Philip D. Murphy
Governor

Sheila Y. Oliver
Lt. Governor

STATE OF NEW JERSEY
Board of Public Utilities
44 South Clinton Avenue, 3rd Floor, Suite 314
Post Office Box 350
Trenton, New Jersey 08625-0350
www.nj.gov/bpu/

Aida Camacho-Welch
Secretary of the Board
Tel. # (609) 292-1599

August 7, 2019

Margaret Comes
Associate Counsel
Rockland Electric Company
4 Irving Place Room 1815-S
New York, New York 10003

Stefanie A. Brand, Director
Division of Rate Counsel
140 East State Street – 4th Floor
Trenton, NJ 08625

RE: In the Matter of an Audit of the Affiliated Transactions between Rockland Electric Company, Orange and Rockland Utilities, Inc., Consolidated Edison, Inc., and Affiliates, Pursuant to N.J.S.A. 48:3-49, 48:3-55, 48:3-56, 48:3-58 and N.J.A.C. 14:4-3.7(e) and (f), and a Comprehensive Management Audit of Rockland Electric Company, Pursuant to N.J.S.A. 48:2-16.4 and N.J.A.C. 14:3-12.1 – 12.4. – Docket No. EA17020137

Dear Ms. Comes and Ms. Brand:

At its August 7, 2019 Agenda meeting, the New Jersey Board of Public Utilities ("Board") voted to accept, for filing purposes only, the Silverpoint Consulting Audit Report ("Audit Report") in the above referenced matter. The Board also approved the release of the Audit Report to the public. The Board requested that comments on the report should be filed with the Board Secretary and the Division of Audits by September 6, 2019.

If you have any questions, please contact Alice Bator at (609) 292-0626.

Sincerely,

Aida Camacho-Welch

Aida Camacho-Welch
Secretary of the Board

ACW/AB/DE/cg
Encl.(s)

Comprehensive Management Audit of Rockland Electric Company and Audit of Affiliate Relationships and Transactions

Final Report

Submitted to:
New Jersey Board of Public Utilities
by

SILVERPOINT
CONSULTING LLC

July 19, 2019

Table of Contents

I. Executive Summary

A. Introduction

The New Jersey Board of Public Utilities (BPU) conducts regular management audits of the State's regulated utilities to ensure that they are operated in an effective and efficient manner. It also conducts regular audits of affiliate transactions and compliance with The Electric Discount and Energy Competition Act (EDECA) to ensure that utility accounting and business practices do not result in cross-subsidization. These examinations are an important part of the BPU's due diligence efforts to satisfy its statutory mandate to ensure safe, adequate and proper utility services at reasonable rates.

Silverpoint Consulting LLC (Silverpoint) was retained by the BPU to perform a comprehensive management audit of Rockland Electric Company (RECO) and an audit of affiliated transactions between RECO and its affiliates, both focused on the four-year period ending 2017. Business and operations related functions to be assessed during the management audit include customer service, distribution and operations management, executive management and governance, strategic planning, finance and cash management, human resources, accounting, external relations, and support services. EDECA-related areas of review include procurement and purchasing, market conditions, affiliate relationships, and affiliate cost allocation methodologies.

In this executive summary, Silverpoint provides a brief overview of the company, a synopsis of the team's principle findings and conclusions in each audit area, and a summary of our recommendations.

B. Company Overview

RECO, a subsidiary of Orange and Rockland Utilities, Inc. (O&R), provides electric distribution service to approximately 72,000 customers in portions of Bergen, Passaic, and Sussex Counties in New Jersey. The utility also provides default electric supply to customers in its service territory who do not purchase electricity from competitive suppliers. RECO has no employees, and O&R provides essentially all work that would ordinarily be performed by a utility company under a long-standing joint operating agreement. In New York, O&R provides natural gas and electric service to parts of Orange, Rockland, and Sullivan Counties. In all, O&R serves a total of 304,000 electric and 135,000 natural gas customers in two states.[1] Customers are primarily residential, and Bergen County constitutes 25 percent of O&R's total electric load. The combined O&R and RECO service areas, shown in the next graphic, cover approximately 1,300 square miles and include 532 circuit miles of transmission, 2,138 miles of underground distribution and 3,743 pole miles of overhead distribution.

[1] O&R served southeastern New York and a small part of Pennsylvania through its subsidiary Pike County Light & Power until 2016, when it sold the utility to Corning Natural Gas Holding Company for approximately $16 million.

