James A. Lahtinen
Vice President – Rates & Regulatory Economics

April 1, 2016

VIA ELECTRONIC MAIL

Honorable Kathleen Burgess, Secretary
New York State Public Service Commission
Three Empire State Plaza
Albany, NY 12223-1350

Re: Case 07-M-0906 - New York State Electric & Gas Corporation and Rochester Gas and Electric Corporation – Compliance Filing – Five-Year Capital Expenditure Forecasts

Dear Secretary Burgess:

Pursuant to Appendix 2, Paragraph 2(d) of the New York State Public Service Commission's Order Authorizing Acquisition Subject to Conditions in Case 07-M-0906, New York State Electric & Gas Corporations ("NYSEG") and Rochester Gas and Electric Corporations ("RG&E") (together the "Companies") hereby file a Five Year Capital Investment Plan ("Plan") that contains respective five-year forecasts of their planned electric system and gas systems[1].This Plan document presents a comprehensive capital investment plan for the electric transmission, distribution and generation and the gas transmission and distribution businesses of NYSEG and RG&E for the period 2016 through 2020. This Plan positions NYSEG and RG&E to continue to provide safe and reliable service to customers.

Because the attached report provides an assessment of the Companies' transmission and distribution system, including certain contingency situations, the Companies are concurrently submitting a request to the Record Access Officer of the State of New York Department of Public Service for trade secret protection for redacted data pursuant to 16 NYCRR XX 6-1.3.

The Companies welcome the opportunity for dialogue with Staff on the contents of this Plan.

[1] The variance information requirement noted in Appendix 2, Paragraph 2(d) was fulfilled with the Companies March 1, 2012 filing in Cases 09-E-0715, 09-G-0716, 09-E-0717, 09-G-0718.

89 East Avenue, Rochester, NY 14649-0001
Telephone 585.724.8409
www.nyseg.com, www.rge.com, james_lahtinen@rge.com

If you have any questions concerning this filing, please contact Christopher Herrmann at (585) 771-2294.

Respectfully submitted,

James A. Lahtinen

James A. Lahtinen

Enclosure

cc: Active Party Service List (via e-mail)
Mr. Benjamin Dunton
Mr. Christopher Herrmann
Noelle M. Kinsch, Esq.

INVESTMENT PLANNING / AVANGRID

March 31, 2016

NYSEG and RG&E 5 Year Capital Investment Plan 2016-2020

Table of Contents

Executive Summary

This document presents a comprehensive five year Capital Investment Plan for the electric transmission, distribution, generation, and gas businesses of AVANGRID Networks New York operating companies, New York State Electric & Gas ("NYSEG") and Rochester Gas and Electric ("RG&E"), for the period 2016 through 2020 (the "Plan"). This Plan positions NYSEG and RG&E (the "Companies") to continue to provide safe and reliable service to customers and is consistent with the vision expressed in the Code of Ethics of AVANGRID and its group of companies and the mission of AVANGRID, as adopted by NYSEG and RG&E, both shown below:

AVANGRID Vision:

> "We aspire to be the preferred global energy company because of our commitment to the creation of value, quality of life, the safety of people and of supply, the protection of the environment and customer focus."

AVANGRID Mission:

> "AVANGRID is a team of dedicated individuals working as one to deliver value to our customers, employees and shareholders. By providing outstanding customer service and exceptional reliability, while holding safety and the environment in high regard, we aspire to be a world-class energy company."

This Plan is a continuation of meeting the AVANGRID mission. To that end, the Companies propose investing $2.1 billion in the electric delivery and generation systems and $0.67 billion in the gas delivery system over the five year period.

The projects and programs proposed in this Plan are what the Companies have determined today is needed to continue to deliver safe and reliable service to customers. The Companies continually re-evaluate and reprioritize projects and system needs due to the continually changing environment in which the Companies operate.

One of the potentially most impactful items that will require the Companies to re-evaluate and reprioritize capital spending is the NYPSC Reforming the Energy Vision (REV) proceeding and its related proceedings (e.g. Net Metering, Distribution Level Demand Response, Community Choice Aggregation). The potential changes in processes, reporting, methodology, system impacts and IT requirements are currently being studied and will be included in the forthcoming 2016 DISP filing. As requirements and changes in the previously noted areas are defined, more fully understood and developed, changes in future year capital investments will occur. One of the potential major projects that is not included in this plan is full deployment of AMI. Implementation

of the full-scale AMI beyond the AMI implemented as part of the Energy Smart Community project will be the subject of a separate collaborative process between the NYPSC and the Companies. Recovery of the costs associated with full-scale AMI implementation should be determined as part of that process.

Many electric projects are designed and implemented to reduce the risk of service outages in the event of contingency situations. The gas projects continue to include replacement of leak prone mains and services and automation and modernization projects. In addition, investments are included to optimize the process of both the electric and gas grid by installing modern equipment, employing software and IT platforms and expanding the automation of the network, which will help achieve system efficiencies and move toward a Distribution System Platform (DSP) as envisioned by the REV proceeding.

This Plan contains programs and projects that will help support the following six strategic objectives of NYSEG and RG&E:

1. Improve safety and security
2. Meet the electrical and natural gas needs of our customers
3. Achieve service reliability and quality targets
4. Optimize replacement of obsolete equipment and facilities
5. Improve system effectiveness and efficiency
6. Sustain the environment

This Plan will remain flexible to meet the changing needs of our customers, regulators, and other stakeholders.

1. Introduction

This Plan contains projects and programs needed for the Companies to deliver safe and reliable electric and gas service to customers. Reassessing needs and reprioritizing projects to ensure investments support the strategic objectives in a cost effective manner is a continuous process. As such, this plan is a "snap shot" of projects, programs, and levels of investment known at the time of publication. Due to the ongoing process of reassessment, the projects, programs, investment levels, and timing of investment is likely to change as time passes. Additionally, changes may be driven by additional state or federal regulatory requirements, including, but not limited to, the NY REV proceedings.

The project lists and the foundation of capital spend for 2016-2019 are based on the NY Rate Case. Input from the various business areas provided guidance for the 2020 capital spend.

($000)	2016	2017	2018	2019	2020	Total 2016-2020
NYSEG - E	181,066	210,085	182,625	218,686	274,845	1,067,307
RG&E - E	240,004	225,947	198,314	175,223	186,832	1,026,319
Subtotal - Electric	421,070	436,032	380,939	393,909	461,677	2,093,627
NYSEG - G	51,839	77,713	86,309	68,617	89,055	373,533
RG&E - G	47,985	76,513	45,595	48,878	72,571	291,542
Subtotal - Gas	99,824	154,226	131,904	117,495	161,626	665,075
Total - NY	**520,893**	**590,258**	**512,843**	**511,404**	**623,303**	**2,758,701**

Table 1.1 NY Capital Investment Plan

Over the five year period, NYSEG expects to invest approximately $248 per customer per year in its electric system and $283 per customer per year in its gas delivery system, while RG&E expects to invest approximately $577 per customer per year in its electric system and $189 per customer per year in its gas delivery system.

The structure of this Plan is as follows:

Chapter 2 describes the Strategic Objectives of The Plan which are to:

1. Improve system safety and security,

2. Meet the electric and gas needs of our customers,
3. Achieve reliability and service quality targets,
4. Optimize replacement of obsolete and low scoring health index equipment and facilities,
5. Improve the effectiveness and efficiency of the electric and gas systems through modernization, and
6. Sustain the environment.

Chapter 3 describes the AVANGRID Capital Investment Prioritization Strategy to allow the Companies to effectively and efficiently accomplish the key strategic objectives of the plan.

Chapter 4 of the Plan presents the electric and gas Transmission and Distribution Systems and Generation Facilities, which contains information about the Companies' infrastructure.

Chapter 5 presents the Electric Capital Investment Plan. This chapter includes the projects and programs necessary to support the strategic objectives of the electric system. There are a number of significant projects that the Companies are undertaking or plan to undertake during the Plan term. These projects are highest priority projects that result from a prioritization approach that considers, among other inputs, the number of customers, system load, and hours of exposure as metrics. In addition, the Companies plan to invest in its delivery systems and in network automation, in order to operate more effectively and efficiently, provide added benefits to customers and promote the safe operation of the network. These investments include:

- new standards in equipment and substation design.
- improvements in network infrastructure to reduce the exposure of outages, due to potential failures in transformers at substations and circuits, (N-1, N-1-1).
- replacement of obsolete and poor condition equipment at substations as well as poles, wires, and other line devices that are in poor condition.

Chapter 6 presents information on the specific FERC Bright Line Projects.

Chapter 7 presents the Generation Facilities Capital Investment Plan. This chapter includes the projects and programs necessary to support the strategic objectives as they relate to electric generation. There are a number of significant projects that the Companies are undertaking or plan to undertake during the Plan term that maintain the physical generation plant as well as increase hydro generation capacity.

Chapter 8 presents the Gas Capital Investment Plan. This section of the plan outlines the projects and programs necessary to support the strategic objectives related to the gas line of business. There are a number of significant projects that the Companies are undertaking or plan to undertake during the Plan term. The Companies' key gas business strategies are:

- Safely operate the gas delivery system
- Achieve all New York State Public Service Commission gas service quality performance measures
- Minimize leaks through corrosion control, leak repair, and replacement of leak prone mains and services, including an enhanced replacement effort
- Provide innovative, cost-effective, and timely planning, engineering and design services that meet or exceed customer expectations

Chapter 9 presents the Common Capital Investment Plan. This section of the plan describes the projects and programs that are used by and support more than one of the Companies' businesses and are necessary to support the strategic objectives of the overall company, the electric lines of business and/or the gas lines of business

Common Capital Investments include:

- Building Projects and Space Management
- Fleet
- Information Technology Infrastructure
- Operation Technologies
- Customer Service

1.1. Opportunities and Challenges

The Companies have the following opportunities and face certain challenges as they implement this Plan:

1. Enhanced asset management capabilities: The Companies continue to develop enhanced competencies in asset management, which reflect, in part, recommendations made in the Companies' latest Management Audit. Improvements have been made and continue to be made to the ways in which the Companies determine asset replacements and the methods used to optimize the portfolio of projects and programs. The capital investment prioritization strategy has been implemented in order to develop this Plan. Investment Planning continues to be responsible for developing the capital investment plan. The Companies look to continually improve the capital investment planning approach and processes. The Companies will regularly reassess needs and reprioritize projects using these improved asset management approaches. The Companies are currently exploring the use of a quantifiable risk methodology that will allow for a risk based project prioritization. A description of this methodology is provided in Chapter 4.
2. The Companies have undertaken a focused review of the worst performing distribution circuits. These circuits were reviewed for betterments and opportunities to better isolate faults in order to lessen the number of customers out during an outage event. The Companies are currently reviewing the processes and methodology to improve the Companies' reliability metrics through the betterments programs.
3. FERC Bright Line: Under FERC's Order No. 773, issued December 20, 2012, there has been a change in the definition of the Bulk Electric System. The Companies will need to meet more stringent reliability criteria, thus requiring mitigation actions and upgrades in facilities, particularly 115 kV facilities, not currently considered part of the Bulk Electric System. The specific projects at these facilities have been determined and defined. The order of magnitude and timing of the cash flows included in the plan are the best estimates currently available, and subject to change as the Companies continue to develop the scope of the projects to address the FERC Bright Line Order.
4. Technological advancements: The Companies are making technological changes and innovations, including standardization, modernization and automation of the Companies facilities. These investments are foundational to the REV-envisioned

Distribution System Platform (DSP) and will also support increased levels of visibility and monitoring of the system.

Standardization of design and equipment will result in:

- More efficient use of resources for project design and construction. For instance, the implementation of the IEC 61850 protocol or equivalent in new substations and substation renovations will reduce the time needed for engineering and wiring the protection systems of the equipment.
- Use of advanced technology, quality, and standardized equipment will improve service quality and reduce the need for spares. For example, new breakers, with SF6 insulating medium will require less maintenance than conventional oil-filled breakers.

Improvements to system control: The Companies have included system control, substation and other system automation projects to provide operational benefits by bringing the Companies' electric system up to modern day standards. These projects include:

- Increased numbers of remote terminal units (RTUs).
- Increasing telecommunications capability for remote control of devices on the system, particularly the distribution system.
- System automation will be compatible with the future implementation of foundational REV-supportive investments, including Advanced Metering Infrastructure (AMI) and smart grid.
- Increase distribution automation through reclosers and SCADA Mate Switches
- All new substations and renovations to existing substations will be designed and constructed in accordance with the new standards. These standards include voltage monitoring, measures of power quality, and oil containment.

6. Rochester 11kV system: Today, the 11kV system in Downtown Rochester is operated as a transmission system. By upgrading to currently available technology, it will be possible to operate the system as a distribution system with the same reliability. We plan to install new digital relays, integrated system controls and new software that will enable RG&E to operate the network more efficiently. A system assessment to evaluate the different improvement opportunities is in progress.
7. The Companies are putting in place new framework agreements with various company-wide equipment manufacturers and suppliers. With these types of multi-

year agreements in place, the Companies expect to better manage the cost of purchasing equipment.

8. Generator Retirement: The Companies continue to address the numerous reliability concerns associated with past and current generation retirement and mothball notices. Cooperation continues with the NYISO and other neighboring utilities in studying and determining the most efficient and effective reinforcements needed to address the generation reductions. Planning studies can also evaluate concerns on the system due to potential retirement and mothball notices as well.

9. Reforming the Energy Vision (REV). The Companies believe that the REV proceeding has the potential to substantially improve the range of functions and the efficiency of the electric distribution system in New York State and to provide added value to the state's electricity consumers and economy. The Companies have anticipated a number of the key areas being covered by REV and have already made significant investments in modernization and automation that are supportive of and foundational to the DSP. To continue to support the DSP development, this plan includes additional investment in automation, network communications, and a REV pilot project. The proposed Energy Smart Community (ESC) REV pilot project will serve as a test-bed for many aspects of the REV vision. The proposed ESC project will serve 10,000 to 15,000 customers within one specific geographical area. It will provide insight on the best ways to engage customers. It will also provide an opportunity for the Companies to demonstrate its technical and operational capabilities as the DSP and to demonstrate the value of the foundational investments including advanced metering, a high-bandwidth communications network, and grid automation. The Energy Smart Community project will provide a platform to demonstrate market development and products/services innovation to validate the value of the platform to enable the market.

1.2. Investment Summary

Over the Plan term, the Companies plan to invest more than $2.75 billion in the electric and gas systems and in common areas. The common areas are comprised of Fleet, IT, Customer Services, General Services, Facilities, Security, and shared portions of Operations Technology. The detailed list of projects that are currently envisioned as the plan are included in Attachments 3 and 4.

The following table and chart provide a breakdown of the Plan by area of investment for the period 2016-2020.

	Transmission	Distribution	Gas	Generation	Common	Total
NYSEG	299,962	569,677	333,945	36,709	200,548	1,440,840
RG&E	600,423	295,750	260,561	52,840	108,287	1,317,861
Total	900,384	865,428	594,506	89,549	308,835	2,758,701

Table 1.2 Summary of Capital Investment Plan by Type of Investment 2016-2020

($000)

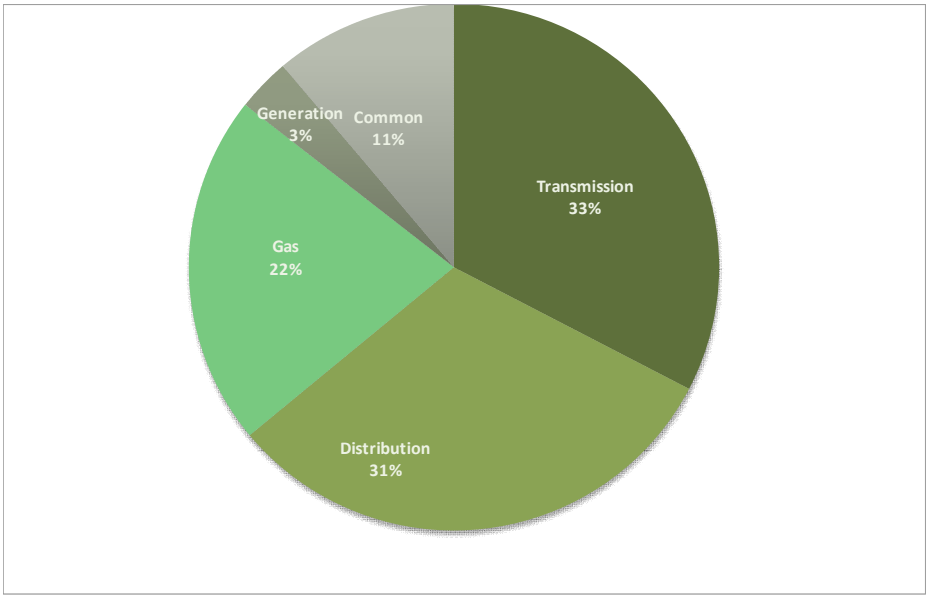


Figure 1.1 Summary of Capital Investment Plan by Type of Investment 2016-2020

1.2.1. Electric Summary

Over the plan term, the Companies plan to invest more than $1.85 billion in the electric systems. NYSEG plans to invest $906M while RG&E plans to invest $949M, not including the allocation of Common areas.

($000)	2016	2017	2018	2019	2020	Total 2016-2020
NYSEG - Total	159,411	180,067	155,093	185,959	225,818	906,348
Transmission	59,534	57,379	39,403	57,932	85,714	299,962
Distribution	95,963	116,340	110,289	118,931	128,154	569,677
Generation	3,914	6,348	5,401	9,096	11,950	36,709
RG&E - Total	226,755	212,871	184,077	162,541	162,770	949,013
Transmission	171,807	140,834	111,457	92,395	83,930	600,423
Distribution	49,219	58,677	60,839	60,125	66,889	295,750
Generation	5,728	13,360	11,781	10,021	11,950	52,840
Total - NY	**386,166**	**392,938**	**339,170**	**348,500**	**388,587**	**1,855,361**

Table 1.3 Electric Summary

The Common allocation to Electric is $213M over the plan term; $151M at NYSEG, $63M at RG&E as shown in Table 1.4.

($000)	2016	2017	2018	2019	2020	Total 2016-2020
NYSEG						
Common to Electric	21,655	30,018	27,532	32,727	49,027	160,960
RG&E						
Common to Electric	13,249	13,076	14,237	12,682	24,062	77,306
Total - NY	**34,904**	**43,094**	**41,769**	**45,409**	**73,089**	**238,266**

Table 1.4 Common Allocation Summary

Tables 1.5 and 1.6, and Figures 1.2, 1.3, 1.4 and 1.5 provide the details of the electric investment by Investment Prioritization Category.

NYSEG and RG&E Capital Investment Plan

($000)		2016	2017	2018	2019	2020
Mandatory	Transmission	47,692	46,481	28,249	32,956	54,237
	Distribution	28,276	29,105	30,467	31,906	32,789
	Generation	2,825	2,945	1,150	1,475	1,575
	Common	7,003	13,893	9,086	11,457	7,011
	Total Mandatory - NYSEG Electric	85,796	92,424	68,952	77,794	95,612
System Capacity	Transmission	4,079	4,660	3,642	4,105	848
	Distribution	9,237	11,007	13,692	20,479	18,489
	Total System Capacity - NYSEG Electric	13,316	15,667	17,334	24,584	19,337
Reliability Risk	Transmission	1,900	280	1,457	9,302	23,373
	Distribution	13,000	14,130	11,670	12,020	12,381
	Generation	-	3,000	3,125	1,375	2,075
	Common	233	297	494	321	522
	Total Reliability Risk - NYSEG Electric	15,133	17,707	16,746	23,018	38,350
Group Initiatives	Generation	330	1,000	125	175	450
	Common	457	726	883	368	482
	Total Group Initiatives - NYSEG Electric	787	1,726	1,008	543	932
Efficiency	Transmission	-	-	-	4,900	-
	Distribution	7,650	11,080	10,222	10,487	10,142
	Common	4,171	4,075	4,265	5,617	16,094
	Total Efficiency - NYSEG Electric	11,821	15,155	14,487	21,004	26,236
Asset Condition Replacement	Transmission	5,863	5,958	6,055	6,669	7,256
	Distribution	34,072	38,553	42,295	43,391	54,354
	Generation	759	(597)	1,001	6,071	7,850
	Common	9,035	10,246	12,596	14,963	24,919
	Total Asset Condition Repl. - NYSEG Electric	49,729	54,160	61,947	71,094	94,379
Strategic	Distribution	3,728	12,465	1,943	648	-
	Common	755	782	209	-	-
	Total Strategic - NYSEG Electric	4,483	13,247	2,152	648	-
	Total - NYSEG Electric	**181,066**	**210,085**	**182,625**	**218,686**	**274,845**

Table 1.5 NYSEG Summary of Electric Capital Investment Plan by Category

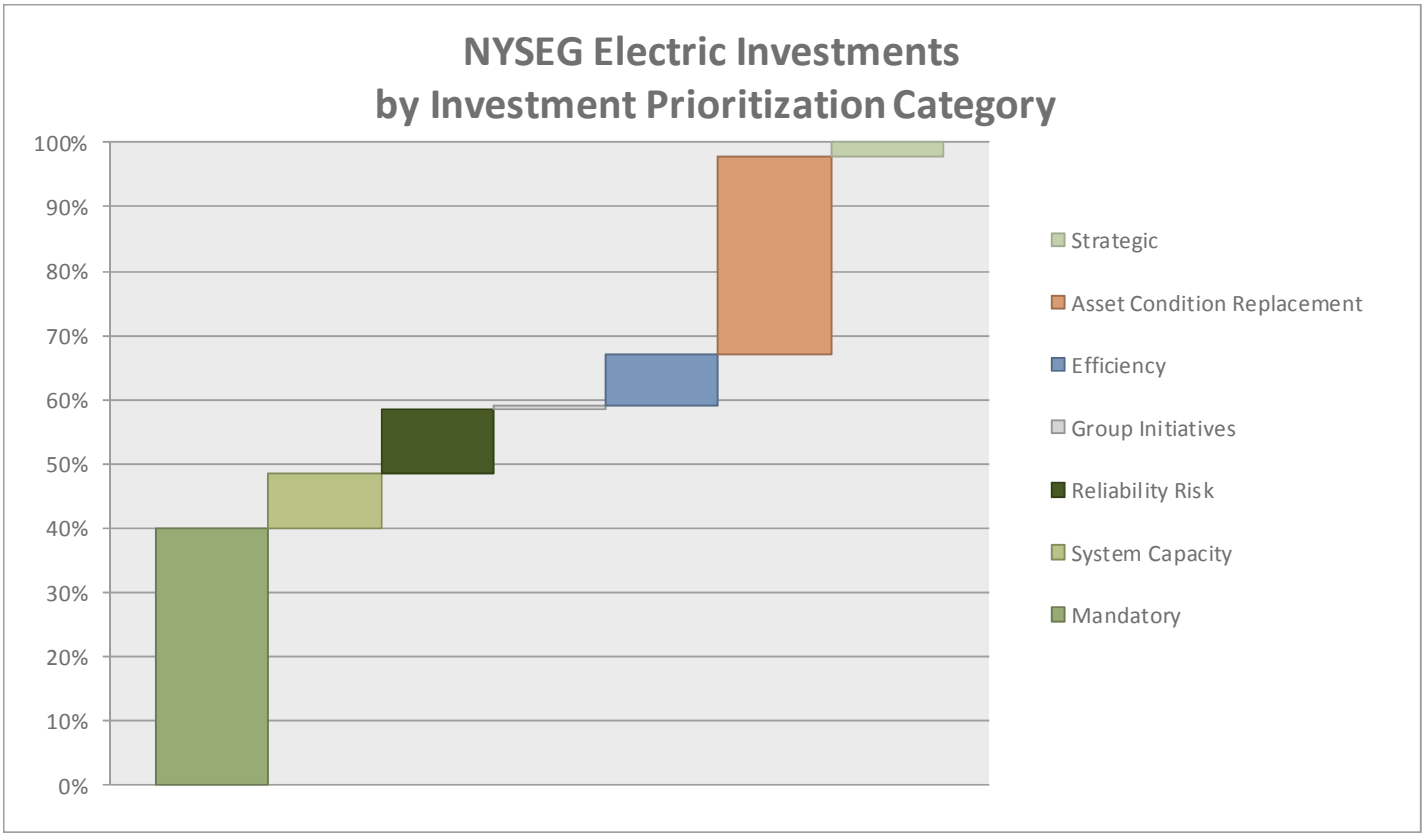


Figure 1.2 NYSEG Summary of Electric Capital Investment by Category

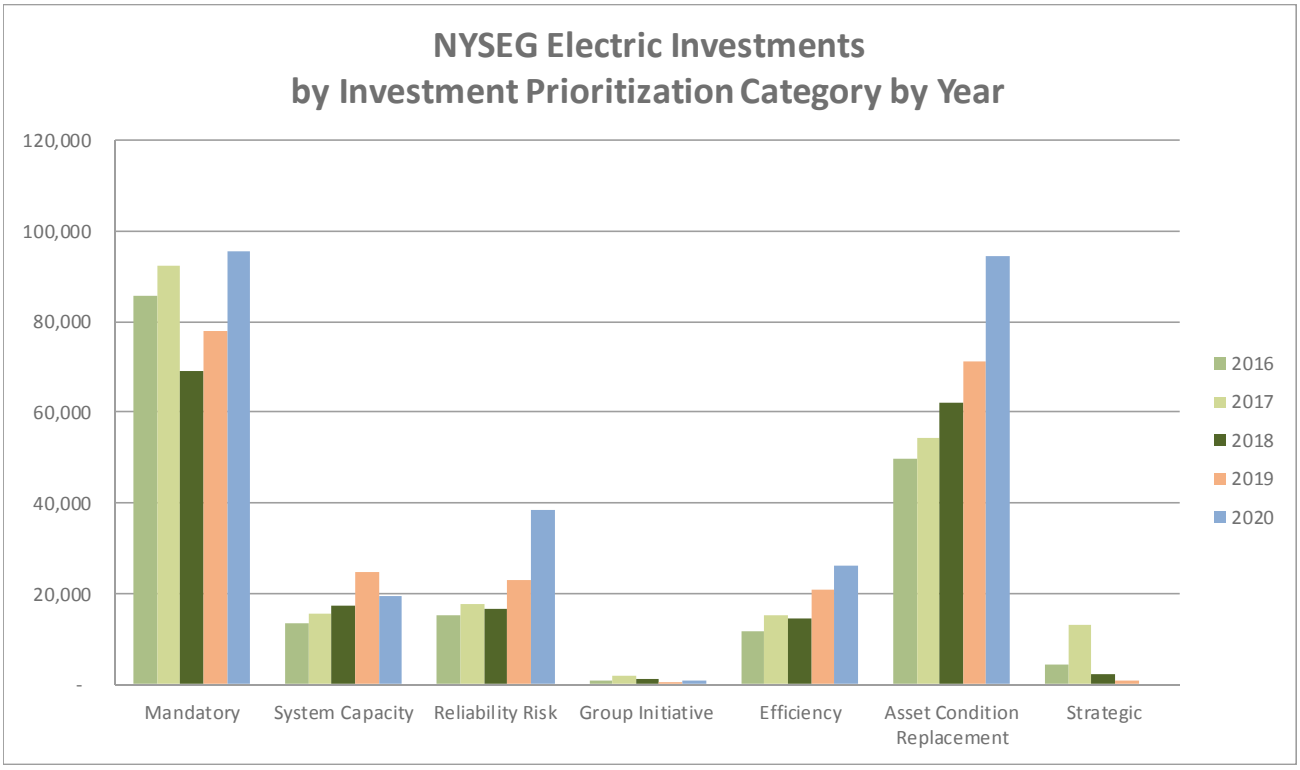


Figure 1.3 NYSEG Investments by Investment Prioritization Category by Year

NYSEG and RG&E Capital Investment Plan

($000)		2016	2017	2018	2019	2020
Mandatory	Transmission	122,591	82,886	85,429	76,632	41,348
	Distribution	19,031	19,407	19,791	20,247	20,673
	Generation	-	2,025	1,375	925	1,075
	Common	4,875	4,307	4,785	1,050	2,167
	Total Mandatory - RG&E Electric	146,497	108,625	111,380	98,854	65,263
System Capacity	Transmission	37,070	40,859	7,313	-	25,000
	Distribution	7,178	9,050	5,316	8,020	12,984
	Total System Capacity - RG&E Electric	44,248	49,909	12,629	8,020	37,984
Reliability Risk	Transmission	9,601	11,843	14,591	9,949	13,456
	Distribution	4,800	4,914	5,031	5,151	5,273
	Common	393	250	236	178	250
	Generation	5,181	9,261	7,525	5,071	5,275
	Total Reliability Risk - RG&E Electric	14,794	17,007	19,857	15,278	18,979
Group Initiatives	Generation	497	1,874	1,157	400	2,775
	Common	186	186	410	173	321
	Total Group Initiatives - RG&E Electric	683	2,060	1,567	573	3,096
Efficiency	Transmission	-	-	-	2,100	500
	Distribution	2,700	4,981	7,621	3,275	3,368
	Common	1,397	1,743	1,354	2,751	9,662
	Total Efficiency - RG&E Electric	4,097	6,724	8,975	8,126	13,530
Asset Condition Replacement	Transmission	2,545	5,246	4,124	3,714	3,626
	Distribution	15,511	20,325	23,081	23,433	24,590
	Generation	50	200	1,724	3,625	2,825
	Common	6,398	6,590	7,451	8,530	11,662
	Total Asset Condition Repl. - RG&E Electric	24,504	32,360	36,380	39,301	42,704
Strategic	Distribution	-	-	-	-	-
	Common	-	-	-	-	-
	Total Strategic - RG&E Electric	-	-	-	-	-
	Total - RG&E Electric	**240,004**	**225,947**	**198,314**	**175,223**	**186,832**

Table 1.6 RG&E Summary of Electric Capital Investment Plan by Category

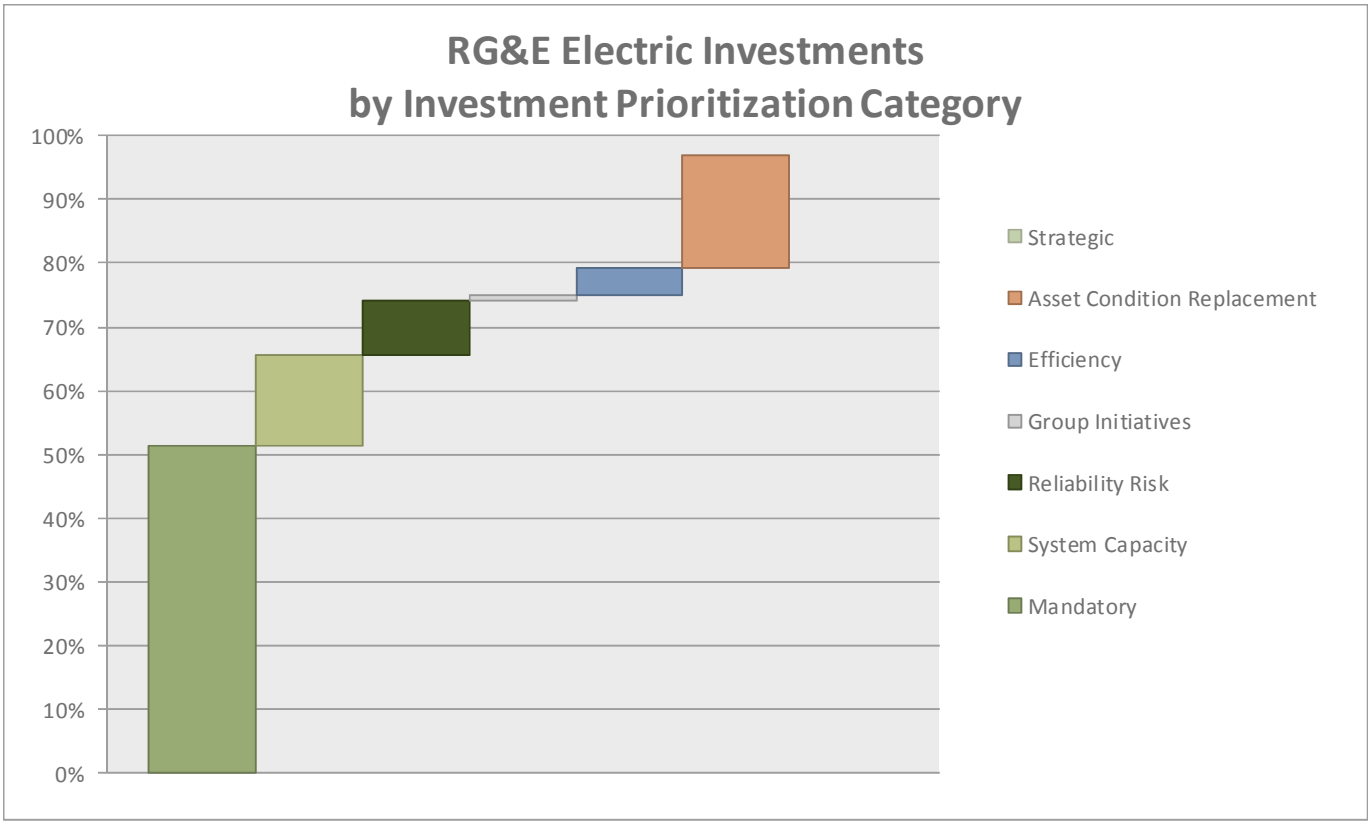


Figure 1.4 RG&E Summary of Electric Capital Investment by Category

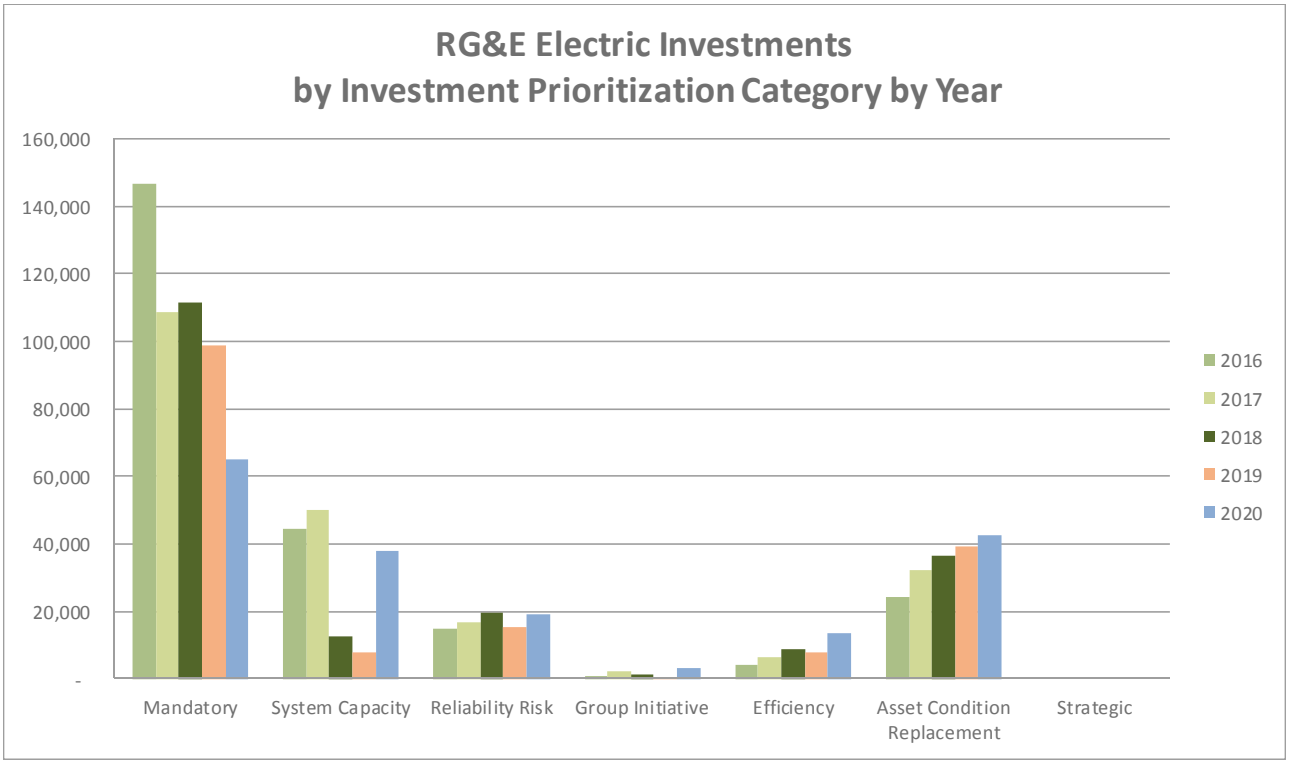


Figure 1.5 RG&E Summary of Electric Capital Investment by Category by Year

1.2.2. Gas Summary

Over the plan term, the Companies plan to invest $595M in the gas systems. This does not include the amount allocated to the gas line of business from Common.

($000)	2016	2017	2018	2019	2020	Total 2016-2020
NYSEG						
Gas	46,513	70,330	79,537	60,568	76,997	333,945
RG&E						
Gas	42,675	71,273	39,890	43,795	62,928	260,561
Total - NY	**89,188**	**141,603**	**119,427**	**104,363**	**139,925**	**594,506**

Table 1.7 Gas Summary by Operating Company

The common allocation to gas is $71M of the plan term; $40M at NYSEG, $31M at RG&E as shown in Table 1.8.

($000)	2016	2017	2018	2019	2020	Total 2016-2020
NYSEG						
Common to Gas	5,326	7,383	6,772	8,049	12,058	39,588
RG&E						
Common to Gas	5,310	5,240	5,705	5,083	9,643	30,981
Total - NY	**10,636**	**12,623**	**12,477**	**13,132**	**21,701**	**70,569**

Table 1.8 Common Allocation to Gas

Tables 1.7 and 1.8, and Figures 1.6, 1.7, 1.8 and 1.9 provide the details of the electric investment by Investment Prioritization Category.

