

April 29, 2019

**BY HAND DELIVERY AND ELECTRONIC MAIL**

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

**RE: Docket 4770 – Application of The Narragansett Electric Company d/b/a National Grid  
for Approval of a Change in Electric and Gas Base Distribution Rates  
Cyber Security and Information Technology Modernization Programs  
Capital Investment Quarterly Report – Second Quarter of Rate Year 1**

Dear Ms. Massaro:

On behalf of National Grid,<sup>1</sup> I have enclosed for filing with the Public Utilities Commission (PUC) one original and nine copies of the Company's Cyber Security and Information Technology Modernization Programs Capital Investment quarterly report for the second quarter of Rate Year 1, pursuant to Article II, Section C.13.d. of the Amended Settlement Agreement, approved by the PUC at its August 24, 2018 Open Meeting.

Thank you for your attention to this matter. If you have any questions, please contact me at 781-907-2121.

Very truly yours,



Raquel J. Webster

Enclosures

cc: Docket 4770 Service List  
Kevin Lynch, Division  
Jonathan Schrag, Division  
John Bell, Division  
Al Mancini, Division  
Christy Hetherington, Esq.  
Leo Wold, Esq.

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

Certificate of Service

I hereby certify that a copy of the cover letter and any materials accompanying this certificate was electronically transmitted to the individuals listed below.

The paper copies of this filing are being hand delivered to the Rhode Island Public Utilities Commission and to the Rhode Island Division of Public Utilities and Carriers.

\_\_\_\_\_  
Joanne M. Scanlon

April 29, 2019

Date

**Docket No. 4770 - National Grid – Rate Application**  
**Service list updated 3/12/2019**

<b>Name/Address</b>	<b>E-mail Distribution List</b>	<b>Phone</b>
<b>National Grid</b> Celia O'Brien, Esq. Jennifer Hutchinson, Esq. National Grid 280 Melrose St. Providence, RI 02907	<a href="mailto:Celia.obrien@nationalgrid.com">Celia.obrien@nationalgrid.com</a> ;	781-907-2153 401-784-7288
	<a href="mailto:Jennifer.hutchinson@nationalgrid.com">Jennifer.hutchinson@nationalgrid.com</a> ;	
	<a href="mailto:Najat.coye@nationalgrid.com">Najat.coye@nationalgrid.com</a> ;	
	<a href="mailto:Joanne.scanlon@nationalgrid.com">Joanne.scanlon@nationalgrid.com</a> ;	
	<a href="mailto:Bill.Malee@nationalgrid.com">Bill.Malee@nationalgrid.com</a> ;	
	<a href="mailto:Melissa.little@nationalgrid.com">Melissa.little@nationalgrid.com</a> ;	
	<a href="mailto:William.richer@nationalgrid.com">William.richer@nationalgrid.com</a> ;	
	<a href="mailto:Theresa.burns@nationalgrid.com">Theresa.burns@nationalgrid.com</a> ;	
	<a href="mailto:Ann.leary@nationalgrid.com">Ann.leary@nationalgrid.com</a> ;	
	<a href="mailto:Scott.mccabe@nationalgrid.com">Scott.mccabe@nationalgrid.com</a> ;	
	<a href="mailto:Najat.coye@nationalgrid.com">Najat.coye@nationalgrid.com</a> ;	
	<a href="mailto:kayte.o'neill2@nationalgrid.com">kayte.o'neill2@nationalgrid.com</a> ;	
	<a href="mailto:kate.grant2@nationalgrid.com">kate.grant2@nationalgrid.com</a> ;	
<a href="mailto:Timothy.roughan@nationalgrid.com">Timothy.roughan@nationalgrid.com</a> ;		
<a href="mailto:Courtney.Lane@nationalgrid.com">Courtney.Lane@nationalgrid.com</a> ;		
Adam Ramos, Esq. Hinckley Allen Hinckley Allen 100 Westminster Street, Suite 1500 Providence, RI 02903-2319	<a href="mailto:aramos@hinckleyallen.com">aramos@hinckleyallen.com</a> ;	401-457-5164
<b>Division of Public Utilities (Division)</b> Christy Hetherington, Esq. Dept. of Attorney General 150 South Main St. Providence, RI 02903	<a href="mailto:Chetherington@riag.ri.gov">Chetherington@riag.ri.gov</a> ;	404-274-4400
	<a href="mailto:Mfolcarelli@riag.ri.gov">Mfolcarelli@riag.ri.gov</a> ;	
	<a href="mailto:Dmacrae@riag.ri.gov">Dmacrae@riag.ri.gov</a> ;	
Jonathan Schrag, Deputy Administrator Division of Public Utilities and Carriers 89 Jefferson Blvd. Warwick, RI 02888	<a href="mailto:Jonathan.Schrag@dpuc.ri.gov">Jonathan.Schrag@dpuc.ri.gov</a> ;	401-780-2140
	<a href="mailto:Leo.Wold@dpuc.ri.gov">Leo.Wold@dpuc.ri.gov</a> ;	
	<a href="mailto:John.bell@dpuc.ri.gov">John.bell@dpuc.ri.gov</a> ;	
	<a href="mailto:Ronald.Gerwatowski@dpuc.ri.gov">Ronald.Gerwatowski@dpuc.ri.gov</a> ;	
	<a href="mailto:Al.mancini@dpuc.ri.gov">Al.mancini@dpuc.ri.gov</a> ;	
	<a href="mailto:Thomas.kogut@dpuc.ri.gov">Thomas.kogut@dpuc.ri.gov</a> ;	

<p>Tim Woolf Jennifer Kallay Synapse Energy Economics 22 Pearl Street Cambridge, MA 02139</p>	<a href="mailto:twoolf@synapse-energy.com">twoolf@synapse-energy.com</a> ;	617-661-3248
	<a href="mailto:jkallay@synapse-energy.com">jkallay@synapse-energy.com</a> ;	
	<a href="mailto:mwhited@synapse-energy.com">mwhited@synapse-energy.com</a> ;	
	<a href="mailto:jhall@synapse-energy.com">jhall@synapse-energy.com</a> ;	
<p>David Effron Berkshire Consulting 12 Pond Path North Hampton, NH 03862-2243</p>	<a href="mailto:Djeffron@aol.com">Djeffron@aol.com</a> ;	603-964-6526
<p>Gregory L. Booth, PE, PLS Linda Kushner PowerServices, Inc. 1616 East Millbrook Rd. Suite 210 Raleigh, NC 27609</p>	<a href="mailto:gbooth@powerservices.com">gbooth@powerservices.com</a> ;	919-256-5900
	<a href="mailto:lkushner@powerservices.com">lkushner@powerservices.com</a> ;	
<p><b>Office of Energy Resources (OER)</b> Andrew Marcaccio, Esq. Dept. of Administration Division of Legal Services One Capitol Hill, 4<sup>th</sup> Floor Providence, RI 02908</p>	<a href="mailto:Andrew.Marcaccio@doa.ri.gov">Andrew.Marcaccio@doa.ri.gov</a> ;	401-222-8880
<p>Carol Grant, Commissioner Office of Energy Resources</p>	<a href="mailto:Carol.grant@energy.ri.gov">Carol.grant@energy.ri.gov</a> ;	401-574-9100
	<a href="mailto:Christopher.Kearns@energy.ri.gov">Christopher.Kearns@energy.ri.gov</a> ;	
	<a href="mailto:Nicholas.Ucci@energy.ri.gov">Nicholas.Ucci@energy.ri.gov</a> ;	
	<a href="mailto:Becca.Trietch@energy.ri.gov">Becca.Trietch@energy.ri.gov</a> ;	
<p><b>Conservation Law Foundation (CLF)</b> Jerry Elmer, Esq. Max Greene, Esq. Conservation Law Foundation 235 Promenade Street Suite 560, Mailbox 28 Providence, RI 02908</p>	<a href="mailto:jelmer@clf.org">jelmer@clf.org</a> ;	401-228-1904
	<a href="mailto:mgreene@clf.org">mgreene@clf.org</a> ;	
<p><b>Dept. of Navy (DON)</b> Kelsey A. Harrer, Esq. Office of Counsel NAVFAC Atlantic, Department of the Navy 6506 Hampton Blvd. Norfolk, VA 23508-1278</p>	<a href="mailto:kelsey.a.harrer@navy.mil">kelsey.a.harrer@navy.mil</a> ;	757-322-4119
<p>Kay Davoodi, Director Larry R. Allen, Public Utilities Specialist Utilities Rates and Studies Office NAVFAC HQ, Department of the Navy 1322 Patterson Avenue SE Suite 1000 Washington Navy Yard, D.C. 20374</p>	<a href="mailto:khojasteh.davoodi@navy.mil">khojasteh.davoodi@navy.mil</a> ;	
	<a href="mailto:larry.r.allen@navy.mil">larry.r.allen@navy.mil</a> ;	
<p>Ali Al-Jabir Maurice Brubaker Brubaker and Associates</p>	<a href="mailto:aaljabir@consultbai.com">aaljabir@consultbai.com</a> ;	
<p><b>New Energy Rhode Island (NERI)</b></p>	<a href="mailto:seth@handylawllc.com">seth@handylawllc.com</a> ;	401-626-4839

<p>Seth H. Handy, Esq. Handy Law, LLC 42 Weybosset St. Providence, RI 02903</p> <p>The RI League of Cities and Towns c/o Brian Daniels, Executive Director</p> <p>PRISM &amp; WCRPC c/o Jeff Broadhead, Executive Director</p> <p>Newport Solar c/o Doug Sabetti</p> <p>Green Development, LLC c/o Al Bucknam c/o Hannah Morini</p> <p>Clean Economy Development, LLC c/o Julian Dash</p> <p>ISM Solar Development, LLC c/o Michael Lucini</p> <p>Heartwood Group, Inc. c/o Fred Unger</p>	<a href="mailto:helen@handylawllc.com">helen@handylawllc.com</a> ;	
	<a href="mailto:randelle@handylawllc.com">randelle@handylawllc.com</a> ;	
	<a href="mailto:bdaniels@rileague.org">bdaniels@rileague.org</a> ;	401 272-3434
	<a href="mailto:jb@wcrpc.org">jb@wcrpc.org</a> ;	401-792-9900
	<a href="mailto:doug@newportsolarri.com">doug@newportsolarri.com</a> ;	401.787.5682
	<a href="mailto:ab@green-ri.com">ab@green-ri.com</a> ;	
	<a href="mailto:hm@green-ri.com">hm@green-ri.com</a> ;	
	<a href="mailto:jdash@cleaneconomydevelopment.com">jdash@cleaneconomydevelopment.com</a> ;	
	<a href="mailto:mlucini@ismgroup.com">mlucini@ismgroup.com</a> ;	401.435.7900
	<a href="mailto:unger@hrtwd.com">unger@hrtwd.com</a> ;	401.861.1650
<p><b>Energy Consumers Alliance of NE</b> James Rhodes Rhodes Consulting 860 West Shore Rd. Warwick, RI 02889</p> <p>Kat Burnham, PPL Larry Chretien, PPL</p>	<a href="mailto:jamie.rhodes@gmail.com">jamie.rhodes@gmail.com</a> ;	401-225-3441
	<a href="mailto:Kat@ripower.org">Kat@ripower.org</a> ;	
	<a href="mailto:larry@massenergy.org">larry@massenergy.org</a> ;	
<p><b>Acadia Center</b> Robert D. Fine, Esq. Chace, Ruttenberg &amp; Freedman, LLP One Park Row, Suite 300 Providence, RI 02903</p> <p>Amy Boyd, Esq. Acadia Center 31 Milk St., Suite 501 Boston MA 02109-5128</p>	<a href="mailto:rfine@crflp.com">rfine@crflp.com</a> ;	401-453-6400 Ext. 115
	<a href="mailto:aboyd@acadiacenter.org">aboyd@acadiacenter.org</a> ;	617-472-0054 Ext. 102
	<a href="mailto:ENiedowski@acadiacenter.org">ENiedowski@acadiacenter.org</a> ;	
<p><b>Northeast Clean Energy Council</b> Joseph A. Keough, Jr., Esq. Keough &amp; Sweeney 41 Mendon Ave. Pawtucket, RI 02861</p> <p>J. Dickerson, NECEC</p>	<a href="mailto:jkeoughjr@keoughsweeney.com">jkeoughjr@keoughsweeney.com</a> ;	401-724-3600
	<a href="mailto:jdickerson@necec.org">jdickerson@necec.org</a> ;	