Exhibit I-1
O&R and RECO Service Territories

O&R, headquartered in Pearl River, New York, is a subsidiary of Consolidated Edison, Inc. (CEI), a diversified holding company with annual revenues of $12 billion and $54 billion in assets in 2018.[2] CEI is the parent company of Consolidated Edison Company of New York, Inc. (CECONY), which provides gas, electric, and steam to millions of customers in New York City and Westchester County.

CEI's other subsidiaries, Con Edison Transmission Inc. (CET) and Con Edison Clean Energy Businesses, Inc. (CEB), both engage in non-regulated businesses. CET invests in electric and gas transmission projects through its wholly owned subsidiaries. CEB is the parent company to three non-regulated subsidiaries—Consolidated Edison Development, Inc., Consolidated Edison Energy, Inc., and Consolidated Edison Solutions, Inc. The CEB subsidiaries develop, own, and operate renewable and energy infrastructure projects, and offer energy-related products and services to wholesale and retail customers. CEB also provides services to manage dispatch, fuel requirement, and risk management activities for generating plants and merchant transmission, and manages energy supply assets leased from others.

CEI's operating revenues, net income, and assets by business segment as of year-end 2018 are summarized in the next table.[3]

[2] CEI 2018 Annual Report.
[3] CEI 2018 Annual Report.

Exhibit I-2
Operating Revenues, Net Income and Assets by Business Segment
(Year Ended December 31, 2018)

$ Million	**Operating Revenues**		**Net Income**		**Assets**	
CECONY	$10,680	87%	$1,196	87%	$43,108	80%
O&R	891	7%	59	4%	2,892	5%
Total Utilities	11,571	94%	1,255	91%	46,000	85%
CEB	763	6%	145	10%	5,821	11%
CET	4	-	47	4%	1,425	3%
Other	(1)	-	(65)	(5%)	674	1%
Total CEI	**$12,337**		**$1,382**		**$53,920**	

Although RECO represents less than one percent of CEI's regulated utility business, it is nevertheless a significant part of O&R. New Jersey customers represent roughly 25 percent of O&R's total electric customers, and an even higher percentage of total customer demand.

C. Summary of Findings and Conclusions

Silverpoint conducted a comprehensive and thorough audit, and our final report reflects an independent and objective assessment of the company's performance. In general, the audit team found that O&R is a well-run and well-managed utility with solid reliability performance and a focus on continued improvement. We did not see the need for drastic operational changes or improvements at O&R except in certain areas of customer service. Silverpoint was unable to complete its detailed assessment of affiliate transactions and strongly recommends a follow-up investigation in this area.

In this section we provide an overview of the principle findings from our management and affiliate transactions audit. Some of our conclusions did not lend themselves to traditional audit recommendations, and in these instances Silverpoint has proffered specific suggestions for the BPU to consider.

Distribution and Operations Management

Twenty years ago, only 40 percent of the O&R transmission and distribution (T&D) system met the "worst single contingency" design standards that are generally considered to be good utility practice. After two decades of steady capital investment, O&R is closest to meeting these standards in the New Jersey portion of its territory. Projects to address remaining deficiencies in New Jersey have been included in current five-year capital budgets and when completed will bring the RECO system into full compliance. O&R's level of capital investment in the RECO T&D system during the audit period, roughly $20 million per year, was adequate. Most capital spending was for sustaining capital work, although RECO also made modest investments in storm hardening and smart grid technology.

O&R has an effective and comprehensive approach to system planning. Its forecasting and analysis processes and methods are in line with good utility industry practices, and certain aspects reflect best practices. The engineering organization develops reasonable approaches to address system contingencies, maintaining a fluid approach that recognizes the need for a longer-term outlook. This department does not, however, adequately document the analysis and assessment process leading to its selection of alternatives for major capital projects. RECO's system reliability as measured by System Average Interruption Frequency Index (SAIFI) continued to improve during the audit period, although the utility's performance as measured by Customer Average Interruption Duration Index (CAIDI) continued to erode. The company's use of technology and automation are reasonably consistent with good utility practice, and further expansion is underway.

The nature and frequency of O&R's time-based preventative maintenance programs for its substations and its overhead and underground distribution assets are appropriate and consistent with good utility practice. All normal preventative maintenance work activities are consistently completed each year as required. The extent of O&R's maintenance backlog for items in need of repair or maintenance that are not deemed to be high priority is unclear, however. The company's reluctance to provide sufficient information on this subject during the audit is a concern, and Silverpoint suggests that the BPU consider a follow-up review in this area.

