security	3/31/2021	500,000.00	Attachment DIV 9-5-2 2	144-147	
	INVP 4493 Monitoring and Alerting	3/31/2020	500,000.00	Attachment DIV 9-5-2 2	148-151	
	INVP 4710 Data Security	3/31/2020	500,000.00	Attachment DIV 9-5-2 2	144-147	
	INVP 4493 Monitoring and Alerting	3/31/2019	500,000.00	Attachment DIV 9-5-2 2	148-151	
	INVP 4710 Data Security	3/31/2019	500,000.00	Attachment DIV 9-5-2 2	144-147	
	INVP 4725 MWORK and Netmotion Risk Avoidance	12/31/2018	500,000.00	Attachment DIV 9-5-2 2	152-154	
	INVP 4688 Legacy DMZ Firewalls	3/31/2018	489,170.13	Attachment DIV 9-5-2 2	155-158	
	INVP 4727 Virtual Desktop - DaaS	12/31/2019	481,250.00	Attachment DIV 9-5-2 2	159-173	
	INVP 4778 - Dev Test to Cloud	9/30/2018	464,285.71	Attachment DIV 9-5-2 2	174-177	
	INVP 4674 Log Logic	3/31/2018	435,550.07	Attachment DIV 9-5-2 2	178-181	
	INVP 4490 Application Performance Management (APM)	12/31/2020	400,000.00	Attachment DIV 9-5-2 2	182-185	
	INVP 4984 Lincoln Control Room Telephony Replacement	3/31/2020	400,000.00	Attachment DIV 9-5-2 2	186-189	
	INVP 3667 SharePoint 2007 Decommission	12/31/2019	400,000.00	Attachment DIV 9-5-3 3	1-4	
	INVP 4261 Service Now - Release 3	3/31/2018	383,000.00	Attachment DIV 9-5-3 3	5-19	
	INVP 4274 VSTIG Hardware Refresh	3/31/2018	380,762.61	Attachment DIV 9-5-3 3	20-34	
	INVP 4645 Refresh of network equipment at Verizon supported Sites (transformed sites-core infrastructure sites)	12/31/2017	364,743.66	Attachment DIV 9-5-3 3	35-38	
	INVP 4834 Network Transformation Continuation-Risk Avoidance	3/31/2020	360,000.00	Attachment DIV 9-5-3 3	39-42	
	INVP 4759 MTC and Syracuse Boardrooms & Auditoriums	3/31/2018	352,000.00	Attachment DIV 9-5-3 3	43-55	
	INVP 4835 Network Transformation Continuation-Substations	12/31/2020	350,000.00	Attachment DIV 9-5-3 3	56-59	
	INVP 4279 Citrix Infrastructure Upgrade (Xenapp and NetScaler)	3/31/2018	333,333.33	Attachment DIV 9-5-3 3	60-71	
	INVP 4270 RSA Re-platform	3/31/2018	311,111.11	Attachment DIV 9-5-3 3	72-75	
	INVP 4840 VC - MetroTech Auditorium VC	9/30/2018	300,000.00	Attachment DIV 9-5-3 3	76-79	
	INVP 4493 Monitoring and Alerting	3/31/2018	300,000.00	Attachment DIV 9-5-2 2	148-151	
	INVP 4392 PPMI	12/31/2017	264,355.00	Attachment DIV 9-5-3 3	80-94	
	INVP 4490 Application Performance Management (APM)	12/31/2018	250,000.00	Attachment DIV 9-5-2 2	182-185	
	INVP 4749 VSTIG Hardware Refresh - IDS Card Replacement	3/31/2018	244,648.76	Attachment DIV 9-5-3 3	95-108	
	INVP 4267 - WAN Bandwidth Upgrades	3/31/2018	239,583.33	Attachment DIV 9-5-3 3	109-123	
	INVP 4687 Network Tx-NB/MTC	12/31/2017	210,910.49	Attachment DIV 9-5-3 3	124-127	
	INVP 4841 VC - Syracuse A39/40	6/30/2019	200,000.00	Attachment DIV 9-5-3 3	128-131	
	INVP 3996 Mobile Application Development Platform (MADP)	3/31/2019	200,000.00	Attachment DIV 9-5-3 3	132-135	
	INVP 4284 Wireless LAN Management Tools	3/31/2019	150,000.00	Attachment DIV 9-5-3 3	136-139	
	INVP 4362 Legacy DMZ migration to vSTIG	12/31/2018	150,000.00	Attachment DIV 9-5-3 3	140-154	
	INVP 4493 Monitoring and Alerting	3/31/2021	100,000.00	Attachment DIV 9-5-2 2	148-151	
	INVP 4705 - NG Labs	3/31/2018	99,775.92	Attachment DIV 9-5-3 3	155-158	

Narragansett Electric  
Post Test Year Information System Investments

Project	Individual project components	Individual In-Service Date	Amount		Reference	Total Investment	In Service Date
Cyber 2 Program	Endpoint Scanning (Tanium)	3/31/2019	2,300,000.00	Attachment DIV 9-5-3	159-176	\$18,609,680	Multiple
	Identity & Access Management: Role Based Access Management	3/1/2020	1,650,000.00				
	Identity & Access Management: Fine Grain Access Management (Unified Platform)	3/1/2019	1,650,000.00				
	US CNI Security Enhancements Phase 1	3/1/2019	1,650,000.00				
	Cloud Security (Cloud Access Security Broker)	12/1/2017	1,460,000.00				
	Identity & Access Management: Privileged Access Management	3/1/2019	1,379,800.00				
	Data Visualization	3/1/2020	1,000,000.00				
	Removable Media Control - Full Roll out	10/1/2019	1,000,000.00				
	Vstig Scaling Upgrades	3/1/2019	1,000,000.00				
	Threat Behavior Modeling	3/1/2020	800,000.00				
	Domain Based Security Phase 1	3/1/2019	800,000.00				
	Risk Based Authentication - 2FA token alternative (Multi Factor Authentication)	3/1/2018	637,880.00				
	US CNI Intrusion Detection/Prevention Phase 1 (CNI IDS Refresh)	12/1/2018	550,000.00				
	Enterprise Centralized Patch Management	12/1/2018	500,000.00				
	Fundamentals Package	12/1/2018	500,000.00				
	Security Research Lab	3/1/2020	325,000.00				
	Develop Robust Incident Response	12/31/2017	280,000.00				
	Continuous review of Reference Security Architecture	8/1/2019	277,000.00				
	Virtualized Browser	12/1/2018	250,000.00				
	GPS Project	3/31/2021	250,000.00				
Perimeter Enhancements	10/1/2018	125,000.00					
Network Access Control	10/1/2018	125,000.00					
Internal PKI (Public Key) Infrastructure	10/1/2018	100,000.00					
Cyber 1 Program	INVP 3614D1 Ent Network Security	1/31/2018	10,283,270.81	Attachment DIV 9-5-3	177-189	\$15,826,916	Multiple
	INVP 3614B7 CNI Network Security	3/31/2018	4,168,586.67	Attachment DIV 9-5-3	190-206		
	INVP 3614E4 US CNI Security I&E	3/31/2018	1,375,058.76	Attachment DIV 9-5-3	207-213		
INVP 4914 US CNI-EMS Lifecycle Hardware and Software Upgrade				Attachment DIV 9-5-4 REDACTED	1-14	\$14,897,000	8/1/19
INVP 4307 US Win 7 Refresh Ph3				Attachment DIV 9-5-4 REDACTED	15-30	\$13,617,457	12/31/17
Regulatory Mandates	INVP 4411AB Distributed Generation Portal	11/30/2017	4,128,486.14	Attachment DIV 9-5-4 REDACTED	31-49	\$12,085,230	Multiple
	INVP 4479 US Control-Gas Electronic Bulletin Board (EBB) Upgrade	5/1/2018	3,000,000.00	Attachment DIV 9-5-4 REDACTED	50-54		
	INVP 4124 Auto Remote Net Meter	11/30/2017	2,041,744.07	Attachment DIV 9-5-4 REDACTED	55-68		
	INVP 4400 Annual HR & Payroll Mandatory Service Pack Upgrade (HRSP) - FY18	8/14/2017	1,265,000.00	Attachment DIV 9-5-4 REDACTED	69-82		
	INVP 4411D New Gas Connections	10/31/2018	860,000.00	Attachment DIV 9-5-4 REDACTED	31-49		
	INVP 4421 - New Arrearage Forgiveness Plan	2/1/2018	447,000.00	Attachment DIV 9-5-4 REDACTED	83-90		
	INVP 4411C New Electric Connections	4/30/2018	343,000.00	Attachment DIV 9-5-4 REDACTED	31-49		
INVP 4708 Business Innovation Projects 2	INVP 4708 Business Innovation Projects 2	3/31/2019	3,368,613.00	See the Response to DIV 3-43		\$11,833,333	Multiple
	INVP 4708 Business Innovation Projects 2	3/31/2020	3,973,236.00				
	INVP 4708 Business Innovation Projects 2	3/31/2021	4,491,484.00				
INVP 4728 Business Innovation Projects 3	INVP 4728 Business Innovation Projects 3	3/31/2019	3,368,613.00	See the Response to DIV 3-43		\$11,833,333	Multiple
	INVP 4728 Business Innovation Projects 3	3/31/2020	3,973,236.00				
	INVP 4728 Business Innovation Projects 3	3/31/2021	4,491,484.00				
INVP 4750 Customer Experience Transformation Tech Program				Attachment DIV 9-5-4 REDACTED	91-106	\$10,496,000	3/31/19
INVP 4398 Storms/ISched Upgrade				Attachment DIV 9-5-4 REDACTED	107-120	\$9,503,263	4/23/18
INVP 4570 US CNI Tech Services-Network Equipment Lifecycle Replacements				Attachment DIV 9-5-4 REDACTED	121-132	\$9,169,203	8/1/19
S005242 M112 Systemic Improvement				Attachment DIV 9-5-6	63-65	\$8,354,545	7/10/17
INVP 3683X7 Big Data Security Analytics Phase 1 & Phase 2	Big Data Security Analytics Phase 1	3/1/2021	4,621,552.00	Attachment DIV 9-5-3	159-176	\$8,087,716	3/1/21
	Big Data Security Analytics Phase 2	3/1/2021	3,466,164.00				
INVP 4464 Data Visualization				Attachment DIV 9-5-4 REDACTED	133-147	\$8,068,089	9/30/17
Physical Security Replacements	All Companies Physical Security Replacements - FY18	3/31/2018	3,216,653.00	Attachment DIV 9-5-6	66	\$6,955,500	Multiple
	All Companies Physical Security Replacements - FY19	3/31/2019	825,000.00				
	All Companies Physical Security Replacements - FY20	3/31/2020	835,000.00				
	All Companies Physical Security Replacements - FY21	3/31/2021	860,000.00				
	New England Companies Physical Security Replacements - FY18	3/31/2018	486,847.00				
	New England Companies Physical Security Replacements - FY19	3/31/2019	234,000.00				
	New England Companies Physical Security Replacements - FY20	3/31/2020	240,000.00				
	New England Companies Physical Security Replacements - FY21	3/31/2021	258,000.00				
INVP 4408 Doc Mgmt Systems Replacement Delivery				Attachment DIV 9-5-4 REDACTED	148-164	\$6,049,256	6/22/18
INVP 3683X13 Domain Based Security Phase 2 (Network Segregation)				Attachment DIV 9-5-3	159-176	\$6,000,000	3/1/21

Narragansett Electric  
Post Test Year Information System Investments

Project	Individual project components	Individual In-Service Date	Amount		Reference	Total Investment	In Service Date
Other fiscal plan initiatives	INVP 3956 WIFI for Fleet Services Diagnostic Laptops	11/1/2017	844,765.28	Attachment DIV 9-5-4 REDACTED	165-178	\$5,618,031	Multiple
	INVP 4467 STORMS Capital Cost Estimates	3/1/2019	776,000.00	Attachment DIV 9-5-4 REDACTED	179-182		
	INVP 3982 Substation Monitoring-DobleARMS	1/1/2018	624,000.00	Attachment DIV 9-5-4 REDACTED	183-195		
	INVP 4466 Gas Capital Investment Planning Tool	1/17/2018	572,000.00	Attachment DIV 9-5-4 REDACTED	196-199		
	INVP 4480 US Control-Gas System Operating Procedure (SOP) Upgrade	10/2/2017	542,000.00	Attachment DIV 9-5-4 REDACTED	200-213		
	INVP 4390 Plastic Fusion II	3/31/2018	456,000.00	Attachment DIV 9-5-4 REDACTED	214-226		
	INVP 4462 Computapole Enhancements to Support Inspection Types	3/1/2018	450,000.00	Attachment DIV 9-5-4 REDACTED	227-239		
	INVP 4487 Changes to ACIS for PMCC Civil Vendor Billing	7/31/2018	382,000.00	Attachment DIV 9-5-4 REDACTED	240-253		
	INVP 3986 Cascade Electric Application Upgrade Project	10/31/2017	375,000.00	Attachment DIV 9-5-4 REDACTED	254-267		
	INVP 4588 US SAP: Solution Manager Upgrade	3/31/2018	303,611.74	Attachment DIV 9-5-4 REDACTED	268-271		
	INVP 3718 New Medical System	3/31/2018	292,654.32	Attachment DIV 9-5-4 REDACTED	272-286		
INVP 4564 US SAP: Enhancement Pack 9 Upgrade				Attachment DIV 9-5-5	1-4	\$5,328,000	3/31/20
INVP 4395 US Mobile Device Refresh				Attachment DIV 9-5-5	5-18	\$4,492,944	3/31/18
INVP 4843 Virtualized Branches				Attachment DIV 9-5-5	19-22	\$3,700,000	3/31/20
INVP 4489 Active Directory Improvements				Attachment DIV 9-5-5	23-38	\$3,555,000	12/31/18
INVP 4491 ICE Replacement				Attachment DIV 9-5-5	39-55	\$3,447,722	12/31/18
INVP 4606 Data Visualization Expansion				Attachment DIV 9-5-5	56-71	\$3,435,000	6/30/19
INVP 4707 Business Innovation Projects 1				See the Response to DIV 3-43		\$3,368,613	3/31/18
INVP 4568 US CNI-EMS Lifecycle Hardware and Software Upgrade				Attachment DIV 9-5-5	72-82	\$3,144,063	8/1/19
INVP 4706 1327 Interfaces - 523 FTS, 340 RDX, 245 MQSI, 253 JCAPS, 44 PM4D, 7 VB				Attachment DIV 9-5-5	83-86	\$3,083,333	6/30/19
INVP 4348 US SAP: Infrastructure Landscape				Attachment DIV 9-5-5	87-99	\$2,999,067	3/31/18
INVP 4217 US SAP: Business Planning				Attachment DIV 9-5-5	100-113	\$2,645,000	3/31/19
INVP 4680 WAP Density deployment				Attachment DIV 9-5-5	114-117	\$2,546,133	3/31/18
INVP 3683X11 IT/OT Discovery and Implementation Phase 1				Attachment DIV 9-5-3	159-176	\$2,540,160	10/1/20
INVP 4222 Governance Risk & Compliance (GRC) Optimization/Upgrade				Attachment DIV 9-5-5	118-130	\$2,522,000	3/1/19
INVP 4562 US SAP: Business Warehouse (BW) Consolidation to HANA Enterprise Cloud (HEC)				Attachment DIV 9-5-5	131-134	\$2,366,000	3/31/19
INVP 3683X8 Enhanced DLP Gateway and Endpoint				Attachment DIV 9-5-3	159-176	\$2,238,480	3/1/21
INVP 4364 Wireless Network				Attachment DIV 9-5-5	135-141	\$2,221,820	3/31/18
INVP 4481 US MDS-Energy Accounting System (EAS) migration to Wholesale Settlement Application (WSA)				Attachment DIV 9-5-5	142-154	\$2,160,000	10/1/18
INVP 4563 US SAP: FERC on Hana (FOH)				Attachment DIV 9-5-5	155-157	\$2,115,000	3/31/19
INVP 4704Q Customer Bill Redesign				Attachment DIV 9-5-5	158-161	\$2,108,147	3/31/19
INVP 4280 US VSTIG Bandwidth Ph2				Attachment DIV 9-5-5	162-177	\$2,089,174	3/31/18
INVP 4709 Data Centre Consolidation efforts				Attachment DIV 9-5-5	178-181	\$2,000,000	3/31/19
INVP 3683X4 Security Incident Event Management Phase 4 and Phase 5	Security Incident Event Management Phase 4	3/1/2021	1,266,300.00	Attachment DIV 9-5-3	159-176	\$1,999,450	Multiple
	Security Incident Event Management Phase 5	12/1/2020	733,150.00				
INVP 3683X5 Identity & Access Management: Shared Area Access Management				Attachment DIV 9-5-3	159-176	\$1,740,000	3/1/21
INVP 4761 US Foundation Hosting Renewal				Attachment DIV 9-5-5	182-196	\$1,636,250	3/31/18
INVP 4632 US Video Conferencing upgrade for RW				Attachment DIV 9-5-5	197-200	\$1,588,097	12/31/17
INVP 4830 Migration of Oracle to Linux				Attachment DIV 9-5-5	201-204	\$1,500,000	8/1/21
INVP 4397 Ariba TLS and CI Update				Attachment DIV 9-5-5	205-211	\$1,462,275	8/28/17
INVP 4188 Aging System Stabilize				Attachment DIV 9-5-5	212-225	\$1,459,505	3/31/18
INVP 4461 Unix51 Interface Migration				Attachment DIV 9-5-5	226-240	\$1,308,051	9/30/18
INVP 4693 Enterprise Labs				Attachment DIV 9-5-6	1-15	\$1,247,083	12/31/17
INVP 4662 - Concur Licenses				Attachment DIV 9-5-6	16-30	\$1,232,000	1/31/18
INVP 4289 US Network Improvement				Attachment DIV 9-5-6	31-37	\$1,215,547	3/31/18
INVP 4837 SD-WAN Core, automation, orchestration tools and pilot sites				Attachment DIV 9-5-6	38-41	\$1,200,000	3/31/19
INVP 3486 US MDS-Itron Enterprise Edition (IEE)				Attachment DIV 9-5-6	42-56	\$1,193,859	3/31/18
INVP 3430 Mobility - (MDM) Mobile Device				Attachment DIV 9-5-6	57-62	\$1,017,693	12/31/17

Narragansett Electric  
Post Test Year Information System Investments

Project	Individual project components	Individual In-Service Date	Amount	Reference	Total Investment	In Service Date
			<i>Total Capital Investment</i>		<i>\$392,715,244</i>	
			<i>Rent Expense allocation to Narragansett Electric</i>		<i>\$17,859,814</i>	

## FY18 - Investment Request Summaries - IRSs - Mandated IS Projects FY19-21



Planning & Performance Management  
FY18 - Investment Request Summaries - IRSs: Mandated IS Projects FY19-21



nationalgrid		Investment Request Summary - IS US		FISCAL YEAR 2018						
INV ID:	4766	Project Name: <b>Mandated IS Projects FY19-21</b>								
Program:	<b>Customer &amp; Digital</b>									
Sponsor:	Anuraag Bhargava	Title: SVP Chief Information Officer								
Relationship Manager:	Aman Aneja	Title: Director, IS BRM Network Strategy								
Prog Delivery Manager:	Aman Aneja	Title: Director, IS BRM Network Strategy								
Paper Author:	Michael Olesker	Title: Lead Business Consultant								
IS Roadmap Category: Regulatory Mandates		Business Area: <b>Customer &amp; Digital</b>		Portfolio: <b>Customer &amp; Digital</b>						
<input type="checkbox"/> In-Flight Project?	Invest Classification: Medium	Category: Mandatory	Primary Policy Driver: Not Policy Driven		Region: <b>US</b>					
<input type="checkbox"/> Growth Playbook Project? <input type="checkbox"/> Shaping Our Future Project? <input type="checkbox"/> Energy Efficiency Project?										
<p><b>Project Description:</b> The context for the project with background information</p> <p>This blanket project provides a funding base and governance structure needed to respond to any regulatory mandate, regulatory audits, or compliance reporting that will occur during the course of the year in FY2019-21</p> <p>Information Systems requests funded by this project will support any regulatory mandate received across all National Grid US service territories</p> <p><b>Project Rationale:</b> Highlight business challenge, capability or process the project addresses</p> <p>Over the course of any year, Massachusetts (MA), Rhode Island (RI), New York (NY) and Federal regulators issue a number of orders that must be addressed by National Grid in a timely manner. Complying with regulatory mandates require changing National Grid business processes which cannot be implemented without key systems enhancements and re-design.</p> <p>Several orders are in process of identifying specific requirements through state collaboratives in coordination with regulatory staff.</p> <p>This blanket project provides a funding base and governance structure that allows the organization to respond effectively to demands and change requests which typically arise when there is an urgent, mandatory imperative, to meet a new requirement/order by our regulators (PSC, DPU, PUC, FERC)</p> <p><b>Project Scope:</b> Explain what is in scope and what is not in scope for the project</p> <p>The requests approved under this project represent mandatory initiatives.</p> <p>An Approval Committee, composed of leaders from IS and the Business, will oversee project prioritization for approval, based on assessment of priority and available funding. The Committee will approve or deny requests based on their assessment.</p> <p>The Approval Committee will assess requests based on their quality, urgency, regulatory attributes, and value to the company and its stakeholders.</p> <p><b>Project Dependencies:</b> Identify any core program or project dependencies, please include INVP numbers if known</p> <p>TBD</p> <p><b>Basic Project Assumptions:</b></p> <p>Projected RTB is estimated at 5% of investment value.</p>										
<b>Indicative Project Costs by Fiscal Year</b>										
(\$M)	Prior Years	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Total
CapEx			18.595	20.000	20.000					58.595
OpEx										0.000
Impact on RTB										0.000
<b>Indicative Project Costs by Delivery Phase</b>										
(\$M)	Start-up	R & D		D & I		Closure		Total		
CapEx		6.000		52.595				58.595		

## FY18 - Investment Request Summaries - IRSs - Mandated IS Projects FY19-21

OpEx									0.000
------	--	--	--	--	--	--	--	--	-------

### Project Benefits - Type I only

(\$M)	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Total
Type I - CapEx									0.000
Type I - OpEx									0.000
Revenue Generation									0.000

**Key Business Benefits:**  
Describe benefits, both financial and non-financial, and when those benefits will be delivered. Provide a clear & concise business case stating the investment drivers – why do we need to do something and why now? Explain any Regulatory considerations and how this initiative aligns with the US Business Strategy.

Compliance with regulatory orders and Mandates

### Investment Prioritization

Benefits	Impact	Weight	Score	Cost	Impact	Weight	Score
OpEx Annual Savings		10.3%	0	OpEx Cost	0.000	-24.4%	0
CapEx Annual Savings		5.1%	0	CapEx Cost	58.595	-11.2%	-1
Revenue Generation (annual)		6.2%	0	RTB Efficiency	0.000	% -22.5%	0
Financial Control	Medium	6.2%	0.186	Union/Labor Relations	Low	-9.8%	0
Soft Financial Benefits	High	3.8%	0.342	Dependencies	Medium	-10.6%	-0.318
Regulatory Impact	High	11.2%	1.008	Elastice Time Duration	Medium	-6.6%	-0.198
Process & Personal Safety	Low	19.4%	0.194	Change Management Effort	Medium	-14.9%	-0.447
Reliability	Medium	10.9%	0.327				
Customer & Community Responsiveness	High	5.3%	0.477				
Employee Satisfaction	Low	4.6%	0.046				
Mitigates a Corporate Risk / Risk of not Doing	High= 40 or more	8.9%	0.801				
Jurisdictional Engagement	High	8.2%	1				
			<b>Benefit Score: 4.12</b>				<b>Cost Score: -2.07</b>
				<b>Overall Priority Score: 2.05</b>			

### Investment Risk and Complexity

Project Risk Score:	49	Risk Score Description: Regulatory Mandates
Project Complexity Score::	23	Project Complexity Score Description:

**Key Risks Description:** Provide detail on project risks & mitigation strategy:  
Most of the requirements are subject of collaborative effort with other utilities, regulators and energy market parties.

### IS Project Dependencies

if you don't see a project in the drop-down please contact the Planning & Performance team.

IS Projects: 4766 - Mandated IS Projects FY19-21

1. Has a dependency on IS Project;

### Benefiting Operating Companies:

Check all that apply

☐ Select All Companies
☐ Clear All Companies  
☐ Select All Gas
☐ Select All Electric
☐ Select All Gen



## FY18 - Investment Request Summaries - IRSs - Mandated IS Projects FY19-21

2. Has a dependency on IS Project;	<input type="checkbox"/> National Grid USA Parent <input type="checkbox"/> KeySpan Energy Development Corporation <input type="checkbox"/> KeySpan Services Inc. <input type="checkbox"/> KeySpan Energy Corp <input checked="" type="checkbox"/> KeySpan Energy Delivery New York <input checked="" type="checkbox"/> KeySpan Energy Delivery Long Island <input checked="" type="checkbox"/> KeySpan Generation LLC (PSA) <input checked="" type="checkbox"/> KeySpan Glenwood Energy Center <input checked="" type="checkbox"/> KeySpan Port Jefferson Energy Center <input type="checkbox"/> KeySpan Energy Trading Svc LLC <input checked="" type="checkbox"/> Niagara Mohawk Power Corp- Electric Distribution <input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Gas <input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Transmission <input checked="" type="checkbox"/> Massachusetts Electric Company <input checked="" type="checkbox"/> Massachusetts Electric Company - Transmission <input checked="" type="checkbox"/> Nantucket Electric Company <input checked="" type="checkbox"/> Boston Gas Company <input checked="" type="checkbox"/> Colonial Gas Company <input checked="" type="checkbox"/> Narragansett Gas Company <input checked="" type="checkbox"/> Narragansett Electric Company <input type="checkbox"/> Narragansett Electric Company - Transmission <input checked="" type="checkbox"/> New England Power Company - Transmission <input type="checkbox"/> New England Hydro - Trans Corp <input type="checkbox"/> New England Electric Trans Corp <input type="checkbox"/> NG LNG LP Regulated Entity																
3. Has a dependency on IS Project;																	
4. Has a dependency on IS Project;																	
5. Has a dependency on IS Project;																	
6. Has a dependency on IS Project;																	
<b>Business Initiative Dependencies</b> IS Projects: 4766 - Mandated IS Projects FY19-21 1. Has a dependency on Biz Initiative, 2. Has a dependency on Biz Initiative, 3. Has a dependency on Biz Initiative, 4. Has a dependency on Biz Initiative,																	
<b>Project Relationships</b> <input type="checkbox"/> Minor Works Project Relationship: Related Projects:																	
<b>Enabling IS Capabilities</b> check all that apply <input type="checkbox"/> Enterprise Content Management (ECM) <input type="checkbox"/> Enterprise Mobility <input type="checkbox"/> Comprehensive Integration Services (CIS) <input type="checkbox"/> Reporting and Analytics <input type="checkbox"/> Hybrid Cloud <input type="checkbox"/> Networks <input type="checkbox"/> Next Gen Workplace																	
<b>Key Milestone Dates:</b> Select the 1st, 15th or last day of the month <table border="1"> <thead> <tr> <th>Begin Start-up</th> <th>Begin Requirements &amp; Deign</th> <th>Begin Development &amp; Implementation</th> <th>Begin User Acceptance Testing</th> <th>Go Live</th> <th>Project Completion</th> <th>Project Closure</th> </tr> </thead> <tbody> <tr> <td>March, 2018</td> <td>April, 2018</td> <td>July, 2018</td> <td>October, 2020</td> <td>March, 2021</td> <td>March, 2021</td> <td>July, 2021</td> </tr> </tbody> </table>		Begin Start-up	Begin Requirements & Deign	Begin Development & Implementation	Begin User Acceptance Testing	Go Live	Project Completion	Project Closure	March, 2018	April, 2018	July, 2018	October, 2020	March, 2021	March, 2021	July, 2021		
Begin Start-up	Begin Requirements & Deign	Begin Development & Implementation	Begin User Acceptance Testing	Go Live	Project Completion	Project Closure											
March, 2018	April, 2018	July, 2018	October, 2020	March, 2021	March, 2021	July, 2021											
<b>Business Resource Estimates: # of Full Time Equivalents</b> <table border="1"> <thead> <tr> <th>Start-up</th> <th>Requirements &amp; Deign</th> <th>Develop &amp; Implement</th> <th>Business Resources UAT</th> <th>Go Live Readiness</th> <th>Post Go Live Support</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>5</td> <td>5</td> <td>5</td> <td>5</td> <td>5</td> </tr> </tbody> </table>		Start-up	Requirements & Deign	Develop & Implement	Business Resources UAT	Go Live Readiness	Post Go Live Support	5	5	5	5	5	5				
Start-up	Requirements & Deign	Develop & Implement	Business Resources UAT	Go Live Readiness	Post Go Live Support												
5	5	5	5	5	5												
<b>Resourcing Strategy:</b> Project will be sourced using Solution Delivery Center (SDC) and National Grid IS resources.																	
<b>Attached Supporting Documents</b>																	
<b>Recommendation Sign-off</b> <table border="1"> <thead> <tr> <th>Role</th> <th>Name</th> <th>Title</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>Business Project Sponsor</td> <td>Anuraag Bhargava</td> <td>SVP Chief Information Officer</td> <td></td> </tr> <tr> <td>Business Relationship Manager</td> <td>Aman Aneja</td> <td>IS Business Relationship Manager</td> <td></td> </tr> <tr> <td>IS Program Delivery Manager</td> <td>Aman Aneja</td> <td>IS Program Delivery Manager</td> <td></td> </tr> </tbody> </table>		Role	Name	Title	Date	Business Project Sponsor	Anuraag Bhargava	SVP Chief Information Officer		Business Relationship Manager	Aman Aneja	IS Business Relationship Manager		IS Program Delivery Manager	Aman Aneja	IS Program Delivery Manager	
Role	Name	Title	Date														
Business Project Sponsor	Anuraag Bhargava	SVP Chief Information Officer															
Business Relationship Manager	Aman Aneja	IS Business Relationship Manager															
IS Program Delivery Manager	Aman Aneja	IS Program Delivery Manager															

## FY18 - Investment Request Summaries - IRSs - Mandated IS Projects FY19-21

---

**US Sanction Paper**

<b>Title:</b>	Mandated IS Projects FY18	<b>Sanction Paper #:</b>	USSC-17-230
<b>Project #:</b>	INVP 4470	<b>Sanction Type:</b>	Sanction
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	June 14, 2017
<b>Author:</b>	Michael Olesker	<b>Sponsor:</b>	Anuraag Bhargava, SVP Chief Information Officer
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Aman Aneja

**1 Executive Summary**

**1.1 Sanctioning Summary**

This paper requests sanction of INVP 4470 in the amount \$8.859M with a tolerance of +/- 10% for the purposes of Full implementation.

This sanction amount is \$8.859M broken down into:

\$7.296M Capex  
\$1.563M Opex  
\$0.000M Removal

**1.2 Project Summary**

This blanket project provides a funding base and governance structure needed to respond to any regulatory mandate, regulatory audits, or compliance reporting that will occur during the course of the year in FY2018 in any of the National Grid US service territories.

**1.3 Summary of Projects**

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
4470		Mandated IS Projects FY18	8.859
<b>Total</b>			8.859

**1.4 Associated Projects**

N/A

**US Sanction Paper**

**1.5 Prior Sanctioning History**

N/A

**1.6 Next Planned Sanction Review**

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

**1.7 Category**

Category	Reference to Mandate, Policy, NPV, or Other
<input checked="" type="radio"/> Mandatory <input type="radio"/> Policy- Driven <input type="radio"/> Justified NPV <input type="radio"/> Other	This investment will support US regulatory mandates.

**1.8 Asset Management Risk Score**

Asset Management Risk Score: 49

**Primary Risk Score Driver:** (Policy Driven Projects Only)

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

**1.9 Complexity Level**

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

Complexity Score: N/A

## US Sanction Paper

### 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 (\$)
IS Investment Plan FY18 - 22	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input type="radio"/> Under <input checked="" type="radio"/> NA	\$0.000M

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

N/A

### 1.13 Current Planning Horizon

\$M	Prior Yrs	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	
CapEx	0.000	7.296	0.000	0.000	0.000	0.000	0.000	7.296
OpEx	0.000	1.563	0.000	0.000	0.000	0.000	0.000	1.563
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	8.859	0.000	0.000	0.000	0.000	0.000	8.859

### 1.14 Key Milestones

Milestone	Target Date: (Month/Year)
Start Up	Apr 2017
Begin Requirements and Design	May 2017
Full Sanction	Jun 2017
Begin Development and Implementation	Jun 2017
Move to Production / Last Go Live	Mar 2018
Project Complete	Mar 2018
Closure Sanction	Jun 2018

## US Sanction Paper

### 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 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)

1	Will be evaluated individually for each item funded by this project.
---	--

### 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 Sanctioning Committee (USSC) at a meeting held on June 14, 2017:

- (a) APPROVED this paper and the investment of \$8.859M and a tolerance of +/-10%.
- (b) NOTED that Aman Aneja is the Project Manager and has the approved financial delegation.

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

Christopher Kelly  
Senior Vice President, Electric Process and Engineering

## **US Sanction Paper**

### **3 Sanction Paper Detail**

<b>Title:</b>	Mandated IS Projects FY18	<b>Sanction Paper #:</b>	USSC-17-230
<b>Project #:</b>	INVP 4470	<b>Sanction Type:</b>	Sanction
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	June 14, 2017
<b>Author:</b>	Michael Olesker	<b>Sponsor:</b>	Anuraag Bhargava, SVP Chief Information Officer
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Aman Aneja

#### **3.1 *Background***

Over the course of any year, Massachusetts (MA), Rhode Island (RI), New York (NY) and Federal regulators issue a number of orders that must be addressed by National Grid in a timely manner. Complying with regulatory mandates requires changing National Grid business processes which cannot be implemented without key systems enhancements and re-design.

This blanket project provides a funding base and governance structure that allows the organization to respond effectively to demands and change requests that arise when there is a mandate to meet a new requirement/order by our regulators (DPU, PUC, PSC, FERC)

#### **3.2 *Drivers***

This project will fund FY2018 investments in information systems to assure National Grid systems compliance with Regulatory Mandates.

#### **3.3 *Project Description***

The requests approved under this project represent mandatory initiatives.

An Approval Committee, composed of leaders from IS and the Business, will oversee project prioritization for approval, based on assessment of priority and available funding.



## ***US Sanction Paper***

The Approval Committee will assess requests based on their quality, urgency, and regulatory attributes. The Committee will approve or deny requests based on their assessment.

Requests exceeding \$30K or resulting in any incremental Run the Business (RTB) cost will be required to follow the IS project governance path (i.e. they will require their own investment proposal and associated approvals).

### ***3.4 Benefits Summary***

The requests worked under this project are expected to contribute to National Grid's compliance with regulatory mandates.

### ***3.5 Business and Customer Issues***

In order to develop/deliver the most effective solutions possible, there will be instances in which IS will draw upon business area Subject Matter Experts (SME's).

### ***3.6 Alternatives***

#### **Alternative 1: Do Nothing or Defer the Project**

This is not a viable option because this course of action would mean that mandated projects would require additional time for startup. The Business would lose the ability to implement important requests efficiently, which would result in increased risk of missing regulatory deadlines.

### ***3.7 Safety, Environmental and Project Planning Issues***

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

## **US Sanction Paper**

### **3.8 Execution Risk Appraisal**

Number	Detailed Description of Risk / Opportunity	Probability	Impact		Score		Strategy	Pre-Trigger Mitigation Plan	Residual Risk	Post Trigger Mitigation Plan
			Cost	Schedule	Cost	Schedule				
1	Resources with the appropriate skills may not be available in a timely fashion.	2	2	2	4	4	Mitigate	The Project Manager will determine a means of handling such occurrences.	Will be determined after discussions with the business.	Will be determined after discussions with the business.

### **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

					Current Planning Horizon						
Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
					2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	
4470	Mandated IS Projects FY18	Est Lvl (+/- 10%)	CapEx	0.000	7.296	0.000	0.000	0.000	0.000	0.000	7.296
			OpEx	0.000	1.563	0.000	0.000	0.000	0.000	1.563	
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
			Total	0.000	8.859	0.000	0.000	0.000	0.000	8.859	
Total Project Sanction			CapEx	0.000	7.296	0.000	0.000	0.000	0.000	0.000	7.296
			OpEx	0.000	1.563	0.000	0.000	0.000	0.000	0.000	1.563
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
			Total	0.000	8.859	0.000	0.000	0.000	0.000	8.859	

#### 3.11.2 Project Budget Summary Table

##### Project Costs Per Business Plan

	Prior Yrs	Current Planning Horizon						
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
\$M	(Actual)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	
CapEx	0.000	7.296	0.000	0.000	0.000	0.000	0.000	7.296
OpEx	0.000	1.563	0.000	0.000	0.000	0.000	0.000	1.563
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	8.859	0.000	0.000	0.000	0.000	0.000	8.859

##### Variance (Business Plan-Project Estimate)

	Prior Yrs	Current Planning Horizon						
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
\$M	(Actual)	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	
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

This estimate was developed in 2017 in line with historical annual spent for similar system changes in response to regulatory mandates.

## **US Sanction Paper**

### **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.

<b>Role</b>	<b>Individual</b>
Business Executive Sponsor	Aman Aneja
Head of PDM	Deborah Rollins
Relationship Manager	Aman Aneja
Program Delivery Manager	Aman Aneja
IS Finance Management	Chip Benson
IS Regulatory	Daniel DeMauro
DR&S	Elaine Wilson
Service Delivery	Brian Detota
Enterprise Architecture	Joe Clinchot

### **3.12.2 Reviewers**

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

<b>Function</b>	<b>Individual</b>	<b>Area</b>
Regulatory	Harvey, Maria	IS
Jurisdictional Delegate(s)	Harbaugh, Mark	Electric - NY
	Anand, Sonny	Electric - NE
	Hill, Terron	FERC
	Brown, Laurie	Gas - NY
	Currie, John	Gas - NE
Procurement	Curran, Art	All

## **US Sanction Paper**

### **4 Appendices**

#### **4.1 *Sanction Request Breakdown by Project***

N/A

#### **4.2 *Other Appendices***

##### **4.2.1 *Benefiting Operating Companies***

<b>Operating Company Name</b>	<b>Business Area</b>	<b>State</b>
Niagara Mohawk Power Corp - Electric	Electric Distribution	NY
Niagara Mohawk Power Corp – Gas	Gas Distribution	NY
Niagara Mohawk Power Corp. - Transmission	Transmission	NY
Massachusetts Electric Company	Electric Distribution	MA
Nantucket Electric Company	Electric Distribution	MA
New England Power Company – Transmission	Transmission	MA, NH, RI, VT
Narragansett Gas Company	Gas Distribution	RI
Narragansett Electric Company	Electric Distribution	RI
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
Boston Gas Company	Gas Distribution	MA
Colonial Gas Company	Gas Distribution	MA

NOTE: This list of companies represents G-098 allocation for All Retail, incl GSE and Energy North, plus NMPC-T, NEP-T, KS Generation, GW, Port Jefferson.