<b>The George Wiley Center</b> Jennifer Wood Rhode Island Center for Justice 1 Empire Plaza, Suite 410 Providence, RI 02903  Camilo Viveiros, Wiley Center	<a href="mailto:jwood@centerforjustice.org">jwood@centerforjustice.org</a> ;	401-491-1101
	<a href="mailto:georgewileycenterri@gmail.com">georgewileycenterri@gmail.com</a> ;	
	<a href="mailto:Camiloviveiros@gmail.com">Camiloviveiros@gmail.com</a> ;	
	<a href="mailto:chloechassaing@hotmail.com">chloechassaing@hotmail.com</a> ;	
<b>Wal-Mart Stores East &amp; Sam's East, Inc.</b> Melissa M. Horne, Esq. Higgins, Cavanagh & Cooney, LLC 10 Dorrance St., Suite 400 Providence, RI 20903  Gregory W. Tillman, Sr. Mgr./ERA Walmart	<a href="mailto:mhorne@hcc-law.com">mhorne@hcc-law.com</a> ;	401-272-3500
	<a href="mailto:Greg.tillman@walmart.com">Greg.tillman@walmart.com</a> ;	479-204-1594
<b>AMTRAK</b> Clint D. Watts, Esq. Paul E. Dwyer, Esq. McElroy, Deutsch, Mulvaney & Carpenter 10 Dorrance St., Suite 700 Providence, RI 02903  Robert A. Weishaar, Jr., Esq. Kenneth R. Stark, Esq.	<a href="mailto:CWatts@mdmc-law.com">CWatts@mdmc-law.com</a> ;	401-519-3848
	<a href="mailto:PDwyer@mdmc-law.com">PDwyer@mdmc-law.com</a> ;	
	<a href="mailto:BWeishaar@mceeslaw.com">BWeishaar@mceeslaw.com</a> ;	
	<a href="mailto:KStark@mceeslaw.com">KStark@mceeslaw.com</a> ;	
<b>Original &amp; 9 copies file w/:</b> Luly E. Massaro, Commission Clerk Public Utilities Commission 89 Jefferson Blvd. Warwick, RI 02888	<a href="mailto:Luly.massaro@puc.ri.gov">Luly.massaro@puc.ri.gov</a> ;	401-780-2107
	<a href="mailto:Cynthia.WilsonFrias@puc.ri.gov">Cynthia.WilsonFrias@puc.ri.gov</a> ;	
	<a href="mailto:Alan.nault@puc.ri.gov">Alan.nault@puc.ri.gov</a> ;	
	<a href="mailto:Todd.bianco@puc.ri.gov">Todd.bianco@puc.ri.gov</a> ;	
	<a href="mailto:Sharon.ColbyCamara@puc.ri.gov">Sharon.ColbyCamara@puc.ri.gov</a> ;	
	<a href="mailto:Margaret.hogan@puc.ri.gov">Margaret.hogan@puc.ri.gov</a> ;	
<b>Interested Persons</b>		
EERMC Marisa Desautel, Esq	<a href="mailto:marisa@desautelesq.com">marisa@desautelesq.com</a> ;	401-477-0023
	<a href="mailto:guerard@optenergy.com">guerard@optenergy.com</a> ;	
Bob Chatham	<a href="mailto:bchatham@vcharge-energy.com">bchatham@vcharge-energy.com</a> ;	401-742-8264
John DiTomasso, AARP	<a href="mailto:jditomasso@aarp.org">jditomasso@aarp.org</a> ;	401-248-2655
Frank Epps, EDP	<a href="mailto:Frank@edp-energy.com">Frank@edp-energy.com</a> ;	
Matt Davey	<a href="mailto:mdavey@ssni.com">mdavey@ssni.com</a> ;	
Jesse Reyes	<a href="mailto:JReyes@brownrudnick.com">JReyes@brownrudnick.com</a> ;	
Nathan Phelps	<a href="mailto:nathan@votesolar.org">nathan@votesolar.org</a> ;	
Douglas W. Gablinske, TEC-RI	<a href="mailto:doug@tecri.org">doug@tecri.org</a> ;	
Karl Rabago	<a href="mailto:krabago@law.pace.edu">krabago@law.pace.edu</a> ;	
Radina Valova, Pace Energy & Climate Ctr.	<a href="mailto:rvalova@law.pace.edu">rvalova@law.pace.edu</a> ;	
Marc Hanks, Sr. Mgr./GRA Direct Energy Services	<a href="mailto:Marc.hanks@directenergy.com">Marc.hanks@directenergy.com</a> ;	413-642-3575
	<a href="mailto:cwaksler@eckertseamans.com">cwaksler@eckertseamans.com</a> ;	
Lisa Fontanella	<a href="mailto:Lisa.Fontanella@spglobal.com">Lisa.Fontanella@spglobal.com</a> ;	

The Narragansett Electric Company  
d/b/a National Grid

**Cyber Security and  
Information Technology  
Modernization Programs**

Capital Investment Quarterly  
Report  
Second Quarter of Rate Year 1

April 29, 2019

Docket No. 4770

**Submitted to:**  
Rhode Island Public Utilities Commission

Submitted by:

**nationalgrid**

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## **I. Introduction**

The Narragansett Electric Company d/b/a National Grid (the Company)<sup>1</sup> submits this Information Technology (IT) Capital Investment Quarterly Report (IT Quarterly Report) for the second quarter of the rate year.<sup>2</sup> Pursuant to Article II, Section C.13.d. of the Amended Settlement Agreement filed in Docket No. 4770 and approved by the Rhode Island Public Utilities Commission (PUC) at its Open Meeting on August 24, 2018, the Company must provide quarterly reports to the PUC regarding its IT capital projects and investments. The IT Quarterly Report provides an explanation of the following: the Narragansett Gas and Electric overall IT investment plan approach and status; descriptions of program investment categories; a comparison of budgeted to actual spending, including variance explanations; identification of allocations to the Company; and a report on any budget exceptions.

IT capital projects and investments that are shared investments across National Grid USA's (National Grid) operating companies are implemented and owned by National Grid USA Service Company, Inc. (Service Company). The costs of these shared investments are allocated to the benefiting US operating companies, including Narragansett Electric and Narragansett Gas, in the form of Service Company rent expense once the investments are in-service. The Service Company rent expense includes a return on the capital investment (net of deferred taxes) plus booked depreciation expense.

The IT Capital Investment Plan for Fiscal Year 2019 (FY19 Plan), upon which the budgeted spending reflected in this IT Quarterly Report is based, is comprised of in-flight projects that will require capital spending for completion and new projects that will be sanctioned and incur capital charges during the fiscal year. In total, the FY19 Plan reflects Service Company capital expenditures of \$130 million across National Grid's US operating companies. Of this amount, approximately \$113 million is for projects that benefit and, therefore, would be chargeable to Narragansett.

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<sup>1</sup> The term "Company" refers to The Narragansett Electric Company's electric and gas distribution operations on a collective basis. The electric and gas operations of The Narragansett Electric Company together represent the entirety of the regulated operations conducted in Rhode Island by the Company. In this report, the regulated entity is referred to as the Company. Where there is a need to refer to the individual electric and gas distribution operations of the Company, the terms "Narragansett Electric" or "Narragansett Gas," respectively, are used in this report.

<sup>2</sup> The second quarter of Rate Year 1 is December 1, 2018 through February 28, 2019 (Q2).



## **II. Development and Approach of the IT Capital Investment Plan**

To determine which projects to include in the FY19 Plan, IT engaged in an iterative process that involved collaboration with Jurisdictional representatives and the functional business areas (*e.g.*, Operations, Customer and Digital, Network Strategy, and Finance and Shared Services) to identify the investments of highest priority for inclusion in the Plan.

The FY19 Plan assesses infrastructure requirements, sequencing, resource availability and capability, size and impact of investment requests, and the overall benefit of the investments. Specifically, IT did the following to develop the FY19 Plan: First, IT identified the amount of work remaining and the delivery timeline for in-flight multi-year investments. Second, IT added new investments to address compliance with a legal or regulatory requirement/mandate or an open corporate risk. Third, IT added investments that focused on IT infrastructure that would create reliability in systems and fix foundational capabilities necessary for operational and/or future aspirations of the business. These investments were ones that primarily upgraded, replaced, or added investment capabilities necessary for operational and/or future aspirations of the business. Finally, IT worked closely with the Jurisdiction and business functions to prioritize their project requests.

After this analysis, IT distributed a draft investment plan to business functions, Jurisdictional representatives, and other key stakeholders for feedback on the FY19 Plan. A final Investment Plan review occurs each fiscal year with the Jurisdictional Presidents, Jurisdictional delegates, and business functions. Once the Jurisdictional Presidents and business function executives review and approve the Investment Plan, the consolidated financial information from the Plan, which is organized by jurisdiction and company, is incorporated with the IT operation and maintenance (O&M) requirements into the IT budget. The IT budget is then reviewed and approved by the US Chief Information Officer (CIO), Global CIO, and Corporate Finance, and incorporated into a consolidated National Grid budget.

## **III. Program Categories/Spending Rationales**

The Company's FY19 Plan is organized by major program spending category/spending rationale. The Company classifies IT capital projects into the following program categories/spending rationales based on their primary investment driver:

- (1) Regulatory, Legal, and Compliance Mandates;
- (2) Business Programs and Projects; and
- (3) Technology/Infrastructure Foundation and Reliability.

Descriptions of each program category and spending rationale are below.