O&R's written vegetation management standards and procedures are adequate, but the company failed to trim 100 percent of its New Jersey distribution system during the four-year periods ending in 2016 and 2017; as such, it failed to meet the required four-year trim cycle required by New Jersey Administrative Code (N.J.A.C.) 14:5-9.4(b). The company was not forthcoming about the reason for this shortfall, although there was a shift in spending to New York that may be related to that state's ratemaking process. Silverpoint suggests that the BPU review minimum vegetation management spending levels in order to remove from O&R any discretion regarding compliance with New Jersey requirements.

O&R's work management practices were reviewed in two separate New York investigations during the audit period, neither of which ultimately challenged O&R's use of overtime nor the extent of its use of contractors. In response to those audits, O&R recently formalized its work management program and implemented enhanced analytical and reporting tools to better support decision-making regarding the use of outside contractors and employee overtime.

O&R's emergency response plan, organization, and procedures are consistent with good utility practice, and its pre-event damage prediction process is a recognized utility best practice in major outage response. CECONY has sophisticated weather forecasting and monitoring programs in place that provide high quality weather risk assessments tailored to each geographic area in the corporate footprint including O&R's territory. O&R's storm preparedness practices are very good; Silverpoint did not have the opportunity to assess actual performance during storm events either during or after the audit period.

O&R operations personnel provide adequate oversight of contractors performing work on the overhead distribution system. The company also has an effective program for managing contracted services for line location and mark-out services in New Jersey.

Customer Service

O&R's call center systems and technology are adequate for current needs, and technical support for the utility's customer information management system and other important applications is cost-effective. The call center has well-trained, skilled customer service representatives (CSRs) who are an asset to the company. O&R's meter-related and field service functions, as well as its new business services, are well managed and productive, and consistently meet their performance objectives. O&R effectively manages the credit and collections function, and RECO's uncollectible expense and 90 days arrears rate are within reasonable ranges, although delinquency rates appear somewhat high.

While many customer service-related functions were quite efficient and effective, the recent performance of O&R's call center, and, to a somewhat lesser extent, its customer accounting function, was unsatisfactory. The company's performance in these areas continued to decline during the timeframe of our audit. During 2018, call center volume was approximately 50 percent higher than levels seen during the audit period, although a significant portion of this growth was exacerbated by the call center's extraordinarily high abandonment rates, which approached 50 percent. In our view, O&R did not adequately anticipate and plan for increased call volume and call length, and the utility failed to implement adequate remediation efforts when service levels began to deteriorate. Interim measures to improve customer service levels—hiring new CSRs, increasing vendor agent support, expanding service hours, and adding a call-back feature—were appropriate but not implemented until late in the year.

The customer accounting group utilizes CSRs to handle and resolve billing exceptions during slow times. This practice is appropriate, but the group is overly dependent on these resources, which cannot be relied upon during excessive work conditions. Overall, the number of billing exceptions is too high, and the process for resolving exceptions requires improvement. Significant backlogs are inevitable, leading to late bills and an increase in customer inquiries through the call center.

O&R's customer service organization has no formal benchmarking program, and performance monitoring and analysis efforts are overly focused on meeting more than twenty New York performance metrics. While some departments do a reasonable job utilizing performance metrics and statistics to monitor and improve their performance, management in the call center and customer accounting areas appears to be focused on avoiding financial penalties from New York regulators. Important measures of performance such as abandonment rates, call wait times, timeliness of bills, and billing exception rates do not receive adequate management focus.

Affiliate Relationships and Affiliate Transaction Accounting

The company's formal written affiliate policies and procedures support adherence to legal, regulatory and contractual requirements, including the BPU's Affiliate Standards, and there was no evidence during the audit of intentional non-compliance. O&R has no relationship with affiliates other than CECONY. CECONY provides shared services to O&R and other CEI subsidiaries under affiliate agreements that are subject to guidelines set forth in its New York merger settlement agreement. As long as corporate accounting policies and procedures are consistently and appropriately applied, charges for shared services to O&R would be based on fully loaded costs, consistent with requirements under EDECA and the BPU's Affiliate Standards.

RECO has no relationship with affiliates other than O&R. RECO has no operating employees, and under the terms of the Joint Operating Agreement (JOA), O&R provides essentially all work that would ordinarily be performed by an operating utility company. Although the JOA has been in place over forty years, it remains a reasonable framework for allocating O&R's costs between New York and New Jersey as long as its underlying provisions are accurately applied. Under the Power Supply Agreement (PSA), RECO pays O&R for a share of the costs of purchasing energy and capacity from the New York Independent System Operator for a small portion of RECO's non-shopping customers. Like the JOA, the PSA presents a reasonable framework for allocating costs between O&R and RECO as long as its underlying provisions are accurately applied.