##### **4.2.2 *IS Ongoing Operational Costs (RTB)***

RTB needs will be defined by each individual initiative funded by this blanket project. The source of RTB funding will be determined and approved as a part of each initiative sanction process.

**US Sanction Paper**

<b>Title:</b>	Customer Contact Center / SDC Technology Upgrade Implement Solution	<b>Sanction Paper #:</b>	USSC-16-244 V2
<b>Project #:</b>	INVP 3932 Capex: S007442	<b>Sanction Type:</b>	Sanction
<b>Operating Company:</b>	Allocated	<b>Date of Request:</b>	February 27, 2017
<b>Author:</b>	Michael Soule	<b>Sponsor:</b>	Terry Sobolewski, Chief Customer Officer
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Jeffrey Dailey

**1 Executive Summary**

**1.1 Sanctioning Summary**

This paper requests a sanction of INVP 3932 in the amount \$30.382M with a tolerance of +/- 10% for the purposes of Development and Implementation.

*This sanction amount is \$30.382M broken down into:*

*\$28.905M CapEx*

*\$1.477M OpEx*

**1.2 Project Summary**

The U.S. Customer Contact Centers and Service Delivery Center (SDC) are currently operating on core technologies that are no longer supported by their respective vendor and third party vendors are in place to manage the day to day support. While there may be vendor support, the ability to triage all issues is not possible, as any previously undiagnosed issue would not be able to be resolved and many components of our infrastructure no longer have replacement parts available to purchase, as they have been discontinued by the manufacturer. This represents significant risk to the business in the areas of call handling, call recording, and the issuance of Regulatory penalties for non-compliance. National Grid also has multiple vendors supporting the technology and is seeking to consolidate support to one vendor with this project. This project will facilitate the replacement and consolidation of these critical systems to support the reliability of key communication channels between National Grid, our customers, and our employees.

Upgrading the following technologies will enable the company to minimize the risk of outages and allows the opportunity for more customers to access the system through the automated system. These technologies include:

- Automatic Call Distribution system (ACD)
- Interactive Voice Response (IVR)



## US Sanction Paper

- Computer Telephony Integration (CTI)
- Call Center Workforce Management (WFM)
- Call Recording/ Quality Monitoring

The following steps will be completed during this phase of the project:

- Vendor contract negotiations
- Detailed Requirements & Design – Discovery phase
- Development
- Testing
- Phased Implementation

### 1.3 Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
3932	Project Type	Customer Contact Center / SDC Technology Upgrade Implement Solution	30.382
<b>Total</b>			30.382

### 1.4 Associated Projects

Project Number	Project Title	Estimate Amount (\$M)
2204F	Customer Contact Center / SDC Technology Upgrade Analysis	0.959
<b>Total</b>		0.959

## **US Sanction Paper**

### **1.5 Prior Sanctioning History**

<b>Date</b>	<b>Governance Body</b>	<b>Sanctioned Amount</b>	<b>Potential Project Investment</b>	<b>Paper Title</b>	<b>Sanction Type</b>	<b>Tolerance</b>
Aug 2016	USSC	\$0.667M	\$14.607M	INVP 3932 Customer Contact Center / SDC Technology Upgrade Implement Solution	Partial Sanction	+/-25%

The potential project investment has increased since the prior partial sanction in the amount of \$15.775M. This increase can be attributed to the following drivers:

- Potential Investment listed in prior sanction paper referenced Budget dollars vs. original estimate of \$21.7M over a 3 year planning horizon
- Scope of the RFP was expanded to include the ability to support long term Customer Experience Transformation priorities
- Estimates have been updated based on vendor proposed solution to meet National Grid's detailed requirements. Limited market data was available when the original estimate was developed
- Current pricing includes a purchase license option to support our ability to move to another sourcing model/platform, while leveraging our existing investment, at the end of the contract period at the discretion of National Grid.

### **1.6 Next Planned Sanction Review**

N/A



## US Sanction Paper

### 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	By replacing the Call Center platform with supported and replaceable hardware and software, we will be positioned to improve the effectiveness of customer call response and reduce the risk of noncompliance with regulatory standards.

### 1.8 Asset Management Risk Score

Asset Management Risk Score: 46

**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 (\$)
IS Investment Plan FY 18-22	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input type="radio"/> Under <input checked="" type="radio"/> NA	\$0.0M

### 1.12 If cost is not aligned with approved Business Plan how will this be funded?

Re-allocations of funds within the US business has been managed to meet jurisdictional budgetary, statutory and regulatory requirements. Future fiscal year forecasts will be addressed in future year business plans.

### 1.13 Current Planning Horizon

\$M	Prior Yrs	Current Planning Horizon						Total
		Yr. 1 2016/17	Yr. 2 2017/18	Yr. 3 2018/19	Yr. 4 2019/20	Yr. 5 2020/21	Yr. 6 + 2021/22	
CapEx	0.000	10.856	14.530	3.519	0.000	0.000	0.000	28.905
OpEx	0.000	0.369	0.562	0.547	0.000	0.000	0.000	1.477
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	11.225	15.092	4.066	0.000	0.000	0.000	30.382

## US Sanction Paper

### 1.14 Key Milestones

Milestone	Target Date: (Month/Year)
Start Up	Jun 2016
Partial Sanction	Aug 2016
Begin Requirements and Design	Aug 2016
Full Sanction	Feb 2017
Begin Detail Design / Development	Mar 2017
Phased Implementation	Aug 2017
Move to Production / Last Go Live	Sep 2018
Project Complete	Oct 2018
Project Closure Sanction	Oct 2018

### 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 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



**US Sanction Paper**

**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 Senior Executive Sanctioning Committee (SESC) at a meeting held on February 27, 2017:

- (a) APPROVED this paper and the investment of \$30.382M and a tolerance of +/- 10%.
- (b) APPROVED the RTB Impact of \$0.646M (per annum) for 5 years.
- (c) NOTED that Jeffrey Dailey has the approved financial delegation.

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

Margaret Smyth  
US Chief Financial Officer  
Chair, US Sanctioning Committee

## **US Sanction Paper**

### **3 Sanction Paper Detail**

<b>Title:</b>	Customer Contact Center / SDC Technology Upgrade Implement Solution	<b>Sanction Paper #:</b>	USSC-16-244 V2
<b>Project #:</b>	INVP3932 Capex: S007442	<b>Sanction Type:</b>	Sanction
<b>Operating Company:</b>	Allocated	<b>Date of Request:</b>	February 27, 2017
<b>Author:</b>	Michael Soule	<b>Sponsor:</b>	Terry Sobolewski, Chief Customer Officer
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Jeffrey Dailey

#### **3.1 Background**

National Grid's U.S. Contact Center handles approximately 65,000 calls per day. The U.S. Customer Contact Centers and Service Delivery Center (SDC) are currently operating on core technologies that are no longer supported by their respective vendor and National Grid has third party vendors in place to manage the day to day support. This project will facilitate the replacement and consolidation of these critical systems to support the reliability of key communication channels between National Grid, our customers, and our employees. Core systems to be replaced include: Automatic Call Distribution system (ACD); Interactive Voice Response (IVR); Computer Telephony Integration (CTI); Call Center Workforce Management (WFM); and Call Recording/Quality Monitoring.

This initiative will leverage the market analysis, business requirements gathering, and Request for Proposal (RFP) development work completed under INVP2204F — Contact Center / Service Delivery Center Technology Upgrade Analysis.

Our systems are comprised of components that are very difficult to procure. The servers that support the CTI between the Customer Related Information System (CRIS) IVR and the telephone system are difficult to procure, due to no longer being supported by the vendor. The parts that make up the system are no longer manufactured by the vendor or available in the market, as the vendor discontinued manufacturing many years ago. Any failure would impair operational control between the phone system and IVR.

There is a high risk of the loss of the IVR resulting in increased risk to the business in the form of lost calls, lost call recordings, cost of manual processes, and regulatory penalties for non-compliance.

## ***US Sanction Paper***

### **3.2 Drivers**

The primary driver of this project is reliability of the critical systems that support our connections to customers and employees through our Call Centers. The majority of the hardware and software in our matrix is no longer cared for by their core suppliers, as the versions we have in our environment are no longer manufactured or supported. Should a break occur, we would not be in a position to source replacement parts or fix previously undiagnosed application issues. A failure that prolongs our ability to come back online may result in failure to respond to customer communications and create a potential for regulatory/legal concern.

National Grid has regulatory requirements for each of its jurisdictions to meet certain customer communication based SLAs, such as call wait time, along with being required to record and store all calls for an extended period of time. If we were to experience a period of time where we were unable to record 100 percent of calls and retain calls for an extended period of time, then we could face penalties. If the Interactive Voice Response (IVR) malfunctioned, it would also increase the bandwidth required for the call recording system and we may not be able to support that increase in such an event.

The key technologies at risk in our environment are the IVR, phone switch/private branch exchange (PBX), and call recording systems. The IVR is used to place callers with the appropriate personnel so that our internal representatives do not have an influx of calls that they are unprepared for. There is a risk that the servers, in their current state, would be unable to handle the increased call volume and would experience a failure.

Due to the increased call volume, overtime for the representatives would be needed to help with the calls. Incremental representative support would take a minimum of 8 weeks to staff. Even if we were to hire new representatives, we do not have the space at our facilities to seat the necessary incremental staff. A failure could result in penalties, if customers are unable to contact National Grid and we are unable to meet our Service Level Agreement (SLA) response times.

The IVR also helps to route emergency related calls. An issue with the middleware connecting the IVR and web services has recently been identified where customers calling to report emergency outages are experiencing delays when being transferred to Dispatch. This results in a risk of not being able to respond to gas emergencies on time.

## **US Sanction Paper**

### **3.3 Project Description**

This project will replace applications and technology that provide communication capabilities to our customers and employees. Activities will focus on the core technologies currently being utilized by the U.S. Customer Contact Centers. Other business units, such as the SDC, Dispatch, Accounts Processing, and Collections, are being included in the scope of this initiative, since they share key technology components. Some of the technologies that will be replaced with upgraded offerings and transitioned to a single vendor support model include: Automatic Call Distribution system (ACD); Interactive Voice Response (IVR); Computer Telephony Integration (CTI); Call Center Workforce Management (WFM); and Call Recording. The specific deliverables from this phase of the project will include:

- Vendor contract negotiations
- Requirement analysis and documentation – Discovery phase
- Development
- Testing
- Implementation / Move to Production

A phased approach will be used for the implementation of this program.

### **3.4 Benefits Summary**

- Replacement of the infrastructure will consolidate the technology to a one vendor support model, which is proven by National Grid's experience with IS vendor relationships to reduce overall response time for operational issues
- Assist in meeting regulatory requirements for customer call interaction SLAs and call recording obligations by replacing our current capabilities with vendor supported hardware and software
- Scalability to leverage platforms and infrastructure across National Grid Call Center, SDC, and Dispatch environments
- Improve IVR success rates from 33% to 38%+, reducing call volume
- Improved customer satisfaction with IVR by 2pp-10pp
- Risk Mitigation
  - Combined, our IVRs handle about 6.1M customers annually and take in over \$375M in revenue

### **3.5 Business and Customer Issues**

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



## **US Sanction Paper**

### **3.6 Alternatives**

#### **Alternative 1: Do Nothing/Defer**

This option is not recommended. The current systems are facing outage time that could impact our ability to communicate effectively with customers and meet our regulatory obligations. The systems are only supported with day to day third party vendor support and many components of the technology matrix are no longer manufactured, which would result in significant down time should a serious issue occur. Should a break occur, there is also a risk to our ability to manage customer calls, maintain and produce call recordings, and manage call traffic through our IVR systems.

### **3.7 Safety, Environmental and Project Planning Issues**

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

### **3.8 Execution Risk Appraisal**

Number	Detailed Description of Risk / Opportunity	Probability	Impact		Score		Strategy	Pre-Trigger Mitigation Plan	Residual Risk	Post Trigger Mitigation Plan
			Cost	Schedule	Cost	Schedule				
1	There are existing technologies that are out of support or soon to be out of support. Delays in schedule will increase our exposure to potential failures.	3	2	4	6	12	Mitigate	Work in conjunction with selected supplier to develop an aggressive but realistic deployment schedule.	None	Work with existing providers to extend support, or look to 3rd party providers to maintain, as new technologies are implemented.

### **3.9 Permitting**

N/A

## US Sanction Paper

### 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

					Current Planning Horizon						
Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
					2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	
3932	Customer Contact Center / SDC Technology Upgrade Implement Solution	Est Lvl (e.g. +/- 10%)	CapEx	0.000	10.856	14.530	3.519	0.000	0.000	0.000	28.905
			OpEx	0.000	0.369	0.562	0.547	0.000	0.000	0.000	1.477
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.000	11.225	15.092	4.066	0.000	0.000	0.000	30.382
Total Project Sanction			CapEx	0.000	10.856	14.530	3.519	0.000	0.000	0.000	28.905
			OpEx	0.000	0.369	0.562	0.547	0.000	0.000	0.000	1.477
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.000	11.225	15.092	4.066	0.000	0.000	0.000	30.382

## US Sanction Paper

### 3.11.2

#### 3.11.3 Project Budget Summary Table

##### Project Costs per Business Plan

		Current Planning Horizon						
		Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +
	\$M	(Actual)	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
CapEx		0.000	1.403	14.530	3.519	0.000	0.000	0.000
OpEx		0.000	0.888	0.562	0.547	0.000	0.000	0.000
Removal		0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan		0.000	2.291	15.092	4.066	0.000	0.000	0.000
								Total
								19.452
								1.996
								0.000
								21.448

##### Variance (Business Plan-Project Estimate)

		Current Planning Horizon						
		Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +
	\$M	(Actual)	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
CapEx		0.000	(9.453)	0.000	0.000	0.000	0.000	0.000
OpEx		0.000	0.519	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
Total Cost in Bus. Plan		0.000	(8.934)	0.000	0.000	0.000	0.000	0.000
								Total
								(9.453)
								0.519
								0.000
								(8.934)

#### 3.11.4 Cost Assumptions

This estimate was developed in 2016 using the standard IS estimating methodology. The accuracy level of estimate for each project is identified in table 3.11.1.

#### 3.11.5 Net Present Value / Cost Benefit Analysis

##### 3.11.5.1 NPV Summary Table

This is not an NPV project.

##### 3.11.5.2 NPV Assumptions and Calculations

#### 3.11.6 Additional Impacts

None

## **US Sanction Paper**

### **3.12 Statements of Support**

#### **3.12.1 Supporters**

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

Role	Individual's Name
Business Executive Sponsor	Terry Sobolewski
Head of PDM	Deborah Rollins
Relationship Manager	Aman Aneja
IS Finance Management	Chip Benson
IS Regulatory	Dan DeMauro
DR&S	Elaine Wilson
Service Delivery	Brian Detota
Enterprise Architecture	Joe Clinchot

#### **3.12.2 Reviewers**

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

Function	Individual	Area
Regulatory	Zschokke, Peter	All
Jurisdictional Delegate(s)	Patterson, Jim	New England- Electric
	Harbaugh, Mark	New York- Electric
	Hill, Terron	FERC
	Brown, Laurie	Gas - NY
	Currie, John	Gas - NE
Procurement	Curran, Art	All

## **4 Appendices**

### **4.1 Sanction Request Breakdown by Project**

N/A

**US Sanction Paper**

**4.2 Other Appendices**

**4.2.1 Project Cost Breakdown**

Project Cost Breakdown			
Cost Category	sub-category	\$ (millions)	Name of Firm(s) providing
<b>Personnel</b>	NG Resources	1.881	
	SDC Time & Materials	0.102	
	SDC Fixed-Price	-	
	All other personnel	0.738	
	<b>TOTAL Personnel Costs</b>	2.720	
<b>Hardware</b>	Purchase	0.085	
	Lease	-	
<b>Software</b>		9.438	
<b>Risk Margin</b>		2.310	
<b>Other</b>		15.829	
<b>TOTAL Costs</b>		30.382	



## US Sanction Paper

### 4.2.2 Benefiting Operating Companies

This project will deliver technology utilized by US Retail operating companies that directly interface with our customers. Project costs will be allocated based on customer counts within each Operating Company.

**Benefiting Operating Companies Table:**

Operating Company Name	Business Area	State
KeySpan Energy Delivery New York	Gas Retail	NY
KeySpan Energy Delivery Long Island	Gas Retail	NY
Niagara Mohawk Power Corp- Electric Distribution	Electric Retail	NY
Niagara Mohawk Power Corp- Gas	Gas Retail	NY
Massachusetts Electric Company	Electric Retail	MA
Nantucket Electric Company	Electric Retail	MA
Boston Gas Company	Gas Retail	MA
Colonial Gas Company	Gas Retail	MA
Narragansett Gas Company	Gas Retail	RI
Narragansett Electric Company	Electric Retail	RI

## US Sanction Paper

### 4.2.3 IS Ongoing Operational Costs (RTB):

Summary Analysis of RTB Costs							
All figures in \$ millions	Yr. 1 16/17	Yr. 2 17/18	Yr. 3 18/19	Yr. 4 19/20	Yr. 5 20/21	Yr. 6+	Total
<b>Forecast of RTB Impact</b>							
RTB if Status Quo Continues	-	-	0.920	2.208	2.208	5.772	<b>11.108</b>
RTB if Project is Implemented	-	-	1.187	2.850	2.850	7.450	<b>14.337</b>
<b>Net change in RTB</b>	-	-	0.267	0.642	0.642	1.678	<b>3.229</b>
<b>RTB Variance Analysis (if Project is Implemented)</b>							
Net Δ RTB funded by Plan(s)	-	-	-	-	-	-	-
Variance to Plan	-	-	0.267	0.642	0.642	1.678	<b>3.229</b>
<b>Total RTB Costs - by Cost Type (if Project is Implemented)</b>							
App.Sup. - SDC 1	-	-	-	-	-	-	-
App.Sup. - SDC 2	-	-	-	-	-	-	-
App.Sup. - other	-	-	-	-	-	-	-
SW maintenance	-	-	-	-	-	-	-
SaaS	-	-	-	-	-	-	-
HW support	-	-	-	-	-	-	-
Other: IS	-	-	1.187	2.850	2.850	7.450	<b>14.337</b>
<b>All IS-related RTB (sub-Total)</b>	-	-	1.187	2.850	2.850	7.450	<b>14.337</b>
<b>Business Support (sub-Total)</b>	-	-	-	-	-	-	-
<b>Total RTB Costs</b>	-	-	1.187	2.850	2.850	7.450	<b>14.337</b>

Current RTB forecast is less than what was projected during initial sanctioning. Opportunities to reduce further will be explored during the design phase of the project.

### 4.3 NPV Summary

N/A

### 4.4 Customer Outreach Plan

N/A

**US Sanction Paper**

<b>Title:</b>	US CNI GMS SCADA Upgrade and Consolidation	<b>Sanction Paper #:</b>	USSC-14-252 v3
<b>Project #:</b>	INVP 3737 Capex: S004821	<b>Sanction Type:</b>	Sanction
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	October 23, 2017
<b>Author:</b>	Susan Stallard / Lynn McLaren	<b>Sponsor:</b>	John Spink, Vice President Control Center Operations
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Michelle McNaught

## 1 **Executive Summary**

### 1.1 **Sanctioning Summary**

This paper requests sanction of INVP 3737 in the amount \$22.711M with a tolerance of +/- 10% for the purposes of completing Supervisory Control and Data Acquisition (SCADA) implementation, Site Acceptance Testing, Point to Point Testing and Provisioning.

This sanction amount is \$22.711M broken down into:

\$20.775M Capex  
\$1.936M Opex  
\$0.000M Removal

Note: The most recent partial sanction indicated a potential project investment of \$27.894M, which included costs associated with full gas Point to Point testing. The decrease of \$5.183M in estimated spend for this project sanction paper reflects a revised scope and schedule for Point to Point Testing.

### 1.2 **Project Summary**

This project is the final step in the strategic evolution of the Critical National Infrastructure (CNI) Gas Management Systems (GMS) SCADA system, supporting the new consolidated control rooms and upgrades to the hardware and operating systems, which are considered to be end of life. Further, the current version of the SCADA application will require an upgrade due to its incompatibility with the new operating systems.

The outcome of the project will ensure continuity in service while meeting the National Grid Gas Control strategic initiative for GMS longevity and up-time performance. Additionally, this effort will provide compliance to the National Grid IS Digital Risk & Security (DR&S) policies.



## US Sanction Paper

### 1.3 Summary of Projects

Project Number	Project Title	Estimate Amount (\$M)
INVP 3737	US CNI GMS SCADA Upgrade & Consolidaton	22.711
<b>Total</b>		<b>22.711</b>

### 1.4 Associated Projects

N/A

### 1.5 Prior Sanctioning History

Date	Governance Body	Sanctioned Amount	Potential Project Investment	Paper Title	Sanction Type	Tolerance
Jun 2016	SESC	\$16.291M	\$27.894M	INVP3737 US CNI GMS SCADA Upgrade and Consolidation_20-Jun-2016 Partial	Partial	+/- 25%
Oct 2014	USSC	\$1.853M	\$17.439M	INVP3737 US CNI GMS SCADA Upgrade and Consolidation_22-Oct-2014_RD_17	Partial	+/- 25%

### 1.6 Next Planned Sanction Review

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

**US Sanction Paper**

**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 a policy-driven initiative to comply with National Grid's Approved National Grid CNI End State Vision & Target Operating Model.

**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: 21

**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 (\$)
IS Investment Plan FY18 - 22	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input checked="" type="radio"/> Under <input type="radio"/> NA	\$3.784M

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

N/A

### 1.13 Current Planning Horizon

\$M	Prior Yrs	Current Planning Horizon						Total
		Yr. 1 2017/18	Yr. 2 2018/19	Yr. 3 2019/20	Yr. 4 2020/21	Yr. 5 2021/22	Yr. 6 + 2022/23	
CapEx	6.106	8.886	5.616	0.167	0.000	0.000	0.000	20.775
OpEx	0.517	0.414	0.984	0.021	0.000	0.000	0.000	1.936
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	6.623	9.300	6.601	0.187	0.000	0.000	0.000	22.711

### 1.14 Key Milestones

Milestone	Target Date: (Month/Year)
Start Up	Aug 2014
Partial Sanction	Oct 2014
Begin Requirements and Design	Nov 2014
Partial Sanction	Jun 2016
Begin Development	Jun 2016
Project Sanction	Oct 2017
Begin Site Acceptance Testing	Feb 2018
Begin Point to Point Testing	Jun 2018
Move to Production / Last Go Live	Dec 2018
Project Complete	Mar 2019
Sanction Closure	Apr 2019

## US Sanction Paper

### 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 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)

1	Risk of internal resources not being available or with limited availability during the project, due to system wide or regional events. This especially includes IS delivery, GMS and Gas Control. The project plan includes two additional full time GMS resources who will remain retained thereafter. The main impact would be project schedule, and Program Management will mitigate for common events.
---	--

### 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**

The Senior Executive Sanctioning Committee (SESC) at a meeting held on October 23, 2017:

- (a) APPROVED this paper and the investment of \$22.711M and a tolerance of +/-10%.
- (b) APPROVED the run-the-business (RTB) impact of \$0.177M for FY19, \$0.922M for FY20 and \$0.885M (per annum) for the following 3 years.
- (c) NOTED that Michelle McNaught has the approved financial delegation.

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

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

## US Sanction Paper

### 3 Sanction Paper Detail

<b>Title:</b>	US CNI GMS SCADA Upgrade and Consolidation	<b>Sanction Paper #:</b>	USSC-14-252 v3
<b>Project #:</b>	INVP 3737 Capex: S004821	<b>Sanction Type:</b>	Sanction
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	October 23, 2017
<b>Author:</b>	Susan Stallard / Lynn McLaren	<b>Sponsor:</b>	John Spink, Vice President Control Center Operations
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Michelle McNaught

#### 3.1 **Background**

The project is required to replace the end-of-life US GMS systems, and meet future requirements of US Gas Control and IS DR&S. The project must upgrade the existing Telvent (now Schneider Electric) SCADA system used to monitor and control National Grid's various Gas Systems throughout the US territory. The current system is considered end-of-life because the hardware is obsolete and the operating system is no longer commercially supported.

Some specific objectives for the system include the following:

- Meet all functions of existing New England, Upstate New York and Downstate New York systems in place.
- Standardization of equipment and alignment with US CNI System Refresh Standard.
- Utilization of a single vendor SCADA package among all Gas operating Jurisdictions.
- Support data center strategy of system and Gas Control move from MetroTech to Melville.
- Expansion over current systems for maximum point count based on telemetry / gas system automation plans.
- Expand current system capabilities to meet the Federal control room management requirements and reporting standards (Pipeline Hazardous Materials System Administration (PHMSA) regulation 49 C.F.R. § 192.631, Control Room Management API 1165).

## **US Sanction Paper**

### **3.2 Drivers**

The primary drivers are the following:

- Hardware has reached the point of obsolescence and operating systems are no longer supported commercially.
  - SCADA application is incompatible with newer operating systems and will require an upgrade to the next version.
  - New parts are no longer available. Currently only refurbished parts are available for use with the existing operating systems.
  - Storage area network devices are no longer supported by the vendor (Dell).
- Aging hardware increases risk of:
  - Failures that will impact the ability for National Grid to maintain the required Service Level Agreement uptime of the Gas SCADA systems.
  - Impacts to the reliability of the Gas Distribution network due to repair downtime or failures leading to loss of service.
- New PHMSA requirements (49 C.F.R. § 192.631).
- Current system has reached capacity for trending Telemetry points impacting system performance and the ability to meet National Grid capital planning.
- Meeting regulatory requirements.

The project drivers are fully aligned with the National Grid CNI End State Vision and Target Operating Model stating that the critical US CNI GMS must be secure, reliable and compliant.

### **3.3 Project Description**

This project will replace the existing Telvent Dynamic Network of Applications (DNA) SCADA system and standardize US Gas SCADA with an upgraded Schneider SCADA System. The project will include the following work:

- Ensure the new system will support and be compliant with regulatory requirements.
- Procure and implement all the hardware and software required to comply with the National Grid DR&S posture document / requirements.
- Develop Comprehensive Technical Specification, produced under contract by Kema, Inc (DNV-GL).
- Design Comprehensive Networking environment for SCADA implementation meeting all DR&S requirements.
- Procure SCADA system solution from incumbent vendor Schneider Electric (formerly Telvent).
- Integrate solution to implement, test and commission GMS.
- Ensure that suitable production and testing environments are established.
- Ensure the development of a Factory Acceptance Testing plan by Schneider Electric.



## ***US Sanction Paper***

- Ensure the development of a Site Acceptance Testing plan by Schneider & National Grid.
- Ensure the development of a training plan with the CNI and Gas Control teams.
- Ensure that the system will support all existing external data transfers (interfaces) and reporting.
- System must work with current communication structure and support all current telemetry protocols.
- Ability to communicate with standard application programming interfaces.

### ***3.4 Benefits Summary***

The non-financial benefits of this project include the following:

- Increased reliability of the CNI equipment and maintenance issues prevention.
  - Modern hardware will ensure the system can be sustained long term.
  - New hardware will cause fewer system outages due to equipment failure.
  - Modern operating system eliminates risk of a platform becoming obsolete.
  - Security issue prevention and risk avoidance.
- Compliance with evolving Control Room management requirements.

### ***3.5 Business and Customer Issues***

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

### ***3.6 Alternatives***

#### **Alternative 1: Defer Project/Do Nothing**

These options have been rejected for the following reasons:

- Increased risk of hardware and software failures resulting in inability to meet required Service Level Agreement uptime of the Gas SCADA systems, and issues with maintaining the reliability of the Gas Distribution network.
- Risk and vulnerability of the network to cyber-attack. Not implementing the updates to the CNI network infrastructure may lead to loss of integrity, vulnerability, and loss of service on the GMS Network.
- Nonconformance with Company standards and best practices for CNI.
- Unable to support additional Gas System Telemetry points impacting both the capital planning and system performance.

## US Sanction Paper

### Alternative 2: Perform a Complete Hardware and Operating System Replacement Only

This option has been rejected for the following reasons:

- Current SCADA application is incompatible with newer operating systems.
- The current system operator terminals must run on the Windows XP platform, which is already end-of-life.
- Current SCADA application will reach Telemetry point capacity impacting system performance and the ability to monitor and control future points and to meet National Grid's capital plan.

### 3.7 Safety, Environmental and Project Planning Issues

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

### 3.8 Execution Risk Appraisal

Number	Detailed Description of Risk / Opportunity	Probability	Impact		Score		Strategy	Pre-Trigger Mitigation Plan	Residual Risk	Post Trigger Mitigation Plan
			Cost	Schedule	Cost	Schedule				
1	Risk of internal resources not being available or with limited availability during the project, due to system wide or regional events. This includes IS delivery, GMS and Control.	3	1	2	3	6	Mitigate	Program Management will engage with National Grid stakeholders early on to mitigate the risks and employ cross functional training on the team.		

### 3.9 Permitting

N/A

### 3.10 Investment Recovery

## US Sanction Paper

### 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

					Current Planning Horizon						
Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
					2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	
INVP 3737	US CNI GMS SCADA Upgrade & Consolidation	+/- 10%	CapEx	6.106	8.886	5.616	0.167	0.000	0.000	0.000	20.775
			OpEx	0.517	0.414	0.984	0.021	0.000	0.000	0.000	1.936
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	6.623	9.300	6.601	0.187	0.000	0.000	0.000	22.711
Total Project Sanction			CapEx	6.106	8.886	5.616	0.167	0.000	0.000	0.000	20.775
			OpEx	0.517	0.414	0.984	0.021	0.000	0.000	0.000	1.936
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	6.623	9.300	6.601	0.187	0.000	0.000	0.000	22.711

## US Sanction Paper

### 3.11.2 Project Budget Summary Table

#### Project Costs per Business Plan

		Current Planning Horizon						
		Prior Yrs (Actual)	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +
\$M			2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
CapEx		6.106	9.530	6.354	3.021	0.000	0.000	0.000
OpEx		0.517	0.414	0.317	0.236	0.000	0.000	0.000
Removal		0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan		6.623	9.944	6.671	3.257	0.000	0.000	0.000

#### Variance (Business Plan-Project Estimate)

		Current Planning Horizon						
		Prior Yrs (Actual)	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +
\$M			2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
CapEx		0.000	0.644	0.738	2.854	0.000	0.000	0.000
OpEx		0.000	(0.000)	(0.667)	0.215	0.000	0.000	0.000
Removal		0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan		0.000	0.644	0.070	3.070	0.000	0.000	0.000

### 3.11.3 Cost Assumptions

This estimate was developed in 2017 using the standard IS estimating methodology. The accuracy level of estimate for the project is identified in table 3.11.1.

### 3.11.4 Net Present Value / Cost Benefit Analysis

This is not a NPV project.

#### 3.11.4.1 NPV Summary Table

N/A

#### 3.11.4.2 NPV Assumptions and Calculations

N/A

### 3.11.5 Additional Impacts

None.

## **US Sanction Paper**

### **3.12 Statements of Support**

#### **3.12.1 Supporters**

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

<b>Role</b>	<b>Individual's Name</b>
Business Representative	Rich Delaney
Head of PDM	Deborah Rollins
Relationship Manager	Aman Aneja
Program Delivery Director	Michelle McNaught
IS Finance Management	Chip Benson
IS Regulatory	Dan DeMauro
DR&S	Elaine Wilson
Service Delivery	Brian Detota
Enterprise Architecture	Joe Clinchot

#### **3.12.2 Reviewers**

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

<b>Function</b>	<b>Individual</b>	<b>Area</b>
Regulatory	Harvey, Maria	IS
Jurisdictional Delegate(s)	Anand, Sonny	Electric - NE
	Harbaugh, Mark	Electric - NY
	Hill, Terron	FERC
	Currie, John	Gas - NE
	Wolf, Don	Gas - NY
Procurement	Curran, Art	All

## US Sanction Paper

### 4 Appendices

#### 4.1 Sanction Request Breakdown by Project

##### 4.1.1 Project Cost Breakdown

Project Cost Breakdown				
Cost Category	sub-category		\$ (millions)	Name of Firm(s) providing resources
Personnel	NG Resources		4.222	Gas Control, CNI (incl. DNV-GL), PD-IS (does not incl. consultants)
	SDC Time & Materials			
	SDC Fixed-Price			
	All other personnel		4.136	Consultants, Wipro, Schneider (Licences, Support, Allowances, Onsite Consultant Post SAT), DNVGL, Bridge, IBM, Verizon
	TOTAL Personnel Costs		8.358	
Hardware / Software	Purchase		2.244	HW + Infrastructure HW&SW, Security
	Lease		0.000	
FY15/FY16/ FY17 Prior Year			6.623	Costs from FY15 / FY16 / FY17
Risk Margin			1.143	
Other			4.343	AFUDC, Shared Costs, Services, Com Lines, Sunk Costs
TOTAL Costs			22.711	

##### 4.1.2 Benefiting Operating Companies

The following are the benefiting operating companies:

SAP Alloc. Code	SAP Co./Seg	Company Description	Number of Customers	%
C-210	5210G	Niagara Mohawk Power Corp. - Gas	639,493	16.93%
C-210	5220G	KeySpan Energy Delivery New York	1,315,562	34.83%
C-210	5230G	KeySpan Energy Delivery Long Island	609,071	16.13%
C-210	5330G	Boston Gas Company	723,122	19.15%
C-210	5340G	Colonial Gas Company	211,077	5.59%
C-210	5360G	Narragansett Gas Company	278,403	7.37%
		<b>Totals</b>	<b>3,776,728</b>	<b>100%</b>

## US Sanction Paper

### 4.1.3 IS Ongoing Operational Costs (RTB):

This project will increase Service Delivery CNI Budget on-going operations support costs as per the following table. These are also known as Run the Business (RTB) costs. The increase in RTB will be assumed by IS CNI as part of the operation and maintenance (O&M) budget.

Following the mandatory parallel operation phase and decommission of the existing Telvent DNA SCADA in FY20, RTB cost variance will be \$0.885M for FY2021. Decommissioning of the existing system will be paid by the business and have been added as a place holder in FY20.

Summary Analysis of RTB Costs							
All figures in \$ millions	Yr. 1 17/18	Yr. 2 18/19	Yr. 3 19/20	Yr. 4 20/21	Yr. 5 21/22	Yr. 6+	Total
<b>Forecast of RTB Impact</b>							
RTB if Status Quo Continues	-	0.876	6.666	6.666	6.666	19.998	<b>40.872</b>
RTB if Project is Implemented	-	1.053	7.588	7.551	7.551	22.654	<b>46.398</b>
<b>Net change in RTB</b>	-	0.177	0.922	0.885	0.885	2.656	<b>5.526</b>
<b>RTB Variance Analysis</b> (if Project is Implemented)							
Net Δ RTB funded by Plan(s)	-	-	-	-	-	-	-
Variance to Plan	-	0.177	0.922	0.885	0.885	2.656	<b>5.526</b>
<b>Total RTB Costs - by Cost Type</b> (if Project is Implemented)							
App.Sup. - SDC 1	-	-	-	-	-	-	-
App.Sup. - SDC 2	-	-	-	-	-	-	-
App.Sup. - other	-	-	-	-	-	-	-
SW maintenance	-	-	0.008	0.008	0.008	0.024	<b>0.048</b>
SaaS	-	-	-	-	-	-	-
HW support	-	-	4.226	4.184	4.184	12.552	<b>25.146</b>
Other: IS	-	1.053	3.354	3.359	3.359	10.078	<b>21.204</b>
<b>All IS-related RTB (sub-Total)</b>	-	1.053	7.588	7.551	7.551	22.654	<b>46.398</b>
<b>Business Support (sub-Total)</b>	-	-	-	-	-	-	-
<b>Total RTB Costs</b>	-	1.053	7.588	7.551	7.551	22.654	<b>46.398</b>

1/22/2018

FY19 - Investment Request Summaries - IRSs - DR Priority 3 Apps Remediation



Planning & Performance Management ▶ FY19 - Investment Request Summaries - IRSs: DR  
Priority 3 Apps Remediation



nationalgrid		Investment Request Summary - IS US		FISCAL YEAR 2019						
INV ID:	4825	Project Name:	DR Priority 3 Apps Remediation							
Program:	Enterprise Services			IRS Status: ACTIVE						
Sponsor:	Gilbert, John			Title: Global Head IS Service Delivery, Global IS						
Relationship Manager:	Brian Detota			Title: IS Relationship Manager, Global IS						
Progr Delivery Director:	Helen Smith			Title: Head of Programme Delivery						
Paper Author:				Title:						
		Business Area:	IS - Infrastructure	Portfolio: IS for IS						
<input type="checkbox"/> In-Flight Project?	Invest Classification:	Medium	Category:	Policy Driven	Primary Policy Driver: Reliability					
				Region: US						
Strategic Program:	End to End Process (Primary):		Business Priority:	IS Focus Area:	Application Strategy:					
Tech Modernization			Medium	Fix the Foundation	Re-Platform					
		End to End Process (Secondary):								
<p><b>Project Description:</b> The context for the project with background information This is the third tier out of a total 41 Tier 1, 2 and 3 Applications.</p>										
<p><b>Project Rationale:</b> Highlight business challenge, capability or process the project addresses Move towards a DR capability that supports a Service by Service DR approach so we can perform DR on single applications at a time, instead of the current environment of moving all or nothing.</p>										
<p><b>Project Scope:</b> Explain what is in scope and what is not in scope for the project Receive input from 4712/application list, perform DR improvements and remediation to outlined list. Address database and network components.</p>										
<p><b>Project Dependencies:</b> Identify any core program or project dependencies, please include INVP numbers if known This project is dependent on the completion INVP 4712 and INVP 4824. May require servers, storage and network bandwidth to support replication between CSC data centers.</p>										
<p><b>Basic Project Assumptions:</b> This investment helps address IS health and capability challenges while enabling National Grid's strategic business objectives. Implementation approach is expected to be in several phases or projects.  Eco-partners willing to accept tight integration of expertise into their delivery model.</p>										
<b>Indicative Project Costs by Fiscal Year</b>										
(\$M)	Prior Years	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
CapEx		0.000	0.500	0.500	0.000	0.000	0.000	0.000	0.000	1.000
OpEx		0.000	0.100	0.100	0.000	0.000	0.000	0.000	0.000	0.200
Impact on RTB		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Indicative Project Costs by Delivery Phase</b>										
(\$M)	Start-up	R & D		D & I		Closure		Total		
CapEx		0.200		0.800				1.000		



1/22/2018

FY19 - Investment Request Summaries - IRSs - DR Priority 3 Apps Remediation

OpEx	0.010	0.015	0.170	0.005	0.200				
Project Benefits - Type I only									
(\$M)	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Type I - CapEx									0.000
Type I - OpEx									0.000
Revenue Generation									0.000

**Key Business Benefits:**

Describe benefits, both financial and non-financial, and when those benefits will be delivered. Provide a clear & concise business case stating the investment drivers – why do we need to do something and why now? Explain any Regulatory considerations and how this initiative aligns with the US Business Strategy.