NYSEG and RG&E Capital Investment Plan

($000)		2016	2017	2018	2019	2020
Mandatory	Gas	39,742	48,628	46,378	33,066	53,288
	Common	1,723	3,417	2,235	2,818	1,724
	Total Mandatory - NYSEG Gas	41,464	52,045	48,613	35,884	55,012
System Capacity	Gas	3,175	9,880	4,995	2,238	455
	Total System Capacity - NYSEG Gas	3,175	9,880	4,995	2,238	455
Reliability Risk	Gas	2,685	7,501	26,832	24,121	22,439
	Common	57	73	121	79	128
	Total Reliability Risk - NYSEG Gas	2,742	7,574	26,953	24,200	22,567
Group Initiatives	Common	113	178	217	91	118
	Total Group Initiatives - NYSEG Gas	113	178	217	91	118
Efficiency	Gas	-	600	600	600	-
	Common	1,026	1,002	1,049	1,382	3,958
	Total Efficiency - NYSEG Gas	1,026	1,602	1,649	1,982	3,958
Asset Condition Replacement	Gas	911	3,721	732	543	815
	Common	2,222	2,520	3,098	3,680	6,129
	Total Asset Condition Repl. - NYSEG Gas	3,133	6,241	3,830	4,223	6,944
Strategic	Common	186	192	51	-	-
	Total Strategic - NYSEG Gas	186	192	51	-	-
	Total - NYSEG Gas	**51,839**	**77,713**	**86,309**	**68,617**	**89,055**

Table 1.9 NYSEG Summary of Gas Capital Investment Plan by Category ($000)

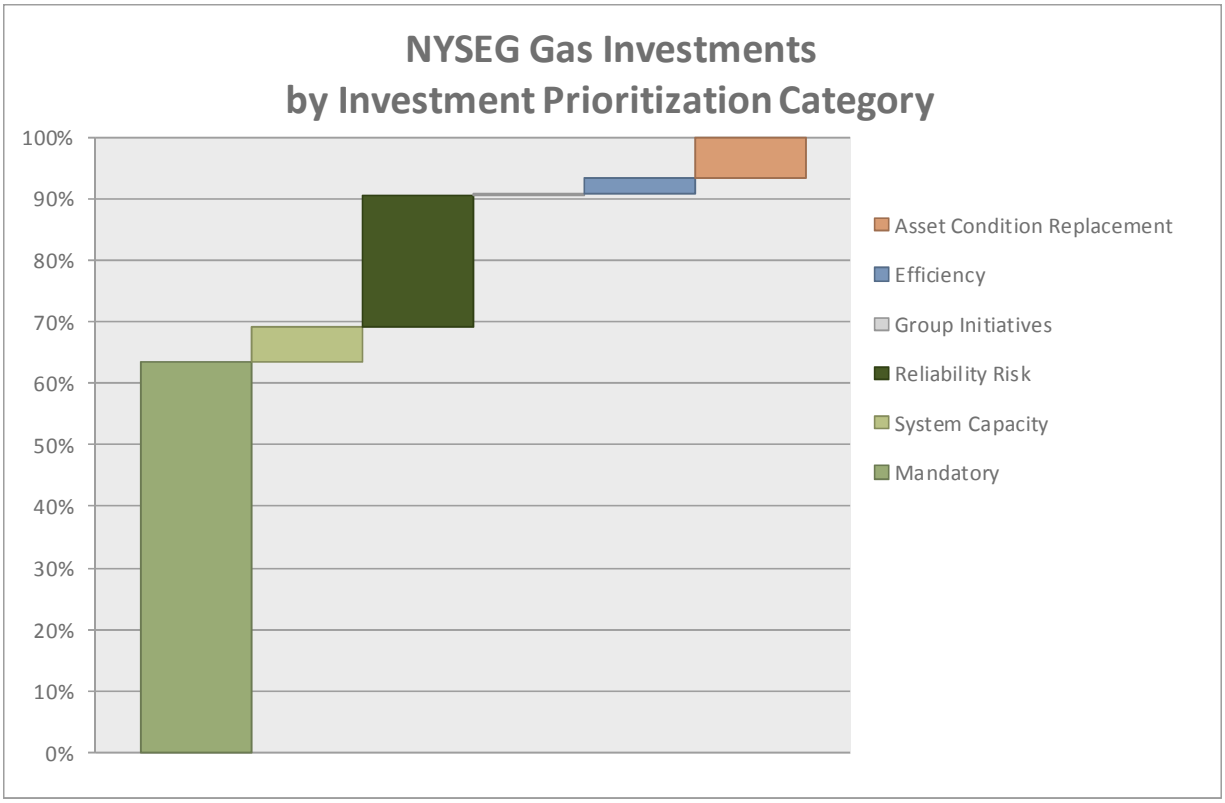


Figure 1.6 NYSEG Summary of Gas Capital Investment by Category

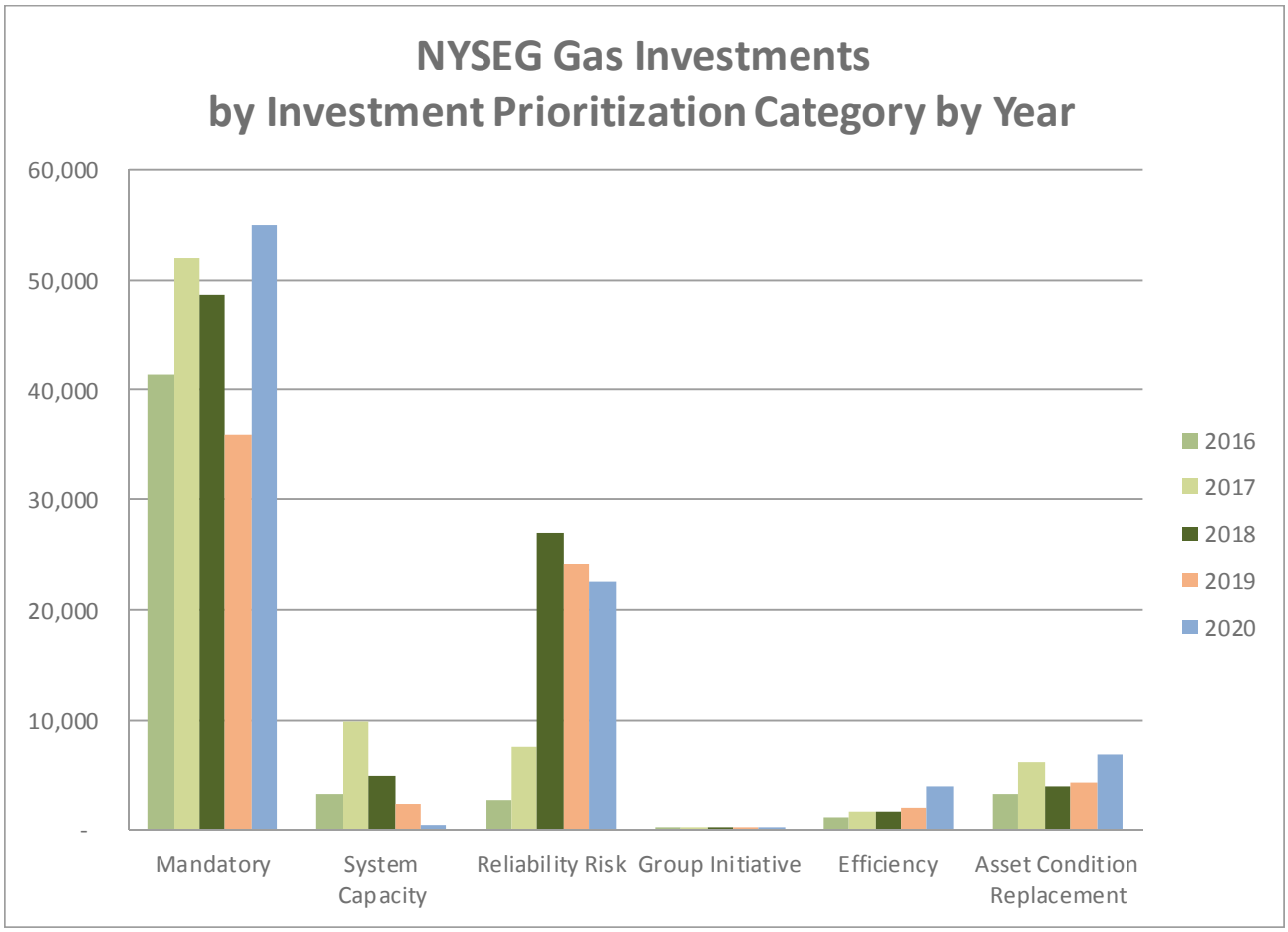


Figure 1.7 NYSEG Summary of Gas Capital Investment by Category by Year

NYSEG and RG&E Capital Investment Plan

($000)		2016	2017	2018	2019	2020
Mandatory	Gas	32,792	40,363	30,244	28,600	47,736
	Common	1,954	1,726	1,918	421	868
	Total Mandatory - RG&E Gas	34,746	42,089	32,162	29,021	48,605
System Capacity	Gas	4,105	16,265	990	239	1,000
	Total System Capacity - RG&E Gas	4,105	16,265	990	239	1,000
Reliability Risk	Gas	5,200	14,139	8,500	14,800	13,920
	Common	157	100	94	72	100
	Total Reliability Risk - RG&E Gas	5,357	14,239	8,594	14,872	14,020
Group Initiatives	Common	75	75	165	70	129
	Total Group Initiatives - RG&E Gas	75	75	165	70	129
Efficiency	Gas	175	-	-	-	-
	Common	560	698	543	1,102	3,872
	Total Efficiency - RG&E Gas	735	698	543	1,102	3,872
Asset Condition Replacement	Gas	403	506	156	156	272
	Common	2,564	2,641	2,986	3,418	4,674
	Total Asset Condition Repl. - RG&E Gas	2,967	3,147	3,142	3,574	4,945
	Total - RG&E Gas	**47,985**	**76,513**	**45,595**	**48,878**	**72,571**

Table 1.10 RG&E Summary of Gas Capital Investment Plan by Category ($000)

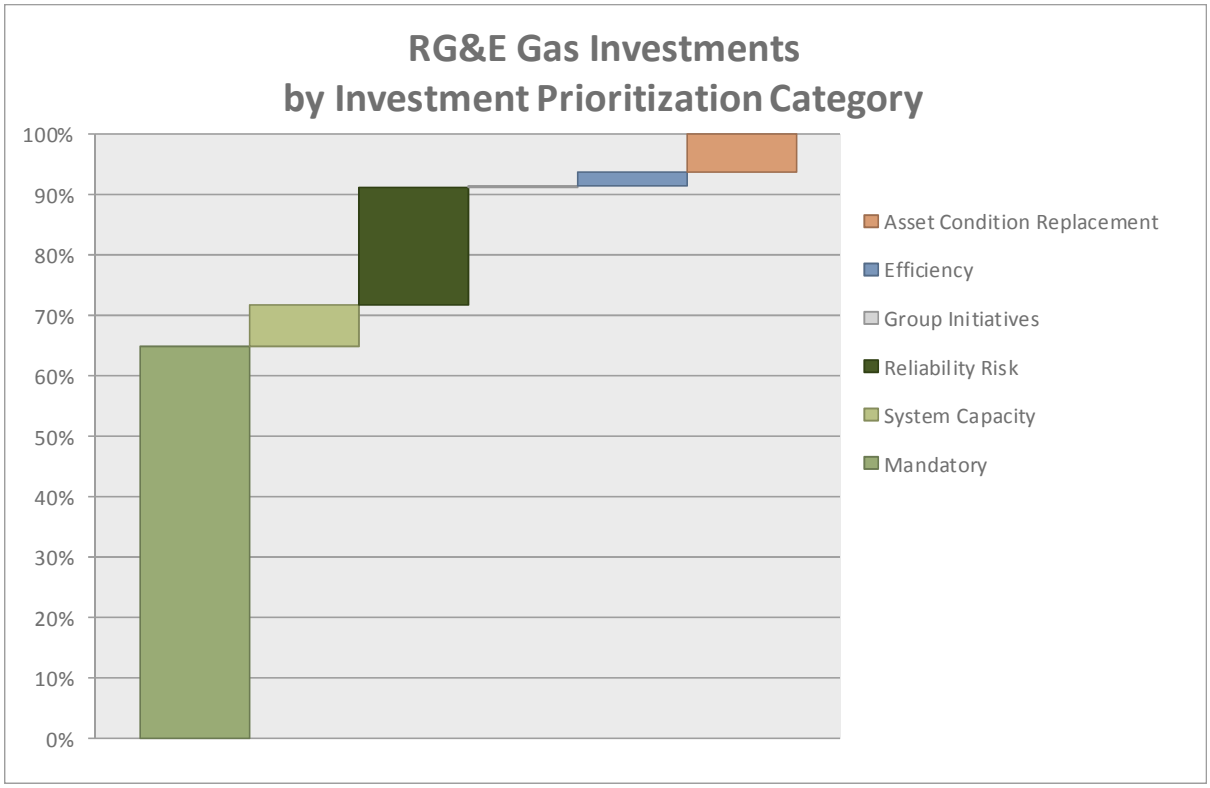


Figure 1.8 RG&E Summary of Gas Capital Investment by Category

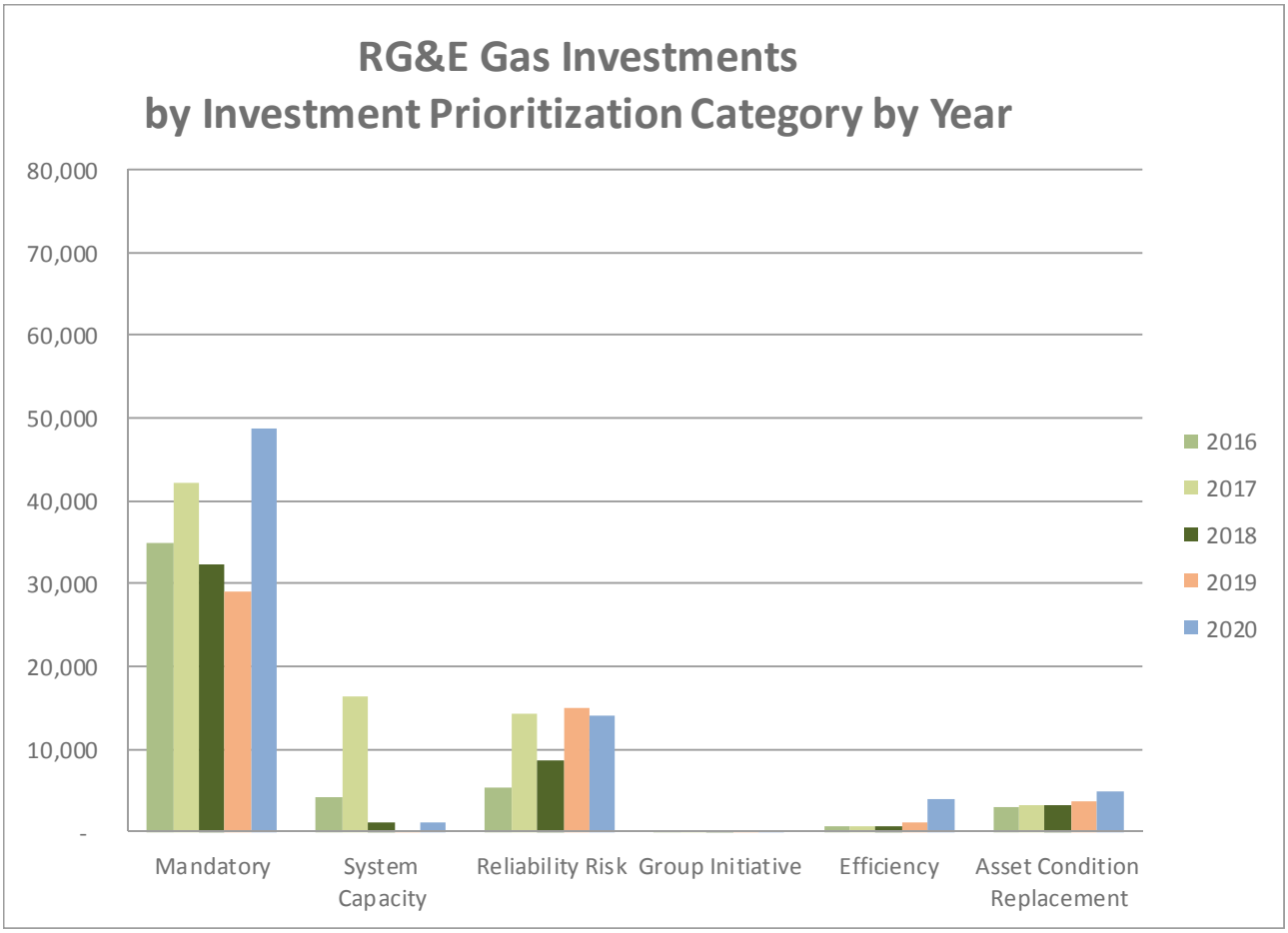


Figure 1.9 RG&E Summary of Gas Capital Investment by Category by Year

2. Strategic Objectives

The projects listed in Attachment 3 and 4 were developed based on one or more of the Objectives explained below.

Objective 1: Safety and Security

Safety is the Companies' number one priority. The Companies place much emphasis on the safety of their employees and the public. The Companies operate a zero accident culture and will continue to make investments in order to assure the safe and reliable operation of the system.

No aspect of the Companies' operations is more important than accident prevention. Safety is a value that does not change. There is no job so important that established safety rules are ever compromised. Management strives to provide a hazard-free work environment, to comply with all applicable health and safety laws and regulations, and to educate employees, customers and the public about health and safety hazards associated with our operations. Further, management is committed to the recognition, assessment, and control of health and safety hazards related to our facilities and operations.

In order to keep our employees safe, ensure the integrity of our systems and provide reliable service to our customers, the Companies continue to upgrade the physical security at and around our facilities as well as the cyber security infrastructure. These upgrades include improved access control, video surveillance and alarming capabilities. More stringent NERC standards require the company to improve and expand their security capabilities to protect critical system infrastructure. Further, the challenges the Companies face to ensure data protection, privacy and ensuring compliance with regulatory and legal mandates continue to grow as threats evolve and grow increasingly more sophisticated.

Objective 2: Meet the electrical and natural gas needs of our customers

The Companies have an obligation to meet the energy needs of customers. The rate of growth in electrical usage and natural gas usage has decreased from that experienced during more robust economic times. The Companies' continue to experience increases in the number of customers, and the Companies expect usage per electric customer to

increase by 0.5% to 1.0% per year and usage per gas customer to remain at current levels.

The Companies typically provide electric service to approximately 4,500 new electric customers and 1,500 new natural gas customers, annually. The Companies also need to provide reliable and dependable service to larger commercial and industrial customers, often requiring the upgrading of facilities, the costs of which in certain cases may be all, or partially, offset by contributions from customers pursuant to the Companies tariffs and NYPSC guidelines. The Companies must interconnect large and small generation projects to its transmission and distribution system. In addition, NYSEG plans to add an additional natural gas pipeline in order to mitigate the volatility of the natural gas commodity costs to customers.

Objective 3: Achieve service reliability and quality targets

The Plan supports this strategic objective by the following actions:

- Reduce problems of overloads in lines and transformers under normal operating conditions at peak demand;
- Reduce problems under contingency situations (N-1) and (N-1-1); and
- Enhance operation and restoration of the system through replacement and modernization of end of life equipment.

Objective 4: Optimize the replacement of obsolete and low scoring health indexed equipment and facilities

During the period 2016-2020, the Companies propose to continue to replace equipment and facilities which are obsolete and/or have a low health index score. The Companies continue to enhance their asset management competencies to allow for a risk adjusted prioritization methodology in conjunction with the following:

- Equipment and facilities with high failure rates,
- Technological obsolescence (inability to obtain spare parts),
- Facilities that are in poor condition, and maintenance of such equipment is no longer cost effective;
- Equipment with high maintenance costs;

- Risk of failure on safety, reliability, and the environment; and
- Other indicators of asset health.

The Companies expect such replacements may well increase as the Companies continue their enhanced distribution inspection program whereby 20% of all distribution line facilities will be inspected annually and equipment prioritized for replacement. Further the Companies have in place a transmission line wood pole inspection and treatment program that extends the life of wooden poles. The Companies also inspect their transmission circuits by helicopter. Such inspection methods can show cross arm, insulator and other wear that is not visible from the ground. Inspections utilizing drones were successfully utilized during 2015. This method of inspection in planned to be expanded during the Plan term, enabling more detailed, efficient, and safer equipment inspection. The Companies continue rigorous analyses of failed equipment to aid improving maintenance practices and asset replacement practices.

Objective 5: Improve effectiveness and efficiency of the network

The Companies continually look for ways to make operations more effective and efficient. One of those ways is through network automation. The Companies continue to modernize the operations of their systems, enhancing the effectiveness with which we serve customers, enhance reliability and help the Companies become more efficient.

Automation is used to control the substation switches, breakers, transformers, and other equipment of the electric system. An additional benefit of automation is that it can provide real time information to the Energy Control System regarding voltages, loads, oil temperature in transformers, on or off positions of breakers and sectionalizers, as well as alarms to indicate malfunctions and faults in the system.

The primary customer benefit resulting from automation is that the Companies will be able to respond more quickly and effectively to outages resulting from problems in distribution circuits. The crews restoring service can receive notification of an outage sooner than with the current system of notification (typically a call from one or more customers notifying us of the outage). Adding reclosers on distribution lines is intended to reduce the number of customers whose service is impacted during an outage and will facilitate information about the location of the outage causing issue. The remote control of breakers will also increase the efficiency of the crews by reducing their travel time. These automation efforts will improve storm recovery time for many customers who are able to be appropriately sectionalized and/or restored remotely.

Investments in automation will be compatible with technologies required for the future development of a smart grid.

Investments in automation in the Plan include:

1. Modernization and automation of substations: The substation modernization program will prepare substations for automation through new standards of design and equipment. New controls with microprocessor based relays and high speed connections to the Energy Control System will allow for immediate indication of system disturbances and outages, reducing outage detection time by up to 30 minutes. In addition, maintenance cycles for some equipment may be extended. An added benefit of microprocessor based relaying is that there will be remote connections so that employees will have access to event reports and system data in a few minutes rather than traveling to the station to investigate events. This added benefit may further reduce overall restoration time depending on the event that occurred. Microprocessor relays and new breakers will have faster fault clearing times, as compared to the existing equipment, which enhances the safety of the crews and public. The Companies are standardizing the design and equipment in substations that will ultimately result in reduced construction costs. The Companies are implementing the IEC 61850 protocol in new substations and substation renovations which will reduce the time needed for wiring the protection systems of the equipment. The Companies are using advanced technology, quality and standardized equipment which will improve service quality and reduce the need for spares. For example, new breakers, with SF6 insulating medium, will require less maintenance than those utilizing conventional oil-filled breakers. As a result, the number of hours to design and construct brownfield substations could be reduced by more than 5%.
2. Remote Terminal Unit (RTU). Additional and upgraded RTU communication connectivity with substations and switching devices to resolve the following issues:

   Provides the ability to remotely monitor and control substation devices.

   Reduces outages and improves response time through increased real time situational awareness.

   Current radio RTUs have no additional capacity, are outdated and must be replaced to accommodate automation projects.

   This project, together with the telecommunications infrastructure below, will provide the backbone to remotely operate sectional devices and reduce outage times. At

RG&E additional radio RTUs will be installed on switching equipment at customer substation locations so there will be better visibility of the stations' operations.

3. Telecommunications for remote control: The Companies plan to build and lease the telecommunications infrastructure necessary for the projects described in this section. This involves the strategic addition of fiber optic, microwave links and digital radio capability, depending on security and cost effectiveness. This will include erection of towers needed to communicate from remote locations to the Energy Control System. The Companies will work with telecommunication providers to determine the least cost approaches to achieving the objectives. These communication links are vital to realize the benefits from automating the substations and distribution system as described in this section.

4. Reclosers: The Companies plan to continue to add electronic reclosers to increase the ability to sectionalize more of the distribution system. These reclosers will reduce the number of customers out of service and facilitate the location of faults in the lines.

5. Gas SCADA System: NYSEG's Gas SCADA System (GSS) monitors and controls the primary gate stations for the gas distribution systems for NYSEG and RG&E. The system is critical to safe and reliable gas operations. Periodic replacement is required to keep the GSS current and reliable. The current GSS was placed into service in 2011. The industry standard life expectancy for this type of information technology system is five to eight years, therefore a replacement project is planned in 2019.

   The GSS is a computer system to operate the Companies' gas transmission and distribution system. Due to technology advancements, changes and system support, the systems need to be replaced every seven years. Without replacement the software becomes unsupported by the vendor.

6. SCADA Mate Switches: The Companies plan to improve system reliability by adding remote control switches that will allow for earlier isolation of outages and restoration of service.

Objective 6: Sustain the environment

The Companies comply with all environmental laws and regulations in carrying out its electric and gas delivery services.

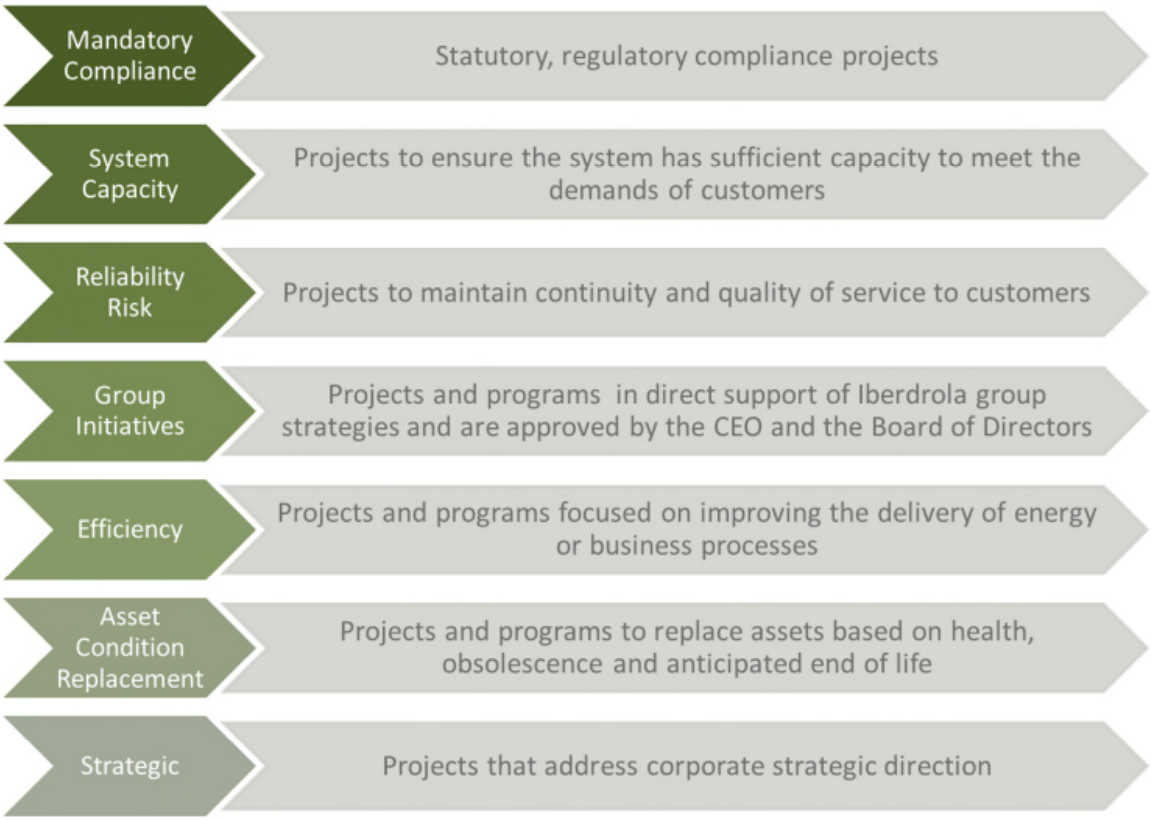
NYSEG and RG&E will make decisions today to deliver positive long term results. Operating in an ethical manner and demonstrating a respect for the environment are pillars of the business.

The details described in the Plan support this statement. Reducing the amount of leak prone natural gas mains and services will reduce emissions of methane, a known greenhouse gas. Replacing outdated and aged electrical equipment presents opportunities to recycle both the metal and oil while minimizing the use of landfills. New electrical equipment purchased will be more energy efficient than present equipment and will also reduce the risk of an oil spill caused by equipment failure. The tasks in this Plan will take into account environmentally sensitive areas, from the selection of new right-of-ways to the restoration of disturbed areas.

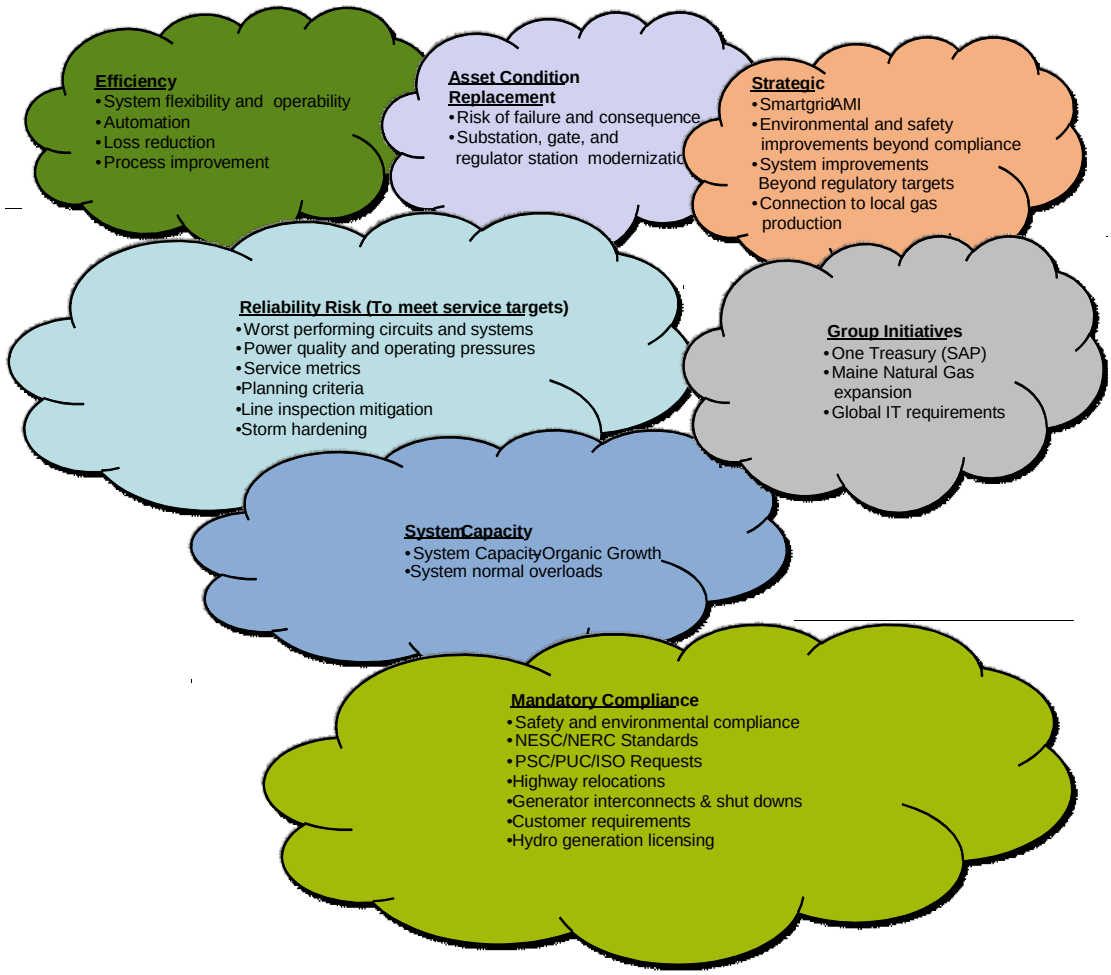
Finally, improvements to the hydro generation facilities will allow the Companies to continue to provide a source of clean, renewable, green electric energy to our customers.

3. AVANGRID Networks Capital Investment Prioritization Strategy

The companies have developed a prioritization strategy that is utilized in determining the "next dollar invested". The following categories are utilized in the strategy and are listed in order of priority. This strategy has been utilized to develop the plan:



NYSEG and RG&E Capital Investment Plan



In addition, the Companies continue to explore other methodologies to use in prioritizing projects. Methods being explored include measures such as the probability of failure, (measured on such bases as asset health, history of similar equipment across the utility industry) and a criticality measure, the impacts that would likely be experienced if the asset were to fail. The combination of these two measures would provide the quantifiable degree of risk measure. This risk measure would then be compared to all other risk measures in the project portfolio. Those projects with highest risk measure would receive priority for the "next dollar invested".

4. Transmission And Distribution System And Generation Facilities

NYSEG is a combination electric and gas utility serving approximately 862,000 electric customers and 264,000 gas customers in an area of approximately 18,400 square-miles and a population of approximately 2.5 million people in New York State.

RG&E is a combination electric and gas utility serving approximately 370,000 electric customers and 308,000 gas customers within a 2,700 square-mile service territory with a population of approximately 1.0 million people in upstate New York.

4.1. Electric System

NYSEG and RG&E provide electric delivery services to over 1.2 million customers in New York State. In 2014, the Companies delivered over 25.4 billion kWh of electricity to these customers.

The highest combined peak demand experienced by the Companies was 5,117 MW which occurred in the summer of 2011. The 2015 seasonal peaks was 2,152 MW for NYSEG, and 1,521 MW for RG&E. The growth in customer demand over the next five years is estimated to be slightly above 1% per year. The growth in customer demand may be dampened as REV evolves and increased customer utilization of Distributed Energy Resources may offset some of the demands on the electric system.

Figure 4.4 on page 39 is a map of the areas in which the Companies provide electric service in New York State.

Table 4.1 provides information on the Electric Service Areas, Customers and load:

	Area (sq mi)	Cities*	Customers (000)	MWh 2015	Peak Load (MW)	Historic Peak Load (MW) / Year
NYSEG	18,359	6	862	17,733,963	2,152	3,352 / 2011
RG&E	2,700	3	370	7,692,298	1,521	1,765 / 2011
TOTAL	21,059	9	1,232	25,426,261	3,673	5,117 / 2011
*population over 20,000 is considered a city						

Table 4.1 Electric Service Areas and Customers

4.1.1. Electric System Infrastructure

The Companies electric system infrastructure is summarized below by system - transmission and distribution.

	NYSEG	RG&E	Total
Lines (Circuit Miles	4,513	1,083	5,596
Substations	88	20	108
Transformers	255	80	335
MVA	13,934	5,590	19,524
Switching Stations	96	66	162
Breakers (T/D)	2,155	1,603	3,758
Circuits	431	220	651
RTUs	102	64	166
Poles (000)	84	20	104

Table 4.2 Transmission Infrastructure

	NYSEG	RG&E	Total
Lines (Circuit Miles	34,959	8,952	43,911
Substations	348	133	481
Transformers	1,016	271	1,287
MVA	4,434	2,306	6,740
Reclosers	101	16	117
RTUs	288	321	609
Circuits	1,597	798	2,395
Reclosers	735	254	989
Line Transformers (000)	320	81	401
Poles (000)	810	227	1,037

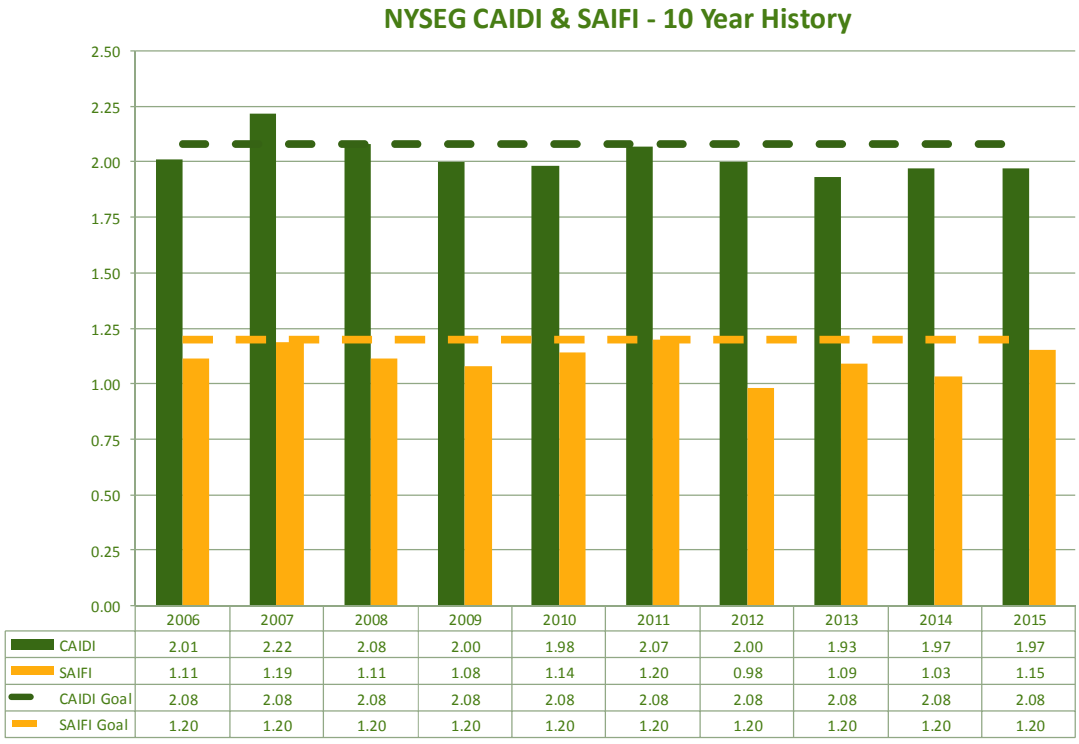
Tale 4.3 Distribution Infrastructure

NYSEG

The NYSEG electric system consists of 13 divisions that are supplied from 345 kV, 230 kV, and 115 kV transmission facilities with a total capability of approximately 11,000 MW, including approximately 71 MW of NYSEG operated generation (61.4 MW of hydroelectric, 7.3 MW natural gas unit; 1.8 MW diesel unit). The historical all-time peak load for NYSEG is 3,352 MW reached in the summer of 2011.

NYSEG is a member of the New York Independent System Operator (NYISO). Facilities designated in the NYISO-Transmission Owners Agreement filed and approved in FERC Docket No. ER97-1523-000 are under the operational control of the NYISO, and NYISO provides transmission services on all NYSEG transmission facilities pursuant to the NYISO Open Access Transmission Tariff.

The reliability results for NYSEG since 2006 are included in Figure 4.2 below, as measured by the System Average Interruption Frequency Index ("SAIFI") and Customer Average Interruption Duration Index ("CAIDI"). The goals noted on the graphs represent the service levels that the Company must achieve without being impacted by revenue adjustments. The historic levels shown on the figure below are the levels that are expected to continue to be in effect during the term of this plan as part of the 2016-2019 rate case settlement.



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
CAIDI	2.01	2.22	2.08	2.00	1.98	2.07	2.00	1.93	1.97	1.97
SAIFI	1.11	1.19	1.11	1.08	1.14	1.20	0.98	1.09	1.03	1.15
CAIDI Goal	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08
SAIFI Goal	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20

Figure 4.2 NYSEG Service Quality

RG&E

The RG&E electric system is supplied by three sources that provide a total transmission system capability of approximately 2,507 MW and by RG&E's hydroelectric plants having a rating of approximately 58MW. The transmission sources are:

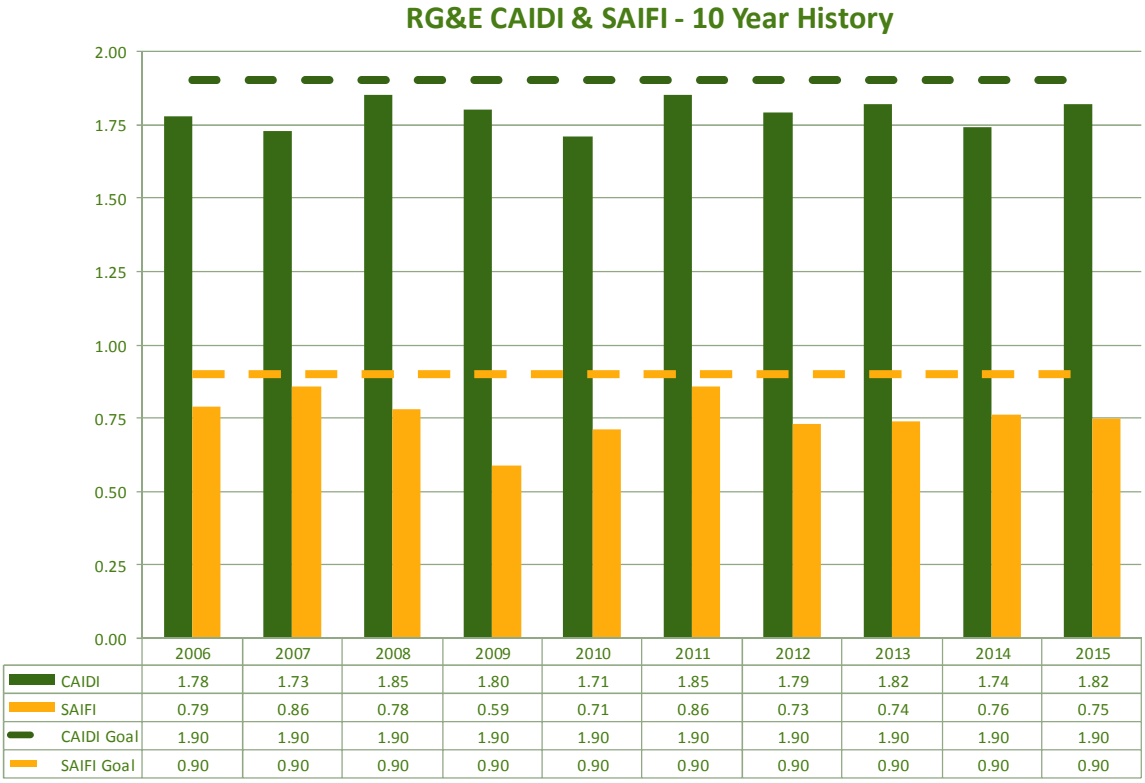
- Four bulk power transformers at Station 80, which connect to the NYPA-owned 345 kV bulk transmission system, providing approximately 1,221 MW.
- Three bulk power transformers at Station 122, which connect to the NYPA-owned 345 kV bulk transmission system, providing approximately 670 MW.
- Ginna Station, owned by Constellation Energy Nuclear Group, which can supply up to 610 MW, connects into several local RG&E 115 kV substations and directly into the 345 kV bulk transmission system at Station 122.

The historical all-time peak load for RG&E is 1,765 MW reached in the summer of 2011.

The above bulk transmission sources supply the 115 kV and 34.5kV sub-transmission system that, in turn, feed vast local distribution systems and the 11 kV network transmission system within the City of Rochester.

RG&E is a member of the NYISO. Facilities designated in the NYISO- Transmission Owners Agreement filed and approved in FERC Docket No. ER97-1523-000 are under the operational control of the NYISO, and the NYISO provides transmission services on all RG&E transmission facilities pursuant to the NYISO Open Access Transmission Tariff.

The reliability results for RG&E since 2006 are included in Figure 4.3 below, as measured by SAIFI and CAIDI. The goals noted on the graphs represent the service levels that the Company must achieve without being impacted by revenue adjustments. The historic levels shown on the figure below are the levels that are expected to continue to be in effect during the term of this plan as part of the 2016-2019 rate case settlement.



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
CAIDI	1.78	1.73	1.85	1.80	1.71	1.85	1.79	1.82	1.74	1.82
SAIFI	0.79	0.86	0.78	0.59	0.71	0.86	0.73	0.74	0.76	0.75
CAIDI Goal	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90
SAIFI Goal	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90

Figure 4.3 RG&E Service Quality

Maps of the Companies' transmission electric systems, showing lines and substations, are provided below in Figure 4.4, Figure 4.5 and Figure 4.6, with the Rochester City Area provided in Figure 4.7.