O&R annually charges RECO an average of $80 million in costs through the JOA. CECONY charges O&R approximately $40 million per year for corporate and utility shared services, a portion of which is charged to RECO through the JOA. While the company's cost allocation manual and accounting procedures describe policies that are generally consistent with regulatory requirements for affiliate transactions, they are vague in terms of detailed practices.

During the audit, the company did not accommodate our repeated requests for detailed reviews of affiliate transaction accounting and cost allocation methods, nor did it answer our data requests aimed at addressing questions and concerns in these areas. The accuracy and appropriateness of the company's accounting for affiliate transactions and its conformance to New Jersey regulatory requirements are therefore uncertain. Based on the limited information provided, however, it appears that RECO may have been overcharged for operations and customer service-related functions under the JOA during part of the audit period.

The company's lack of cooperation in this area of the audit meant that Silverpoint was unable to substantiate the accuracy of CECONY and O&R actual cost allocations, the appropriate application of affiliate pricing policies, and the adherence of affiliate charges and detailed cost allocation methodologies to legal, regulatory and contractual requirements. As such, Silverpoint strongly suggests that the BPU order a follow-up investigation of, at a minimum, charges to RECO under the JOA and charges to O&R that originate from CECONY.

Corporate Governance, Executive Management and Strategic Planning

The structure and operation of the CEI Board and Board Committees are consistent with preferred governance practices, and Directors are well-qualified with background and professional experience appropriate for overseeing the company's business. Senior executives have suitable qualifications and experience for their positions, although there was considerable turnover in senior management, particularly at O&R, during the audit period. Executive compensation programs are clearly defined and well-documented. Compensation levels are generally competitive with those in the industry, and program incentives are appropriately based on measurable operational and financial performance. Executives can earn significant incentive payouts by underspending O&M budgets, however, which could potentially compromise clear and timely decision-making.

CEI has a well-established Enterprise Risk Management program for identifying, prioritizing, and assessing risks affecting its operating companies, and for implementing risk mitigation strategies at the corporate and departmental levels. The company has a robust internal audit program, and the annual audit planning process sets priorities that are appropriately based on risk and materiality. The Internal Audit department uses appropriate professional standards, conducts frequent benchmarking and self-assessments, and is focused on continuous improvement. The company has mature Sarbanes-Oxley (SOX) testing programs in place, and during the audit period there were no material weaknesses.

CEI has a mature, well-defined, and robust strategic planning process that is well integrated with the five-year and one-year planning and budgeting cycles. The Strategic Planning department is staffed with experienced and highly capable personnel who conduct extensive strategic analyses appropriate to each line of business, and the company's strategic plans are well considered. O&R and RECO receive adequate attention during the planning process, and non-utility affiliate goals are not in conflict with those of O&R and RECO.

Finance and Cash Management

The corporation's management of O&R and RECO long-term financing, short-term borrowing, and cash requirements has been appropriate. Debt obligations associated with CEI's investments in CEB and CET are non-recourse to the utilities and consistent with regulatory requirements regarding affiliate relations. Post-merger agreements limit O&R yearly dividends to 100 percent of net income, although the utility current pays roughly 70 percent of net income to CEI subject to maintaining its capital structure.

O&R has a sound capital and O&M budgeting process. The utility's budgets are set internally and do not depend on CEI Board approval. All budgeting is nominally zero-based, although O&R budgets are clearly influenced by prior year results as well as existing rate agreements with New York regulators. Management proactively monitors actual expenditures against budget and maintains a strong culture of cost containment and belt-tightening. Conformance to budgets is also directly linked to employee and executive incentive compensation programs, which could lead to undue delays in actions that are otherwise necessary (e.g., additional call center staffing).

Despite very significant investments by the parent company in its non-utility businesses—$2.3 billion in 2016 alone—there was no impact on credit ratings of CEI or its utility subsidiaries during the audit period. In late 2018, however, reduced utility cash flow projections due to the new federal tax law led to a downgrade in O&R, CECONY, and CEI unsecured senior debt ratings. CEI's debt downgrade was exacerbated by its intent to issue $825 million of incremental debt in connection with its acquisition of Sempra Solar Holdings.