**Investment Prioritization**

<b>Benefits</b>				<b>Cost</b>			
	Impact	Weight	Score		Impact	Weight	Score
OpEx Annual Savings		10.3%	0	OpEx Cost	0.200	-24.4%	-0.732
CapEx Annual Savings		5.1%	0	CapEx Cost	1.000	-11.2%	0
Revenue Generation (annual)		6.2%	0	RTB Efficiency	0.000	% -22.5%	0
Financial Control	Low	6.2%	0.062	Union/Labor Relations	Low	-9.8%	0
Soft Financial Benefits	Low	3.8%	0.038	Dependencies	Medium	-10.6%	-0.318
Regulatory Impact	Medium	11.2%	0.336	Elastice Time Duration	Medium	-6.6%	-0.198
Process & Personal Safety	Low	19.4%	0.194	Change Management Effort	Medium	-14.9%	-0.447
Reliability	Medium	10.9%	0.327				
Customer & Community Responsiveness	Medium	5.3%	0.159				
Employee Satisfaction	Medium	4.6%	0.138				
Mitigates a Corporate Risk / Risk of not Doing	High= 40 or more	8.9%	0.801				
Jurisdictional Engagement	High	8.2%	1				
<b>Benefit Score: 2.79</b>				<b>Cost Score: -2.13</b>			
				<b>Overall Priority Score: 0.664</b>			

**Investment Risk and Complexity**

Project Risk Score:	41	Risk Score Description: Risk impact = 5 and Risk likelihood = 6
Project Complexity Score::	16	Project Complexity Score Description:

Key Risks Description: Provide detail on project risks & mitigation strategy:

**IS Project Dependencies** if you don't see a project in the drop-down please contact the Planning & Performance team.

**Benefiting Operating Companies:** Check all that apply

1/22/2018

FY19 - Investment Request Summaries - IRSs - DR Priority 3 Apps Remediation

**IS Projects: 4825 - DR Priority 3 Apps Remediation**

1. Has a dependency on IS Project;
2. Has a dependency on IS Project;
3. Has a dependency on IS Project;
4. Has a dependency on IS Project;
5. Has a dependency on IS Project;
6. Has a dependency on IS Project;

**Business Initiative Dependencies**

**IS Projects: 4825 - DR Priority 3 Apps Remediation**

1. Has a dependency on Biz Initiative,
2. Has a dependency on Biz Initiative,
3. Has a dependency on Biz Initiative,
4. Has a dependency on Biz Initiative,

**Project Relationships**

☐ Minor Works

Project Relationship:

Related Projects:

- ☐ Select All Companies ☐ Clear All Companies  
☐ Select All Gas ☐ Select All Electric ☐ Select All Gen
- ☒ National Grid USA Parent
  - ☒ KeySpan Energy Development Corporation
  - ☒ KeySpan Services Inc.
  - ☒ KeySpan Energy Corp
  - ☒ KeySpan Energy Delivery New York
  - ☒ KeySpan Energy Delivery Long Island
  - ☒ KeySpan Generation LLC (PSA)
  - ☒ KeySpan Glenwood Energy Center
  - ☒ KeySpan Port Jefferson Energy Center
  - ☒ KeySpan Energy Trading Svc LLC
  - ☒ Niagara Mohawk Power Corp- Electric Distribution
  - ☒ Niagara Mohawk Power Corp - Gas
  - ☒ Niagara Mohawk Power Corp - Transmission
  - ☒ Massachusetts Electric Company
  - ☒ Massachusetts Electric Company - Transmission
  - ☒ Nantucket Electric Company
  - ☒ Boston Gas Company
  - ☒ Colonial Gas Company
  - ☒ Narragansett Gas Company
  - ☒ Narragansett Electric Company
  - ☒ Narragansett Electric Company - Transmission
  - ☒ New England Power Company - Transmission
  - ☒ New England Hydro - Trans Corp
  - ☒ New England Electric Trans Corp
  - ☐ NE Hydro Trans Electric Co
  - ☒ NG LNG LP Regulated Entity

**Enabling IS Capabilities** check all that apply

- |   |  |
|---|--|
| <input type="checkbox"/> Enterprise Content Management (ECM)      | <input type="checkbox"/> Enterprise Mobility     |
| <input type="checkbox"/> Comprehensive Integration Services (CIS) | <input type="checkbox"/> Reporting and Analytics |
| <input type="checkbox"/> Hybrid Cloud                             | <input type="checkbox"/> Networks                |
| <input type="checkbox"/> Next Gen Workplace                       |  |

**Key Milestone Dates:** Select the 1st, 15th or last day of the month

**Indicative Estimated Duration (Months):**

Begin Start-up	Begin Requirements & Design	Begin Development & Implementation	Begin User Acceptance Testing	Go Live	Project Completion	Project Closure
July, 2019				December, 2021	December, 2021	

**Business Resource Estimates: # of Full Time Equivalents**

Start-up	Requirements & Design	Develop & Implement	Business Resources UAT	Go Live Readiness	Post Go Live Support
0	0	0	0	0	0

Resourcing Strategy:

**Attached Supporting Documents**

**Recommendation Sign-off**

1/22/2018

FY19 - Investment Request Summaries - IRSs - DR Priority 3 Apps Remediation

<i>Role</i>	<i>Name</i>	<i>Title</i>	<i>Date</i>
<i>Business Project Sponsor</i>	<i>Gilbert, John</i>	Global Head IS Service Delivery, Global IS	
<i>Business Relationship Manager</i>	<i>Brian Detota</i>	IS Business Relationship Manager	
<i>IS Program Delivery Manager</i>	<i>Helen Smith</i>	IS Program Delivery Manager	
nationalgrid			

**US Sanction Paper**

<b>Title:</b>	Melville Data Center Clearance	<b>Sanction Paper #:</b>	USSC-16-296 V2
<b>Project #:</b>	INVP 4377	<b>Sanction Type:</b>	Sanction
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	September 13, 2017
<b>Author:</b>	Aravind Lochan / Paul Cudby	<b>Sponsor:</b>	John Gilbert, Global Head IS Service Delivery
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Doug Fisher

**1 Executive Summary**

**1.1 Sanctioning Summary**

This program paper requests sanction of INVP 4377 in the amount \$4.025M with a tolerance of +/- 10% for the purposes of full implementation.

*This sanction amount is \$4.025M broken down into:*

*\$0.856M Capex  
\$3.169M Opex  
\$0.000M Removal*

**1.2 Project Summary**

The planned end state for the Melville Data Center is the clearance of National Grid equipment (hardware/software) from Melville (15 Park Drive, Melville, NY 11747), which is now PSE&G's (Public Service Electric & Gas) regional facility for the Long Island region. The current Transition Service Agreement has no provision for long term space rental.

The objectives of this program are the following:

- Migrate all remaining equipment (servers, storage, hardware/software, etc.) from the Melville Data Center to the DXC (Digital Transformation Multiplier Company formerly Computer Sciences Corporation - CSC) data centers in Norwich, Connecticut and Newark, Delaware
- Remove dependency on and decommission unsupported equipment
- Increase capacity at the DXC data center to support the migration of equipment from National Grid's Melville Data Center
- Adhere to National Grid's current data center strategy

**Phase 1:** (INVP 4377 requirements and design) sanctioned November 2016 and completed March 2017. This phase included the feasibility and gap analysis of inventory and review of the remaining equipment in the Melville Data Center.

## **US Sanction Paper**

**Phase 2:** This is a development and implementation program paper consisting of INVP 4377a & INVP 4377b

- 4377a – Perform capacity increase at DXC Data centers; perform migration and decommissioning planning
- 4377b – Continue migration and decommissioning planning and perform migrations

A complete inventory and review of the remaining equipment in the Melville Data Center has been completed as part of Phase 1. Detailed activity plans and migration schedules are being developed in coordination with IS partners (DXC, Verizon, IBM & Wipro) and managed by a National Grid project manager. To see the detailed list of partner activities, please see both [Appendix 4.2](#) and Section [3.3 Project Description](#).

National Grid currently has contracts with IS partners DXC, Verizon, IBM & Wipro to support the equipment in all our data centers. The Melville equipment, less any decommissioned equipment, will be migrated to the DXC data centers and remain supported by IS partners.

### **1.3 Summary of Projects**

<b>Project Number</b>	<b>Project Title</b>	<b>Estimate Amount (\$M)</b>
4377	Melville DC Clearance Project	4.025
<b>Total</b>		<b>4.025</b>

### **1.4 Associated Projects**

<b>Project Number</b>	<b>Project Title</b>	<b>Estimate Amount (\$M)</b>
4377a	Melville DC Clearance Melville (DXC Capacity)	1.356
4377b	Melville DC Clearance Melville (Migration and Decommission)	2.390
<b>Total</b>		<b>3.746</b>

### **1.5 Prior Sanctioning History**

<b>Date</b>	<b>Governance Body</b>	<b>Sanctioned Amount</b>	<b>Potential Project Investment</b>	<b>Paper Title</b>	<b>Sanction Type</b>	<b>Tolerance</b>
Nov 9, 2016	USSC	\$0.298M	\$1.192M	Data Center Clearance (Melville)	Partial Sanction	25%

## US Sanction Paper

### 1.6 Next Planned Sanction Review

Date (Month/Year)	Purpose of Sanction Review
Apr 2018	Project Closure

### 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	The objective of this project is to analyze the remaining equipment in legacy data centers after transformation is completed to determine and implement the most appropriate course of action for each of the following: (1) decommissioning; (2) migration to DXC Data Center; (3) retention of a consolidated footprint in National Grid.

### 1.8 Asset Management Risk Score

Asset Management Risk Score: N/A

**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: N/A

### 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 (\$)
IS Investment Plan FY18-22	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	\$0.023M

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

Re-allocation of budget within the IS 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 2017/18	Yr. 2 2018/19	Yr. 3 2019/20	Yr. 4 2020/21	Yr. 5 2021/22	Yr. 6 + 2022/23	
CapEx	0.000	0.856	0.000	0.000	0.000	0.000	0.000	0.856
OpEx	0.279	2.890	0.000	0.000	0.000	0.000	0.000	3.169
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	0.279	3.746	0.000	0.000	0.000	0.000	0.000	4.025

### 1.14 Key Milestones

Milestone	Target Date: (Month/Year)
Start Up	Feb 2016
Partial Sanction	Nov 2016
Begin Requirements & Design	Nov 2016
Project Sanction	Sep 2017
Begin Development & Implementation	Oct 2017
Move to Production / Last Go Live	Mar 2018
Project Complete	Apr 2018
Closure Sanction	Apr 2018

## US Sanction Paper

### 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 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 checked="" type="radio"/> Amber	<input 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

None determined at this time

### 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

INVP 4377a – Design & Implementation - Melville Data Center Clearance (DXC DC Capacity Increase)  
INVP 4377b – Design & Implementation - Melville Data Center Clearance (Migration and Decommission)



**US Sanction Paper**

**2 Decisions**

The US Sanctioning Committee (USSC) at a meeting held on September 13, 2017:

- (a) APPROVED this paper and the investment of \$4.025M and a tolerance of +/-10%.
- (b) NOTED that Doug Fisher has the approved financial delegation.

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

Christopher Kelly  
Senior Vice President, Electric Process & Engineering

## **US Sanction Paper**

### **3 Sanction Paper Detail**

<b>Title:</b>	Melville Data Center Clearance (Migration and Decommission)	<b>Sanction Paper #:</b>	USSC-16-296 V2
<b>Project #:</b>	INVP 4377	<b>Sanction Type:</b>	Strategy
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	September 13, 2017
<b>Author:</b>	Aravind Lochan / Paul Cudby	<b>Sponsor:</b>	John Gilbert, Global Head IS Service Delivery
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Doug Fisher

#### **3.1 Background**

Following migration of all non-CNI (Critical Network Infrastructure) applications and services to DXC data centers, the remaining non-CNI equipment in National Grid data centers will need to be removed, including:

- Applications on the National Grid roadmap for sunseting or upgrading. Some of these were completed with other projects but some still remain and need to be addressed
- "Near CNI applications" - some applications were considered to be essential to CNI but not currently within the CNI scope
- Physical and technical difficulties were discovered that prevented equipment from previously migrating, (e.g. servers that were physically very close to CNI servers and considered a risk to CNI) and those applications are on old or non-compatible equipment
- DXC supported infrastructure used to connect to and support all the remaining National Grid Applications and building specific facilities.
- Unknown and apparently unsupported equipment

There are numerous asset items considered for removal. These include application servers, network servers, blades, UPS (Uninterrupted Power Supply), KVM (Keyboard Video Mouse) switches, gateways and other types of equipment used to support the applications and building.

## **US Sanction Paper**

### **3.2 Drivers**

The clearance of National Grid equipment from the Melville Data Center site will give National Grid the opportunity to review its property portfolio.

The strategy for data centers is for all non-CNI infrastructure to be hosted in DXC data centers.

Old technology is more likely to incur an outage due to failed hardware components and is probable to experience difficulties returning to service on power-up. It is also more vulnerable to security risks due to out dated security. Continuing to keep old technology increases risk and the completion of this project would help mitigate this risk.

### **3.3 Project Description**

The planned end state for Melville Data Center is the clearance of National Grid from Melville.

Completion of this project will deliver the reduced enduring footprint. The activities undertaken will include:

- 1) Architecture/Performance/Latency – DXC will collaborate with Verizon to architect a solution to overcome network related latency issues or other network capacity issues that may exist. DXC will provide a technical design document to place the servers in the DXC data centers. DXC will document all details of the servers including: network details, backup details, storage details, where the server is hosted, server name, DNS and all IP's.
- 2) Capacity Increase – DXC will expand capacity in its data centers to accommodate the National Grid equipment. Current capacity is not sufficient to support the migrations from Melville.
- 3) Move Groups – DXC will plan the move group structure, provide the schedule and move group cycles and plan all move group tasks within each move group cycle. DXC will develop the hour by hour plan for the migration weekends; providing a detailed plan for each migration weekend.
- 4) Remaining Equipment – DXC will reconfigure and move any equipment that will still be needed after migrations are complete from the Melville Data Center.
  - a. Verizon will coordinate the move of any circuits that may still be needed after the data center shutdowns.
- 5) Decommission – DXC will decommission, de-rack and dispose of all decommissioned assets from the Melville Data Center.
- 6) Move and Removal of equipment – DXC will remove all equipment that will no longer be needed after the migrations are complete.
  - a. Verizon will coordinate the turndown of any circuits that may no longer be needed after the data center shutdowns.
  - b. Verizon will reconfigure and move any equipment that will still be needed after the migrations are completed.

**US Sanction Paper**

- 7) Verizon will conduct a detailed discovery of the networks in the Melville Data Center in order to provide network information to DXC in support of the server/application migrations from the Melville Data Center to the DXC data centers.
- 8) Support for DXC – Verizon will provide support for DXC in making any changes needed to network components in the Melville Data Center and other areas of the National Grid network to enable the migrations to take place successfully.
- 9) As-Is/To-Be – Verizon will identify and document in the migration workbook the current “as-is” routing, firewall control list and load balancing configurations. Verizon will provide information on the “to-be” routing, firewall access control list and load balancing configurations. Verizon will configure the “to-be” routing, firewall access control lists and any other supplier controls necessary to support the migration.

**Work completed**

- 1) Data Center Inventory – DXC has conducted a wall-to-wall inventory of all equipment in Melville Data Center, and provided a detailed list and a graphical floor diagram. CNI/fenced off areas are out-of-scope. Verizon has conducted an inventory of all its network equipment (routers, firewalls, etc.) and circuits linking the data centers.
- 2) Collaborative project team have reviewed inventory and determined categorization of two basic areas:
  - a. Room equipment (Tape Silos, Cabinets, Tapes, IBM 3174s, large control desks, etc.).
  - b. Applications and associated servers/racks/network.
- 3) DXC has developed detailed run books complete with logical migration (move) groups for all applications. DXC will develop a detailed migration plan calendar with dates for all migration move groups.

**3.4 Benefits Summary**

Type	Benefit	Description
Intangible (Indirect benefits)	Melville’s alignment with data center Strategy	The strategy for data centers is for all non-CNI infrastructure to be hosted in DXC off-premise data centers.
Intangible (Indirect benefits)	Mitigation of DR&S risk	Old technology is more likely to incur an outage due to failed hardware components and is likely to experience difficulties returning to service on power-up. It is also more vulnerable to security risks due to out dated security. Continuing to keep old technology live increases DR&S risk. The completion of this full project would help mitigate this risk.

## US Sanction Paper

### 3.5 Business and Customer Issues

The business can potentially be impacted as we identify applications still in use that need to be migrated, decommissioned or retained, all of which can have a direct impact on the business. The project team will liaise directly with the business to keep them informed. Note, however, that no impact is anticipated for our external customers.

### 3.6 Alternatives

**Alternative 1: Do Nothing** - Not selected. This option does not address the project objective to vacate the Melville Data Center.

**Alternative 2: Defer investment** – Not selected. Does not mitigate the risk from running applications on older, unsupported equipment.

### 3.7 Safety, Environmental and Project Planning Issues

It will be necessary to coordinate with any intersecting projects and to ensure any moves are coordinated with those intersecting projects. There are no significant issues beyond what has been described elsewhere.

### 3.8 Execution Risk Appraisal

Number	Detailed Description of Risk / Opportunity	Probability	Impact		Score		Strategy	Pre-Trigger Mitigation Plan	Residual Risk	Post Trigger Mitigation Plan
			Cost	Schedule	Cost	Schedule				
1	CSC has advised they do not currently have sufficient capacity to support the migration of our kit	5	3	3	15	15	Mitigate	CSC has sufficient capacity to begin migrations and will increase capacity concurrently	Same as initial risk	
2	Delays receiving responses to NSSRs' and Work Packs could delay sanctioning and start of migrations	4	1	3	4	12	Mitigate	Manage partners closely and push for quick turnaround	Same as initial risk	N/A
3	Carol to place Abhijeet as PM for CSC. Transition to take two weeks	5	1	1	5	5	Accept	Transition from Abhijeet to Carol to be complete within two weeks	Same as initial risk	N/A
4	Delays in CSC completing the Move Group schedule/calendar could delay the start of migrations	3	1	3	3	9	Mitigate	Manage partners closely and push for quick turnaround	Same as initial risk	
5	There is a risk that intersecting projects could impact our migration schedule if not closely monitored and coordinated	3	2	3	6	9	Mitigate	Close coordination with intersecting projects needs to be maintained in order to ensure minimal impact to our migration schedule		N/A
6	There is a risk that some applications may not be able to be moved out of the Melville data center because moving the server may stop the application and may not be restarted, leading to application no longer available	2	3	3	6	6	Accept	Review all options with project team and business	Lower than initial risk	

## **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**

					Current Planning Horizon						
Project Number	Project Title	Project Estimate Level (%)	Spend (\$M)	Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
					2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	
4377	Melville DC Clearance Project	Est Lvl (e.g. +/- 10%)	CapEx	0.000	0.856	0.000	0.000	0.000	0.000	0.000	0.856
			OpEx	0.279	2.890	0.000	0.000	0.000	0.000	0.000	3.169
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.279	3.746	0.000	0.000	0.000	0.000	0.000	4.025
Total Project Sanction			CapEx	0.000	0.856	0.000	0.000	0.000	0.000	0.000	0.856
			OpEx	0.279	2.890	0.000	0.000	0.000	0.000	0.000	3.169
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.279	3.746	0.000	0.000	0.000	0.000	0.000	4.025

## US Sanction Paper

### 3.11.2 Project Budget Summary Table

#### Project Costs per Business Plan

	Prior Yrs	Current Planning Horizon						
		Yr. 1 2017/18	Yr. 2 2018/19	Yr. 3 2019/20	Yr. 4 2020/21	Yr. 5 2021/22	Yr. 6 + 2022/23	Total
\$M								
CapEx	0.000	0.856	0.000	0.000	0.000	0.000	0.000	0.856
OpEx	0.279	2.867	0.000	0.000	0.000	0.000	0.000	3.146
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.279	3.723	0.000	0.000	0.000	0.000	0.000	4.002

#### Variance (Business Plan-Project Estimate)

	Prior Yrs	Current Planning Horizon						
		Yr. 1 2017/18	Yr. 2 2018/19	Yr. 3 2019/20	Yr. 4 2020/21	Yr. 5 2021/22	Yr. 6 + 2022/23	Total
\$M								
CapEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OpEx	0.000	(0.023)	0.000	0.000	0.000	0.000	0.000	(0.023)
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	(0.023)	0.000	0.000	0.000	0.000	0.000	(0.023)

### 3.11.3 Cost Assumptions

- This investment will be managed by National Grid Project Manager.

### 3.11.4 Net Present Value / Cost Benefit Analysis

N/A

#### 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

## **US Sanction Paper**

### **3.12 Statements of Support**

#### **3.12.1 Supporters**

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

<b>Role</b>	<b>Individual</b>
Business Representative	Chris Granata
Head of PDM	Helen Smith
Relationship Manager	Bill Kearns
Program Delivery Director	Dave McCune
IS Finance Management	Chip Benson
IS Regulatory	Dan DeMauro
DR&S	Elaine Wilson
Service Delivery	Brian Detota
Enterprise Architecture	Joe Clinchot

#### **3.12.2 Reviewers**

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

<b>Function</b>	<b>Individual</b>	<b>Area</b>
Regulatory	Harvey, Maria	IS
Jurisdictional Delegate(s)	Anand, Sonny	Electric - NE
	Harbaugh, Mark	Electric - NY
	Hill, Terron	FERC
	Currie, John	Gas - NE
Procurement	Curran, Art	All



## US Sanction Paper

### 4 Appendices

#### 4.1 Other Appendices

##### 4.1.1 Project Cost Breakdown

Project Cost Breakdown			
Cost Category	sub-category	\$ (millions)	Name of Firm(s) providing resources
Personnel	NG Resources	0.615	N/A
	SDC Time & Materials		
	SDC Fixed-Price		
	All other personnel	2.155	DXC, Verizon, IBM, Wipro, 3rd Party Support
	<b>TOTAL Personnel Costs</b>	2.770	
Hardware	Purchase	0.857	Verizon
	Lease		
Software			
Risk Margin			
Other		0.100	Bandwidth Increase
	<b>TOTAL Costs</b>	3.700	

##### 4.1.2 Benefiting Operating Companies

Benefiting Operating Companies Table:

Operating Company Name	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	

**US Sanction Paper**

Nantucket Electric Company	Electric Distribution	MA
NE Hydro - Trans Electric Co.	Inter Connector	MA, NH
New England Hydro Finance Company Inc.	Inter Connector	MA, NH
KeySpan Energy Development Corporation	Non-Regulated	NY
KeySpan Port Jefferson Energy Center	Generation	NY
New England Hydro - Trans Corp.	Inter Connector	MA, NH
KeySpan Services Inc.	Service Company	
KeySpan Glenwood Energy Center	Generation	NY
Massachusetts Electric Company – Transmission	Transmission	MA
NG LNG LP Regulated Entity	Gas Distribution	MA, NY, RI
Transgas Inc	Non-Regulated	NY
Keyspan Energy Trading Services	Other	NY
KeySpan Energy Corp.	Service Company	
New England Electric Trans Corp	Inter Connector	MA

**4.2 Other Appendices**

**Delivery action plan:**

**DXC**

DXC will increase capacity at DXC data centers to accommodate processing and storage for migrated servers and storage.

- Collaborate with Verizon to architect a solution to overcome network related latency issues or other network capacity issues that may exist
- Provide technical document to place the servers in the DXC data centers
- Plan, schedule, and perform move group structure tasks within the move group cycle
- Provide detailed plan for weekend migration
- Migrate servers in accordance with the agreed move groups
- Decommission, de-rack and dispose of all decommissioned assets from Melville and the four data centers

## ***US Sanction Paper***

### **Verizon**

Verizon will support DXC in making any changes needed to National Grid network components managed by Verizon, to enable migrations to take place smoothly.

- Monitor network traffic, issuing reports focused on the specific applications, and application move groups planned for migration
- Provide information on application performance, network utilization and potential bottlenecks to support the migration effort
- Provide network technical consultancy support
- Perform network changes to enable the Phase 2 data center clearance project migrations
- Perform decommission and removal of any network equipment and circuits that are no longer in use upon clearance of DXC information technology assets

### **IBM and Wipro**

IBM/Wipro will provide overall direction and management, including responsibility for assigning and directing work to IBM/Wipro resources and defining the processes and controls used during this project.

- Facilitate access to existing National Grid applications and technical infrastructure
- Resolve project issues and escalate issues as necessary

### ***4.3 NPV Summary***

N/A

### ***4.4 Customer Outreach Plan***

N/A

## Investment Proposal Summary Sheet

### Forward Proxy Upgrade – Project No. INVP 4676

<b>Region:</b> US	<b>Category:</b> Policy	<b>Legal Entity:</b> Shared
<b>Risk Score:</b> 41	<b>Primary Driver:</b> Reliability	<b>Project Classification:</b> M

**Project Description:**

This paper requests sanction of INVP 4676 in the amount \$ 0.915 M with a tolerance of +/- 10% for the purposes of Full Implementation.

This sanction amount is \$0.915 M broken down into:

\$ 0.914M	Capex
\$ 0.001M	Opex
\$ 0.000M	Removal

**Brief Description**

Replace end of life proxy appliances with new appliances from that support higher throughput capacity. All internet proxy services will be migrated to the new infrastructure and the old hardware decommissioned.

When clients makes a connection attempt on the Internet, its requests has to pass through the forward proxy first. Depending on the forward proxy's settings, a request can be allowed or denied. If allowed, then the request is forwarded to the firewall and then to the appropriate server.

**Background**

Current forward proxies will reach end of life on 1st August 2017. They will also reach end of support from Bluecoat at same time which means it would be difficult to get vendor support for any software or hardware failures. Any fault after this date will be supported on a best endeavours basis only. Forward proxies refresh is required in order to fully support this hardware infrastructure for another 5 years.

Current forward proxies are also reaching their capacity limits; the key components of the VSTIG have already been upgraded to 1GB but the proxies are only sized for 200-300 MB and so constrain the ability to use this increase. If capacity is reached, there will be internet performance issues with services and potential outages. This impact has already been noticed in CMS learning link apps.

Project Costs [\$]M	Prior Year 16/17	Yr 1 17/18	Yr 2 18/19	Yr 3 19/20	Yr 4 20/21	Yr 5 21/22	Total
Start-Up - OPEX	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Start-Up - CAPEX	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Start-Up - risk margin	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Start-Up SUBTOTAL	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Requirements & Design - OPEX	\$0.001	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.001
Requirements & Design - CAPEX	\$0.746	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.746
Requirements & Design - risk margin	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Requirements & Design SUBTOTAL	\$0.747	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.747
<b>Development &amp; Implementation - OPEX</b>							
People	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Software	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Hardware	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Telecommunications	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Service Contracts	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Risk Margin	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Requirements & Design SUBTOTAL	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
<b>Development &amp; Implementation - CAPEX</b>							
People	\$0.000	\$0.068	\$0.000	\$0.000	\$0.000	\$0.000	\$0.068
Software	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Hardware	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Telecommunications	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Service Contracts	\$0.000	\$0.085	\$0.000	\$0.000	\$0.000	\$0.000	\$0.085
Risk Margin	\$0.000	\$0.015	\$0.000	\$0.000	\$0.000	\$0.000	\$0.015
D& I SUBTOTAL	\$0.000	\$0.168	\$0.000	\$0.000	\$0.000	\$0.000	\$0.168
TOTAL PROJECT COSTS	\$0.747	\$0.168	\$0.000	\$0.000	\$0.000	\$0.000	\$0.915
Non-regulated project - UPLIFT	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Non-regulated project - TOTAL	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Non-regulated project - UPLIFT	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Non-regulated project - TOTAL	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Investment Plan No: INVP 4676	Budget OPEX	\$0.000	\$0.150	\$0.000	\$0.000	\$0.000	\$0.000
	Budget CAPEX	\$0.000	\$0.200	\$0.000	\$0.000	\$0.000	\$0.000
Impact on RTB costs	\$0.000	\$0.080	\$0.107	\$0.107	\$0.107	\$0.107	\$0.508

Benefiting Operating Company	Business Area	State
National Grid USA Parent	Parent	N/A
KeySpan Energy Corp.	Service Company	N/A
Niagara Mohawk Power Corp. - Electric Distr.	Electric Distribution	NY
Niagara Mohawk Power Corp. - Gas	Gas Distribution	NY
Niagara Mohawk Power Corp. - Transmission	Transmission	NY
KeySpan Energy Delivery New York	Gas Distribution	NY
KeySpan Energy Delivery Long Island	Gas Distribution	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 Electric Company	Electric Distribution	RI
Narragansett Gas Company	Gas Distribution	RI
Narragansett Electric Company - Transmission	Transmission	RI
New England Power Company - Transmission	Transmission	MA
NE Hydro - Trans Electric Co.	FERC Interconnect	N/A
New England Hydro - Trans Electric Co.	FERC Interconnect	N/A
New England Electric Trans Electric Co.	FERC Interconnect	N/A
NG LNG LP Regulated Entity	FERC Gas Ops	N/A
KeySpan Generation LLC (PSA)	Generation	NY
KeySpan Glenwood Energy Center	Generation	NY
KeySpan Port Jefferson Energy Center	Generation	NY
KeySpan Energy Trading Services	Parents	N/A
Transgas, Inc.	Other Non-Regulated	MA
KeySpan Energy Development Corporation	Non-Regulated	NY
KeySpan Services Inc.	Other Non-Regulated	NY
<b>TOTAL BENEFITS \$k</b>		
<b>Key Business Benefits:</b> Mitigation of risk of end of life hardware for critical applications running in the Legacy Data Center.		

<b>Key risks:</b>	<b>Key Dates (Month/ Year):</b>
	Start Up Mar 2017
	Begin Requirements/Design May 2017
	Begin Dev & Implement Jun 2017
	Move to Production / Last Go Live Jul 2017
	Project Complete Aug 2017
	Project Closure Sanction Sep 2017

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

Role	Individual's Name
Business Executive Sponsor	John Gilbert
Head of PDM	Bill Kearns
Relationship Manager	Bill Kearns
Program Delivery Manager	Dave McCune
IS Finance Management	Chip Benson
IS Regulatory	Dan DeMauro
DR&S	Elaine Wilson
Service Delivery	Brian Detota
Enterprise Architecture	Joe Clinchot

## RECOMMENDATIONS

The Sanctioning Authority is invited to:

- APPROVE the investment of \$0.900M including risk margin of \$0.015M by May 31, 2017
- NOTE that John Gilbert, Global Head IS Global Delivery, is the Project Sponsor
- NOTE that Chris Gatland 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.

National Grid Confidential

---

Signature..... Date.....  
John Gilbert, Global Head IS Global Delivery



1/22/2018

FY19 - Investment Request Summaries - IRSs - DR Priority 2 Apps Remediation



Planning & Performance Management ▶ FY19 - Investment Request Summaries - IRSs: DR  
Priority 2 Apps Remediation



nationalgrid		Investment Request Summary - IS US		FISCAL YEAR 2019																																													
INV ID:	4824	Project Name:	DR Priority 2 Apps Remediation																																														
Program:	Enterprise Services	IRS Status:	ACTIVE																																														
Sponsor:	Gilbert, John	Title:	Global Head IS Service Delivery, Global IS																																														
Relationship Manager:	Brian Detota	Title:	IS Relationship Manager, Global IS																																														
Progr Delivery Director:	Helen Smith	Title:	Head of Programme Delivery																																														
Paper Author:		Title:																																															
		Business Area:	IS - Infrastructure	Portfolio:	IS for IS																																												
<input type="checkbox"/> In-Flight Project?	Invest Classification: Medium	Category:	Policy Driven	Primary Policy Driver:	Reliability																																												
					Region: US																																												
Strategic Program:	End to End Process (Primary):	Business Priority:	IS Focus Area:	Application Strategy:																																													
Tech Modernization		High	Fix the Foundation																																														
	End to End Process (Secondary):																																																
<p><b>Project Description:</b> The context for the project with background information This is the second tier out of a total 41 Tier 1, 2 and 3 Applications.</p>																																																	
<p><b>Project Rationale:</b> Highlight business challenge, capability or process the project addresses Move towards a DR capability that supports a Service by Service DR approach so we can perform DR on single applications at a time, instead of the current environment of moving all or nothing.</p>																																																	
<p><b>Project Scope:</b> Explain what is in scope and what is not in scope for the project Receive input from 4712/application list, perform DR improvements and remediation to outlined list. Address database and network components.</p>																																																	
<p><b>Project Dependencies:</b> Identify any core program or project dependencies, please include INVP numbers if known This project is dependent on the completion INVP 4712 May require servers, storage and network bandwidth to support replication between CSC data centers.</p>																																																	
<p><b>Basic Project Assumptions:</b> This investment helps address IS health and capability challenges while enabling National Grid's strategic business objectives. Implementation approach is expected to be in several phases or projects.  Eco-partners willing to accept tight integration of expertise into their delivery model.</p>																																																	
<p><b>Indicative Project Costs by Fiscal Year</b></p> <table border="1"> <thead> <tr> <th>(\$M)</th> <th>Prior Years</th> <th>FY 2019</th> <th>FY 2020</th> <th>FY 2021</th> <th>FY 2022</th> <th>FY 2023</th> <th>FY 2024</th> <th>FY 2025</th> <th>FY 2026</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>CapEx</td> <td></td> <td>0.250</td> <td>0.100</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.350</td> </tr> <tr> <td>OpEx</td> <td></td> <td>0.050</td> <td>0.025</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.075</td> </tr> <tr> <td>Impact on RTB</td> <td></td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> </tr> </tbody> </table>						(\$M)	Prior Years	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total	CapEx		0.250	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.350	OpEx		0.050	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.075	Impact on RTB		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(\$M)	Prior Years	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total																																							
CapEx		0.250	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.350																																							
OpEx		0.050	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.075																																							
Impact on RTB		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																																							
<p><b>Indicative Project Costs by Delivery Phase</b></p> <table border="1"> <thead> <tr> <th>(\$M)</th> <th>Start-up</th> <th>R &amp; D</th> <th>D &amp; I</th> <th>Closure</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						(\$M)	Start-up	R & D	D & I	Closure	Total																																						
(\$M)	Start-up	R & D	D & I	Closure	Total																																												




Page 77 of 80

<b>IS Project Dependencies</b> if you don't see a project in the drop-down please contact the Planning & Performance team.		<b>Benefiting Operating Companies:</b> Check all that apply				
<b>IS Projects: 4824 - DR Priority 2 Apps Remediation</b>  1. Has a dependency on IS Project;  2. Has a dependency on IS Project;  3. Has a dependency on IS Project;  4. Has a dependency on IS Project;  5. Has a dependency on IS Project;  6. Has a dependency on IS Project;		<div><input type="checkbox"/> Select All Companies <input type="checkbox"/> Clear All Companies</div> <div><input type="checkbox"/> Select All Gas <input type="checkbox"/> Select All Electric <input type="checkbox"/> Select All Gen</div> <div><input checked="" type="checkbox"/> National Grid USA Parent</div> <div><input checked="" type="checkbox"/> KeySpan Energy Development Corporation</div> <div><input checked="" type="checkbox"/> KeySpan Services Inc.</div> <div><input checked="" type="checkbox"/> KeySpan Energy Corp</div> <div><input checked="" type="checkbox"/> KeySpan Energy Delivery New York</div> <div><input checked="" type="checkbox"/> KeySpan Energy Delivery Long Island</div> <div><input checked="" type="checkbox"/> KeySpan Generation LLC (PSA)</div> <div><input checked="" type="checkbox"/> KeySpan Glenwood Energy Center</div> <div><input checked="" type="checkbox"/> KeySpan Port Jefferson Energy Center</div> <div><input checked="" type="checkbox"/> KeySpan Energy Trading Svc LLC</div> <div><input checked="" type="checkbox"/> Niagara Mohawk Power Corp- Electric Distribution</div> <div><input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Gas</div> <div><input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Transmission</div> <div><input checked="" type="checkbox"/> Massachusetts Electric Company</div> <div><input checked="" type="checkbox"/> Massachusetts Electric Company - Transmission</div> <div><input checked="" type="checkbox"/> Nantucket Electric Company</div> <div><input checked="" type="checkbox"/> Boston Gas Company</div> <div><input checked="" type="checkbox"/> Colonial Gas Company</div> <div><input checked="" type="checkbox"/> Narragansett Gas Company</div> <div><input checked="" type="checkbox"/> Narragansett Electric Company</div> <div><input checked="" type="checkbox"/> Narragansett Electric Company - Transmission</div> <div><input checked="" type="checkbox"/> New England Power Company - Transmission</div> <div><input checked="" type="checkbox"/> New England Hydro - Trans Corp</div> <div><input checked="" type="checkbox"/> New England Electric Trans Corp</div> <div><input type="checkbox"/> NE Hydro Trans Electric Co</div> <div><input checked="" type="checkbox"/> NG LNG LP Regulated Entity</div>				
<b>Business Initiative Dependencies</b>  <b>IS Projects: 4824 - DR Priority 2 Apps Remediation</b>  1. Has a dependency on Biz Initiative,  2. Has a dependency on Biz Initiative,  3. Has a dependency on Biz Initiative,  4. Has a dependency on Biz Initiative,						
<b>Project Relationships</b>  <input type="checkbox"/> Minor Works  Related Projects:		Project Relationship:				
<b>Enabling IS Capabilities</b> check all that apply						
<div><input type="checkbox"/> Enterprise Content Management (ECM)</div> <div><input type="checkbox"/> Comprehensive Integration Services (CIS)</div> <div><input type="checkbox"/> Hybrid Cloud</div> <div><input type="checkbox"/> Next Gen Workplace</div> <div><input type="checkbox"/> Enterprise Mobility</div> <div><input type="checkbox"/> Reporting and Analytics</div> <div><input type="checkbox"/> Networks</div>						
<b>Key Milestone Dates:</b> Select the 1st, 15th or last day of the month		<b>Indicative Estimated Duration (Months):</b> 9				
Begin Start-up July, 2018	Begin Requirements & Design July, 2018	Begin Development & Implementation July, 2018	Begin User Acceptance Testing July, 2018	Go Live June, 2019	Project Completion July, 2019	Project Closure September, 2019
<b>Business Resource Estimates: # of Full Time Equivalents</b>						
Start-up 0	Requirements & Design 0	Develop & Implement 0	Business Resources UAT 0	Go Live Readiness 0	Post Go Live Support 0	
Resourcing Strategy:						
<b>Attached Supporting Documents</b>						

1/22/2018

FY19 - Investment Request Summaries - IRSs - DR Priority 2 Apps Remediation

Recommendation Sign-off			
Role	Name	Title	Date
Business Project Sponsor	Gilbert, John	Global Head IS Service Delivery, Global IS	
Business Relationship Manager	Brian Detota	IS Business Relationship Manager	
IS Program Delivery Manager	Helen Smith	IS Program Delivery Manager	
			

1/22/2018

FY19 - Investment Request Summaries - IRSs - Cloud Orchestration, Self service and Broker...