#### Regulatory, Legal, and Compliance Mandates

This program category/spending rationale includes IT projects that are initiated annually as a direct result of, or are driven by, the need to comply with regulations, laws, tariffs, orders, agreements, or other matters promulgated by federal, state, or local governmental agencies.

#### Business Programs and Projects

This program category/spending rationale includes investments that are identified internally and required to meet the Company's needs and to provide service to customers. IT Business Partners work closely with the Jurisdictional Presidents and functional leadership on an ongoing basis to determine the Company's IT needs the costs and timing for the required investments. The investments are then prioritized against overall expenditure targets.

#### Technology/Infrastructure Foundation and Reliability

This program category/spending rationale includes investments to replace and upgrade aged applications and infrastructure components required to enhance the Company's ability to improve operation of the electric and gas distribution systems and respond to evolving business and market demands. These investments will modernize the technology and infrastructure to support day-to-day business requirements, enable the delivery of new business programs, and ensure that the platforms are resilient to cyber security threats.

### **IV. Formal Sanctioning Support and Oversight of Projects Included in the Investment Plan**

Throughout the year, IT projects are subject to a formal governance process that includes a review and approval for all projects greater than \$30,000. Within IT, there is an internal team that reviews all IT projects before forwarding the project to the appropriate sanctioning authority for approval using the following criteria:

- Projects less than \$1 million are approved by the US CIO or his designee under his delegation of authority.
- Projects between \$1 million and \$25 million are approved by the U.S. Sanctioning Committee (USSC).
- Projects between \$25 million to \$203 million are approved by the Senior Executive Sanctioning Committee (SESC), under delegation of authority by the National Grid USA Board of Directors.

Typically, IT projects are sanctioned initially for Requirements and Design work (also referred to as Partial Sanction). IT projects then undergo a Development and Implementation sanction (also referred to as Sanction or Full Sanction). If project scope and costs are well understood (*e.g.*, upgrades to hardware that do not necessitate requirements and design work or projects for which cost estimates can be reliably informed by similar previous installations), a project may proceed

directly to “Full Sanction.” If a project is forecasted to exceed its sanction amount, it must return to the appropriate Governance Committee for “Re-Sanction” consideration. When a project is completed, a “Closure” paper is prepared that details the financial and objective outcomes of the project.

The Investment Plan includes all IT projects that progress from initial Feasibility & Analysis phases to ultimate closure to plant in service, as defined below. The Investment Plan is supported by the formal sanctioning and governance process discussed above.

- **Feasibility & Analysis** – A study conducted in cases where a significant level of analysis is required to better determine the direction or approach for a project. Because such a study is likely to have a significant impact on IT resources and spend, the effort is treated as a project to be included in the Investment Plan.
- **Requirements & Design** – This phase includes requirements definition and completion of analysis, confirmed project scope, agreed functional design, and technology solution to meet business and technical requirements. This phase also includes the confirmed plan for Development and Implementation, confirmed production handover, support strategy, and sourcing approach.
- **Development & Implementation** – This phase includes development to the specified designs, testing, preparation for training, deployment of the solution to the business, and post-implementation support.
- **Project Closure** – This phase closes the project, including capturing ongoing run the business costs, completing post implementation review and lessons learned, closing open actions and change requests, implementing a decommissioning plan for replaced technologies, and submitting a closure paper to the appropriate sanctioning committee.

Cost estimates for projects that have completed the Requirements & Design stage with full scope and solution design generally have +/- 10% cost estimates. Other projects at earlier stages and the budgets for those projects are less refined and are more susceptible to changes in scope and budget. The projects in the IT Investment Plan are reviewed continuously for changes in assumptions, constraints, project delays, accelerations, and overall performance. The sanctioning process includes a further evaluation of the total expected costs of a project at key points in the project’s lifecycle, including whether there is sufficient funding included in the annual budget. Changes to an individual project’s scope are made only with approval of the Project Board established for each project, which consists of Project Sponsor, IT Project Manager and Business Client Lead. Changes usually are made to address changes in business requirements or to find a more cost-effective way to deliver the project according to the original project scope. IT projects with scope increases or decreases that are approved by the Project Board and result in the project exceeding pre-determined risk margin ranges of +/- 10% must be re-sanctioned at the higher or lower sanctioned amount.

## V. Overview of Budget to Actual Spending for FY19 - February YTD

Attachment 1 includes projects placed in-service during the second quarter (December 1, 2018 – February 28, 2019) along with the associated rent expense charged to Narragansett Electric and Narragansett Gas. As explained above, although project actuals reflect capital investment for the respective projects to date, allocation of rent expense to Narragansett Electric and Narragansett Gas is based on a return on, and depreciation of, the cumulative capital investment that benefits the Company and does not occur until an investment is placed in-service. As shown in Attachment 1, the Company will allocate annual rent expense of \$1,901,884 to Narragansett Electric and \$725,358 to Narragansett Gas for projects closed to plant in-service through the second quarter of Rate Year 1. National Grid evaluates the need for a deferral monthly and books in line with the Rate Year quarter end, as needed. To date, the amount deferred for future recovery for Narragansett Electric is \$31,891 and the amount deferred for future refund to customers for Narragansett Gas is \$56,128.

Attachment 2 includes detail on budgets and actual spending for each of the major program spending categories and for the top ten projects (based on allocation to Narragansett) by budget within the program categories, including explanations of variances between budgets and actual spending through February 2019.

From March 31, 2018 to date, National Grid spent \$103.5 million compared to a total Service Company budget of \$118.9 million, which reflects an under spend of \$15.5 million. The underspend through February 2019 is caused primarily by delays in commercial negotiations and mobilization for the Customer Experience Transformation (INVP 4750) and cost reductions resulting from project scope changes and contract re-negotiations for the DRS Future Program (INVP 3683) and Contract Management Solutions for CCDI (INVP 4771A) projects, which are discussed in further detail below. These results were offset partially by project overspends, which are caused primarily by scope and complexity increases for the Customer Contact Center Technology (INVP 3932), EMS Lifecycle Hardware and Software Upgrade (INVP 4914), US Foundation Hosting Renewal (4761) and ICE replacement – Office 365 Implementation (INVP 4491) projects, which are discussed below.

Detail regarding activity in key programs and projects is included below.

### A. Business Programs and Projects

**Customer Experience Transformation Technology Program (INVP 4750)** – National Grid has embarked on a comprehensive Customer Experience Transformation (CXT) program to change how we interact, serve, and communicate with customers. This program will replace out-of-support platforms to mitigate existing risk to National Grid’s self-service billing, payment, and communications

portals. It will set the foundation for the processes and technology changes needed to drive step improvements to the customer experience. The program will focus on re-engineering the customer's digital interactions to create a universal and seamless customer experience through multiple service options: Web, Mobile, Text, Email, and future emerging channels.

The Customer Experience program<sup>3</sup> project start-up experienced delays in requirements identification, commercial negotiations and vendor onboarding resulting in both project delays and project spend. There was no change in work scope, and the overall estimate has not changed. As expected, the project spend has increased in the most recent quarter with on-boarding of the design vendor and developmental resources.

**Customer Contact Center Technology Upgrade Implement Solution**

**(INVP 3932)** – This project will replace core call center technologies, hardware, and software that currently are being utilized by National Grid's U.S. Customer Contact Centers or shared among other business units, such as Dispatch, Accounts Processing, Payroll, Procurement, Human Resources, and Collections. These technologies are either no longer supported by the vendor or are unavailable in the market. Some of the technologies that will be replaced with upgraded offerings and transitioned to a single vendor support model include the Automatic Call Distribution system, Interactive Voice Response (IVR), Computer Telephony Integration (CTI), Call Center Workforce Management (WFM), and Call Recording/Quality Monitoring.

The original scope of the project included an upgrade to call centers administered internally by National Grid; however, the scope of the project was expanded to include call centers administered by third party vendors to ensure that all customers had the same experience regardless of the call center they were directed to. The scope change was the primary reason for the increased spending through November. The upgrades will be phased in beginning with internal Customer Contact Centers in the FY19 Q4 through FY20 Q1/Q2 timeframe.

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<sup>3</sup> The two projects are: (1) CXT "My Account" MVP Project (INVP 4750D), which will implement a series of customer experience improvements to customer-related web platforms; and (2) New Electric Connections (INVP 4411C), which will deliver near real-time information to trade allies and customers on the status of their electric connections. The New Electric Connections project will build upon the previously delivered Distributed Generation portal by adding additional templates and workflows for electric connections.

**US CNI GMS SCADA Upgrade and Consolidation (INVP 3737)** – This project replaces the end-of-life US Gas Management System (GMS), with a new modern platform that meets the need of the US Gas Control function and is compliant with IT Digital Risk and Security Cyber Security standards. The project will 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. A decision was made by management to delay the Go-Live Date to March 21, 2019 to coincide with the end of heating and winter storm season and is now operational.

**Contract Management Solution for CCDI (INVP 4771A)** – This project leveraged IT automation and system enhancements to deliver a tool to manage electric capital project contracts and invoices and supporting change order management processes. Variance of actual from budget was caused by the following:

- Deferred non-critical scope to a future investment;
- Deferred the purchase of the last batch of software licenses lowering subscription costs;
- Costs for firewall changes were accepted as a part of business as usual contract with the vendor and not charged to the project; and
- Cost savings, including training materials, negotiated from the vendor by the IT Commercial Management Team.

This project was placed in-service on November 30, 2018.

**New Strategic Estimating Tool (INVP 4771B)** – This investment will support the Capital Delivery Initiative (CDI) by delivering the Selection and Implementation of a new Strategic Estimation Tool for the Estimating CDI Work Stream. The CDI will leverage IS automation and system enhancements to address business process capability challenges.

The cost increases are being driven by the final negotiated vendor costs being higher than originally planned. Additionally, the business requested the inclusion of supplemental functionality/application modules to complete this investment successfully. The additional modules and their associated implementation cost are the major factors that make-up the variance.

**Reporting & Analytics for CCDI (INVP 4771C)** – This project is part of the CDI, which will leverage IS automation and enhancements to improve the delivery of major electric and gas capital projects. Specifically, this project will develop a series of dashboard reports, including Earned Value, Finance Forecast, and Milestones, that will aide in the delivery of electric and gas capital projects. The dashboard information will increase the visibility of project risks and costs so they can be managed more effectively and enable improved decision-making. The project was placed in-service on January 28, 2019.

**Gas Capacity Review Database (INVP 4468)** – The Gas Capacity Review (GCR) Application is a critical application for daily gas operations for gas sales models, engineering analyses on gas capacity, and customer gas load requests. The current GCR application and supporting database does not satisfy current business scalability and reliability standards. This project will migrate the GCR database to an enterprise level solution, provide additional automated monitoring tools for production assets, and enhance support and application availability.

The project costs increased in FY19 due to an approved expansion in scope to include additional users for the technology solution. The increased scope resulted in additional vendor costs and a shift of dollars from FY18 to FY19. This project was placed in-service on February 12, 2019.