In recent O&R and CECONY rate cases, New York regulators approved settlement agreements that included incremental ring-fencing conditions. More specifically, if the parent company's non-regulated assets, debt, and/or cash flows exceed certain threshold levels, the utilities would be required to submit either a plan for incremental ring-fencing or a filing explaining why such protections were not needed. Given CEI's credit downgrade and the recent rate case orders, New

York regulators will likely impose substantial ring-fencing conditions on both utilities if CEI exceeds these threshold levels. Any such financial protections would logically extend to RECO.

Information Technology and Cybersecurity

Information Technology (IT) is centrally managed by CECONY as a corporate shared service. Each functional area of the corporate IT department is led by experienced managers and staffed by knowledgeable, skilled employees and contractors. IT and cybersecurity policies, procedures, processes, and controls are comprehensive, well-documented, and consistently applied. The IT planning process is robust, and the company's current priorities (e.g., consolidating applications and improving capabilities in big data analytics) are consistent with the corporate emphasis on cost reduction, innovation, and operational excellence. The company proactively monitors best practices through industry benchmarking, and extensive performance measures ensure accountability and continuous improvement. Overall, the corporate IT function is well managed and effectively supports the business needs of O&R and RECO.

The company has a robust cybersecurity process and framework in place to ensure that requirements in the BPU's March 18, 2016 Cybersecurity Order for cyber risk management, situational awareness, incident reporting, response and recovery, security awareness, and training are consistently met. Corporate IT maintains a process-driven approach to cyber threat management, and has implemented effective cybersecurity technology, tools, and data analytics. The corporate cybersecurity program compares very favorably to similarly sized companies, and reflects the culture of continuous improvement through benchmarking, performance metrics, structured self-assessments, third-party testing, and sharing of best practices.

Human Resources

The human resources organization is composed of two distinct groups—Human Resources, which manages transactional aspects such as compensation and benefits, and Learning and Inclusion, which focuses on areas such as recruitment, diversity, and training. Overall, the company's management compensation and benefit structures are reasonable, and appropriate steps have been taken to control the growth of benefit costs. Short-term variable pay programs are linked to achievement of corporate goals and objectives; payout levels under O&R's program are dependent on meeting earnings, O&M and capital cost projections, and on attaining specific performance metrics targets. Performance metrics have been recently revised to better focus on driving improvement in key areas and to reflect targets that are challenging yet attainable.

The corporation's human resource management strategy emphasizes employee development, succession planning, and ongoing training. The company has taken appropriate steps to address the issue of a graying utility workforce, although retirement brain drain is still an ongoing issue, particularly in the areas of electric system planning and operations. Workforce diversity and inclusion are clear corporate priorities, and the percentage of women and minority employees at the utilities increased during the audit period.

Support Services

Many of the services that support O&R's business and utility operations—transportation, materials management, facilities management, security, and records management—are provided primarily by O&R personnel with some degree of integration or oversight by CECONY's Utility Shared Services organization. External relations-related functions—corporate communications and regional and community affairs—are similar in that regard, with O&R employees reporting administratively to managers in CECONY Corporate Affairs. The safety department at O&R operates independently but consistent with an overarching corporate environmental, health and safety (EH&S) policy. Three support services—legal, insurance, and real estate—are provided wholly at the CECONY level.

Support services departments are staffed by highly knowledgeable and capable personnel; they are well managed and provide efficient, cost-effective support services to O&R. The O&R transportation organization, for example, has solid maintenance programs in place as evidenced by very high rates of vehicle availability. O&R's safety program is comprehensive and has produced measurable improvements in performance. Blanket agreements for facilities-related services, negotiated by corporate supply chain, allow O&R to take advantage of combined utility buying power where appropriate. The company's unannounced EH&S audit program is an industry best practice, and the corporate security organization is a leader in the implementation of best practices among utilities in the region.

The external affairs organization effectively manages relationships with stakeholders during both emergency and normal operating conditions; company personnel are accessible and responsive to municipal officials and local authorities, and communicate frequently through a variety of channels with customers, local communities, the media, and employees.

D. Recommendations

Silverpoint offers eleven specific recommendations, summarized in the next table, that relate to customer service, distribution system planning, affiliate transaction accounting, and finance.