Planning & Performance Management > FY19 - Investment Request Summaries - IRSs:  
Cloud Orchestration, Self service and Broker



nationalgrid		Investment Request Summary - IS US		FISCAL YEAR 2019																																													
INV ID:	4981	Project Name:	Cloud Orchestration, Self service and Broker																																														
Program:	Enterprise Services	IRS Status:	ACTIVE																																														
Sponsor:	Gilbert, John	Title:	Global Head IS Service Delivery, Global IS																																														
Relationship Manager:	Brian Detota	Title:	IS Relationship Manager, Global IS																																														
Progr Delivery Director:	Helen Smith	Title:	Head of Programme Delivery																																														
Paper Author:		Title:																																															
		Business Area:	IS - Infrastructure	Portfolio:	IS for IS																																												
<input type="checkbox"/> In-Flight Project?	Invest Classification: Medium	Category:	Policy Driven	Primary Policy Driver:	Reliability																																												
					Region: US																																												
Strategic Program:	End to End Process (Primary):	Business Priority:	IS Focus Area:	Application Strategy:																																													
Tech Modernization		High	Future Proof Our Business	Enhance																																													
	End to End Process (Secondary):																																																
<p><b>Project Description:</b> The context for the project with background information This project is to provide customers the ability to provision storage and launches applications without going through an external cloud service provider. Cloud orchestration will arrange or coordinate the ability to automate tasks.</p> <p><b>Project Rationale:</b> Highlight business challenge, capability or process the project addresses Loss of the potential to reduce the costs of hosting costs and improve provisioning time through cloud hosting.</p> <p><b>Project Scope:</b> Explain what is in scope and what is not in scope for the project This project will also the procure services of Cloud Brokerage, which is a third-party company that acts as an intermediary between the purchaser of a cloud computing service and the sellers of that service.</p> <p><b>Project Dependencies:</b> Identify any core program or project dependencies, please include INVP numbers if known When the cloud environment at National Grid has expanded to be in the position to take advantage of these new services.</p> <p><b>Basic Project Assumptions:</b> Minimal business resources expected to be needed.</p>																																																	
<p><b>Indicative Project Costs by Fiscal Year</b></p> <table border="1"> <thead> <tr> <th>(\$M)</th> <th>Prior Years</th> <th>FY 2019</th> <th>FY 2020</th> <th>FY 2021</th> <th>FY 2022</th> <th>FY 2023</th> <th>FY 2024</th> <th>FY 2025</th> <th>FY 2026</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>CapEx</td> <td></td> <td>0.250</td> <td>0.250</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td></td> <td></td> <td></td> <td>0.500</td> </tr> <tr> <td>OpEx</td> <td></td> <td>0.250</td> <td>0.350</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td></td> <td></td> <td></td> <td>0.600</td> </tr> <tr> <td>Impact on RTB</td> <td></td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td></td> <td></td> <td></td> <td>0.000</td> </tr> </tbody> </table>						(\$M)	Prior Years	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total	CapEx		0.250	0.250	0.000	0.000	0.000				0.500	OpEx		0.250	0.350	0.000	0.000	0.000				0.600	Impact on RTB		0.000	0.000	0.000	0.000	0.000				0.000
(\$M)	Prior Years	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total																																							
CapEx		0.250	0.250	0.000	0.000	0.000				0.500																																							
OpEx		0.250	0.350	0.000	0.000	0.000				0.600																																							
Impact on RTB		0.000	0.000	0.000	0.000	0.000				0.000																																							
<p><b>Indicative Project Costs by Delivery Phase</b></p> <table border="1"> <thead> <tr> <th>(\$M)</th> <th>Start-up</th> <th>R &amp; D</th> <th>D &amp; I</th> <th>Closure</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>CapEx</td> <td></td> <td>0.100</td> <td>0.650</td> <td></td> <td>0.750</td> </tr> </tbody> </table>						(\$M)	Start-up	R & D	D & I	Closure	Total	CapEx		0.100	0.650		0.750																																
(\$M)	Start-up	R & D	D & I	Closure	Total																																												
CapEx		0.100	0.650		0.750																																												

1/22/2018

FY19 - Investment Request Summaries - IRSs - Cloud Orchestration, Self service and Broker...

OpEx	0.010	0.035	0.150	.005	0.200
------	-------	-------	-------	------	-------

### Project Benefits - Type I only

(\$M)	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Type I - CapEx									0.000
Type I - OpEx									0.000
Revenue Generation									0.000

**Key Business Benefits:**  
Describe benefits, both financial and non-financial, and when those benefits will be delivered. Provide a clear & concise business case stating the investment drivers – why do we need to do something and why now? Explain any Regulatory considerations and how this initiative aligns with the US Business Strategy.

### Investment Prioritization

Benefits	Impact	Weight	Score	Cost	Impact	Weight	Score
OpEx Annual Savings		10.3%	0	OpEx Cost	0.600	-24.4%	-2.196
CapEx Annual Savings		5.1%	0	CapEx Cost	0.500	-11.2%	0
Revenue Generation (annual)		6.2%	0	RTB Efficiency	0.000	% -22.5%	0
Financial Control	Low	6.2%	0.062	Union/Labor Relations	Low	-9.8%	0
Soft Financial Benefits	Low	3.8%	0.038	Dependencies	Low	-10.6%	-0.106
Regulatory Impact	Low	11.2%	0.112	Elapse Time Duration	Medium	-6.6%	-0.198
Process & Personal Safety	Low	19.4%	0.194	Change Management Effort	Low	-14.9%	-0.149
Reliability	Low	10.9%	0.109				
Customer & Community Responsiveness	Low	5.3%	0.053				
Employee Satisfaction	Low	4.6%	0.046				
Mitigates a Corporate Risk / Risk of not Doing	Medium=16 to 39	8.9%	0.267				
Jurisdictional Engagement	High	8.2%	1				
<b>Benefit Score: 1.62</b>				<b>Cost Score: -3.08</b>			
<b>Overall Priority Score: -1.464</b>							

### Investment Risk and Complexity

Project Risk Score:	34	Risk Score Description: Risk impact = 4 and Risk likelihood = 5
Project Complexity Score::	16	Project Complexity Score Description:

Key Risks Description: Provide detail on project risks & mitigation strategy:

### IS Project Dependencies

if you don't see a project in the drop-down please contact the Planning & Performance team.

### Benefiting Operating Companies:

Check all that apply

1/22/2018

FY19 - Investment Request Summaries - IRSs - Cloud Orchestration, Self service and Broker...

**IS Projects: 4981 - Cloud Orchestration, Self service and Broker**

1. Has a dependency on IS Project;
2. Has a dependency on IS Project;
3. Has a dependency on IS Project;
4. Has a dependency on IS Project;
5. Has a dependency on IS Project;
6. Has a dependency on IS Project;

**Business Initiative Dependencies****IS Projects: 4981 - Cloud Orchestration, Self service and Broker**

1. Has a dependency on Biz Initiative,
2. Has a dependency on Biz Initiative,
3. Has a dependency on Biz Initiative,
4. Has a dependency on Biz Initiative,

**Project Relationships**☐ Minor Works

Project Relationship:

Related Projects:

- ☐ Select All Companies ☐ Clear All Companies  
☐ Select All Gas ☐ Select All Electric ☐ Select All Gen
- ☒ National Grid USA Parent  
☒ KeySpan Energy Development Corporation  
☒ KeySpan Services Inc.  
☒ KeySpan Energy Corp  
☒ KeySpan Energy Delivery New York  
☒ KeySpan Energy Delivery Long Island  
☒ KeySpan Generation LLC (PSA)  
☒ KeySpan Glenwood Energy Center  
☒ KeySpan Port Jefferson Energy Center  
☒ KeySpan Energy Trading Svc LLC  
☒ Niagara Mohawk Power Corp- Electric Distribution  
☒ Niagara Mohawk Power Corp - Gas  
☒ Niagara Mohawk Power Corp - Transmission  
☒ Massachusetts Electric Company  
☒ Massachusetts Electric Company - Transmission  
☒ Nantucket Electric Company  
☒ Boston Gas Company  
☒ Colonial Gas Company  
☒ Narragansett Gas Company  
☒ Narragansett Electric Company  
☒ Narragansett Electric Company - Transmission  
☒ New England Power Company - Transmission  
☒ New England Hydro - Trans Corp  
☒ New England Electric Trans Corp  
☐ NE Hydro Trans Electric Co  
☒ NG LNG LP Regulated Entity

**Enabling IS Capabilities** check all that apply

- ☐ Enterprise Content Management (ECM) ☐ Enterprise Mobility  
☐ Comprehensive Integration Services (CIS) ☐ Reporting and Analytics  
☐ Hybrid Cloud ☐ Networks  
☐ Next Gen Workplace

**Key Milestone Dates:** Select the 1st, 15th or last day of the month**Indicative Estimated Duration (Months):**

Begin Start-up	Begin Requirements & Deign	Begin Development & Implementation	Begin User Acceptance Testing	Go Live	Project Completion	Project Closure
August, 2018				November, 2019	November, 2019	

**Business Resource Estimates: # of Full Time Equivalents**

Start-up	Requirements & Deign	Develop & Implement	Business Resources UAT	Go Live Readiness	Post Go Live Support
0	0	0	0	0	0

Resourcing Strategy:

**Attached Supporting Documents****Recommendation Sign-off**

1/22/2018

FY19 - Investment Request Summaries - IRSs - Cloud Orchestration, Self service and Broker...

<i>Role</i>	<i>Name</i>	<i>Title</i>	<i>Date</i>
<i>Business Project Sponsor</i>	<i>Gilbert, John</i>	Global Head IS Service Delivery, Global IS	
<i>Business Relationship Manager</i>	<i>Brian Detota</i>	IS Business Relationship Manager	
<i>IS Program Delivery Manager</i>	<i>Helen Smith</i>	IS Program Delivery Manager	
nationalgrid			



## FY18 - Investment Request Summaries - IRSs - EMM Licenses



Planning & Performance Management  
FY18 - Investment Request Summaries - IRSs: EMM Licenses



nationalgrid		Investment Request Summary - IS US		FISCAL YEAR 2018						
INV ID:	4713	Project Name: <b>EMM Licenses</b>								
Program:	<b>Service Strategy Roadmap</b>									
Sponsor:	John Gilbert	Title: Global Head IS Service Delivery, Global IS								
Relationship Manager:	Graham Pool	Title: IS Relationship Manager, Global IS								
Prog Delivery Manager:	Tom Cunningham	Title: Head of Programme Delivery, Global IS								
Paper Author:	Nicola Pennington / Steve Trezza	Title: Business Constant - Corporate IS								
IS Roadmap Category: IS Assurance		Business Area: <b>Corporate IS</b>		Portfolio: <b>IS for IS</b>						
<input type="checkbox"/> In-Flight Project? Invest Classification: Medium		Category: Policy Driven		Primary Policy Driver: Reliability						
				Region: <b>US</b>						
<input checked="" type="checkbox"/> Growth Playbook Project?		<input type="checkbox"/> Shaping Our Future Project?		<input type="checkbox"/> Energy Efficiency Project?						
<p><b>Project Description:</b> The context for the project with background information  The Enterprise Mobile Management System (EMM) project will secure corporate data and information stored on mobile devices, mainly by ensuring that policies are enforced on the device. This project will procure the necessary licenses to manage these mobile devices.</p>										
<p><b>Project Rationale:</b> Highlight business challenge, capability or process the project addresses  The organization is looking to expand the current MDM capability to enable Bring Your Own Devices (BYOD).</p>										
<p><b>Project Scope:</b> Explain what is in scope and what is not in scope for the project  All employees who use mobile devices.All US clients that use remote access to perform work at offsite locations.</p>										
<p><b>Project Dependencies:</b> Identify any core program or project dependencies, please include INVP numbers if known  The completion of Enterprise Mobile Management System Phase 1</p>										
<p><b>Basic Project Assumptions:</b>  This investment helps address IS health and capability challenges while enabling National Grid's strategic business objectives.</p>										
<b>Indicative Project Costs by Fiscal Year</b>										
(\$M)	Prior Years	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Total
CapEx		0.000	0.660	0.660	0.000	0.000	0.000	0.000	0.000	1.320
OpEx		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Impact on RTB		0.000	0.132	0.264	0.264	0.264	0.264	0.264	0.264	1.716
<b>Indicative Project Costs by Delivery Phase</b>										
(\$M)	Start-up	R & D		D & I		Closure		Total		
CapEx		0.200		1.180				1.380		
OpEx	0.000	0.000		0.000		0.000		0.000		
<b>Project Benefits - Type I only</b>										
(\$M)	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Total	

## FY18 - Investment Request Summaries - IRSs - EMM Licenses

Type I - CapEx									0.000
Type I - OpEx									0.000
Revenue Generation									0.000

**Key Business Benefits:**  
Describe benefits, both financial and non-financial, and when those benefits will be delivered. Provide a clear & concise business case stating the investment drivers – why do we need to do something and why now? Explain any Regulatory considerations and how this initiative aligns with the US Business Strategy.  
This investment is required to enable core capabilities that are foundational to the Mobile Strategy and will be required to support the mobility requirements for business initiatives.

**Additional benefits:**

- Managed mobile devices
- Secured mobile devices
- Device service wrapper
- EMM system management
- Mobile application management

### Investment Prioritization

Benefits	Impact	Weight	Score	Cost	Impact	Weight	Score
OpEx Annual Savings		10.3%	0	OpEx Cost	0.000	-24.4%	0
CapEx Annual Savings		5.1%	0	CapEx Cost	1.320	-11.2%	-1
Revenue Generation (annual)		6.2%	0	RTB Efficiency	140.000 %	-22.5%	-2.025
Financial Control	does not apply	6.2%	0	Union/Labor Relations	does not apply	-9.8%	0
Soft Financial Benefits	does not apply	3.8%	0	Dependencies	Low	-10.6%	-0.106
Regulatory Impact	does not apply	11.2%	0	Elastice Time Duration	High	-6.6%	-0.594
Process & Personal Safety	does not apply	19.4%	0	Change Management Effort	Low	-14.9%	-0.149
Reliability	Low	10.9%	0.109				
Customer & Community Responsiveness	Low	5.3%	0.053				
Employee Satisfaction	Medium	4.6%	0.138				
Mitigates a Corporate Risk / Risk of not Doing	Medium=16 to 39	8.9%	0.267				
Jurisdictional Engagement	High	8.2%	1				
			<b>Benefit Score: 1.31</b>				<b>Cost Score: -3.88</b>
				<b>Overall Priority Score: -2.577</b>			

### Investment Risk and Complexity

Project Risk Score:	36	Risk Score Description: Reliability - 4, likelihood 6
Project Complexity Score::	14	Project Complexity Score Description:

**Key Risks Description:** Provide detail on project risks & mitigation strategy:  
Without moving forward with EMM, we will lose the ability to help employees use applications with more functionality in a more intuitive manner. The Jurisdiction and business functions will not be able to utilize a more reliable and resilient applications that could have helped provide customers with more options when interacting with the Company.

### IS Project Dependencies

If you don't see a project in the drop-down please contact the Planning & Performance team.

**IS Projects:** 4713 - EMM Licenses

- Has a dependency on IS Project;
- Has a dependency on IS Project;
- Has a dependency on IS Project;

### Benefiting Operating Companies:

Check all that apply

☐ Select All Companies
☐ Clear All Companies  
☐ Select All Gas
☐ Select All Electric
☐ Select All Gen  
☒ National Grid USA Parent  
☒ KeySpan Energy Development Corporation

## FY18 - Investment Request Summaries - IRSs - EMM Licenses

<p>4. Has a dependency on IS Project;</p> <p>5. Has a dependency on IS Project;</p> <p>6. Has a dependency on IS Project;</p>	<p><input checked="" type="checkbox"/> KeySpan Services Inc.</p> <p><input checked="" type="checkbox"/> KeySpan Energy Corp</p> <p><input checked="" type="checkbox"/> KeySpan Energy Delivery New York</p> <p><input checked="" type="checkbox"/> KeySpan Energy Delivery Long Island</p> <p><input checked="" type="checkbox"/> KeySpan Generation LLC (PSA)</p> <p><input checked="" type="checkbox"/> KeySpan Glenwood Energy Center</p> <p><input checked="" type="checkbox"/> KeySpan Port Jefferson Energy Center</p> <p><input checked="" type="checkbox"/> KeySpan Energy Trading Svc LLC</p> <p><input checked="" type="checkbox"/> Niagara Mohawk Power Corp- Electric Distribution</p> <p><input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Gas</p> <p><input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Transmission</p> <p><input checked="" type="checkbox"/> Massachusetts Electric Company</p> <p><input checked="" type="checkbox"/> Massachusetts Electric Company - Transmission</p> <p><input checked="" type="checkbox"/> Nantucket Electric Company</p> <p><input checked="" type="checkbox"/> Boston Gas Company</p> <p><input checked="" type="checkbox"/> Colonial Gas Company</p> <p><input checked="" type="checkbox"/> Narragansett Gas Company</p> <p><input checked="" type="checkbox"/> Narragansett Electric Company</p> <p><input checked="" type="checkbox"/> Narragansett Electric Company - Transmission</p> <p><input checked="" type="checkbox"/> New England Power Company - Transmission</p> <p><input checked="" type="checkbox"/> New England Hydro - Trans Corp</p> <p><input checked="" type="checkbox"/> New England Electric Trans Corp</p> <p><input checked="" type="checkbox"/> NG LNG LP Regulated Entity</p>																
<p><b>Business Initiative Dependencies</b></p> <p>IS Projects: 4713 - EMM Licenses</p> <p>1. Has a dependency on Biz Initiative,</p> <p>2. Has a dependency on Biz Initiative,</p> <p>3. Has a dependency on Biz Initiative,</p> <p>4. Has a dependency on Biz Initiative,</p>																	
<p><b>Project Relationships</b></p> <p><input type="checkbox"/> Minor Works Project Relationship:</p> <p>Related Projects:</p>																	
<p><b>Enabling IS Capabilities</b> check all that apply</p> <p><input type="checkbox"/> Enterprise Content Management (ECM)</p> <p><input type="checkbox"/> Comprehensive Integration Services (CIS)</p> <p><input type="checkbox"/> Hybrid Cloud</p> <p><input type="checkbox"/> Next Gen Workplace</p> <p><input type="checkbox"/> Enterprise Mobility</p> <p><input type="checkbox"/> Reporting and Analytics</p> <p><input type="checkbox"/> Networks</p>																	
<p><b>Key Milestone Dates:</b> Select the 1st, 15th or last day of the month</p> <table border="1"> <thead> <tr> <th>Begin Start-up</th> <th>Begin Requirements &amp; Deign</th> <th>Begin Development &amp; Implementation</th> <th>Begin User Acceptance Testing</th> <th>Go Live</th> <th>Project Completion</th> <th>Project Closure</th> </tr> </thead> <tbody> <tr> <td>April, 2018</td> <td></td> <td></td> <td></td> <td></td> <td>March, 2020</td> <td></td> </tr> </tbody> </table>		Begin Start-up	Begin Requirements & Deign	Begin Development & Implementation	Begin User Acceptance Testing	Go Live	Project Completion	Project Closure	April, 2018					March, 2020			
Begin Start-up	Begin Requirements & Deign	Begin Development & Implementation	Begin User Acceptance Testing	Go Live	Project Completion	Project Closure											
April, 2018					March, 2020												
<p><b>Business Resource Estimates: # of Full Time Equivalents</b></p> <table border="1"> <thead> <tr> <th>Start-up</th> <th>Requirements &amp; Deign</th> <th>Develop &amp; Implement</th> <th>Business Resources UAT</th> <th>Go Live Readiness</th> <th>Post Go Live Support</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>		Start-up	Requirements & Deign	Develop & Implement	Business Resources UAT	Go Live Readiness	Post Go Live Support	0	0	0	0	0	0				
Start-up	Requirements & Deign	Develop & Implement	Business Resources UAT	Go Live Readiness	Post Go Live Support												
0	0	0	0	0	0												
<p>Resourcing Strategy:</p>																	
<p><b>Attached Supporting Documents</b></p>																	
<p><b>Recommendation Sign-off</b></p> <table border="1"> <thead> <tr> <th>Role</th> <th>Name</th> <th>Title</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>Business Project Sponsor</td> <td>John Gilbert</td> <td>Global Head IS Service Delivery, Global IS</td> <td></td> </tr> <tr> <td>Business Relationship Manager</td> <td>Graham Pool</td> <td>IS Business Relationship Manager</td> <td></td> </tr> <tr> <td>IS Program Delivery Manager</td> <td>Tom Cunningham</td> <td>IS Program Delivery Manager</td> <td></td> </tr> </tbody> </table>		Role	Name	Title	Date	Business Project Sponsor	John Gilbert	Global Head IS Service Delivery, Global IS		Business Relationship Manager	Graham Pool	IS Business Relationship Manager		IS Program Delivery Manager	Tom Cunningham	IS Program Delivery Manager	
Role	Name	Title	Date														
Business Project Sponsor	John Gilbert	Global Head IS Service Delivery, Global IS															
Business Relationship Manager	Graham Pool	IS Business Relationship Manager															
IS Program Delivery Manager	Tom Cunningham	IS Program Delivery Manager															

FY18 - Investment Request Summaries - IRSs - EMM Licenses

**US Sanction Paper**

<b>Title:</b>	Mainframe Disaster Recovery Machine	<b>Sanction Paper #:</b>	
<b>Project #:</b>	INVP 4760	<b>Sanction Type:</b>	Sanction
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	September 22, 2017
<b>Author:</b>	Friya Jamshedji / Nicola Pennington	<b>Sponsor:</b>	John Gilbert, Global Head IS Service Delivery
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Heather Cortes / Chris Granata

**1 Executive Summary**

**1.1 Sanctioning Summary**

This paper requests sanction of INVP 4760 in the amount \$0.683M with a tolerance of +/- 10% for the purposes of Full Implementation.

*This sanction amount is \$0.683M broken down into:*

*\$0.613M Capex  
\$0.070M Opex  
\$0.000M Removal*

**1.2 Project Summary**

The Capacity BackUp (CBU) hardware enablement license on the current Disaster Recovery (DR) mainframe will expire in November of 2017. Due to the age of the hardware on the current DR mainframe, the CBU license cannot be renewed.

A new DR mainframe must be purchased along with a CBU license that will allow the DR mainframe to expand up to the size (Capacity on Demand) required to support National Grid's mainframe DR requirements for the three production systems.

This project will ensure ongoing reliability and resiliency of DR services for the three production mainframes. In the event of a failure of one or more of the production mainframes, the new DR mainframe will be required to bring up the production mainframe Logical Partitions (LPARs) that host critical business applications such as Customer Related Information System (CRIS) and Customer Service System (CSS).

## US Sanction Paper

### 1.3 Summary of Projects

Project Number	Project Type (Elec only)	Project Title	Estimate Amount (\$M)
4760		Mainframe Disaster Recovery Machine	0.683
<b>Total</b>			0.683

### 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
Mar 2018	Closure

### 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 Growth Playbook Project looks to upgrade and improve the performance and capacity profile of National Grid's Mainframe Disaster Recovery platform. This investment will help to avoid potential adverse impact to systems operating on the mainframe.

### 1.8 Asset Management Risk Score

Asset Management Risk Score: 49

**Primary Risk Score Driver:** (Policy Driven Projects Only)

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

## US Sanction Paper

### 1.9 Complexity Level

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

Complexity Score: 11

### 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 (\$)
IS Investment Plan FY18 – 22	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	\$0.683M

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

Re-allocation of funds within the US business has been managed to meet jurisdictional budgetary, statutory and regulatory requirements. Future fiscal year forecasts will be addressed in future year business plans.

### 1.13 Current Planning Horizon

\$M	Prior Yrs	Current Planning Horizon						Total
		Yr. 1 2017/18	Yr. 2 2018/19	Yr. 3 2019/20	Yr. 4 2020/21	Yr. 5 2021/22	Yr. 6 + 2022/23	
CapEx	0.000	0.613	0.000	0.000	0.000	0.000	0.000	0.613
OpEx	0.000	0.070	0.000	0.000	0.000	0.000	0.000	0.070
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	0.683	0.000	0.000	0.000	0.000	0.000	0.683

## US Sanction Paper

### 1.14 Key Milestones

Milestone	Target Date: (Month/Year)
Start Up	Aug 2017
Begin Requirements and Design	Aug 2017
Project Sanction	Sep 2017
Begin Development and Implementation	Dec 2017
Move to Production / Last Go Live	Jan 2018
Project Complete	Jan 2018
Sanction Closure	Mar 2018

### 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 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



***US Sanction Paper***

**1.18    *List References***

N/A

***US Sanction Paper***

***2    Decisions***

The US IS Sanctioning Committee (ISSC) and Key External Stakeholders, reviewed and approved the content of the investment including:

- (a) APPROVE this paper and the investment of \$0.683M and a tolerance of +/-10%.
- (b) NOTE that Chris Granata is the Project Manager and has the approved financial delegation.

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

Anuraag Bhargava  
US CIO

## **US Sanction Paper**

### **3 Sanction Paper Detail**

<b>Title:</b>	Mainframe Disaster Recovery Machine	<b>Sanction Paper #:</b>	
<b>Project #:</b>	INVP 4760	<b>Sanction Type:</b>	Sanction
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	September 22, 2017
<b>Author:</b>	Friya Jamshedji / Nicola Pennington	<b>Sponsor:</b>	John Gilbert, Global Head IS Service Delivery
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Heather Cortes / Chris Granata

#### **3.1 Background**

DR for National Grid's current three mainframes is performed on a single mainframe. In order to meet the DR requirements of the three production systems, a new DR mainframe must be purchased along with a CBU license that meets the current capacity (MIPS-Million Instructions per second) requirement of the three production systems. The CBU license on the current mainframe is expiring in November of 2017. IBM will not allow the renewal of the CBU license due to the age of the hardware of the DR mainframe.

#### **3.2 Drivers**

The main drivers of this project are reliability, compliance, the need to upgrade aged hardware of the DR mainframe and mitigate the risk of adverse impact to systems operating on the mainframe with no option for failover once the CBU license expires in November of 2017.

#### **3.3 Project Description**

This proposal is for the one time purchase of the hardware and CBU license to replace the existing DR system. This system and license will provide the required capacity and configuration required to support National Grid's mainframe DR platform.

A major component of this project is the purchase of hardware. There are no changes to application software. Initial analysis to purchase appropriate hardware has been completed and the recommended option selected. The implementation phase will include swapping of old hardware with new hardware.

## ***US Sanction Paper***

This project will perform basic/network connectivity testing to confirm that the new mainframe is working but not failover testing. Fail over testing will be carried out by INVP 4758 Critical Application Resiliency Testing project.

The following activities will be carried out through this project -

- Confirmation of the DR mainframe hardware requirements and design to ensure that the DR provision is fit for it's purpose
- Procurement of the required hardware to replace the existing DR mainframe 2098-E10-A01 (mainframe workload DR box)
- Procurement of the CBU license (hardware enablement license)
- Implementation of the new hardware in the Newark DXC Data Center
- Perform general/ network connectivity testing (DXC Systems)
- Decommissioning of the existing DR mainframe 2098-E10-A01/Sn 1F646 (DXC Systems)

In the event of a failure of the production mainframes, the new DR mainframe will be required to bring up the production mainframe Logical Partitions (LPARs). The applications located on the existing DR mainframe LPARs are as follows:

- Customer Service Systems (CSS) (for New England, Upstate New York, Long Island Call Centers, LIGAS), Electronic Data Interchange (EDI), Data Warehouse
- ESP (Job scheduling solution), MWork, SAS applications, Energy Resources (ERS), Planned Outage, Forestry Letters
- ESP, Load Estimation, Legacy Peoplesoft, PULSe (for supplier load estimation and reporting), Remote Access Pulse Recorders (RAPR)
- ESP, Customer Related Information System (CRIS), NYC-CRIS, Distribution Project Management System (DPMS), Distribution Information System (DIS), Long Island-Leak Management System (LI-LMS), SURVEY and VALVES

### ***3.4 Benefits Summary***

The main benefits of this project are to -

- Ensure ongoing reliability & resiliency of DR services for the three production mainframes thereby ensuring resiliency of critical business applications running on these mainframes
- Improve the performance and capacity profile of National Grid's Mainframe DR platform
- National Grid will have the capability to turn on additional capacity (MIPS) on the DR mainframe if needed.

### ***3.5 Business and Customer Issues***

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

## US Sanction Paper

### 3.6 Alternatives

#### Alternative 1: Do Nothing

Doing nothing will not address the primary drivers listed in Section 3.2. This option is not viable since the CBU license on the current mainframe is expiring in November of 2017. Due to the age of the hardware of the DR mainframe, the CBU license cannot be renewed on the existing DR mainframe.

#### Alternative 2: Defer project

Deferring the project will delay the realization of benefits for National Grid of ensuring ongoing reliability and resiliency of Disaster Recovery services for the three mainframes and the critical business applications that run on these mainframes. This option is not viable since the CBU license on the current mainframe is expiring in November of 2017 and cannot be renewed due to the age of existing hardware.

### 3.7 Safety, Environmental and Project Planning Issues

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

### 3.8 Execution Risk Appraisal

Number	Detailed Description of Risk / Opportunity	Probability	Impact		Score		Strategy	Pre-Trigger Mitigation Plan	Residual Risk	Post Trigger Mitigation Plan
			Cost	Schedule	Cost	Schedule				
1	Implement by 11/9/2017 - DR Mainframe may not be procured and implemented in time	5	3	3	15	15	Mitigate	Explore the possibility to extend CBU license	Extension of the CBU Licence could result in a fee	Reevaluate project timelines and associated cost increase
2	If the applications on the production LPAR for the DR mainframe are not part of the 90 critical applications that are part of the INVP 4758 project, testing will have to be performed outside of that project.	3	1	2	3	6	Mitigate	Work with the Bill DuMont to identify the best testing approach.		
3	Extend the current CBU License while the DR Mainframe is procured/installed	4	3	1	12	4	Mitigate	Stuart Anderton from IS Commercial will work with IBM for a possible extension of the CBU license	Extension of the CBU Licence could result in a fee	

### 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.

## US Sanction Paper

### 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

					Current Planning Horizon						
Project Number	Project Title	Project Estimate Level (%)		Prior Yrs	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
					2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	
4760	Mainframe Disaster Recovery Machine	Est Lvl (e.g. +/- 10%)	Spend (\$M)								
			CapEx	0.000	0.613	0.000	0.000	0.000	0.000	0.000	0.613
			OpEx	0.000	0.070	0.000	0.000	0.000	0.000	0.000	0.070
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.000	0.683	0.000	0.000	0.000	0.000	0.000	0.683
Total Project Sanction			CapEx	0.000	0.613	0.000	0.000	0.000	0.000	0.000	0.613
			OpEx	0.000	0.070	0.000	0.000	0.000	0.000	0.000	0.070
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.000	0.683	0.000	0.000	0.000	0.000	0.000	0.683

### 3.11.2 Project Budget Summary Table

#### Project Costs Per Business Plan

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
\$M		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	
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)

	Prior Yrs (Actual)	Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
\$M		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	
CapEx	0.000	(0.613)	0.000	0.000	0.000	0.000	0.000	(0.613)
OpEx	0.000	(0.070)	0.000	0.000	0.000	0.000	0.000	(0.070)
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	(0.683)	0.000	0.000	0.000	0.000	0.000	(0.683)

## **US Sanction Paper**

### **3.11.3 Cost Assumptions**

This estimate was developed in 2017 using the standard IS estimating methodology. The accuracy level of estimate for each project is identified in table 3.11.1

### **3.11.4 Net Present Value / Cost Benefit Analysis**

This is not an NPV Project.

#### **3.11.4.1 NPV Summary Table**

N/A

#### **3.11.4.2 NPV Assumptions and Calculations**

N/A

### **3.11.5 Additional Impacts**

None.

## **3.12 Statements of Support**

### **3.12.1 Supporters**

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

<b>Role</b>	<b>Individual</b>
Business Sponsor	John Gilbert
Head of PDM	Helen Smith
Relationship Manager	Bill Kearns
Program Delivery Director	Chris Granata
IS Finance Management	Chip Benson
IS Regulatory	Tom Gill
DR&S	Elaine Wilson
Service Delivery	Brian Detota
Enterprise Architecture	Joe Clinchot

### **3.12.2 Reviewers**

N/A

## **US Sanction Paper**

### **4 Appendices**

#### **4.1 Sanction Request Breakdown by Project**

N/A

#### **4.2 Other Appendices**

##### **4.2.1 Project Cost Breakdown**

<b>Project Cost Breakdown</b>			
<b>Cost Category</b>	<b>sub-category</b>	<b>\$ (millions)</b>	<b>Name of Firm(s) providing</b>
<b>Personnel</b>	NG Resources	0.012	
	SDC Time & Materials	0.061	
	SDC Fixed-Price	-	
	All other personnel	(0.000)	
	<b>TOTAL Personnel Costs</b>	0.073	
<b>Hardware</b>	Purchase	0.430	
	Lease	-	
<b>Software</b>		-	
<b>Risk Margin</b>		0.105	
<b>Other</b>		0.075	
<b>TOTAL Costs</b>		0.683	



**US Sanction Paper**

**4.2.2 Benefiting Operating Companies**

<b>Benefiting Operating Companies</b>	<b>Business Area</b>	<b>State</b>
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
New England Hydro - Trans Corp.	Inter Connector	MA, NH
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
Transgas Inc	Non-Regulated	NY
Keyspan Energy Trading Services	Other	NY
KeySpan Energy Corp. Service Company	Service Company	
New England Electric Trans Corp	Inter Connector	MA
New England Electric Trans Corp	InterConnector	MA

**4.2.3 IS Ongoing Operational Costs (RTB):**

Since this project deals with the purchase of a new Mainframe DR machine/CBU license, there are no associated run-the-business (RTB) costs.

**4.3 NPV Summary**

N/A

***US Sanction Paper***

**4.4      *Customer Outreach Plan***

N/A

**US Sanction Paper**

<b>Title:</b>	Enterprise Mobility Management Services - Phase 2	<b>Sanction Paper #:</b>	USSC-17-327
<b>Project #:</b>	INVP 4714	<b>Sanction Type:</b>	Sanction
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	October 11, 2017
<b>Author:</b>	Aravind Lochan / Andrew Yee	<b>Sponsor:</b>	John Gilbert, Global Head of Service Delivery
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Dave McCune

**1 Executive Summary**

**1.1 Sanctioning Summary**

This paper requests sanction of INVP 4714 in the amount \$1.235M with a tolerance of +/- 10% for the purposes of Full implementation for Enterprise Mobility Management Services.

*This sanction amount is \$1.235 broken down into:*

*\$1.052M Capex  
\$0.183M Opex  
\$0.000M Removal*

**1.2 Project Summary**

This project will implement Enterprise Mobility Management (EMM) service that will allow National Grid to secure and manage mobile apps and content across a variety of mobile devices.

EMM provides additional security and usability services in the area of mobile device management, mobile application management, and mobile content management. Deployment of these services throughout the enterprise will manage all mobile devices through remote administration and ensure that all contents and data on the mobile devices are secured.

The objective of this project is to rollout and migrate all corporate mobile devices and Bring Your Own Device (BYOD) devices (*i.e.*, personal Android / iPhones / iPads) across the US - (up to 6000 devices) under enterprise wide service.

Presently EMM Phase – 1 (INVP 3430) is rolling out 200 US corporate devices.

## US Sanction Paper

### 1.3 Summary of Projects

Project Number	Project Title	Estimate Amount (\$M)
4714	Enterprise Mobility Management - Phase 2	1.235

### 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
Apr 2018	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	<p>To ensure that our mobile device estate continues to be reliable, remains secure, and is able to meet new business demands. Manage mobile devices and user access ensures that National Grid data is kept secure. Manage application and content distribution to mobile devices. Support the security of corporate data utilizing mobile content management and containerization.</p> <p>This is a strategic initiative that supports a number of key company initiatives that are referenced in Section 4.2.3</p>

### 1.8 Asset Management Risk Score

Asset Management Risk Score: 36

**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: 14

### 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 (\$)
IS Investment Plan FY18 - 22	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Over <input type="radio"/> Under <input type="radio"/> NA	\$0.635M

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

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

### 1.13 Current Planning Horizon

		Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
\$M	Prior Yrs	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	
CapEx	0.000	0.700	0.352	0.000	0.000	0.000	0.000	1.052
OpEx	0.000	0.169	0.014	0.000	0.000	0.000	0.000	0.183
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	0.869	0.366	0.000	0.000	0.000	0.000	1.235

## US Sanction Paper

### 1.14 Key Milestones

Milestone	Target Date: (Month/Year)
Start Up	Oct 2017
Partial Sanction	N/A
Begin Requirements and Design	Nov 2017
Project Sanction	Oct 2017
Begin Development and Implementation	Jan 2018
Move to Production / Last Go Live	Apr 2018
Project Complete	Apr 2018
Sanction Closure	Apr 2018

### 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)

Not identified

**US Sanction Paper**

**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 Sanctioning Committee (USSC) at a meeting held on October 11, 2017:

- (a) APPROVE this paper and the investment of \$1.235M and a tolerance of +/-10%.
- (b) APPROVE the Run The Business (RTB) impact of \$0.186M (per annum) for 5 years.
- (c) NOTE that Dave McCune is the Project Manager and has the approved financial delegation.

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

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



## **US Sanction Paper**

### **3 Sanction Paper Detail**

<b>Title:</b>	Enterprise Mobility Management Services - Phase 2	<b>Sanction Paper #:</b>	USSC-17-327
<b>Project #:</b>	INVP 4714	<b>Sanction Type:</b>	Sanction
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	October 11, 2017
<b>Author:</b>	Aravind Lochan / Andrew Yee	<b>Sponsor:</b>	John Gilbert, Global Head of Service Delivery
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Dave McCune

#### **3.1 Background**

Due to the growing use of mobile devices, it is more critical than ever that we have a way to manage these devices so that we can comply with policy, distribute applications, and secure the data on these devices. This can be performed through a central Enterprise Mobility Management (EMM) platform.

National Grid has over 6000 corporate owned mobile devices that are used by the workforce to store information and gain access to network applications and email. In addition, National Grid applications will require tighter integration between mobile devices and our backend IT systems to enable our workforce to work in a more flexible and efficient manner.

The organization plans to expand the use of this service in the future to support Bring Your Own Device (BYOD) capability.