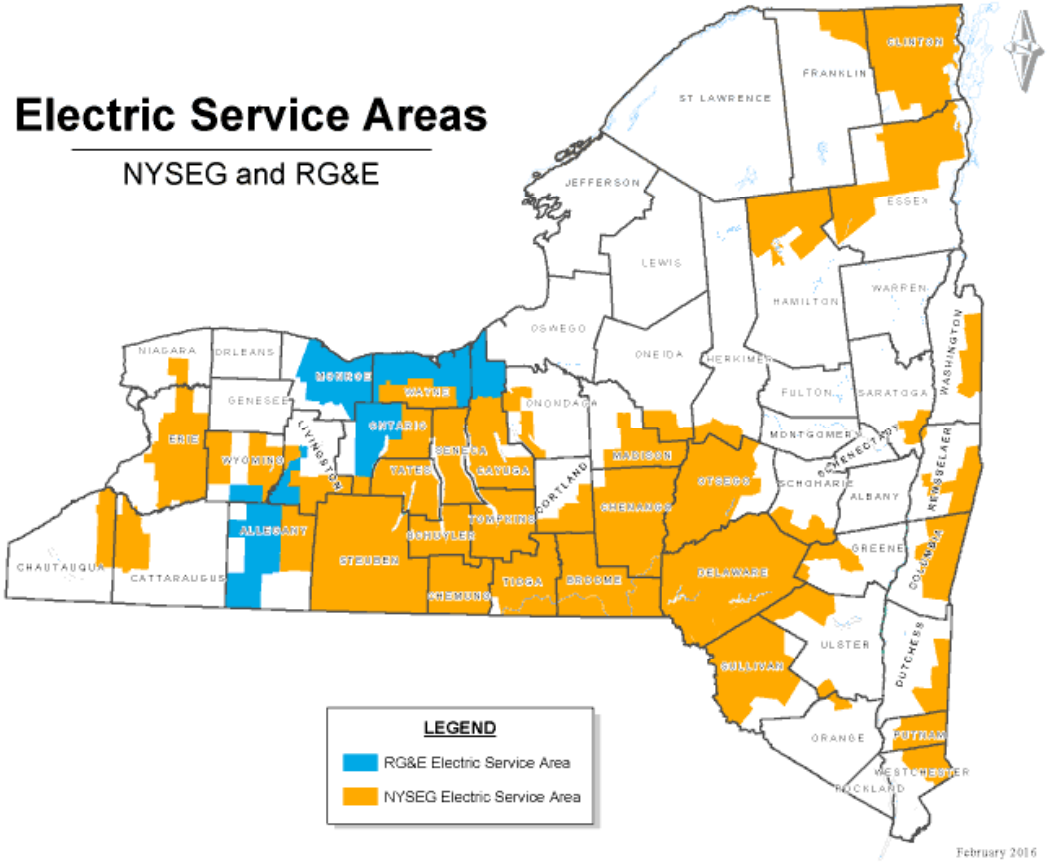


Figure 4.4 Electric Service Areas

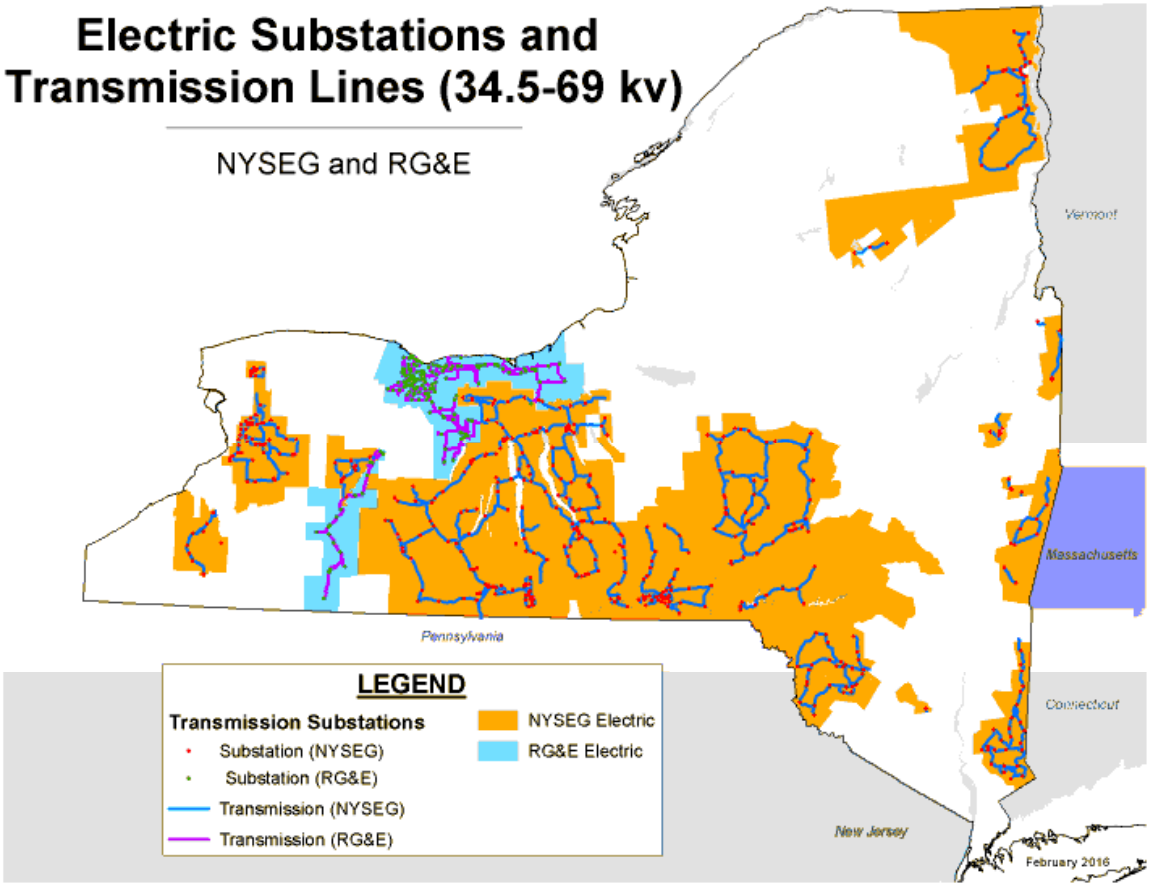


Figure 4.5 Electric Substations and Transmission Lines (34.5kV-69 kV)

NYSEG and RG&E Capital Investment Plan

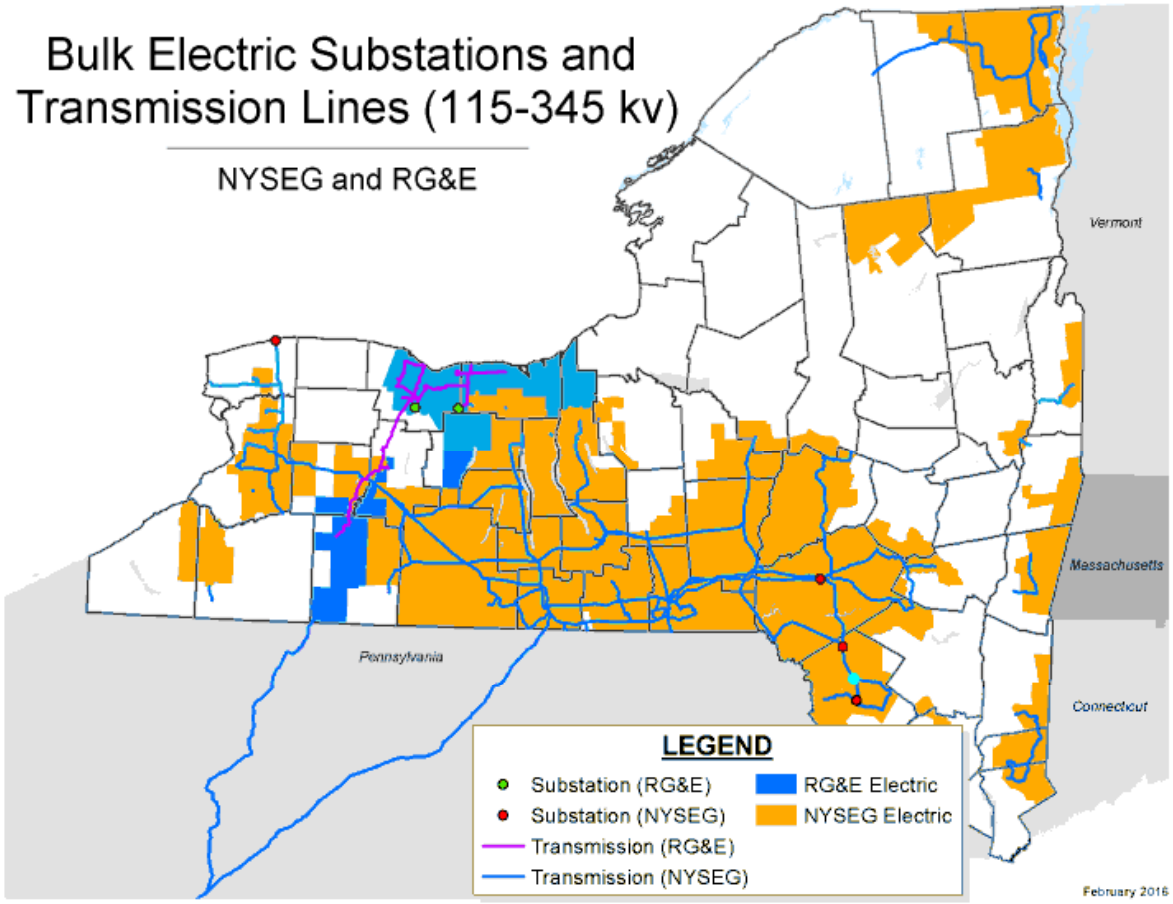


Figure 4.6 Electric Substation and Transmission Lines (115-345 kV)

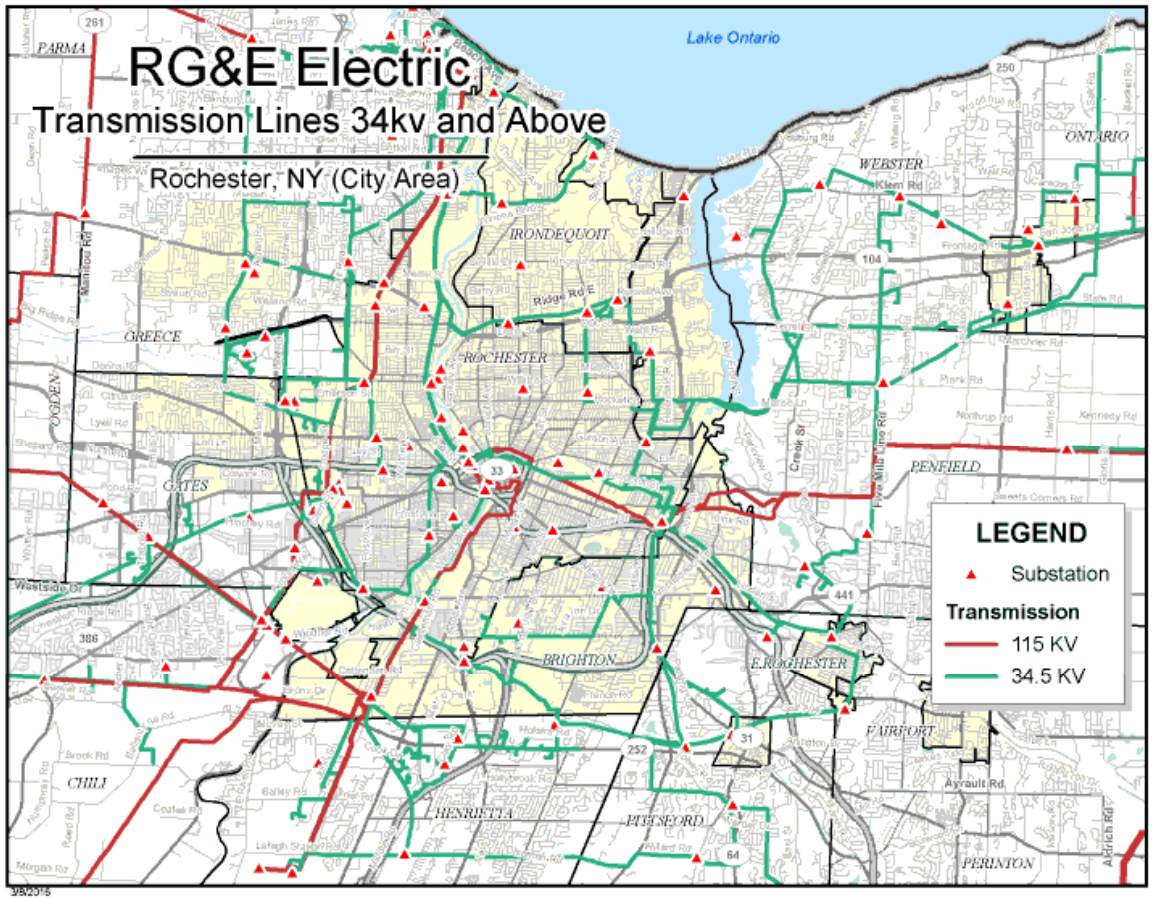


Figure 4.7 Electric Substations and Transmission Lines in Rochester City Area

4.2. Generation Facilities

The NYSEG and RG&E generating plants located throughout New York State are shown in Figure 4.8. These facilities include twelve (12) hydroelectric and two (2) small fossil-fueled facilities. The hydroelectric plants are located from Plattsburgh in the northeast through the southern tier and in the City of Rochester, and include a total of 24 generating units with individual unit ratings ranging from 0.4 MW to 18.0 MW. They all are run-of-the-river hydroelectric facilities. These facilities have the capacity to produce approximately 600,000 MWh of renewable energy annually.

NYSEG's two fossil fueled generating plants are a 7.2 MW natural gas-fired simple cycle (leased) unit in Auburn and a standby diesel generator located at the Harris Lake Substation in the Adirondack State Park having a nameplate capacity of 1.8 MW. This latter unit produces electric energy to serve local customers only in the event of a 46 kV transmission line outage. This current plan reflects the addition of a second unit at this site.

The Companies strive to maximize the hydroelectric energy produced for our customers from the water that is available in the respective watershed as well as to maintain the fossil units so they are available when required to support local load centers and networks as dispatched by the NYISO according to the State's electric system load requirements and/or to provide energy needs during certain T&D network outages.

The Companies' investment strategy is to implement betterment projects that cost-effectively improve unit/station reliability and efficiency, increase capacity, replace aging or obsolete infrastructure/assets, protect the environment and safeguarding of employees and the public. Moreover, all of the hydroelectric facilities are under the jurisdiction of the Federal Energy Regulatory Commission (FERC) or the New York Department of Dam Safety. As a result, the Companies also make investments in order to fulfill regulatory obligations.

NYSEG and RG&E Capital Investment Plan

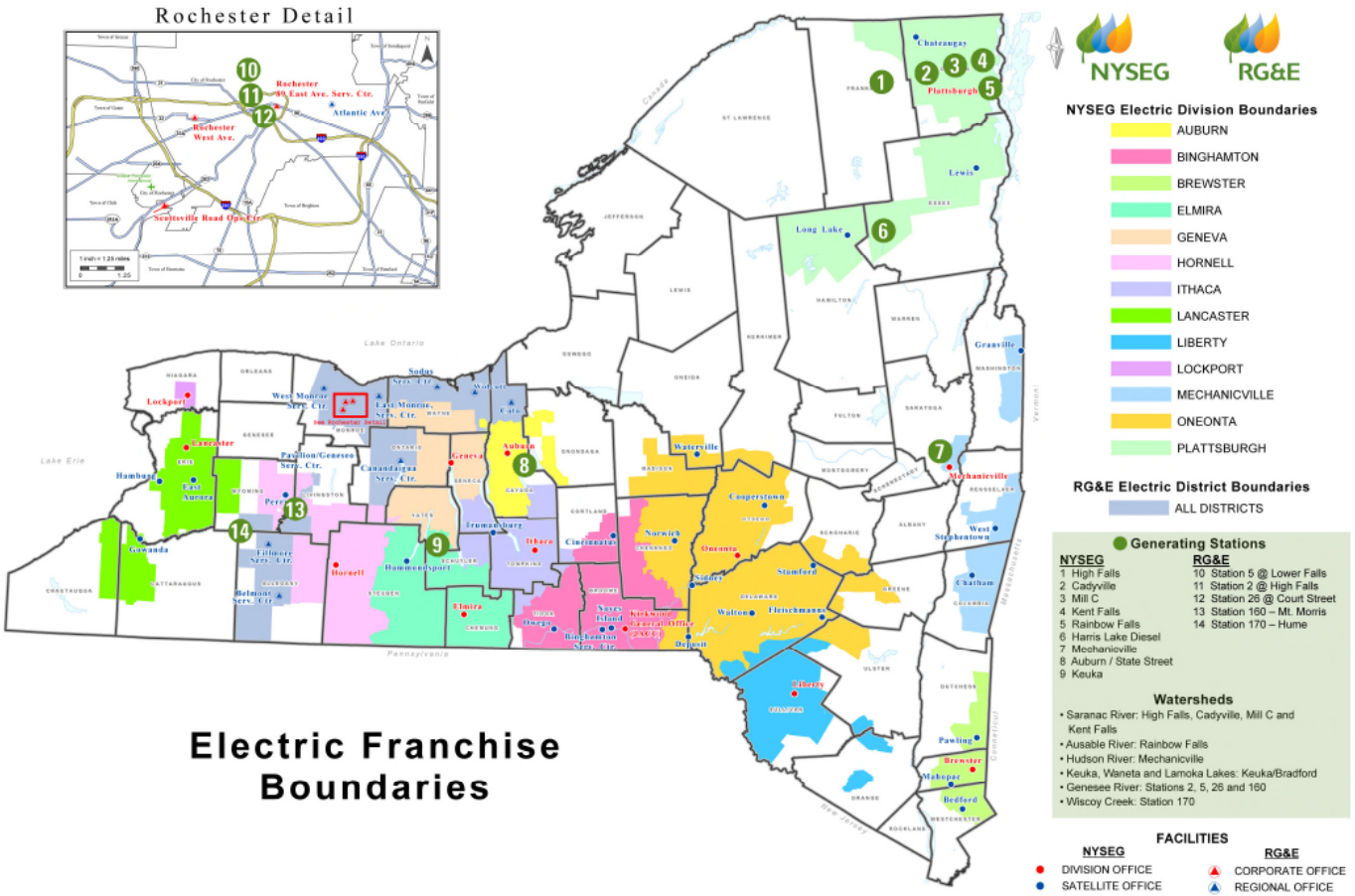


Figure 4.8 Generation Facilities

4.3. Natural Gas System

Figure 4.9 is a map of the areas in which the Companies provide natural gas service in New York State. NYSEG and RG&E provide gas delivery service to over 572,000 customers in New York State. In 2013, the Companies delivered over 108 million dth of natural gas to these customers, 56 million dth in NYSEG and 52 million dth in RG&E. The growth in overall customer demand over the next several years is estimated to be approximately 1% per year.

The majority of gas is purchased from interstate gas transmission pipelines and received at system gate stations, where gas flow is metered and regulated and the ownership or custody of the gas transfers from the delivering pipeline to the Companies. Gas is odorized at these facilities. The gate stations reduce the incoming interstate transmission pressure to company system pressures. The Companies also receive gas from local well producers at several locations. The Companies' systems transport gas from the gate stations to the district regulator stations and field regulators where the pressure is further reduced, controlled, and monitored to meet customer needs. Service laterals connect the local distribution system to customers' meters.

4.3.1. Gas System Infrastructure

Table 4.4 contains information about the Companies' gas transmission and distribution system as of the end of 2015.

	NYSEG	RG&E	Total
Pipeline Type/Materials (miles)			
Transmission Pipeline	20	105	125
Distribution Pipeline	4,772	4,919	9,691
Regular Stations	534	301	835
Steel - Protected	2,228	2,450	4,678
Steel - Unprotected	171	291	462
Cast Iron/Wrought Iron	17	66	83
Plastic	2,355	2,111	4,466
Number of Services by Material			
Steel - Protected	31,304	64,926	96,230
Steel - Unprotected	18,300	8,382	26,682
Plastic	183,449	194,700	378,149
Other	5,414	6,815	12,229
Total Services	238,467	274,823	513,290

Table 4.4 Gas System Infrastructure

A map of the Companies' gas service areas is included as Figure 4.9. A map of transmission mains and purchase points is included in Figure 4.10.

NYSEG and RG&E Capital Investment Plan

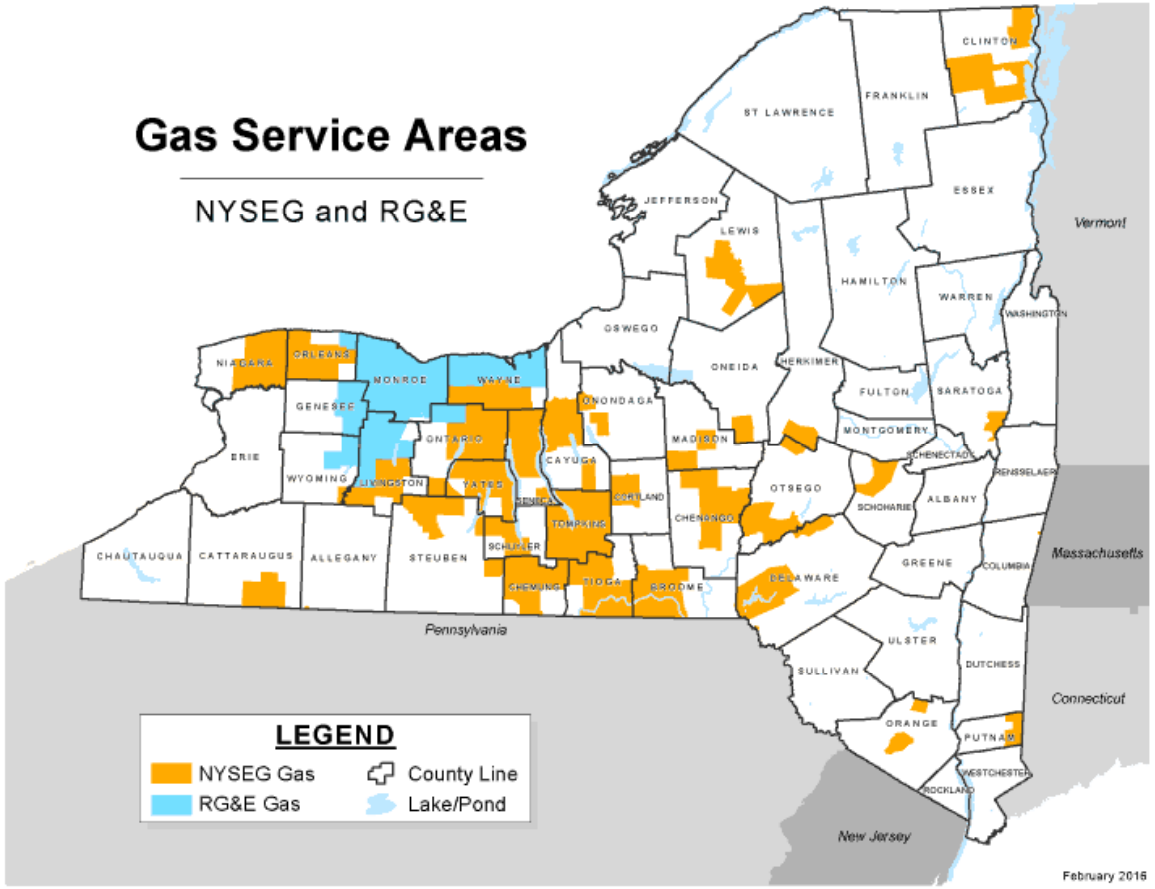


Figure 4.9 Gas Service Areas

NYSEG and RG&E Capital Investment Plan

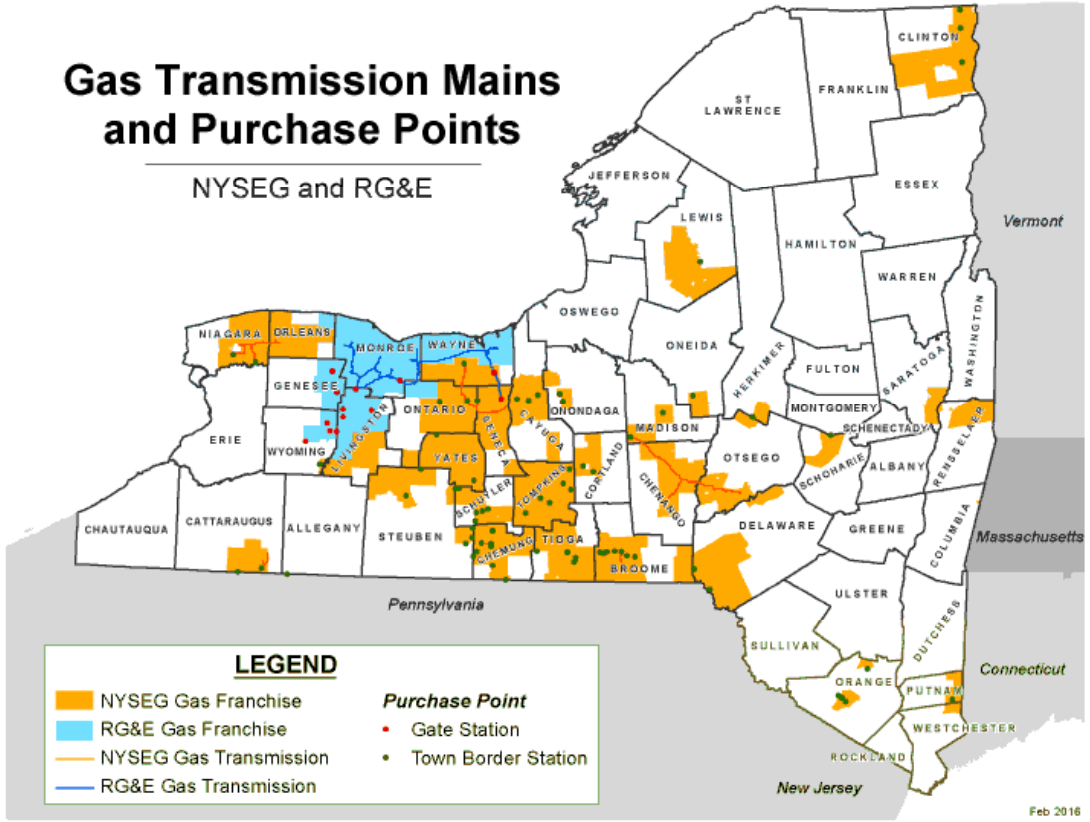


Figure 4.10 Natural Gas System

Table 4.5 contains safety and reliability metrics for NYSEG and RG&E for 2015.

		NYSEG	RG&E
Emergency Response			
Natural Gas Leak Response =< 30 min	Actual	80.61	81.44
	Target	75.00	75.00
Natural Gas Leak Response =< 45 min	Actual	93.82	95.41
	Target	90.00	90.00
Natural Gas Leak Response =< 60 min	Actual	97.87	98.86
	Target	95.00	95.00
Leak Management			
Total Number of all Pending Leaks (1,2,2A and 3)	Actual	39	60
	Target	100	200
Damage Prevention			
Overall Damages per 1000 Tickets	Actual	1.97	1.87
	Target	2.00	2.00
Mismarks per 1000 Tickets	Actual	0.38	0.38
	Target	0.50	0.50
Co Damages per 1000 Tickets	Actual	0.02	0.03
	Target	0.20	0.20
Achieve Gas Regulatory Safety and Reliability Targets			
Bare Steel and Leak Prone Main - miles	Actual	26.00	25.10
	Target	24.00	24.00
Bare Steel and Leak Prone Services - #	Actual	2,051	1,427
	Target	1,200	1,000

Table 4.5 2015 Gas Safety and Reliability Metrics

5. Electric Capital Investment Plan

This section contains descriptions of the capital projects and programs necessary to support the strategic objectives for the electric line of business. The hydro generation projects and common projects are included in Sections 7 and 9, respectively. The following table summarizes the electric projects and programs capital investment plan for the Companies.

($000)	2016	2017	2018	2019	2020
NYSEG - Transmission	59,534	57,379	39,403	57,932	85,714
NYSEG - Distribution	95,963	116,340	110,289	118,931	128,154
Total NYSEG	155,497	173,719	149,692	176,863	213,868
RG&E - Transmission	171,807	140,834	111,457	92,395	83,930
RG&E- Distribution	49,219	58,677	60,839	60,125	66,889
Total RGE	221,027	199,511	172,296	152,520	150,820
Total NY Electric	**376,524**	**373,230**	**321,988**	**329,383**	**364,687**

Table 5.1 Electric Projects and Programs Capital Investment Plan by year
(Generation and Common not included)

The objective of the Plan is to improve system reliability by reducing risks in the system by increasing system capacity, redundancy, and power quality.

5.1. Mandatory Compliance

This category is related to meeting the electrical requirements of new customers or load additions for specific customer and for projects required by municipalities or other statutory reasons. Also, it is related to Objectives 1 and 6: Improve safety and security and sustain the environment.

The following categories are used to define projects that are to be included in Mandatory:

- Safety and Environmental
- PSC/NERC/FERC
- Contractual
- Customer Driven

The Companies propose to invest in this category during the 2016 through 2020 as is shown in Table 5.2, which divides the investment into Transmission (T) and Distribution (D):

($000)	2016	2017	2018	2019	2020
NYSEG - Transmission	47,692	46,481	28,249	32,956	54,237
NYSEG - Distribution	28,276	29,105	30,467	31,906	32,789
Total NYSEG	75,968	75,586	58,716	64,862	87,026
RG&E - Transmission	122,591	82,886	85,429	76,632	41,348
RG&E- Distribution	19,031	19,407	19,791	20,247	20,673
Total RGE	141,622	102,293	105,220	96,879	62,021
Total NY Electric	**217,590**	**177,879**	**163,936**	**161,741**	**149,047**

Table 5.2 Electric – Mandatory ($000)

A list of electric projects and programs included in Mandatory is provided in Attachment 4.

Division projects are also included in this category. These projects are portfolios of projects costing less than $200K with projects in the electric distribution, transmission and substations areas of the companies. Projects that are included in this category are: streetlight replacements and installations, establishing services for individual customers, underground distribution installations for residential developments, installation of commercial services, relocation of electric facilities as requested by municipalities and storm restoration. Also included in this category are meters, capacitors, and voltage regulators.

5.2. System Capacity

This category is related to Objective 2: Meet the electrical and natural gas needs of our customers.

The Companies propose to invest in this category during the 2016 through 2020 as shown in Table 5.3, which divides the investment into Transmission (T) and Distribution (D):

($000)	2016	2017	2018	2019	2020
NYSEG - Transmission	4,079	4,660	3,642	4,105	848
NYSEG - Distribution	9,237	11,007	13,692	20,479	18,489
Total NYSEG	13,316	15,667	17,334	24,584	19,337
RG&E - Transmission	37,070	40,859	7,313	-	25,000
RG&E- Distribution	7,178	9,050	5,316	8,020	12,984
Total RGE	44,248	49,909	12,629	8,020	37,984
Total NY Electric	**57,564**	**65,576**	**29,963**	**32,604**	**57,322**

Table 5.3 Electric - System Capacity ($000)

A detailed list of projects included in Transmission Projects and Distribution Projects is included in Attachment 3. A description of the most significant projects in this category is included in Attachment 1.

5.3. Reliability Risk

This category is related to Objective 3: Achieve service reliability and quality targets.

The Companies propose to invest the amounts shown in Table 5.4 in this category during the 2016 through 2020:

($000)	2016	2017	2018	2019	2020
NYSEG - Transmission	1,900	280	1,457	9,302	23,373
NYSEG - Distribution	13,000	14,130	11,670	12,020	12,381
Total NYSEG	14,900	14,410	13,127	21,322	35,753
RG&E - Transmission	9,601	11,843	14,591	9,949	13,456
RG&E- Distribution	4,800	4,914	5,031	5,151	5,273
Total RGE	14,401	16,757	19,621	15,100	18,729
Total NY Electric	**29,301**	**31,167**	**32,748**	**36,422**	**54,483**

Table 5.4 Electric - Reliability Risk ($000)

Other projects in the category include:

Distributed Outage Management and Reporting System: These implementations have been determined to be of critical importance to Operations as it pertains to outage management and reporting. They, along with the Spectrum REPOS system (part of Energy Control System project) comprise the complete integrated Outage Management system solution providing: regulatory reliability and outage summary reporting; more efficient management of crew assignments through a common user interface; and planned outage scheduling and tracking all of which are vital to our core business operations.

Mobile Substations and Switchgear: To facilitate major substation rebuilds on the same site. It allows flexibility in construction and will help reduce outages that will be required for substation modifications.

Betterments projects: Minor projects in transmission, substation and distribution equipment to maintain system reliability for customers.

Red Circuits/WPC: Projects in distribution circuits with high impact in SAIFI and CAIDI to maintain system reliability for customers.

A detailed list of projects included in Transmission Projects is provided in Attachments 3 and 4. A description of the most significant projects in this category is included in Attachment 1.

5.4. Efficiency

This category is related to Objective 5: Improve the effectiveness and efficiency of the electric and gas systems through modernization.

Included in this category are projects and programs to control and monitor substations, transformers, status of breakers and major elements of the electric system.

Currently there are many RTUs whose capacity has been exceeded and much of the distribution delivery system does not have RTUs. The majority of the existing RTUs are also difficult to maintain or to obtain spares, as they are obsolete.

Reclosers or SCADAmate switches are to be installed in overhead distribution lines to improve quality of service by reducing the number and duration of outages. They help to locate faults faster, increase the level of safety and reduce the number of customers out of service for a given distribution line fault.

The communication between substations and points in the distribution system and the Energy Control System is presently outdated. In order to support increased automation, the Companies must upgrade the communication utilizing new fiber optic lines, links via microwave, additional channels for digital radio or purchased communication pathways from providers. The specific mode of communication will be based on security of the method and cost of installation.

The Companies propose to invest in this category during 2016 through 2020 as follows:

($000)	2016	2017	2018	2019	2020
NYSEG - Transmission	-	-	-	4,900	-
NYSEG - Distribution	7,650	11,080	10,222	10,487	10,142
Total NYSEG	7,650	11,080	10,222	15,387	10,142
RG&E - Transmission	-	-	-	2,100	500
RG&E- Distribution	2,700	4,981	7,621	3,275	3,368
Total RGE	2,700	4,981	7,621	5,375	3,868
Total NY Electric	**10,350**	**16,061**	**17,843**	**20,762**	**14,010**

Table 5.5 Electric – Efficiency ($000)

Investments in automation in the Plan include:

Automation of substations. Currently the level of Substation automation in the Companies is 56%. After the planned 2016-2020 work is completed, the level of substation automation in the Companies will rise. The substation modernization program will prepare substations for automation through new standards of design and equipment.

Remote Terminal Unit (RTU): Additional and upgraded RTU communication connectivity will be installed in other substations and with switching devices.

Reclosers: The Companies plan to add electronic reclosers to increase the ability to sectionalize more of the distribution system.

SCADA Mate Switches: The Companies plan to improve system reliability by adding remote control switches that allow for earlier isolation of faults or outage and faster restoration of service.

Telecommunications for remote control: The Companies plan to build or lease the telecommunications infrastructure necessary for the above projects. Table 5.11 shows the proposed total investment for each company in projects and programs during the term of this plan.

5.5. Asset Condition Replacement

This category is related to Objectives 4 and 5, which are to optimize replacement of obsolete and low scoring health index equipment and facilities, and to improve the effectiveness and efficiency of the electric and gas systems through modernization. The Companies need to replace equipment that is obsolete either because it is technologically obsolete or physically obsolete (i.e. parts are no longer available), high cost of maintenance or poor health index scoring. Obsolete equipment can cause safety issues, risk environmental incidents, and can lack reliability, and such equipment is difficult and costly to maintain and to obtain spares. The major types of facilities included in this category are: poles, batteries, relays, switches and substation breakers and batteries. This includes the projects and programs done for the following investment reasons:

- Probability of failure and consequence of failure
- Obsolescence, lack of replacement parts or technical obsolescence
- Cost benefit analysis of continued repair versus replacement
- Low scoring health index which increases the probability of failure

The Companies propose to invest in projects and programs in this category during 2016 through 2020 as follows:

($000)	2016	2017	2018	2019	2020
NYSEG - Transmission	5,863	5,958	6,055	6,669	7,256
NYSEG - Distribution	34,072	38,553	42,295	43,391	54,354
Total NYSEG	39,935	44,511	48,350	50,060	61,609
RG&E - Transmission	2,545	5,246	4,124	3,714	3,626
RG&E- Distribution	15,511	20,325	23,081	23,433	24,590
Total RGE	18,056	25,570	27,205	27,147	28,217
Total NY Electric	**57,991**	**70,081**	**75,555**	**77,207**	**89,826**

Table 5.6 Electric – Asset Condition Replacement ($000)

Attachment 4 provides the list of projects and programs included in this category.

The description of the most significant projects programs of this category is provided below:

Station 23 Transformer and 11 kV switchgear - Add 11 kV GIS and two 115/11 kV transformers to Station 23. Add double bus configuration to the 115 kV GIS. Transformer replacements are due to poor health - 1T and 2T are leaking and reaching end of life. Two of the four bus sections of 11 kV are overdutied and need to be upgraded for proper fault current ratings. Bus 3 and 4 are at 96% of rated interrupt capacity.

Circuit Breaker Replacement Program: A condition assessment performed by Asset Management of circuit breakers found 68 to be in very poor health and 690 to be in poor health at NYSEG, and 99 to be in very poor health and 368 to be in poor health at RG&E. This program addresses these very poor and poor condition circuit breakers. Replacements will eliminate/replace units most at risk of failure and improve reliability of the system.

Battery Replacement Program: This program replaces current lead-acid systems with engineered Ni-Cd. As a critical component of a substation, battery systems that fail to perform or are in poor working condition can hinder operational capability. These systems are nearing their end of life and are being replaced to reduce risk of failure and negative impacts on system operations.

The projects that are planned for the category are listed in Attachment 4.

5.6. Strategic

This category is related to Objective 5: Improve effectiveness and efficiency of the network

The Companies propose to invest the following amounts in projects and programs in this category during 2016 through 2020 as shown in Table 5.7:

($000)	2016	2017	2018	2019	2020
NYSEG - Transmission	-	-	-	-	-
NYSEG - Distribution	3,728	12,465	1,943	648	-
Total NYSEG	3,728	12,465	1,943	648	-
Total NY Electric	**3,728**	**12,465**	**1,943**	**648**	**-**

Table 5.7 Electric – Strategic ($000)

NYSEG Energy Smart Community Project and associated AMI:

Within the overall considerations associated with supporting the REV efforts in NY, AVANGRID Networks has developed a Smart Grid approach for NYSEG and RG&E. The costs in the plan include the Energy Smart Community project including the associated AMI with a communications infrastructure and systems to support the customer, market and operational benefits envisioned.

5.7. Customer Benefits

The Companies recognize that there are a number of concerns that could result under a single element failure (in transformers or lines), contingency situations (N-1) at peak demand and a much smaller number of failures that could result under normal operating conditions at peak demand, as shown in the next section.

5.7.1. Transmission

Transmission System Planning has developed Five-Year Reliability-Based Transmission and Substation Capital Projects in order to solve the concerns shown in Table 5.8.

This Plan has been developed to address the concerns shown in Table 5.14, but some of them require modifications in the network which require several years to complete. Projects to address these concerns are expected to be executed during the 2016 through 2020 period, but some of the projects will be placed in service after 2020.

	Problems			MW			Customers		
	NYSEG	RG&E	Total	NYSEG	RG&E	Total	NYSEG	RG&E	Total
N-1 in Line	15	14	29	177	243	419	37,277	51,720	88,997
N-1 in Transformer	16	16	32	725	578	1,303	171,907	124,250	296,157
Voltage Quality	28	8	36	431	126	557	126,979	34,912	161,891
Transformer overload	3	4	7	41	98	139	10,546	15,441	25,987
Line Overload	2	2	4	27	48	75	11,734	14,017	25,751
Totals	64	44	108	1,400	1,093	2,493	358,443	240,340	598,783

Table 5.8 Transmission System Concerns 2016-2020

Please note that one customer could have been counted more than once if the same customer is affected by more than one problem.

[redacted]

5.7.2. Distribution

Distribution System Planning has developed a Reliability Based Distribution approach to solve the concerns shown in Table 5.9. This table also shows the distribution concerns that will be solved by projects with total investment less than $200,000 that are part of Division Projects.

This Plan has been developed to address the concerns shown in Table 5.9, but some of them require modifications in the network which require several years to complete. The projects to address these concerns are expected to be executed during the 2016 through 2020 period, but some of the projects will be placed in service after 2020.

	Problems			MW			Customers		
	NYSEG	RG&E	Total	NYSEG	RG&E	Total	NYSEG	RG&E	Total
Transformer overload	3	-	3	18	-	18	6,608	-	6,608
Line Overload	9	-	9	25	-	25	8,897	-	8,897
Totals	12	-	12	43	-	43	15,505	-	15,505

Table 5.9 Distribution System Concerns 2016-2020

Please note that one customer could have been counted more than once if the same customer is affected by more than one problem.

[redacted]

NYSEG and RG&E have numerous substations serving distribution circuits where the failure of a transformer would result in the loss of customers and load. Prior to the completion of projects which address the concern being placed into service, the Companies can address these distribution risks by installing a mobile substation as a temporary replacement until the permanent transformer is repaired or replaced.

5.8. Highlighted Electric Projects

Projects that address the transmission and distribution system problems and that will be put into service during the 2016 through 2020 period in this category are as follows:

NYSEG

Columbia County Transmission (Klinekill/Valkin Substation 115 kV transmission line project), in service 2018, Mechanicville Division: A new 115kV line was proposed to create a connection between an existing National Grid 115kV source and NYSEG's Klinekill substation. However, in the course of the Article VII proceeding for the licensing of the proposed 115kV line, Department of Public Service Staff recommended the construction of a 115/34.5kV substation with two 34.5kV distribution lines as an alternative. This alternative is currently being reviewed and is the subject of Settlement proceedings.