**Supervisor Enablement iPad Rollout (INVP 4811)** – This project will deliver tools and capabilities that will enable field supervisors to spend more time in the field supervising their crews. Many of the systems and capabilities in use today require field supervisors to spend a portion of their day in the office where they have access to the information and applications needed to do their jobs. This investment will extend the office out to the field, providing access to many of the systems and capabilities so they can perform the work remotely while working in the field with their crews. This will be done utilizing iPads with new applications and capabilities that will provide remote access to the National Grid network in addition to remote application functionality. This functionality includes access to Standard Operating Procedures, Policies and documents, safety information and assessments, network diagrams and asset information, time entry and approval, expense review and approval, crew locations, and job information.

Project activities commenced later than originally planned. This project originally was planned for April; however, the project did not begin until June 2018. In January, a decision was made to descope the complex capabilities running on the CITRIX platform. These will need a broader strategy and will not be completed in this project. Therefore, the year-to-date spend is below the planned budget.

**Substation Monitoring-DobleARMS (INVP 3982)** –This investment implemented the networking and hosting component of the larger business-run program to install an online substation asset monitoring system (DobleARMS). Implementation of the DobleARMS solution provides the business with improved health and condition monitoring of substation assets. DobleARMS provides data elements such as failure mode analysis, asset health index, and risk assessments. This project enabled the communications and data transfer from the National Grid Northborough data center to the Doble Engineering data center. The project was placed in-service on November 14, 2018.

**Digital Communications Infonet Refresh (INVP 5084)** – The purpose of this investment was to fund an Infonet transformation with emphasis on the following areas:

Restore Credibility of Communications

- Eliminate dead and out of date pages
- Remove irrelevant information
- Increase content discoverability

Increase User Adoption

- Craft a more pleasing visual design
- Provide relevant and personalized experience
- Provide a single point of truth

Enable Mobile Workforce

- Modernize the communication platform
- Engage and target field workers
- Untether access to workplace communications

This project was canceled because the budget for this project was reprioritized because most of the deliverables are being addressed in other initiatives. The project budget will be allocated to other priorities, and the project will be removed from the annual investment business plan.

**B. Regulatory, Legal, and Compliance Mandates**

**DRS Future Program (INVP 3683) and Gateway Upgrades (INVP 4975USG)** – The DRS Future Program and Gateway Upgrades are cyber security initiatives that are part of National Grid’s overall multi-year Cyber Security Program of investment. The DRS Future Program is a funding source from which individual cyber projects will draw funding once their requirements are fully defined. Multiple projects have been initiated from this program, and project spending is expected to ramp



accordingly. IT expects that the DRS Future Program and the Gateway Upgrade projects will continue incurring capital costs for the remainder of the fiscal year.

The Company conducted a review of its cyber strategy and roadmap to ensure the proper cyber capabilities were being delivered to keep pace with the evolving threat and the most pertinent areas of cyber risk were being addressed. The review resulted in a reprioritization of the DRS program, with several new initiatives being identified to address emerging critical cyber risks, and in some cases, delays to a subset of projects to future years of the program. This reprioritization has resulted in less spend, year-to-date, compared to budget. As of February 2019, there are 30 projects in flight in various phases. DRS future program line item consists of 12 pre-prioritized initiatives that does not give visibility to the full scope of work for the program.

**Physical Security Equipment Installation/Replacement (INVP 3617)** – This investment represents the annual capital replacement program for Physical Security. Physical Security is responsible for protecting National Grid’s personnel and assets and incorporates a security system as part of the overall security plan. To fulfill this responsibility, it is necessary to ensure that all security-related equipment and assets in New England are in good condition. This project replaces assets that are at or near end of life and/or assets that are no longer under vendor warranty. This annual blanket project will be placed in-service at the end of the fiscal year.

Year-to-date spending has been higher than budgeted for the following reasons: an increased volume for break/fix activity and accelerated upgrades to system-related equipment that is at end-of-life and no-longer supported by the manufacturers.

**US SAP: Infrastructure Landscape- FY19 (INVP 4970)** – This project will create/refresh non-production environments used for project development in support of initiatives pertaining to the Systems, Applications and Products (SAP) portfolio. INVP 4970 is a funding source for hosting charges that are allocated to benefitting projects quarterly. Projects incurring the capital expense include INVP 4662, Concur and INVP 4779, Time Transformation Mobility.

The hosting charges are higher than budgeted for FY19 because the migration to a new vendor (FIT) that is being performed as part of INVP 4563 has been delayed until FY20. Consequently, the Company will continue to incur the higher rates charged by the current provider.

**US SAP: FERC on HANA (FOH) Upgrade (INVP 4563)** – This project delivers an upgrade for National Grid’s FERC on HANA tool. This project will ensure that FERC on HANA follows the required level of updates provided by SAP to stay in support from the vendor to ensure that National Grid will leverage the latest SAP corrections and notes that have been released. Electric and gas utilities must comply with the Uniform System of Accounts from the Federal Energy Regulatory Commissions (FERC) or the National Association of Regulatory Utility Commissioners (NARUC). National Grid uses FERC on HANA to meet these compliance requirements, such as filing reports and responding to data requests.

This project was reprioritized by the business to start later in the fiscal year. The total spend will align with initial estimates, currently running under budget due to delayed start.

**Rhode Island AMI Program (INVP 5148)** – The immediate focus of this project is the integration of interval voltage data from AMI meters into the optimization algorithms of the Volt-Var Optimization/Conservation Voltage Reduction (VVO/CVR) to improve system efficiency. More granular information may also lead to new opportunities for customers to have more choices and greater control of their electricity consumption. In addition to being able to respond to future Time Varying Rates (TVR), modern AMI meters will have the capability to host innovative applications that will enable continued progress on all three objectives. The project is on hold pending submittal and PUC approval of the updated AMI Business Case.

Note: Since the AMI funding and recovery will be decided in a separate docket, costs for RI AMI will not be used to calculate the deferral.

**Annual HR & Payroll Mandatory Service Pack Upgrade (HRSP) - FY19 (4965)**  
This project funds a budget for the 2018/19 fiscal year that will be managed by the Project Delivery Team and Business Process Support (BPS) to ensure timely delivery of upgrade components for the Human Resources modules, which include the required tax, payroll, legal, and regulatory reporting changes throughout the year.

The project was delayed at the beginning of the year because of competing priorities delaying associated project costs. While the project was put into service in December, once all invoices have been processed, the forecasted project spend is expected to be in line with budget. This project was placed in-service on December 10, 2018.

**Legal Hold System Hardware and Software Upgrades (INVP 3910)** – Legal Hold is the process an organization uses to preserve relevant information for an investigation. A legal hold will be issued due to current or anticipated litigation, audit, government investigation, or other such matters to avoid evidence spoliation. Legal precedent requires a company to be able to demonstrate full compliance with the legal hold process, including the issuance of a written legal hold, the communications with, and compliance by, the employee custodians and IS departments/vendors, and the release of legal hold and return of “legal hold” data to the normal records management and disposal protocols and schedules. National Grid currently uses an application called Clearwell, which is beyond end-of-life and not fully compatible with current National Grid systems. A Feasibility & Analysis study previously was conducted to review business requirements and options in the market. As a result of the study, National Grid has selected a solution called Legal Hold Pro, a cloud solution provided by the vendor Zapproved.

The project will implement and integrate Legal Hold Pro and Digital Discovery Pro as a replacement of the Clearwell E-Discovery Platform. This project originally was forecasted as a capital expenditure but was sanctioned for O&M expense only based on the chosen option of a Cloud based solution; therefore, no CAPEX will be spent on this project.

**Payroll Tax Filings and Reporting Project (INVP 4971)** – The purpose of this investment was to do the following: implement an interface of SAP payroll data to Automatic Data Processing (ADP), a third-party payroll service; update Accounts Payable remittance advice data to include ADP wire instructions and set-up as same day wires; and support the conversion of 2015 and 2016 W-2 data from a prior third party to ADP. The project subsequently was cancelled, and the associated budgeted OPEX funds were transferred to INVP 5333 - Tallyman Upgrade and Capex funds transferred to INVP 4970 - US SAP: Infrastructure Landscape - FY19. See the project description listed above.

**Data Center Buildout (Hicksville) (INVP 5154)** – This project is required to review and migrate or remove, where possible, all remaining equipment (e.g., servers, storage, hardware/software, etc.) from the US Hicksville Data Center and migrate to the DXC data centers in Norwich, Connecticut and Newark, Delaware. This project is needed to mitigate the cyber security risk associated with the legacy equipment. This project also adheres to National Grid's data center strategy of migrating from internal data centers to external data centers and ensuring corporate applications are hosted in a supported environment with defined Service Levels.

The project has underspent its budget year-to-date because of delays in contract negotiations with the vendor. The scope of the project is being re-phased to enable the project to move forward without the originally planned vendor involvement until such time as the new terms and conditions are agreed.

**C. Technology/Infrastructure Foundation and Reliability**

**EMS Lifecycle Hardware and Software Upgrade (INVP 4914)** – This project is an initiative to upgrade the current Energy Management System (EMS) and requires replacement of the application and networking hardware. The hardware and software supporting EMS and related networks is no longer supported by vendors creating a risk that the system could not be recovered if an incident or system failure occurs. A failure could lead to the inability to monitor and control the transmission and distribution electric systems and the potential for customer service interruptions.

Spending increases that have been incurred year-to-date reflect increased complexity, scope, and regulatory/compliance requirements that required additional hardware costs, software, and labor.

**Document Management Systems Replacement-Delivery (INVP 4408)** – The Document Management Systems used to store, retrieve, and update electric, gas, and power plant engineering drawings and documents at National Grid are beyond their useful lifespan and are creating an unacceptable level of risk to National Grid. This investment will deploy the OpenText Document Management System selected in the commercial Request for Proposal (RFP) event executed in the first half of 2016. Deployment of the new Document Management System will provide a secure and reliable storage solution to serve the needs of the gas and electric business units.

Project underspend year to date primarily was caused by commercial negotiation delays with the vendor. Therefore, costs budgeted for FY19 will be incurred in FY20.

**US Foundation Hosting Renewal (INVP 4761)** – This policy-driven project will consolidate datacenters for SAP and HANA under one platform for both primary and Disaster Recovery (DR) in the US with the newly selected service provider Freudenberg Information Technology (FIT). Increased complexity has led to the year-to-date overspend. Further, to reduce the risk of Sarbanes-Oxley compliance sensitivity at calendar and fiscal year end, the project has been split into two phases and the completion date has been recast to the June 2019 timeframe. The added complexity and timeline extension will result in the project exceeding its budget and timeline.

**Data Visualization Evolution (INVP 4768)** – The investment will further advance the data analytic capabilities within National Grid to include: advanced analytics and reporting, providing access and storage to data types that are currently not accessible within the platform and utilizing the technology to assist in determining electric and gas load growth and predicting system failures. The project is the next phase of a strategic initiative to utilize data analytics to enhance overall decision making.