EMM Phase 1 (INVP 3430):

This phase has evaluated multiple vendors through a Request For Proposal (RFP) process. The service provider selected as a result will implement the enterprise wide service based on the detailed design. As part of testing a certain number of early adopters (e.g., Time Entry, Time Approval, Salesforce) have signed up to the service.

This phase will onboard 200 US corporate devices to implement and test the platform and is nearing completion.

EMM Phase 2 (INVP 4714):

This project will implement the enterprise wide service based on the design from EMM Phase 1. This Project will migrate the existing US corporate devices and BYOD devices (up to 6000 devices) in to the EMM platform. This project will also identify and deploy all the applications through deployment process, test the EMM platform and its services.

## ***US Sanction Paper***

### ***3.2 Drivers***

EMM provides a number of capabilities (listed below) in the area of mobile device management, mobile application management, and mobile content management. Deployment of these capabilities throughout the environment will ensure our mobile devices and data are protected, support remote administration and management of our mobile devices, and ensure that all content on the mobile devices are secured.

- Manages your mobile device by enabling security policies that support the access and use of corporate data on your mobile device
- Enables access to corporate resources like the Infonet and SharePoint directly from your mobile device securely and transparently
- Separates private and corporate data on your mobile device
- Enables the development of new corporate apps that can be used on the mobile devices
- Supports the distribution and update of apps to your mobile device via a private National Grid Apps Store

### ***3.3 Project Description***

This project will establish and deploy a central EMM service capable of on-boarding 6000 mobile devices. Included in this delivery is the implementation of device and security policies, a corporate applications store, mobile device containers and the infrastructure required to support mobile device access to corporate systems and data in a secure fashion.

EMM services include:

- Mobile Device Management (MDM)
- Mobile Application Management (MAM)
- Mobile Device Lifecycle Management to support the break/fix replacement of mobile devices
- Service Wrap for these services including Business As Usual (BAU) processes for adding and removing users
- Centralized Service for support of mobile devices (e.g., for issues with installing or using apps)

## **US Sanction Paper**

### **3.4 Benefits Summary**

#### **Qualitative Benefits-**

There are a number of qualitative benefits:

- Enablement of business areas to use mobile apps
  - Providing a Mobile Application Management service enables the delivery of mobile applications in a safe, secure and efficient way
- Improved Efficiency
  - Standard deployment of mobile devices and applications
  - Enabling mobile access to applications increases workforce efficiency and productivity, especially the field work force
- Mitigation of Risk of reputational damage
  - Device lost is a potential security threat. Implementation of Mobile device management through EMM Service allows for specific security policies to be enforced on mobile devices and will enable devices to have data wiped remotely to minimise this threat
- Ensure appropriate end user support for mobile device issues

### **3.5 Business and Customer Issues**

N/A

### **3.6 Alternatives**

#### **Alternative 1: Do Nothing**

Do not implement an Enterprise Mobility Management Service.

This is not a recommended option as this does not address the investment drivers:

- There is an increasing number of projects needing a mobile device management service
- Selecting and setting up an Enterprise wide mobility management service, which projects can then deploy to, is more cost effective as compared to individual projects implementing their own versions for mobility management
- Mobile device, application and content control will be easier if a standard service for EMM is setup which projects can deploy

#### **Alternative 2: Defer Project**

This option is not recommended as, although it eventually addresses the investment drivers, it does not do so within the required timeframe and may cost more due to multiple projects being dependent on this service as listed in the appendix. Also, it might be difficult to standardize if each project ends up implementing its own version of the mobility management service, increasing the support and license costs in the long run.

## 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

Number	Detailed Description of Risk / Opportunity	Probability	Impact		Score		Strategy	Pre-Trigger Mitigation Plan	Residual Risk	Post Trigger Mitigation Plan
			Cost	Schedule	Cost	Schedule				
1	There is a risk that supplier resources are not available in sufficient quantity to complete with-in required timescales	2	4	5	8	10	Mitigate	Arriagne quotes for extra 3rd party resources	Project timeline at risk	Bringin extra third party resources to enable project timelines to be met
2	Future platform requirement coming from mobile Apps team may not be known	3	3	3	9	9	Mitigate	Have all the detail requirements from mobile apps, and set expectations with Airwatch on the forthcoming challenges	Project solution might be at risk	Ensure the required requirements are detailed beforehand before proceeding to Development / Implementation phase
3	Network infrastructure support may impact the other interrelated applications	2	2	3	4	6	Mitigate	Manage business expectations	The service may partially delay project timeline	Work closely with the respective service provider to have the expectations set and by creating the necessary NSSR's by formally engaging them
4	Network server support availability may impact the other interrelated applications	2	2	3	4	6	Mitigate	Manage business expectations	The service may partially delay project timeline	Work closely with the respective service provider to have the expectations set and by creating the necessary NSSR's by formally engaging them
5	Application cost to be covered by the respective vendors & Applications team	2	3	2	6	4	Mitigate	Set the cost expectations with the respective application stakeholders	Project cost might be at risk if the application team charges their support cost	Engaure the application teams right from the beginning of the project, set the expectations right from the first time, so they will not charge any application cost to the project

### 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.

## US Sanction Paper

### 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

					Current Planning Horizon						
Project Number	Project Title	Project Estimate Level (%)			Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
			Spend (\$M)	Prior Yrs	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Total
4714	Enterprise Mobility Management - Phase 2	Est Lvl (e.g. +/- 10%)	CapEx	0.000	0.700	0.352	0.000	0.000	0.000	0.000	1.052
			OpEx	0.000	0.169	0.014	0.000	0.000	0.000	0.183	
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
			Total	0.000	0.869	0.366	0.000	0.000	0.000	1.235	

### 3.11.2 Project Budget Summary Table

#### Project Costs per Business Plan

	Prior Yrs (Actual)	Current Planning Horizon						
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Total
\$M								
CapEx	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OpEx	0.000	0.200	0.200	0.200	0.000	0.000	0.000	0.600
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	0.200	0.200	0.200	0.000	0.000	0.000	0.600

#### Variance (Business Plan-Project Estimate)

\$M	Prior Yrs (Actual)	Current Planning Horizon						
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Total
CapEx	0.000	(0.700)	(0.352)	0.000	0.000	0.000	0.000	(1.052)
OpEx	0.000	0.031	0.186	0.200	0.000	0.000	0.000	0.417
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	(0.669)	(0.166)	0.200	0.000	0.000	0.000	(0.635)

## **US Sanction Paper**

### **3.11.3 Cost Assumptions**

- EMM Phase 1 is completed on time, presently its in implementation phase.
- EMM Implementation and setup costs are estimated costs with a total of 6000 licenses at this stage.
- Approximately \$100K is planned for penetration testing and Security Incidents Event Management (SIEM) integration for enabling testing and integration activities for the project.
- Summary of Run The Business (RTB) impact costs have been provided in Section 4.2.2

### **3.11.4 Net Present Value / Cost Benefit Analysis**

This is not a NPV Project.

#### **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.

Role	Individual's Name
Business Executive Sponsor	John Gilbert
Head of PDM	Helen Smith
Relationship Manager	Bill Kearns
Program Delivery Director	Dave McCune
IS Finance Management	Chip Benson
IS Regulatory	Dan DeMauro
DR&S	Elaine Wilson
Service Delivery	Brian Detota
Enterprise Architecture	Joe Clinchot

## **US Sanction Paper**

### **3.12.2 Reviewers**

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

Function	Individual	Area
Regulatory	Harvey, Maria	IS
Jurisdictional Delegate(s)	Anand, Sonny	Electric - NE
	Harbaugh, Mark	Electric - NY
	Hill, Terron	FERC
	Currie, John	Gas - NE
	Wolf, Don	Gas - NY
Procurement	Curran, Art	All

## **4 Appendices**

### **4.1 Sanction Request Breakdown by Project**

N/A

### **4.2 Other Appendices**

#### **4.2.1 Project Cost Breakdown**

Project Cost Breakdown			
Cost Category	sub-category	\$ (millions)	Name of Firm(s) providing
<b>Personnel</b>	NG Resources	0.082	
	SDC Time & Materials	0.123	
	SDC Fixed-Price	0.150	
	All other personnel	0.386	
	<b>TOTAL Personnel Costs</b>	0.741	
<b>Hardware</b>	Purchase	-	
	Lease	-	
<b>Software</b>		-	
<b>Risk Margin</b>		0.055	
<b>Other</b>		0.439	
<b>TOTAL Costs</b>		1.235	

**US Sanction Paper**

**4.2.2 IS Ongoing Operational Costs (RTB)**

<b>Summary Analysis of RTB Costs</b>							
All figures in \$ millions	Yr. 1 17/18	Yr. 2 18/19	Yr. 3 19/20	Yr. 4 20/21	Yr. 5 21/22	Yr. 6+	Total
<b>Forecast of RTB Impact</b>							
RTB if Status Quo Continues	0.018	-	-	-	-	-	<b>0.018</b>
RTB if Project is Implemented	-	0.174	0.186	0.186	0.162	0.180	<b>0.888</b>
<b>Net change in RTB</b>	(0.018)	0.174	0.186	0.186	0.162	0.180	<b>0.870</b>
<b>RTB Variance Analysis (if Project is Implemented)</b>							
Net Δ RTB funded by Plan(s)	-	-	-	-	-	-	-
Variance to Plan	(0.018)	0.174	0.186	0.186	0.162	0.180	<b>0.870</b>
<b>Total RTB Costs - by Cost Type (if Project is Implemented)</b>							
App.Sup. - SDC 1	-	-	-	-	-	-	-
App.Sup. - SDC 2	-	-	-	-	-	-	-
App.Sup. - other	-	-	-	-	-	-	-
SW maintenance	-	-	-	-	-	-	-
SaaS	-	0.162	0.174	0.174	0.150	0.167	<b>0.827</b>
HW support	-	-	-	-	-	-	-
Other: IS	-	0.012	0.012	0.012	0.012	0.013	<b>0.061</b>
<b>All IS-related RTB (sub-Total)</b>	-	0.174	0.186	0.186	0.162	0.180	<b>0.888</b>
<b>Business Support (sub-Total)</b>	-	-	-	-	-	-	-
<b>Total RTB Costs</b>	-	0.174	0.186	0.186	0.162	0.180	<b>0.888</b>



## **US Sanction Paper**

### **4.2.3 Benefiting Operating Companies**

<b>Operating Company Name</b>	<b>Business Area</b>	<b>State</b>
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
NE Hydro Finance Co.	Inter Connector	
NE Hydro-Trans Elect Co.	Inter Connector	
Trans Gas Inc.	Non-Regulated	NY

### **4.3 NPV Summary**

N/A

### **4.4 Customer Outreach Plan**

N/A

1/22/2018

FY19 - Investment Request Summaries - IRSs - Network Management Performance Tool



Planning & Performance Management ▶ FY19 - Investment Request Summaries - IRSs:  
Network Management Performance Tool



nationalgrid		Investment Request Summary - IS US		FISCAL YEAR 2019																																													
INV ID:	4836	Project Name:	Network Management Performance Tool																																														
Program:	Enterprise Services		IRS Status: ACTIVE																																														
Sponsor:	Gilbert, John		Title: Global Head IS Service Delivery, Global IS																																														
Relationship Manager:	Brian Detota		Title: IS Relationship Manager, Global IS																																														
Progr Delivery Director:	Helen Smith		Title: Head of Programme Delivery																																														
Paper Author:			Title:																																														
		Business Area:	IS - Infrastructure	Portfolio:	IS for IS																																												
<input type="checkbox"/> In-Flight Project?	Invest Classification:	Medium	Category:	Policy Driven	Primary Policy Driver: Reliability																																												
					Region: US																																												
Strategic Program:	End to End Process (Primary):		Business Priority:	IS Focus Area:	Application Strategy:																																												
Tech Modernization			Medium	Future Proof Our Business	Enhance																																												
		End to End Process (Secondary):																																															
<p><b>Project Description:</b> The context for the project with background information Provide a single network management tool to allow National Grid to better analyze the performance of the network, proactively address issues, and expedite issue resolution.</p> <p><b>Project Rationale:</b> Highlight business challenge, capability or process the project addresses National Grid is leveraging technology now more than ever, and the successful use of its applications and computing environment is dependent on trouble free communications between our offices, data centers, field workers and customers. The project will install a tool that provides more timely and accurate information about National Grid's IT communications systems so that communications can be proactively monitored to prevent incidents and improve incident response when they occur.</p> <p><b>Project Scope:</b> Explain what is in scope and what is not in scope for the project <u>In Scope:</u> The implementation of a network management platform with single pane of glass visibility to all National Grid's IT communications and network systems. The development of processes and standards to utilize the platform and ensure the onboarding of new devices as they are installed. <u>Out of Scope:</u> 3rd Party Management Platforms</p> <p><b>Project Dependencies:</b> Identify any core program or project dependencies, please include INVP numbers if known</p> <p><b>Basic Project Assumptions:</b> National Grid IS staff will be reliant on the limited management tool set of our suppliers to provide information for performance and architectural analysis and incident response will continue to be reactive with NG staff having limited visibility.</p>																																																	
<p><b>Indicative Project Costs by Fiscal Year</b></p> <table border="1"> <thead> <tr> <th>(\$M)</th> <th>Prior Years</th> <th>FY 2019</th> <th>FY 2020</th> <th>FY 2021</th> <th>FY 2022</th> <th>FY 2023</th> <th>FY 2024</th> <th>FY 2025</th> <th>FY 2026</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>CapEx</td> <td></td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>OpEx</td> <td></td> <td>0.150</td> <td>0.150</td> <td>0.150</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.450</td> </tr> <tr> <td>Impact on RTB</td> <td></td> <td>0.015</td> <td>0.050</td> <td>0.060</td> <td>0.060</td> <td>0.060</td> <td>0.000</td> <td>0.060</td> <td>0.060</td> <td>0.365</td> </tr> </tbody> </table>						(\$M)	Prior Years	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total	CapEx		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	OpEx		0.150	0.150	0.150	0.000	0.000	0.000	0.000	0.000	0.450	Impact on RTB		0.015	0.050	0.060	0.060	0.060	0.000	0.060	0.060	0.365
(\$M)	Prior Years	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total																																							
CapEx		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																																							
OpEx		0.150	0.150	0.150	0.000	0.000	0.000	0.000	0.000	0.450																																							
Impact on RTB		0.015	0.050	0.060	0.060	0.060	0.000	0.060	0.060	0.365																																							
<p><b>Indicative Project Costs by Delivery Phase</b></p>																																																	

1/22/2018

FY19 - Investment Request Summaries - IRSS - Network Management Performance Tool

(\$M)	Start-up	R & D	D & I	Closure	Total
CapEx		0.000	0.000		0.000
OpEx	0.010	0.085	0.350	.005	0.450

**Project Benefits - Type I only**

(\$M)	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Type I - CapEx									0.000
Type I - OpEx									0.000
Revenue Generation									0.000

**Key Business Benefits:**

Describe benefits, both financial and non-financial, and when those benefits will be delivered. Provide a clear & concise business case stating the investment drivers – why do we need to do something and why now? Explain any Regulatory considerations and how this initiative aligns with the US Business Strategy.

**Investment Prioritization**

Benefits				Cost			
	Impact	Weight	Score		Impact	Weight	Score
OpEx Annual Savings		10.3%	0	OpEx Cost	0.450	-24.4%	-2.196
CapEx Annual Savings		5.1%	0	CapEx Cost	0.000	-11.2%	0
Revenue Generation (annual)		6.2%	0	RTB Efficiency	0.000	% -22.5%	0
Financial Control	Low	6.2%	0.062	Union/Labor Relations	Low	-9.8%	0
Soft Financial Benefits	Low	3.8%	0.038	Dependencies	Low	-10.6%	-0.106
Regulatory Impact	Low	11.2%	0.112	Elapse Time Duration	Medium	-6.6%	-0.198
Process & Personal Safety	Low	19.4%	0.194	Change Management Effort	Low	-14.9%	-0.149
Reliability	Medium	10.9%	0.327				
Customer & Community Responsiveness	Low	5.3%	0.053				
Employee Satisfaction	Medium	4.6%	0.138				
Mitigates a Corporate Risk / Risk of not Doing	Medium=16 to 39	8.9%	0.267				
Jurisdictional Engagement	High	8.2%	1				
Benefit Score: 1.93				Cost Score: -2.75			
				Overall Priority Score: -0.818			

**Investment Risk and Complexity**

Project Risk Score:	34	Risk Score Description: Risk impact = 4 and Risk likelihood = 5
Project Complexity Score::	12	Project Complexity Score Description:

Key Risks Description: Provide detail on project risks & mitigation strategy:

1/22/2018

FY19 - Investment Request Summaries - IRSS - Network Management Performance Tool

### IS Project Dependencies if you don't see a project in the drop-down please contact the Planning & Performance team.

IS Projects: **4836 - Network Management Performance Tool**

1. Has a dependency on IS Project;
2. Has a dependency on IS Project;
3. Has a dependency on IS Project;
4. Has a dependency on IS Project;
5. Has a dependency on IS Project;
6. Has a dependency on IS Project;

### Business Initiative Dependencies

IS Projects: **4836 - Network Management Performance Tool**

1. Has a dependency on Biz Initiative,
2. Has a dependency on Biz Initiative,
3. Has a dependency on Biz Initiative,
4. Has a dependency on Biz Initiative,

### Project Relationships

☐ Minor Works

Project Relationship:

Related Projects:

### Benefiting Operating Companies: Check all that apply

- ☐ Select All Companies ☐ Clear All Companies  
☐ Select All Gas ☐ Select All Electric ☐ Select All Gen
- ☒ National Grid USA Parent
  - ☒ KeySpan Energy Development Corporation
  - ☒ KeySpan Services Inc.
  - ☒ KeySpan Energy Corp
  - ☒ KeySpan Energy Delivery New York
  - ☒ KeySpan Energy Delivery Long Island
  - ☒ KeySpan Generation LLC (PSA)
  - ☒ KeySpan Glenwood Energy Center
  - ☒ KeySpan Port Jefferson Energy Center
  - ☒ KeySpan Energy Trading Svc LLC
  - ☒ Niagara Mohawk Power Corp- Electric Distribution
  - ☒ Niagara Mohawk Power Corp - Gas
  - ☒ Niagara Mohawk Power Corp - Transmission
  - ☒ Massachusetts Electric Company
  - ☒ Massachusetts Electric Company - Transmission
  - ☒ Nantucket Electric Company
  - ☒ Boston Gas Company
  - ☒ Colonial Gas Company
  - ☒ Narragansett Gas Company
  - ☒ Narragansett Electric Company
  - ☒ Narragansett Electric Company - Transmission
  - ☒ New England Power Company - Transmission
  - ☒ New England Hydro - Trans Corp
  - ☒ New England Electric Trans Corp
  - ☐ NE Hydro Trans Electric Co
  - ☒ NG LNG LP Regulated Entity

### Enabling IS Capabilities check all that apply

- |   |  |
|---|--|
| <input type="checkbox"/> Enterprise Content Management (ECM)      | <input type="checkbox"/> Enterprise Mobility     |
| <input type="checkbox"/> Comprehensive Integration Services (CIS) | <input type="checkbox"/> Reporting and Analytics |
| <input type="checkbox"/> Hybrid Cloud                             | <input type="checkbox"/> Networks                |
| <input type="checkbox"/> Next Gen Workplace                       |  |

Key Milestone Dates: Select the 1st, 15th or last day of the month

Indicative Estimated Duration (Months):

Begin Start-up	Begin Requirements & Design	Begin Development & Implementation	Begin User Acceptance Testing	Go Live	Project Completion	Project Closure
October, 2018				December, 2020	December, 2020	

Business Resource Estimates: # of Full Time Equivalents


Start-up	Requirements & Design	Develop & Implement	Business Resources UAT	Go Live Readiness	Post Go Live Support
0	0	0	0	0	0

Resourcing Strategy:

### Attached Supporting Documents

1/22/2018

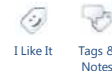
FY19 - Investment Request Summaries - IRSS - Network Management Performance Tool

Recommendation Sign-off			
Role	Name	Title	Date
Business Project Sponsor	Gilbert, John	Global Head IS Service Delivery, Global IS	
Business Relationship Manager	Brian Detota	IS Business Relationship Manager	
IS Program Delivery Manager	Helen Smith	IS Program Delivery Manager	
			

## FY19 - Investment Request Summaries - IRSs - Hicksville Fiber



Planning & Performance Management  
FY19 - Investment Request Summaries - IRSs: Hicksville Fiber



nationalgrid		Investment Request Summary - IS US		FISCAL YEAR 2019																																													
INV ID:	4828	Project Name:	Hicksville Fiber																																														
Program:	Enterprise Services	IRS Status:	ACTIVE																																														
Sponsor:	Gilbert, John	Title:	Global Head IS Service Delivery, Global IS																																														
Relationship Manager:	Brian Detota	Title:	IS Relationship Manager, Global IS																																														
Progr Delivery Director:	Helen Smith	Title:	Head of Programme Delivery																																														
Paper Author:		Title:																																															
		Business Area:	IS - Infrastructure	Portfolio:	IS for IS																																												
<input checked="" type="checkbox"/> In-Flight Project?	Invest Classification: Medium	Category:	Policy Driven	Primary Policy Driver:	Reliability																																												
					Region: US																																												
Strategic Program:	End to End Process (Primary):	Business Priority:	Medium	IS Focus Area:	Fix the Foundation																																												
Tech Modernization	End to End Process (Secondary):			Application Strategy:	Replace																																												
<p><b>Project Description:</b> The context for the project with background information The Hicksville campus fiber cable plant is approximately 30 years, is not routed efficiently in the campus, has many failed fiber stands that put the integrity of the campus communications at risk, and uses a multi-mode fiber cable specification which is no longer the industry standard and unable to support today's high speed networking requirements. This project will replace the aged multi-mode fiber optic plant that supports the Hicksville campus with an optimally routed single mode fiber optic cable plant. The project will also include the associated replacement of the Hicksville LAN switches' multimode fiber interfaces (GBICs) with single mode fiber interfaces as part of the migration to the new fiber facilities.</p> <p><b>Project Rationale:</b> Highlight business challenge, capability or process the project addresses This project is required due to the age of the fiber and potential for failure to impact a large number of users in the Hicksville campus. A large amount of the fiber has failed over its 25+ year life and the facility lacks sufficient spare fibers to recover the services in the event of a failure. In addition, the fiber lengths to connect a number of closets in the campus exceed current network equipment specifications.</p> <p><b>Project Scope:</b> Explain what is in scope and what is not in scope for the project</p> <ul style="list-style-type: none"> <li>Installation of new fiber and network equipment to use the fiber. Installation of fiber into 30 data closets. Potential need to install conduit to support fiber installation at remote campus buildings.</li> <li>Construction of 3 new network closets to replace existing closets. Includes room construction and outfitting of required cabling support equipment (ladder rack, plywood, power air conditioning..</li> <li>Migration of electronics to new fiber plant</li> <li>Purchase of required equipment to support new fiber standard</li> </ul> <p><b>Project Dependencies:</b> Identify any core program or project dependencies, please include INV# numbers if known None</p> <p><b>Basic Project Assumptions:</b></p> <ul style="list-style-type: none"> <li>Assuming that project length is 12 months in ideal scenario - 18 month worst case scenario</li> <li>Assumption is that new conduit will be required to install cabling to transportation building.</li> <li>Cable company responsible for installing cable 6 months for cabling</li> <li>Verizon for migration of network equipment from old cable to new cable. - 3months (plus 3 months contingency ) duration for this phase.</li> <li>light touch testing and light touch BA.</li> <li>Business Change - low disruption as long as all goes OK - some business communication required.</li> <li>Street work is expected to install cable in 100 Old Country Road building.</li> </ul>																																																	
<p><b>Indicative Project Costs by Fiscal Year</b></p> <table border="1"> <thead> <tr> <th>(\$M)</th> <th>Prior Years</th> <th>FY 2019</th> <th>FY 2020</th> <th>FY 2021</th> <th>FY 2022</th> <th>FY 2023</th> <th>FY 2024</th> <th>FY 2025</th> <th>FY 2026</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>CapEx</td> <td></td> <td>0.600</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.600</td> </tr> <tr> <td>OpEx</td> <td></td> <td>0.100</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.100</td> </tr> <tr> <td>Impact on RTB</td> <td></td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> </tr> </tbody> </table>						(\$M)	Prior Years	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total	CapEx		0.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.600	OpEx		0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	Impact on RTB		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(\$M)	Prior Years	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total																																							
CapEx		0.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.600																																							
OpEx		0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100																																							
Impact on RTB		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																																							
<p><b>Indicative Project Costs by Delivery Phase</b></p> <table border="1"> <thead> <tr> <th>(\$M)</th> <th>Start-up</th> <th>R &amp; D</th> <th>D &amp; I</th> <th>Closure</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						(\$M)	Start-up	R & D	D & I	Closure	Total																																						
(\$M)	Start-up	R & D	D & I	Closure	Total																																												

## FY19 - Investment Request Summaries - IRSs - Hicksville Fiber

CapEx		0.150	0.450		0.600
OpEx	0.010	0.025	0.060	.005	0.100

### Project Benefits - Type I only

(\$M)	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Type I - CapEx									0.000
Type I - OpEx									0.000
Revenue Generation									0.000

**Key Business Benefits:**  
Describe benefits, both financial and non-financial, and when those benefits will be delivered. Provide a clear & concise business case stating the investment drivers – why do we need to do something and why now? Explain any Regulatory considerations and how this initiative aligns with the US Business Strategy.

- Long term health of Hicksville campus network.
- Migration to single mode fiber supports network equipment specifications and future high speed requirements.
- Installation of appropriate spare capacity will support required uptime service levels.
- Decommissioning and disposal of the legacy fiber cabling.

### Investment Prioritization

Benefits	Impact	Weight	Score	Cost	Impact	Weight	Score
OpEx Annual Savings		10.3%	0	OpEx Cost	0.100	-24.4%	-0.732
CapEx Annual Savings		5.1%	0	CapEx Cost	0.600	-11.2%	0
Revenue Generation (annual)		6.2%	0	RTB Efficiency	0.000	% -22.5%	0
Financial Control	Low	6.2%	0.062	Union/Labor Relations	Low	-9.8%	0
Soft Financial Benefits	Low	3.8%	0.038	Dependencies	Medium	-10.6%	-0.318
Regulatory Impact	Low	11.2%	0.112	Elastice Time Duration	Medium	-6.6%	-0.198
Process & Personal Safety	Low	19.4%	0.194	Change Management Effort	Medium	-14.9%	-0.447
Reliability	Medium	10.9%	0.327				
Customer & Community Responsiveness	Medium	5.3%	0.159				
Employee Satisfaction	Medium	4.6%	0.138				
Mitigates a Corporate Risk / Risk of not Doing	High= 40 or more	8.9%	0.801				
Jurisdictional Engagement	Medium	8.2%	0				
			<b>Benefit Score: 2.08</b>				<b>Cost Score: -2.13</b>
			<b>Overall Priority Score: -0.052</b>				

### Investment Risk and Complexity

Project Risk Score:	41	Risk Score Description: Risk impact = 5 and Risk likelihood = 6
Project Complexity Score::	16	Project Complexity Score Description:

**Key Risks Description:** Provide detail on project risks & mitigation strategy:  
The Hicksville campus fiber cable plant is approximately 30 years old, is not routed efficiently in the campus, has many failed fiber stands that put the integrity of the campus communications at risk, and uses a multi-mode fiber cable specification which is no longer the industry standard and unable to support today's high speed networking requirements. Without this project, there is a risk of communication failure.

<b>IS Project Dependencies</b> if you don't see a project in the drop-down please contact the Planning & Performance team. IS Projects: <b>4828 - Hicksville Fiber</b>	<b>Benefiting Operating Companies:</b> Check all that apply <input type="checkbox"/> Select All Companies <input type="checkbox"/> Clear All Companies
---	---

FY19 - Investment Request Summaries - IRSs - Hicksville Fiber

1. Has a dependency on IS Project;	<input type="checkbox"/> Select All Gas	<input type="checkbox"/> Select All Electric	<input type="checkbox"/> Select All Gen
2. Has a dependency on IS Project;	<input checked="" type="checkbox"/> National Grid USA Parent		
3. Has a dependency on IS Project;	<input checked="" type="checkbox"/> KeySpan Energy Development Corporation		
4. Has a dependency on IS Project;	<input checked="" type="checkbox"/> KeySpan Services Inc.		
5. Has a dependency on IS Project;	<input checked="" type="checkbox"/> KeySpan Energy Corp		
6. Has a dependency on IS Project;	<input checked="" type="checkbox"/> KeySpan Energy Delivery New York		
	<input checked="" type="checkbox"/> KeySpan Energy Delivery Long Island		
	<input checked="" type="checkbox"/> KeySpan Generation LLC (PSA)		
	<input checked="" type="checkbox"/> KeySpan Glenwood Energy Center		
	<input checked="" type="checkbox"/> KeySpan Port Jefferson Energy Center		
	<input checked="" type="checkbox"/> KeySpan Energy Trading Svc LLC		
	<input checked="" type="checkbox"/> Niagara Mohawk Power Corp- Electric Distribution		
	<input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Gas		
	<input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Transmission		
	<input checked="" type="checkbox"/> Massachusetts Electric Company		
	<input checked="" type="checkbox"/> Massachusetts Electric Company - Transmission		
	<input checked="" type="checkbox"/> Nantucket Electric Company		
	<input checked="" type="checkbox"/> Boston Gas Company		
	<input checked="" type="checkbox"/> Colonial Gas Company		
	<input checked="" type="checkbox"/> Narragansett Gas Company		
	<input checked="" type="checkbox"/> Narragansett Electric Company		
	<input checked="" type="checkbox"/> Narragansett Electric Company - Transmission		
	<input checked="" type="checkbox"/> New England Power Company - Transmission		
	<input checked="" type="checkbox"/> New England Hydro - Trans Corp		
	<input checked="" type="checkbox"/> New England Electric Trans Corp		
	<input type="checkbox"/> NE Hydro Trans Electric Co		
	<input checked="" type="checkbox"/> NG LNG LP Regulated Entity		

**Business Initiative Dependencies**

IS Projects: 4828 - Hicksville Fiber

1. Has a dependency on Biz Initiative,

2. Has a dependency on Biz Initiative,

3. Has a dependency on Biz Initiative,

4. Has a dependency on Biz Initiative,

**Project Relationships**

☐ Minor Works

Project Relationship:

Related Projects:

**Enabling IS Capabilities** check all that apply

☐ Enterprise Content Management (ECM)

☐ Enterprise Mobility

☐ Comprehensive Integration Services (CIS)

☐ Reporting and Analytics

☐ Hybrid Cloud

☐ Networks

☐ Next Gen Workplace

**Key Milestone Dates:** Select the 1st, 15th or last day of the month

**Indicative Estimated Duration (Months):**

Begin Start-up

Begin Requirements & Deign

Begin Development & Implementation

Begin User Acceptance Testing

Go Live

Project Completion

Project Closure

April, 2018

March, 2019

March, 2019

**Business Resource Estimates:** # of Full Time Equivalents

Start-up

Requirements & Deign

Develop & Implement

Business Resources UAT

Go Live Readiness

Post Go Live Support

0

0

0

0

0

0

Resourcing Strategy:

**Attached Supporting Documents**

**Recommendation Sign-off**

Role	Name	Title	Date
Business Project Sponsor	Gilbert, John	Global Head IS Service Delivery, Global IS	
Business Relationship Manager	Brian Detota	IS Business Relationship Manager	
		IS Program Delivery Manager	



## FY19 - Investment Request Summaries - IRSs - Hicksville Fiber

IS Program Delivery Manager	Helen Smith	
nationalgrid		

1/22/2018

FY19 - Investment Request Summaries - IRSs - EMM Single Sign on



Planning & Performance Management ▶ FY19 - Investment Request Summaries - IRSs: EMM  
Single Sign on



nationalgrid		Investment Request Summary - IS US		FISCAL YEAR 2019																																													
INV ID:	4826	Project Name:	EMM Single Sign on																																														
Program:	Enterprise Services		IRS Status: ACTIVE																																														
Sponsor:	Gilbert, John		Title: Global Head of IS Service Delivery, Global IS																																														
Relationship Manager:	Brian Detota		Title: IS Relationship Manager, Global IS																																														
Progr Delivery Director:	Helen Smith		Title: Head of Programme Delivery																																														
Paper Author:			Title:																																														
		Business Area:	IS - Infrastructure	Portfolio:	IS for IS																																												
<input type="checkbox"/> In-Flight Project?	Invest Classification:	Medium	Category:	Policy Driven	Primary Policy Driver: Reliability																																												
					Region: US																																												
Strategic Program:	End to End Process (Primary):		Business Priority:	IS Focus Area:	Application Strategy:																																												
Tech Modernization			High	Future Proof Our Business	Enhance																																												
	End to End Process (Secondary):																																																
<p><b>Project Description:</b> The context for the project with background information Implementation of a tools such as VMWare's Workspace One to support single sign on to mobile apps. This will eliminate the need to login more that once to access National Grid mobile apps which are expected to grow significantly in the next few years. This interface would also allow a sign on to VDI devices which would allow users access to Windows based applications from a mobile (IOS/Android) device.</p> <p><b>Project Rationale:</b> Highlight business challenge, capability or process the project addresses National Grid is increasing its use and development of mobile applications. These applications are secured by username and password credentials that need to be entered for every application. To improve user efficiency accessing these mobile applications, this project will provide a secure single sign on (SSO) environment that users can log into once that gives them access to their mobile application without the need for additional signons.</p> <p><b>Project Scope:</b> Explain what is in scope and what is not in scope for the project <u>In Scope:</u> The implementation of a mobile SSO tool that integrates with National Grid's Enterprise Mobility Management Platform (Airwatch) and mobile applications to support a SSO environment for mobile devices. The development of mobile application standards to ensure compatibility with the SSO environment <u>Out of Scope:</u> Modification of existing mobile applications to bring them into the SSO environment</p> <p><b>Project Dependencies:</b> Identify any core program or project dependencies, please include INVP numbers if known INVP 4714 EMM Phase 2</p> <p><b>Basic Project Assumptions:</b></p>																																																	
<p><b>Indicative Project Costs by Fiscal Year</b></p> <table border="1"> <thead> <tr> <th>(\$M)</th> <th>Prior Years</th> <th>FY 2019</th> <th>FY 2020</th> <th>FY 2021</th> <th>FY 2022</th> <th>FY 2023</th> <th>FY 2024</th> <th>FY 2025</th> <th>FY 2026</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>CapEx</td> <td></td> <td>0.600</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.600</td> </tr> <tr> <td>OpEx</td> <td></td> <td>0.020</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.020</td> </tr> <tr> <td>Impact on RTB</td> <td></td> <td>0.050</td> <td>0.100</td> <td>0.100</td> <td>0.100</td> <td>0.100</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.450</td> </tr> </tbody> </table>						(\$M)	Prior Years	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total	CapEx		0.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.600	OpEx		0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	Impact on RTB		0.050	0.100	0.100	0.100	0.100	0.000	0.000	0.000	0.450
(\$M)	Prior Years	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total																																							
CapEx		0.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.600																																							
OpEx		0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020																																							
Impact on RTB		0.050	0.100	0.100	0.100	0.100	0.000	0.000	0.000	0.450																																							

1/22/2018

FY19 - Investment Request Summaries - IRSs - EMM Single Sign on

### Indicative Project Costs by Delivery Phase

(\$M)	Start-up	R & D	D & I	Closure	Total
CapEx		0.150	0.450		0.600
OpEx	0.005	0.001	0.004	.01	0.020

### Project Benefits - Type I only

(\$M)	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Type I - CapEx									0.000
Type I - OpEx									0.000
Revenue Generation									0.000

#### Key Business Benefits:

Describe benefits, both financial and non-financial, and when those benefits will be delivered. Provide a clear & concise business case stating the investment drivers – why do we need to do something and why now? Explain any Regulatory considerations and how this initiative aligns with the US Business Strategy.