Luther Forest Substation (Mechanicville System Reinforcement Project), in service 2016, Mechanicville Division: A new 115/34.5 kV Substation with one 34.5 kV, 30/40/50 MVA LTC transformer and 2 distribution circuits. The objective is to resolve loading issues with the existing Mulberry Substation by transferring load to a new 115-34.5 kV source at Luther Forest.

The Eelpot Transformer project will install a second 115/34.5kV, 30/40/56 MVA LTC transformer at the Eelpot Road substation. Work will include all associated equipment required with this transformer addition.

The Auburn Transmission Project is a new 14 mile, 115kV line from Elbridge Substation (National Grid) to State Street Substation (NYSEG). Conceptual engineering packages have been completed. Currently detailed engineering is being developed for transmission line and substations. This will be completed by June 2016. NYSEG plans to procure materials and supplies for the Project that will allow for construction to begin in compliance with an Article VII Certificate in February 2016.

RG&E

Rochester Area Reliability Project, in service 2019-2021: Station 255, a new 345kV bulk power system station will be constructed and located approximately 3.8 miles west of the RG&E Station 80. The two NYPA 345kV cross-state transmission lines will be brought into the new station. A new 345kV line will be constructed between the new substation and Station 80. Two 115kV lines will be emanating from the new substation. The first line, which is approximately 10 miles long, will tie into Station 418. The second line which is approximately 14 miles long will tie into the RG&E 115kV system at Station 23.

The RARP was originally designed to provide adequate supply to the RG&E service area during refueling outages of the Ginna Nuclear Plant. With the announcement of the proposed retirement of Ginna, new studies showed the need for immediate reinforcement of the transmission system elements at Station 122 to bring loading below Normal ratings, followed by the later completion of the RARP scope of work to address load growth and system resiliency under N-1-1 planning criteria.

Station 262: A new 115/34.5 kV, 57 MVA substation with one transformer with LTC. The new substation and the new 34 kV line to Station 26 will provide necessary relief to existing lines and transformers from thermal stress under contingency conditions in the Rochester Central District.

Ginna Retirement Transmission Alternative Project and Station 80 Improvements, in service 2016: This project consists of three major elements. First, RG&E will upgrade

the Company's facilities at Station 122. The work at Station 122 consists of: replacing three transformers at Station 122 with new transformers rated at 494, 603, and 630 MVA; reconfiguring the 345 kV circuit breaker to a breaker and a half configuration; and replacing the 115 kV open-air breaker configuration with a 115 kV gas-insulated switchgear arranged in a breaker and half configuration. Second, RG&E will construct a new bay of 345 kV circuit breakers at Station 80 to reconnect transformers #3 and #5. Finally, RG&E will uprate four circuits.

The upgrades and reconfiguration included in this project are needed to solve the thermal overloads at Station 122 and to ensure that only one bulk transformer can be lost in a single contingency. A GIS breaker and half is needed to replace the existing 115kV park due to a fault over duty failure because of the replacement of the transformers. The new 345 kV bay is needed to resolve the stuck breakers at Station 80, which will ensure that only one bulk transformer is lost in a single contingency. Additionally, the upgrade of circuits enables the RG&E network to transfer power from Station 80 to Station 122 and vice versa. This ability allows for the reduction or elimination of thermal overloads under contingency conditions.

The Station 218 to Clyde project will provide for a new line from RG&E Station 218 to NYSEG Station 199. The existing Station 199 in Clyde to Station 218 line services approximately 25 MW of load and 9,217 customers. During high load periods, the line exceeds its normal rating. This results in shedding approximately 3MW of load to relive the overload. The period of exposure is approximately 175 hours per year. The criteria used for this project is the system normal criteria for the transmission system that requires all in service elements remain below its normal rating. Modifications will be made to Circuit 708. Circuit 708 originates from Station 199 and serves six substations. In order to split the current load from existing circuit 708, a new 34 kV line, Circuit 804, will be constructed. Circuit 804 will be installed somewhat parallel with 708 to a point near Station 218.

The RG&E owned 115kV circuit number 917 includes 6 tapped substations and over 30,000 customers. The existing 917 Line protection is provided by primary and secondary step distance electromechanical relays located at Station 418 and microprocessor based relays at Station 7. The purpose of this project is to minimize the impacts of faults on this line by sectionalizing the line at various locations using breakers and motor-operated switching sectionalizing schemes at various substations. The solution required to sectionalize the line is to install circuit breakers and switches in each of the 115kV buses at Stations 69,70 and 71. It is also required to equip the existing 115kV disconnect switches at Stations 69, 70, 71 and 113 with motor operating mechanisms as well as supervisory elements for remote control. Protections and

controls necessary to isolate each section of the line with minimum delay will be provided for the project, as well as fiber optic communication.

The Station 67 to 418 project will provide a new 115kV line from Station 67 to Station 418. At Station 67, the existing circuit breaker 92602 will be abandoned and a new line terminal for Circuit 926 will be added. In addition, a new circuit breaker will be added to Bus #1 to connect new 115kV Bus #3 to accommodate the new line positions and add connection points for a mobile sub and future additional transformer. Also included is installing new protection and control for line 939 and Bus #3, upgrading Circuit 910 protection to match new relaying at Station 418, and upgrade control relay for Circuit 926. At Station 418, the existing 4 fault duty circuit switchers will be replaced. Three new CCVT's will be installed on 115kV bus section #2. Slipover CTs will be added to the existing transformers.

6. FERC Bright Line Projects

As mentioned in the Introduction, FERC (Federal Energy Regulatory Commission) has directed NERC (North American Electric Reliability Corporation) to develop a revised definition of the Bulk Electric System (BES) to further ensure the reliable operation of the US interconnected transmission network. FERC has eliminated the regional discretion in determining what is considered Bulk and has ordered NERC to adopt a definition of the BES that includes all non-radial facilities at 100 kV and above (a so-called "bright-line" approach). On November 18, 2010, FERC issued Order 743 requiring NERC to revise its definition of BES to:

- "Eliminate the regional discretion in the current definition"
- "Maintain the Bright Line threshold that includes facilities operated at and above 100 kV"
- "Establish an exception process and criteria for excluding facilities that are not necessary for operating the interconnected transmission network" (e.g., radial facilities).

NERC filed a revised BES definition and transition plan with FERC on January 2012. FERC then issued Order 773 on December 20, 2012, establishing the "Bright Line" as the new BES definition. This FERC order will greatly expand the scope of facilities in New York State subject to the NERC reliability standards and the associated risk of compliance sanctions. NERC submitted a revised "Phase 2" BES Definition for FERC approval in December 2013, and FERC approved the revised definition on March 20, 2014. The revised BES Definition became effective on July 1, 2014, and all entities must be in full compliance by July 2016. The following table shows the anticipated impact this revised BES definition will likely have on the NYSEG and RG&E system as of March, 2016:

	NYSEG	RGE
Facilities Already Defined as BES		
Substations	19	2
Lines	38	-
Facilities Defined as BES under NEW Bright Line		
Substations	95	31
Lines	135	47

Table 6.1 FERC Bright Line Facility Impacts

The overall costs to meet these standards will most likely result in material investments during and beyond the term of this Plan. A preliminary estimate of capital costs due to work necessary in the 2016 to 2020 period to advance toward compliance with FERC Order 773 is included in Table 6.2. These costs include work to conduct the following:

- Finish by July 2016 on going Bright Line Compliance projects with regard to Critical Infrastructure Protection (CIP), System Protection and Transmission Planning,
- Begin project management, engineering, permitting and real estate work on substation and transmission projects identified by the planning study done to be complaint with NERC Transmission Planning (TPL) standards. These projects include work in the following areas in New York:
  - RG&E
    - Greater Rochester Area
  - NYSEG
    - Binghamton Division
    - Brewster Division
    - Elmira Division
    - Geneva Division
    - Oneonta Division
    - Ithaca Division
    - Lancaster Division

($000)	2016	2017	2018	2019	2020
NYSEG	4,000	10,000	10,000	10,000	53,722
RGE	5,000	10,000	10,000	10,000	4,663
Total NY Bright Line	**9,000**	**20,000**	**20,000**	**20,000**	**58,385**

Table 6.2 FERC Bright Line Planned Expenditures ($000)

Each year, the companies are required to perform and have documentation of studies performed on the BES system in accordance with NERC Standard 004-1. This report will provide ongoing information regarding the companies' compliance and may change the cash flow requirements of the program each year.

7. Generation Facilities Capital Investment Plan

A summary of the investments that the Companies plan during the period 2016-2020 in its Hydro Generation Facilities is shown in Table 7.1. These projects help the Companies meet several strategic objectives including cost-effectively improving unit efficiencies and reliability, increasing capacity, maintaining the infrastructure, safeguarding employees and the public and addressing hydro/license regulatory mandates and obligations. Table 7.1 summarizes Generation investment by category:

($000)	2016	2017	2018	2019	2020
NYSEG					
Mandatory	2,825	2,945	1,150	1,475	1,575
Reliability Risk	-	3,000	3,125	1,375	2,075
Group Initiatives	330	1,000	125	175	450
Asset Condition Replacement	759	(597)	1,001	6,071	7,850
Total NYSEG	3,914	6,348	5,401	9,096	11,950
RG&E					
Mandatory	-	2,025	1,375	925	1,075
Reliability Risk	5,181	9,261	7,525	5,071	5,275
Group Initiatives	497	1,874	1,157	400	2,775
Asset Condition Replacement	50	200	1,724	3,625	2,825
Total RG&E	5,728	13,360	11,781	10,021	11,950
Total NY Generation	**9,642**	**19,708**	**17,182**	**19,117**	**23,900**

Table 7.1 Hydro Generation Facility Investments by category ($000)

NYSEG

High Falls: High Falls is a run-of-river hydro-electric station located on the Saranac River near Plattsburgh, New York. The powerhouse consists of three units with a total rating of 15,000 kW based on historical average annual river flow can produce approximately 86,000 MWh/year of renewable electric energy, a direct benefit to NYSEG customers. Major activities during the forecast period include: Unit 1, Unit 2 and Unit 3 Turbine Generator major rebuilds, Units 1, 2 and 3 draft tube stop logs, Units 1, 2 and 3 generator field breakers, installing fire and life safety betterments, and infill of construction portals on dam.

Cadyville: Cadyville is a run-of-river hydro-electric station located on the Saranac River near Plattsburgh, New York. The powerhouse consists of three units with a total rating of 5,525 kW, which based on historical average annual river flows can produce approximately 25,000 MWh/year of renewable electric energy, directly benefitting NYSEG customers. Major activities during the forecast period include: Unit 1 Turbine Generator major rebuild, installing an automatic flood/spill control gate in the dam, installing new plant GIS type switchgear and generator protection, and installing fire and life safety betterments.

Mill C: Mill C is a run-of-river hydro-electric station located on the Saranac River near Plattsburgh, New York. The powerhouse consists of three units with a total rating of 6,050 kW, which based on historical average annual river flows can produce approximately 26,000 MWh/year of renewable electric energy, a direct benefit to NYSEG customers. Major activities during the forecast period include but are not limited to: Restoration of Mill C powerhouse exterior, Unit 1 and Unit 2 Turbine Generator major rebuild, Intake Isolation Gate betterments, Intake Trash Rack upgrades along with Rack Raker and installing fire and life safety betterments.

Kents Falls: Kents Falls is a run-of-river hydro-electric station located on the Saranac River near Plattsburgh, New York. The powerhouse consists of three units with a total rating of 13,680 kW based on historical average annual river flow can produce approximately 60,000 MWh/yr of renewable electric energy for the direct benefit of NYSEG customers. Major activities during the forecast period include: water conveyance system betterments to replace aging infrastructure (penstock trifurcation, ring girders, and emergency bypass valve removal), complete installation of a motorized raking system and narrower spaced trash racks (regulatory requirement of the FERC hydro license), Unit 1, Unit 2 and Unit 3 Turbine Generator major rebuild, installing new plan GIS type switchgear, Tailrace Retaining and Bullnose upgrades, Draft Tube Stop Logs, generator protection and installing fire and life safety betterments.

Rainbow Falls: Rainbow Falls is a run-of-river hydro-electric station located on the Ausable River near Plattsburgh, New York. The powerhouse consists of two units with a total rating of 2,640 kW that can produce approximately 20,000 MWh/year of renewable electric energy for the direct benefit of NYSEG customers based on historical

average river flows. Major activities during the forecast period include: Dam/spillway resurfacing, commissioning of new environmental improvements required of the FERC hydro license (trash racks and trash removal system, and downstream fish bypass), begin penstock replacement (2019), installing fire and life safety betterments, and completing the restoration of the powerhouse that was significantly damaged and taken out of service as a result of the flood caused by the Hurricane Irene event on August 28-29, 2011. The capital investment required to restore the powerhouse to service is currently estimated at $5.25 million. The Company expects to recover a portion of the cost through an insurance claim.

Mechanicville: Mechanicville is a run-of-river hydroelectric station on the Hudson River north of Albany, New York. It consists of two units with a total rating of 16,530 kW which based on an historical average annual river flow can produce approximately 100,000 MWH/year of renewable electric energy directly benefiting NYSEG customers. Major activities during the forecast period include: completing the installation of a standby electric generator for station power during a loss of offsite power (i.e., during major storm events), installing a new floor system in the gallery of the dam, resurfacing the spillway, performing relicensing activities, run-of-river/SCADA replacement and installing fire and life safety betterments.

RG&E

Station 2: Station 2 is a run-of-river hydro-electric station located on the Genesee River in Rochester, New York. The powerhouse consists of a single unit with a rating of 8,500 kW which produced on average during the period 1984-2012 approximately 37,100 MWh/year of renewable electric energy which directly benefited RG&E customers. With the recent plant upgrades and based on an historic average water year, the unit is expected to produce approximately 53,500 MWh/year. Major activities during the forecast period includes, but is not limited to: Intake structure modification and new penstock, a portion of which is over 100 years old and is nearing end-of-life, and installation of a new 11 foot diameter butterfly valve, complete construction of a new SCADA/communications control house adjacent to the Central Avenue Dam, installing a high-efficiency static exciter on Unit 1, and, pending a favorable cost-benefit analysis, restart of work to add a new 6.3 MW generating Unit (No. 2), which includes deepening Brown's Race to provide the required flow to Unit 1 and Unit 2 (race deepening pending construction easement/parcel transfer from the City of Rochester), and installing fire and life safety betterments.

Station 26: Station 26 is a run-of-river hydro-electric station located on the Genesee River in Rochester, New York. The powerhouse consists of a single unit with a rating of 3,000 kW which based on an historical average water year (after the unit major rebuild) can produce approximately 17,500 MWh/year of renewable electric energy for the direct benefit of RG&E customers. Major activities during the forecast period include: Intake stop gate operator, penstock upgrades, draft tube foundation betterments, constructing a new tailrace wall extension, and installing fire and life safety betterments.

Station 5: Station 5 is a run-of-river hydro-electric station located on the Genesee River in Rochester, New York. The powerhouse consists of three units with a rating of approximately 46,000 kW which produced on average during the period 1996-2006 approximately 155,000 MWh/year of renewable electric energy for the direct benefit of RG&E customers. With the recent station upgrades and based on an historic average water year, the plant is expected to produce approximately 219,000 MWh/year. Major activities during the forecast period include: betterments to replace end-of-life infrastructure including spill gate pier and spillway rock stabilizations, crest gate seal replacements, generator control and protection upgrades (inter-related with Station 5 Substation Modernization project), site security enhancements at the powerhouse, civil/structural projects such as rebuilding access roads, surge tank height expansion and concrete betterments, service water improvements at the powerhouse and dam, intake stop log gantry, and installing fire and life safety betterments.

8. Gas Capital Investment Plan

This section contains descriptions of the gas projects and programs necessary to accomplish the strategic objectives. The common projects are included in Section 8. The following table summarizes the gas capital investment plan for the Companies:

($000)	2016	2017	2018	2019	2020
NYSEG Gas	46,513	70,330	79,537	60,568	76,997
RG&E Gas	42,675	71,273	39,890	43,795	62,928
Total NY Gas	**89,188**	**141,603**	**119,427**	**104,363**	**139,925**

Table 8.1 Gas Capital Investment Plan by Year ($ Millions)

8.1. Mandatory Compliance

This category is related to meeting the gas requirements of new customers or load additions for customers in accordance with tariff, for projects required by municipalities, and other statutory or regulatory reasons.

The Companies propose to make investments in projects and programs in this category during 2016 through 2020 as follows:

($000)	2016	2017	2018	2019	2020
NYSEG Gas	39,742	48,628	46,378	33,066	53,288
RG&E Gas	32,792	40,363	30,244	28,600	47,736
Total NY Gas	**72,534**	**88,991**	**76,622**	**61,666**	**101,024**

Table 8.2 Gas - Mandatory ($000)

A list of projects and programs included in this category is included in Attachment 4; highlighted projects and programs included in this category are described below:

Gas Meter Program: All new and replacement meters as required due to new services and mandated meter replacement and change out programs.

Gas Regulators Program: All new and replacement regulators as required due to new services and mandated replacements.

Leak Prone Main Replacement Program: The replacement of at least 26 miles of prioritized leak prone gas main at each company in 2016. The miles replaced will increase to 28 in 2017 and 30 in 2018 and beyond.

Leak Prone Service Replacement Program: The program consists of replacing prioritized leak prone unprotected steel gas services. A specific number of services to be replaced is no longer a requirement of this program.

Minor Distribution Mains: This is a minor program to install new gas mains to customers in accordance with tariff.

Distribution Mains, Replacements: This program item addresses future needs to accommodate increasing gas demand from existing and new customers and/or asset condition that have not yet become apparent. This is necessary for the later years of the 5-year plan to accommodate unknown demand growth and conditions that may change for outside reasons such as economic conditions and development.

New Gas Services: This minor line item is required by tariff to serve new customers and terms and conditions to occupy public rights-of-way.

Chemung County Service Replacement: The project replaces 1 and 1-1/4 inch leak prone steel medium pressure gas services. Approximately 1,000 services will be replaced in 2016.

MF14 Greece: Lake Avenue (Port of Rochester), Install Gas Mains: Install 1850 feet of 8" plastic main along Lake Avenue from Latta Road to Corrigan Street and 30 feet of 4" plastic service. The existing MF14 Greece gas mains cannot support the anticipated 90 mcfh load based on 75% diversity of a total 120 mcfh load for the Port of Rochester without planned gas main replacements and new installations. This gas main installation

will move gas more efficiently to the new load, while maintaining system pressure above 50% of maximum operating pressure. This project serves to minimize the pressure drop from existing 8" gas mains to the Port of Rochester project site.

Lansing/Freeville Gas Reinforcement Project: This project installs seven miles of 10 inch diameter, 124 psig distribution gas main along West Dryden Road in Ithaca, NY, a new 60 psig regulator station at the intersection of Warren and West Dryden Roads and rebuild of the Dominion Transmission owned Freeville gate station. The existing system is below 50% of maximum operating pressure on the design day. The system is experiencing growth and lacks sufficient capacity to support significant load growth. The project will improve existing system pressures during the heating season and for the design condition while providing capacity for expected load growth. There are several large private projects developing residential and mixed use properties underway that have requested natural gas service. To serve these loads, and lift the restriction filed with the PSC to not add new loads, this reinforcement of the distribution system is necessary.

Recycled Energy Development (RED) Transmission Gas Main Extension: Recycled Energy Development is a customer driven and reimbursed project to build more than 4 miles of new 12" or 16" transmission main for conversion of coal fired electric generation to natural gas. The pipe size chosen by RED will depend on RED's forecast for customer demand growth within the existing Kodak Park utility service area. The new transmission pipe will be designed for a future maximum allowable operating pressure (MAOP) of 330 psig and run normally at 250 psig. The minimum delivery pressure to RED is 180 psi at the existing Weiland Road meter location. The transmission main will begin at the Buffalo Road Regulator station and extend north along the Erie Canal and Lee Road to Weiland Road in the Town of Greece. The project requires an Article VII permit. Design and Article VII application development are underway for a 2016 construction start.

CM-2 CAL 350: Thruway Park Drive, Replace Gas Transmission Main: Thruway Park Drive replaces 400 feet of 20" cased transmission main installed in 1967 under Interstate 90. The project eliminates a cased crossing in a high consequence area (HCA) that requires 7 year reassessment to meet Federal Integrity Management Plan (IMP) requirement regulations, and incurring future and on-going O&M costs.

Replacement of the pipe in 2016 is necessary for compliance with Integrity Management Plan regulations in 2016.

Enhanced First Responders and Fire Training Facility and Program, RG&E: Build a Gas Training Center in Rochester to train employees and municipal agencies. RG&E received a letter from the Public Service Commission dated November 18, 2014 that provided notice of amendment specifying the inadequacies of the revised Avangrid Networks Gas Emergency Plan (GEP) in place for RG&E. The GEP was submitted in accordance with Commission Order 13-G-0484, which provided RG&E an opportunity to respond and make the necessary revisions to the GEP. In addition to addressing the deficiencies noted in the letter, RG&E is proposing to expand the communications with local fire departments to include fire department training associated with gas specific emergency situations. This program will enhance public safety and overall communications within the communities served.

Outage Management System, RG&E and NYSEG: Provide software for outage management of gas service to customers. Improves management of customer outages and is responsive to the PSC's order 13-G-0484.

Plattsburgh Gas Franchise Expansion: This project involves extending gas mains (66,500 feet) and services (460) outside existing franchise limits. This project seeks to comply with a PSC order filed 7/24/2014, to meet customer demand, and corporate objectives. The project will be completed in 2017.

8.2. System Capacity

This category is related to Objective 2: Meet the electrical and natural gas needs of our customers.

The Companies propose to make the following System Capacity related capital investments in the natural gas system during 2016 through 2020 as follows:

($000)	2016	2017	2018	2019	2020
NYSEG Gas	3,175	9,880	4,995	2,238	455
RG&E Gas	4,105	16,265	990	239	1,000
Total NY Gas	**7,280**	**26,145**	**5,985**	**2,477**	**1,455**

Table 8.3 Gas – System Capacity ($000)

Descriptions of the most significant projects in this category are included in Attachment 2.

8.3. Reliability Risk

This category is related to Objective 3: Achieve service reliability and quality targets.

The Companies propose to make the following reliability risk related capital investments in the natural gas system during 2016 through 2020 as follows:

($000)	2016	2017	2018	2019	2020
NYSEG Gas	2,685	7,501	26,832	24,121	22,439
RG&E Gas	5,200	14,139	8,500	14,800	13,920
Total NY Gas	**7,885**	**21,640**	**35,332**	**38,921**	**36,359**

Table 8.5 Gas – Reliability Risk ($000)

Gas Regulator Station Modernization & Automation Program: Utilize standardized templates for regulator station design that consider safety, obsolescence, operability, capacity and future growth. This program will increase the reliability of our pressure systems.

Phelps (South) Transmission Replacement: This project will rebuild the Phelps Tap Gate Station and replace 25,000 feet of 10" steel gas main (162 psi) with 12" coated steel gas main (203 psi). The project will increase reliability and capacity to the Geneva System during peak demand by eliminating the operational need to seasonally open and close the Packwood valve. The project will also add regulation and controls to the Millard Tap.

DeRuyter Transmission Replacement Project: This project will replace approximately 28 miles of 8 inch 298 psig MAOP coated steel gas transmission mains with 10 inch coated mains. These lines were installed in 1953 and lack sufficient capacity to supply the Winney Hill 1st stage regulator station in Oneonta. The increase in capacity will eliminate the need to utilize the compressor located in Norwich.

Transmission Casing Replacement Program: This program replaces five to ten miles of transmission gas main crossings a year over a ten year period. Casing may be shorted to the transmission carrier gas pipe, causing corrosion and potential leaks on the pipelines.

Remote Operated Valves Program: This program will install remotely operated valves to protect operation of the gas distribution and transmission systems due to external threats and risk (i.e. third party damage, flooding and other natural forces) Remote operation valves will be selectively installed on both transmission and distribution systems to provide quick emergency response for system hardening without the need for dispatch of field personnel.

Further descriptions of the most significant projects in this category are provided in Attachment 2.

8.4. Efficiency

This category is related to Objective 4: Optimize replacement of obsolete and low scoring health index equipment and facilities.

The Companies propose to make these Efficiency related capital investments in the natural gas systems during 2016 through 2020 as follows:

($000)	2016	2017	2018	2019	2020
NYSEG Gas	-	600	600	600	-
RG&E Gas	175	-	-	-	-
Total NY Gas	**175**	**600**	**600**	**600**	**-**

Table 8.7 Gas- Efficiency ($000)

NYSEG Gas RTU/Telemetry Upgrade Project: This project will replace regulator station remote terminal unit (RTU) equipment. The existing equipment is obsolete and beyond its service life. Equipment failure would require field personnel to monitor operations of a regulator station until restoration of the RTU. The project will improve pipeline safety, distribution system reliability, monitoring and controlling.

8.5. Asset Condition Replacement

This category is related to Objective 4 and 5: Optimize obsolete equipment and facilities and improving the effectiveness and efficiency of the delivery network. The Companies need to replace equipment that is obsolete either because it is physically obsolete (i.e. parts are no longer available or the maintenance costs are high enough to make replacement a more cost efficient solution) or it is technologically obsolete. Obsolete equipment can cause safety issues, increases the risk of environmental incidents.

Bradley Farms, Rebuild Gas Gate Station: This gate station project will replace existing equipment that is in poor asset condition, replace buildings in poor condition, demolish buildings and remove equipment no longer necessary, and correct site conditions including grading. The station has only a single-run, and current design standards for a gate station include dual-run regulators for reliability of service. Therefore, the station will be updated accordingly.

The Companies propose Asset Condition Replacement investments during 2016 through 2020 as follows:

($000)	2016	2017	2018	2019	2020
NYSEG Gas	911	3,721	732	543	815
RG&E Gas	403	506	156	156	272
Total NY Gas	**1,314**	**4,227**	**888**	**699**	**1,087**

Table 8.9 Gas – Asset Condition Replacement ($000)

9. Common Investment Plan

The Company's Common capital investments include fleet, improvements to division and office facilities, security, operational efficiency projects and information technology projects. These expenditures are typically for projects that benefit both electric and gas businesses. At NYSEG, common investments are currently allocated 80.26% to electric and 19.74% to gas, and at RG&E, common investments are currently allocated 71.39% to electric and 28.61% to gas.

The Companies propose to make Common Investments during 2016 through 2020 as follows:

($000)	2016	2017	2018	2019	2020
NYSEG					
Customer Services	200	221	265	287	250
Building Projects and Space Management	2,995	3,220	3,155	4,211	800
General Services	89	98	117	127	100
Fleet	5,552	6,000	7,000	8,000	24,698
Operations Technology	3,191	3,526	4,222	4,572	4,952
Information Technology	5,230	5,904	6,793	7,306	21,010
Security	7,946	16,377	9,591	13,645	7,775
Facilities	1,778	2,055	3,161	2,628	1,500
NYSEG Total	26,981	37,401	34,304	40,776	61,086
RG&E					
Customer Services	416	443	523	684	650
Building Projects and Space Management	1,110	1,520	1,594	1,669	2,500
General Services	443	472	557	728	875
Fleet	4,981	4,970	5,074	5,181	9,361
Operations Technology	295	314	371	485	634
Information Technology	2,612	2,854	3,236	4,141	13,935
Security	6,285	5,509	5,750	750	2,250
Facilities	2,417	2,234	2,837	4,127	3,500
RGE Total	18,559	18,316	19,942	17,765	33,705
Total NY Common	**45,540**	**55,717**	**54,246**	**58,541**	**94,791**

Table 9.17 Common Investment ($000)

Table 9.18 shows the summary by investment categories:

($000)	2016	2017	2018	2019	2020
NYSEG - Mandatory	8,726	17,310	11,321	14,275	8,735
RG&E - Mandatory	6,829	6,033	6,703	1,471	3,035
Total Mandatory	15,555	23,343	18,024	15,746	11,770
NYSEG - Reliability Risk	290	370	615	400	650
RG&E - Reliability Risk	550	350	330	250	350
Total Reliability Risk	840	720	945	650	1,000
NYSEG - Group Initiatives	570	904	1,100	459	600
RG&E - Group Initiatives	261	261	575	243	450
Total Group Initiatives	831	1,165	1,675	702	1,050
NYSEG - Efficiency	5,197	5,077	5,314	6,999	20,052
RG&E - Efficiency	1,957	2,441	1,897	3,853	13,534
Total Efficiency	7,154	7,518	7,211	10,852	33,586
NYSEG - Asset Condition Replacement	11,257	12,766	15,694	18,643	31,048
RG&E - Asset Condition Replacement	8,962	9,231	10,437	11,948	16,336
Total Asset Condition Replacement	20,219	21,997	26,131	30,591	47,384
NYSEG - Strategic	941	974	260	-	-
RG&E - Strategic	-	-	-	-	-
Total Strategic	941	974	260	-	-
Total Common	**45,540**	**55,717**	**54,246**	**58,541**	**94,791**

Table 9.18 Common by categories ($000)

Fleet: Purchases and/or capital leases of new vehicles will move the Companies toward the industry average ages for specific fleet equipment and will replace older and less reliable vehicles. AVANGRID is transitioning its historical model of 100% vehicle ownership to a hybrid model of ownership (medium and heavy duty units) and leasing (light duty units). Phase 1 of this leasing initiative began in four locations (Oneonta, Ithaca, Brewster and Liberty) during 2015 and will continue in subsequent years. The NYSEG fleet has a current average age of more than nine years. The Companies' intent is to reduce the average fleet age to better align with the industry benchmarking. Due to the aging nature of this fleet, the Companies have experienced increasing operating and maintenance costs as a result of keeping the fleet vehicles and equipment available for service.

Information and data kept and analyzed by the Companies and industry experts show that increased fleet age leads to higher incidents of demand work orders (vehicle or equipment unavailable), as well as increased maintenance costs.

The Companies use metrics to evaluate the age and condition of the fleet. These data are used to determine which units should be replaced. These criteria are, in order of priority

- age and mileage (hours)
- age only
- mileage only
- a maintenance to residual value ratio (MTR) greater than 50%.

The MTR is a ratio determined by aggregating the maintenance costs of a specific vehicle over the previous twelve month period and dividing this value by the residual value of the vehicle. The residual value of the vehicle is based on the sales price of vehicles of similar type, mileage and age at auction.

The benefits of a fleet with a shorter replacement cycle are: avoiding increased O&M expenses, increased availability of the fleet, which better positions the Companies to respond safely, reliably, and efficiently to customer needs.

Customer Services: The common projects that the customer service groups expect to execute in this planning window include a barcode scanner upgrade for both NYSEG and RG&E, a meter reading system upgrade at NYSEG, and lab equipment projects at both NYSEG and RG&E.

The barcode system that Companies use consists of scanners, field barcode printers, meter lab printers, access points and related equipment such as cradles and chargers. This hardware is configured to run on an SAP-CCS platform that is used to track the location of all meters in stock at the warehouse level. The current system has been in service since 2006 and several units have failed with no opportunity to obtain spare parts.

In order to stay current with respect to meter reading technology, NYSEG must replace its current handheld devices and software platform with devices and systems that can be adequately supported and maintained by the vendor. These devices need to be compatible with a wider variety of meters and provide greater flexibility in meter reading capability.

Customer Service lab equipment consists of equipment used to test and repair electric meters, gas meters, gas regulators, and PPE (rubber goods) testing equipment. This equipment must be maintained and replaced or upgraded on a regular basis in order to continue testing and repairing meters as required by 16 NYCRR Part 92 (Electric Meters) and Part 226 (Gas Meters) as well as OSHA and ASTM required testing of personal PPE such as rubber gloves, sleeves, blankets, and grounds.

Facilities and General Services: Improvements to division offices, garages, and other facilities owned or leased by the Companies. Within Facilities and General Services, the Building Projects and Space Management (BP&SM) executes projects to better utilize space and improve comfort of the occupants. These projects may also include components to improve energy efficiency and employee safety. General Services provides business support including services such as video conferencing equipment and Voice over Internet Protocol (VoIP) systems.

Projects under consideration include Building Renovation at Elmira Service Center, Building Renovation and Consolidation at Geneva, Renovation of the 6th Floor at East Ave, Rochester as well as numerous fueling stations throughout the service areas.

Information Technology: Capital investment in the IT group will address the Corporation's aging technological infrastructure, critical security requirements, global alignment directives, and the need for enhanced workplace tools to improve effectiveness and efficiency of work. Specific projects include:

Data Center Consolidation: This project will seek to reduce risk and improve efficiency by consolidating multiple physical datacenters, adopting standardization, and enabling new infrastructure to improve AVANGRID Networks datacenter technology (servers, storage, networks, etc.) and disaster recoverability.

Operations Technology: Two main projects comprise the common portion of Operations Technology's Capital Investment Plan for 2016-2020. These projects are Radio Replacement Project in NYSEG Lancaster and Plattsburgh divisions and the Telecommunications Major program. The Radio Replacement project will engineer, procure and construct replacement radio network infrastructure consisting of base stations, mobile and portable dispatch radio assets in the described regions. The project also includes integration and replacement of the central dispatch console system. It replaces legacy assets that are in excess of 10 – 15 years old; lifecycle of radio assets are typically 7 years. Replacement of conventional radio asset will leverage industry standard, next generation technology to achieve improved coverage (fill gaps), improved capacity (incident response) and improved crew safety (man down).

The Telecommunications Major program will engineer, procure and construct common wide area telecommunications network to support Automation efforts throughout service areas. Construction of a common network results in improved capital efficiency compared to separate, application specific investments (i.e. per recloser or per substation). Once the common network is deployed additional nodes and services can be added with minimal incremental cost. Automation communications will provide for higher device availability and reduced outage durations. This program will support the Recloser Automation initiatives as described in Chapter 5.

System Security: This program is a collection of one larger and two smaller projects needed to comply with security requirements discussed below. Expenditures for the larger project are anticipated during this time period for hardened security upgrades, lighting and fencing installations at various NYSEG and RG&E facilities, including electric substations and service centers. Video Surveillance upgrades at critical gas and electric substations and overall security system upgrades for hydro generating stations and Company facilities are also planned. These projects will address the recommended security standards set forth under the Homeland Security Act of 2002, NERC CIP regulations and orders by the PSC related to Case 02-M-0953.

The smaller projects address Fire Protection and Access Control. We have identified areas in need of improvement and have taken necessary measures to continue meeting a high standard of security, fire, life safety and regulatory compliance.

10. 2015 Information

10.1. Capital Investment – 2015

During 2015 the Companies invested more than $433M in the electric and natural gas delivery systems (including generation and common investments). This represents nearly 112% of the 2015 Plan included in the Five Year Capital Investment Plan dated April 1, 2015.

Table 10.1 below includes 2015 capital investment information by operating company and line of business.

	2015 Actual	2015 Plan
NYSEG Electric	206,191	167,871
RG&E Electric	129,047	132,390
Subtotal NY Electric	335,238	300,261
NYSEG Gas	57,219	50,599
RG&E Gas	41,534	37,303
Subtotal NY Gas	98,753	87,902
Total	**433,991**	**388,163**

Table 10.1 2015 Capital Investment ($000)

10.2. Facilities Placed Into Service

Table 10.2 shows the facilities related to major projects placed into service in 2015.

NY Assets Placed in Service - Engineering & Delivery

1/1/15 - 12/31/15

Equipment	Total	11.5kV	12kV	12.5kV	15kV	34.5kV	38kV	72kV	115kV	345kV
Breakers	20				4	5			11	
Switchgear	20	6	13			1				
Disconnect Switches	49				13	7			29	
CCVT	22								22	
Capacitor Banks	2					6.8MVAR			10.8MVAR	

Line/Cable	Total Miles	15kV	34.5kV	46kV	115kV
Transmission Line	13.5		13.5		
T-Line - ADSS	0				
Distribution Line	0				
Distribution Cable	0				

Transformers					1	230kV/115kV/34.5kV LTC transformer, 180/240/300 MVA
					1	115kV/12kV transformer (22 MVA)
					2	115 kV/11.5 kV 70(78.5) MVA transformers
					1	46/12.5kV, 12/16/20 (22.4) MVA transformer
					2	34.5/11.5 kV 37MVA temporary transformer
					1	Three phase 5MVA - 34.5/4.8kV transformer
					2	100ka station service transformer
				Total	10	

Substations				20		
				Total		

Batteries	2	Installation of NiCad batteries
	2	Total

Control House Modifications	13
Control Houses	10
Oil Containment Improvements	212 substations at NYSEG; 64 substations at RGE

List of Projects in Service in 2015:
CIP Upgrades- Station 124
Croton Falls NYCDEP Shaft 11
Hickling Control House Relocation
Jennison Control House Relocation (AES
Keuka Substation New Transformer
Line 601 Western Half Distribution
Line 807 Conversion to 115kV-Katonah Substation
New Gardenville DME (disturbance monitoring equipment) Installation
Perry Center Substation
Robinson Road Substation Transformer Replacement
Station 122 FERC Brightline
Station 135 Security Upgrades
Station 13A
Station 180
Station 251
Station 5
Station 56 Additional 12kV Source Project
Station 95
Tom Miller Road Substation
Transit Street MGP Remediation
Sta. 218 to Clyde
Sta. 178 Cap Banks

Table 10.2 Facilities Placed into Service in 2015

NYSEG and RG&E /
INVESTMENT PLANNING /
FIVE YEAR PLAN

Attachment 1 / Capital Projects Summary / Electric

Capital Project Summary

Project Title FERC- Bright Line
Operating Company NYSEG
Project Type Electric
Investment Category Mandatory

Description

The USA Federal Energy Regulatory Commission (FERC) issued Order 773 on December 20, 2012 establishing a new “Bright Line” Bulk Electric System (BES) Definition. This new BES Definition obligates Iberdrola USA and all other Transmission Owners in the United States to apply more strict North American Electric Reliability Corporation (NERC) Reliability Standards to their transmission systems at voltages of 100 kV and higher. This project is to meet compliance with transmission system design requirements of the NERC Transmission Planning Standards. The total cost, cash flows and duration of cash flows are preliminary. The project scope continues to be developed and defined.

Reasons and Benefits

FERC issued Order 773 on December 20, 2012. Compliance with the new BES Definition is mandatory. Iberdrola USA must comply with over 100 NERC Reliability Standards applicable to the BES by 2016, or else be subject to fines and sanctions up to $1 million per day per violation, depending on severity.

Planned Capital Investment ($000)

Total Project Cost TBD

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
52	161	233	722

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
4,000	10,000	10,000	10,000	53,722	TBD

Capital Project Summary

Project Title RARP
Operating Company RG&E
Project Type Electric
Investment Category Mandatory

Description

As part of the RARP, Station 255, a new 345kV bulk power system station, will be constructed and located approximately 3.8 miles west of the RG&E Station 80. The two NYPA 345kV cross-state transmission lines will be brought into the new station. A new 345kV line will be constructed between the new substation and Station 80. Two 115kV lines will be emanate from the new substation. The first line, which is approximately 10 miles long, will tie into Station 418. The second line, which is approximately 14 miles long, will tie into the RG&E 115kV system at Station 23. An Article VII petition has been filed with the PSC.

Reasons and Benefits

The RARP was originally designed to provide adequate supply to the RG&E service area during refueling outages of the Ginna Nuclear Plant, which, when needed, are scheduled during light load periods. The project reduces loading values already below LTE rating at Station 122 during the temporary outage of Ginna in peak load periods and also provides for future load growth. With the announcement of the proposed retirement of Ginna, new studies showed the need for immediate reinforcement of the transmission system elements at Station 122 to bring loading below Normal ratings, followed by the later completion of the RARP scope of work to address load growth and system resiliency under N-1-1 planning criteria.

Planned Capital Investment ($000)

Total Project Cost 262,010

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
8,820	17,018	19,528	5,539

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
10,987	41,372	55,429	66,632	36,685	-

Capital Project Summary

Project Title Ginna Retirement Transmission Alternative and Fifth Bay - Station 80
Operating Company RG&E
Project Type Electric
Investment Category Mandatory

Description

This project consists of consists of two major elements and work at Station 80. First, RG&E will upgrade the Company's facilities at Station 122. The work at Station 122 consists of: replacing three transformers at Station 122 with new transformers from 200MVA class to 450MVA class; reconfiguring the 345 kV circuit breaker to a breaker and a half configuration; and replacing the 115 kV open-air breaker configuration with a 115 kV gas-insulated switchgear arranged in a breaker and half configuration. Second, RG&E will uprate four circuits: 34.5 kV Circuit 718; 34.5 kV Circuit 735; 34.5 kV Circuit 770; and Circuit 623. Finally, RG&E will construct a new bay of 345 kV circuit breakers at Station 80 with new control and protection systems.

Reasons and Benefits

The upgrades and reconfiguration included in this project are needed to solve the thermal overloads at Station 122 and to ensure that only one bulk transformer can be lost in a single contingency. A GIS breaker and half is needed to replace the existing 115kV park due to a fault over duty failure because of the replacement of the transformers. The new (fifth) 345 kV bay is needed to resolve the stuck breaker at Station 80, which will ensure that only one bulk transformer is lost in a single contingency. Additionally, the upgrade of circuits enables the RG&E network to transfer power from Station 80 to Station 122 and vice versa. This ability allows for the reduction or elimination of thermal overloads under contingency conditions.