The project was completed ahead of schedule and under budget with an actual go live date in January 2019. To meet this schedule more work was performed in FY19 than originally planned for. As a result, this project was over budget in FY19 but about \$500K under budget for the overall project. This project was placed in-service on January 25, 2019.

**Active Directory Improvements (INVP 4489)** – This initiative will implement a refreshed Active Directory (AD) infrastructure and support services. AD is a key service that supports authentication for all National Grid computers and servers logging into the corporate network. The new AD environment will also unify all global applications that use the AD service. It is critical that National Grid can ensure that the AD service is reliable and supports core authentication requirements to all current and proposed applications. Slower than anticipated progress on partner engagements due to project manager resource constraints in the US has resulted in lower spend than forecast.

**SOE (Windows) Upgrade and Device Refresh (INVP 4987)** – This project will upgrade the standard operating environment (SOE) at National Grid from Windows 7 to Windows 10 because Microsoft will not support or provide security patches for Windows 7 beginning in January 2020. To ensure that the end-user device estate continues to be reliable, remains secure, and can meet new business demands, it is important that the operating system provides good performance and is fully supported by the software vendor. The current project will perform an analysis of the current environment, gather requirements, and develop a design to roll out Windows 10 to all end users. The result will be provision of enhanced operating system capabilities, better security and management of devices, and an improved user experience.

The project has been delayed because it was reprioritized by IT. IT expects that this project will begin later in the fiscal year.

**ICE Replacement - Office 365 Implementation (INVP 4491)** – This investment is required to replace the current Instant Messaging, Collaboration, and Email (ICE) services with a set of similar, or enhanced, services provided by Office 365. Office 365 will provide a more effective collaboration and email service (Microsoft Office

365) to meet business demand for additional capabilities (e.g., collaboration with customers and external parties) and provide any enabling infrastructure technology necessary before the ICE service contract expires.

Spending increases incurred year-to-date reflect unexpected application integration issues with Active Directory, which is utilized to authenticate user access to networks and system applications. Also, the Microsoft System Center Configuration Manager (SCCM) version within the environment utilized to install software packages on end user devices required an upgrade to deploy Office 365 applications. Additionally, external internet gateway equipment required alternative and secure routing of communications to support the traffic required for Office 365 applications. Despite these issues, the project is expected to be put in-service in June 2019.

**Apps Interface Remediation (INVP 4706)** – This project will upgrade 76 Java Composite Application Platform Suite (JCAPS) interfaces residing on unsupported legacy middleware infrastructure to the current National Grid strategic middleware platform using the Comprehensive Integration Services Framework (CISF). These interfaces support critical operational applications, such as Mobile Work Management (MWORK), SAP Supply Chain Management (SCM), Customer Service System (CSS), and Supervisory Control and Data Acquisition (SCADA) at National Grid.

Many of these applications support key company operations that would be impacted if one of the JCAPS interfaces were to fail. Unsupported middleware infrastructure poses security risks and can affect National Grid Service Level Agreements (SLAs) in the event of a failure.

The project was completed ahead of schedule and under budget with a go live date of December 11, 2018.

**Res Woods Campus Upgrade (INVP 5111)** – This project was intended to upgrade the network at the Reservoir Woods facility in Waltham, Massachusetts to provide ubiquitous, high capacity Wireless Local Area Network (WLAN) services that will provide 100% coverage and support personal voice and video applications. The LAN equipment at the Reservoir Woods office is approximately 10 years old and was installed when the building was first constructed. This project has been deferred and will be addressed as part of future Facilities upgrade to transform the workplace environment, which will deploy new networking that focuses on wireless first as the approach.

**Hicksville Fiber (INVP 4828)** – This project was meant to replace the aged multi-mode fiber optic cable that supports National Grid’s Hicksville office campus with an optimally routed single mode fiber optic cable. Currently, the Hicksville campus fiber cable plant is approximately 30 years old and is not routed efficiently in the campus. There are several failed fiber-stands that have put the integrity of the campus communications at risk, and the current multi-mode fiber cable specification is no longer the industry standard and does not support today’s high-speed networking requirements.

The FY19 budget was for a "partial sanction" for R&D (Requirements and Design), which was completed on time and on budget. The next step is to go for full sanction to obtain funding to proceed with D&I - Design and Implementation. The R&D phase was completed on October 9, 2018.

National Grid currently is forecasting that capital investment will increase on the major programs discussed above significantly narrowing the gap between the budget and actuals and obtaining alignment by the close of the fiscal year.

Variance explanations for each of the top ten projects based on budget are included in Attachment 2. Attachments 3 and 4 provide details on discontinued investments that are no longer being pursued in the current fiscal year and emerging projects (*i.e.*, walk-ins) approved for inclusion in the FY19 Plan as part of the Portfolio Calibration Management process discussed below.

## **VI. Portfolio Calibration**

IT utilizes a formal monthly process referred to as the “Portfolio Calibration Management” process to manage requests for new or additional project funding beyond the FY19 IT Investment Plan budget. Each proposed project or existing project that is seeking incremental funding submits a budget exception request (BER), which is confirmed by the business sponsor and the IT Finance team with a final approval made by either the Head of Program Delivery or the US Chief Information Officer (CIO). The requests for new project funding (*i.e.*, walk-ins) occur for various reasons including, but not limited to, business priority changes and emerging regulatory mandates. Requests for additional funding on an existing project are generally driven by a project scope change, increase in project complexity, or acceleration of a multi-year project. A BER also is required to transfer funding from a program within the Plan that incorporates several IT projects or investments (*i.e.*, DRS Future Program, Customer Experience Transformation Technology Program, and FY19 Unplanned Mandates) to the individual projects

that will utilize the funding. BERs can utilize underspend from other IT projects or programs in whole or in part and can also be funded incrementally by a sponsoring business area budget. Attachment 5 includes a report on budget exception requests by program category and top ten projects based on allocation to the Company.

## **VII. Conclusion**

As noted in this report, for the Rate Year 1 second quarter ending February 28, 2019, the Plan remains on track with budget underspend, which is primarily caused by commercial negotiation delays on a few key projects, delays in the mobilization of a few key programs/projects, and scope changes aimed at strategically improving the requirements of the subject investments. Currently, the Company is forecasting that capital investment will increase on the major programs in Rate Year 1 bringing the budget and actuals into alignment by the end of the rate year.



The Narragansett Electric Company  
d/b/a National Grid  
RIPUC Docket No. 4770  
Information Technology Capital Investment Quarterly Report  
Second Quarter Ended February 28, 2019  
Attachment 1  
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Narragansett Electric Company and Narragansett Gas Company d/b/a National Grid  
IT Service Company Capital allocated to Operating Companies as Rent Expense  
Post ITTY Through February 28, 2019