### Investment Prioritization

Benefits				Cost			
	Impact	Weight	Score		Impact	Weight	Score
OpEx Annual Savings		10.3%	0	OpEx Cost	0.020	-24.4%	-244
CapEx Annual Savings		5.1%	0	CapEx Cost	0.600	-11.2%	0
Revenue Generation (annual)		6.2%	0	RTB Efficiency	116.667 %	-22.5%	-2.025
Financial Control	Low	6.2%	0.062	Union/Labor Relations	Low	-9.8%	0
Soft Financial Benefits	Low	3.8%	0.038	Dependencies	Low	-10.6%	-0.106
Regulatory Impact	Low	11.2%	0.112	Elapse Time Duration	Low	-6.6%	-0.066
Process & Personal Safety	Low	19.4%	0.194	Change Management Effort	Low	-14.9%	-0.149
Reliability	Low	10.9%	0.109				
Customer & Community Responsiveness	Medium	5.3%	0.159				
Employee Satisfaction	Medium	4.6%	0.138				
Mitigates a Corporate Risk / Risk of not Doing	Medium=16 to 39	8.9%	0.267				
Jurisdictional Engagement	High	8.2%	1				
Benefit Score: 1.82				Cost Score: -3.02			
Overall Priority Score: -1.207							

### Investment Risk and Complexity

Project Risk Score:	34	Risk Score Description: Risk impact = 4 and Risk likelihood = 5
Project Complexity Score::	14	Project Complexity Score Description:

Key Risks Description: Provide detail on project risks & mitigation strategy:

1/22/2018

FY19 - Investment Request Summaries - IRSs - EMM Single Sign on

<b>IS Project Dependencies</b> if you don't see a project in the drop-down please contact the Planning & Performance team.		<b>Benefiting Operating Companies:</b> Check all that apply			
<b>IS Projects: 4826 - EMM Single Sign on</b>  1. Has a dependency on IS Project; 2. Has a dependency on IS Project; 3. Has a dependency on IS Project; 4. Has a dependency on IS Project; 5. Has a dependency on IS Project; 6. Has a dependency on IS Project;		<input type="checkbox"/> Select All Companies <input type="checkbox"/> Clear All Companies <input type="checkbox"/> Select All Gas <input type="checkbox"/> Select All Electric <input type="checkbox"/> Select All Gen  <input checked="" type="checkbox"/> National Grid USA Parent <input checked="" type="checkbox"/> KeySpan Energy Development Corporation <input checked="" type="checkbox"/> KeySpan Services Inc. <input checked="" type="checkbox"/> KeySpan Energy Corp <input checked="" type="checkbox"/> KeySpan Energy Delivery New York <input checked="" type="checkbox"/> KeySpan Energy Delivery Long Island <input checked="" type="checkbox"/> KeySpan Generation LLC (PSA) <input checked="" type="checkbox"/> KeySpan Glenwood Energy Center <input checked="" type="checkbox"/> KeySpan Port Jefferson Energy Center <input checked="" type="checkbox"/> KeySpan Energy Trading Svc LLC <input checked="" type="checkbox"/> Niagara Mohawk Power Corp- Electric Distribution <input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Gas <input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Transmission <input checked="" type="checkbox"/> Massachusetts Electric Company <input checked="" type="checkbox"/> Massachusetts Electric Company - Transmission <input checked="" type="checkbox"/> Nantucket Electric Company <input checked="" type="checkbox"/> Boston Gas Company <input checked="" type="checkbox"/> Colonial Gas Company <input checked="" type="checkbox"/> Narragansett Gas Company <input checked="" type="checkbox"/> Narragansett Electric Company <input checked="" type="checkbox"/> Narragansett Electric Company - Transmission <input checked="" type="checkbox"/> New England Power Company - Transmission <input checked="" type="checkbox"/> New England Hydro - Trans Corp <input checked="" type="checkbox"/> New England Electric Trans Corp <input type="checkbox"/> NE Hydro Trans Electric Co <input checked="" type="checkbox"/> NG LNG LP Regulated Entity			
<b>Business Initiative Dependencies</b> <b>IS Projects: 4826 - EMM Single Sign on</b> 1. Has a dependency on Biz Initiative, 2. Has a dependency on Biz Initiative, 3. Has a dependency on Biz Initiative, 4. Has a dependency on Biz Initiative,					
<b>Project Relationships</b> <input type="checkbox"/> Minor Works Project Relationship: Related Projects:					
<b>Enabling IS Capabilities</b> check all that apply					
<input type="checkbox"/> Enterprise Content Management (ECM) <input type="checkbox"/> Comprehensive Integration Services (CIS) <input type="checkbox"/> Hybrid Cloud <input type="checkbox"/> Next Gen Workplace		<input type="checkbox"/> Enterprise Mobility <input type="checkbox"/> Reporting and Analytics <input type="checkbox"/> Networks			
<b>Key Milestone Dates:</b> Select the 1st, 15th or last day of the month		<b>Indicative Estimated Duration (Months):</b>			
Begin Start-up July, 2018	Begin Requirements & Deign	Begin Development & Implementation	Begin User Acceptance Testing Go Live March, 2019	Project Completion March, 2019	Project Closure
<b>Business Resource Estimates: # of Full Time Equivalents</b>					
Start-up 0	Requirements & Deign 0	Develop & Implement 0	Business Resources UAT 0	Go Live Readiness 0	Post Go Live Support 0
Resourcing Strategy:					
<b>Attached Supporting Documents</b>					

1/22/2018

FY19 - Investment Request Summaries - IRSs - EMM Single Sign on

Recommendation Sign-off			
Role	Name	Title	Date
Business Project Sponsor	Gilbert, John	Global Head of IS Service Delivery, Global IS	
Business Relationship Manager	Brian Detota	IS Business Relationship Manager	
IS Program Delivery Manager	Helen Smith	IS Program Delivery Manager	
			

**US Sanction Paper**

<b>Title:</b>	RAS VPN Re-Platform Mobile	<b>Sanction Paper #:</b>	
<b>Project #:</b>	INVP 4269	<b>Sanction Type:</b>	Sanction
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	September 1, 2017
<b>Author:</b>	Alexis Shaw/ Chris Clawson /Nicola Pennington	<b>Sponsor:</b>	John Gilbert, Head of Global IS Service Delivery
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Alexis Shaw/Dave McCune

**1 Executive Summary**

**1.1 Sanctioning Summary**

This paper requests sanction of INVP 4269 in the amount \$0.572M with a tolerance of +/- 10% for the purposes of Full Implementation.

*This sanction amount is \$0.572M broken down into:*

*\$0.536M Capex*

*\$0.036M Opex*

*\$0.000M Removal*

**1.2 Project Summary**

The project will replace the current Virtual Private Network (VPN) system and equipment with a new CISCO Adaptive Security Appliance (ASA) System which will meet a wider set of National Grid technical needs and will support mobile device access. Additionally, the project will consolidate all remote clients and streamline the login process.

**1.3 Summary of Projects**

<b>Project Number</b>	<b>Project Type (Elec only)</b>	<b>Project Title</b>	<b>Estimate Amount (\$M)</b>
INVP 4269		RAS-VPN Re-Platform-Mobile	0.572

**1.4 Associated Projects**

<b>Project Number</b>	<b>Project Title</b>	<b>Estimate Amount (\$M)</b>
INVP 4270	RSA Re-Platform	0.300

**US Sanction Paper**

**1.5 Prior Sanctioning History**

N/A

**1.6 Next Planned Sanction Review**

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

**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	A new system will meet a wider set of National Grid technical needs, support mobile device access, consolidate all remote clients and streamline the login process.

**1.8 Asset Management Risk Score**

Asset Management Risk Score: 41

**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: 14

## US Sanction Paper

### 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 (\$)
IS Investment Plan FY18-22	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input checked="" type="radio"/> Under <input type="radio"/> NA	\$0.048

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

N/A

### 1.13 Current Planning Horizon

		Current Planning Horizon						Total
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	
\$M	Prior Yrs	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	
CapEx	0.000	0.536	0.000	0.000	0.000	0.000	0.000	0.536
OpEx	0.000	0.036	0.000	0.000	0.000	0.000	0.000	0.036
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	0.572	0.000	0.000	0.000	0.000	0.000	0.572

### 1.14 Key Milestones

Milestone	Target Date: (Month/Year)
Start Up	Jul 2017
Begin Requirements and Design	Sep 2017
Full Sanction	Aug 2017
Begin Development and Implementation	Nov 2017
Move to Production / Last Go Live	Mar 2018
Project Complete	Apr 2018
Closure Sanction	Jun 2018



**US Sanction Paper**

**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 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)**

1	Working with Solutions Architecture Lead to source an SA for the project
---	--

**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**

1	Verizon Architectural Proposal for National Grid September 2016
---	---

***US Sanction Paper***

**2 Decisions**

The US IS Sanctioning Committee (ISSC) and Key External Stakeholders, reviewed and approved the content of the investment including:

- (a) APPROVE this paper and the investment of \$0.572M and a tolerance of +/-10%.
- (b) NOTE that Dave McCune is the Project Manager and has the approved financial delegation.

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

Anuraag Bhargava  
US CIO

## ***US Sanction Paper***

### ***3 Sanction Paper Detail***

<b>Title:</b>	RAS VPN Re-Platform Mobile	<b>Sanction Paper #:</b>	
<b>Project #:</b>	INVP 4269	<b>Sanction Type:</b>	Sanction
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	September 1, 2017
<b>Author:</b>	Alexis Shaw/Chris Clawson/Nicola Pennington	<b>Sponsor:</b>	John Gilbert, Head of Global IS Service Delivery
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	Alexis Shaw/Dave McCune

#### ***3.1 Background***

The vendor support for the current VPN expires in September 2018.

#### ***3.2 Drivers***

The current VPN solution does not meet all of NG needs; for example, it does not support MACs, nor mobile devices which are required. Additionally, newer VPN technology meets the DR&S Transparent VPN requirements.

#### ***3.3 Project Description***

This project will replace the current VPN system and equipment with a new CISCO ASA System. The new VPN system will support AnyConnect and either token type used by NG.

- A CISCO system will be installed in both NG data Centers, utilizing a virtual load balancer between them.
- Configure the new system to support mobile devices.
- Consolidate all remote clients
- Streamline/simplify the login process.
- Configuration/coding to point the user to the correct VPN.

## US Sanction Paper

### 3.4 **Benefits Summary**

- Increased business and enterprise service performance and availability
- Better way to support Jurisdictional and business function initiatives.

Other potential benefits of deploying a unified mobile VPN versus each project deploying a separate solution are:

- Better mobile support
- Improved user experience

### 3.5 **Business and Customer Issues**

It is assumed that the new VPN system will fit under the standard existing Verizon and DXC maintenance contracts.

### 3.6 **Alternatives**

**Alternative 1:** Do Nothing – is not acceptable as vendor support for the current product will cease in September 2018.

**Alternative 2:** Upgrade Juniper – is not acceptable as this will not address the supporting of additional device types of MACs and mobile devices.

**Alternative 3:** Review Cloud based solutions – is not acceptable as this will not meet DR&S security requirements and does not incorporate with our other on premise requirements.

### 3.7 **Safety, Environmental and Project Planning Issues**

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

### 3.8 **Execution Risk Appraisal**

Number	Detailed Description of Risk / Opportunity	Probability	Impact		Score		Strategy	Pre-Trigger Mitigation Plan	Residual Risk	Post Trigger Mitigation Plan
			Cost	Schedule	Cost	Schedule				
1	Identifying all remote user groups	5	1	2	5	10	Accept	Identify remote user groups via Help Desk and other internal resources	Global email to all users (?)	UAT testing with like groups should cover all groups
2	Big Bang approach for implementation may cause widespread problems	3	3	3	9	9	Avoid	Develop a detailed implementation plan, including back-out plan.	Execute back out plan	Pilot with some user groups first
3										
4										
5										
6										
7										
8										

## 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 +	
					2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	
INVP 4269	RAS-VPN Re-Platform-Mobile	+/- 10%	CapEx	0.000	0.536	0.000	0.000	0.000	0.000	0.000	0.536
			OpEx	0.000	0.036	0.000	0.000	0.000	0.000	0.000	0.036
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.000	0.572	0.000	0.000	0.000	0.000	0.000	0.572

#### 3.11.2 **Project Budget Summary Table**

#### Project Costs Per Business Plan

\$M	Prior Yrs (Actual)	Current Planning Horizon						
		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	
CapEx	0.000	0.600	0.000	0.000	0.000	0.000	0.000	0.600
OpEx	0.000	0.020	0.000	0.000	0.000	0.000	0.000	0.020
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	0.620	0.000	0.000	0.000	0.000	0.000	0.620

## US Sanction Paper

### Variance (Business Plan-Project Estimate)

		Current Planning Horizon						
		Prior Yrs (Actual)	Yr. 1 2017/18	Yr. 2 2018/19	Yr. 3 2019/20	Yr. 4 2020/21	Yr. 5 2021/22	Yr. 6 + 2022/23
\$M								Total
CapEx	0.000	0.064	0.000	0.000	0.000	0.000	0.000	0.064
OpEx	0.000	(0.016)	0.000	0.000	0.000	0.000	0.000	(0.016)
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	0.048	0.000	0.000	0.000	0.000	0.000	0.048

### 3.11.3 Cost Assumptions

This estimate was developed in 2017 using the standard IS estimating methodology. The accuracy level of estimate for each project is identified in table 3.11.1.

### 3.11.4 Net Present Value / Cost Benefit Analysis

This is not a NPV project.

#### 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.

Role	Individual's Name
Business Representative	Doug Page
Head of PDM	Helen Smith
Relationship Manager	Bill Kearns
Program Delivery Director	Dave McCune
IS Finance Management	Chip Benson
IS Regulatory	Tom Gill
DR&S	Elaine Wilson
Service Delivery	Brian Detota
Enterprise Architecture	Joe Clinchot

## **US Sanction Paper**

### **3.12.2 Reviewers**

N/A

## **4 Appendices**

### **4.1 Sanction Request Breakdown by Project**

N/A

### **4.2 Other Appendices**

#### **4.2.1 Project Cost Breakdown**

<b>Project Cost Breakdown</b>			
<b>Cost Category</b>	<b>sub-category</b>	<b>\$ (millions)</b>	<b>Name of Firm(s) providing</b>
<b>Personnel</b>	NG Resources	0.175	
	SDC Time & Materials	0.070	
	SDC Fixed-Price	-	
	All other personnel	(0.000)	
	<b>TOTAL Personnel Costs</b>	0.245	
<b>Hardware</b>	Purchase	0.300	
	Lease	-	
<b>Software</b>		-	
<b>Risk Margin</b>		-	
<b>Other</b>		0.026	
<b>TOTAL Costs</b>		0.571	

#### **4.2.2 Benefiting Operating Companies**

<b>Benefiting Operating Company</b>	<b>Business Area</b>	<b>State</b>
National Grid USA Parent	Parent	N/A
KeySpan Energy Development Corporation	Non-Regulated	NY
KeySpan Services Inc.	Other Non-Regulated	NY
KeySpan Energy Corp.	Service Company	N/A
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

**US Sanction Paper**

KeySpan Energy Trading Services	Parents	N/A
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
New England Hydro - Trans Electric Co.	FERC Interconnect	N/A
New England Electric Trans Electric Co.	FERC Interconnect	N/A
New England Hydro - Trans Corp.	FERC Interconnect	N/A
Transgas Inc.	Gas Distribution	N/A
NG LNG LP Regulated Entity	FERC Gas Ops	N/A

**4.2.3 IS Ongoing Operational Costs (RTB):**

This project will result in no change to IS ongoing operations support costs as per the following table. These are also known as Run the Business (RTB) costs.



**US Sanction Paper**

<b>Summary Analysis of RTB Costs</b>							
All figures in \$ millions	Yr. 1 17/18	Yr. 2 18/19	Yr. 3 19/20	Yr. 4 20/21	Yr. 5 21/22	Yr. 6+	Total
<b>Forecast of RTB</b>							
RTB if Status Quo	-	1.800	1.800	1.800	1.800	1.845	<b>9.045</b>
RTB if Project is	-	1.800	1.800	1.800	1.800	1.845	<b>9.045</b>
<b>Net change in RTB</b>	-	-	-	-	-	-	-
<b>RTB Variance Analysis</b> (if Project is Implemented)							
Net Δ RTB funded by	-	-	-	-	-	-	-
Variance to Plan	-	-	-	-	-	-	-
<b>Total RTB Costs - by Cost Type</b> (if Project is Implemented)							
App.Sup. - SDC 1	-	1.800	1.800	1.800	1.800	1.845	<b>9.045</b>
App.Sup. - SDC 2	-	-	-	-	-	-	-
App.Sup. - other	-	-	-	-	-	-	-
SW maintenance	-	-	-	-	-	-	-
SaaS	-	-	-	-	-	-	-
HW support	-	-	-	-	-	-	-
Other: IS	-	-	-	-	-	-	-
<b>All IS-related RTB (sub-</b>	-	1.800	1.800	1.800	1.800	1.845	<b>9.045</b>
<b>Business Support</b>	-	-	-	-	-	-	-
<b>Total RTB Costs</b>	-	1.800	1.800	1.800	1.800	1.845	<b>9.045</b>

Note: U.S. Policy dictates that RTB Variance = forecasted Net Δ RTB - Net Δ RTB funded by Investment Plan

**4.3 NPV Summary (if applicable)**

N/A

**4.4 Customer Outreach Plan**

N/A

## Investment Proposal Summary Sheet

### Call Manager Upgrade – Project No. INVP 4577

<b>Region:</b>	US	<b>Category:</b>	Policy	<b>Legal Entity:</b>	Shared
<b>Risk Score:</b>	39	<b>Primary Driver:</b>	Reliability	<b>Project Classification:</b>	M

**Project Description:**

This paper requests sanction of INVP 4577 in the amount \$ 0.424M with a tolerance of +/- 10% for the purposes of Full Implementation.

This sanction amount is \$0.424M broken down into:

\$ 0.423M	Capex
\$ 0.001M	Opex
\$ 0.000M	Removal

**Brief Description**

This project is part of the Technology Improvement Program (TIP) under INVP 4665 System Communications and Upgrade. Refresh of the Cisco Call Manager hardware and software upgrade (for (managing IP telephony estate – call distribution and voice mail). This project will also consolidate the call manager from two clusters to one cluster and provide monthly RTB saving under an updated financial model.

**Background**

Cisco Unified Communication Manager (CUCM) is the central platform through which all phone and video conferencing (VC) traffic is routed. As an example, this includes all desk phones, Jabber initiated calls and VC, fixed unit VC and various call / contact centers across the business.

The original CUCM platform was deployed more than 5 years ago and the hardware for call manager (a component of CUCM) reached end of life in June 2017 and the software reaches end of life in January 2018.

When the CUCM platform was deployed, most National Grid employees were office based, with a laptop as their primary work device and although users had mobile phones, most office calls were still made and received on desk phone devices.

In the intervening years, National Grid and Verizon have moved from basic telephony services to deploying a broad range of Unified Communication & Collaboration (UC&C) functionality, all of which has some dependency on the CUCM Infrastructure. Technologies that currently leverage the CUCM platform include:

- \* Call recording platform for Gas Network Control Centre (GNCC), Systems Operator (SO) and Treasury
- \* Legal Hold for email
- \* In telecom Contact Centre Services (five separate instances across Shared Services, Domestic and Smart Metering and TRIIO)
- \* Video bridging provided by 'Open Video Communications (OVC)'
- \* Cisco Jabber client for desktop video and softphone
- \* WebEx with Cloud Connected Audio (CCA), Collaboration Meeting Room (CMR), and a mix of Video Conferencing technologies

Refreshing the platform will ensure hardware and software associated with call manager is fully supported and will also enable National Grid to continue to grow the use and adoption of UC&C within National Grid.

National Grid Confidential

Date: 28/03/17

Project Costs [\$]M		Prior Years 16/17	Yr 1 17/18	Yr 2 18/19	Yr 3 19/20	Yr 4 20/21	Yr 5 21/22	Total
Start-Up - OPEX		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Start-Up - CAPEX		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Start-Up - risk margin		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Start-Up SUBTOTAL		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Requirements & Design - OPEX		\$0.001	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.001
Requirements & Design - CAPEX		\$0.182	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.182
Requirements & Design - risk margin		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Requirements & Design SUBTOTAL		\$0.183	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.183
Development & Implementation - OPEX								
People		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Software		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Hardware		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Telecommunications		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Service Contracts		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Risk Margin		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Requirements & Design SUBTOTAL		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Development & Implementation - CAPEX								
People		\$0.000	\$0.041	\$0.000	\$0.000	\$0.000	\$0.000	\$0.041
Software		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Hardware		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Telecommunications		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Service Contracts		\$0.000	\$0.200	\$0.000	\$0.000	\$0.000	\$0.000	\$0.200
Risk Margin		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
D&I SUBTOTAL		\$0.000	\$0.241	\$0.000	\$0.000	\$0.000	\$0.000	\$0.241
TOTAL PROJECT COSTS		\$0.183	\$0.241	\$0.000	\$0.000	\$0.000	\$0.000	\$0.424
Non-regulated project - UPLIFT		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Non-regulated project - TOTAL		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Investment Plan No: INVP.....	Budget OPEX	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
	Budget CAPEX	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Impact on RTB costs		\$0.000	-\$0.994	-\$1.491	-\$1.491	-\$1.491	-\$1.491	-\$6.958

Benefiting Operating Company	Business Area	State
National Grid USA Parent	Parent	N/A
KeySpan Energy Corp.	Service Company	N/A
Niagara Mohawk Power Corp. - Electric Distr.	Electric Distribution	NY
Niagara Mohawk Power Corp. - Gas	Gas Distribution	NY
Niagara Mohawk Power Corp. - Transmission	Transmission	NY
KeySpan Energy Delivery New York	Gas Distribution	NY
KeySpan Energy Delivery Long Island	Gas Distribution	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 Electric Company	Electric Distribution	RI
Narragansett Gas Company	Gas Distribution	RI
Narragansett Electric Company - Transmission	Transmission	RI
New England Power Company - Transmission	Transmission	MA
NE Hydro - Trans Electric Co.	FERC Interconnect	N/A
New England Hydro - Trans Electric Co.	FERC Interconnect	N/A
New England Electric Trans Electric Co.	FERC Interconnect	N/A
NG LNG LP Regulated Entity	FERC Gas Ops	N/A
KeySpan Generation LLC (PSA)	Generation	NY
KeySpan Glenwood Energy Center	Generation	NY
KeySpan Port Jefferson Energy Center	Generation	NY
KeySpan Energy Trading Services	Parents	N/A
Transgas, Inc.	Other Non-Regulated	MA
KeySpan Energy Development Corporation	Non-Regulated	NY
KeySpan Services Inc.	Other Non-Regulated	NY

<b>TOTAL BENEFITS \$M</b>						
<b>Key Business Benefits:</b> Provision of a reliable fully supported IP telephony system with updated capabilities.						

<b>Key risks:</b> <ul style="list-style-type: none"> <li>Hardware availability from Cisco for prompt shipment and delivery by March 31, 2017</li> <li>There may be an impact related to carrying forward voicemails and possibly pin codes with the move to 1 cluster.</li> </ul>	<b>Key Dates (Month/ Year):</b> <table> <tr><td>Start Up</td><td>Jan 2017</td></tr> <tr><td>Partial Sanction</td><td>Feb 2017</td></tr> <tr><td>Begin Requirements/Design</td><td>Feb 2017</td></tr> <tr><td>Full Sanction</td><td>Jun 2017</td></tr> <tr><td>Begin Dev &amp; Implement</td><td>Apr 2017</td></tr> <tr><td>Begin User Accept Testing</td><td>Jun 2017</td></tr> <tr><td>Go/No Go</td><td>Jun 2017</td></tr> <tr><td>Move to Production / Last Go Live</td><td>Jul 2017</td></tr> <tr><td>Implement Early Life Support Plan</td><td>Jul 2017</td></tr> <tr><td>Project Complete</td><td>Mar 2018</td></tr> <tr><td>Project Closure Sanction</td><td>Apr 2018</td></tr> </table>	Start Up	Jan 2017	Partial Sanction	Feb 2017	Begin Requirements/Design	Feb 2017	Full Sanction	Jun 2017	Begin Dev & Implement	Apr 2017	Begin User Accept Testing	Jun 2017	Go/No Go	Jun 2017	Move to Production / Last Go Live	Jul 2017	Implement Early Life Support Plan	Jul 2017	Project Complete	Mar 2018	Project Closure Sanction	Apr 2018
Start Up	Jan 2017																						
Partial Sanction	Feb 2017																						
Begin Requirements/Design	Feb 2017																						
Full Sanction	Jun 2017																						
Begin Dev & Implement	Apr 2017																						
Begin User Accept Testing	Jun 2017																						
Go/No Go	Jun 2017																						
Move to Production / Last Go Live	Jul 2017																						
Implement Early Life Support Plan	Jul 2017																						
Project Complete	Mar 2018																						
Project Closure Sanction	Apr 2018																						

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

Role	Individual's Name
Business Executive Sponsor	John Gilbert
Head of PDM	Bill Kearns
Relationship Manager	Bill Kearns
Program Delivery Director	Dave McCune
IS Finance Management	Chip Benson
IS Regulatory	Dan DeMauro
DR&S	Elaine Wilson
Service Delivery	Brian Detota
Enterprise Architecture	Joe Clinchot

## RECOMMENDATIONS

The Sanctioning Authority is invited to:

- APPROVE the investment of \$0.424M including risk margin of \$0.000M by May, 31 2017
- NOTE that John Gilbert, Global Head IS Service Delivery, is the Project Sponsor
- NOTE that Ginelle Davidson, 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.....

John Gilbert, Global Head IS Service Delivery

## FY19 - Investment Request Summaries - IRSs - Data Security



Planning & Performance Management »  
FY19 - Investment Request Summaries - IRSs: Data Security



I Like It



Tags &  
Notes

nationalgrid		Investment Request Summary - IS US		FISCAL YEAR 2019																																													
INV ID:	4710	Project Name:	Data Security																																														
Program:	New Services	IRS Status:	ACTIVE																																														
Sponsor:	Gilbert, John	Title:	Global Head IS Service Delivery, Global IS																																														
Relationship Manager:	Brian Detota	Title:	IS Relationship Manager, Global IS																																														
Progr Delivery Director:	Helen Smith	Title:	Head of Programme Delivery																																														
Paper Author:	Nicola Pennington / Steve Trezza	Title:	Business Consultant - Corporate IS																																														
		Business Area:	IS - Infrastructure	Portfolio:	IS for IS																																												
<input type="checkbox"/> In-Flight Project?	Invest Classification: Medium	Category:	Mandatory	Primary Policy Driver:	Not Policy Driven																																												
				Region:	US																																												
Strategic Program:	End to End Process (Primary):		Business Priority:	IS Focus Area:	Application Strategy:																																												
	End to End Process (Secondary):		Imperative	Stay Legal & Compliant	Enhance																																												
<p><b>Project Description:</b> The context for the project with background information  The deployment of Office 365 provides capability to collaborate internally and with partners in a more flexible manner. However with this capability there is an increased risk to the integrity of our data, as our current services assume that data resides and is consumed on corporate devices to ensure security. To fully realize the benefits of the modern workplace and collaborative working with our partners and across devices we need to shift our thinking to managing and securing our data. This project will work with DR&amp;S and utilize Microsoft security services and technologies to provide an IT platform that allows our data to be shared in secured manner.</p> <p><b>Project Rationale:</b> Highlight business challenge, capability or process the project addresses  This projects will provide new services and future projects to build a foundation that will enable or support the Utility of the Future. As customers demand new services, such as smart metering and distributed generation, an investment in our underlying technology infrastructure is needed in order to deliver these strategic programs.</p> <p><b>Project Scope:</b> Explain what is in scope and what is not in scope for the project  As we move to any device working in the cloud our focus will change from end points and applications to data and the need to protect the data regardless of where it resides. Here are the related projects:</p> <ul style="list-style-type: none"> <li>Data Security / Information Rights Management (SPE)</li> <li>Advanced Threat Analytics (SPE)</li> <li>Cloud App Security (SPE)</li> <li>Windows Advanced Threat Protection (SPE)</li> <li>Advance Compliance Services (SPE)</li> </ul> <p><b>Project Dependencies:</b> Identify any core program or project dependencies, please include INV# numbers if known  Deployment of Office 365 services</p> <p><b>Basic Project Assumptions:</b></p>																																																	
<p><b>Indicative Project Costs by Fiscal Year</b></p> <table border="1"> <thead> <tr> <th>(\$M)</th> <th>Prior Years</th> <th>FY 2019</th> <th>FY 2020</th> <th>FY 2021</th> <th>FY 2022</th> <th>FY 2023</th> <th>FY 2024</th> <th>FY 2025</th> <th>FY 2026</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>CapEx</td> <td></td> <td>0.500</td> <td>0.500</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>1.000</td> </tr> <tr> <td>OpEx</td> <td></td> <td>0.300</td> <td>0.100</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.400</td> </tr> <tr> <td>Impact on RTB</td> <td></td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> </tr> </tbody> </table>						(\$M)	Prior Years	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total	CapEx		0.500	0.500	0.000	0.000	0.000	0.000	0.000	0.000	1.000	OpEx		0.300	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.400	Impact on RTB		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
(\$M)	Prior Years	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total																																							
CapEx		0.500	0.500	0.000	0.000	0.000	0.000	0.000	0.000	1.000																																							
OpEx		0.300	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.400																																							
Impact on RTB		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																																							
<p><b>Indicative Project Costs by Delivery Phase</b></p> <table border="1"> <thead> <tr> <th>(\$M)</th> <th>Start-up</th> <th>R &amp; D</th> <th>D &amp; I</th> <th>Closure</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>CapEx</td> <td></td> <td>0.250</td> <td>0.750</td> <td></td> <td>1.000</td> </tr> </tbody> </table>						(\$M)	Start-up	R & D	D & I	Closure	Total	CapEx		0.250	0.750		1.000																																
(\$M)	Start-up	R & D	D & I	Closure	Total																																												
CapEx		0.250	0.750		1.000																																												

## FY19 - Investment Request Summaries - IRSs - Data Security

OpEx	0.030	0.100	0.250	0.020	0.400				
<b>Project Benefits - Type I only</b>									
(\$M)	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Type I - CapEx									0.000
Type I - OpEx									0.000
Revenue Generation									0.000
<p><b>Key Business Benefits:</b>  Describe benefits, both financial and non-financial, and when those benefits will be delivered. Provide a clear &amp; concise business case stating the investment drivers – why do we need to do something and why now? Explain any Regulatory considerations and how this initiative aligns with the US Business Strategy.  Will enable the full capability of O365.</p>									
<b>Investment Prioritization</b>									
Benefits	Impact	Weight	Score	Cost	Impact	Weight	Score		
OpEx Annual Savings		10.3%	0	OpEx Cost	0.400	-24.4%	-2.196		
CapEx Annual Savings		5.1%	0	CapEx Cost	1.000	-11.2%	0		
Revenue Generation (annual)		6.2%	0	RTB Efficiency	0.000	% -22.5%	0		
Financial Control	Low	6.2%	0.062	Union/Labor Relations	Low	-9.8%	0		
Soft Financial Benefits	Low	3.8%	0.038	Dependencies	Low	-10.6%	-0.106		
Regulatory Impact	Medium	11.2%	0.336	EIapse Time Duration	Medium	-6.6%	-0.198		
Process & Personal Safety	Low	19.4%	0.194	Change Management Effort	Medium	-14.9%	-0.447		
Reliability	Medium	10.9%	0.327						
Customer & Community Responsiveness	Medium	5.3%	0.159						
Employee Satisfaction	Medium	4.6%	0.138						
Mitigates a Corporate Risk / Risk of not Doing	High= 40 or more	8.9%	0.801						
Jurisdictional Engagement	High	8.2%	1						
<b>Benefit Score: 2.79</b>				<b>Cost Score: -3.38</b>					
<b>Overall Priority Score: -0.588</b>									
<b>Investment Risk and Complexity</b>									
Project Risk Score:	45	Risk Score Description: Risk Impact = 6 and Risk Likelihood = 6							
Project Complexity Score::	16	Project Complexity Score Description:							
<p><b>Key Risks Description:</b> Provide detail on project risks &amp; mitigation strategy:  Not doing the project will result in restricting the functionality of O365 to collaborating internally with the resulting loss of productivity as well as accepting a high risk of data leakage.</p>									
<b>IS Project Dependencies</b> if you don't see a project in the drop-down please contact the Planning & Performance team.									
<b>IS Projects: 4710 - Data Security</b>  1. Has a dependency on IS Project;					<b>Benefiting Operating Companies:</b> Check all that apply <input type="checkbox"/> Select All Companies <input type="checkbox"/> Clear All Companies <input type="checkbox"/> Select All Gas <input type="checkbox"/> Select All Electric <input type="checkbox"/> Select All Gen				

## FY19 - Investment Request Summaries - IRSs - Data Security

2. Has a dependency on IS Project;	<input checked="" type="checkbox"/> National Grid USA Parent
3. Has a dependency on IS Project;	<input checked="" type="checkbox"/> KeySpan Energy Development Corporation
4. Has a dependency on IS Project;	<input checked="" type="checkbox"/> KeySpan Services Inc.
5. Has a dependency on IS Project;	<input checked="" type="checkbox"/> KeySpan Energy Corp
6. Has a dependency on IS Project;	<input checked="" type="checkbox"/> KeySpan Energy Delivery New York
	<input checked="" type="checkbox"/> KeySpan Energy Delivery Long Island
	<input checked="" type="checkbox"/> KeySpan Generation LLC (PSA)
	<input checked="" type="checkbox"/> KeySpan Glenwood Energy Center
	<input checked="" type="checkbox"/> KeySpan Port Jefferson Energy Center
	<input checked="" type="checkbox"/> KeySpan Energy Trading Svc LLC
	<input checked="" type="checkbox"/> Niagara Mohawk Power Corp- Electric Distribution
	<input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Gas
	<input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Transmission
	<input checked="" type="checkbox"/> Massachusetts Electric Company
	<input checked="" type="checkbox"/> Massachusetts Electric Company - Transmission
	<input checked="" type="checkbox"/> Nantucket Electric Company
	<input checked="" type="checkbox"/> Boston Gas Company
	<input checked="" type="checkbox"/> Colonial Gas Company
	<input checked="" type="checkbox"/> Narragansett Gas Company
	<input checked="" type="checkbox"/> Narragansett Electric Company
	<input checked="" type="checkbox"/> Narragansett Electric Company - Transmission
	<input checked="" type="checkbox"/> New England Power Company - Transmission
	<input checked="" type="checkbox"/> New England Hydro - Trans Corp
	<input checked="" type="checkbox"/> New England Electric Trans Corp
	<input type="checkbox"/> NE Hydro Trans Electric Co
	<input checked="" type="checkbox"/> NG LNG LP Regulated Entity

**Business Initiative Dependencies**

**IS Projects: 4710 - Data Security**

1. Has a dependency on Biz Initiative,

2. Has a dependency on Biz Initiative,

3. Has a dependency on Biz Initiative,

4. Has a dependency on Biz Initiative,

**Project Relationships**

☐ Minor Works

Project Relationship:

Related Projects:

☒ National Grid USA Parent  
☒ KeySpan Energy Development Corporation  
☒ KeySpan Services Inc.  
☒ KeySpan Energy Corp  
☒ KeySpan Energy Delivery New York  
☒ KeySpan Energy Delivery Long Island  
☒ KeySpan Generation LLC (PSA)  
☒ KeySpan Glenwood Energy Center  
☒ KeySpan Port Jefferson Energy Center  
☒ KeySpan Energy Trading Svc LLC  
☒ Niagara Mohawk Power Corp- Electric Distribution  
☒ Niagara Mohawk Power Corp - Gas  
☒ Niagara Mohawk Power Corp - Transmission  
☒ Massachusetts Electric Company  
☒ Massachusetts Electric Company - Transmission  
☒ Nantucket Electric Company  
☒ Boston Gas Company  
☒ Colonial Gas Company  
☒ Narragansett Gas Company  
☒ Narragansett Electric Company  
☒ Narragansett Electric Company - Transmission  
☒ New England Power Company - Transmission  
☒ New England Hydro - Trans Corp  
☒ New England Electric Trans Corp  
☐ NE Hydro Trans Electric Co  
☒ NG LNG LP Regulated Entity

**Enabling IS Capabilities** check all that apply

☐ Enterprise Content Management (ECM)  
☐ Comprehensive Integration Services (CIS)  
☒ Hybrid Cloud  
☒ Next Gen Workplace

☐ Enterprise Mobility  
☐ Reporting and Analytics  
☐ Networks

**Key Milestone Dates:** Select the 1st, 15th or last day of the month

**Indicative Estimated Duration (Months):**

Begin  
Start-up  
July, 2018

Begin  
Requirements & Deign

Begin  
Development & Implementation

Begin  
User Acceptance Testing

Go Live

Project Completion  
March, 2020

Project Closure

**Business Resource Estimates: # of Full Time Equivalents**

Start-up  
0

Requirements & Deign  
0

Develop & Implement  
0

Business Resources UAT  
0

Go Live Readiness  
0

Post Go Live Support  
0

Resourcing Strategy:

**Attached Supporting Documents**

**Recommendation Sign-off**

Role	Name	Title	Date
Business Project Sponsor	Gilbert, John	Global Head IS Service Delivery, Global IS	
Business Relationship Manager	Brian Detota	IS Business Relationship Manager	
IS Program Delivery Manager	Helen Smith	IS Program Delivery Manager	



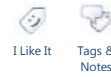
## FY19 - Investment Request Summaries - IRSs - Data Security

nationalgrid

## FY19 - Investment Request Summaries - IRSs - Monitoring and Alerting



Planning & Performance Management »  
FY19 - Investment Request Summaries - IRSs: Monitoring and Alerting



nationalgrid		Investment Request Summary - IS US		FISCAL YEAR 2019																																													
INV ID:	4493	Project Name:	Monitoring and Alerting																																														
Program:	Enterprise Services	IRS Status:	ACTIVE																																														
Sponsor:	Gilbert, John	Title:	Global Head IS Service Delivery, Global IS																																														
Relationship Manager:	Brian Detota	Title:	IS Relationship Manager, Global IS																																														
Progr Delivery Director:	Helen Smith	Title:	Head of Programme Delivery																																														
Paper Author:	Nicola Pennington / Steve Trezza	Title:	Business Consultant - Corporate IS / Service Strategy																																														
		Business Area:	IS - Infrastructure	Portfolio:	IS for IS																																												
<input checked="" type="checkbox"/> In-Flight Project?	Invest Classification:	Medium	Category:	Policy Driven	Primary Policy Driver:																																												
					Reliability																																												
					Region: US																																												
Strategic Program:	End to End Process (Primary):	Business Priority:	IS Focus Area:	Application Strategy:																																													
		Low	Future Proof Our Business	Enhance																																													
	End to End Process (Secondary):																																																
<p><b>Project Description:</b> The context for the project with background information  Build a centralized (NG owned) APM platform to collect, present and store data from on end user experience:  Step-change reduction in incident MTTR (Mean Time To Recover):</p> <ul style="list-style-type: none"> <li>•Earlier detection of performance issues</li> <li>•Fewer false alarms (P1/P2) by having empirical evidence of scale of problem (#users impacted, impact of slowdowns)</li> <li>•Faster identification of fault domain (server/citrix/network etc.)</li> <li>•Faster diagnosis of faults</li> <li>•Strong opportunity to improve IS reputation:</li> <li>•Real-time dashboards shared with customer will build transparency show good performance, and true scale of slowdowns/outages</li> <li>•Ability to trace individual user performance history will allow validation of anecdotes</li> </ul> <p><b>Project Rationale:</b> Highlight business challenge, capability or process the project addresses  1. Service availability data presented to customers is known to be of poor quality: Based on incident data and anecdotes  2. Triage of incidents is slow and inaccurate due to a lack of End User Experience visibility  3. Incidents are slow to diagnose (MTTR) due to inability to reliably identify fault domain and allocate tickets accordingly</p> <p><b>Project Scope:</b> Explain what is in scope and what is not in scope for the project  In: Select, procure software and infrastructure, integrate, train. Limited to 1 or 2 pilot IS services.  Out: Ongoing licensing/support (RTB), expansion across other IS services</p> <p><b>Project Dependencies:</b> Identify any core program or project dependencies, please include INVP numbers if known  May require servers, storage and internet bandwidth  Eco-partners willing to accept tight integration of expertise into their delivery model  Ability to install software on aged assets</p> <p><b>Basic Project Assumptions:</b>  Pilot services have sources of workload data that can be tapped.</p>																																																	
<p><b>Indicative Project Costs by Fiscal Year</b></p> <table border="1"> <thead> <tr> <th>(\$M)</th> <th>Prior Years</th> <th>FY 2019</th> <th>FY 2020</th> <th>FY 2021</th> <th>FY 2022</th> <th>FY 2023</th> <th>FY 2024</th> <th>FY 2025</th> <th>FY 2026</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>CapEx</td> <td></td> <td>0.300</td> <td>0.500</td> <td>0.125</td> <td>0.025</td> <td>0.025</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.975</td> </tr> <tr> <td>OpEx</td> <td></td> <td>0.100</td> <td>0.260</td> <td>0.250</td> <td>0.300</td> <td>0.025</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.935</td> </tr> <tr> <td>Impact on RTB</td> <td></td> <td>0.120</td> <td>0.050</td> <td>0.070</td> <td>0.070</td> <td>0.070</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.380</td> </tr> </tbody> </table>						(\$M)	Prior Years	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total	CapEx		0.300	0.500	0.125	0.025	0.025	0.000	0.000	0.000	0.975	OpEx		0.100	0.260	0.250	0.300	0.025	0.000	0.000	0.000	0.935	Impact on RTB		0.120	0.050	0.070	0.070	0.070	0.000	0.000	0.000	0.380
(\$M)	Prior Years	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total																																							
CapEx		0.300	0.500	0.125	0.025	0.025	0.000	0.000	0.000	0.975																																							
OpEx		0.100	0.260	0.250	0.300	0.025	0.000	0.000	0.000	0.935																																							
Impact on RTB		0.120	0.050	0.070	0.070	0.070	0.000	0.000	0.000	0.380																																							
<p><b>Indicative Project Costs by Delivery Phase</b></p> <table border="1"> <thead> <tr> <th>(\$M)</th> <th>Start-up</th> <th>R &amp; D</th> <th>D &amp; I</th> <th>Closure</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						(\$M)	Start-up	R & D	D & I	Closure	Total																																						
(\$M)	Start-up	R & D	D & I	Closure	Total																																												

## FY19 - Investment Request Summaries - IRSs - Monitoring and Alerting

CapEx			0.200		0.775			0.975
OpEx		0.005		0.045		0.875	0.010	0.935

### Project Benefits - Type I only

(\$M)	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Type I - CapEx									0.000
Type I - OpEx									0.000
Revenue Generation									0.000

**Key Business Benefits:**  
Describe benefits, both financial and non-financial, and when those benefits will be delivered. Provide a clear & concise business case stating the investment drivers – why do we need to do something and why now? Explain any Regulatory considerations and how this initiative aligns with the US Business Strategy.