Planned Capital Investment ($000)

Total Project Cost 144,850

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
-	-	-	23,332

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
106,004	15,514	-	-	-	-

Capital Project Summary

Project Title Station 23 - New Downtown 115kV Source
Operating Company RG&E
Project Type Electric
Investment Category System Capacity

Description

Station 23 will have a new gas-insulated 115kV bus with two new 115/34.5 kV transformers with two 34.5 kV feeds to Station 137. The 115kV line 901 will be upgraded from Station 82 to Station 33 above ground and from Station 33 to Station 23 underground.

Reasons and Benefits

The new 115 kV source at Station 23 Project is required under RG&E's Internal Planning Criteria for N-1 contingencies. The Station 23 project eliminates N-1 thermal overloads, including overload on the supply lines to Station 3, overloads of the 115/34.5kV transformers at Station 33, overloads on the 115kV cables that supply Station 42, overloads on 34.5 kV cables in the vicinity of Station 42, and overload on the 115 kV Circuit #901, all under contingency conditions. The new 34.5 kV lines from Station 23 to the 34.5kV bus at Station 137 solve the thermal problems associated with the loss of one of the existing 34.5 kV lines feeding Station 3 and provide a third source to Station 42, which enhances resiliency.

Planned Capital Investment ($000)

Total Project Cost 123,472

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
11,875	7,686	8,290	10,380

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
37,070	40,859	7,313	-	-	-

Capital Project Summary

Project Title FERC- Bright Line
Operating Company RG&E
Project Type Electric
Investment Category Mandatory

Description

The USA Federal Energy Regulatory Commission (FERC) issued Order 773 on December 20, 2012 establishing a new “Bright Line” Bulk Electric System (BES) Definition. This new BES Definition obligates Iberdrola USA and all other Transmission Owners in the United States to apply more strict North American Electric Reliability Corporation (NERC) Reliability Standards to their transmission systems at voltages of 100 kV and higher. This project is to meet compliance with transmission system design requirements of the NERC Transmission Planning Standards. The total cost, cash flows and duration of cash flows are preliminary. The project scope continues to be developed and defined.

The costs shown in below are an estimate of the project costs based on conceptual engineering and do not include the entire cost of the project.

Reasons and Benefits

FERC issued Order 773 on December 20, 2012. Compliance with the new BES Definition is mandatory. Iberdrola USA must comply with over 100 NERC Reliability Standards applicable to the BES by 2016, or else be subject to fines and sanctions up to $1 million per day per violation, depending on severity.

Planned Capital Investment ($000)

Total Project Cost TBD

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
94	147	1,403	2,708

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
5,000	10,000	10,000	10,000	4,663	TBD

Capital Project Summary

Project Title Auburn Transmission Project
Operating Company NYSEG
Project Type Electric
Investment Category Mandatory

Description

This project includes the construction a new 115 kV transmission line ("Phase 1") and enhancement of an existing 115kV circuit ("Phase 2"), both running approximately 14.5 miles from National Grid's Elbridge Substation to NYSEG's State Street Substation in Auburn, as well as associated work at both substations. The route of the project follows an approximately 4.2 mile existing NYSEG right-of-way and an approximately 10.3 mile existing National Grid right-of-way. Phase 1 would add a new circuit between the two substations. Phase 2 would increase the capacity of the existing circuit between the two substations comprised of NYSEG's existing 115kV Line 972 and National Grid's existing Line 5. This Phase 2 increase would be accomplished by NYSEG rebuilding its 4.2 mile Line 972 and National Grid busing together its 10.3 mile Line 5 with the conductors presently comprising the same 10.3 section of its Line 15, which is double-circuited with Line 5 for that length. To allow use of Line 15 for this purpose, Phase 2 also includes electrically relocating Line 15 to new conductors that would be installed on the double-circuit structures installed for the 10.3 mile portion of the Phase 1 new line in National Grid's right of way.

Reasons and Benefits

The Auburn Transmission Project is needed under NERC Bulk Electric System Planning Criteria for N-1 contingency and NYSEG's internal planning criteria to reinforce NYSEG's electric transmission system in its Auburn Division. Currently, NYSEG's ability to ensure reliable service to customers in this division is dependent on both of the generating units at the Cayuga Generating Facility being available to operate. The project will enable NYSEG to maintain adequate system normal and single contingency service throughout the Auburn Division during temporary or extended outages of generating units at the Cayuga Generating Facility.

Planned Capital Investment ($000)

Total Project Cost 66,271

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
417	2,020	3,916	4,179

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
35,416	20,322	-	-	-	-

Capital Project Summary

Project Title Station 117 - Replace #1 Transformer Bank and convert 3 circuits to 12kV oper

Operating Company RG&E

Project Type Electric

Investment Category System Capacity

Description

Replace Transformer Bank #1 and associated gear with a new 34.5-12.5 kV, 20/26/33 (37.3)MVA Transformer Bank and convert the 3 existing 4.16 kV distribution circuits to 12.5 kV.

Reasons and Benefits

The loading on the existing 5.25 MVA transformer bank #1 at Station 117 has reached 103% of its PLBN rating during the summer peak of 2013. The conversion to 12kV will enhance station capacity, and adjacent station 12kV circuit tie over for contingency. The larger transformer will improve system reliability by providing N-1 capacity to the station, and adjacent circuits that currently are without adequate circuit ties during high demand periods.

Planned Capital Investment ($000)

Total Project Cost 20,406

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
-	-	-	-

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
-	-	-	5,100	6,306	9,000

Capital Project Summary

Project Title Station 168 Service Area Reinforcement
Operating Company RG&E
Project Type Electric
Investment Category Reliability Risk

Description

Sectionalize National Grid trunks number two and number four at Station 168 with 115kV breakers, along with upgrading protection/controls in new control house associated with 115kV breakers and sectionalizing, including new NiCAD battery system, relays, telecomm, and similar. Install a new 34KV line terminal within NYSEG Eelpot Substation for a new 34kV line north to the Bristol Mountain service area. Build a new 34.5 kV transmission line with 16.3 mile routing from the NYSEG Eelpot Substation to the 34.5 kV Bristol Mountain service area presently served from Station 168. Modify line protection systems at RGE Station 122, NYSEG Border City substation, and Niagara Mohawk Elbridge and Mortimer Substations.

Reasons and Benefits

The basis for this project is to provide system contingency should Trunks number four and number seven (National Grid) be lost under summer or winter peak conditions, sectionalize the trunks, avoid thermal overload on service systems and support transformer load leveling. Project will be divided into 4 key sub-projects based on financial, accounting, and completion/ISD dates, allowing closure of project in phases.

Planned Capital Investment ($000)

Total Project Cost 28,991

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
3,061	466	617	207

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
3,991	4,387	7,813	4,449	4,000	-

Capital Project Summary

Project Title Station 262- New 115kV/34.5kV Substation
Operating Company RG&E
Project Type Electric
Investment Category Reliability Risk

Description

A new 115 kV source station for the Station 26 load provides necessary relief to existing lines and transformers from thermal stress under these contingency conditions. The new 115 kV source will take the form of a new 115/34.5 kV substation, a new 34.5 kV line, and a second 34.5/11.5 kV transformer at Station 26.

Reasons and Benefits

Station 26 and Station 6 serve approximately 38MW of load which is approximately 700 customers and the 11.5 kV network load. During high load periods, loss of the 34.5 kV Circuit #741 (Station 101- Station 33) or loss of the 34.5/11.5kV transformer at Station 26 results in thermal overload above the short-term emergency (STE) rating of the 11.5 kV Circuit #629 (Station 6 – Station 23). This results in shedding approximately 8MW of load to relieve the overload. The period of exposure is approximately 175 hours per year.

Planned Capital Investment ($000)

Total Project Cost 24,379

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
3,272	4,378	2,771	2,811

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
100	2,363	2,023	3,500	3,160	-

Capital Project Summary

Project Title Columbia County Transmission Project (Klinekill 115 kV)
Operating Company NYSEG
Project Type Electric
Investment Category Mandatory

Description

A new 115kV line was proposed to create a connection between an existing National Grid 115kV source and NYSEG's Klinekill substation. However, in the course of the Article VII proceeding for the licensing of the proposed 115kV line, Staff recommended the construction of a 115/34.5kV substation with two 34.5kV distribution lines as an alternative. This alternative is currently being reviewed and is the subject of settlement proceedings.

Reasons and Benefits

The Columbia County Transmission Project is required under NYSEG's internal planning criteria for N-1 contingency. N-1 loss of the existing 115kV Line 984 from Churchtown to Craryville or loss of the existing 115kV Line 993 from Greenbush to Stephentown results in low voltage issues in the Columbia County area of NYSEG's Mechanicville Division. This project as originally proposed would correct these deficiencies, eliminating the potential for loss of load for the subject contingencies and improving overall system resiliency and restoration times. It would also accommodate increasing demand in the region.

Planned Capital Investment ($000)

Total Project Cost 22,684

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
1,412	1,606	2,609	631

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
1,988	8,303	6,135	-	-	-

Capital Project Summary

Project Title Hilldale 115kV source, xfrmr bank upgrade, 2nd 12kV dist circ
Operating Company NYSEG
Project Type Electric
Investment Category System Capacity

Description

This project proposed to relieve the Hilldale 34.5/12.5KV 10.5MVA (3-2.5/2.8/3.5MVA) substation transformers by adding a second 115/12.5KV 1-12/16/20MVA LTC substation, converting the existing 4.8 kV circuit #225 to 12 kV operation and adding a 2nd 12.5KV feeder. The transformer will be served off the 115KV rather than the 34.5KV transmission system.

Reasons and Benefits

During the Summer of 2013, the Hilldale substation transformer was loaded up to 98% (10.3MVA) of it's top nameplate rating. Plans have also been received for a new 100 home underground housing development located at Inner Circle Drive off State Route 52 in the Town of Fallsburg. The substation has also experienced many outages on the 34.5KV subtransmission. Switching the source from the 34.5KV to the 115KV transmission will improve the reliability and allow for future ties (without phasing issues) with the new future 115/12.5KV Old Fall substation. Moving the load from the 3.5KV to the 115KV transmission will also free capacity on the 34.5KV system.

Planned Capital Investment ($000)

Total Project Cost 18,708

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
-	-	-	-

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
-	-	8,192	2,516	8,000	-

Capital Project Summary

Project Title Stations 67 to 418 New 115kV Transmission Line
Operating Company RG&E
Project Type Electric
Investment Category Reliability Risk

Description

New 115kV line from Station 67 to Station 418. At Station 67: Abandon the existing circuit breaker 92602 and add a new line terminal for Circuit 926. Add a new circuit breaker 8x6772 to Bus #1 to connect new 115kV Bus #3 for accomodation of the new line positions (L939) and connection points for a mobile sub and future 4T. Also included is installing new protection and control for L939 and Bus #3, upgrading Circuit 910 protection to match new relaying at Station 418, and upgrade control relay for Circuit 926. At Station 418: Replace the existing 4 fault duty circuit switchers. Three (3) new CCVT's will be installed on 115kV bus section #2. Slipover CTs will be added to the existing transformers. Also added is a new Control house for all new P&C.

Reasons and Benefits

Station 418 serves approximately 50MW of load which is approximately 9,800 customers. During high load periods, loss of the 910 line results in low-voltages and overloads above STE on the 917 line. This would result in shedding all 50 MW of load at Station 418. The period of exposure is approximately 300 hours per year. On February 23, 2011 an outage was experienced on the 917 circuit that cascaded resulting in the loss of 46,000 customers.

A new line between Station 418 and Station 67 will resolve the contingency issue for the 910 line. The criteria being used for this project is the single contingency criteria. The criteria provides for two things; first, that with the loss of any element, the remaining elements stay above the post contingency voltage. Second, that with the loss of any element, the remaining elements stay below their long term contingency rating.

Planned Capital Investment ($000)

Total Project Cost 32,073

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
767	1,552	791	331

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
-	-	-	-	6,296	22,337

Capital Project Summary

Project Title S2 Replace Unit 1 Penstock
Operating Company RG&E
Project Type Generation
Investment Category Reliability Risk
Description
Design, procurement, and installation of a new penstock, trash chute, fish bypass, and siphon.

Reasons and Benefits
The existing systems are at end of life and require replacement to prevent potential failures and long term station outages.

Planned Capital Investment ($000)

Total Project Cost 11,650

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
-	-	-	-

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
2,000	4,000	5,550	100	-	-

Capital Project Summary

Project Title Fraser New 2nd 345kV/115kV Transformer and 115kV Bus Reconfiguration
Operating Company NYSEG
Project Type Electric
Investment Category Mandatory

Description

Install a second 345/115 kV, 150/200/250/280 MVA, LTC transformer at the Fraser Substation and operate it in parallel with the existing 345/115 kV, 150/200/250/280 MVA LTC transformer.

Reasons and Benefits

Oneonta Division is winter peaking and has low bus voltages throughout the northern parts of the Division. Loss of the 345/115kV transformer at Fraser causes low bus voltages throughout the area. The problem appears at a Division load level of 160MW. The exposure is about 3,000 hours for 2015, with approximately 50 MW at risk.

Planned Capital Investment ($000)

Total Project Cost 16,146

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
80	9	48	110

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
100	2,607	4,968	8,224	-	-

Capital Project Summary

Project Title Station 23-Transformer &11.5kv Switchgear
Operating Company RG&E
Project Type Electric
Investment Category Asset Condition Replacement

Description

This project will add an 11 kV GIS and two 115/11 kV transformers to Station 23, as well as add a double bus configuration to the 115kV GIS.

Reasons and Benefits

Transformer replacements are due to aging infrastructure. 1T and 2T are leaking and reaching the end of their useful lives. Two of the four bus sections of 11 kV are overdutied and need to be upgraded for proper fault current ratings. Bus 3-4 today is at 96% of rated interrupt capacity. Looking toward future planning with all projects included, the breaker duties will continue to increase. Bus 3 and Bus 4 will each have 6 breakers with fault duty equal to 100 - 100.1% of their interrupt capability leaving no interrupt capability room for system changes. This project will insure the reliability of supply from Station 23.

Planned Capital Investment ($000)

Total Project Cost 16,001

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
4,198	1,908	2,082	1,439

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
2,039	3,732	603	-	-	-

Capital Project Summary

Project Title Sectionalize 115kV Circuit 917 (S7 - S418)
Operating Company RG&E
Project Type Electric
Investment Category Reliability Risk

Description

The RG&E owned 115kV circuit number 917 includes 6 tapped substations and over 30,000 customers. The existing 917 line protection is provided by primary and secondary step distance electromechanical relays located at Station 418 and microprocessor based relays at Station 7.The purpose of this project is to minimize the impacts of faults on this line by breaking up the line at various locations using breakers and possibly motor-operated switching sectionalizing schemes depending on what can be done at various substations. The solution required to sectionalize the line is to install circuit breakers and switches in each of the 115kV buses at Station 69 and 70 and install GIS-type compact switching devices for Station 71. It is also required to equip the existing 115kV disconnect switches at Station 69, 70, and 113 with motor operating mechanisms as well as supervisory elements for remote control. Protections and controls necessary to isolate each section of the line in the minimum time will also be provided for the project, as well as fiber optic communication. 2015, Station 69 above ground construction will be completed as well as completing SPC 3-7 for Station 70 and beginning detailed engineering for Station 71.

Reasons and Benefits

Sectionalization of the existing line at various locations by use of breakers at Station 71 and motor operated sectionalizing schemes at Stations 69 and 70 will minimize the number of customers affected by a persistent fault. Station 113 is currently used to sectionalize the line. Motor operated switches will be added at this station to ensure reliability. This project also includes the establishment of necessary communication, control and protection.

Currently, the circuit is sectionalized in two and a failure will affect half of the customers. Adding sections will allow the automatic isolation of a persistent fault to a smaller section and therefore affect fewer customers.

Planned Capital Investment ($000)

Total Project Cost 14,230

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
1,662	1,554	2,751	1,931

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
100	1,478	2,755	2,000	-	-

Capital Project Summary

Project Title Eelpot New 2nd 115kV/34.5kV Transformer
Operating Company NYSEG
Project Type Electric
Investment Category System Capacity
Description
Install a second 115/34.5 kV, 30/40/50/56 MVA, LTC transformer at Eelpot Road Substation and operate it in parallel with the existing 115/34.5 kV, 30/40/50/56 MVA, LTC transformer.

Reasons and Benefits
During the 2015 summer peak load period, an outage of the existing Eelpot Road 115/34.5 kV transformer would cause the Meyer to Wayland 34.5 kV line #565 to exceed its summer LTE rating and result in submarginal voltages at Midlesex (0.718), Naples (0.730), Eelpot (0.744), Sprngwtr (0.809), Atlanta (0.753), Wayland (0.817), Atlantic (0.872), and Kanona(0.884). 79MW is the threshold load level at which violations occurs, with approximately 9.1MW at risk for an outage of the Eelpot Road 115/34.5 kV transformer.

Planned Capital Investment ($000)

Total Project Cost 12,813

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
2,646	1,570	2,633	2,223

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
3,741	-	-	-	-	-

Capital Project Summary

Project Title Station 43 - Replace #3 and #4 Transformer Banks.
Operating Company RG&E
Project Type Electric
Investment Category System Capacity

Description

Replace transformer banks #3 and #4 at Station 43 with two new 34.5-4.16x12.5 kV, 13.4/17.9/22.4 MVA transformer banks. A request for proposal is currently being developed for a non-wire alternative solution to relieve the overload concern.

Reasons and Benefits

The loading on the existing 6.25 MVA transformer banks #3 and #4 at Station 43 has reached 113% and 95% of their PLBN rating respectively during the summer peak of 2011. The transformers are older units, #3T was installed in 1950 and #4T was installed in 1953. The total peak loading at the station is around 14 MVA, attributable to the six circuits, three fed from each transformer. The station serves approximately 6,356 residential and commercial customers. Presently, loss of either transformer places the other in a situation where it is loaded well above its LTE rating, which conflicts with Distribution Planning Criteria.

Planned Capital Investment ($000)

Total Project Cost 7,285

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
-	-	-	-

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
4,500	2,785	-	-	-	-

Capital Project Summary

Project Title Old Fall substation - Install 2nd LTC Transformer
Operating Company NYSEG
Project Type Electric
Investment Category System Capacity
Description
Install a second 12/16/20 MVA LTC transformer at the Old Falls Substation. Install three 12.5 kV distribution feeders.

Reasons and Benefits
The Old Falls Substation transformer tripped in Summer 2011 due to an overload. The summer peak was recorded as high as 24 MVA but the existing substation bank only has a summer PLBN rating of 22 MVA. Loss of this transformer could affect 26 MW of load and 3,600 customers.

Planned Capital Investment ($000)

Total Project Cost 10,580

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
221	28	24	27

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
3,738	3,042	3,500	-	-	-

Capital Project Summary

Project Title Perry Center Area New 34.5kV Substation
Operating Company NYSEG
Project Type Electric
Investment Category Mandatory
Description

Construct a new 3-breaker, 34.5 kV switching station and bring in all three sections of the 591 line into the new substation and close the normally open switch #59186 between Stanton Avenue and Perry Center Substations.

Reasons and Benefits

During the 2015 summer peak load period, an outage of the Federal Street to Perry Center 34.5 kV line #591 would cause the South Perry to Silver Springs 34.5 kV line #590 to exceed its summer LTE rating. Up to 5 MW and 1,400 customers in the area could potentially be at risk for an outage of the Federal Street to Perry Center 34.5 kV line #591.

Planned Capital Investment ($000)

Total Project Cost 10,441

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
652	790	3,621	2,960

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
100	2,319	-	-	-	-

Capital Project Summary

Project Title Coopers Corners - Add Third 345/115 kV Transformer

Operating Company NYSEG

Project Type Electric

Investment Category Mandatory

Description

This project includes the installation of a third 345/115 kV, LTC transformer rated 120/160/200 MVA at Coopers Corners Substation and appurtenant equipment. The new transformer will be operated in parallel with the two existing 345/115 kV, 200 MVA, LTC transformers.

Reasons and Benefits

The Coopers Corners Third 345/115kV Transformer Project is required under NPCC/NYSRC Bulk Power System Planning Criteria for N-1-1 contingency. Currently, if one of the existing 345/115 kV transformers at Coopers Corners Substation is out of service for an extended period and the remaining 345/115 kV transformer suffers a forced outage, widespread load shedding would be experienced by the majority of NYSEG's customers in its Liberty Division.

Planned Capital Investment ($000)

Total Project Cost 10,095

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
99	(37)	13	149

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
-	461	2,346	7,063	-	-

Capital Project Summary

Project Title Amenia 2nd Bank & 13.2 KV Conversion - Brewster
Operating Company NYSEG
Project Type Electric
Investment Category System Capacity
Description
Relocate and install the 46 -13.2 KV 5 MVA LTC unit substation from Kent Substation to Amenia to initiate a voltage conversion of 4.8 KV circuit #153 to 13.2 KV.

Reasons and Benefits
This will address bank loading concerns on the existing 3-1667 KVA 46-4.8 KV transformers.

Planned Capital Investment ($000)

Total Project Cost 10,000

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
-	-	-	-

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
-	-	3,000	7,000	-	-

Capital Project Summary

Project Title Gardenville, Add 3rd 230/115 kV Transformer
Operating Company NYSEG
Project Type Electric
Investment Category Reliability Risk

Description

The project will install a third 230/115 kV transformer at the Gardenville Substation and operate it in parallel with the two existing transformers.

Reasons and Benefits

Lancaster Division has low bus voltages along 34.5kV line#525 under system normal. N-1 loss of existing 230/115 kV transformer at Gardenville caused thermal overload at the 2nd Gardenville 230/115 kV transformer. The load threshold of this problem was 468MW in 2008, when the peak load was 570.6MW. The peak for 2015 is expected to be about 543.5MW.

Planned Capital Investment ($000)

Total Project Cost 17,429

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
-	-	-	-

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
-	-	-	660	12,683	4,086

NYSEG and RG&E /
INVESTMENT PLANNING /
FIVE YEAR PLAN

Attachment 2 / Capital Projects Summary / Gas

Capital Project Summary

Project Title DeRuyter Transmission Replacement
Operating Company NYSEG
Project Type Gas
Investment Category Reliability Risk
Description

Replace approximately 25 miles of 8" 298 psig coated steel gas transmission gas mains with 10" in 4 phases over 4-5 years.

Reasons and Benefits

The DeRuyter transmission mains were installed in 1953 and lack sufficient capacity to supply the Winney Hill 1st stage regulator station in Oneonta. The increase in capacity will eliminate the need to utilize the compressor located in Norwich. If the compressor is still run, the replacement increases capacity by approximately 590 mcfh or 38% above existing capacity.

Planned Capital Investment ($000)

Total Project Cost 49,500

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
-	-	-	-

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
-	500	15,000	17,000	17,000	-

Project Title Gas Regulator Modernization & Automation Program
Operating Company NYSEG
Project Type Gas
Investment Category Reliability Risk

Description

Replace equipment that is obsolete or in poor corrosion or operating condition. Replacements include: regulators, filters, chart recorders, valves, inlet and outlet piping, enclosures, associated fittings, and corrosion protection. Includes RTU and other automation improvements.

Reasons and Benefits

This modernization and automation program improves system reliability, reduces maintenance costs, reduces potential outages due equipment failures, and improves equipment standardization and safety.

Planned Capital Investment ($000)

Total Project Cost 18,970

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
1,951	774	1,021	562

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
1,000	2,795	3,000	4,500	4,318	-

Project Title Lansing / Freeville - Gas Reinforcement Project
Operating Company NYSEG
Project Type Gas
Investment Category Mandatory

Description

Install 7 miles of 10" 124 psig gas main along West Dryden Road and a new 60 psig regulator station at the intersection of Warren Rd and West Dryden Rd. DTI rebuild of Freeville POD (NYSEG capital cost) and NSYEG facilities including: odorization, 60 psi regulation, overpressure protection for 124 psi and 60 psi, and SCADA.

Reasons and Benefits

The project is necessary to serve growth in the Dryden and Lansing townships. Without these projects a moratorium for areas of Lansing and Dryden will be necessary due to insufficient existing capacity to support further growth in load demand. There is significant pressure from customers, politicians and the PSC for NYSEG to serve the load growth. NYSEG has responded to the PSC IR's regarding a developer's complaint regarding inability to serve and NYSEG's plans for system improvements. Existing design day pressure is calculated to be 14 psi at the system endpoint, less than 50% of maximum operating pressure of 60 psig. The northern system endpoint has experienced pressures of approximately 24 psi during the winters of 2013-2015. Those winter conditions were warmed than the design day condition. This limits the distribution system ability to serve new load growth.

Planned Capital Investment ($000)

Total Project Cost 15,691

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
-	-	171	100

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
560	9,271	5,030	-	-	-

Project Title Chemung County Gas Service Replacements
Operating Company NYSEG
Project Type Gas
Investment Category Mandatory
Description
Replace all 1' and 1-1/4" leak prone steel medium pressure gas services in the county, approximately 1,000 services.

Reasons and Benefits
This project improves safety and reliability and meets requirements of an order anticipated from the PSC. Field investigation work is in progress.

Planned Capital Investment ($000)

Total Project Cost 16,092

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
-	-	-	4,792

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
5,650	-	-	-	-	-

Project Title Phelps (South) Transmission Replacement
Operating Company NYSEG
Project Type Gas
Investment Category Reliability Risk
Description

Rebuild Phelps Tap (South) and replace 25,000 feet of 10" steel gas main (162 psi) with 12" steel gas main (203 psi). Add regulation and controls to Millard Tap.

Reasons and Benefits

The project will increase reliability and capacity to the Geneva System during peak demand by eliminating the operational practice of seasonally opening/closing the Packwood Valve. The project addresses asset condition by replacing transmission pipe installed in the 1940s. In addition, this improvement increases gas capacity by approximately 680 mcfh or 38% above existing capacity.

Planned Capital Investment ($000)

Total Project Cost 8,971

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
-	-	-	-

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
500	2,300	5,671	-	-	-

Project Title Vienna Rd -Macedon Feeder Main replacement
Operating Company NYSEG
Project Type Gas
Investment Category System Capacity
Description
Install approximately 39,500 feet of 10" steel gas main, from Vienna Road Regulator Station to Palmyra City Gate Regulator Station.

Reasons and Benefits
Existing system is below 50% of maximum operating pressure on design day. The system is experiencing growth and lacks capacity to support additional load. The downstream system, the Macedon 45 psig MAOP system, has been supplemented by an emergency interconnect with RGE since 2008 to maintain system pressures during peak usage periods. This improvement would reinforce the system, improve reliability and would allow serving additional commercial customers.

Planned Capital Investment ($000)

Total Project Cost 7,200

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
-	-	-	-

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
100	5,800	1,200	-	-	-

Project Title Mechanicville Compressed Natural Gas Station and Facilities
Operating Company NYSEG
Project Type Gas
Investment Category Mandatory

Description

The project includes: site development, odorization, regulation, over pressure protection, SCADA etc. for development of Compressed Natural Gas (CNG). Phase 1 is located at Central Avenue, Phase 2 is for a future location to be determined that can accommodate additional CNG trucks for gas demand load growth beyond what Phase 1 can accommodate (2 CNG trucks).

Reasons and Benefits

The project is necessary to lift a moratorium that has been on file with the PSC since Fall 2012. The moratorium is that NYSEG can no longer support the addition of new customers or added load from existing customers on this gas distribution system. The project will build, connect and maintain compressed natural gas trailer facilities that will provide peak shaving gas supply. This will allow lifting the moratorium and connection of new customers. The existing gas supply from National Grid is insufficient in pressure and flow to meet load growth. The option to improve National Grid's facilities to support NYSEG's increasing customer demand would be a pipeline improvement project on Grid's facilities that would cost $6M to Grid in capital, $6M to NYSEG. NYSEG has been and continues to be in discussion with PSC staff regarding lifting the moratorium by the heating season 2015-2016. The timing of Phase 2 depends on the realization of future load growth and ability of Phase 1 to meet that demand.

Planned Capital Investment ($000)

Total Project Cost 7,031

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
-	120	115	3,814

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
-	-	3,000	-	-	-

Project Title Plattsburgh Gas Franchise Expansion - Distribution Piping
Operating Company NYSEG
Project Type Gas
Investment Category Mandatory
Description
Extend mains (66500 feet) and services (460) outside existing franchise limits.

Reasons and Benefits
Comply with PSC order filed 7/24/2014. Meet customer demand and corporate objectives.

Planned Capital Investment ($000)

Total Project Cost 7,679

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
-	-	205	4,986

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
1,600	1,586	315	-	-	-

Project Title CM-1 Transmission Gas Main Replacement Project
Operating Company RG&E
Project Type Gas
Investment Category Reliability Risk
Description

This project replaces the remaining CM-1 after the CM-5 project is complete. The CM-1 replacement project installs 35000 feet of 24" wrapped steel pipeline from the Caledonia Gate Station north to the new Empire West Gate Station on Ballantyne Road south of Humphrey Road.

Reasons and Benefits

The project addresses asset condition by replacing transmission pipe installed in the 1950s that has leak potential as identified by RG&E's IMP. The new pipeline will be designed to operate at less than 20% SMYS. The project is part of the long-term plan to maintain gas supply to the Rochester area and improve transmission system reliability. This CM-1 pipeline replacement will also be designed and constructed to a MAOP of 330 psig and tie into the new CM-5 pipeline which will also have a MAOP of 330 psig. This will provide for long term growth on the RG&E transmission system and increase gas supply from the Caledonia Gate Station, Dominion Transmission Company. Reliability will also improve by looping this section of CM-1 with CM-5, CM-4 and CM-2.

Planned Capital Investment ($000)

Total Project Cost 25,500

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
-	-	-	-

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
-	500	5,000	10,000	10,000	-

Project Title Gas Regulator Modernization & Automation Program
Operating Company RG&E
Project Type Gas
Investment Category Reliability Risk

Description

This program replaces equipment that is obsolete or in poor asset or operating condition. Replacements include: regulators, filters, heaters, odorizers, backup generators, chart recorders, valves, inlet and outlet piping, enclosures, associated fittings, and corrosion protection. The program also includes automation of equipment such as: RTUs, Telog endpoints, and automated regulator operation as appropriate.

Reasons and Benefits

This modernization and automation program improves system reliability, reduces maintenance costs, reduces potential outages due equipment failures, and improves equipment standardization and safety.

Planned Capital Investment ($000)

Total Project Cost 16,615

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
2,784	1,026	740	343

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
1,000	2,586	3,000	3,000	3,920	-

Project Title CM5 - Gas Main Replacement - Humphrey to Ballantyne Rd
Operating Company RG&E
Project Type Gas
Investment Category Reliability Risk
Description

This project installs 22,800 feet of 24" wrapped steel pipeline parallel to the existing CM-1, 22 ½" pipeline from the new Empire West Gate Station north to Ballantyne Rd. Engineering will begin in 2015 for the Article VII application.

Reasons and Benefits

The project addresses asset condition by replacing transmission pipe installed in the 1950s that has leak potential as identified by RG&E's Integrity Management Plan. The new pipeline will be designed to operate at less than 20% SMYS. The project is the first part of the long-term plan to increase gas supply to the Rochester area and improve system reliability. Replacing the 22 ½" pipeline with 24" and tie into the new Empire West Gate Station improves system capacity and terminal pressure at the Buffalo Road regulator station 20 percent. The new CM-5 pipeline will be designed and constructed to a MAOP of 330 psig and tie into the existing CM-4 pipeline which also has a MAOP of 300 psig. This improvement to 330 psig will provide for long term growth on the RG&E transmission system.

Planned Capital Investment ($000)

Total Project Cost 18,805

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
-	-	-	252

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
4,000	10,553	-	-	-	-

Project Title	Recycled Energy Development (RED) Transmission Gas Main Extension
Operating Company	RG&E
Project Type	Gas
Investment Category	Mandatory

Description

Recycled Energy Development is a customer driven and reimbursed project to build more than 4 miles of new 12" or 16" transmission main for conversion of coal fired electric generation to natural gas. The pipe size chosen by RED will depend on RED's forecast for customer demand growth within the existing Kodak Park utility service area. The new transmission pipe will be designed for a future maximum allowable operating pressure of 330 psig and run normally at 250 psig. The minimum delivery pressure to RED is 180 psi at the existing Weiland Road meter location. The transmission main will begin at the Buffalo Road Regulator station and extend north along the Erie Canal and Lee Road to Weiland Road in the Town of Greece. The project requires an Article VII permit. Design and Article VII application development are underway for a 2016 construction start.

Reasons and Benefits

This project provides service to new customer in accordance with tariff, generating gas delivery revenue and meet corporate objectives for gas system growth.

Planned Capital Investment ($000)

Total Project Cost 16,590

2015 and Prior Investments:

Prior to 2013	2013	2014	2015
-	-	44	-

2016 and Future Year Investments:

2016	2017	2018	2019	2020	2021 and Future
2,096	12,354	-	-	-	-

NYSEG and RG&E /
INVESTMENT PLANNING /
FIVE YEAR PLAN

Attachment 3 / Detailed Project List by Sponsor

Project List - by Sponsor	2016	2017	2018	2019	2020	Total 2016-2020
NYSEG	$ 232,904,750	$ 287,798,000	$ 268,934,000	$ 287,303,000	$ 363,900,480	$ 1,440,840,229
Asset Management	$ 13,250,000	$ 14,950,000	$ 15,700,000	$ 16,450,000	$ 19,500,000	$ 79,850,000
Asset Condition Replacement	$ 13,250,000	$ 14,950,000	$ 15,700,000	$ 16,450,000	$ 19,500,000	$ 79,850,000
Asset Condition - Red Health Index	$ 11,250,000	$ 12,000,000	$ 12,750,000	$ 13,500,000	$ 15,000,000	$ 64,500,000
Substation Insulator Replacement Program	$ -	$ 950,000	$ 950,000	$ 950,000	$ 500,000	$ 3,350,000
Substation Transformer Distribution Replacement program	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 2,000,000	$ 6,000,000
Substation Transformer Transmission Replacement program	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 2,000,000	$ 6,000,000
Customer Service	$ 3,561,000	$ 3,645,000	$ 3,783,000	$ 3,901,000	$ 3,958,558	$ 18,848,558
Mandatory	$ 3,561,000	$ 3,595,000	$ 3,518,000	$ 3,614,000	$ 3,908,558	$ 18,196,558
Laboratory Equipment	$ 200,000	$ 171,000	$ -	$ -	$ 200,000	$ 571,000
NYSEG - Gas Meters	$ 3,066,000	$ 3,114,000	$ 3,208,000	$ 3,304,000	$ 3,373,314	$ 16,065,314
NYSEG - Gas Regulators	$ 295,000	$ 310,000	$ 310,000	$ 310,000	$ 335,244	$ 1,560,244
Asset Condition Replacement	$ -	$ 50,000	$ 265,000	$ 287,000	$ 50,000	$ 652,000
CRC/Self Service Improvement	$ -	$ -	$ 265,000	$ 237,000	$ -	$ 502,000
Other Customer Service Projects	$ -	$ 50,000	$ -	$ 50,000	$ 50,000	$ 150,000
Distribution Operations	$ 59,941,000	$ 61,652,000	$ 63,756,000	$ 65,882,000	$ 67,729,776	$ 318,960,776
Mandatory	$ 28,276,000	$ 29,105,000	$ 30,467,000	$ 31,906,000	$ 32,788,847	$ 152,542,847
Distribution Line Inspection	$ 9,241,000	$ 9,652,000	$ 10,585,000	$ 11,451,000	$ 11,794,240	$ 52,723,240
Electric Meters - Program	$ 2,633,000	$ 2,633,000	$ 2,633,000	$ 2,765,000	$ 2,822,903	$ 13,486,903
Industrial Commercial	$ 1,249,000	$ 1,274,000	$ 1,299,000	$ 1,325,000	$ 1,351,728	$ 6,498,728
Major Government Highway	$ 2,040,000	$ 2,081,000	$ 2,122,000	$ 2,165,000	$ 2,208,162	$ 10,616,162
Residential Line Extensions	$ 8,000,000	$ 8,240,000	$ 8,487,000	$ 8,742,000	$ 9,004,260	$ 42,473,260
Service Connects	$ 2,787,000	$ 2,843,000	$ 2,900,000	$ 2,958,000	$ 3,046,740	$ 14,534,740
Storm Restoration	$ 1,326,000	$ 1,352,000	$ 1,380,000	$ 1,407,000	$ 1,435,305	$ 6,900,305
Street Lighting	$ 1,000,000	$ 1,030,000	$ 1,061,000	$ 1,093,000	$ 1,125,509	$ 5,309,509
Reliability Risk	$ 11,000,000	$ 11,330,000	$ 11,670,000	$ 12,020,000	$ 12,380,597	$ 58,400,597
Betterments	$ 7,000,000	$ 7,210,000	$ 7,426,000	$ 7,649,000	$ 7,878,562	$ 37,163,562
Red Circuit Reliability	$ 4,000,000	$ 4,120,000	$ 4,244,000	$ 4,371,000	$ 4,502,035	$ 21,237,035
Asset Condition Replacement	$ 20,665,000	$ 21,217,000	$ 21,619,000	$ 21,956,000	$ 22,560,333	$ 108,017,333
Distribution Line	$ 14,500,000	$ 14,935,000	$ 15,383,000	$ 15,845,000	$ 16,319,878	$ 76,982,878
General Equipment Operations T&D	$ 510,000	$ 520,000	$ 531,000	$ 541,000	$ 552,040	$ 2,654,040
T&D - Switch Replacement Program	$ 300,000	$ 300,000	$ -	$ -	$ -	$ 600,000
T&D Reject Pole Replacement	$ 500,000	$ 515,000	$ 664,000	$ 683,000	$ 703,490	$ 3,065,490
Transmission and Distribution Fault Indicators	$ 250,000	$ 250,000	$ 250,000	$ -	$ -	$ 750,000
Transmission Line	$ 4,605,000	$ 4,697,000	$ 4,791,000	$ 4,887,000	$ 4,984,925	$ 23,964,925
Distribution Planning	$ 9,237,000	$ 11,007,000	$ 13,692,000	$ 20,479,000	$ 18,488,906	$ 72,903,906
System Capacity	$ 9,237,000	$ 11,007,000	$ 13,692,000	$ 20,479,000	$ 18,488,906	$ 72,903,906
Amenia 2nd Bank & 13.2 KV Conversion - Brewster	$ -	$ -	$ 3,000,000	$ 7,000,000	$ -	$ 10,000,000
Chenango Bridge Substation 743 Regulation	$ 250,000	$ -	$ -	$ -	$ -	$ 250,000
Crafts - Add 2nd Transformer and 4th 13.2kV Circuit Position	$ -	$ -	$ -	$ -	$ 1,666,009	$ 1,666,009
Dingle Ridge - Add Second Transformer and 13.2 kV Conversion	$ 1,045,000	$ 4,555,000	$ -	$ -	$ -	$ 5,600,000
Glenwood - Replace Substation Transformers	$ 1,000,000	$ -	$ -	$ -	$ -	$ 1,000,000
Hilldale 115kV source, xfrmr bank upgrade, 2nd 12kV dist circ	$ -	$ -	$ 8,192,000	$ 2,516,000	$ 8,000,000	$ 18,708,000
Holland Transformer Replacement	$ -	$ -	$ -	$ -	$ 115,306	$ 115,306
Java 2nd Transformer and 12kV Conversion	$ -	$ -	$ -	$ -	$ 489,115	$ 489,115
Old Fall substation - Install 2nd LTC Transformer	$ 3,738,000	$ 3,042,000	$ 1,500,000	$ 2,000,000	$ -	$ 10,280,000
Orchard Park - Add a 2nd Transformer Bank	$ -	$ -	$ -	$ 4,136,000	$ 4,541,927	$ 8,677,927
Stillwater Substation- Upgrade Transformer to 14MVA	$ 2,454,000	$ 3,410,000	$ 1,000,000	$ 1,500,000	$ -	$ 8,364,000
Walden 35kV Conversion	$ -	$ -	$ -	$ 500,000	$ -	$ 500,000
West Davenport Sub - Replace sub transformer with non-LTC 7.5/10.5MVA unit.	$ -	$ -	$ -	$ 2,827,000	$ 3,676,549	$ 6,503,549
West Varysburg 12 kV extension	$ 750,000	$ -	$ -	$ -	$ -	$ 750,000