Exhibit I-3
Summary of Recommendations

Chapter Reference	
	Finance and Cash Management
V-1	Identify and evaluate opportunities to utilize excess capacity at the O&R payment processing center.
	Accounting and Cost Allocation
VIII-1	Develop detailed accounting practice guidelines to ensure the calculation of charges under the JOA and PSA are accurate and adequately documented.
VIII-2	Determine the impact on New Jersey ratepayers of O&R's failure to compensate RECO for the benefit of the sale of services to Pike's new owners.
	Distribution and Operations Management
X-1	Create planning charters to document the analysis and selection of major capital projects and system reinforcements, beginning with load areas that serve RECO customers.
X-2	Develop formal cost-benefit analysis guidelines for evaluating capital and O&M projects.
X-3	Implement a more formal asset management program.
X-4	Develop an initiative that focuses on reducing CAIDI.
	Customer Service
XI-1	Begin a data driven process improvement program for the Customer Service organization.
XI-2	Improve all facets of call center performance
XI-3	Reduce the volume of billing exceptions and improve the efficiency of processing.
XI-4	Implement a benchmarking program and expand customer service metrics and statistics as a means to drive improvement.

II. Audit Background

A. Overview of the Companies

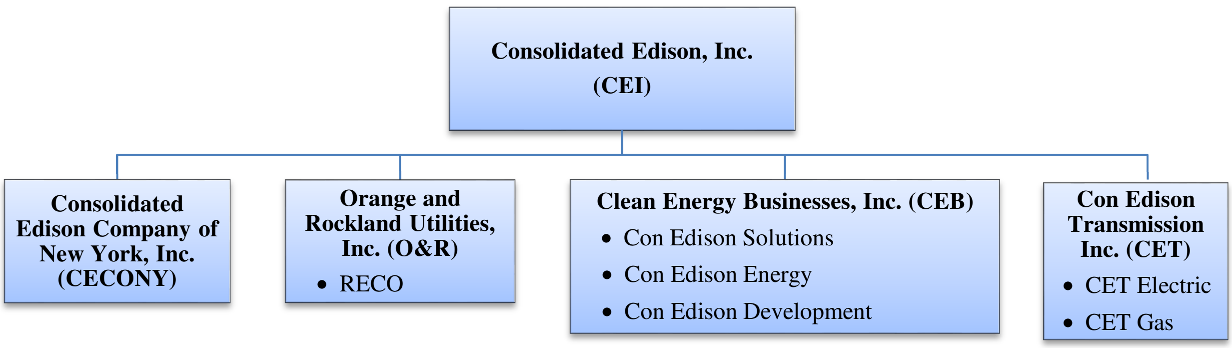
Rockland Electric Company (RECO), a subsidiary of Orange and Rockland Utilities, Inc. (O&R), provides electric distribution service to approximately 72,000 customers in portions of Bergen, Passaic, and Sussex Counties in New Jersey. The utility also provides default electric supply to customers in its service territory who do not purchase electricity from competitive suppliers. RECO has no employees, and O&R provides essentially all work that would ordinarily be performed by a utility company under a long-standing joint operating agreement. In New York, O&R provides natural gas and electric service to parts of Orange, Rockland, and Sullivan Counties. In all, O&R serves a total of 304,000 electric and 135,000 natural gas customers in two states.[4] Customers are primarily residential, and Bergen County constitutes 25 percent of O&R's total electric load. The combined O&R and RECO service areas, shown below, cover approximately 1,300 square miles and include 532 circuit miles of transmission, 2,138 miles of underground distribution and 3,743 pole miles of overhead distribution.

Exhibit II-1
O&R and RECO Service Territories

[4] O&R served southeastern New York and a small part of Pennsylvania through its subsidiary Pike County Light & Power until 2016, when it sold the utility to Corning Natural Gas Holding Company for approximately $16 million.

O&R, headquartered in Pearl River, New York, is a subsidiary of Consolidated Edison, Inc. (CEI), a diversified holding company with annual revenues of $12 billion and $54 billion in assets in 2018.[5] CEI is the parent company of Consolidated Edison Company of New York, Inc. (CECONY), which provides gas, electric, and steam to millions of customers in New York City and Westchester County. CEI's current corporate structure is illustrated in the following chart.

Exhibit II-2
CEI Corporate Structure



There have been noteworthy changes at CEI over the last few years, spurred by over $5 billion of new capital investments in non-utility lines of business. In 2014, CEI formed a new subsidiary, Con Edison Transmission Inc. (CET), which subsequently invested in electric and gas transmission projects through two wholly owned subsidiaries—Consolidated Edison Transmission, LLC (CET Electric) and Con Edison Gas Pipeline and Storage, LLC (CET Gas). In 2016, CEI formed a new holding company, Con Edison Clean Energy Businesses, Inc. (CEB), to serve as parent company to three non-regulated subsidiaries—Consolidated Edison Development, Inc. (Con Edison Development), Consolidated Edison Energy, Inc. (Con Edison Energy), and Consolidated Edison Solutions, Inc. (Con Edison Solutions). The same year, CEI divested the retail electric and gas commodity portion of Con Edison Solutions' business. The CEB subsidiaries develop, own, and operate renewable and energy infrastructure projects; they also offer energy-related products and services to wholesale and retail customers. Through subsidiary Con Edison Energy, CEB provides services to manage dispatch, fuel requirement, and risk management activities for generating plants and merchant transmission, and also manages energy supply assets leased from others. In late 2018, CEB significantly expanded its solar renewable portfolio with the $1.5 billion acquisition of Sempra Solar Holdings.