- Single pane of glass allows for monitoring of multiple infrastructure towers in a single view
- Proactive monitoring by Business Service Owners which will result in higher visibility of problem areas.
- Tie-in of Monitoring and Alerting to event management (e.g. Service Now)
- Cross tower alerting closes gap created by supplier sourcing

### Investment Prioritization

Benefits	Impact	Weight	Score	Cost	Impact	Weight	Score
OpEx Annual Savings		10.3%	0	OpEx Cost	0.935	-24.4%	-2.196
CapEx Annual Savings		5.1%	0	CapEx Cost	0.975	-11.2%	0
Revenue Generation (annual)		6.2%	0	RTB Efficiency	86.154 %	-22.5%	-2.025
Financial Control	Low	6.2%	0.062	Union/Labor Relations	Low	-9.8%	0
Soft Financial Benefits	Low	3.8%	0.038	Dependencies	Low	-10.6%	-0.106
Regulatory Impact	Low	11.2%	0.112	Elastice Time Duration	Medium	-6.6%	-0.198
Process & Personal Safety	Low	19.4%	0.194	Change Management Effort	Low	-14.9%	-0.149
Reliability	Low	10.9%	0.109				
Customer & Community Responsiveness	Low	5.3%	0.053				
Employee Satisfaction	Low	4.6%	0.046				
Mitigates a Corporate Risk / Risk of not Doing	Medium=16 to 39	8.9%	0.267				
Jurisdictional Engagement	High	8.2%	1				
			<b>Benefit Score: 1.62</b>				<b>Cost Score: -5.11</b>
				<b>Overall Priority Score: -3.489</b>			

### Investment Risk and Complexity

Project Risk Score:	34	Risk Score Description: Impact score - 4, Likelihood score 5
Project Complexity Score::	14	Project Complexity Score Description:

**Key Risks Description:** Provide detail on project risks & mitigation strategy:  
Now that customers are demanding new services, without this investment in our underlying technology infrastructure, we cannot deliver these new strategic programs.  
There is a risk that Suppliers may not want to use National Grid tools as they may opt to use their own toolset.

<b>IS Project Dependencies</b> if you don't see a project in the drop-down please contact the Planning & Performance team.	<b>Benefiting Operating Companies:</b> Check all that apply
IS Projects: 4493 - Monitoring and Alerting	<input type="checkbox"/> Select All Companies <input type="checkbox"/> Clear All Companies

## FY19 - Investment Request Summaries - IRSs - Monitoring and Alerting

1. Has a dependency on IS Project;	<input type="checkbox"/> Select All Gas <input type="checkbox"/> Select All Electric <input type="checkbox"/> Select All Gen <input checked="" type="checkbox"/> National Grid USA Parent <input checked="" type="checkbox"/> KeySpan Energy Development Corporation <input checked="" type="checkbox"/> KeySpan Services Inc. <input checked="" type="checkbox"/> KeySpan Energy Corp <input checked="" type="checkbox"/> KeySpan Energy Delivery New York <input checked="" type="checkbox"/> KeySpan Energy Delivery Long Island <input checked="" type="checkbox"/> KeySpan Generation LLC (PSA) <input checked="" type="checkbox"/> KeySpan Glenwood Energy Center <input checked="" type="checkbox"/> KeySpan Port Jefferson Energy Center <input checked="" type="checkbox"/> KeySpan Energy Trading Svc LLC <input checked="" type="checkbox"/> Niagara Mohawk Power Corp- Electric Distribution <input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Gas <input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Transmission <input checked="" type="checkbox"/> Massachusetts Electric Company <input checked="" type="checkbox"/> Massachusetts Electric Company - Transmission <input checked="" type="checkbox"/> Nantucket Electric Company <input checked="" type="checkbox"/> Boston Gas Company <input checked="" type="checkbox"/> Colonial Gas Company <input checked="" type="checkbox"/> Narragansett Gas Company <input checked="" type="checkbox"/> Narragansett Electric Company <input checked="" type="checkbox"/> Narragansett Electric Company - Transmission <input checked="" type="checkbox"/> New England Power Company - Transmission <input checked="" type="checkbox"/> New England Hydro - Trans Corp <input checked="" type="checkbox"/> New England Electric Trans Corp <input type="checkbox"/> NE Hydro Trans Electric Co <input checked="" type="checkbox"/> NG LNG LP Regulated Entity																
2. Has a dependency on IS Project;																	
3. Has a dependency on IS Project;																	
4. Has a dependency on IS Project;																	
5. Has a dependency on IS Project;																	
6. Has a dependency on IS Project;																	
<b>Business Initiative Dependencies</b> IS Projects: <b>4493 - Monitoring and Alerting</b> 1. Has a dependency on Biz Initiative, 2. Has a dependency on Biz Initiative, 3. Has a dependency on Biz Initiative, 4. Has a dependency on Biz Initiative, <b>Project Relationships</b> <input type="checkbox"/> Minor Works Project Relationship: Related Projects:																	
<b>Enabling IS Capabilities</b> check all that apply <input type="checkbox"/> Enterprise Content Management (ECM) <input type="checkbox"/> Comprehensive Integration Services (CIS) <input type="checkbox"/> Hybrid Cloud <input type="checkbox"/> Next Gen Workplace <input type="checkbox"/> Enterprise Mobility <input type="checkbox"/> Reporting and Analytics <input type="checkbox"/> Networks																	
<b>Key Milestone Dates:</b> Select the 1st, 15th or last day of the month <table border="1"> <thead> <tr> <th>Begin Start-up</th> <th>Begin Requirements &amp; Design</th> <th>Begin Development &amp; Implementation</th> <th>Begin User Acceptance Testing</th> <th>Go Live</th> <th>Project Completion</th> <th>Project Closure</th> </tr> </thead> <tbody> <tr> <td>January, 2019</td> <td></td> <td></td> <td></td> <td></td> <td>September, 2022</td> <td></td> </tr> </tbody> </table> <b>Indicative Estimated Duration (Months):</b>		Begin Start-up	Begin Requirements & Design	Begin Development & Implementation	Begin User Acceptance Testing	Go Live	Project Completion	Project Closure	January, 2019					September, 2022			
Begin Start-up	Begin Requirements & Design	Begin Development & Implementation	Begin User Acceptance Testing	Go Live	Project Completion	Project Closure											
January, 2019					September, 2022												
<b>Business Resource Estimates: # of Full Time Equivalents</b> <table border="1"> <thead> <tr> <th>Start-up</th> <th>Requirements &amp; Design</th> <th>Develop &amp; Implement</th> <th>Business Resources UAT</th> <th>Go Live Readiness</th> <th>Post Go Live Support</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table> Resourcing Strategy:		Start-up	Requirements & Design	Develop & Implement	Business Resources UAT	Go Live Readiness	Post Go Live Support	0	0	0	0	0	0				
Start-up	Requirements & Design	Develop & Implement	Business Resources UAT	Go Live Readiness	Post Go Live Support												
0	0	0	0	0	0												
<b>Attached Supporting Documents</b>																	
<b>Recommendation Sign-off</b> <table border="1"> <thead> <tr> <th>Role</th> <th>Name</th> <th>Title</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>Business Project Sponsor</td> <td>Gilbert, John</td> <td>Global Head IS Service Delivery, Global IS</td> <td></td> </tr> <tr> <td>Business Relationship Manager</td> <td>Brian Detota</td> <td>IS Business Relationship Manager</td> <td></td> </tr> <tr> <td></td> <td></td> <td>IS Program Delivery Manager</td> <td></td> </tr> </tbody> </table>		Role	Name	Title	Date	Business Project Sponsor	Gilbert, John	Global Head IS Service Delivery, Global IS		Business Relationship Manager	Brian Detota	IS Business Relationship Manager				IS Program Delivery Manager	
Role	Name	Title	Date														
Business Project Sponsor	Gilbert, John	Global Head IS Service Delivery, Global IS															
Business Relationship Manager	Brian Detota	IS Business Relationship Manager															
		IS Program Delivery Manager															

## FY19 - Investment Request Summaries - IRSs - Monitoring and Alerting

IS Program Delivery Manager	Helen Smith	
nationalgrid		

# FY18 - Investment Request Summaries - IRSs - MWORK and Netmotion Risk Avoidance



Planning & Performance Management  
FY18 - Investment Request Summaries - IRSs: MWORK and Netmotion Risk Avoidance



I Like It



Tags & Notes

nationalgrid		Investment Request Summary - IS US		FISCAL YEAR 2018						
INV ID:	4725	Project Name: <b>MWORK and Netmotion Risk Avoidance</b>								
Program:	<b>Service Strategy Roadmap</b>									
Sponsor:	John Gilbert	Title: <i>Global Head IS Service Delivery, Global IS</i>								
Relationship Manager:	Graham Pool	Title: <i>IS Relationship Manager, Global IS</i>								
Prog Delivery Manager:	Tom Cunningham	Title: <i>Head of Programme Delivery, Global IS</i>								
Paper Author:	Nicola Pennington / Steve Trezza	Title: <i>Business Constant - Corporate IS</i>								
IS Roadmap Category: IS Assurance		Business Area: <b>Corporate IS</b>		Portfolio: <b>IS for IS</b>						
<input type="checkbox"/> In-Flight Project?	Invest Classification: Medium	Category: Policy Driven	Primary Policy Driver: Reliability		Region: <b>US</b>					
<input checked="" type="checkbox"/> Growth Playbook Project? <input type="checkbox"/> Shaping Our Future Project? <input type="checkbox"/> Energy Efficiency Project?										
<p><b>Project Description:</b> The context for the project with background information  Netmotion will be the strategic direction for the MWork application. It is used when mobile field workers move in and out of wireless coverage areas and roam between networks, the product maintains and secures their data connections in order to maximize worker productivity. This project will implement a new solution for MWork that replaces the current Birdstep product with Netmotion.</p> <p><b>Project Rationale:</b> Highlight business challenge, capability or process the project addresses  For MDSI users (Legacy Keyspan), they are currently on an old Netmotion network and a new Netmotion network. As new and replacement devices are deployed they are added to the new Netmotion network reducing the load on the old one. Once all of the old devices are replaced the old network will be de-commissioned. This will happen organically.</p> <p><b>Project Scope:</b> Explain what is in scope and what is not in scope for the project  This scope covers all the identified functionality for the core service to be upgraded or improved.</p> <p><b>Project Dependencies:</b> Identify any core program or project dependencies, please include INVP numbers if known  This project is to move the Mwork device (Legacy National Grid ) from Birdstep to the New Netmotion network. It will require the separation of Mwork from Birdstep and additional Netmotion licenses and may even need a verizon capacity upgrade.</p> <p><b>Basic Project Assumptions:</b>  This investment addresses IS health and capability challenges while enabling National Grid's strategic business objectives.</p>										
<b>Indicative Project Costs by Fiscal Year</b>										
(\$M)	Prior Years	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Total
CapEx		0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.500
OpEx		0.000	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.020
Impact on RTB		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Indicative Project Costs by Delivery Phase</b>										
(\$M)	Start-up	R & D		D & I		Closure		Total		
CapEx		0.050		0.450				0.500		
OpEx	0.007	0.005		0.005		0.003		0.020		
<b>Project Benefits - Type I only</b>										
(\$M)	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Total	

## FY18 - Investment Request Summaries - IRSs - MWORK and Netmotion Risk Avoidance

Type I - CapEx									0.000
Type I - OpEx									0.000
Revenue Generation									0.000

**Key Business Benefits:**  
Describe benefits, both financial and non-financial, and when those benefits will be delivered. Provide a clear & concise business case stating the investment drivers – why do we need to do something and why now? Explain any Regulatory considerations and how this initiative aligns with the US Business Strategy.  
The impacts of this program on the Customer are based on a number of areas:

- Improves reliability and productivity
- Better support for Jurisdictional and business function initiatives
- Enables a better Customer Experience

**Investment Prioritization**

Benefits	Impact	Weight	Score	Cost	Impact	Weight	Score
OpEx Annual Savings		10.3%	0	OpEx Cost	0.020	-24.4%	-244
CapEx Annual Savings		5.1%	0	CapEx Cost	0.500	-11.2%	0
Revenue Generation (annual)		6.2%	0	RTB Efficiency	0.000	% -22.5%	0
Financial Control	Low	6.2%	0.062	Union/Labor Relations	does not apply	-9.8%	0
Soft Financial Benefits	Low	3.8%	0.038	Dependencies	Medium	-10.6%	-0.318
Regulatory Impact	does not apply	11.2%	0	Elastice Time Duration	Medium	-6.6%	-0.198
Process & Personal Safety	does not apply	19.4%	0	Change Management Effort	Medium	-14.9%	-0.447
Reliability	Medium	10.9%	0.327				
Customer & Community Responsiveness	Low	5.3%	0.053				
Employee Satisfaction	Low	4.6%	0.046				
Mitigates a Corporate Risk / Risk of not Doing	Medium=16 to 39	8.9%	0.267				
Jurisdictional Engagement	High	8.2%	1				
			<b>Benefit Score: 1.53</b>				<b>Cost Score: -1.54</b>
				<b>Overall Priority Score: -0.012</b>			

**Investment Risk and Complexity**

Project Risk Score:	36	Risk Score Description: Reliability - 4, likelihood 6
Project Complexity Score::	14	Project Complexity Score Description:

**Key Risks Description:** Provide detail on project risks & mitigation strategy:  
Now that customers are demanding new services, without these Network Improvements in our underlying technology infrastructure, we cannot deliver these new strategic programs.

**IS Project Dependencies** if you don't see a project in the drop-down please contact the Planning & Performance team.

**Benefiting Operating Companies:** Check all that apply

**IS Projects: 4725 - MWORK and Netmotion Risk Avoidance**

1. Has a dependency on IS Project;

2. Has a dependency on IS Project;

3. Has a dependency on IS Project;

4. Has a dependency on IS Project;

☐ Select All Companies ☐ Clear All Companies  
☐ Select All Gas ☐ Select All Electric ☐ Select All Gen

☒ National Grid USA Parent  
☒ KeySpan Energy Development Corporation  
☒ KeySpan Services Inc.  
☒ KeySpan Energy Corp

FY18 - Investment Request Summaries - IRSs - MWORK and Netmotion Risk Avoidance

5. Has a dependency on IS Project;	<input checked="" type="checkbox"/> KeySpan Energy Delivery New York <input checked="" type="checkbox"/> KeySpan Energy Delivery Long Island <input checked="" type="checkbox"/> KeySpan Generation LLC (PSA) <input checked="" type="checkbox"/> KeySpan Glenwood Energy Center <input checked="" type="checkbox"/> KeySpan Port Jefferson Energy Center <input checked="" type="checkbox"/> KeySpan Energy Trading Svc LLC <input checked="" type="checkbox"/> Niagara Mohawk Power Corp- Electric Distribution <input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Gas <input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Transmission <input checked="" type="checkbox"/> Massachusetts Electric Company <input checked="" type="checkbox"/> Massachusetts Electric Company - Transmission <input checked="" type="checkbox"/> Nantucket Electric Company <input checked="" type="checkbox"/> Boston Gas Company <input checked="" type="checkbox"/> Colonial Gas Company <input checked="" type="checkbox"/> Narragansett Gas Company <input checked="" type="checkbox"/> Narragansett Electric Company <input checked="" type="checkbox"/> Narragansett Electric Company - Transmission <input checked="" type="checkbox"/> New England Power Company - Transmission <input checked="" type="checkbox"/> New England Hydro - Trans Corp <input checked="" type="checkbox"/> New England Electric Trans Corp <input checked="" type="checkbox"/> NG LNG LP Regulated Entity					
6. Has a dependency on IS Project;						
<b>Business Initiative Dependencies</b>						
<b>IS Projects: 4725 - MWORK and Netmotion Risk Avoidance</b>						
1. Has a dependency on Biz Initiative,						
2. Has a dependency on Biz Initiative,						
3. Has a dependency on Biz Initiative,						
4. Has a dependency on Biz Initiative,						
<b>Project Relationships</b>						
<input type="checkbox"/> Minor Works <span style="margin-left: 20px;">Project Relationship:</span> Related Projects:						
<b>Enabling IS Capabilities</b> check all that apply						
<input type="checkbox"/> Enterprise Content Management (ECM) <span style="margin-left: 200px;"><input type="checkbox"/> Enterprise Mobility</span> <input type="checkbox"/> Comprehensive Integration Services (CIS) <span style="margin-left: 200px;"><input type="checkbox"/> Reporting and Analytics</span> <input type="checkbox"/> Hybrid Cloud <span style="margin-left: 200px;"><input type="checkbox"/> Networks</span> <input type="checkbox"/> Next Gen Workplace						
<b>Key Milestone Dates:</b> Select the 1st, 15th or last day of the month						
Begin Start-up April, 2018	Begin Requirements & Deign	Begin Development & Implementation	Begin User Acceptance Testing	Go Live	Project Completion March, 2019	Project Closure
<b>Business Resource Estimates: # of Full Time Equivalents</b>						
Start-up 0	Requirements & Deign 0	Develop & Implement 0	Business Resources UAT 0	Go Live Readiness 0	Post Go Live Support 0	
Resourcing Strategy:						
<b>Attached Supporting Documents</b>						
<b>Recommendation Sign-off</b>						
Role	Name	Title	Date			
Business Project Sponsor	John Gilbert	Global Head IS Service Delivery, Global IS				
Business Relationship Manager	Graham Pool	IS Business Relationship Manager				
IS Program Delivery Manager	Tom Cunningham	IS Program Delivery Manager				





**Investment Proposal Summary Sheet**  
**Legacy DMZ Firewalls – Project No. INVP 4688**

<b>Region:</b>	US	<b>Category:</b>	Policy	<b>Legal Entity:</b>	Shared						
<b>Risk Score:</b>	49	<b>Primary Driver:</b>	Reliability	<b>Project Classification:</b>	M						
<p><b>Project Description:</b></p> <p>This paper requests sanction of INVP 4688 in the amount \$0.523M with a tolerance of +/- 10% for the purposes of Full Implementation.</p> <p>This sanction amount is \$0.523M broken down into:</p> <table> <tr> <td>\$ 0.523M</td> <td>Capex</td> </tr> <tr> <td>\$ 0.000M</td> <td>Opex</td> </tr> <tr> <td>\$ 0.000M</td> <td>Removal</td> </tr> </table> <p><b><u>Brief Description</u></b></p> <p>This investment will replace the firewalls within the Legacy internet gateway, Legacy DMZ (Demilitarized Zone) which are at increased risk of failure. Should they fail due to age it is unlikely they will be able to be restored with current equipment. The firewalls will be located at MetroTech and HCB.</p> <p><b><u>Background</u></b></p> <p>The network infrastructure that underpins all of National Grid's systems to enable communication is critical to the running of all services. Therefore it is vital that this network and communication infrastructure is reliable, with low outage and high availability. The following conditions exist with the firewalls within the DMZ Zone:</p> <ul style="list-style-type: none"> <li>Contractually we are not able to hold Verizon to service levels once they have notified National Grid that hardware is no longer within current standards.</li> <li>Many of these Services are considered core services and it is a business requirement for these to have 24/7 availability.</li> <li>To ensure that these service levels can be maintained that are no longer within current standards, hardware and software need to be upgraded or replaced.</li> <li>In addition, reviews of current contractual arrangements have identified opportunity to reduce ongoing service charges (RTB) through up-front purchases.</li> </ul>						\$ 0.523M	Capex	\$ 0.000M	Opex	\$ 0.000M	Removal
\$ 0.523M	Capex										
\$ 0.000M	Opex										
\$ 0.000M	Removal										

National Grid Confidential

Project Costs [\$]M		Prior Year 16/17	Yr 1 17/18	Yr 2 18/19	Yr 3 19/20	Yr 4 20/21	Yr 5 21/22	Total
Start-Up - OPEX		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Start-Up - CAPEX		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Start-Up - risk margin		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Start-Up SUBTOTAL		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Requirements & Design - OPEX		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Requirements & Design - CAPEX		\$0.406	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.406
Requirements & Design - risk margin		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Requirements & Design SUBTOTAL		\$0.406	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.406
Development & Implementation - OPEX								
People		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Software		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Hardware		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Telecommunications		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Service Contracts		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Risk Margin		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Requirements & Design SUBTOTAL		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Development & Implementation - CAPEX								
People		\$0.000	\$0.069	\$0.000	\$0.000	\$0.000	\$0.000	\$0.069
Software		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Hardware		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Telecommunications		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Service Contracts		\$0.000	\$0.038	\$0.000	\$0.000	\$0.000	\$0.000	\$0.038
Risk Margin		\$0.000	\$0.010	\$0.000	\$0.000	\$0.000	\$0.000	\$0.010
D & I SUBTOTAL		\$0.000	\$0.117	\$0.000	\$0.000	\$0.000	\$0.000	\$0.117
TOTAL PROJECT COSTS		\$0.406	\$0.117	\$0.000	\$0.000	\$0.000	\$0.000	\$0.523
Non-regulated project - UPLIFT		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Non-regulated project - TOTAL		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Non-regulated project - UPLIFT		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Non-regulated project - TOTAL		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Investment Plan No: INVP.....	Budget OPEX	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
	Budget CAPEX	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Impact on RTB costs		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000

Benefiting Operating Company	Business Area	State
National Grid USA Parent	Parent	N/A
KeySpan Energy Corp.	Service Company	N/A
Niagara Mohawk Power Corp.- Electric Distr.	Electric Distribution	NY
Niagara Mohawk Power Corp. - Gas	Gas Distribution	NY
Niagara Mohawk Power Corp. - Transmission	Transmission	NY
KeySpan Energy Delivery New York	Gas Distribution	NY
KeySpan Energy Delivery Long Island	Gas Distribution	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 Electric Company	Electric Distribution	RI
Narragansett Gas Company	Gas Distribution	RI
Narragansett Electric Company - Transmission	Transmission	RI
New England Power Company - Transmission	Transmission	MA
NE Hydro - Trans Electric Co.	FERC Interconnect	N/A
New England Hydro - Trans Electric Co.	FERC Interconnect	N/A
New England Electric Trans Electric Co.	FERC Interconnect	N/A
NG LNG LP Regulated Entity	FERC Gas Ops	N/A
KeySpan Generation LLC (PSA)	Generation	NY
KeySpan Glenwood Energy Center	Generation	NY
KeySpan Port Jefferson Energy Center	Generation	NY
KeySpan Energy Trading Services	Parents	N/A
Transgas, Inc.	Other Non-Regulated	MA
KeySpan Energy Development Corporation	Non-Regulated	NY
KeySpan Services Inc.	Other Non-Regulated	NY

<b>TOTAL BENEFITS \$M</b>						
<b>Key Business Benefits:</b> Provision of new firewalls for the Legacy Internet Gateway, known as Legacy DMZ (Demilitarized Zone), will ensure reliable operation of legacy internet gateway services until these services can be migrated to the new strategic service (known as VSTIG).						

Key risks:	Key Dates (Month/ Year):
	Start Up Jan 2017
	Partial Sanction Feb 2017
	Begin Requirements/Design Feb 2017
	CPE Completion Mar 2017
	Full Sanction Jun 2017
	Begin Dev & Implement May 2017
	Begin User Accept Testing Jul 2017
	Move to Production / Last Go Live Oct 2017
	Project Complete Nov 2017
	Project Closure Sanction Nov 2017

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

Role	Individual's Name
Business Executive Sponsor	John Gilbert
Head of PDM	Bill Kearns
Relationship Manager	Bill Kearns
Program Delivery Director	Dave McCune
IS Finance Management	Chip Benson
IS Regulatory	Dan DeMauro
DR&S	Elaine Wilson
Service Delivery	Brian Detota
Enterprise Architecture	Joe Clinchot

# RECOMMENDATIONS

The Sanctioning Authority is invited to:

- APPROVE the investment of \$0.523M including risk margin of \$0.010M by May 31, 2017
- NOTE that John Gilbert, Global Head IS Service Delivery, is the Project Sponsor
- NOTE that Pratap Routray 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.....

John Gilbert, Global Head IS Service Delivery

**US Sanction Paper**

<b>Title:</b>	Virtual Desktop DaaS	<b>Sanction Paper #:</b>	
<b>Project #:</b>	INVP 4727	<b>Sanction Type:</b>	Partial Sanction
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	September 1, 2017
<b>Author:</b>	Susan Stallard / Nicola Pennington	<b>Sponsor:</b>	John Gilbert, Global Head IS Service Delivery, Global IS
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	John Braziel / Dave McCune

## **1 Executive Summary**

### **1.1 Sanctioning Summary**

This paper requests partial sanction of INVP4727 in the amount \$0.268M with a tolerance of +/- 10% for the purposes of Requirements and Design.

This sanction amount is \$0.268M broken down into:

\$0.175M Capex  
\$0.093M Opex  
\$0.000M Removal

NOTE the potential investment of \$0.492M with a tolerance of +/- 25%, contingent upon submittal and approval of a Project Sanction paper following completion of Requirements and Design.

### **1.2 Project Summary**

The scope of this project is to deploy a virtual desktop (VMware) environment starting with the Call Center, IT Support Staff and other groups such as KPMG who have requested this capability. This will transform the end-user computing desktops to a secure, centralized desktop environment for local and remote users using a virtual desktop infrastructure (VDI) solution.

## US Sanction Paper

### 1.3 Summary of Projects

Project Number	Project Title	Estimate Amount (\$M)
INVP4727	Virtual Desktop DaaS	0.492
<b>Total</b>		0.492

### 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
Jan 2018	Full 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	<p>The investment impacts on the Customer are</p> <p>(a) Improves reliability and productivity;</p> <p>(b) Reduction in Run the Business Costs; and</p> <p>(c) Improved end user experience.</p>

### 1.8 Asset Management Risk Score

Asset Management Risk Score: 39

**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: 14

### 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 (\$)
IS Investment Plan FY18 - 22	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Over <input checked="" type="radio"/> Under <input type="radio"/> NA	\$1.158M

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

N/A

### 1.13 Current Planning Horizon

\$M	Prior Yrs	Current Planning Horizon						Total
		Yr. 1 2017/18	Yr. 2 2018/19	Yr. 3 2019/20	Yr. 4 2020/21	Yr. 5 2021/22	Yr. 6 + 2022/23	
CapEx	0.000	0.320	0.071	0.000	0.000	0.000	0.000	0.391
OpEx	0.000	0.096	0.005	0.000	0.000	0.000	0.000	0.101
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	0.416	0.076	0.000	0.000	0.000	0.000	0.492

## US Sanction Paper

### 1.14 Key Milestones

Milestone	Target Date: (Month/Year)
Start Up	Jul 2017
Partial Sanction	Aug 2017
Begin Requirements and Design	Aug 2017
Project Sanction	Jan 2018
Begin Development and Implementation	Jan 2018
Move to Production / Last Go Live	May 2018
Project Complete	Jun 2018
Sanction Closure	Aug 2018

### 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 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





**US Sanction Paper**

**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 IS Sanctioning Committee (ISSC) and Key External Stakeholders reviewed and approved the content of the investment including:

- (a) APPROVED the investment of \$0.268M and a tolerance of +/- 10% for the purposes of requirements and design.
- (b) NOTED the potential run-the-business (RTB) Impact of \$0.313M (per annum) for 5 years.
- (c) NOTED the potential investment of \$0.492M and a tolerance of +/-25% contingent upon submittal and approval of a Project Sanction paper following completion of requirements and design.
- (d) NOTED that Dave McCune has the approved financial delegation to undertake the activities stated in (a).

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

Anuraag Bhargava  
US CIO

## **US Sanction Paper**

### **3 Sanction Paper Detail**

<b>Title:</b>	Virtual Desktop - DaaS	<b>Sanction Paper #:</b>	
<b>Project #:</b>	INVP 4727	<b>Sanction Type:</b>	Partial Sanction
<b>Operating Company:</b>	National Grid USA Svc. Co.	<b>Date of Request:</b>	September 1, 2017
<b>Author:</b>	Susan Stallard / Nicola Pennington	<b>Sponsor:</b>	John Gilbert, Global Head IS Service Delivery
<b>Utility Service:</b>	IS	<b>Project Manager:</b>	John Brazier / Dave McCune

#### **3.1 Background**

National Grid has implemented a Virtual Desktop environment (VMware Horizon Air) to replace a Legacy Stop gap solution for the IBM offshore applications support team. The solution is built on a cloud platform and provides true scalability and predictable costs. Project INVP 3901 Virtual desktop must be complete prior to implementing this project.

The Virtual Desktop (VD) allows a user's desktop environment (icons, wallpaper, windows, folders, toolbars, widgets, etc.) to be stored on a remote server, rather than on a designated Personal Computer (PC). Implementing a virtual desktop environment will replace the traditional model of providing a device to each user.

#### **3.2 Drivers**

Provide support staff access to the National Grid systems that is:

- Cost effective, reduces cost of new and replacing devices, and maintenance support costs;
- Reduces new user set up time; and
- Meet Digital Risk & Security (DR&S) standards.

#### **3.3 Project Description**

Deploy a Virtual Desktop (DaaS) solution and virtual desktop (VMware) environment starting approximately 800 devices for the Call Center, IT Support Staff and other groups such as KPMG who have requested this capability. National Grid users will

## ***US Sanction Paper***

receive a thin client device, while the service partner users will use a device provided by the partner.

Activities will include:

- Selecting and deploying to a pilot group for Thin Client across appropriate use cases (to include US Contact Centers), which will consist of 25 National Grid users and 25 service partner users; and
- Full deployment to 750 identified users from US Contact Centers and the other use cases during the pilot.

### ***3.4 Benefits Summary***

The Virtual Desktop DaaS solution will provide:

- A reduction in cost of new physical PCs. (Current new PC cost is \$448; Thin Client Device cost is \$142) for National Grid users, Service Partners will use a partner provided device (National Grid Cost \$0);
- A reduction in cost of hardware maintenance as the end point device is a Dumb Terminal, Thin Client Device;
- The ability to offload end point cost or extend the lifecycle of existing PCs; and
- Scalability to add more users as needed.

Note that RTB costs are projected to increase as the DaaS solution will require VMWare license fees and Annuta support costs. These RTB costs will offset the savings realized due to the lower physical hardware and maintenance costs achieved by these license and support costs.

### ***3.5 Business and Customer Issues***

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

### ***3.6 Alternatives***

**Alternative 1: Do Nothing** - This option does not address the project driver nor deliver the expected benefits. Impact of not delivering this project is that National Grid will continue to operate with a security risk and impacts Enterprise Service Delivery's ability to support the off shore development model.

**Alternative 2: Defer investment** – Deferring the investment, will not impact the Run the Business Cost (RTB) but, the business benefits will not be prior to deployment of Windows 7.

## 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

Number	Detailed Description of Risk / Opportunity	Probability	Impact		Score		Strategy	Pre-Trigger Mitigation Plan	Residual Risk	Post Trigger Mitigation Plan
			Cost	Schedule	Cost	Schedule				
1	Risk of entering a minimum 2 year commitment for the Virtual Desktop service; NG may have to pay stranded costs (i.e. the amount remaining between the end of the contract and the end of the minimum 2 year period for the VDI service).	2	4	2	8	4	Mitigate	PM to renegotiate with the service contract with the Vendor to end the current contract early to avoid paying stranded costs.		
2	Risk that the project team will implement the VMware Storefront directly to the internet and thus negate the need for the Juniper VPN.	3	4	2	12	6	Mitigate	Project Team will work with DR&S to ensure the implementation of the the VMware Storefront meets NG security standards.		

### 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

## US Sanction Paper

### 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						
					Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6 +	Total
					2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	
INVP4727	Virtual Desktop DaaS	+/- 25%	CapEx	0.000	0.320	0.071	0.000	0.000	0.000	0.000	0.391
			OpEx	0.000	0.096	0.005	0.000	0.000	0.000	0.000	0.101
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.000	0.416	0.076	0.000	0.000	0.000	0.000	0.492
Total Project Sanction			CapEx	0.000	0.320	0.071	0.000	0.000	0.000	0.000	0.391
			OpEx	0.000	0.096	0.005	0.000	0.000	0.000	0.000	0.101
			Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Total	0.000	0.416	0.076	0.000	0.000	0.000	0.000	0.492

### 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	0.550	0.000	0.000	0.000	0.000	0.000	0.550
OpEx	0.000	0.100	0.500	0.500	0.000	0.000	0.000	1.100
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	0.650	0.500	0.500	0.000	0.000	0.000	1.650

#### 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	0.230	(0.071)	0.000	0.000	0.000	0.000	0.159
OpEx	0.000	0.004	0.495	0.500	0.000	0.000	0.000	0.999
Removal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cost in Bus. Plan	0.000	0.234	0.424	0.500	0.000	0.000	0.000	1.158

### 3.11.3 Cost Assumptions

This estimate was developed in 2017 using the standard IS estimating methodology. The accuracy level of estimate for each project is identified in table 3.11.1.

## **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**

#### **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.

<b>Role</b>	<b>Individual</b>
Business Representative	Don Rera
Head of PDM	Helen Smith
Relationship Manager	Niccola Pennington
Program Delivery Director	Dave McCune
IS Finance Management	Chip Benson
IS Regulatory	Tom Gill
DR&S	Elaine Wilson
Service Delivery	Brian Detota
Enterprise Architecture	Joe Clinchot

#### **3.12.2 Reviewers**

N/A

## US Sanction Paper

### 4 Appendices

#### 4.1 Sanction Request Breakdown by Project

\$M	INVP4727	Total
CapEx	0.391	0.391
OpEx	0.101	0.101
Removal		0.000
<b>Total</b>	<b>0.492</b>	<b>0.492</b>

#### 4.2 Other Appendices

##### 4.2.1 Project Cost Breakdown

Project Cost Breakdown			
Cost Category	sub-category	\$ (millions)	Name of Firm(s) providing resources
<b>Personnel</b>	NG Resources	0.127	
	SDC Time & Materials	0.114	IBM
	SDC Fixed-Price	0.005	
	All other personnel	0.099	
	<b>TOTAL Personnel Costs</b>	<b>0.345</b>	
<b>Hardware</b>	Purchase	0.090	
	Lease	-	
<b>Software</b>		-	
<b>Risk Margin</b>		-	
<b>Other</b>		0.057	Shared, AFUDC and Other Costs
<b>TOTAL Costs</b>		<b>0.492</b>	



**US Sanction Paper**

**4.2.2 Benefitting Operating Companies**

The following are the benefitting operating companies:

	<b>Business Area</b>	<b>State</b>
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	
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
New England Hydro - Trans Corp.	Inter Connector	MA, NH
KeySpan Services Inc.	Service Company	
KeySpan Glenwood Energy Center	Generation	NY



***US Sanction Paper***

Massachusetts Electric Company – Transmission	Transmission	MA
NG LNG LP Regulated Entity	Gas Distribution	MA, NY, RI
Transgas Inc	Non-Regulated	NY
Keyspan Energy Trading Services	Other	NY
KeySpan Energy Corp.	Service Company	
New England Electric Trans Corp	Inter Connector	MA

**US Sanction Paper**

**4.2.3 IS Ongoing Operational Costs (RTB)**

This project IS on-going operations support costs as part of the Development and Implementation phase are TBD at this time. These are known as Run the Business (RTB) costs.