Project List - by Sponsor	2016	2017	2018	2019	2020	Total 2016-2020
Generation	$ 3,914,000	$ 6,348,000	$ 5,401,000	$ 9,096,000	$ 11,950,000	$ 36,709,000
Mandatory	$ 2,825,000	$ 2,945,000	$ 1,150,000	$ 1,475,000	$ 1,575,000	$ 9,970,000
CV Fire and Life Safety	$ 8,333	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 108,333
CV Regulatory Mandates/Unallocated Majors	$ -	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 400,000
HF PH - Fire and Life Safety	$ 8,333	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 108,333
HF Regulatory Mandates / Unallocated Majors	$ -	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 400,000
KF PH Fire and Life Safety	$ 8,333	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 108,333
KF Regulatory Mandates/Unallocated Majors	$ -	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 400,000
KF Tailrace and Bull Nose	$ -	$ 600,000	$ -	$ -	$ -	$ 600,000
MC Intake Trash Rack and Rack Raker	$ -	$ -	$ -	$ 250,000	$ 750,000	$ 1,000,000
MC PH A Fire and Life Safety	$ 8,333	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 108,333
MC Regulatory Mandates/Unallocated Majors	$ -	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 400,000
Mechanicville Hydro Spillway Resurfacing	$ 825,000	$ -	$ -	$ -	$ -	$ 825,000
Rainbow Falls Spillway Resurfacing	$ 1,500,000	$ 1,150,000	$ 25,000	$ -	$ -	$ 2,675,000
Regulatory Mandates (including Flashboard moderization/vacume breakers)	$ 450,000	$ -	$ -	$ -	$ -	$ 450,000
RF Fire and Life Safety (includes platform)	$ 8,333	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 108,333
RF Regulatory Mandates/Unallocated Majors (w/ fish effectiveness study)	$ -	$ 75,000	$ 75,000	$ 75,000	$ 75,000	$ 300,000
UMV Fire and Life Safety	$ 8,333	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 108,333
UMV Regulatory Mandates/Unallocated Majors	$ -	$ 100,000	$ 100,000	$ 250,000	$ 100,000	$ 550,000
UMV Relicensing - 2021	$ -	$ 470,000	$ 400,000	$ 350,000	$ 100,000	$ 1,320,000
Reliability Risk	$ -	$ 3,000,000	$ 3,125,000	$ 1,375,000	$ 2,075,000	$ 9,575,000
CV Air Admission System (Phase 2 - lower section)	$ -	$ -	$ 150,000	$ -	$ -	$ 150,000
HF Gravity Dam and Construction Portal Infill	$ -	$ 50,000	$ 1,950,000	$ -	$ -	$ 2,000,000
KF Penstock, Trifurcation, and Bypass Valve	$ -	$ 1,750,000	$ -	$ -	$ -	$ 1,750,000
MC Penstock Support	$ -	$ 100,000	$ -	$ -	$ -	$ 100,000
MC Spillway Concrete	$ -	$ -	$ 25,000	$ 75,000	$ -	$ 100,000
RF Penstock Replacement with Air Admission System	$ -	$ -	$ -	$ 100,000	$ 1,900,000	$ 2,000,000
UMV ROR / SCADA Replacement	$ -	$ -	$ -	$ 200,000	$ 150,000	$ 350,000
UMV Spillway Resurfacing and Toe	$ -	$ 1,100,000	$ 1,000,000	$ 1,000,000	$ 25,000	$ 3,125,000
Group Initiatives	$ 330,000	$ 1,000,000	$ 125,000	$ 175,000	$ 450,000	$ 2,080,000
Fossil Hydro Operations Minor projects	$ 330,000	$ -	$ -	$ -	$ -	$ 330,000
HF Draft Tube Stop Logs	$ -	$ -	$ -	$ 50,000	$ 200,000	$ 250,000
KF Draft Tube Stops, Gantry, and Foundation Upgrades	$ -	$ 1,000,000	$ -	$ -	$ -	$ 1,000,000
KF Floodgate Upgrades	$ -	$ -	$ 100,000	$ -	$ -	$ 100,000
RF Bubbler	$ -	$ -	$ 25,000	$ 75,000	$ -	$ 100,000
UMV Gallery Flooring	$ -	$ -	$ -	$ 50,000	$ 250,000	$ 300,000

Project List - by Sponsor	2016	2017	2018	2019	2020	Total 2016-2020
Asset Condition Replacement	$ 759,000	$ (597,000)	$ 1,001,000	$ 6,071,000	$ 7,850,000	$ 15,084,000
CV Switchgear and Generator Protection	$ -	$ 300,000	$ 800,000	$ 2,000,000	$ 200,000	$ 3,300,000
CV Unit 1 T-G Major Rebuild (with mechanical seal)	$ -	$ 500,000	$ 500,000	$ -	$ -	$ 1,000,000
General Equipment - Generation	$ 50,000	$ -	$ -	$ -	$ -	$ 50,000
Generation Reduction to Hit Appendix P	$ (1,051,000)	$ (2,322,000)	$ (1,899,000)	$ 346,000	$ -	$ (4,926,000)
HF Generator Field Breakers	$ -	$ 75,000	$ 75,000	$ -	$ -	$ 150,000
HFU1 T-G Major Rebuild w/Transition Ring	$ -	$ -	$ -	$ 50,000	$ 1,000,000	$ 1,050,000
HFU2 T-G Major Rebuild w/Transition Ring and Draft Tube Upgrades	$ -	$ 50,000	$ 1,000,000	$ 1,250,000	$ 400,000	$ 2,700,000
HFU3 T-G Major Rebuild w/ Transition Ring	$ -	$ -	$ 50,000	$ 1,000,000	$ 1,000,000	$ 2,050,000
High Falls - Modernization Project	$ 1,060,000	$ -	$ -	$ -	$ -	$ 1,060,000
Kents Falls - Modernization Project	$ 700,000	$ -	$ -	$ -	$ -	$ 700,000
KF Switchgear and Generator Protection	$ -	$ -	$ -	$ 50,000	$ 2,600,000	$ 2,650,000
KF Unit 1 T-G Major Rebuild (with new runner)	$ -	$ -	$ -	$ 50,000	$ 1,700,000	$ 1,750,000
KF Unit 2 T-G Major Rebuild (with mechanical seal)	$ -	$ 750,000	$ 50,000	$ -	$ -	$ 800,000
KF Unit 3 T-G Major Rebuild	$ -	$ -	$ 100,000	$ 750,000	$ 50,000	$ 900,000
MC Intake Isolation Gate	$ -	$ -	$ -	$ 50,000	$ 250,000	$ 300,000
MC Powerhouse A	$ -	$ 50,000	$ 250,000	$ -	$ -	$ 300,000
MC Switchgear and Generator Protection	$ -	$ -	$ -	$ 50,000	$ 50,000	$ 100,000
MC Trash Removal System	$ -	$ -	$ -	$ 25,000	$ 75,000	$ 100,000
MC Unit 1 T-G Major	$ -	$ -	$ 75,000	$ 400,000	$ 25,000	$ 500,000
MC Unit 2 T-G Major	$ -	$ -	$ -	$ 50,000	$ 450,000	$ 500,000
MC Unit 3 T-G Major	$ -	$ -	$ -	$ -	$ 50,000	$ 50,000
Substations	$ 8,415,000	$ 11,539,000	$ 11,426,000	$ 11,534,000	$ 19,958,832	$ 62,872,832
Mandatory	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 515,000	$ 2,515,000
Homer City Capital Breakers	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 515,000	$ 2,515,000
Reliability Risk	$ 2,000,000	$ 2,800,000	$ -	$ -	$ -	$ 4,800,000
Mobile Replacement #2 & #4	$ 2,000,000	$ 2,800,000	$ -	$ -	$ -	$ 4,800,000
Asset Condition Replacement	$ 5,915,000	$ 8,239,000	$ 10,926,000	$ 11,034,000	$ 19,443,832	$ 55,557,832
General Equipment - Substations	$ 153,000	$ 156,000	$ 159,000	$ 162,000	$ 165,612	$ 795,612
Substation Battery Replacement Program	$ 1,167,000	$ 1,190,000	$ 1,214,000	$ 1,238,000	$ 1,262,838	$ 6,071,838
Substation Circuit Breaker Replacement Program	$ 2,667,000	$ 2,718,000	$ 2,785,000	$ 2,869,000	$ 2,954,932	$ 13,993,932
Substation Modernization	$ -	$ 2,218,000	$ 5,032,000	$ 5,000,000	$ 13,500,000	$ 25,750,000
Substation Program	$ 1,428,000	$ 1,457,000	$ 1,486,000	$ 1,515,000	$ 1,560,450	$ 7,446,450
Substation Silicon Carbide Replacement Program	$ 500,000	$ 500,000	$ 250,000	$ 250,000	$ -	$ 1,500,000

Project List - by Sponsor	2016	2017	2018	2019	2020	Total 2016-2020
	$ 51,333,000	$ 50,781,000	$ 32,706,000	$ 45,719,000	$ 77,794,656	$ 258,333,656
Mandatory	$ 47,192,000	$ 45,981,000	$ 27,749,000	$ 32,456,000	$ 53,721,892	$ 207,099,892
Auburn Transmission Project	$ 35,416,000	$ 20,322,000	$ -	$ -	$ -	$ 55,738,000
Columbia County Transmission Project (Klinekill 115 kV)	$ 1,988,000	$ 8,303,000	$ 6,135,000	$ -	$ -	$ 16,426,000
Coopers Corners - Add Third 345/115 kV Transformer	$ -	$ 461,000	$ 2,346,000	$ 7,063,000	$ -	$ 9,870,000
FERC- Bright Line	$ 4,000,000	$ 10,000,000	$ 10,000,000	$ 10,000,000	$ 53,721,892	$ 87,721,892
Fraser New 2nd 345kV/115kV Transformer and 115kV Bus Reconfiguration	$ 100,000	$ 2,607,000	$ 4,968,000	$ 8,224,000	$ -	$ 15,899,000
Fraser-Gilboa 345 kV 35 Line (GF5) Relay & Communication Replacement	$ 397,000	$ -	$ -	$ -	$ -	$ 397,000
Line 807 - Convert to 115 kV Operation	$ 424,000	$ -	$ -	$ -	$ -	$ 424,000
Meyer New 2nd 115/34.5kV Transformer	$ 854,000	$ 943,000	$ -	$ -	$ -	$ 1,797,000
Perry Center Area New 34.5kV Substation	$ 100,000	$ 500,000	$ 800,000	$ 1,019,000	$ -	$ 2,419,000
South Perry New Substation	$ 3,713,000	$ 1,500,000	$ 1,500,000	$ 1,621,000	$ -	$ 8,334,000
Westover Goudey New Transformer & Cap Banks	$ 100,000	$ 471,000	$ 2,000,000	$ 4,529,000	$ -	$ 7,100,000
Windham Substation 115 KV Capacitor Bank Addition	$ 100,000	$ 874,000	$ -	$ -	$ -	$ 974,000
System Capacity	$ 3,941,000	$ 4,520,000	$ 3,500,000	$ 3,961,000	$ 700,000	$ 16,622,000
Eelpot New 2nd 115kV/34.5kV Transformer	$ 3,741,000	$ -	$ -	$ -	$ -	$ 3,741,000
Line 526, Rebuild Coddington-South Hill 34.5 kV Line	$ -	$ -	$ -	$ 200,000	$ 700,000	$ 900,000
Stephentown New 2nd 115/34.5kV Transformer	$ 100,000	$ 1,355,000	$ -	$ -	$ -	$ 1,455,000
Wood Street - Add Third 345/115 kV Transformer	$ 100,000	$ 3,165,000	$ 3,500,000	$ 3,761,000	$ -	$ 10,526,000
Reliability Risk	$ 200,000	$ 280,000	$ 1,457,000	$ 9,302,000	$ 23,372,764	$ 34,611,764
Davis Road, Replace 115/34.5 kV Transformers #2 & #3 with new LTC's	$ -	$ -	$ -	$ 5,509,000	$ 5,254,874	$ 10,763,874
Erie Street, Add 3rd 115/34.5 kV Transformer	$ -	$ -	$ -	$ -	$ 1,027,000	$ 1,027,000
Gardenville, Add 3rd 230/115 kV Transformer	$ -	$ -	$ -	$ 660,000	$ 12,682,962	$ 13,342,962
Geneva, Add Switched Capacitor Bank at Five Points Prison Substation	$ -	$ -	$ -	$ 903,000	$ -	$ 903,000
Line 810, Rebuild Carmel-Adams Corners 46 kV Line	$ -	$ -	$ -	$ -	$ 386,277	$ 386,277
Mechanicville, Circuit 620 (BRAINARD TAP - WEST LEBANON Sw. Sta.), Install Static and Ground Wires	$ -	$ -	$ -	$ -	$ 753,650	$ 753,650
Oakdale Substation Reconfiguration Project	$ 100,000	$ 100,000	$ 218,000	$ 977,000	$ 3,268,000	$ 4,663,000
Watercure Road - Second 345 kV Transformer	$ 100,000	$ 180,000	$ 1,239,000	$ 1,253,000	$ -	$ 2,772,000

Project List - by Sponsor	2016	2017	2018	2019	2020	Total 2016-2020
Gas Delivery	$ 41,890,750	$ 66,385,000	$ 75,487,000	$ 56,411,000	$ 72,473,542	$ 312,647,292
Mandatory	$ 35,630,750	$ 45,204,000	$ 42,860,000	$ 29,452,000	$ 49,579,471	$ 202,726,221
Chemung County Gas Service Replacements	$ 5,650,000	$ -	$ -	$ -	$ -	$ 5,650,000
Critical Valve Installations, Binghamton	$ 150,000	$ 153,000	$ 153,000	$ 153,000	$ -	$ 609,000
Gas Distribution Mains - Replacements - NYSEG	$ 765,750	$ 782,000	$ 782,000	$ 782,000	$ 2,016,684	$ 5,128,434
Incremental Customer Growth	$ 1,602,000	$ 3,550,000	$ 3,200,000	$ -	$ 2,716,708	$ 11,068,708
Install New Gas Services	$ 3,522,000	$ 3,646,000	$ 4,234,000	$ 4,178,000	$ 7,534,516	$ 23,114,516
Lansing / Freeville - Gas Reinforcement Project	$ 560,000	$ 9,271,000	$ 5,030,000	$ -	$ -	$ 14,861,000
Lansing/Freeville Gas Reinforcement - Regulator Station	$ -	$ 2,300,000	$ -	$ -	$ -	$ 2,300,000
Large Government Jobs	$ 1,267,000	$ 1,291,000	$ 1,333,000	$ 1,376,000	$ 1,376,828	$ 6,643,828
Leak Prone Main Replacement Program	$ 13,024,000	$ 14,007,000	$ 14,820,000	$ 14,820,000	$ 23,062,054	$ 79,733,054
Leak Prone Services Replacement Program	$ 3,350,000	$ 3,644,000	$ 3,950,000	$ 4,032,000	$ 7,495,844	$ 22,471,844
Mechanicville Compressed Natural Gas Station and Facilities - Phase 2	$ -	$ -	$ 3,000,000	$ -	$ -	$ 3,000,000
Minor Gas Distribution Mains - New Installations	$ 3,285,000	$ 4,090,000	$ 3,182,000	$ 3,249,000	$ 3,350,000	$ 17,156,000
Minor Government Jobs, Replace Gas Mains	$ 842,000	$ 860,000	$ 861,000	$ 862,000	$ 2,026,837	$ 5,451,837
North Salem Gas Franchise Expansion	$ 13,000	$ 24,000	$ -	$ -	$ -	$ 37,000
Outage Management System, NYSEG	$ -	$ -	$ 2,000,000	$ -	$ -	$ 2,000,000
Plattsburgh Gas Franchise Expansion	$ 1,600,000	$ 1,586,000	$ 315,000	$ -	$ -	$ 3,501,000
System Capacity	$ 3,175,000	$ 9,880,000	$ 4,995,000	$ 2,238,000	$ 455,000	$ 20,743,000
Beckett's Way - Gas Installation	$ 250,000	$ -	$ -	$ -	$ -	$ 250,000
Binghamton 60-PSI Gas System Improvements	$ -	$ 600,000	$ -	$ -	$ -	$ 600,000
Boiceville System Reinforcement	$ -	$ 350,000	$ -	$ -	$ -	$ 350,000
Gas Pipeline Susquehanna River Bore Extension	$ 1,350,000	$ -	$ -	$ -	$ -	$ 1,350,000
Homer System Upgrade	$ -	$ 820,000	$ 870,000	$ 455,000	$ 455,000	$ 2,600,000
North Country Gas Franchise Expansion	$ 1,375,000	$ 940,000	$ 1,417,000	$ -	$ -	$ 3,732,000
Port Dickinson Gas Pipeline Loop Extension	$ 100,000	$ 1,370,000	$ 1,508,000	$ 1,508,000	$ -	$ 4,486,000
Tow Path Road Gas Regulator Station Installation, Town of Fenton Binghamton, NY	$ -	$ -	$ -	$ 275,000	$ -	$ 275,000
Vienna Rd -Macedon Feeder Main replacement, Install Gas Mains	$ 100,000	$ 5,800,000	$ 1,200,000	$ -	$ -	$ 7,100,000
Reliability Risk	$ 2,685,000	$ 7,501,000	$ 26,832,000	$ 24,121,000	$ 22,439,071	$ 83,578,071
Bradley St, Install Gas Mains, Auburn	$ 200,000	$ -	$ -	$ -	$ -	$ 200,000
DeRuyter Transmission Replacement	$ -	$ 500,000	$ 15,000,000	$ 17,000,000	$ 17,000,000	$ 49,500,000
Edgett Street Canal Crossing, Newark - Install Gas Main	$ -	$ -	$ 500,000	$ -	$ -	$ 500,000
Gas Regulator Modernization & Automation Program	$ 1,000,000	$ 2,795,000	$ 3,000,000	$ 4,500,000	$ 4,318,071	$ 15,613,071
Gas SCADA System Replacement - NYSEG	$ -	$ -	$ -	$ 1,500,000	$ -	$ 1,500,000
Middleport to Medina Interconnect	$ -	$ 285,000	$ 290,000	$ -	$ -	$ 575,000
Phelps (South) Transmission Replacement	$ 500,000	$ 2,300,000	$ 5,671,000	$ -	$ -	$ 8,471,000
Remotely Operated Valves Program	$ 200,000	$ 500,000	$ 500,000	$ -	$ -	$ 1,200,000
Route 23 System Reinforcement	$ -	$ -	$ 750,000	$ -	$ -	$ 750,000
South Union Street Bridge Crossing - Replace Gas Main	$ 700,000	$ -	$ -	$ -	$ -	$ 700,000
State Rd. Tie Medium Pressure Systems	$ 85,000	$ -	$ -	$ -	$ -	$ 85,000
Transmission Casing Replacement Program - NYSEG	$ -	$ 1,121,000	$ 1,121,000	$ 1,121,000	$ 1,121,000	$ 4,484,000
Efficiency	$ -	$ 600,000	$ 600,000	$ 600,000	$ -	$ 1,800,000
Gas RTU/Telemetry Upgrade	$ -	$ 600,000	$ 600,000	$ 600,000	$ -	$ 1,800,000
Asset Condition Replacement	$ 400,000	$ 3,200,000	$ 200,000	$ -	$ -	$ 3,800,000
Airport Corporate Park South, Big Flats, New York-Install Gas Main	$ -	$ -	$ 200,000	$ -	$ -	$ 200,000
Bradley Farms, Rebuild Gas Gate Station	$ 100,000	$ 3,200,000	$ -	$ -	$ -	$ 3,300,000
North Titus Regulator Station and Gas Main Replacement	$ 300,000	$ -	$ -	$ -	$ -	$ 300,000

Project List - by Sponsor	2016	2017	2018	2019	2020	Total 2016-2020
Facilities	$ 4,773,000	$ 5,275,000	$ 6,316,000	$ 6,839,000	$ 2,300,000	$ 25,503,000
Group Initiatives	$ 200,000	$ 600,000	$ 400,000	$ -	$ -	$ 1,200,000
Ithaca General Office - building separation for disposition	$ 200,000	$ 600,000	$ 400,000	$ -	$ -	$ 1,200,000
Efficiency	$ 500,000	$ -	$ 125,000	$ -	$ -	$ 625,000
Fleischmanns - heating fuel conversion	$ -	$ -	$ 125,000	$ -	$ -	$ 125,000
Plattsburgh - heating fuel conversion	$ 500,000	$ -	$ -	$ -	$ -	$ 500,000
Asset Condition Replacement	$ 4,073,000	$ 4,675,000	$ 5,791,000	$ 6,839,000	$ 2,300,000	$ 23,678,000
Auburn Service Center - building renovation	$ -	$ -	$ 30,000	$ -	$ 300,000	$ 330,000
Binghamton Service Center - roof replacement	$ 150,000	$ -	$ -	$ -	$ -	$ 150,000
Elmira Service Center - building renovation	$ -	$ 770,000	$ -	$ -	$ -	$ 770,000
Facilities Minor Projects	$ 1,778,000	$ 2,055,000	$ 3,161,000	$ 2,628,000	$ 1,500,000	$ 11,122,000
Geneva - building renovation and consolidation	$ -	$ -	$ 2,600,000	$ 1,400,000	$ -	$ 4,000,000
Johnson City Training Facitility - construct new fabric structure	$ 150,000	$ -	$ -	$ -	$ -	$ 150,000
Kirkwood General Office - cooling tower replacement	$ 200,000	$ -	$ -	$ -	$ -	$ 200,000
Lancaster Service Center - building renovation	$ 40,000	$ 450,000	$ -	$ -	$ -	$ 490,000
Liberty - dock upgrade	$ 200,000	$ -	$ -	$ -	$ -	$ 200,000
Liberty - elevator upgrade	$ 200,000	$ -	$ -	$ -	$ 50,000	$ 250,000
Liberty - HVAC upgrade	$ 250,000	$ 250,000	$ -	$ -	$ -	$ 500,000
Major Facilities Projects	$ -	$ -	$ -	$ 2,811,000	$ -	$ 2,811,000
Mechanicville Service Center - building renovation	$ 50,000	$ 500,000	$ -	$ -	$ -	$ 550,000
Noyes Island - drainage and paving improvements	$ 450,000	$ -	$ -	$ -	$ -	$ 450,000
Oneonta Service Center - building renovation	$ 45,000	$ -	$ -	$ -	$ 450,000	$ 495,000
Plattsburgh Facility - building renovation	$ 100,000	$ 500,000	$ -	$ -	$ -	$ 600,000
Vestal Electric Meter Lab - building renovation	$ 20,000	$ 150,000	$ -	$ -	$ -	$ 170,000
Walden - Facility Closure and Relocation	$ 440,000	$ -	$ -	$ -	$ -	$ 440,000
Operations Technology	$ 9,012,000	$ 16,706,000	$ 6,412,000	$ 11,034,000	$ 5,205,320	$ 48,369,320
System Capacity	$ 138,000	$ 140,000	$ 142,000	$ 144,000	$ 148,320	$ 712,320
Organic Growth ECC/XECS systems	$ 138,000	$ 140,000	$ 142,000	$ 144,000	$ 148,320	$ 712,320
Reliability Risk	$ 1,700,000	$ -	$ -	$ -	$ -	$ 1,700,000
Energy Control Center Project in NY, Siemens DMS	$ 700,000	$ -	$ -	$ -	$ -	$ 700,000
Lockheed Martin Remote Outage Visualization	$ 1,000,000	$ -	$ -	$ -	$ -	$ 1,000,000
Efficiency	$ 3,341,000	$ 3,996,000	$ 4,222,000	$ 9,622,000	$ 4,952,000	$ 26,133,000
ECC System Upgrade	$ -	$ -	$ -	$ 4,900,000	$ -	$ 4,900,000
Telecom - Alarm Monitoring Refresh	$ 150,000	$ -	$ -	$ 150,000	$ -	$ 300,000
Telecom - SONET Refresh	$ -	$ 450,000	$ -	$ -	$ -	$ 450,000
Telecom Bridges for new KGO BU Site	$ -	$ 20,000	$ -	$ -	$ -	$ 20,000
Telecommunications Major	$ 3,191,000	$ 3,526,000	$ 4,222,000	$ 4,572,000	$ 4,952,000	$ 20,463,000
Asset Condition Replacement	$ 105,000	$ 105,000	$ 105,000	$ 620,000	$ 105,000	$ 1,040,000
Lifecycle Replacement - ECC/XECS systems	$ 105,000	$ 105,000	$ 105,000	$ 620,000	$ 105,000	$ 1,040,000
Strategic	$ 3,728,000	$ 12,465,000	$ 1,943,000	$ 648,000	$ -	$ 18,784,000
Energy Smart Community REV Project	$ 3,728,000	$ 2,465,000	$ 1,943,000	$ 648,000	$ -	$ 8,784,000
Smart Grid / AMI for Energy Smart Community Project	$ -	$ 10,000,000	$ -	$ -	$ -	$ 10,000,000
Gas Operations	$ 1,261,000	$ 521,000	$ 532,000	$ 543,000	$ 815,012	$ 3,672,012
Mandatory	$ 750,000	$ -	$ -	$ -	$ -	$ 750,000
Enhanced First Responders and Fire Training Mobile Facility and Program, NYSEG	$ 750,000	$ -	$ -	$ -	$ -	$ 750,000
Asset Condition Replacement	$ 511,000	$ 521,000	$ 532,000	$ 543,000	$ 815,012	$ 2,922,012
General Equipment - Gas Operations	$ 511,000	$ 521,000	$ 532,000	$ 543,000	$ 815,012	$ 2,922,012

Project List - by Sponsor	2016	2017	2018	2019	2020	Total 2016-2020
Security	$ 7,946,000	$ 16,377,000	$ 9,591,000	$ 13,645,000	$ 7,775,368	$ 55,334,368
Mandatory	$ 7,946,000	$ 16,377,000	$ 9,591,000	$ 13,645,000	$ 7,775,368	$ 55,334,368
Fire Protection	$ 950,000	$ 1,200,000	$ 1,000,000	$ 750,000	$ 3,000,000	$ 6,900,000
Physical Security	$ 6,996,000	$ 15,177,000	$ 8,591,000	$ 12,895,000	$ 4,775,368	$ 48,434,368
Fleet	$ 5,552,000	$ 6,000,000	$ 7,000,000	$ 8,000,000	$ 24,698,400	$ 51,250,400
Asset Condition Replacement	$ 5,552,000	$ 6,000,000	$ 7,000,000	$ 8,000,000	$ 24,698,400	$ 51,250,400
Fleet - Light duty vehicle capital leasing program	$ -	$ -	$ -	$ -	$ 4,598,400	$ 4,598,400
General Equipment - Fleet	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 500,000
Transportation Equipment	$ 5,452,000	$ 5,900,000	$ 6,900,000	$ 7,900,000	$ 20,000,000	$ 46,152,000
Information Technology	$ 5,230,000	$ 5,904,000	$ 6,793,000	$ 7,306,000	$ 21,010,000	$ 46,243,000
Mandatory	$ 580,000	$ 762,000	$ 1,730,000	$ 630,000	$ 760,000	$ 4,462,000
IT Projects - Cyber Security	$ 550,000	$ 732,000	$ 600,000	$ 600,000	$ 700,000	$ 3,182,000
IT Projects - Mandatory	$ 30,000	$ 30,000	$ 1,130,000	$ 30,000	$ 60,000	$ 1,280,000
Reliability Risk	$ 290,000	$ 370,000	$ 615,000	$ 400,000	$ 650,000	$ 2,325,000
IT Projects - Reliability Risk	$ 290,000	$ 370,000	$ 615,000	$ 400,000	$ 650,000	$ 2,325,000
Group Initiatives	$ 370,000	$ 304,000	$ 700,000	$ 459,000	$ 600,000	$ 2,433,000
IT Projects - Group Initiatives	$ 370,000	$ 304,000	$ 700,000	$ 459,000	$ 600,000	$ 2,433,000
Efficiency	$ 1,417,000	$ 1,453,000	$ 850,000	$ 2,300,000	$ 15,000,000	$ 21,020,000
IT Projects - Efficiency	$ 1,417,000	$ 1,453,000	$ 850,000	$ 2,300,000	$ 15,000,000	$ 21,020,000
Asset Condition Replacement	$ 1,632,000	$ 2,041,000	$ 2,638,000	$ 3,517,000	$ 4,000,000	$ 13,828,000
IT Projects - Asset Condition	$ 1,632,000	$ 2,041,000	$ 2,638,000	$ 3,517,000	$ 4,000,000	$ 13,828,000
Strategic	$ 941,000	$ 974,000	$ 260,000	$ -	$ -	$ 2,175,000
IT Projects - Strategic	$ 941,000	$ 974,000	$ 260,000	$ -	$ -	$ 2,175,000
System Operations	$ 7,500,000	$ 10,610,000	$ 10,222,000	$ 10,337,000	$ 10,142,110	$ 48,811,110
Efficiency	$ 7,500,000	$ 10,610,000	$ 10,222,000	$ 10,337,000	$ 10,142,110	$ 48,811,110
NYSEG Automation Projects	$ 5,000,000	$ 8,000,000	$ 7,500,000	$ 7,500,000	$ 7,500,000	$ 35,500,000
NYSEG Communications for Automation Programs	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 750,000	$ 4,750,000
Substation Automation Program	$ 1,500,000	$ 1,610,000	$ 1,722,000	$ 1,837,000	$ 1,892,110	$ 8,561,110
General Services	$ 89,000	$ 98,000	$ 117,000	$ 127,000	$ 100,000	$ 531,000
Efficiency	$ 89,000	$ 98,000	$ 117,000	$ 127,000	$ 100,000	$ 531,000
Video Conferencing Equipment	$ 89,000	$ 98,000	$ 117,000	$ 127,000	$ 100,000	$ 531,000

Project List - by Sponsor	2016	2017	2018	2019	2020	Total 2016-2020
RG&E	$ 287,988,746	$ 302,460,111	$ 243,909,000	$ 224,101,000	$ 259,402,285	$ 1,317,861,143
Asset Management	$ 4,900,000	$ 9,150,000	$ 11,300,000	$ 11,550,000	$ 12,261,500	$ 49,161,500
Asset Condition Replacement	$ 4,900,000	$ 9,150,000	$ 11,300,000	$ 11,550,000	$ 12,261,500	$ 49,161,500
Distribution Fault Indicators	$ 100,000	$ 100,000	$ -	$ -	$ -	$ 200,000
Old Insulator Change out Program	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 772,500	$ 3,772,500
Padmount Switchgear Replacement	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 309,000	$ 1,509,000
RGE Asset Condition - Red Health Index	$ 3,750,000	$ 4,000,000	$ 4,250,000	$ 4,500,000	$ 5,000,000	$ 21,500,000
Substation Transformer Distribution Replacement program	$ -	$ 3,000,000	$ 3,000,000	$ 3,000,000	$ 3,090,000	$ 12,090,000
Substation Transformer Transmission Replacement program	$ -	$ 1,000,000	$ 3,000,000	$ 3,000,000	$ 3,090,000	$ 10,090,000
Automation	$ 200,000	$ 1,891,000	$ 4,439,000	$ -	$ -	$ 6,530,000
Efficiency	$ 200,000	$ 1,891,000	$ 4,439,000	$ -	$ -	$ 6,530,000
RGE Pilot Wire Replacement Program	$ 200,000	$ 1,891,000	$ 4,439,000	$ -	$ -	$ 6,530,000
Automation	$ 500,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 4,500,000
Efficiency	$ 500,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 4,500,000
Communications for Automation Programs	$ 500,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 4,500,000
Customer Service	$ 4,192,000	$ 4,263,091	$ 4,364,091	$ 4,668,396	$ 4,718,018	$ 22,205,596
Mandatory	$ 4,015,000	$ 3,948,091	$ 3,864,091	$ 4,375,396	$ 4,468,018	$ 20,670,596
Laboratory Equipment	$ 239,000	$ 128,000	$ 23,000	$ 391,000	$ 400,000	$ 1,181,000
Meters	$ 1,206,000	$ 1,206,091	$ 1,206,091	$ 1,266,396	$ 1,292,990	$ 6,177,568
RG&E - Gas Meters	$ 2,477,000	$ 2,418,000	$ 2,430,000	$ 2,502,000	$ 2,554,946	$ 12,381,946
RG&E - Gas Regulators	$ 93,000	$ 196,000	$ 205,000	$ 216,000	$ 220,082	$ 930,082
Asset Condition Replacement	$ 177,000	$ 315,000	$ 500,000	$ 293,000	$ 250,000	$ 1,535,000
CRC/Self Service Improvement	$ -	$ -	$ 500,000	$ -	$ -	$ 500,000
Other Customer Service Projects	$ 177,000	$ 315,000	$ -	$ 293,000	$ 250,000	$ 1,035,000
Distribution Operations	$ 28,851,999	$ 29,841,208	$ 30,537,181	$ 31,253,375	$ 31,982,316	$ 152,466,080
Mandatory	$ 17,824,799	$ 18,201,294	$ 18,584,706	$ 18,980,271	$ 19,380,288	$ 92,971,359
Distribution Line Inspection	$ 1,000,000	$ 1,030,000	$ 1,060,900	$ 1,092,727	$ 1,125,509	$ 5,309,136
Industrial Commercial	$ 2,584,765	$ 2,636,460	$ 2,689,189	$ 2,742,973	$ 2,797,833	$ 13,451,221
Major Government Highway	$ 8,352,059	$ 8,519,100	$ 8,688,268	$ 8,864,686	$ 9,040,537	$ 43,464,651
Minor Government Highway	$ 352,903	$ 359,961	$ 367,160	$ 374,503	$ 381,993	$ 1,836,519
Residential Service Installation	$ 2,783,580	$ 2,839,252	$ 2,896,037	$ 2,953,957	$ 3,013,037	$ 14,485,862
Service Connects	$ 1,445,492	$ 1,474,402	$ 1,503,890	$ 1,533,968	$ 1,564,647	$ 7,522,398
Storm Restoration	$ 306,000	$ 312,120	$ 318,362	$ 324,730	$ 331,224	$ 1,592,436
Street Lighting	$ 1,000,000	$ 1,030,000	$ 1,060,900	$ 1,092,727	$ 1,125,509	$ 5,309,136
Reliability Risk	$ 4,800,000	$ 4,914,000	$ 5,030,820	$ 5,150,533	$ 5,273,212	$ 25,168,565
Betterments	$ 3,000,000	$ 3,060,000	$ 3,121,200	$ 3,183,624	$ 3,247,296	$ 15,612,120
Red Circuit Reliability	$ 1,800,000	$ 1,854,000	$ 1,909,620	$ 1,966,909	$ 2,025,916	$ 9,556,444
Asset Condition Replacement	$ 6,227,200	$ 6,725,914	$ 6,921,655	$ 7,122,571	$ 7,328,816	$ 34,326,156
Distribution Line	$ 5,000,000	$ 5,150,000	$ 5,304,500	$ 5,463,635	$ 5,627,544	$ 26,545,679
General Equipment - Operations T&D	$ 255,000	$ 260,100	$ 265,302	$ 270,608	$ 276,020	$ 1,327,030
T&D Reject Pole Replacement	$ 605,000	$ 623,000	$ 642,000	$ 661,000	$ 680,000	$ 3,211,000
T&D Switch Replacement Program	$ -	$ 318,270	$ 327,818	$ 337,653	$ 347,782	$ 1,331,523
Transmission Line	$ 367,200	$ 374,544	$ 382,035	$ 389,676	$ 397,469	$ 1,910,924
Distribution Planning	$ 7,178,000	$ 9,050,000	$ 5,316,000	$ 8,020,000	$ 12,984,476	$ 42,548,476
System Capacity	$ 7,178,000	$ 9,050,000	$ 5,316,000	$ 8,020,000	$ 12,984,476	$ 42,548,476
Station 117 - Replace #1 Transformer Bank and convert 3 circuits to 12kV operation.	$ -	$ -	$ -	$ 5,100,000	$ 6,306,476	$ 11,406,476
Station 192 transformer/facilities upgrade	$ 2,678,000	$ 2,265,000	$ -	$ -	$ 2,178,000	$ 7,121,000
Station 43 - Replace #3 and #4 Transformer Banks.	$ 4,500,000	$ 2,785,000	$ -	$ -	$ 4,500,000	$ 11,785,000
Station 46 - Replace #1 and #3 Transformer Banks	$ -	$ -	$ -	$ 2,920,000	$ -	$ 2,920,000
Station 51 transformer/facilities upgrade and secondary source addition	$ -	$ 4,000,000	$ 5,316,000	$ -	$ -	$ 9,316,000

Project List - by Sponsor	2016	2017	2018	2019	2020	Total 2016-2020
Generation	$ 6,253,000	$ 13,360,000	$ 11,781,000	$ 10,021,000	$ 11,950,000	$ 53,365,000
Mandatory	$ 600,000	$ 2,025,000	$ 1,375,000	$ 925,000	$ 1,075,000	$ 6,000,000
Fossil Hydro Facilities-Regulatory Mandates/Unallocated Majors	$ 600,000	$ -	$ -	$ -	$ -	$ 600,000
S160 Regulatory Mandates	$ -	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 100,000
S170 Regulatory Mandates	$ -	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 100,000
S2 Fire and Life Safety Initiatives	$ -	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 100,000
S2 Regulatory Mandates/Unallocated Majors	$ -	$ 300,000	$ 300,000	$ 250,000	$ 250,000	$ 1,100,000
S2 RH Intake Modification	$ -	$ 800,000	$ 200,000	$ -	$ -	$ 1,000,000
S2 Unit 1 T-G Butterfly Valve	$ -	$ 200,000	$ -	$ -	$ -	$ 200,000
S26 Fire and Life Safety Initiatives	$ -	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 100,000
S26 Regulatory Mandates/Unallocated Majors	$ -	$ 300,000	$ 300,000	$ 250,000	$ 250,000	$ 1,100,000
S5 Fire and Life Safety Initiatives	$ -	$ 75,000	$ 75,000	$ 75,000	$ 75,000	$ 300,000
S5 Regulatory Mandates/Unallocated Majors	$ -	$ 250,000	$ 400,000	$ 250,000	$ 400,000	$ 1,300,000
Reliability Risk	$ 5,181,000	$ 9,261,000	$ 7,525,000	$ 5,071,000	$ 5,275,000	$ 32,313,000
Dam Resurfacing	$ -	$ 75,000	$ 700,000	$ 225,000	$ 50,000	$ 1,050,000
Other Generation Projects	$ 3,181,000	$ 5,036,000	$ -	$ 4,196,000	$ -	$ 12,413,000
S2 Replace Unit 1 Penstock	$ 2,000,000	$ 4,000,000	$ 5,550,000	$ 100,000	$ -	$ 11,650,000
S2 SCADA System	$ -	$ -	$ 50,000	$ 125,000	$ -	$ 175,000
S26 Draft Tube and Foundation	$ -	$ 50,000	$ 325,000	$ 25,000	$ -	$ 400,000
S5 HG Pier Foundations	$ -	$ -	$ -	$ 100,000	$ 900,000	$ 1,000,000
S5 HG Spillgate #2 rock stabilization	$ -	$ -	$ -	$ 50,000	$ 1,000,000	$ 1,050,000
S5 HG Spillgate #4A rock stabilization	$ -	$ -	$ -	$ 50,000	$ -	$ 50,000
S5 HG Spillgate #4B rock stabilization	$ -	$ -	$ -	$ 50,000	$ -	$ 50,000
S5 HG Spillgate #5 rock stabilization	$ -	$ -	$ -	$ 25,000	$ 750,000	$ 775,000
S5 HG Spillgate Seal Replacements	$ -	$ -	$ -	$ 25,000	$ 975,000	$ 1,000,000
S5 PH Gorge/ Rock Stabilization	$ -	$ 100,000	$ 900,000	$ -	$ -	$ 1,000,000
S5 Tunnel System (Construction Joints, Intake Shaft Transition, Surge Tank Foundation)	$ -	$ -	$ -	$ 100,000	$ 1,600,000	$ 1,700,000
Group Initiatives	$ 422,000	$ 1,874,000	$ 1,157,000	$ 400,000	$ 2,775,000	$ 6,628,000
Fossil Hydro Operations - Minor projects	$ 422,000	$ -	$ -	$ -	$ -	$ 422,000
S2 Browns Race Excavation (5.5ft depth)	$ -	$ 1,374,000	$ 1,157,000	$ -	$ -	$ 2,531,000
S2 Browns Race Isolation Gates	$ -	$ -	$ -	$ 75,000	$ 325,000	$ 400,000
S2 PH Draft Tube and Tailrace Structure -	$ -	$ -	$ -	$ 50,000	$ 450,000	$ 500,000
S2 Purchase Browns Race	$ -	$ 500,000	$ -	$ -	$ -	$ 500,000
S5 Old Powerhouse Demolition	$ -	$ -	$ -	$ 100,000	$ 1,000,000	$ 1,100,000
S5 PH Ventilation System	$ -	$ -	$ -	$ 75,000	$ 250,000	$ 325,000
S5 Surge Tank Expansion	$ -	$ -	$ -	$ 100,000	$ 750,000	$ 850,000
Asset Condition Replacement	$ 50,000	$ 200,000	$ 1,724,000	$ 3,625,000	$ 2,825,000	$ 8,424,000
General Equipment - Generation	$ 50,000	$ -	$ -	$ -	$ -	$ 50,000
RG&E-GENERAL EQUIPMENT BLANKET-Generation	$ -	$ 100,000	$ 649,000	$ 475,000	$ 250,000	$ 1,474,000
S2 Central Ave Dam Superstructure Modernization	$ -	$ -	$ 100,000	$ 500,000	$ 100,000	$ 700,000
S26 Intake Gate / Motor Operator	$ -	$ -	$ -	$ 50,000	$ 450,000	$ 500,000
S26 Penstock /Scroll case Upgrade	$ -	$ -	$ -	$ 50,000	$ 450,000	$ 500,000
S26 Tailrace Wall - Installation	$ -	$ -	$ -	$ 500,000	$ -	$ 500,000
S2U1 T-G Mandatory Exciter	$ -	$ 50,000	$ 250,000	$ -	$ -	$ 300,000
S5 HG - Brewer Street Paving	$ -	$ -	$ -	$ 25,000	$ 325,000	$ 350,000
S5 HG - Brewer Street Water and Fire Lines	$ -	$ -	$ -	$ 50,000	$ 250,000	$ 300,000
S5 HG New Stop Log Gantries	$ -	$ -	$ -	$ 50,000	$ 250,000	$ 300,000
S5 PH - Pave Road to Seth Green Drive	$ -	$ -	$ -	$ -	$ 750,000	$ 750,000
S5 PH Exterior Concrete Betterments	$ -	$ -	$ 75,000	$ 425,000	$ -	$ 500,000
S5 Voltage Regulators - Units 1, 2 & 3 T-G	$ -	$ 50,000	$ 400,000	$ -	$ -	$ 450,000
S5U3 T-G New Runner	$ -	$ -	$ 250,000	$ 1,500,000	$ -	$ 1,750,000