Project Name	INVP #	Actual In Service Date	Allocation Code	Project To Date Cost	G Allocation	G Rent-Return	G Rent - Depn	E Allocation	E Rent-Return	E Rent - Depn	Less IFA Salary & Wage Allocator	T Allocation	T Rent-Return	T Rent - Depn	Less IFA Salary & Wage Allocator
INVP 4411A Distributed Generation Portal	4411A	05/15/17	C198	2,217,136	0.00%	-	-	14.23%	15,831	45,071	(8,319)	0.00%	-	-	-
5005242 M112 Systemic Improvement		07/10/17	G012	9,485,306	2.73%	13,393	25,931	7.22%	35,369	68,481	(14,186)	1.97%	9,630	18,645	(3,862)
INVP 4588 US SAP: Solution Manager Upgrade	4588	07/18/17	G020	360,956	2.73%	525	1,410	7.22%	1,385	3,723	(698)	1.97%	377	1,014	(190)
INVP 4307 US Win 7 Refresh Ph 3	4307	07/31/17	G020	13,039,925	2.73%	18,949	50,926	7.22%	50,044	134,493	(25,208)	1.97%	13,625	36,617	(6,863)
INVP 4392 PPMI	4392	08/04/17	G020	266,173	2.73%	387	1,040	7.22%	1,022	2,745	(515)	1.97%	278	747	(140)
INVP 4397 Ariba TLS and CI Update	4397	09/11/17	G020	1,727,180	2.73%	2,661	6,745	7.22%	7,029	17,814	(3,394)	1.97%	1,914	4,850	(924)
INVP 4683 RSA Token	4683	09/12/17	G020	536,718	2.73%	827	2,096	7.22%	2,184	5,536	(1,055)	1.97%	595	1,507	(287)
INVP 4632 US Video Conferencing upgrade for RW	4632	09/12/17	G020	1,856,973	2.73%	2,915	7,252	7.22%	7,699	19,153	(3,668)	1.97%	2,096	5,215	(999)
INVP 4676 Hix D/C Improvement Server Refresh	4676	10/21/17	G020	860,086	2.73%	1,139	3,359	7.22%	3,007	8,871	(1,622)	1.97%	819	2,415	(442)
INVP 3683B Cloud Security (Cloud Access Security Broker)	3683B	10/27/17	G020	127,560	2.73%	169	498	7.22%	446	1,316	(241)	1.97%	121	358	(66)
INVP 4577 Call Manager Upgrade	4577	10/27/17	G020	375,605	2.73%	497	1,467	7.22%	1,313	3,874	(709)	1.97%	358	1,055	(193)
INVP 4645 Refresh of network equipment at Verizon supported Sites (transformed sites-core infrastructure sites)	4645	10/30/17	G020	323,529	2.73%	428	1,264	7.22%	1,131	3,337	(610)	1.97%	308	908	(166)
INVP 4757 Cloud Enhancements (Azure Core Service)	4757	10/31/17	G020	263,501	2.73%	349	1,029	7.22%	921	2,718	(497)	1.97%	251	740	(135)
INVP 3430 US Enterprise Mobility	3430	11/03/17	G020	1,017,559	2.73%	1,347	3,974	7.22%	3,557	10,495	(1,920)	1.97%	969	2,857	(523)
INVP 4217 US SAP: Business Planning	4217	11/13/17	G020	2,589,265	2.73%	3,428	10,112	7.22%	9,052	26,706	(4,884)	1.97%	2,464	7,271	(1,330)
INVP 4222 Governance Risk & Compliance (GRC) Optimization/Upgrade	4222	11/20/17	G020	2,464,347	2.73%	3,310	9,624	7.22%	8,742	25,417	(4,666)	1.97%	2,380	6,920	(1,270)
INVP 4400 Annual HR & Payroll Mandatory Service Pack Upgrade (HRSP) - FY18	4400	12/11/17	G020	1,243,084	2.73%	1,670	4,855	7.22%	4,410	12,821	(2,354)	1.97%	1,201	3,491	(641)
INVP 4688 Legacy DMZ Firewalls	4688	12/16/17	G020	558,001	2.73%	755	1,998	7.22%	1,994	5,276	(993)	1.97%	543	1,436	(270)
INVP 4449 EPA Portfolio Mgr	4449	12/29/17	C175	495,169	3.77%	931	2,667	6.95%	1,715	4,916	(906)	0.00%	-	-	-
INVP 4529 Service Now	4529	12/31/17	G020	2,086,939	2.73%	2,844	8,150	7.22%	7,510	21,525	(3,966)	1.97%	2,045	5,860	(1,080)
INVP 4972 Complex Cap	4972	01/08/18	G148	453,469	2.88%	652	1,868	7.67%	1,734	4,968	(915)	2.06%	466	1,336	(246)
INVP 4674 Log Logic	4674	01/10/18	G020	361,190	2.73%	492	1,411	7.22%	1,300	3,725	(686)	1.97%	354	1,014	(187)
INVP 4760 Mainframe DR Machine	4760	01/31/18	G020	431,275	2.73%	596	1,684	7.22%	1,574	4,448	(823)	1.97%	429	1,211	(224)
INVP 4377A Data Centre Migration & Capacity Increase	4377A	01/31/18	G020	858,609	2.73%	1,187	3,353	7.22%	3,134	8,856	(1,638)	1.97%	853	2,411	(446)
INVP 5029 DXC Capacity Increase	5029	01/31/18	G020	511,178	2.73%	707	1,996	7.22%	1,866	5,272	(975)	1.97%	508	1,435	(265)
INVP 3718 New Medical System	3718	02/08/18	G027	380,198	2.76%	531	1,499	7.32%	1,407	3,975	(735)	1.98%	380	1,074	(199)
INVP 4280 US VSTIG Bandwidth Ph2	4280	02/23/18	G020	2,294,027	2.73%	3,215	8,959	7.22%	8,492	23,660	(4,392)	1.97%	2,312	6,442	(1,196)
INVP 4124 Auto Remote Net Meter	4124	02/23/18	C198	2,015,289	0.00%	-	-	14.23%	14,703	40,968	(7,605)	0.00%	-	-	-
INVP 4274 VSTIG Hardware Refresh	4274	02/23/18	C175	403,507	3.77%	780	2,173	6.95%	1,438	4,006	(744)	0.00%	-	-	-
All Companies Physical Security Replacements - FY18	N/A	03/01/18	G020	3,263,492	2.73%	4,574	12,745	7.22%	12,080	33,659	(6,248)	1.97%	3,289	9,164	(1,701)
INVP 4464 Data Visualization	4464	03/16/18	G020	8,182,819	2.73%	11,469	31,957	7.22%	30,290	84,397	(15,666)	1.97%	8,247	22,978	(4,265)
INVP 3901 Virtual Desktop Offshore	3901	03/20/18	G020	253,047	2.73%	360	988	7.22%	950	2,610	(486)	1.97%	259	711	(132)
INVP 4680 WAP Density deployment	4680	03/28/18	G020	2,127,711	2.73%	3,024	8,310	7.22%	7,985	21,945	(4,088)	1.97%	2,174	5,975	(1,113)
INVP 5167 Customer Data Visualization DG Expansion	5167	03/30/18	G186	374,843	0.00%	-	-	12.69%	2,472	6,793	(1,266)	3.71%	723	1,988	(370)
INVP 4891 Customer Data Visualization Expansion	4891	03/30/18	C175	700,400	3.77%	1,373	3,772	6.95%	2,530	6,954	(1,296)	0.00%	-	-	-
INVP 4705 - NG Labs	4705	03/31/18	G020	112,249	2.73%	160	438	7.22%	421	1,158	(216)	1.97%	115	315	(59)
INVP 4749 VSTIG Hardware Refresh - IDS Card Replacement	4749	03/31/18	G020	147,975	2.73%	210	578	7.22%	555	1,526	(284)	1.97%	151	416	(77)
INVP 3644 Internet Explorer Upgrade	3644	03/31/18	G020	250,447	2.73%	356	978	7.22%	940	2,583	(481)	1.97%	256	703	(131)
RI Companies Physical Security Replacements - FY18	N/A	03/31/18	5360E	367,553	0.00%	-	-	100.00%	19,106	52,508	(9,782)	0.00%	-	-	-
RI Companies Physical Security Replacements - FY18	N/A	03/31/18	5360G	826,698	100.00%	42,974	118,100	0.00%	-	-	-	0.00%	-	-	-
INVP 4771D Risk Software for CCDI	4771D	04/01/18	G148	55,194	2.88%	83	227	7.67%	220	605	(113)	2.06%	59	163	(30)
INVP 4779 Time Entry and Approval Mobility Enablement	4779	04/23/18	G020	4,298,444	2.73%	6,192	16,787	7.22%	16,353	44,334	(8,290)	1.97%	4,452	12,070	(2,257)
INVP 4662 - Concur Licenses	4662	04/23/18	G020	2,672,533	2.73%	3,850	10,437	7.22%	10,167	27,564	(5,154)	1.97%	2,768	7,505	(1,403)
INVP 4364 Wireless Network	4364	05/01/18	G020	2,404,406	2.73%	3,464	9,390	7.22%	9,147	24,799	(4,637)	1.97%	2,490	6,752	(1,262)
INVP 3614D1 Ent Network Security	3614D1	05/01/18	G020	11,031,918	2.73%	15,892	43,084	7.22%	41,970	113,783	(21,276)	1.97%	11,427	30,978	(5,793)
INVP 4759 MTC and Syracuse Boardrooms & Auditoriums	4759	05/01/18	G020	294,841	2.73%	425	1,151	7.22%	1,122	3,041	(569)	1.97%	305	828	(155)
INVP 3956 WiFi for Fleet Services Diagnostic Laptops	3956	05/01/18	G399	512,752	2.77%	750	2,032	7.36%	1,988	5,388	(1,008)	1.99%	537	1,456	(272)
INVP 4289 US Network Improvement	4289	05/01/18	G020	1,448,068	2.73%	2,086	5,655	7.22%	5,509	14,935	(2,793)	1.97%	1,500	4,066	(760)

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Narragansett Electric Company and Narragansett Gas Company d/b/a National Grid  
IT Service Company Capital allocated to Operating Companies as Rent Expense  
Post HTY Through February 28, 2019

Project Name	INVP #	Actual In Service Date	Allocation Code	Project To Date Cost	G Allocation	G Rent-Return	G Rent - Depn	E Allocation	E Rent-Return	E Rent - Depn	Less IFA Salary & Wage Allocator	T Allocation	T Rent-Return	T Rent - Depn	Less IFA Salary & Wage Allocator
INVP 4584 Electric Demand Response Management System Integration	4584	05/01/18	G198	291,328	0.00%	-	-	16.15%	2,480	6,723	(1,257)	0.00%	-	-	-
INVP 4411B Distributed Generation NE	4411B	05/03/18	C284	1,469,928	0.00%	-	-	27.17%	21,045	57,054	(10,668)	0.00%	-	-	-
INVP 4421 - New Arrearage Forgiveness Plan	4421	05/04/18	G316	575,674	30.68%	9,306	25,229	69.32%	21,029	57,010	(10,660)	0.00%	-	-	-
INVP 3486 US MDS-Itron Enterprise Edition (IEE)	3486	05/04/18	G186	1,675,116	0.00%	-	-	12.69%	11,198	30,357	(5,676)	3.71%	3,277	8,883	(1,661)
INVP 5186 US Field Force Help Desk	5186	05/22/18	G020	372,350	2.73%	544	1,454	7.22%	1,436	3,840	(721)	1.97%	391	1,046	(196)
INVP 4480 US Control-Gas System Operating Procedure (SOP) Upgrade	4480	05/27/18	G210	257,295	7.02%	965	2,581	0.00%	-	-	-	0.00%	-	-	-
INVP 4975USE Identity and Access Management (IAM) Unified Platform	4975USE	07/11/18	G020	726,290	2.73%	1,075	2,836	7.22%	2,838	7,491	(1,411)	1.97%	773	2,039	(384)
INVP 4606 Data Visualisation Expansion	4606	07/12/18	G020	3,170,248	2.73%	4,690	12,381	7.22%	12,387	32,698	(6,159)	1.97%	3,372	8,902	(1,677)
INVP 4975USD Website Security Protection	4975USD	08/30/18	G020	236,822	2.73%	360	925	7.22%	950	2,443	(463)	1.97%	259	665	(126)
INVP 4478 Mobile Material Assistant Upgrade (MMA)	4478	08/31/18	G020	302,641	2.73%	460	1,182	7.22%	1,214	3,121	(592)	1.97%	330	850	(161)
INVP 4188 Aging System Stabilize	4188	09/08/18	G148	1,631,491	2.88%	677	6,722	7.67%	1,801	17,875	(2,688)	2.06%	484	4,807	(723)
INVP 4687 Network Tx-NB/MTC	4687	09/18/18	G020	286,977	2.73%	116	1,027	7.22%	306	2,713	(412)	1.97%	83	739	(112)
INVP 4941 Process Auto Implementation	4941	09/25/18	G020	1,061,574	2.73%	428	3,800	7.22%	1,130	10,037	(1,525)	1.97%	308	2,733	(415)
INVP 4771C Reporting & Analytics for CCDI	4771C	09/28/18	G148	2,166,544	2.88%	922	8,182	7.67%	2,451	21,759	(3,307)	2.06%	659	5,852	(889)
INVP 5132 Add Effective Date to CSS (NACHA)	5132	09/28/18	C434	266,535	5.43%	213	1,895	9.99%	393	3,487	(530)	0.00%	-	-	-
INVP 4828 Hicksville Fiber	4828	10/09/18	G020	532,421	2.73%	192	2,668	7.22%	507	7,047	(1,032)	1.97%	138	1,919	(281)
INVP 4750B CXT My Account Service and Billing Functions F&A	4750B	10/12/18	C175	489,978	3.77%	272	2,419	6.95%	502	4,459	(678)	0.00%	-	-	-
INVP 3982 doubleARMS	3982	11/14/18	T220	332,413	0.00%	-	-	0.00%	-	-	-	6.78%	340	2,683	(413)
INVP 4771A Contract Management Solution for CCDI	4771A	11/30/18	G148	1,799,966	2.88%	803	5,562	7.67%	2,134	14,790	(2,312)	2.06%	574	3,978	(622)
INVP 4965 Annual HR & Payroll Mandatory Service Pack (HRSP) - FY19	4965	12/10/18	G020	861,990	2.73%	364	2,525	7.22%	962	6,668	(1,042)	1.97%	262	1,815	(284)
INVP 4706 Apps Interface Remediation	4706	12/11/18	G020	765,419	2.73%	324	2,242	7.22%	854	5,921	(926)	1.97%	233	1,612	(252)
INVP 5214US IAM Privilege Access Management (PAM) Phase 1	5214US	12/12/18	G020	721,625	2.73%	305	2,114	7.22%	806	5,582	(873)	1.97%	219	1,520	(238)
INVP 4420 US CNI OMS-FocalPoint Infrastructure Upgrade	4420	05/23/17	G198	705,521	0.00%	-	-	16.15%	6,362	16,280	(3,093)	0.00%	-	-	-
INVP 3986 Cascade Electric Application Upgrade Project	3986	11/05/18	G185	464,741	0.00%	-	-	12.61%	885	6,975	(1,074)	3.70%	259	2,044	(315)
INVP 4768 Data Visualization Evolution	4768	01/25/19	G020	2,378,845	2.73%	1,052	5,419	7.22%	2,778	14,312	(2,334)	1.97%	756	3,897	(636)
INVP 4411C New Electric Connections	4411C	01/28/19	C198	1,445,709	0.00%	-	-	14.23%	3,327	17,144	(2,796)	0.00%	-	-	-
INVP 4003 UPS Replacement for Data Communication Closets	4003	02/05/19	G020	154,935	2.73%	69	353	7.22%	181	932	(152)	1.97%	49	254	(41)
INVP 4468 Gas Capacity Request Database	4468	02/12/19	C210	1,448,220	7.37%	1,726	8,894	0.00%	-	-	-	0.00%	-	-	-
INVP 5120 NE IPC Phone Upgrade	5120	02/15/19	G272	832,318	0.00%	-	-	20.10%	2,765	11,949	(2,010)	6.60%	908	3,926	(660)
INVP 4714 EMM Phase 2	4714	02/28/19	G020	1,435,391	2.73%	649	2,803	7.22%	1,713	7,402	(1,245)	1.97%	466	2,015	(339)
INVP 4975 USAPerimeter enhancements	4975USA	02/28/19	G020	306,396	2.73%	138	598	7.22%	366	1,580	(266)	1.97%	100	430	(72)
<b>FY19 IT Actuals</b>				<b>118,095,849</b>		<b>187,570</b>	<b>537,788</b>		<b>468,612</b>	<b>1,350,398</b>	<b>(248,477)</b>		<b>98,268</b>	<b>285,506</b>	<b>(52,423)</b>