CEI's operating revenues, net income, and assets by business segment as of year-end 2018 are summarized in the next table.[6] Despite the recent emphasis on CET and CEB, the regulated utilities continue to be CEI's core business. Together, the utilities currently account for 94 percent of CEI's annual revenues and 85 percent of its total assets; on its own, O&R represents roughly five percent of total assets and seven percent of revenues.

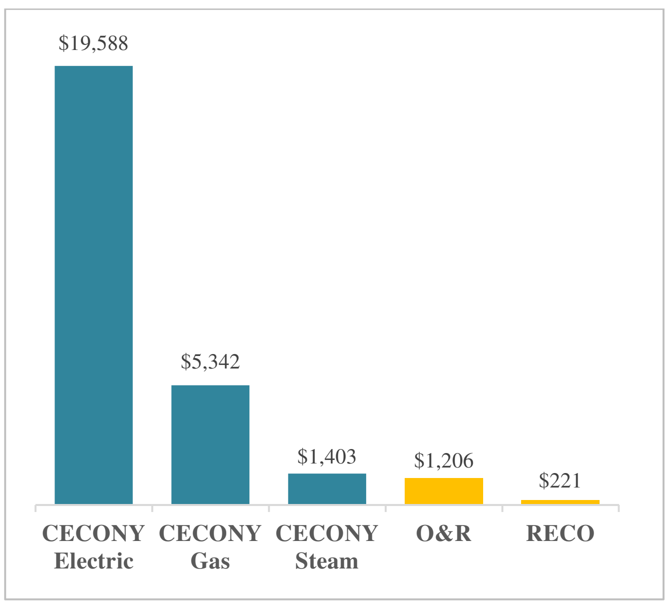
[5] CEI 2018 Annual Report. O&R revenues in 2018 totaled roughly $900 million and assets totaled nearly $3 billion.
[6] CEI 2018 Annual Report.

Exhibit II-3
Operating Revenues, Net Income and Assets by Business Segment
(Year Ended December 31, 2018)

$ Million	**Operating Revenues**		**Net Income**		**Assets**	
CECONY	$10,680	87%	$1,196	87%	$43,108	80%
O&R	891	7%	59	4%	2,892	5%
Total Utilities	11,571	94%	1,255	91%	46,000	85%
CEB	763	6%	145	10%	5,821	11%
CET	4	-	47	4%	1,425	3%
Other	(1)	-	(65)	(5%)	674	1%
Total CEI	**$12,337**		**$1,382**		**$53,920**	

CEI's rate of capital investment in the utilities increased over the last five years, totaling roughly $14 billion. Some portion of that investment has been already reflected in CEI's regulatory rate base, which at the end of third quarter 2018 totaled $27.8 billion. The breakdown of CEI regulatory rate base by utility is shown in the next chart.[7]

Exhibit II-4
CEI Regulatory Rate Base ($ Millions)



The combined rate base of O&R and RECO—approximately $1.4 billion—is roughly five percent of the CEI total. RECO alone represents less than one percent. CEI's regulated rates of return on rate base, summarized in the next table, vary by utility, commodity, and state.[8]

[7] Con Edison, Inc., EEI Financial Conference, November 11-13, 2018 (publicly available).
[8] Con Edison, Inc., EEI Financial Conference, November 11-13, 2018.

Exhibit II-5
Regulated Utility Rates of Return
(12 Months ended September 30, 2018)

	Allowed	Actual
CECONY		
Electric	9.0%	9.3%
Gas	9.0%	9.4%
Steam	9.3%	11.0%
O&R		
Electric	9.0%	7.8%
Gas	9.0%	8.0%
RECO	9.6%	9.3%

The profitability of CEI's regulated utility business is very dependent on New York ratemaking conventions, which include the use of multi-year forward looking rate agreements. O&R and CECONY business priorities are significantly influenced by "Reforming the Energy Vision" (REV), a multi-year industry-wide initiative begun by the New York Public Service Commission (PSC) in 2014 at the direction of Governor Cuomo. REV is focused on improving efficiency and reliability, encouraging growth in renewable energy, supporting distributed energy resources, and enabling more customer choice. Through its various REV proceedings, New York regulators aim to align electric utility practices and the state's regulatory paradigm with technological advances in information management, power generation, and distribution.[9]