Project List - by Sponsor	2016	2017	2018	2019	2020	Total 2016-2020
OPTECH	$ 139,000	$ 139,000	$ 139,000	$ 2,424,000	$ 639,000	$ 3,480,000
Efficiency	$ -	$ -	$ -	$ 2,100,000	$ 500,000	$ 2,600,000
RG&E ECC System Upgrade	$ -	$ -	$ -	$ 2,100,000	$ 500,000	$ 2,600,000
Asset Condition Replacement	$ 139,000	$ 139,000	$ 139,000	$ 324,000	$ 139,000	$ 880,000
Lifecycle Replacement - ECC/XECS systems	$ 139,000	$ 139,000	$ 139,000	$ 324,000	$ 139,000	$ 880,000
Substations	$ 5,750,541	$ 5,913,431	$ 7,923,108	$ 7,925,230	$ 8,105,472	$ 35,617,783
Efficiency	$ 2,000,000	$ 2,090,000	$ 2,182,000	$ 2,275,000	$ 2,368,000	$ 10,915,000
Automation Program	$ 2,000,000	$ 2,090,000	$ 2,182,000	$ 2,275,000	$ 2,368,000	$ 10,915,000
Asset Condition Replacement	$ 3,750,541	$ 3,823,431	$ 5,741,108	$ 5,650,230	$ 5,737,472	$ 24,702,783
General Equipment Blanket - Substations	$ 102,000	$ 104,040	$ 106,121	$ 108,243	$ 110,408	$ 530,812
Silicon Carbide Change out Program	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 154,500	$ 754,500
Substation - Minor Capex Program	$ 831,541	$ 847,172	$ 865,135	$ 882,438	$ 908,911	$ 4,335,196
Substation Battery Replacement Program	$ 1,000,000	$ 1,020,000	$ 1,040,400	$ 1,061,208	$ 1,082,432	$ 5,204,040
Substation Circuit Breaker Replacement Program	$ 1,667,000	$ 1,702,219	$ 1,723,453	$ 1,729,341	$ 1,781,221	$ 8,603,234
Substation Modernization	$ -	$ -	$ 1,856,000	$ 1,719,000	$ 1,700,000	$ 5,275,000
System Engineering	$ 4,037,000	$ 860,000	$ -	$ -	$ -	$ 4,897,000
Reliability Risk	$ 4,037,000	$ 860,000	$ -	$ -	$ -	$ 4,897,000
Mobile Substations #3 & #5	$ 2,900,000	$ 860,000	$ -	$ -	$ -	$ 3,760,000
Mobile switchgear #4	$ 1,137,000	$ -	$ -	$ -	$ -	$ 1,137,000
	$ 164,700,000	$ 134,728,381	$ 107,332,619	$ 86,581,000	$ 79,803,960	$ 573,145,960
Mandatory	$ 121,991,000	$ 82,886,000	$ 85,429,000	$ 76,632,000	$ 41,347,743	$ 408,285,743
FERC- Bright Line	$ 5,000,000	$ 10,000,000	$ 10,000,000	$ 10,000,000	$ 4,663,165	$ 39,663,165
Ginna Retirement Transmission Alternative and Fifth Bay - Station 80	$ 106,004,000	$ 15,514,000	$ -	$ -	$ -	$ 121,518,000
Move circuits 904 and 905 from Double Circuit Towers to separate towers	$ -	$ 8,000,000	$ 10,000,000	$ -	$ -	$ 18,000,000
RARP	$ 10,987,000	$ 41,372,000	$ 55,429,000	$ 66,632,000	$ 36,684,578	$ 211,104,578
Station 70 - Auto sectionalization 115kV Circuit 917	$ -	$ 8,000,000	$ 10,000,000	$ -	$ -	$ 18,000,000
System Capacity	$ 37,070,000	$ 40,859,000	$ 7,313,000	$ -	$ 25,000,000	$ 110,242,000
Station 23 - New Downtown 115kV Source	$ 37,070,000	$ 40,859,000	$ 7,313,000	$ -	$ 25,000,000	$ 110,242,000
Reliability Risk	$ 5,564,000	$ 10,983,381	$ 14,590,619	$ 9,949,000	$ 13,456,217	$ 54,543,217
Sectionalize 115kV Circuit 917 (S7 - S418)	$ 100,000	$ 1,478,381	$ 2,754,619	$ 2,000,000	$ -	$ 6,333,000
Station 168 Service Area Reinforcement	$ 3,991,000	$ 4,387,000	$ 7,813,000	$ 4,449,000	$ 4,000,000	$ 24,640,000
Station 262- New 115kV/34.5kV Substation	$ 100,000	$ 2,363,000	$ 2,023,000	$ 3,500,000	$ 3,160,000	$ 11,146,000
Station 49 - Replace 34.5-11.5kV Xfmr - Rochester	$ 100,000	$ 2,755,000	$ 2,000,000	$ -	$ -	$ 4,855,000
Station 95 - Add Second 34.5/11.5kV Transformer	$ 1,273,000	$ -	$ -	$ -	$ -	$ 1,273,000
Stations 67 to 418 New 115kV Transmission Line	$ -	$ -	$ -	$ -	$ 6,296,217	$ 6,296,217
Group Initiatives	$ 75,000	$ -	$ -	$ -	$ -	$ 75,000
Fire and Safety Initiatives	$ 75,000	$ -	$ -	$ -	$ -	$ 75,000
System Planning	$ 2,039,000	$ 3,732,000	$ 603,000	$ -	$ -	$ 6,374,000
Asset Condition Replacement	$ 2,039,000	$ 3,732,000	$ 603,000	$ -	$ -	$ 6,374,000
Station 23-Transformer &11.5kv Switchgear	$ 2,039,000	$ 3,732,000	$ 603,000	$ -	$ -	$ 6,374,000

Project List - by Sponsor	2016	2017	2018	2019	2020	Total 2016-2020
Gas Delivery	$ 39,952,000	$ 68,503,000	$ 37,099,000	$ 40,921,000	$ 59,881,071	$ 246,356,071
Mandatory	$ 30,222,000	$ 37,749,000	$ 27,609,000	$ 25,882,000	$ 44,961,375	$ 166,423,375
Buffalo Road Rebuild Regulator Station and Replace Gas Main	$ 2,482,000	$ -	$ -	$ -	$ -	$ 2,482,000
CM-2 CAL 350: Thruway Park Drive, Replace Gas Transmission Main, Roch	$ 2,000,000	$ -	$ -	$ -	$ -	$ 2,000,000
Gas Distribution Mains - New Installations - RG&E	$ 1,940,000	$ 1,981,000	$ 2,022,000	$ 2,065,000	$ 4,044,496	$ 12,052,496
Gas Distribution Mains - Replacements - RG&E	$ 301,000	$ 308,000	$ 314,000	$ 321,000	$ 640,805	$ 1,884,805
Incremental Customer Growth	$ 800,000	$ 1,225,000	$ -	$ -	$ 2,173,366	$ 4,198,366
Install New Gas Services	$ 3,349,000	$ 3,483,000	$ 3,688,000	$ 3,765,000	$ 2,736,384	$ 17,021,384
Large Government Jobs	$ 2,294,000	$ 2,339,000	$ 2,398,000	$ 2,458,000	$ 2,520,000	$ 12,009,000
Leak Prone Main Replacement Program	$ 13,317,000	$ 14,312,000	$ 15,346,000	$ 15,406,000	$ 24,302,703	$ 82,683,703
Leak Prone Services Replacement Program	$ 1,005,000	$ 1,095,000	$ 1,188,000	$ 1,213,000	$ 3,218,204	$ 7,719,204
Minor Government Jobs, Replace Gas Mains	$ 638,000	$ 652,000	$ 653,000	$ 654,000	$ 1,294,750	$ 3,891,750
Non-Leak Prone Services Replacement Program	$ -	$ -	$ -	$ -	$ 4,030,667	$ 4,030,667
Outage Management System, RG&E	$ -	$ -	$ 2,000,000	$ -	$ -	$ 2,000,000
Recycled Energy Development (RED) Transmission Gas Main Extension	$ 2,096,000	$ 12,354,000	$ -	$ -	$ -	$ 14,450,000
System Capacity	$ 4,105,000	$ 16,265,000	$ 990,000	$ 239,000	$ 1,000,000	$ 22,599,000
Enhanced First Responders and Fire Training Facility and Program, RG&E	$ -	$ 2,700,000	$ -	$ -	$ -	$ 2,700,000
Henrietta 42 - Phase 4 (East Henrietta Rd), Install Gas Mains, Rochester	$ 575,000	$ -	$ -	$ -	$ -	$ 575,000
Henrietta 42 Phase 5 (East River Rd), Install Gas Mains, Roch	$ -	$ -	$ 400,000	$ -	$ -	$ 400,000
MF120 Western Monroe, Install New Regulator Station 500	$ -	$ 500,000	$ -	$ -	$ -	$ 500,000
MF13 Geneseo Improvement, Install Gas Mains, Roch	$ -	$ 500,000	$ -	$ -	$ -	$ 500,000
MF14 Greece: English Rd, Install Gas Mains, Roch	$ -	$ -	$ -	$ 239,000	$ -	$ 239,000
MF14 Greece: Lake Avenue (Port of Rochester), Install Gas Mains	$ 225,000	$ -	$ -	$ -	$ -	$ 225,000
MF14 Greece: Ling Rd, Install Gas Mains, Roch	$ -	$ -	$ 380,000	$ -	$ -	$ 380,000
MF14 Greece: Mt Read Blvd, Install Gas Mains, Roch	$ -	$ -	$ -	$ -	$ 750,000	$ 750,000
MF14 Greece: Ridge Rd, Install Gas Mains, Roch	$ -	$ -	$ -	$ -	$ 250,000	$ 250,000
MF14 Greece: Vintage Lane, Install Regulator Station	$ 500,000	$ -	$ -	$ -	$ -	$ 500,000
MF35 Walworth System Improvement, Install Pipe and Regulator Stations	$ -	$ 950,000	$ -	$ -	$ -	$ 950,000
MF42 Henrietta: Brighton Henrietta Town Line Rd Improvement, Install Gas Mains, Roch	$ -	$ 1,100,000	$ -	$ -	$ -	$ 1,100,000
MF42 Henrietta: Thruway Park Drive, Install Gas Mains	$ 280,000	$ -	$ -	$ -	$ -	$ 280,000
MF60 Southeast: Boughton Hill Rd, Install Gas Mains, Roch	$ -	$ 900,000	$ -	$ -	$ -	$ 900,000
MF60 Southeast: County Rd 41, Install Gas Mains	$ 150,000	$ -	$ -	$ -	$ -	$ 150,000
MF60 Southeast: Gillis Rd, Install Gas Mains	$ 425,000	$ -	$ -	$ -	$ -	$ 425,000
MF60 Southeast: NYS Route 444, Install Gas Mains, Roch	$ -	$ 250,000	$ -	$ -	$ -	$ 250,000
Mt Read SF115 psi, Replace Gas Mains	$ 250,000	$ 2,250,000	$ -	$ -	$ -	$ 2,500,000
Northeast 60, Phase 1 Install Gas Mains	$ 295,000	$ 730,000	$ -	$ -	$ -	$ 1,025,000
Northeast 60, Phase 2 (Salt Rd Corridor) Install Gas Mains	$ 1,405,000	$ -	$ -	$ -	$ -	$ 1,405,000
Northeast 60, Phase 3 (Rte 250 Corridor) Install Gas Mains, Roch	$ -	$ 2,585,000	$ -	$ -	$ -	$ 2,585,000
Northeast 60, Phase 4 (Carter Road Corridor) Install Gas Mains, Roch	$ -	$ 800,000	$ -	$ -	$ -	$ 800,000
Northeast 60, Phase 5 (State Road Corridor) Install Gas Mains, Roch	$ -	$ 3,000,000	$ -	$ -	$ -	$ 3,000,000
Whittier Road Improvements, Phase 4, Install Gas Mains, Rochester	$ -	$ -	$ 210,000	$ -	$ -	$ 210,000
Reliability Risk	$ 5,200,000	$ 14,139,000	$ 8,500,000	$ 14,800,000	$ 13,919,696	$ 56,558,696
CM-1 Transmission Gas Main Replacement Project	$ -	$ 500,000	$ 5,000,000	$ 10,000,000	$ 10,000,000	$ 25,500,000
CM5 - Gas Main Replacement - Humphrey to Ballantyne Rd	$ 4,000,000	$ 10,553,000	$ -	$ -	$ -	$ 14,553,000
Gas Regulator Modernization & Automation Program	$ 1,000,000	$ 2,586,000	$ 3,000,000	$ 3,000,000	$ 3,919,696	$ 13,505,696
Gas SCADA System replacement	$ -	$ -	$ -	$ 1,500,000	$ -	$ 1,500,000
Remotely Operated Valves Program	$ 200,000	$ 500,000	$ 500,000	$ 300,000	$ -	$ 1,500,000
Efficiency	$ 175,000	$ -	$ -	$ -	$ -	$ 175,000
Controller Replacement Project (Bristol RSR)	$ 175,000	$ -	$ -	$ -	$ -	$ 175,000
Asset Condition Replacement	$ 250,000	$ 350,000	$ -	$ -	$ -	$ 600,000
MF60 Southwest Perry Segment #1, Replace Gas Mains, Roch	$ -	$ 350,000	$ -	$ -	$ -	$ 350,000
Uprate MF30 Henrietta	$ 250,000	$ -	$ -	$ -	$ -	$ 250,000

Project List - by Sponsor	2016	2017	2018	2019	2020	Total 2016-2020
Facilities	$ 3,527,000	$ 3,754,000	$ 4,431,000	$ 5,796,000	$ 6,000,000	$ 23,508,000
Efficiency	$ -	$ 130,000	$ -	$ -	$ -	$ 130,000
West Ave - Lighting Upgrade	$ -	$ 130,000	$ -	$ -	$ -	$ 130,000
Asset Condition Replacement	$ 3,527,000	$ 3,624,000	$ 4,431,000	$ 5,796,000	$ 6,000,000	$ 23,378,000
East Ave - 6th Floor Renovation	$ 600,000	$ -	$ -	$ -	$ -	$ 600,000
East Ave - South Façade Restoration	$ 400,000	$ -	$ -	$ -	$ -	$ 400,000
Eastern Monroe - Lighting Upgrade	$ 110,000	$ -	$ -	$ -	$ -	$ 110,000
Facilities Minor Projects	$ 2,417,000	$ 2,234,000	$ 2,837,000	$ 4,127,000	$ 3,500,000	$ 15,115,000
Major Facitilities Projects	$ -	$ 1,390,000	$ 1,594,000	$ 1,669,000	$ 2,500,000	$ 7,153,000
Operations Technology	$ 295,000	$ 314,000	$ 371,000	$ 485,000	$ 634,000	$ 2,099,000
Efficiency	$ 295,000	$ 314,000	$ 371,000	$ 485,000	$ 634,000	$ 2,099,000
OT TELECOM MAJOR CAPITAL PROJECTS - LifeCycle	$ 295,000	$ 314,000	$ 371,000	$ 485,000	$ 634,000	$ 2,099,000
Gas Operations	$ 153,000	$ 156,000	$ 156,000	$ 156,000	$ 271,671	$ 892,671
Asset Condition Replacement	$ 153,000	$ 156,000	$ 156,000	$ 156,000	$ 271,671	$ 892,671
General Equipment - Gas Operations	$ 153,000	$ 156,000	$ 156,000	$ 156,000	$ 271,671	$ 892,671
Security	$ 6,285,206	$ 5,509,000	$ 5,750,000	$ 750,000	$ 2,250,000	$ 20,544,206
Mandatory	$ 6,285,206	$ 5,509,000	$ 5,750,000	$ 750,000	$ 2,250,000	$ 20,544,206
Fire Protection	$ 1,575,000	$ 575,000	$ 750,000	$ 375,000	$ 1,250,000	$ 4,525,000
Physical Security	$ 4,710,206	$ 4,934,000	$ 5,000,000	$ 375,000	$ 1,000,000	$ 16,019,206
Fleet	$ 4,981,000	$ 4,970,000	$ 5,074,000	$ 5,181,000	$ 9,360,800	$ 29,566,800
Asset Condition Replacement	$ 4,981,000	$ 4,970,000	$ 5,074,000	$ 5,181,000	$ 9,360,800	$ 29,566,800
Fleet - Light duty vehicle capital leasing program	$ -	$ -	$ -	$ -	$ 2,212,800	$ 2,212,800
General Equipment - Fleet	$ 45,000	$ 45,000	$ 45,000	$ 45,000	$ 45,000	$ 225,000
Transportation Equipment	$ 4,936,000	$ 4,925,000	$ 5,029,000	$ 5,136,000	$ 7,103,000	$ 27,129,000
Information Technology	$ 2,612,000	$ 2,854,000	$ 3,236,000	$ 4,141,000	$ 13,935,000	$ 26,778,000
Mandatory	$ 305,000	$ 396,000	$ 930,000	$ 330,000	$ 385,000	$ 2,346,000
IT Projects - Mandatory	$ 30,000	$ 30,000	$ 630,000	$ 30,000	$ 35,000	$ 755,000
IT Projects - Security	$ 275,000	$ 366,000	$ 300,000	$ 300,000	$ 350,000	$ 1,591,000
Reliability Risk	$ 550,000	$ 350,000	$ 330,000	$ 250,000	$ 350,000	$ 1,830,000
IT Projects - Reliability Risk	$ 550,000	$ 350,000	$ 330,000	$ 250,000	$ 350,000	$ 1,830,000
Group Initiatives	$ 195,000	$ 161,000	$ 500,000	$ 243,000	$ 400,000	$ 1,499,000
IT Projects - Group Initiatives	$ 195,000	$ 161,000	$ 500,000	$ 243,000	$ 400,000	$ 1,499,000
Efficiency	$ 1,562,000	$ 1,947,000	$ 1,476,000	$ 3,318,000	$ 12,800,000	$ 21,103,000
IT Projects - Asset Condition	$ 835,000	$ 1,147,000	$ 1,054,000	$ 2,425,000	$ 2,800,000	$ 8,261,000
IT Projects - Efficiency	$ 727,000	$ 800,000	$ 422,000	$ 893,000	$ 10,000,000	$ 12,842,000
System Operations	$ 1,000,000	$ 2,000,000	$ 2,500,000	$ 2,500,000	$ 2,750,000	$ 10,750,000
Asset Condition Replacement	$ 1,000,000	$ 2,000,000	$ 2,500,000	$ 2,500,000	$ 2,750,000	$ 10,750,000
Incremental Automation Projects	$ 1,000,000	$ 2,000,000	$ 2,500,000	$ 2,500,000	$ 2,750,000	$ 10,750,000
General Services	$ 443,000	$ 472,000	$ 557,000	$ 728,000	$ 875,000	$ 3,075,000
Group Initiatives	$ 66,000	$ 100,000	$ 75,000	$ -	$ 50,000	$ 291,000
VoIP endpoint project (Phone System)	$ 66,000	$ 100,000	$ 75,000	$ -	$ 50,000	$ 291,000
Efficiency	$ 100,000	$ 50,000	$ 50,000	$ 50,000	$ 100,000	$ 350,000
Video Conference Equipment	$ 100,000	$ 50,000	$ 50,000	$ 50,000	$ 100,000	$ 350,000
Asset Condition Replacement	$ 277,000	$ 322,000	$ 432,000	$ 678,000	$ 725,000	$ 2,434,000
General Equipment	$ 277,000	$ 322,000	$ 432,000	$ 678,000	$ 725,000	$ 2,434,000

NYSEG and RG&E /
INVESTMENT PLANNING /
FIVE YEAR PLAN

Attachment 4 / Detailed Project List by Investment Category

Project List byBusiness Area and Investement Priority Classification	2016	2017	2018	2019	2020	Total 2016-2020
NYSEG	$ 232,904,750	$ 287,798,000	$ 268,934,000	$ 287,303,000	$ 363,900,480	$ 1,440,840,229
Mandatory	$ 127,260,750	$ 144,469,000	$ 117,565,000	$ 113,678,000	$ 150,624,135	$ 653,596,885
Common	$ 8,726,000	$ 17,310,000	$ 11,321,000	$ 14,275,000	$ 8,735,368	$ 60,367,368
Fire Protection	$ 950,000	$ 1,200,000	$ 1,000,000	$ 750,000	$ 3,000,000	$ 6,900,000
IT Projects - Cyber Security	$ 550,000	$ 732,000	$ 600,000	$ 600,000	$ 700,000	$ 3,182,000
IT Projects - Mandatory	$ 30,000	$ 30,000	$ 1,130,000	$ 30,000	$ 60,000	$ 1,280,000
Laboratory Equipment	$ 200,000	$ 171,000	$ -	$ -	$ 200,000	$ 571,000
Physical Security	$ 6,996,000	$ 15,177,000	$ 8,591,000	$ 12,895,000	$ 4,775,368	$ 48,434,368
Distribution	$ 28,276,000	$ 29,105,000	$ 30,467,000	$ 31,906,000	$ 32,788,847	$ 152,542,847
Distribution Line Inspection	$ 9,241,000	$ 9,652,000	$ 10,585,000	$ 11,451,000	$ 11,794,240	$ 52,723,240
Electric Meters - Program	$ 2,633,000	$ 2,633,000	$ 2,633,000	$ 2,765,000	$ 2,822,903	$ 13,486,903
Industrial Commercial	$ 1,249,000	$ 1,274,000	$ 1,299,000	$ 1,325,000	$ 1,351,728	$ 6,498,728
Major Government Highway	$ 2,040,000	$ 2,081,000	$ 2,122,000	$ 2,165,000	$ 2,208,162	$ 10,616,162
Residential Line Extensions	$ 8,000,000	$ 8,240,000	$ 8,487,000	$ 8,742,000	$ 9,004,260	$ 42,473,260
Service Connects	$ 2,787,000	$ 2,843,000	$ 2,900,000	$ 2,958,000	$ 3,046,740	$ 14,534,740
Storm Restoration	$ 1,326,000	$ 1,352,000	$ 1,380,000	$ 1,407,000	$ 1,435,305	$ 6,900,305
Street Lighting	$ 1,000,000	$ 1,030,000	$ 1,061,000	$ 1,093,000	$ 1,125,509	$ 5,309,509
Gas	$ 39,741,750	$ 48,628,000	$ 46,378,000	$ 33,066,000	$ 53,288,029	$ 221,101,779
Chemung County Gas Service Replacements	$ 5,650,000	$ -	$ -	$ -	$ -	$ 5,650,000
Critical Valve Installations, Binghamton	$ 150,000	$ 153,000	$ 153,000	$ 153,000	$ -	$ 609,000
Enhanced First Responders and Fire Training Mobile Facility and Program, NYSEG	$ 750,000	$ -	$ -	$ -	$ -	$ 750,000
Gas Distribution Mains - Replacements - NYSEG	$ 765,750	$ 782,000	$ 782,000	$ 782,000	$ 2,016,684	$ 5,128,434
Incremental Customer Growth	$ 1,602,000	$ 3,550,000	$ 3,200,000	$ -	$ 2,716,708	$ 11,068,708
Install New Gas Services	$ 3,522,000	$ 3,646,000	$ 4,234,000	$ 4,178,000	$ 7,534,516	$ 23,114,516
Lansing / Freeville - Gas Reinforcement Project	$ 560,000	$ 9,271,000	$ 5,030,000	$ -	$ -	$ 14,861,000
Lansing/Freeville Gas Reinforcement - Regulator Station	$ -	$ 2,300,000	$ -	$ -	$ -	$ 2,300,000
Large Government Jobs	$ 1,267,000	$ 1,291,000	$ 1,333,000	$ 1,376,000	$ 1,376,828	$ 6,643,828
Leak Prone Main Replacement Program	$ 13,024,000	$ 14,007,000	$ 14,820,000	$ 14,820,000	$ 23,062,054	$ 79,733,054
Leak Prone Services Replacement Program	$ 3,350,000	$ 3,644,000	$ 3,950,000	$ 4,032,000	$ 7,495,844	$ 22,471,844
Mechanicville Compressed Natural Gas Station and Facilities - Phase 2	$ -	$ -	$ 3,000,000	$ -	$ -	$ 3,000,000
Minor Gas Distribution Mains - New Installations	$ 3,285,000	$ 4,090,000	$ 3,182,000	$ 3,249,000	$ 3,350,000	$ 17,156,000
Minor Government Jobs, Replace Gas Mains	$ 842,000	$ 860,000	$ 861,000	$ 862,000	$ 2,026,837	$ 5,451,837
North Salem Gas Franchise Expansion	$ 13,000	$ 24,000	$ -	$ -	$ -	$ 37,000
NYSEG - Gas Meters	$ 3,066,000	$ 3,114,000	$ 3,208,000	$ 3,304,000	$ 3,373,314	$ 16,065,314
NYSEG - Gas Regulators	$ 295,000	$ 310,000	$ 310,000	$ 310,000	$ 335,244	$ 1,560,244
Outage Management System, NYSEG	$ -	$ -	$ 2,000,000	$ -	$ -	$ 2,000,000
Plattsburgh Gas Franchise Expansion	$ 1,600,000	$ 1,586,000	$ 315,000	$ -	$ -	$ 3,501,000

Project List byBusiness Area and Investement Priority Classification	2016	2017	2018	2019	2020	Total 2016-2020
Generation	$ 2,825,000	$ 2,945,000	$ 1,150,000	$ 1,475,000	$ 1,575,000	$ 9,970,000
CV Fire and Life Safety	$ 8,333	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 108,333
CV Regulatory Mandates/Unallocated Majors	$ -	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 400,000
HF PH - Fire and Life Safety	$ 8,333	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 108,333
HF Regulatory Mandates / Unallocated Majors	$ -	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 400,000
KF PH Fire and Life Safety	$ 8,333	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 108,333
KF Regulatory Mandates/Unallocated Majors	$ -	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 400,000
KF Tailrace and Bull Nose	$ -	$ 600,000	$ -	$ -	$ -	$ 600,000
MC Intake Trash Rack and Rack Raker	$ -	$ -	$ -	$ 250,000	$ 750,000	$ 1,000,000
MC PH A Fire and Life Safety	$ 8,333	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 108,333
MC Regulatory Mandates/Unallocated Majors	$ -	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 400,000
Mechanicville Hydro Spillway Resurfacing	$ 825,000	$ -	$ -	$ -	$ -	$ 825,000
Rainbow Falls Spillway Resurfacing	$ 1,500,000	$ 1,150,000	$ 25,000	$ -	$ -	$ 2,675,000
Regulatory Mandates (including Flashboard moderization/vacume breakers)	$ 450,000	$ -	$ -	$ -	$ -	$ 450,000
RF Fire and Life Safety (includes platform)	$ 8,333	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 108,333
RF Regulatory Mandates/Unallocated Majors (w/ fish effectiveness study)	$ -	$ 75,000	$ 75,000	$ 75,000	$ 75,000	$ 300,000
UMV Fire and Life Safety	$ 8,333	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 108,333
UMV Regulatory Mandates/Unallocated Majors	$ -	$ 100,000	$ 100,000	$ 250,000	$ 100,000	$ 550,000
UMV Relicensing - 2021	$ -	$ 470,000	$ 400,000	$ 350,000	$ 100,000	$ 1,320,000
Transmission	$ 47,692,000	$ 46,481,000	$ 28,249,000	$ 32,956,000	$ 54,236,892	$ 209,614,892
Auburn Transmission Project	$ 35,416,000	$ 20,322,000	$ -	$ -	$ -	$ 55,738,000
Columbia County Transmission Project (Klinekill 115 kV)	$ 1,988,000	$ 8,303,000	$ 6,135,000	$ -	$ -	$ 16,426,000
Coopers Corners - Add Third 345/115 kV Transformer	$ -	$ 461,000	$ 2,346,000	$ 7,063,000	$ -	$ 9,870,000
FERC- Bright Line	$ 4,000,000	$ 10,000,000	$ 10,000,000	$ 10,000,000	$ 53,721,892	$ 87,721,892
Fraser New 2nd 345kV/115kV Transformer and 115kV Bus Reconfiguration	$ 100,000	$ 2,607,000	$ 4,968,000	$ 8,224,000	$ -	$ 15,899,000
Fraser-Gilboa 345 kV 35 Line (GF5) Relay & Communication Replacement	$ 397,000	$ -	$ -	$ -	$ -	$ 397,000
Homer City Capital Breakers	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 515,000	$ 2,515,000
Line 807 - Convert to 115 kV Operation	$ 424,000	$ -	$ -	$ -	$ -	$ 424,000
Meyer New 2nd 115/34.5kV Transformer	$ 854,000	$ 943,000	$ -	$ -	$ -	$ 1,797,000
Perry Center Area New 34.5kV Substation	$ 100,000	$ 500,000	$ 800,000	$ 1,019,000	$ -	$ 2,419,000
South Perry New Substation	$ 3,713,000	$ 1,500,000	$ 1,500,000	$ 1,621,000	$ -	$ 8,334,000
Westover Goudey New Transformer & Cap Banks	$ 100,000	$ 471,000	$ 2,000,000	$ 4,529,000	$ -	$ 7,100,000
Windham Substation 115 KV Capacitor Bank Addition	$ 100,000	$ 874,000	$ -	$ -	$ -	$ 974,000

Project List byBusiness Area and Investement Priority Classification	2016	2017	2018	2019	2020	Total 2016-2020
System Capacity	$ 16,491,000	$ 25,547,000	$ 22,329,000	$ 26,822,000	$ 19,792,226	$ 110,981,226
Distribution	$ 9,237,000	$ 11,007,000	$ 13,692,000	$ 20,479,000	$ 18,488,906	$ 72,903,906
Amenia 2nd Bank & 13.2 KV Conversion - Brewster	$ -	$ -	$ 3,000,000	$ 7,000,000	$ -	$ 10,000,000
Chenango Bridge Substation 743 Regulation	$ 250,000	$ -	$ -	$ -	$ -	$ 250,000
Crafts - Add 2nd Transformer and 4th 13.2kV Circuit Position	$ -	$ -	$ -	$ -	$ 1,666,009	$ 1,666,009
Dingle Ridge - Add Second Transformer and 13.2 kV Conversion	$ 1,045,000	$ 4,555,000	$ -	$ -	$ -	$ 5,600,000
Glenwood - Replace Substation Transformers	$ 1,000,000	$ -	$ -	$ -	$ -	$ 1,000,000
Hilldale 115kV source, xfrmr bank upgrade, 2nd 12kV dist circ	$ -	$ -	$ 8,192,000	$ 2,516,000	$ 8,000,000	$ 18,708,000
Holland Transformer Replacement	$ -	$ -	$ -	$ -	$ 115,306	$ 115,306
Java 2nd Transformer and 12kV Conversion	$ -	$ -	$ -	$ -	$ 489,115	$ 489,115
Old Fall substation - Install 2nd LTC Transformer	$ 3,738,000	$ 3,042,000	$ 1,500,000	$ 2,000,000	$ -	$ 10,280,000
Orchard Park - Add a 2nd Transformer Bank	$ -	$ -	$ -	$ 4,136,000	$ 4,541,927	$ 8,677,927
Stillwater Substation- Upgrade Transformer to 14MVA	$ 2,454,000	$ 3,410,000	$ 1,000,000	$ 1,500,000	$ -	$ 8,364,000
Walden 35kV Conversion	$ -	$ -	$ -	$ 500,000	$ -	$ 500,000
West Davenport Sub - Replace sub transformer with non-LTC 7.5/10.5MVA unit.	$ -	$ -	$ -	$ 2,827,000	$ 3,676,549	$ 6,503,549
West Varysburg 12 kV extension	$ 750,000	$ -	$ -	$ -	$ -	$ 750,000
Gas	$ 3,175,000	$ 9,880,000	$ 4,995,000	$ 2,238,000	$ 455,000	$ 20,743,000
Beckett's Way - Gas Installation	$ 250,000	$ -	$ -	$ -	$ -	$ 250,000
Binghamton 60-PSI Gas System Improvements	$ -	$ 600,000	$ -	$ -	$ -	$ 600,000
Boiceville System Reinforcement	$ -	$ 350,000	$ -	$ -	$ -	$ 350,000
Gas Pipeline Susquehanna River Bore Extension	$ 1,350,000	$ -	$ -	$ -	$ -	$ 1,350,000
Homer System Upgrade	$ -	$ 820,000	$ 870,000	$ 455,000	$ 455,000	$ 2,600,000
North Country Gas Franchise Expansion	$ 1,375,000	$ 940,000	$ 1,417,000	$ -	$ -	$ 3,732,000
Port Dickinson Gas Pipeline Loop Extension	$ 100,000	$ 1,370,000	$ 1,508,000	$ 1,508,000	$ -	$ 4,486,000
Tow Path Road Gas Regulator Station Installation, Town of Fenton Binghamton, NY	$ -	$ -	$ -	$ 275,000	$ -	$ 275,000
Vienna Rd -Macedon Feeder Main replacement, Install Gas Mains	$ 100,000	$ 5,800,000	$ 1,200,000	$ -	$ -	$ 7,100,000
Transmission	$ 4,079,000	$ 4,660,000	$ 3,642,000	$ 4,105,000	$ 848,320	$ 17,334,320
Eelpot New 2nd 115kV/34.5kV Transformer	$ 3,741,000	$ -	$ -	$ -	$ -	$ 3,741,000
Line 526, Rebuild Coddington-South Hill 34.5 kV Line	$ -	$ -	$ -	$ 200,000	$ 700,000	$ 900,000
Organic Growth ECC/XECS systems	$ 138,000	$ 140,000	$ 142,000	$ 144,000	$ 148,320	$ 712,320
Stephentown New 2nd 115/34.5kV Transformer	$ 100,000	$ 1,355,000	$ -	$ -	$ -	$ 1,455,000
Wood Street - Add Third 345/115 kV Transformer	$ 100,000	$ 3,165,000	$ 3,500,000	$ 3,761,000	$ -	$ 10,526,000

Project List byBusiness Area and Investement Priority Classification	2016	2017	2018	2019	2020	Total 2016-2020
Reliability Risk	$ 17,875,000	$ 25,281,000	$ 43,699,000	$ 47,218,000	$ 60,917,432	$ 194,990,432
Common	$ 290,000	$ 370,000	$ 615,000	$ 400,000	$ 650,000	$ 2,325,000
IT Projects - Reliability Risk	$ 290,000	$ 370,000	$ 615,000	$ 400,000	$ 650,000	$ 2,325,000
Distribution	$ 13,000,000	$ 14,130,000	$ 11,670,000	$ 12,020,000	$ 12,380,597	$ 63,200,597
Betterments	$ 7,000,000	$ 7,210,000	$ 7,426,000	$ 7,649,000	$ 7,878,562	$ 37,163,562
Mobile Replacement #2 & #4	$ 2,000,000	$ 2,800,000	$ -	$ -	$ -	$ 4,800,000
Red Circuit Reliability	$ 4,000,000	$ 4,120,000	$ 4,244,000	$ 4,371,000	$ 4,502,035	$ 21,237,035
Gas	$ 2,685,000	$ 7,501,000	$ 26,832,000	$ 24,121,000	$ 22,439,071	$ 83,578,071
Bradley St, Install Gas Mains, Auburn	$ 200,000	$ -	$ -	$ -	$ -	$ 200,000
DeRuyter Transmission Replacement	$ -	$ 500,000	$ 15,000,000	$ 17,000,000	$ 17,000,000	$ 49,500,000
Edgett Street Canal Crossing, Newark - Install Gas Main	$ -	$ -	$ 500,000	$ -	$ -	$ 500,000
Gas Regulator Modernization & Automation Program	$ 1,000,000	$ 2,795,000	$ 3,000,000	$ 4,500,000	$ 4,318,071	$ 15,613,071
Gas SCADA System Replacement - NYSEG	$ -	$ -	$ -	$ 1,500,000	$ -	$ 1,500,000
Middleport to Medina Interconnect	$ -	$ 285,000	$ 290,000	$ -	$ -	$ 575,000
Phelps (South) Transmission Replacement	$ 500,000	$ 2,300,000	$ 5,671,000	$ -	$ -	$ 8,471,000
Remotely Operated Valves Program	$ 200,000	$ 500,000	$ 500,000	$ -	$ -	$ 1,200,000
Route 23 System Reinforcement	$ -	$ -	$ 750,000	$ -	$ -	$ 750,000
South Union Street Bridge Crossing - Replace Gas Main	$ 700,000	$ -	$ -	$ -	$ -	$ 700,000
State Rd. Tie Medium Pressure Systems	$ 85,000	$ -	$ -	$ -	$ -	$ 85,000
Transmission Casing Replacement Program - NYSEG	$ -	$ 1,121,000	$ 1,121,000	$ 1,121,000	$ 1,121,000	$ 4,484,000
Generation	$ -	$ 3,000,000	$ 3,125,000	$ 1,375,000	$ 2,075,000	$ 9,575,000
CV Air Admission System (Phase 2 - lower section)	$ -	$ -	$ 150,000	$ -	$ -	$ 150,000
HF Gravity Dam and Construction Portal Infill	$ -	$ 50,000	$ 1,950,000	$ -	$ -	$ 2,000,000
KF Penstock, Trifurcation, and Bypass Valve	$ -	$ 1,750,000	$ -	$ -	$ -	$ 1,750,000
MC Penstock Support	$ -	$ 100,000	$ -	$ -	$ -	$ 100,000
MC Spillway Concrete	$ -	$ -	$ 25,000	$ 75,000	$ -	$ 100,000
RF Penstock Replacement with Air Admission System	$ -	$ -	$ -	$ 100,000	$ 1,900,000	$ 2,000,000
UMV ROR / SCADA Replacement	$ -	$ -	$ -	$ 200,000	$ 150,000	$ 350,000
UMV Spillway Resurfacing and Toe	$ -	$ 1,100,000	$ 1,000,000	$ 1,000,000	$ 25,000	$ 3,125,000
Transmission	$ 1,900,000	$ 280,000	$ 1,457,000	$ 9,302,000	$ 23,372,764	$ 36,311,764
Davis Road, Replace 115/34.5 kV Transformers #2 & #3 with new LTC's	$ -	$ -	$ -	$ 5,509,000	$ 5,254,874	$ 10,763,874
Energy Control Center Project in NY, Siemens DMS	$ 700,000	$ -	$ -	$ -	$ -	$ 700,000
Erie Street, Add 3rd 115/34.5 kV Transformer	$ -	$ -	$ -	$ -	$ 1,027,000	$ 1,027,000
Gardenville, Add 3rd 230/115 kV Transformer	$ -	$ -	$ -	$ 660,000	$ 12,682,962	$ 13,342,962
Geneva, Add Switched Capacitor Bank at Five Points Prison Substation	$ -	$ -	$ -	$ 903,000	$ -	$ 903,000
Line 810, Rebuild Carmel-Adams Corners 46 kV Line	$ -	$ -	$ -	$ -	$ 386,277	$ 386,277
Lockheed Martin Remote Outage Visualization	$ 1,000,000	$ -	$ -	$ -	$ -	$ 1,000,000
Mechanicville, Circuit 620 (BRAINARD TAP - WEST LEBANON Sw. Sta.), Install Static and Ground Wires	$ -	$ -	$ -	$ -	$ 753,650	$ 753,650
Oakdale Substation Reconfiguration Project	$ 100,000	$ 100,000	$ 218,000	$ 977,000	$ 3,268,000	$ 4,663,000
Watercure Road - Second 345 kV Transformer	$ 100,000	$ 180,000	$ 1,239,000	$ 1,253,000	$ -	$ 2,772,000