<b>Summary Analysis of RTB Costs</b>							
All figures in \$ millions	Yr. 1 17/18	Yr. 2 18/19	Yr. 3 19/20	Yr. 4 20/21	Yr. 5 21/22	Yr. 6+	Total
<b><u>Forecast of RTB Impact</u></b>							
RTB if Status Quo Continues	-	0.295	0.350	0.350	0.350	0.420	<b>1.763</b>
RTB if Project is Implemented	0.014	0.641	0.662	0.662	0.662	0.795	<b>3.437</b>
<b>Net change in RTB</b>	<b>0.014</b>	<b>0.346</b>	<b>0.313</b>	<b>0.313</b>	<b>0.313</b>	<b>0.375</b>	<b>1.674</b>
<b><u>RTB Variance Analysis</u> (if Project is Implemented)</b>							
Net Δ RTB funded by Plan(s)	-	-	-	-	-	-	-
Variance to Plan	0.014	0.346	0.313	0.313	0.313	0.375	<b>1.674</b>
<b><u>Total RTB Costs - by Cost Type</u> (if Project is Implemented)</b>							
App.Sup. - SDC 1	-	-	-	-	-	-	-
App.Sup. - SDC 2	-	-	-	-	-	-	-
App.Sup. - other	0.004	0.144	0.144	0.144	0.144	0.173	<b>0.753</b>
SW maintenance	0.010	0.384	0.384	0.384	0.384	0.461	<b>2.007</b>
SaaS	-	-	-	-	-	-	-
HW support	-	-	-	-	-	-	-
Other: IS	0.000	0.113	0.134	0.134	0.134	0.161	<b>0.678</b>
<b>All IS-related RTB (sub-Total)</b>	<b>0.014</b>	<b>0.641</b>	<b>0.662</b>	<b>0.662</b>	<b>0.662</b>	<b>0.795</b>	<b>3.437</b>
<b>Business Support (sub-Total)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Total RTB Costs</b>	<b>0.014</b>	<b>0.641</b>	<b>0.662</b>	<b>0.662</b>	<b>0.662</b>	<b>0.795</b>	<b>3.437</b>

## FY18 - Investment Request Summaries - IRSs - Dev/test migration to cloud



Planning & Performance Management  
FY18 - Investment Request Summaries - IRSs: Dev/test migration to cloud



nationalgrid		Investment Request Summary - IS US		FISCAL YEAR 2018																																													
INV ID:	4778	Project Name: <b>Dev/test migration to cloud</b>																																															
Program:	<b>Enterprise Services</b>																																																
Sponsor:	John Gilbert	Title: <i>Global Head IS Service Delivery, Global IS</i>																																															
Relationship Manager:	Brian Detota	Title: <i>IS Relationship Manager, Global IS</i>																																															
Prog Delivery Manager:	Dave McCune	Title: <i>Programme Delivery, Global IS</i>																																															
Paper Author:	Nicola Pennington/Chris Clawson	Title: <i>Business Consultant - Corporate IS</i>																																															
IS Roadmap Category: IS Assurance		Business Area: <b>Corporate IS</b>		Portfolio: <b>IS for IS</b>																																													
<input type="checkbox"/> In-Flight Project?	Invest Classification:	Category: Policy Driven	Primary Policy Driver: Reliability	Region: <b>US</b>																																													
<input checked="" type="checkbox"/> Growth Playbook Project?	<input type="checkbox"/> Shaping Our Future Project?	<input type="checkbox"/> Energy Efficiency Project?																																															
<p><b>Project Description:</b> The context for the project with background information  The project will move Development and Test environments from physical to cloud based infrastructure.</p>																																																	
<p><b>Project Rationale:</b> Highlight business challenge, capability or process the project addresses  Current timeframes to deploy new infrastructure and applications does not adequately meet business and customer needs, this project will increase the speed to deploy. In addition, it will allow National Grid to leverage multiple providers and position us to capitalize on future cloud capabilities.</p>																																																	
<p><b>Project Scope:</b> Explain what is in scope and what is not in scope for the project  Development and Test environments which are currently housed on physical infrastructure by external vendors.  Infrastructure primarily housed in legacy data centers (Hicksville, Melville, Clay Blvd)  Over 2 phases, the project will move 25% of these environments to cloud.  Phase 1 will consist of a partial Sanction for Discovery/Requirements/Design/Partial Implementation  Phase 2 will be a Sanction for full Implementation.</p>																																																	
<p><b>Project Dependencies:</b> Identify any core program or project dependencies, please include INVP numbers if known  Will require application developers/owners cooperation to move to cloud based environments.  The project should not interfere with pending activities for items currently under development.</p>																																																	
<p><b>Basic Project Assumptions:</b>  There will be adequate COE resources available.  Business areas will support the strategy to move to a cloud based infrastructure. - that feels a very big assumption - has any stakeholder management happened to know that they will support?</p>																																																	
<p><b>Indicative Project Costs by Fiscal Year</b></p> <table border="1"> <thead> <tr> <th>(\$M)</th> <th>Prior Years</th> <th>FY 2018</th> <th>FY 2019</th> <th>FY 2020</th> <th>FY 2021</th> <th>FY 2022</th> <th>FY 2023</th> <th>FY 2024</th> <th>FY 2025</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>CapEx</td> <td></td> <td>0.250</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0.250</td> </tr> <tr> <td>OpEx</td> <td></td> <td>0.250</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0.250</td> </tr> <tr> <td>Impact on RTB</td> <td></td> <td></td> <td>0.100</td> <td>0.100</td> <td>0.100</td> <td>0.100</td> <td>0.100</td> <td>0.100</td> <td>0.100</td> <td>0.700</td> </tr> </tbody> </table>						(\$M)	Prior Years	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Total	CapEx		0.250								0.250	OpEx		0.250								0.250	Impact on RTB			0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.700
(\$M)	Prior Years	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Total																																							
CapEx		0.250								0.250																																							
OpEx		0.250								0.250																																							
Impact on RTB			0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.700																																							
<p><b>Indicative Project Costs by Delivery Phase</b></p> <table border="1"> <thead> <tr> <th>(\$M)</th> <th>Start-up</th> <th>R &amp; D</th> <th>D &amp; I</th> <th>Closure</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>CapEx</td> <td></td> <td>0.125</td> <td>0.125</td> <td></td> <td>0.250</td> </tr> <tr> <td>OpEx</td> <td>0.050</td> <td>0.075</td> <td>0.120</td> <td>.005</td> <td>0.250</td> </tr> </tbody> </table>						(\$M)	Start-up	R & D	D & I	Closure	Total	CapEx		0.125	0.125		0.250	OpEx	0.050	0.075	0.120	.005	0.250																										
(\$M)	Start-up	R & D	D & I	Closure	Total																																												
CapEx		0.125	0.125		0.250																																												
OpEx	0.050	0.075	0.120	.005	0.250																																												

## FY18 - Investment Request Summaries - IRSs - Dev/test migration to cloud

Project Benefits - Type I only									
(\$M)	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Total
Type I - CapEx									0.000
Type I - OpEx									0.000
Revenue Generation									0.000

**Key Business Benefits:**  
Describe benefits, both financial and non-financial, and when those benefits will be delivered. Provide a clear & concise business case stating the investment drivers – why do we need to do something and why now? Explain any Regulatory considerations and how this initiative aligns with the US Business Strategy.  
Reduced dependency on external vendors.  
Will allow National Grid to reduce the use of legacy data centers.  
Provides the ability to leverage cloud capabilities for strategy and future growth.  
Will result in a faster speed to market for new infrastructure and application and allow NG to benefit from true scale capabilities of the cloud.

Investment Prioritization							
Benefits	Impact	Weight	Score	Cost	Impact	Weight	Score
OpEx Annual Savings		10.3%	0	OpEx Cost	0.250	-24.4%	-0.732
CapEx Annual Savings		5.1%	0	CapEx Cost	0.250	-11.2%	0
Revenue Generation (annual)		6.2%	0	RTB Efficiency	280.000	% -22.5%	-2.025
Financial Control	Low	6.2%	0.062	Union/Labor Relations	Low	-9.8%	0
Soft Financial Benefits	Low	3.8%	0.038	Dependencies	Medium	-10.6%	-0.318
Regulatory Impact	Low	11.2%	0.112	Elastice Time Duration	Medium	-6.6%	-0.198
Process & Personal Safety	does not apply	19.4%	0	Change Management Effort	Low	-14.9%	-0.149
Reliability	Low	10.9%	0.109				
Customer & Community Responsiveness	Low	5.3%	0.053				
Employee Satisfaction	Medium	4.6%	0.138				
Mitigates a Corporate Risk / Risk of not Doing	Medium=16 to 39	8.9%	0.267				
Jurisdictional Engagement	High	8.2%	1				
Benefit Score: 1.52				Cost Score: -3.63			
Overall Priority Score: -2.115							

Investment Risk and Complexity		
Project Risk Score:	28	Risk Score Description: Impact - 4; Likelihood -4
Project Complexity Score::	13	Project Complexity Score Description: Low complexity, impact and cost
Key Risks Description: Provide detail on project risks & mitigation strategy: Time to deliver is longer than anticipated Project does not deliver expected results		

IS Project Dependencies	Benefiting Operating Companies:
<b>IS Projects: 4778 - Dev/test migration to cloud</b> 1. Has a dependency on IS Project; 2. Has a dependency on IS Project; 3. Has a	Check all that apply <input type="checkbox"/> Select All Companies <input type="checkbox"/> Clear All Companies <input type="checkbox"/> Select All Gas <input type="checkbox"/> Select All Electric <input type="checkbox"/> Select All Gen <input checked="" type="checkbox"/> National Grid USA Parent <input checked="" type="checkbox"/> KeySpan Energy Development Corporation

## FY18 - Investment Request Summaries - IRSs - Dev/test migration to cloud

<p>4. Has a dependency on IS Project;</p> <p>5. Has a dependency on IS Project;</p> <p>6. Has a dependency on IS Project;</p>	<p>KeySpan Services Inc.</p> <p>KeySpan Energy Corp</p> <p>KeySpan Energy Delivery New York</p> <p>KeySpan Energy Delivery Long Island</p> <p>KeySpan Generation LLC (PSA)</p> <p>KeySpan Glenwood Energy Center</p> <p>KeySpan Port Jefferson Energy Center</p> <p>KeySpan Energy Trading Svc LLC</p> <p>Niagara Mohawk Power Corp- Electric Distribution</p> <p>Niagara Mohawk Power Corp - Gas</p> <p>Niagara Mohawk Power Corp - Transmission</p> <p>Massachusetts Electric Company</p> <p>Massachusetts Electric Company - Transmission</p> <p>Nantucket Electric Company</p> <p>Boston Gas Company</p> <p>Colonial Gas Company</p> <p>Narragansett Gas Company</p> <p>Narragansett Electric Company</p> <p>Narragansett Electric Company - Transmission</p> <p>New England Power Company - Transmission</p> <p>New England Hydro - Trans Corp</p> <p>New England Electric Trans Corp</p> <p>NG LNG LP Regulated Entity</p>																
<p><b>Business Initiative Dependencies</b></p> <p>IS Projects: 4778 - Dev/test migration to cloud</p> <p>1. Has a dependency on Biz Initiative,</p> <p>2. Has a dependency on Biz Initiative,</p> <p>3. Has a dependency on Biz Initiative,</p> <p>4. Has a dependency on Biz Initiative,</p>																	
<p><b>Project Relationships</b></p> <p><input type="checkbox"/> Minor Works Project Relationship:</p> <p>Related Projects:</p>																	
<p><b>Enabling IS Capabilities</b> check all that apply</p> <p><input type="checkbox"/> Enterprise Content Management (ECM)</p> <p><input type="checkbox"/> Comprehensive Integration Services (CIS)</p> <p><input type="checkbox"/> Hybrid Cloud</p> <p><input type="checkbox"/> Next Gen Workplace</p> <p><input type="checkbox"/> Enterprise Mobility</p> <p><input type="checkbox"/> Reporting and Analytics</p> <p><input type="checkbox"/> Networks</p>																	
<p><b>Key Milestone Dates:</b> Select the 1st, 15th or last day of the month</p> <table border="1"> <thead> <tr> <th>Begin Start-up</th> <th>Begin Requirements &amp; Design</th> <th>Begin Development &amp; Implementation</th> <th>Begin User Acceptance Testing</th> <th>Go Live</th> <th>Project Completion</th> <th>Project Closure</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Begin Start-up	Begin Requirements & Design	Begin Development & Implementation	Begin User Acceptance Testing	Go Live	Project Completion	Project Closure									
Begin Start-up	Begin Requirements & Design	Begin Development & Implementation	Begin User Acceptance Testing	Go Live	Project Completion	Project Closure											
<p><b>Business Resource Estimates:</b> # of Full Time Equivalents</p> <table border="1"> <thead> <tr> <th>Start-up</th> <th>Requirements &amp; Design</th> <th>Develop &amp; Implement</th> <th>Business Resources UAT</th> <th>Go Live Readiness</th> <th>Post Go Live Support</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>		Start-up	Requirements & Design	Develop & Implement	Business Resources UAT	Go Live Readiness	Post Go Live Support	0	0	0	0	0	0				
Start-up	Requirements & Design	Develop & Implement	Business Resources UAT	Go Live Readiness	Post Go Live Support												
0	0	0	0	0	0												
<p><b>Resourcing Strategy:</b>  Will be resourced with current NG resources.</p>																	
<p><b>Attached Supporting Documents</b></p>																	
<p><b>Recommendation Sign-off</b></p> <table border="1"> <thead> <tr> <th>Role</th> <th>Name</th> <th>Title</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>Business Project Sponsor</td> <td>John Gilbert</td> <td>Global Head IS Service Delivery, Global IS</td> <td></td> </tr> <tr> <td>Business Relationship Manager</td> <td>Brian Detota</td> <td>IS Business Relationship Manager</td> <td></td> </tr> <tr> <td>IS Program Delivery Manager</td> <td>Dave McCune</td> <td>IS Program Delivery Manager</td> <td></td> </tr> </tbody> </table>		Role	Name	Title	Date	Business Project Sponsor	John Gilbert	Global Head IS Service Delivery, Global IS		Business Relationship Manager	Brian Detota	IS Business Relationship Manager		IS Program Delivery Manager	Dave McCune	IS Program Delivery Manager	
Role	Name	Title	Date														
Business Project Sponsor	John Gilbert	Global Head IS Service Delivery, Global IS															
Business Relationship Manager	Brian Detota	IS Business Relationship Manager															
IS Program Delivery Manager	Dave McCune	IS Program Delivery Manager															

FY18 - Investment Request Summaries - IRSs - Dev/test migration to cloud

## Investment Proposal Summary Sheet

### Log Logic Replacement – Project No. INVP 4674

<b>Region:</b>	US	<b>Category:</b>	Policy	<b>Legal Entity:</b>	Shared						
<b>Risk Score:</b>	41	<b>Primary Driver:</b>	Reliability	<b>Project Classification:</b>	M						
<b>Project Description:</b>  This paper requests sanction of INVP 4674 in the amount \$0.497M with a tolerance of +/- 10% for the purposes of Full Implementation.  This sanction amount is \$0.497M broken down into: <table> <tr> <td>\$0.496M</td> <td>Capex</td> </tr> <tr> <td>\$0.001M</td> <td>Opex</td> </tr> <tr> <td>\$0.000M</td> <td>Removal</td> </tr> </table>						\$0.496M	Capex	\$0.001M	Opex	\$0.000M	Removal
\$0.496M	Capex										
\$0.001M	Opex										
\$0.000M	Removal										
<b><u>Brief Description</u></b> This project is part of the Technology Improvement Program (TIP), under INVP 4664 Reinforce Core Infrastructure. The Logging services in the VSTIG are at the end of their useful life and, as of 30 <sup>th</sup> November 2016, the supplier considers them out of support and will support them on a best endeavours basis only. This project requests funding to refresh these devices to ensure the VSTIG operates in a fully supported environment. The logging service helps provide network security logging automation forensics information. The LogLogic service will be replaced by the new Cisco Hyperflex.											
<b><u>Background</u></b> The Internet gateway comprised of the VSTIG services supports many critical internet facing services. It is important to keep these services up to date and in support to maintain security and operational reliability. Out of date hardware is only supported on a best endeavors basis which means reliability of service cannot be guaranteed. The logging servers are part of the VSTIG and Verizon has notified us that they are no longer within current standard as of November 2016, and require upgrading.											



National Grid Confidential

Project Costs [\$]M		Prior year 16/17	Yr 1 17/18	Yr 2 18/19	Yr 3 19/20	Yr 4 20/21	Yr 5 21/22	Total
Start-Up - OPEX		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Start-Up - CAPEX		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Start-Up - risk margin		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Start-Up SUBTOTAL		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Requirements & Design - OPEX		\$0.001	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.001
Requirements & Design - CAPEX		\$0.294	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.294
Requirements & Design - risk margin		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Requirements & Design SUBTOTAL		\$0.295	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.295
Development & Implementation - OPEX								
People		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Software		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Hardware		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Telecommunications		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Service Contracts		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Risk Margin		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Requirements & Design SUBTOTAL		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Development & Implementation - CAPEX								
People		\$0.000	\$0.125	\$0.000	\$0.000	\$0.000	\$0.000	\$0.125
Software		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Hardware		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Telecommunications		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Service Contracts		\$0.000	\$0.060	\$0.000	\$0.000	\$0.000	\$0.000	\$0.060
Risk Margin		\$0.000	\$0.017	\$0.000	\$0.000	\$0.000	\$0.000	\$0.017
D& I SUBTOTAL		\$0.000	\$0.202	\$0.000	\$0.000	\$0.000	\$0.000	\$0.202
TOTAL PROJECT COSTS		\$0.295	\$0.202	\$0.000	\$0.000	\$0.000	\$0.000	\$0.497
Non-regulated project - UPLIFT								
Non-regulated project - UPLIFT		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Non-regulated project - TOTAL		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Non-regulated project - UPLIFT		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Non-regulated project - TOTAL		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Investment Plan No: INVP	Budget OPEX	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
	Budget CAPEX	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Impact on RTB costs		\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000

Benefiting Operating Company	Business Area	State
National Grid USA Parent	Parent	N/A
KeySpan Energy Corp.	Service Company	N/A
Niagara Mohawk Power Corp.- Electric Distr.	Electric Distribution	NY
Niagara Mohawk Power Corp. - Gas	Gas Distribution	NY
Niagara Mohawk Power Corp. - Transmission	Transmission	NY
KeySpan Energy Delivery New York	Gas Distribution	NY
KeySpan Energy Delivery Long Island	Gas Distribution	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 Electric Company	Electric Distribution	RI
Narragansett Gas Company	Gas Distribution	RI
Narragansett Electric Company – Transmission	Transmission	RI
New England Power Company – Transmission	Transmission	MA
NE Hydro - Trans Electric Co.	FERC Interconnect	N/A
New England Hydro - Trans Electric Co.	FERC Interconnect	N/A
New England Electric Trans Electric Co.	FERC Interconnect	N/A
NG LNG LP Regulated Entity	FERC Gas Ops	N/A
KeySpan Generation LLC (PSA)	Generation	NY
KeySpan Glenwood Energy Center	Generation	NY
KeySpan Port Jefferson Energy Center	Generation	NY
KeySpan Energy Trading Services	Parents	N/A
Transgas, Inc.	Other Non-Regulated	MA
KeySpan Energy Development Corporation	Non-Regulated	NY
KeySpan Services Inc.	Other Non-Regulated	NY

**Key Business Benefits:**

- The replacement of logging services hardware will ensure the reliable and secure operation of services for the next five years.

Key risks:	Key Dates (Month/ Year):
	Start Up Jan 2017
	Partial Sanction Feb 2017
	Begin Requirements/Design Feb 2017
	CPE Completion Mar 2017
	Full Sanction Jun 2017
	Begin Dev & Implement Jun 2017
	Begin User Accept Testing Jul 2017
	Move to Production / Last Go Live Jul 2017
	Project Complete Jul 2017
	Project Closure Sanction Jul 2017

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

Role	Individual's Name
Business Executive Sponsor	John Gilbert
Head of PDM	Bill Kearns
Relationship Manager	Bill Kearns
Program Delivery Manager	Dave McCune
IS Finance Management	Chip Benson
IS Regulatory	Dan DeMauro
DR&S	Elaine Wilson
Service Delivery	Brian Detota
Enterprise Architecture	Joe Clinchot

# RECOMMENDATIONS

The Sanctioning Authority is invited to:

- APPROVE the investment of \$0.497M including risk margin of \$0.017M by May, 31, 2017
- NOTE that John Gilbert, Global Head IS Service Delivery, is the Project Sponsor
- NOTE that Pratap Routray, 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.

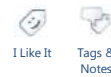
Signature..... Date.....

John Gilbert, Global Head IS Service Delivery

# FY19 - Investment Request Summaries - IRSs - Application Performance Management



Planning & Performance Management  
FY19 - Investment Request Summaries - IRSs: Application Performance Management



nationalgrid		Investment Request Summary - IS US		FISCAL YEAR 2019						
INV ID:	4490	Project Name:	Application Performance Management							
Program:	Enterprise Services	IRS Status:	ACTIVE							
Sponsor:	Gilbert, John	Title:	Global Head IS Service Delivery, Global IS							
Relationship Manager:	Brian Detota	Title:	IS Relationship Manager, Global IS							
Progr Delivery Director:	Helen Smith	Title:	Head of Programme Delivery							
Paper Author:	Nicola Pennington / Steve Trezza	Title:	Business Consultant - Corporate IS							
		Business Area:	IS - Infrastructure	Portfolio:	IS for IS					
<input checked="" type="checkbox"/> In-Flight Project?	Invest Classification:	Medium	Category:	Policy Driven	Primary Policy Driver:	Reliability				
				Region:	US					
Strategic Program:	End to End Process (Primary):			Business Priority:	IS Focus Area:	Application Strategy:				
				Low	Future Proof Our Business	Enhance				
		End to End Process (Secondary):								
<p><b>Project Description:</b> The context for the project with background information  APM (Application Performance Management) tool and expertise - Select, procure, integrate, and support a dedicated APM tool with a provision for expert level support.</p> <p><b>Project Rationale:</b> Highlight business challenge, capability or process the project addresses  1. Project Athena has identified the requirement for reporting on application performance from an end user perspective. This will enable IS Service Owners to leverage empirical data instead of replying on anecdotal evidence.  2. The diagnosis of performance issues requires a level of instrumentation not currently available. APM tools will provide end to end (full stack) analysis to quickly diagnose these issues.  3. Development and testing can be accelerated through the use of APM tools.</p> <p><b>Project Scope:</b> Explain what is in scope and what is not in scope for the project  IN: Select, procure software and infrastructure, integrate, train. Limited to 1 or 2 pilot IS services.  OUT: Ongoing licensing/support (RTB), expansion across other IS services</p> <p><b>Project Dependencies:</b> Identify any core program or project dependencies, please include INVP numbers if known</p> <p><b>Basic Project Assumptions:</b>  Pilot services have sources of workload data that can be tapped.</p>										
<b>Indicative Project Costs by Fiscal Year</b>										
(\$M)	Prior Years	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
CapEx		0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500
OpEx		0.050	0.320	0.000	0.000	0.000	0.000	0.000	0.000	0.370
Impact on RTB		0.100	0.100	0.075	0.075	0.075	0.000	0.000	0.000	0.425
<b>Indicative Project Costs by Delivery Phase</b>										
(\$M)	Start-up	R & D		D & I		Closure		Total		
CapEx		0.100		0.400				0.500		

## FY19 - Investment Request Summaries - IRSs - Application Performance Management

OpEx	0.005	0.035	0.320	0.010	0.370
------	-------	-------	-------	-------	-------

Project Benefits - Type I only

(\$M)	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Type I - CapEx									0.000
Type I - OpEx									0.000
Revenue Generation									0.000

Key Business Benefits:

Describe benefits, both financial and non-financial, and when those benefits will be delivered. Provide a clear & concise business case stating the investment drivers – why do we need to do something and why now? Explain any Regulatory considerations and how this initiative aligns with the US Business Strategy.

The impacts of this project on the Customer are based on a number of areas:

Improves reliability and productivity

Better support for Jurisdictional and business function initiatives

Enables a better Customer Experience

In addition, enables proactive APM, which itself:

Provides empirical reporting of performance against regulated activities

Provides empirical reporting of end user experience to business customers, reducing reliance on unreliable anecdotal evidence

Provides empirical reporting of end user experience to IS Service Owners, enabling them to more tightly manage delivery

Reduces the time taken for support teams and incident managers to diagnose incidents

Reduces the time taken for developers to identify and fix performance issues during development and testing

Enables identification of over-provision and potential cost savings

Investment Prioritization

Benefits	Impact	Weight	Score	Cost	Impact	Weight	Score
OpEx Annual Savings		10.3%	0	OpEx Cost	0.370	-24.4%	-2.196
CapEx Annual Savings		5.1%	0	CapEx Cost	0.500	-11.2%	0
Revenue Generation (annual)		6.2%	0	RTB Efficiency	140.000 %	-22.5%	-2.025
Financial Control	Low	6.2%	0.062	Union/Labor Relations	Low	-9.8%	0
Soft Financial Benefits	Low	3.8%	0.038	Dependencies	Low	-10.6%	-0.106
Regulatory Impact	Low	11.2%	0.112	Elapse Time Duration	Medium	-6.6%	-0.198
Process & Personal Safety	Low	19.4%	0.194	Change Management Effort	Low	-14.9%	-0.149
Reliability	Low	10.9%	0.109				
Customer & Community Responsiveness	Low	5.3%	0.053				
Employee Satisfaction	Low	4.6%	0.046				
Mitigates a Corporate Risk / Risk of not Doing	Medium=16 to 39	8.9%	0.267				
Jurisdictional Engagement	High	8.2%	1				
			Benefit Score:		Cost Score:		
					Overall Priority Score:		

Investment Risk and Complexity

Project Risk Score:	34	Risk Score Description: Risk impact = 4 and Risk likelihood = 5
Project Complexity Score::	15	Project Complexity Score Description:

Key Risks Description: Provide detail on project risks & mitigation strategy:

Internet bandwidth is a limited commodity at National Grid. In order to prevent the tool becoming shelfware, use of the tool will need to be dovetailed into effective APM practices. Now that customers are demanding new services, without this investment in our underlying technology infrastructure, we cannot deliver these new strategic programs.

## FY19 - Investment Request Summaries - IRSs - Application Performance Management

IS Project Dependencies <small>If you don't see a project in the drop-down please contact the Planning &amp; Performance team.</small>		Benefiting Operating Companies: <small>Check all that apply</small>															
<b>IS Projects: 4490 - Application Performance Management</b>  1. Has a dependency on IS Project; 2. Has a dependency on IS Project; 3. Has a dependency on IS Project; 4. Has a dependency on IS Project; 5. Has a dependency on IS Project; 6. Has a dependency on IS Project;		<input type="checkbox"/> Select All Companies <input type="checkbox"/> Clear All Companies <input type="checkbox"/> Select All Gas <input type="checkbox"/> Select All Electric <input type="checkbox"/> Select All Gen  <input checked="" type="checkbox"/> National Grid USA Parent <input checked="" type="checkbox"/> KeySpan Energy Development Corporation <input checked="" type="checkbox"/> KeySpan Services Inc. <input checked="" type="checkbox"/> KeySpan Energy Corp <input checked="" type="checkbox"/> KeySpan Energy Delivery New York <input checked="" type="checkbox"/> KeySpan Energy Delivery Long Island <input checked="" type="checkbox"/> KeySpan Generation LLC (PSA) <input checked="" type="checkbox"/> KeySpan Glenwood Energy Center <input checked="" type="checkbox"/> KeySpan Port Jefferson Energy Center <input checked="" type="checkbox"/> KeySpan Energy Trading Svc LLC <input checked="" type="checkbox"/> Niagara Mohawk Power Corp- Electric Distribution <input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Gas <input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Transmission <input checked="" type="checkbox"/> Massachusetts Electric Company <input checked="" type="checkbox"/> Massachusetts Electric Company - Transmission <input checked="" type="checkbox"/> Nantucket Electric Company <input checked="" type="checkbox"/> Boston Gas Company <input checked="" type="checkbox"/> Colonial Gas Company <input checked="" type="checkbox"/> Narragansett Gas Company <input checked="" type="checkbox"/> Narragansett Electric Company <input checked="" type="checkbox"/> Narragansett Electric Company - Transmission <input checked="" type="checkbox"/> New England Power Company - Transmission <input checked="" type="checkbox"/> New England Hydro - Trans Corp <input checked="" type="checkbox"/> New England Electric Trans Corp <input type="checkbox"/> NE Hydro Trans Electric Co <input checked="" type="checkbox"/> NG LNG LP Regulated Entity															
<b>Business Initiative Dependencies</b>  <b>IS Projects: 4490 - Application Performance Management</b> 1. Has a dependency on Biz Initiative, 2. Has a dependency on Biz Initiative, 3. Has a dependency on Biz Initiative, 4. Has a dependency on Biz Initiative,																	
<b>Project Relationships</b> <input type="checkbox"/> Minor Works <i>Project Relationship:</i>  <i>Related Projects:</i>																	
<b>Enabling IS Capabilities</b> <small>check all that apply</small> <div> <input type="checkbox"/> Enterprise Content Management (ECM)   <input type="checkbox"/> Enterprise Mobility  <input type="checkbox"/> Comprehensive Integration Services (CIS)   <input type="checkbox"/> Reporting and Analytics  <input type="checkbox"/> Hybrid Cloud   <input type="checkbox"/> Networks  <input type="checkbox"/> Next Gen Workplace </div>																	
<b>Key Milestone Dates:</b> <small>Select the 1st, 15th or last day of the month</small> <b>Indicative Estimated Duration (Months):</b> <table border="1"> <thead> <tr> <th>Begin Start-up</th> <th>Begin Requirements &amp; Deign</th> <th>Begin Development &amp; Implementation</th> <th>Begin User Acceptance Testing</th> <th>Go Live</th> <th>Project Completion</th> <th>Project Closure</th> </tr> </thead> <tbody> <tr> <td>November, 2018</td> <td></td> <td></td> <td></td> <td></td> <td>December, 2019</td> <td></td> </tr> </tbody> </table>				Begin Start-up	Begin Requirements & Deign	Begin Development & Implementation	Begin User Acceptance Testing	Go Live	Project Completion	Project Closure	November, 2018					December, 2019	
Begin Start-up	Begin Requirements & Deign	Begin Development & Implementation	Begin User Acceptance Testing	Go Live	Project Completion	Project Closure											
November, 2018					December, 2019												
<b>Business Resource Estimates: # of Full Time Equivalents</b> <table border="1"> <thead> <tr> <th>Start-up</th> <th>Requirements &amp; Deign</th> <th>Develop &amp; Implement</th> <th>Business Resources UAT</th> <th>Go Live Readiness</th> <th>Post Go Live Support</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>				Start-up	Requirements & Deign	Develop & Implement	Business Resources UAT	Go Live Readiness	Post Go Live Support	0	0	0	0	0	0		
Start-up	Requirements & Deign	Develop & Implement	Business Resources UAT	Go Live Readiness	Post Go Live Support												
0	0	0	0	0	0												
<b>Resourcing Strategy:</b> This project will be resourced using Solution Delivery Centre (SDC) partners, Systems integrator and IS resources.																	
<b>Attached Supporting Documents</b>																	
<b>Recommendation Sign-off</b> <table border="1"> <thead> <tr> <th>Role</th> <th>Name</th> <th>Title</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>				Role	Name	Title	Date										
Role	Name	Title	Date														

## FY19 - Investment Request Summaries - IRSs - Application Performance Management

Business Project Sponsor	Gilbert, John	Global Head IS Service Delivery, Global IS	
Business Relationship Manager	Brian Detota	IS Business Relationship Manager	
IS Program Delivery Manager	Helen Smith	IS Program Delivery Manager	
nationalgrid			

1/22/2018

FY19 - Investment Request Summaries - IRSs - Lincoln Control Room Telephony Replacement...



Planning & Performance Management » FY19 - Investment Request Summaries - IRSs:  
Lincoln Control Room Telephony Replacement



nationalgrid		Investment Request Summary - IS US		FISCAL YEAR 2019																																													
INV ID:	4984	Project Name:	Lincoln Control Room Telephony Replacement																																														
Program:	Enterprise Services	IRS Status:	ACTIVE																																														
Sponsor:	Gilbert, John	Title:	Global Head IS Service Delivery, Global IS																																														
Relationship Manager:	Brian Detota	Title:	IS Relationship Manager, Global IS																																														
Progr Delivery Director:	Helen Smith	Title:	Head of Programme Delivery																																														
Paper Author:		Title:																																															
		Business Area:	IS - Infrastructure	Portfolio:	IS for IS																																												
<input type="checkbox"/> In-Flight Project?	Invest Classification: Medium	Category:	Policy Driven	Primary Policy Driver:	Reliability																																												
					Region: US																																												
Strategic Program:	End to End Process (Primary):	Business Priority:	Low	IS Focus Area:	Grow the Core																																												
	End to End Process (Secondary):			Application Strategy:	Replace																																												
<p><b>Project Description:</b> The context for the project with background information The project is to replace the aged phone system in the Northborough facility with a current, supportable IP Telephony (IPT) platform.</p> <p><b>Project Rationale:</b> Highlight business challenge, capability or process the project addresses The phone system in Northboro is a legacy Avaya system, it is end of life and at risk of extended failure. This project will provide a modern fully supported IPT platform with the capability to take advantage of unified communications technologies that can be integrated with other control room systems to support improved delivery of services and processes.</p> <p><b>Project Scope:</b> Explain what is in scope and what is not in scope for the project <u>In Scope:</u> All control room and standard office phones in the Northborough facility <u>Out of Scope:</u> The contact center phones in Northborough</p> <p><b>Project Dependencies:</b> Identify any core program or project dependencies, please include INVP numbers if known None</p> <p><b>Basic Project Assumptions:</b> This investment helps address IS health and capability challenges while enabling National Grid's strategic business objectives.</p>																																																	
<p><b>Indicative Project Costs by Fiscal Year</b></p> <table border="1"> <thead> <tr> <th>(\$M)</th> <th>Prior Years</th> <th>FY 2019</th> <th>FY 2020</th> <th>FY 2021</th> <th>FY 2022</th> <th>FY 2023</th> <th>FY 2024</th> <th>FY 2025</th> <th>FY 2026</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>CapEx</td> <td></td> <td>0.000</td> <td>0.400</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td></td> <td></td> <td></td> <td>0.400</td> </tr> <tr> <td>OpEx</td> <td></td> <td>0.000</td> <td>0.020</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td></td> <td></td> <td></td> <td>0.020</td> </tr> <tr> <td>Impact on RTB</td> <td></td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td></td> <td></td> <td></td> <td>0.000</td> </tr> </tbody> </table>						(\$M)	Prior Years	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total	CapEx		0.000	0.400	0.000	0.000	0.000				0.400	OpEx		0.000	0.020	0.000	0.000	0.000				0.020	Impact on RTB		0.000	0.000	0.000	0.000	0.000				0.000
(\$M)	Prior Years	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total																																							
CapEx		0.000	0.400	0.000	0.000	0.000				0.400																																							
OpEx		0.000	0.020	0.000	0.000	0.000				0.020																																							
Impact on RTB		0.000	0.000	0.000	0.000	0.000				0.000																																							
<p><b>Indicative Project Costs by Delivery Phase</b></p> <table border="1"> <thead> <tr> <th>(\$M)</th> <th>Start-up</th> <th>R &amp; D</th> <th>D &amp; I</th> <th>Closure</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						(\$M)	Start-up	R & D	D & I	Closure	Total																																						
(\$M)	Start-up	R & D	D & I	Closure	Total																																												





1/22/2018

FY19 - Investment Request Summaries - IRSs - Lincoln Control Room Telephony Replacement...

IS Project Dependencies <small>if you don't see a project in the drop-down please contact the Planning &amp; Performance team.</small>		Benefiting Operating Companies: <small>Check all that apply</small>															
<b>IS Projects: 4984 - Lincoln Control Room Telephony Replacement</b>  1. Has a dependency on IS Project; 2. Has a dependency on IS Project; 3. Has a dependency on IS Project; 4. Has a dependency on IS Project; 5. Has a dependency on IS Project; 6. Has a dependency on IS Project;		<input type="checkbox"/> Select All Companies <input type="checkbox"/> Clear All Companies <input type="checkbox"/> Select All Gas <input type="checkbox"/> Select All Electric <input type="checkbox"/> Select All Gen  <input checked="" type="checkbox"/> National Grid USA Parent <input checked="" type="checkbox"/> KeySpan Energy Development Corporation <input checked="" type="checkbox"/> KeySpan Services Inc. <input checked="" type="checkbox"/> KeySpan Energy Corp <input checked="" type="checkbox"/> KeySpan Energy Delivery New York <input checked="" type="checkbox"/> KeySpan Energy Delivery Long Island <input checked="" type="checkbox"/> KeySpan Generation LLC (PSA) <input checked="" type="checkbox"/> KeySpan Glenwood Energy Center <input checked="" type="checkbox"/> KeySpan Port Jefferson Energy Center <input checked="" type="checkbox"/> KeySpan Energy Trading Svc LLC <input checked="" type="checkbox"/> Niagara Mohawk Power Corp- Electric Distribution <input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Gas <input checked="" type="checkbox"/> Niagara Mohawk Power Corp - Transmission <input checked="" type="checkbox"/> Massachusetts Electric Company <input checked="" type="checkbox"/> Massachusetts Electric Company - Transmission <input checked="" type="checkbox"/> Nantucket Electric Company <input checked="" type="checkbox"/> Boston Gas Company <input checked="" type="checkbox"/> Colonial Gas Company <input checked="" type="checkbox"/> Narragansett Gas Company <input checked="" type="checkbox"/> Narragansett Electric Company <input checked="" type="checkbox"/> Narragansett Electric Company - Transmission <input checked="" type="checkbox"/> New England Power Company - Transmission <input checked="" type="checkbox"/> New England Hydro - Trans Corp <input checked="" type="checkbox"/> New England Electric Trans Corp <input type="checkbox"/> NE Hydro Trans Electric Co <input checked="" type="checkbox"/> NG LNG LP Regulated Entity															
<b>Business Initiative Dependencies</b> <b>IS Projects: 4984 - Lincoln Control Room Telephony Replacement</b> dependency on Biz Initiative, 1. Has a dependency on Biz Initiative, 2. Has a dependency on Biz Initiative, 3. Has a dependency on Biz Initiative, 4. Has a																	
<b>Project Relationships</b> <input type="checkbox"/> Minor Works <small>Project Relationship:</small> <small>Related Projects:</small>																	
<b>Enabling IS Capabilities</b> <small>check all that apply</small> <input type="checkbox"/> Enterprise Content Management (ECM) <input type="checkbox"/> Enterprise Mobility <input type="checkbox"/> Comprehensive Integration Services (CIS) <input type="checkbox"/> Reporting and Analytics <input type="checkbox"/> Hybrid Cloud <input type="checkbox"/> Networks <input type="checkbox"/> Next Gen Workplace																	
<b>Key Milestone Dates:</b> <small>Select the 1st, 15th or last day of the month</small> <b>Indicative Estimated Duration (Months):</b> <table><thead><tr><th>Begin Start-up</th><th>Begin Requirements &amp; Deign</th><th>Begin Development &amp; Implementation</th><th>Begin User Acceptance Testing</th><th>Go Live</th><th>Project Completion</th><th>Project Closure</th></tr></thead><tbody><tr><td>May, 2019</td><td></td><td></td><td></td><td>March, 2020</td><td>March, 2020</td><td></td></tr></tbody></table>				Begin Start-up	Begin Requirements & Deign	Begin Development & Implementation	Begin User Acceptance Testing	Go Live	Project Completion	Project Closure	May, 2019				March, 2020	March, 2020	
Begin Start-up	Begin Requirements & Deign	Begin Development & Implementation	Begin User Acceptance Testing	Go Live	Project Completion	Project Closure											
May, 2019				March, 2020	March, 2020												
<b>Business Resource Estimates: # of Full Time Equivalents</b> <table><thead><tr><th>Start-up</th><th>Requirements &amp; Deign</th><th>Develop &amp; Implement</th><th>Business Resources UAT</th><th>Go Live Readiness</th><th>Post Go Live Support</th></tr></thead><tbody><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr></tbody></table>				Start-up	Requirements & Deign	Develop & Implement	Business Resources UAT	Go Live Readiness	Post Go Live Support	0	0	0	0	0	0		
Start-up	Requirements & Deign	Develop & Implement	Business Resources UAT	Go Live Readiness	Post Go Live Support												
0	0	0	0	0	0												
<small>Resourcing Strategy:</small>																	
<b>Attached Supporting Documents</b>																	

1/22/2018

FY19 - Investment Request Summaries - IRSs - Lincoln Control Room Telephony Replacement...

Recommendation Sign-off			
Role	Name	Title	Date
Business Project Sponsor	Gilbert, John	Global Head IS Service Delivery, Global IS	
Business Relationship Manager	Brian Detota	IS Business Relationship Manager	
IS Program Delivery Manager	Helen Smith	IS Program Delivery Manager	
			