Projects closed to Plant-In Service through Q2 of Rate Year 1 Gas Rent

Expense \$ 725,358

Projects closed to Plant-In Service through Q2 of Rate Year 1 Electric

Rent Expense \$ 1,901,884

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Narragansett Electric Company and Narragansett Gas Company d/b/a National Grid  
IT Service Company Capital allocated to Operating Companies as Rent Expense  
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SAP Alloc. Code	Description	Allocation Basis	Narragansett Electric	Narragansett Gas	Narragansett Transmission	Narragansett Total	OTHER CO's	TOTAL
5360E	Narragansett Electric	Narragansett Electric only	100.00%	0.00%	0.00%	100.00%	0.00%	100%
5360G	Narragansett Gas	Narragansett Gas only	0.00%	100.00%	0.00%	100.00%	0.00%	100%
C175	All Retail Companies	C- Number of customers	6.95%	3.77%	0.00%	10.72%	89.28%	100%
C198	All Electric Distribution	C- Number of customers	14.23%	0.00%	0.00%	14.23%	85.77%	100%
C210	All Gas Retails	C- Number of customers	0.00%	7.37%	0.00%	7.37%	92.63%	100%
C284	New England Retails	C- Number of customers	27.17%	0.00%	0.00%	27.17%	72.83%	100%
C434	Legacy NG Retails and KEDLI	C- Number of customers	9.99%	5.43%	0.00%	15.42%	84.58%	100%
G012	All Companies	G - General Allocator, 3-Point Allocation - Net Margin, Net Plant, and Net O&M.	7.22%	2.73%	1.97%	11.92%	88.08%	100%
G020	Parents, Retail, TRAN, Hydros, NG LNG Reg, KS Generation, GW, Port Jefferson, Metrowest Realty, Wayfinder, Transgas, KS Energy	G - General Allocator, 3-Point Allocation - Net Margin, Net Plant, and Net O&M.	7.22%	2.73%	1.97%	11.92%	88.08%	100%
G027	All Retail Companies, all TRAN, Hydros, NG LNG Reg, KS Generation, GW, Port Jefferson	G - General Allocator, 3-Point Allocation - Net Margin, Net Plant, and Net O&M.	7.32%	2.76%	1.98%	12.06%	87.94%	100%
G148	Retails, Transmission	G - General Allocator, 3-Point Allocation - Net Margin, Net Plant, and Net O&M.	7.67%	2.88%	2.06%	12.61%	87.39%	100%
G185	Niagara Mohawk Electric and Transmission, Massachusetts Electric & Transmission, Nantucket, Narragansett Electric & Transmission, New England Power Transmission, and Hydros	G - General Allocator, 3-Point Allocation - Net Margin, Net Plant, and Net O&M.	12.61%	0.00%	3.70%	16.31%	83.69%	100%
G186	Niagara Mohawk Electric and Transmission, Nantucket, Narragansett Electric & Transmission, and New England Power-Transmission	G - General Allocator, 3-Point Allocation - Net Margin, Net Plant, and Net O&M.	12.69%	0.00%	3.71%	16.40%	83.60%	100%
G198	All Electric Distribution	G - General Allocator, 3-Point Allocation - Net Margin, Net Plant, and Net O&M.	16.15%	0.00%	0.00%	16.15%	83.85%	100%
G210	All Gas Retails	G - General Allocator, 3-Point Allocation - Net Margin, Net Plant, and Net O&M.	0.00%	7.02%	0.00%	7.02%	92.98%	100%
G272	New England Electric Retails and Transmission	G - General Allocator, 3-Point Allocation - Net Margin, Net Plant, and Net O&M.	19.05%	0.00%	0.00%	19.05%	80.95%	100%
G316	Narragansett Electric and Narragansett Gas	G - General Allocator, 3-Point Allocation - Net Margin, Net Plant, and Net O&M.	69.32%	30.68%	0.00%	100.00%	0.00%	100%
G399	Electric, Gas, New England Power, and Generation Companies	G - General Allocator, 3-Point Allocation - Net Margin, Net Plant, and Net O&M.	7.36%	2.77%	1.99%	12.12%	87.88%	100%
T220	Transmission, excluding Hydro	T - Total T&D, Capex, and O&M	0.00%	0.00%	6.78%	6.78%	93.22%	100%

Narragansett Electric Company, Narragansett Gas Company and Narragansett Electric Company - Transmission d/b/a National Grid

Fiscal Year 2019 Quarter 2

YTD Actuals vs FY19 IT Investment Plan Budget

Amounts in Millions of USD

Project Name	INVP #	Forecasted In Service Date	Allocation Code	RI Total Percent	FYTD Budget	FYTD Actual	FYTD Variance	Annual Budget	FYTD Variance %	FYTD Absolute Variance %	FYTD Variance Driver	Commentary
Customer Experience Transformation technology program **	4750	10/1/2019	C175	10.7%	\$ 10.2	\$ 4.2	\$ (6.0)	\$ 11.7	58%	58%	Other	The Customer Experience program project start-up experienced delays in requirements identification, commercial negotiations and vendor onboarding resulting in both project delays and project spend. There was no change in work scope, and the overall estimate has not changed. As expected, the project spend has increased in the most recent quarter with on-boarding of the design vendor and developmental resources.
Customer Contact Center Technology Upgrade Implement Solution	3932	6/30/2019	C175	10.7%	9.1	9.7	0.5	9.1	(6%)	6%	N/A +/- 10%	The original scope of project included upgrade to Call Centers administered internally by National Grid; however the scope of the project was expanded to include call centers administered by 3rd party vendors to ensure that all customers had the same experience regardless of the call center they get directed to. The scope change was the primary reason for the increased spending in the second quarter. The upgrades are planned to be implemented in Q4 of FY19 and Q1/Q2 of FY20.
US CNI GMS SCADA Upgrade and Consolidation	3737	3/21/2019	C210	7.4%	4.8	3.6	(1.2)	5.3	26%	26%	Reprioritized by business to start later in FY	Project was managed and ready to Go-Live mid November 2018. As a pre-caution, a decision was made by management to delay the Go-Live Date to a March/April timeframe to coincide with the end of the heating and storm season. This project was placed in-service on 3/21/19.
Contract Management Solution for CCDI	4771A	11/30/2018	G148	10.0%	2.9	1.6	(1.2)	2.9	43%	43%	Commercial Negotiation Delays	Project is complete. The project scope related to SAP integrations was reduced and in addition there was a delay in purchase of last batch of Unifier licenses. In addition, all Verizon firewall changes have been accepted as a part of our business as usual contract and not charged as a cost of the project. The Commercial Management team also negotiated cost savings with Oracle including the inclusion of Training materials from Oracle resulting in further savings. This project was placed in-service on 11/30/18.
Reporting & Analytics for CCDI	4771C	1/28/2019	G148	10.0%	2.0	1.8	(0.1)	2.0	6%	6%	N/A +/- 10%	Project completed in September. Increased support for best practice development, creating templates and training materials. All delivered post go-live. This project was placed in-service on 1/28/19.
Gas Capacity Review Database	4468	2/12/2019	C210	7.4%	1.0	1.4	0.5	1.0	(50%)	50%		The project costs increased in FY19 due to an approved expansion in scope to include additional users for the technology solution. The increased scope resulted in additional vendor costs and a shift of dollars from FY18 to FY19. This project was placed in-service on 2/12/19.
Supervisor Enablement iPad Rollout	4811	7/30/2019	N012	7.9%	0.6	0.3	(0.3)	0.7	49%	49%	Reprioritized by business to start later in FY	Project activities commenced later than originally planned. This project originally was planned for April; however, the project did not begin until June 2018. In January, a decision was made to descope the complex capabilities running on the CITRIX platform. These will need a broader strategy and will not be completed in this project. Therefore, the year-to-date spend is below the planned budget.
dobleARMS	3982	11/14/2018	T220	0.0%	0.6	0.3	(0.3)	0.6	49%	49%	Scope Refinement	The scope of the project was reduced resulting in less spend than budgeted. This project was placed in-service on 11/14/18.
New Strategic Estimating Tool	4771B	5/28/2019	G148	10.0%	0.6	1.1	0.5	0.6	(94%)	94%	Scope Increase	At the time the budget was developed, the SOW and key vendor negotiations were not yet complete. Additionally, the business requested the inclusion of supplemental functionality/application modules to successfully complete this investment. The additional modules and their associated implementation cost are the major factors that make-up the variance.
Digital Communications Infonet Refresh	5084	3/31/2019	G020	9.5%	0.4	0.0	(0.4)	0.5	100%	100%	Budget reprioritized by business and removed	Project canceled by the business sponsor
Other Business Programs and Projects					8.2	12.4	4.2	6.1	(51%)	51%		
<b>Total Business Programs and Projects</b>					<b>40.3</b>	<b>36.5</b>	<b>(3.9)</b>	<b>40.4</b>	<b>10%</b>	<b>10%</b>		

Narragansett Electric Company, Narragansett Gas Company and Narragansett Electric Company - Transmission d/b/a National Grid