Project List byBusiness Area and Investement Priority Classification	2016	2017	2018	2019	2020	Total 2016-2020
Group Initiatives	$ 900,000	$ 1,904,000	$ 1,225,000	$ 634,000	$ 1,050,000	$ 5,713,000
Common	$ 570,000	$ 904,000	$ 1,100,000	$ 459,000	$ 600,000	$ 3,633,000
IT Projects - Group Initiatives	$ 370,000	$ 304,000	$ 700,000	$ 459,000	$ 600,000	$ 2,433,000
Ithaca General Office - building separation for disposition	$ 200,000	$ 600,000	$ 400,000	$ -	$ -	$ 1,200,000
Generation	$ 330,000	$ 1,000,000	$ 125,000	$ 175,000	$ 450,000	$ 2,080,000
Fossil Hydro Operations Minor projects	$ 330,000	$ -	$ -	$ -	$ -	$ 330,000
HF Draft Tube Stop Logs	$ -	$ -	$ -	$ 50,000	$ 200,000	$ 250,000
KF Draft Tube Stops, Gantry, and Foundation Upgrades	$ -	$ 1,000,000	$ -	$ -	$ -	$ 1,000,000
KF Floodgate Upgrades	$ -	$ -	$ 100,000	$ -	$ -	$ 100,000
RF Bubbler	$ -	$ -	$ 25,000	$ 75,000	$ -	$ 100,000
UMV Gallery Flooring	$ -	$ -	$ -	$ 50,000	$ 250,000	$ 300,000
Efficiency	$ 12,847,000	$ 16,757,000	$ 16,136,000	$ 22,986,000	$ 30,194,110	$ 98,920,110
Common	$ 5,197,000	$ 5,077,000	$ 5,314,000	$ 6,999,000	$ 20,052,000	$ 42,639,000
Fleischmanns - heating fuel conversion	$ -	$ -	$ 125,000	$ -	$ -	$ 125,000
IT Projects - Efficiency	$ 1,417,000	$ 1,453,000	$ 850,000	$ 2,300,000	$ 15,000,000	$ 21,020,000
Plattsburgh - heating fuel conversion	$ 500,000	$ -	$ -	$ -	$ -	$ 500,000
Telecommunications Major	$ 3,191,000	$ 3,526,000	$ 4,222,000	$ 4,572,000	$ 4,952,000	$ 20,463,000
Video Conferencing Equipment	$ 89,000	$ 98,000	$ 117,000	$ 127,000	$ 100,000	$ 531,000
Distribution	$ 7,650,000	$ 11,080,000	$ 10,222,000	$ 10,487,000	$ 10,142,110	$ 49,581,110
NYSEG Automation Projects	$ 5,000,000	$ 8,000,000	$ 7,500,000	$ 7,500,000	$ 7,500,000	$ 35,500,000
NYSEG Communications for Automation Programs	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 750,000	$ 4,750,000
Substation Automation Program	$ 1,500,000	$ 1,610,000	$ 1,722,000	$ 1,837,000	$ 1,892,110	$ 8,561,110
Telecom - Alarm Monitoring Refresh	$ 150,000	$ -	$ -	$ 150,000	$ -	$ 300,000
Telecom - SONET Refresh	$ -	$ 450,000	$ -	$ -	$ -	$ 450,000
Telecom Bridges for new KGO BU Site	$ -	$ 20,000	$ -	$ -	$ -	$ 20,000
Gas	$ -	$ 600,000	$ 600,000	$ 600,000	$ -	$ 1,800,000
Gas RTU/Telemetry Upgrade	$ -	$ 600,000	$ 600,000	$ 600,000	$ -	$ 1,800,000
Transmission	$ -	$ -	$ -	$ 4,900,000	$ -	$ 4,900,000
ECC System Upgrade	$ -	$ -	$ -	$ 4,900,000	$ -	$ 4,900,000

Project List byBusiness Area and Investement Priority Classification	2016	2017	2018	2019	2020	Total 2016-2020
Asset Condition Replacement	$ 52,862,000	$ 60,401,000	$ 65,777,000	$ 75,317,000	$ 101,322,577	$ 355,679,577
Common	$ 11,257,000	$ 12,766,000	$ 15,694,000	$ 18,643,000	$ 31,048,400	$ 89,408,400
Auburn Service Center - building renovation	$ -	$ -	$ 30,000	$ -	$ 300,000	$ 330,000
Binghamton Service Center - roof replacement	$ 150,000	$ -	$ -	$ -	$ -	$ 150,000
CRC/Self Service Improvement	$ -	$ -	$ 265,000	$ 237,000	$ -	$ 502,000
Elmira Service Center - building renovation	$ -	$ 770,000	$ -	$ -	$ -	$ 770,000
Facilities Minor Projects	$ 1,778,000	$ 2,055,000	$ 3,161,000	$ 2,628,000	$ 1,500,000	$ 11,122,000
Fleet - Light duty vehicle capital leasing program	$ -	$ -	$ -	$ -	$ 4,598,400	$ 4,598,400
General Equipment - Fleet	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 500,000
Geneva - building renovation and consolidation	$ -	$ -	$ 2,600,000	$ 1,400,000	$ -	$ 4,000,000
IT Projects - Asset Condition	$ 1,632,000	$ 2,041,000	$ 2,638,000	$ 3,517,000	$ 4,000,000	$ 13,828,000
Johnson City Training Facitility - construct new fabric structure	$ 150,000	$ -	$ -	$ -	$ -	$ 150,000
Kirkwood General Office - cooling tower replacement	$ 200,000	$ -	$ -	$ -	$ -	$ 200,000
Lancaster Service Center - building renovation	$ 40,000	$ 450,000	$ -	$ -	$ -	$ 490,000
Liberty - dock upgrade	$ 200,000	$ -	$ -	$ -	$ -	$ 200,000
Liberty - elevator upgrade	$ 200,000	$ -	$ -	$ -	$ 50,000	$ 250,000
Liberty - HVAC upgrade	$ 250,000	$ 250,000	$ -	$ -	$ -	$ 500,000
Major Facilities Projects	$ -	$ -	$ -	$ 2,811,000	$ -	$ 2,811,000
Mechanicville Service Center - building renovation	$ 50,000	$ 500,000	$ -	$ -	$ -	$ 550,000
Noyes Island - drainage and paving improvements	$ 450,000	$ -	$ -	$ -	$ -	$ 450,000
Oneonta Service Center - building renovation	$ 45,000	$ -	$ -	$ -	$ 450,000	$ 495,000
Other Customer Service Projects	$ -	$ 50,000	$ -	$ 50,000	$ 50,000	$ 150,000
Plattsburgh Facility - building renovation	$ 100,000	$ 500,000	$ -	$ -	$ -	$ 600,000
Transportation Equipment	$ 5,452,000	$ 5,900,000	$ 6,900,000	$ 7,900,000	$ 20,000,000	$ 46,152,000
Vestal Electric Meter Lab - building renovation	$ 20,000	$ 150,000	$ -	$ -	$ -	$ 170,000
Walden - Facility Closure and Relocation	$ 440,000	$ -	$ -	$ -	$ -	$ 440,000
Distribution	$ 34,072,000	$ 38,553,000	$ 42,295,000	$ 43,391,000	$ 54,353,628	$ 212,664,628
Asset Condition - Red Health Index	$ 11,250,000	$ 12,000,000	$ 12,750,000	$ 13,500,000	$ 15,000,000	$ 64,500,000
Distribution Line	$ 14,500,000	$ 14,935,000	$ 15,383,000	$ 15,845,000	$ 16,319,878	$ 76,982,878
General Equipment Operations T&D	$ 510,000	$ 520,000	$ 531,000	$ 541,000	$ 552,040	$ 2,654,040
Substation Battery Replacement Program	$ 1,167,000	$ 1,190,000	$ 1,214,000	$ 1,238,000	$ 1,262,838	$ 6,071,838
Substation Circuit Breaker Replacement Program	$ 2,667,000	$ 2,718,000	$ 2,785,000	$ 2,869,000	$ 2,954,932	$ 13,993,932
Substation Insulator Replacement Program	$ -	$ 950,000	$ 950,000	$ 950,000	$ 500,000	$ 3,350,000
Substation Modernization	$ -	$ 2,218,000	$ 5,032,000	$ 5,000,000	$ 13,500,000	$ 25,750,000
Substation Program	$ 1,428,000	$ 1,457,000	$ 1,486,000	$ 1,515,000	$ 1,560,450	$ 7,446,450
Substation Silicon Carbide Replacement Program	$ 500,000	$ 500,000	$ 250,000	$ 250,000	$ -	$ 1,500,000
Substation Transformer Distribution Replacement program	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 2,000,000	$ 6,000,000
T&D - Switch Replacement Program	$ 300,000	$ 300,000	$ -	$ -	$ -	$ 600,000
T&D Reject Pole Replacement	$ 500,000	$ 515,000	$ 664,000	$ 683,000	$ 703,490	$ 3,065,490
Transmission and Distribution Fault Indicators	$ 250,000	$ 250,000	$ 250,000	$ -	$ -	$ 750,000

Project List byBusiness Area and Investement Priority Classification	2016	2017	2018	2019	2020	Total 2016-2020
Gas	$ 911,000	$ 3,721,000	$ 732,000	$ 543,000	$ 815,012	$ 6,722,012
Airport Corporate Park South, Big Flats, New York-Install Gas Main	$ -	$ -	$ 200,000	$ -	$ -	$ 200,000
Bradley Farms, Rebuild Gas Gate Station	$ 100,000	$ 3,200,000	$ -	$ -	$ -	$ 3,300,000
General Equipment - Gas Operations	$ 511,000	$ 521,000	$ 532,000	$ 543,000	$ 815,012	$ 2,922,012
North Titus Regulator Station and Gas Main Replacement	$ 300,000	$ -	$ -	$ -	$ -	$ 300,000
Generation	$ 759,000	$ (597,000)	$ 1,001,000	$ 6,071,000	$ 7,850,000	$ 15,084,000
CV Switchgear and Generator Protection	$ -	$ 300,000	$ 800,000	$ 2,000,000	$ 200,000	$ 3,300,000
CV Unit 1 T-G Major Rebuild (with mechanical seal)	$ -	$ 500,000	$ 500,000	$ -	$ -	$ 1,000,000
General Equipment - Generation	$ 50,000	$ -	$ -	$ -	$ -	$ 50,000
Generation Reduction to Hit Appendix P	$ (1,051,000)	$ (2,322,000)	$ (1,899,000)	$ 346,000	$ -	$ (4,926,000)
HF Generator Field Breakers	$ -	$ 75,000	$ 75,000	$ -	$ -	$ 150,000
HFU1 T-G Major Rebuild w/Transition Ring	$ -	$ -	$ -	$ 50,000	$ 1,000,000	$ 1,050,000
HFU2 T-G Major Rebuild w/Transition Ring and Draft Tube Upgrades	$ -	$ 50,000	$ 1,000,000	$ 1,250,000	$ 400,000	$ 2,700,000
HFU3 T-G Major Rebuild w/ Transition Ring	$ -	$ -	$ 50,000	$ 1,000,000	$ 1,000,000	$ 2,050,000
High Falls - Modernization Project	$ 1,060,000	$ -	$ -	$ -	$ -	$ 1,060,000
Kents Falls - Modernization Project	$ 700,000	$ -	$ -	$ -	$ -	$ 700,000
KF Switchgear and Generator Protection	$ -	$ -	$ -	$ 50,000	$ 2,600,000	$ 2,650,000
KF Unit 1 T-G Major Rebuild (with new runner)	$ -	$ -	$ -	$ 50,000	$ 1,700,000	$ 1,750,000
KF Unit 2 T-G Major Rebuild (with mechanical seal)	$ -	$ 750,000	$ 50,000	$ -	$ -	$ 800,000
KF Unit 3 T-G Major Rebuild	$ -	$ -	$ 100,000	$ 750,000	$ 50,000	$ 900,000
MC Intake Isolation Gate	$ -	$ -	$ -	$ 50,000	$ 250,000	$ 300,000
MC Powerhouse A	$ -	$ 50,000	$ 250,000	$ -	$ -	$ 300,000
MC Switchgear and Generator Protection	$ -	$ -	$ -	$ 50,000	$ 50,000	$ 100,000
MC Trash Removal System	$ -	$ -	$ -	$ 25,000	$ 75,000	$ 100,000
MC Unit 1 T-G Major	$ -	$ -	$ 75,000	$ 400,000	$ 25,000	$ 500,000
MC Unit 2 T-G Major	$ -	$ -	$ -	$ 50,000	$ 450,000	$ 500,000
MC Unit 3 T-G Major	$ -	$ -	$ -	$ -	$ 50,000	$ 50,000
Transmission	$ 5,863,000	$ 5,958,000	$ 6,055,000	$ 6,669,000	$ 7,255,537	$ 31,800,537
General Equipment - Substations	$ 153,000	$ 156,000	$ 159,000	$ 162,000	$ 165,612	$ 795,612
Lifecycle Replacement - ECC/XECS systems	$ 105,000	$ 105,000	$ 105,000	$ 620,000	$ 105,000	$ 1,040,000
Substation Transformer Transmission Replacement program	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 2,000,000	$ 6,000,000
Transmission Line	$ 4,605,000	$ 4,697,000	$ 4,791,000	$ 4,887,000	$ 4,984,925	$ 23,964,925

Project List byBusiness Area and Investement Priority Classification	2016	2017	2018	2019	2020	Total 2016-2020
Strategic	$ 4,669,000	$ 13,439,000	$ 2,203,000	$ 648,000	$ -	$ 20,959,000
Common	$ 941,000	$ 974,000	$ 260,000	$ -	$ -	$ 2,175,000
IT Projects - Strategic	$ 941,000	$ 974,000	$ 260,000	$ -	$ -	$ 2,175,000
Distribution	$ 3,728,000	$ 12,465,000	$ 1,943,000	$ 648,000	$ -	$ 18,784,000
Energy Smart Community REV Project	$ 3,728,000	$ 2,465,000	$ 1,943,000	$ 648,000	$ -	$ 8,784,000
Smart Grid / AMI for Energy Smart Community Project	$ -	$ 10,000,000	$ -	$ -	$ -	$ 10,000,000

Project List byBusiness Area and Investement Priority Classification	2016	2017	2018	2019	2020	Total 2016-2020
RG&E	$ 287,988,746	$ 302,460,111	$ 243,909,000	$ 224,101,000	$ 259,402,285	$ 1,317,861,143
Mandatory	$ 181,243,005	$ 150,714,386	$ 143,541,798	$ 127,874,666	$ 113,867,425	$ 717,241,280
Common	$ 6,829,206	$ 6,033,000	$ 6,703,000	$ 1,471,000	$ 3,035,000	$ 24,071,206
Fire Protection	$ 1,575,000	$ 575,000	$ 750,000	$ 375,000	$ 1,250,000	$ 4,525,000
IT Projects - Mandatory	$ 30,000	$ 30,000	$ 630,000	$ 30,000	$ 35,000	$ 755,000
IT Projects - Security	$ 275,000	$ 366,000	$ 300,000	$ 300,000	$ 350,000	$ 1,591,000
Laboratory Equipment	$ 239,000	$ 128,000	$ 23,000	$ 391,000	$ 400,000	$ 1,181,000
Physical Security	$ 4,710,206	$ 4,934,000	$ 5,000,000	$ 375,000	$ 1,000,000	$ 16,019,206
Distribution	$ 19,030,799	$ 19,407,386	$ 19,790,798	$ 20,246,666	$ 20,673,278	$ 99,148,927
Distribution Line Inspection	$ 1,000,000	$ 1,030,000	$ 1,060,900	$ 1,092,727	$ 1,125,509	$ 5,309,136
Industrial Commercial	$ 2,584,765	$ 2,636,460	$ 2,689,189	$ 2,742,973	$ 2,797,833	$ 13,451,221
Major Government Highway	$ 8,352,059	$ 8,519,100	$ 8,688,268	$ 8,864,686	$ 9,040,537	$ 43,464,651
Meters	$ 1,206,000	$ 1,206,091	$ 1,206,091	$ 1,266,396	$ 1,292,990	$ 6,177,568
Minor Government Highway	$ 352,903	$ 359,961	$ 367,160	$ 374,503	$ 381,993	$ 1,836,519
Residential Service Installation	$ 2,783,580	$ 2,839,252	$ 2,896,037	$ 2,953,957	$ 3,013,037	$ 14,485,862
Service Connects	$ 1,445,492	$ 1,474,402	$ 1,503,890	$ 1,533,968	$ 1,564,647	$ 7,522,398
Storm Restoration	$ 306,000	$ 312,120	$ 318,362	$ 324,730	$ 331,224	$ 1,592,436
Street Lighting	$ 1,000,000	$ 1,030,000	$ 1,060,900	$ 1,092,727	$ 1,125,509	$ 5,309,136
Gas	$ 32,792,000	$ 40,363,000	$ 30,244,000	$ 28,600,000	$ 47,736,403	$ 179,735,403
Buffalo Road Rebuild Regulator Station and Replace Gas Main	$ 2,482,000	$ -	$ -	$ -	$ -	$ 2,482,000
CM-2 CAL 350: Thruway Park Drive, Replace Gas Transmission Main, Roch	$ 2,000,000	$ -	$ -	$ -	$ -	$ 2,000,000
Gas Distribution Mains - New Installations - RG&E	$ 1,940,000	$ 1,981,000	$ 2,022,000	$ 2,065,000	$ 4,044,496	$ 12,052,496
Gas Distribution Mains - Replacements - RG&E	$ 301,000	$ 308,000	$ 314,000	$ 321,000	$ 640,805	$ 1,884,805
Incremental Customer Growth	$ 800,000	$ 1,225,000	$ -	$ -	$ 2,173,366	$ 4,198,366
Install New Gas Services	$ 3,349,000	$ 3,483,000	$ 3,688,000	$ 3,765,000	$ 2,736,384	$ 17,021,384
Large Government Jobs	$ 2,294,000	$ 2,339,000	$ 2,398,000	$ 2,458,000	$ 2,520,000	$ 12,009,000
Leak Prone Main Replacement Program	$ 13,317,000	$ 14,312,000	$ 15,346,000	$ 15,406,000	$ 24,302,703	$ 82,683,703
Leak Prone Services Replacement Program	$ 1,005,000	$ 1,095,000	$ 1,188,000	$ 1,213,000	$ 3,218,204	$ 7,719,204
Minor Government Jobs, Replace Gas Mains	$ 638,000	$ 652,000	$ 653,000	$ 654,000	$ 1,294,750	$ 3,891,750
Non-Leak Prone Services Replacement Program	$ -	$ -	$ -	$ -	$ 4,030,667	$ 4,030,667
Outage Management System, RG&E	$ -	$ -	$ 2,000,000	$ -	$ -	$ 2,000,000
Recycled Energy Development (RED) Transmission Gas Main Extension	$ 2,096,000	$ 12,354,000	$ -	$ -	$ -	$ 14,450,000
RG&E - Gas Meters	$ 2,477,000	$ 2,418,000	$ 2,430,000	$ 2,502,000	$ 2,554,946	$ 12,381,946
RG&E - Gas Regulators	$ 93,000	$ 196,000	$ 205,000	$ 216,000	$ 220,082	$ 930,082
Generation	$ -	$ 2,025,000	$ 1,375,000	$ 925,000	$ 1,075,000	$ 5,400,000
S160 Regulatory Mandates	$ -	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 100,000
S170 Regulatory Mandates	$ -	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 100,000
S2 Fire and Life Safety Initiatives	$ -	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 100,000
S2 Regulatory Mandates/Unallocated Majors	$ -	$ 300,000	$ 300,000	$ 250,000	$ 250,000	$ 1,100,000
S2 RH Intake Modification	$ -	$ 800,000	$ 200,000	$ -	$ -	$ 1,000,000
S2 Unit 1 T-G Butterfly Valve	$ -	$ 200,000	$ -	$ -	$ -	$ 200,000
S26 Fire and Life Safety Initiatives	$ -	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 100,000
S26 Regulatory Mandates/Unallocated Majors	$ -	$ 300,000	$ 300,000	$ 250,000	$ 250,000	$ 1,100,000
S5 Fire and Life Safety Initiatives	$ -	$ 75,000	$ 75,000	$ 75,000	$ 75,000	$ 300,000
S5 Regulatory Mandates/Unallocated Majors	$ -	$ 250,000	$ 400,000	$ 250,000	$ 400,000	$ 1,300,000

Project List byBusiness Area and Investement Priority Classification	2016	2017	2018	2019	2020	Total 2016-2020
Transmission	$ 122,591,000	$ 82,886,000	$ 85,429,000	$ 76,632,000	$ 41,347,743	$ 408,885,743
FERC- Bright Line	$ 5,000,000	$ 10,000,000	$ 10,000,000	$ 10,000,000	$ 4,663,165	$ 39,663,165
Fossil Hydro Facilities-Regulatory Mandates/Unallocated Majors	$ 600,000	$ -	$ -	$ -	$ -	$ 600,000
Ginna Retirement Transmission Alternative and Fifth Bay - Station 80	$ 106,004,000	$ 15,514,000	$ -	$ -	$ -	$ 121,518,000
Move circuits 904 and 905 from Double Circuit Towers to separate towers	$ -	$ 8,000,000	$ 10,000,000	$ -	$ -	$ 18,000,000
RARP	$ 10,987,000	$ 41,372,000	$ 55,429,000	$ 66,632,000	$ 36,684,578	$ 211,104,578
Station 70 - Auto sectionalization 115kV Circuit 917	$ -	$ 8,000,000	$ 10,000,000	$ -	$ -	$ 18,000,000
System Capacity	$ 48,353,000	$ 66,174,000	$ 13,619,000	$ 8,259,000	$ 38,984,476	$ 175,389,476
Distribution	$ 7,178,000	$ 9,050,000	$ 5,316,000	$ 8,020,000	$ 12,984,476	$ 42,548,476
Station 117 - Replace #1 Transformer Bank and convert 3 circuits to 12kV operation.	$ -	$ -	$ -	$ 5,100,000	$ 6,306,476	$ 11,406,476
Station 192 transformer/facilities upgrade	$ 2,678,000	$ 2,265,000	$ -	$ -	$ 2,178,000	$ 7,121,000
Station 43 - Replace #3 and #4 Transformer Banks.	$ 4,500,000	$ 2,785,000	$ -	$ -	$ 4,500,000	$ 11,785,000
Station 46 - Replace #1 and #3 Transformer Banks	$ -	$ -	$ -	$ 2,920,000	$ -	$ 2,920,000
Station 51 transformer/facilities upgrade and secondary source addition	$ -	$ 4,000,000	$ 5,316,000	$ -	$ -	$ 9,316,000
Gas	$ 4,105,000	$ 16,265,000	$ 990,000	$ 239,000	$ 1,000,000	$ 22,599,000
Enhanced First Responders and Fire Training Facility and Program, RG&E	$ -	$ 2,700,000	$ -	$ -	$ -	$ 2,700,000
Henrietta 42 - Phase 4 (East Henrietta Rd), Install Gas Mains, Rochester	$ 575,000	$ -	$ -	$ -	$ -	$ 575,000
Henrietta 42 Phase 5 (East River Rd), Install Gas Mains, Roch	$ -	$ -	$ 400,000	$ -	$ -	$ 400,000
MF120 Western Monroe, Install New Regulator Station 500	$ -	$ 500,000	$ -	$ -	$ -	$ 500,000
MF13 Geneseo Improvement, Install Gas Mains, Roch	$ -	$ 500,000	$ -	$ -	$ -	$ 500,000
MF14 Greece: English Rd, Install Gas Mains, Roch	$ -	$ -	$ -	$ 239,000	$ -	$ 239,000
MF14 Greece: Lake Avenue (Port of Rochester), Install Gas Mains	$ 225,000	$ -	$ -	$ -	$ -	$ 225,000
MF14 Greece: Ling Rd, Install Gas Mains, Roch	$ -	$ -	$ 380,000	$ -	$ -	$ 380,000
MF14 Greece: Mt Read Blvd, Install Gas Mains, Roch	$ -	$ -	$ -	$ -	$ 750,000	$ 750,000
MF14 Greece: Ridge Rd, Install Gas Mains, Roch	$ -	$ -	$ -	$ -	$ 250,000	$ 250,000
MF14 Greece: Vintage Lane, Install Regulator Station	$ 500,000	$ -	$ -	$ -	$ -	$ 500,000
MF35 Walworth System Improvement, Install Pipe and Regulator Stations	$ -	$ 950,000	$ -	$ -	$ -	$ 950,000
MF42 Henrietta: Brighton Henrietta Town Line Rd Improvement, Install Gas Mains, Roch	$ -	$ 1,100,000	$ -	$ -	$ -	$ 1,100,000
MF42 Henrietta: Thruway Park Drive, Install Gas Mains	$ 280,000	$ -	$ -	$ -	$ -	$ 280,000
MF60 Southeast: Boughton Hill Rd, Install Gas Mains, Roch	$ -	$ 900,000	$ -	$ -	$ -	$ 900,000
MF60 Southeast: County Rd 41, Install Gas Mains	$ 150,000	$ -	$ -	$ -	$ -	$ 150,000
MF60 Southeast: Gillis Rd, Install Gas Mains	$ 425,000	$ -	$ -	$ -	$ -	$ 425,000
MF60 Southeast: NYS Route 444, Install Gas Mains, Roch	$ -	$ 250,000	$ -	$ -	$ -	$ 250,000
Mt Read SF115 psi, Replace Gas Mains	$ 250,000	$ 2,250,000	$ -	$ -	$ -	$ 2,500,000
Northeast 60, Phase 1 Install Gas Mains	$ 295,000	$ 730,000	$ -	$ -	$ -	$ 1,025,000
Northeast 60, Phase 2 (Salt Rd Corridor) Install Gas Mains	$ 1,405,000	$ -	$ -	$ -	$ -	$ 1,405,000
Northeast 60, Phase 3 (Rte 250 Corridor) Install Gas Mains, Roch	$ -	$ 2,585,000	$ -	$ -	$ -	$ 2,585,000
Northeast 60, Phase 4 (Carter Road Corridor) Install Gas Mains, Roch	$ -	$ 800,000	$ -	$ -	$ -	$ 800,000
Northeast 60, Phase 5 (State Road Corridor) Install Gas Mains, Roch	$ -	$ 3,000,000	$ -	$ -	$ -	$ 3,000,000
Whittier Road Improvements, Phase 4, Install Gas Mains, Rochester	$ -	$ -	$ 210,000	$ -	$ -	$ 210,000
Transmission	$ 37,070,000	$ 40,859,000	$ 7,313,000	$ -	$ 25,000,000	$ 110,242,000
Station 23 - New Downtown 115kV Source	$ 37,070,000	$ 40,859,000	$ 7,313,000	$ -	$ 25,000,000	$ 110,242,000

Project List byBusiness Area and Investement Priority Classification	2016	2017	2018	2019	2020	Total 2016-2020
Reliability Risk	$ 25,332,000	$ 40,507,381	$ 35,976,439	$ 35,220,533	$ 38,274,125	$ 175,310,478
Common	$ 550,000	$ 350,000	$ 330,000	$ 250,000	$ 350,000	$ 1,830,000
IT Projects - Reliability Risk	$ 550,000	$ 350,000	$ 330,000	$ 250,000	$ 350,000	$ 1,830,000
Distribution	$ 4,800,000	$ 4,914,000	$ 5,030,820	$ 5,150,533	$ 5,273,212	$ 25,168,565
Betterments	$ 3,000,000	$ 3,060,000	$ 3,121,200	$ 3,183,624	$ 3,247,296	$ 15,612,120
Red Circuit Reliability	$ 1,800,000	$ 1,854,000	$ 1,909,620	$ 1,966,909	$ 2,025,916	$ 9,556,444
Gas	$ 5,200,000	$ 14,139,000	$ 8,500,000	$ 14,800,000	$ 13,919,696	$ 56,558,696
CM-1 Transmission Gas Main Replacement Project	$ -	$ 500,000	$ 5,000,000	$ 10,000,000	$ 10,000,000	$ 25,500,000
CM5 - Gas Main Replacement - Humphrey to Ballantyne Rd	$ 4,000,000	$ 10,553,000	$ -	$ -	$ -	$ 14,553,000
Gas Regulator Modernization & Automation Program	$ 1,000,000	$ 2,586,000	$ 3,000,000	$ 3,000,000	$ 3,919,696	$ 13,505,696
Gas SCADA System replacement	$ -	$ -	$ -	$ 1,500,000	$ -	$ 1,500,000
Remotely Operated Valves Program	$ 200,000	$ 500,000	$ 500,000	$ 300,000	$ -	$ 1,500,000
Generation	$ 5,181,000	$ 9,261,000	$ 7,525,000	$ 5,071,000	$ 5,275,000	$ 32,313,000
Dam Resurfacing	$ -	$ 75,000	$ 700,000	$ 225,000	$ 50,000	$ 1,050,000
Other Generation Projects	$ 3,181,000	$ 5,036,000	$ -	$ 4,196,000	$ -	$ 12,413,000
S2 Replace Unit 1 Penstock	$ 2,000,000	$ 4,000,000	$ 5,550,000	$ 100,000	$ -	$ 11,650,000
S2 SCADA System	$ -	$ -	$ 50,000	$ 125,000	$ -	$ 175,000
S26 Draft Tube and Foundation	$ -	$ 50,000	$ 325,000	$ 25,000	$ -	$ 400,000
S5 HG Pier Foundations	$ -	$ -	$ -	$ 100,000	$ 900,000	$ 1,000,000
S5 HG Spillgate #2 rock stabilization	$ -	$ -	$ -	$ 50,000	$ 1,000,000	$ 1,050,000
S5 HG Spillgate #4A rock stabilization	$ -	$ -	$ -	$ 50,000	$ -	$ 50,000
S5 HG Spillgate #4B rock stabilization	$ -	$ -	$ -	$ 50,000	$ -	$ 50,000
S5 HG Spillgate #5 rock stabilization	$ -	$ -	$ -	$ 25,000	$ 750,000	$ 775,000
S5 HG Spillgate Seal Replacements	$ -	$ -	$ -	$ 25,000	$ 975,000	$ 1,000,000
S5 PH Gorge/ Rock Stabilization	$ -	$ 100,000	$ 900,000	$ -	$ -	$ 1,000,000
S5 Tunnel System (Construction Joints, Intake Shaft Transition, Surge Tank Foundation)	$ -	$ -	$ -	$ 100,000	$ 1,600,000	$ 1,700,000
Transmission	$ 9,601,000	$ 11,843,381	$ 14,590,619	$ 9,949,000	$ 13,456,217	$ 59,440,217
Mobile Substations #3 & #5	$ 2,900,000	$ 860,000	$ -	$ -	$ -	$ 3,760,000
Mobile switchgear #4	$ 1,137,000	$ -	$ -	$ -	$ -	$ 1,137,000
Sectionalize 115kV Circuit 917 (S7 - S418)	$ 100,000	$ 1,478,381	$ 2,754,619	$ 2,000,000	$ -	$ 6,333,000
Station 168 Service Area Reinforcement	$ 3,991,000	$ 4,387,000	$ 7,813,000	$ 4,449,000	$ 4,000,000	$ 24,640,000
Station 262- New 115kV/34.5kV Substation	$ 100,000	$ 2,363,000	$ 2,023,000	$ 3,500,000	$ 3,160,000	$ 11,146,000
Station 49 - Replace 34.5-11.5kV Xfmr - Rochester	$ 100,000	$ 2,755,000	$ 2,000,000	$ -	$ -	$ 4,855,000
Station 95 - Add Second 34.5/11.5kV Transformer	$ 1,273,000	$ -	$ -	$ -	$ -	$ 1,273,000
Stations 67 to 418 New 115kV Transmission Line	$ -	$ -	$ -	$ -	$ 6,296,217	$ 6,296,217

Project List byBusiness Area and Investement Priority Classification	2016	2017	2018	2019	2020	Total 2016-2020
Group Initiatives	$ 758,000	$ 2,135,000	$ 1,732,000	$ 643,000	$ 3,225,000	$ 8,493,000
Common	$ 261,000	$ 261,000	$ 575,000	$ 243,000	$ 450,000	$ 1,790,000
IT Projects - Group Initiatives	$ 195,000	$ 161,000	$ 500,000	$ 243,000	$ 400,000	$ 1,499,000
VoIP endpoint project (Phone System)	$ 66,000	$ 100,000	$ 75,000	$ -	$ 50,000	$ 291,000
Generation	$ 497,000	$ 1,874,000	$ 1,157,000	$ 400,000	$ 2,775,000	$ 6,703,000
Fire and Safety Initiatives	$ 75,000	$ -	$ -	$ -	$ -	$ 75,000
Fossil Hydro Operations - Minor projects	$ 422,000	$ -	$ -	$ -	$ -	$ 422,000
S2 Browns Race Excavation (5.5ft depth)	$ -	$ 1,374,000	$ 1,157,000	$ -	$ -	$ 2,531,000
S2 Browns Race Isolation Gates	$ -	$ -	$ -	$ 75,000	$ 325,000	$ 400,000
S2 PH Draft Tube and Tailrace Structure -	$ -	$ -	$ -	$ 50,000	$ 450,000	$ 500,000
S2 Purchase Browns Race	$ -	$ 500,000	$ -	$ -	$ -	$ 500,000
S5 Old Powerhouse Demolition	$ -	$ -	$ -	$ 100,000	$ 1,000,000	$ 1,100,000
S5 PH Ventilation System	$ -	$ -	$ -	$ 75,000	$ 250,000	$ 325,000
S5 Surge Tank Expansion	$ -	$ -	$ -	$ 100,000	$ 750,000	$ 850,000
Efficiency	$ 4,832,000	$ 7,422,000	$ 9,518,000	$ 9,228,000	$ 17,402,000	$ 48,402,000
Common	$ 1,957,000	$ 2,441,000	$ 1,897,000	$ 3,853,000	$ 13,534,000	$ 23,682,000
IT Projects - Asset Condition	$ 835,000	$ 1,147,000	$ 1,054,000	$ 2,425,000	$ 2,800,000	$ 8,261,000
IT Projects - Efficiency	$ 727,000	$ 800,000	$ 422,000	$ 893,000	$ 10,000,000	$ 12,842,000
OT TELECOM MAJOR CAPITAL PROJECTS - LifeCycle	$ 295,000	$ 314,000	$ 371,000	$ 485,000	$ 634,000	$ 2,099,000
Video Conference Equipment	$ 100,000	$ 50,000	$ 50,000	$ 50,000	$ 100,000	$ 350,000
West Ave - Lighting Upgrade	$ -	$ 130,000	$ -	$ -	$ -	$ 130,000
Distribution	$ 2,700,000	$ 4,981,000	$ 7,621,000	$ 3,275,000	$ 3,368,000	$ 21,945,000
Automation Program	$ 2,000,000	$ 2,090,000	$ 2,182,000	$ 2,275,000	$ 2,368,000	$ 10,915,000
Communications for Automation Programs	$ 500,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 4,500,000
RGE Pilot Wire Replacement Program	$ 200,000	$ 1,891,000	$ 4,439,000	$ -	$ -	$ 6,530,000
Gas	$ 175,000	$ -	$ -	$ -	$ -	$ 175,000
Controller Replacement Project (Bristol RSR)	$ 175,000	$ -	$ -	$ -	$ -	$ 175,000
Transmission	$ -	$ -	$ -	$ 2,100,000	$ 500,000	$ 2,600,000
RG&E ECC System Upgrade	$ -	$ -	$ -	$ 2,100,000	$ 500,000	$ 2,600,000

Project List byBusiness Area and Investement Priority Classification	2016	2017	2018	2019	2020	Total 2016-2020
Asset Condition Replacement	$ 27,470,741	$ 35,507,345	$ 39,521,763	$ 42,875,801	$ 47,649,259	$ 193,024,909
Common	$ 8,962,000	$ 9,231,000	$ 10,437,000	$ 11,948,000	$ 16,335,800	$ 56,913,800
CRC/Self Service Improvement	$ -	$ -	$ 500,000	$ -	$ -	$ 500,000
East Ave - 6th Floor Renovation	$ 600,000	$ -	$ -	$ -	$ -	$ 600,000
East Ave - South Façade Restoration	$ 400,000	$ -	$ -	$ -	$ -	$ 400,000
Eastern Monroe - Lighting Upgrade	$ 110,000	$ -	$ -	$ -	$ -	$ 110,000
Facilities Minor Projects	$ 2,417,000	$ 2,234,000	$ 2,837,000	$ 4,127,000	$ 3,500,000	$ 15,115,000
Fleet - Light duty vehicle capital leasing program	$ -	$ -	$ -	$ -	$ 2,212,800	$ 2,212,800
General Equipment	$ 277,000	$ 322,000	$ 432,000	$ 678,000	$ 725,000	$ 2,434,000
General Equipment - Fleet	$ 45,000	$ 45,000	$ 45,000	$ 45,000	$ 45,000	$ 225,000
Major Facitilities Projects	$ -	$ 1,390,000	$ 1,594,000	$ 1,669,000	$ 2,500,000	$ 7,153,000
Other Customer Service Projects	$ 177,000	$ 315,000	$ -	$ 293,000	$ 250,000	$ 1,035,000
Transportation Equipment	$ 4,936,000	$ 4,925,000	$ 5,029,000	$ 5,136,000	$ 7,103,000	$ 27,129,000
Distribution	$ 15,510,541	$ 20,324,801	$ 23,080,729	$ 23,433,126	$ 24,590,319	$ 106,939,515
Distribution Fault Indicators	$ 100,000	$ 100,000	$ -	$ -	$ -	$ 200,000
Distribution Line	$ 5,000,000	$ 5,150,000	$ 5,304,500	$ 5,463,635	$ 5,627,544	$ 26,545,679
General Equipment - Operations T&D	$ 255,000	$ 260,100	$ 265,302	$ 270,608	$ 276,020	$ 1,327,030
General Equipment Blanket - Substations	$ 102,000	$ 104,040	$ 106,121	$ 108,243	$ 110,408	$ 530,812
Incremental Automation Projects	$ 1,000,000	$ 2,000,000	$ 2,500,000	$ 2,500,000	$ 2,750,000	$ 10,750,000
Old Insulator Change out Program	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 772,500	$ 3,772,500
Padmount Switchgear Replacement	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 309,000	$ 1,509,000
RGE Asset Condition - Red Health Index	$ 3,750,000	$ 4,000,000	$ 4,250,000	$ 4,500,000	$ 5,000,000	$ 21,500,000
Silicon Carbide Change out Program	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 154,500	$ 754,500
Substation - Minor Capex Program	$ 831,541	$ 847,172	$ 865,135	$ 882,438	$ 908,911	$ 4,335,196
Substation Battery Replacement Program	$ 1,000,000	$ 1,020,000	$ 1,040,400	$ 1,061,208	$ 1,082,432	$ 5,204,040
Substation Circuit Breaker Replacement Program	$ 1,667,000	$ 1,702,219	$ 1,723,453	$ 1,729,341	$ 1,781,221	$ 8,603,234
Substation Modernization	$ -	$ -	$ 1,856,000	$ 1,719,000	$ 1,700,000	$ 5,275,000
Substation Transformer Distribution Replacement program	$ -	$ 3,000,000	$ 3,000,000	$ 3,000,000	$ 3,090,000	$ 12,090,000
T&D Reject Pole Replacement	$ 605,000	$ 623,000	$ 642,000	$ 661,000	$ 680,000	$ 3,211,000
T&D Switch Replacement Program	$ -	$ 318,270	$ 327,818	$ 337,653	$ 347,782	$ 1,331,523

Project List byBusiness Area and Investement Priority Classification	2016	2017	2018	2019	2020	Total 2016-2020
Gas	$ 403,000	$ 506,000	$ 156,000	$ 156,000	$ 271,671	$ 1,492,671
General Equipment - Gas Operations	$ 153,000	$ 156,000	$ 156,000	$ 156,000	$ 271,671	$ 892,671
MF60 Southwest Perry Segment #1, Replace Gas Mains, Roch	$ -	$ 350,000	$ -	$ -	$ -	$ 350,000
Uprate MF30 Henrietta	$ 250,000	$ -	$ -	$ -	$ -	$ 250,000
Generation	$ 50,000	$ 200,000	$ 1,724,000	$ 3,625,000	$ 2,825,000	$ 8,424,000
General Equipment - Generation	$ 50,000	$ -	$ -	$ -	$ -	$ 50,000
RG&E-GENERAL EQUIPMENT BLANKET-Generation	$ -	$ 100,000	$ 649,000	$ 475,000	$ 250,000	$ 1,474,000
S2 Central Ave Dam Superstructure Modernization	$ -	$ -	$ 100,000	$ 500,000	$ 100,000	$ 700,000
S26 Intake Gate / Motor Operator	$ -	$ -	$ -	$ 50,000	$ 450,000	$ 500,000
S26 Penstock /Scroll case Upgrade	$ -	$ -	$ -	$ 50,000	$ 450,000	$ 500,000
S26 Tailrace Wall - Installation	$ -	$ -	$ -	$ 500,000	$ -	$ 500,000
S2U1 T-G Mandatory Exciter	$ -	$ 50,000	$ 250,000	$ -	$ -	$ 300,000
S5 HG - Brewer Street Paving	$ -	$ -	$ -	$ 25,000	$ 325,000	$ 350,000
S5 HG - Brewer Street Water and Fire Lines	$ -	$ -	$ -	$ 50,000	$ 250,000	$ 300,000
S5 HG New Stop Log Gantries	$ -	$ -	$ -	$ 50,000	$ 250,000	$ 300,000
S5 PH - Pave Road to Seth Green Drive	$ -	$ -	$ -	$ -	$ 750,000	$ 750,000
S5 PH Exterior Concrete Betterments	$ -	$ -	$ 75,000	$ 425,000	$ -	$ 500,000
S5 Voltage Regulators - Units 1, 2 & 3 T-G	$ -	$ 50,000	$ 400,000	$ -	$ -	$ 450,000
S5U3 T-G New Runner	$ -	$ -	$ 250,000	$ 1,500,000	$ -	$ 1,750,000
Transmission	$ 2,545,200	$ 5,245,544	$ 4,124,035	$ 3,713,676	$ 3,626,469	$ 19,254,924
Lifecycle Replacement - ECC/XECS systems	$ 139,000	$ 139,000	$ 139,000	$ 324,000	$ 139,000	$ 880,000
Station 23-Transformer &11.5kv Switchgear	$ 2,039,000	$ 3,732,000	$ 603,000	$ -	$ -	$ 6,374,000
Substation Transformer Transmission Replacement program	$ -	$ 1,000,000	$ 3,000,000	$ 3,000,000	$ 3,090,000	$ 10,090,000
Transmission Line	$ 367,200	$ 374,544	$ 382,035	$ 389,676	$ 397,469	$ 1,910,924