Fiscal Year 2019 Quarter 2

YTD Actuals vs FY19 IT Investment Plan Budget

Amounts in Millions of USD

Project Name	INVP #	Forecasted In Service Date	Allocation Code	RI Total Percent	FYTD Budget	FYTD Actual	FYTD Variance	Annual Budget	FYTD Variance %	FYTD Absolute Variance %	FYTD Variance Driver	Commentary
DRS future programme **	3683	4/30/2020	G020	9.5%	8.8	2.8	(6.0)	10.1	68%	68%	Scope Refinement	The Company conducted a review of its cyber strategy and roadmap to ensure the proper cyber capabilities were being delivered to keep pace with the evolving threat and the most pertinent areas of cyber risk were being addressed. The review resulted in a reprioritization of the DRS program, with several new initiatives being identified to address emerging critical cyber risks, and in some cases, delays to a subset of projects to future years of the program. This reprioritization has resulted in less spend, year-to-date, compared to budget. There are, as of February 2019, 30 projects in flight in various phases. DRS future program line item consists of 12 pre-prioritized initiatives that does not give visibility to the full scope of work for the program.
Capitalized equipment installs/replacement	3617	3/31/2019	G020	9.5%	3.0	6.5	3.4	3.3	(114%)	114%	Scope Increase	This is a blanket order for physical security changes. Increase in spend due to an acceleration of upgrades for system related equipment that is at "end-of-life" and no-longer supported by manufacturers as well as an increase in break/fix activity.
US SAP: Infrastructure Landscape- FY19	4970	3/31/2019	G020	9.5%	2.3	2.4	0.1	2.6	(5%)	5%	N/A +/- 10%	INVP 4970 is a funding source for hosting charges which are allocated to benefitting projects quarterly. Projects incurring the capital expense include INVP 4662, Concur and INVP 4779, Time transformation Mobility. The hosting charges are higher than budgeted for FY19 because the migration to a new vendor (FIT) that is being performed as part of INVP 4563 has been delayed until FY20. Consequently, the Company will continue to incur the higher rates charged by the current provider.
US SAP: FERC on HANA (FOH) Upgrade	4563	8/7/2019	G020	9.5%	1.7	0.9	(0.8)	1.9	46%	46%	Reprioritized by business to start later in FY	This project was reprioritized by the business to start later in the fiscal year. The total spend will align with initial estimates, currently running under budget due to delayed start.
Rhode Island AMI Program	5148	2/28/2019	5360	100.0%	1.6	0.0	(1.6)	1.8	100%	100%	Budget reprioritized by business and removed	The project is on hold pending PUC approval of the updated AMI Business Case.
Annual HR & Payroll Mandatory Service Pack Upgrade (HRSP) - FY19	4965	12/10/2018	G020	9.5%	1.0	0.9	(0.2)	1.0	17%	17%	Reprioritized by business to start later in FY	The project was delayed at the beginning of the year because of competing priorities delaying associated project costs. While the project was put into service in December, once all invoices have been processed, the forecasted project spend is expected to be in line with budget. This project was placed in-service on December 10, 2018.
IAM- Privilege Access Management (PAM) - Ph2	3683USAP	7/31/2019	G020	9.5%	0.7	0.4	(0.4)	0.8	50%	50%	Other	Project delayed due to work required to complete SOX audit and resource constraints that required project workshops to be scheduled in Jan 2019. Therefore, project costs will be delayed accordingly.
Legal Hold System Hardware and Software Upgrades	3910	8/31/2019	N012	7.9%	0.7	0.0	(0.7)	0.8	100%	100%	Other	While this project was sanctioned for Opex only, the project was initially reported as spending Capex. No Capex has been spent to date, and it will not through the project.
Payroll Tax Filings and Reporting Project	4971	11/30/2018	G020	9.5%	0.6	0.0	(0.6)	0.7	100%	100%	Budget reprioritized by business and removed	Project Cancelled. OPEX funds transferred to INVP 5333. Capex funds transferred to INVP 4970.
Data Center Buildout (Hicksville)	5154	2/9/2020	G020	9.5%	0.5	0.0	(0.5)	0.5	100%	100%	Scope Refinement	The project has underspent its budget year-to-date because of delays in contract negotiations with the vendor. The scope of the project is being re-phased to enable the project to move forward without the originally planned vendor involvement until such time as the new terms and conditions are agreed.
Other Regulatory, Legal and Compliance Mandates					23.0	16.7	(6.4)	25.5	28%	28%		
<b>Total Regulatory, Legal and Compliance Mandates</b>					<b>44.0</b>	<b>30.5</b>	<b>(13.5)</b>	<b>49.3</b>	<b>31%</b>	<b>31%</b>		



**Narragansett Electric Company, Narragansett Gas Company and Narragansett Electric Company - Transmission d/b/a National Grid**

**Projects not continuing in FY19**

**Fiscal Year 2019 Quarter 2**

*Amounts in Millions of USD*

Project Name	INVP #	Forecasted In Service Date	Allocation Code	RI Total Percent	Total Service Company Spending				Q2 FY19 Variance Driver
					FYTD 19 Budget	FYTD 19 Actual	FYTD 19 Variance	FY 19 Budget	
<u>Business Programs and Projects</u>									
None									
<b>Total Business Programs and Projects</b>						<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<u>Regulatory, Legal and Compliance Mandates</u>									
None									
<b>Regulatory, Legal and Compliance Mandates</b>						<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<u>Technology/Infrastructure Foundation and Reliability</u>									
None									
<b>Total Technology/Infrastructure Foundation and Reliability</b>						<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Projects not continuing in FY19 Total</b>						<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

**Narragansett Electric Company, Narragansett Gas Company and Narragansett Electric Company - Transmission d/b/a National Grid**  
**New Capital Investment Demand not on FY19 Plan**  
**Fiscal Year 2019 Quarter 2**  
*Amounts in Millions of USD*

Project Name	INVP #	Forecasted In Service Date	Allocation Code	RI Total Percent	TOTAL SERVICE COMPANY SPENDING				Q2 FY19 Variance Driver
					FYTD 19 Budget	FYTD 19 Actual	FYTD 19 Variance	FY19 Budget	
Business Programs and Projects									
Identity and Access Management Business Change Programme	5278	7/30/2019	G020	9.45%	\$ 0.0	\$ 0.0	\$ (0.0)	\$ 0.0	New demand
<b>Total Business Programs and Projects</b>					<b>0.0</b>	<b>0.0</b>	<b>(0.0)</b>	<b>0.0</b>	
Regulatory, Legal and Compliance Mandates									
Lease Accounting Updates and Contract Management	5360	5/31/2019	G020	9.45%	0.0	2.6	(2.6)	0.0	New demand
<b>Total Regulatory, Legal and Compliance Mandates</b>					<b>0.0</b>	<b>2.6</b>	<b>(2.6)</b>	<b>0.0</b>	
Technology/Infrastructure Foundation and Reliability									
Primavera Upgrade/Stabilization	4990	2/27/2020	X148	8.99%	0.0	0.0	(0.0)	0.0	New demand
<b>Total Technology/Infrastructure Foundation and Reliability</b>					<b>0.0</b>	<b>0.0</b>	<b>(0.0)</b>	<b>0.0</b>	
<b>FY19 NEW DEMAND CAPITAL INVESTMENT TOTALS</b>					<b>\$ 0.0</b>	<b>\$ 2.6</b>	<b>\$ (2.6)</b>	<b>\$ 0.0</b>	



Narragansett Electric Company, Narragansett Gas Company and Narragansett Electric Company - Transmission d/b/a National Grid

Fiscal Year 2019 Quarter 2

Budget Exception Reporting

Amounts in Millions of USD

**Impact of Budget Exceptions on FY19 Capital Plan Categories**

Investment Category	Budget Exception Amt \$M
Business Programs and Projects	-0.115
Regulatory, Legal, and Compliance Mandates	-4.662
Technology/Infrastructure Foundation and Reliability	4.777
<b>Total</b>	<b>\$ -</b>

**Top 10 Projects in each Investment Plan Category Impacted by Budget Exceptions**

Investment Category	INVP #	INVP# of Projects within a program	Project Name	Budget Exception Amt \$M	% change to FY19 Budget	Driver for Budget Exception Request
<i>Business Programs and Projects</i>						
		4750A	CXT-Strategic Alignment F&A	-0.18		
		4750B	CXT-MyAccount Service and Billing Functions F&A	0.196		
		4750D	CXT-MyAccount MVP	9.085		
		4750G	CXT MyAccount - Two way Outage SMS Communications	0.589		
		4411C	New Electric Connections	2.773		
	4750		Customer Experience Transformation technology program	-12.463	100%	Allocated to specific program projects
	3932		Customer Contact Center Technology Upgrade Implement Solution	0.206	2%	Increased scope
	3737		US CNI GMS SCADA Upgrade and Consolidation	-0.783	14%	Reduced Shared Overhead cost
	4771		Complex Capital Delivery Phase 2	5.846	100%	Scope Change
	4468		Gas Capacity Request Database	0.536	51%	Reduced contingency costs
	5084		Digital Communications: Infonet Refresh	-0.5	100%	Project cancelled
			Other Business Programs and Projects	-5.42		Various
				-0.115		<b>Net Category Impact</b>
<i>Regulatory, Legal and Compliance Mandates</i>						
		3683USAN	DNS Resolution & Protection	0.378		
		3683USAP	IAM-Privilege Access Management (PAM) - Ph2	0.69		
		3683USD	Develop Robust Incident Response	0.951		
		3683USO	Network Segregation	0.977		
		3683USX	Application Security as a Service	0.174		
		3683USF	Enterprise Centralized Patch Management	0.17		
		3683USH	Firewall Rule Cleanup	0.118		
	5571		Gas Business Enablement Cyber Security Enhancements	0.37		
	3683		DRS future programme	-3.828	32%	Allocated to specific program projects
	3617		Capitalized Equipment - installations / replacements	2.727	76%	Security equipment at end of life
	4970		US SAP: Infrastructure Landscape - FY19	0.046	2%	Allocated to specific program projects
	4971		Payroll Tax Filing and Report Project	-0.8	100%	Deferred Investment
	5148		Rhode Island AMI Program	-2.	100%	Deferred Investment
	3910		Legal Hold System Hardware and Software Upgrades	-0.88	100%	Opex Charges
			Other Regulatory, Legal and Compliance Mandates	-3.755		Various
				-4.662		<b>Net Category Impact</b>
<i>Technology/Infrastructure Foundation and Reliability</i>						
	4914		EMS Lifecycle Hardware and Software Upgrade	6.778	74%	Scope Increase
	4408		Document Management System Replacement Delivery	-0.924	16%	Schedule change - move to FY20
	4987		SOE (Windows) Upgrade and Device Refresh	-0.215	11%	Schedule change - started later in FY
	5111		Res Woods Campus Upgrade	-1.	100%	Project put on hold
			Other Technology/Infrastructure Foundation and Reliability Projects	0.138		Various
				4.777		<b>Net Category Impact</b>
<b>Total</b>				<b>\$ -</b>		