B. Scope and Methodology

Silverpoint Consulting LLC (Silverpoint) was retained by the New Jersey Board of Public Utilities (BPU) to perform a comprehensive management audit of RECO and an audit of affiliated transactions between RECO and its affiliates, both focused on the four-year period ending 2017. The scope of work for these audits included the following:

- Assessing RECO's compliance with the Electric Discount and Energy Competition Act (EDECA) as specified in the New Jersey Administrative Code (N.J.A.C.) and New Jersey Statutes Annotated (N.J.S.A.)
- Evaluating affiliate cost allocation methodologies and determining whether current accounting and allocation procedures are equitable
- Determining the impact on RECO of retail and wholesale transactions with O&R, CEI, and its affiliates
- Assessing the efficiency and effectiveness of processes, policies, procedures, and practices associated with business and operations-related functions

[9] Order Instituting Proceeding, Case 14-M-0101 - Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, April 25, 2014.

- Assessing the overall effectiveness of management practices
- Evaluating separation of functions, corporate accountability, financial controls and integrity, and standards of conduct.

The specific functional areas covered by the comprehensive management audit were set forth in the BPU's request for proposal (RFP): executive management and governance, organizational structure, human resources, strategic planning, finance and cash management, accounting, distribution and operations management, customer service, external relations, contractor performance, and support services. EDECA-related areas of review included procurement and purchasing, market conditions, affiliate relationships, and affiliate cost allocation methodologies.

As described in our original proposal, Silverpoint's approach to the audits involved three phases—orientation and planning, technical review, and final report preparation. The orientation and planning phase is brief but extremely important. It is designed to allow the parties to confirm their understanding of scope, and to better align their understanding of the level and nature of company resources that will be required during the course of the audit. A key component of this phase is obtaining agreement among the parties—Staff, the company, and the audit team—about audit protocols, and in particular the time allotted for the company's response to document and interview requests. In this phase, the audit team also submits initial data and interview requests and finalizes its work plan.

During the technical review phase, the team conducts its principal investigation, including data collection and related activities, in each of the identified work areas. The primary purpose of the technical review phase is to develop a factual record from which to develop hypotheses about the issues of the investigation, and to ultimately support overall conclusions and recommendations. The activities at this stage include detailed document reviews, in-depth interviews, data analysis, and testing, as well as development of formal findings, conclusions and recommendations.

In the third phase of the engagement, the team prepares a draft report discussing the results of the investigation. The report is carefully written so that readers can clearly differentiate between analytical findings or facts and the team's professional judgment. The report includes sufficient detail so that readers can follow the rationale behind conclusions and recommendations and have a basis for evaluating them. After receiving comments on the draft report, the report is revised as appropriate; the team then prepares a public and confidential version of the final report.

C. Conduct of the Audit

Silverpoint's kick-off meeting with Staff and company representatives took place on January 25, 2018. At the meeting, Staff confirmed that Silverpoint would conduct the management audit and affiliate transaction audit concurrently rather than in two separate phases as indicated in the original RFP. All parties agreed to the protocol of a fifteen calendar day turnaround for responses to data requests. We agreed that Silverpoint would provide a list of available dates for each interview request along with a detailed agenda; the company would then have one week to schedule a firm date for the meeting.

During the technical review phase of the audit, Silverpoint submitted 60 interview requests and 400 data requests.[10] Interviews began in late February 2018. Silverpoint delayed requests for further interviews with O&R operations and engineering personnel until April in consideration of their increased workload following the early March storm events. During April, the company requested outlines of the interview topics, information, and time commitments the team expected to need from O&R and CECONY employees over the next three to four months, ostensibly to aid in scheduling. Silverpoint provided these outlines for the customer service, strategic planning, human resources, executive management/governance, finance/cash management, cost allocation/affiliate transactions, and engineering and operations work areas. At that time, we also stressed the importance of the detailed discussion and testing sessions with accounting personnel that were needed in connection with our audit of affiliate transactions.

Aside from the storm-related delays, the company was unfortunately unable to follow agreed-upon audit protocols almost from the start. Silverpoint first reported the company's lack of compliance in its April 2018 status report to Staff. During May, the Director of Audits emailed company personnel to remind them of their obligation to respond to data requests in a timely fashion, however the lengthy delays—and lack of explanation for them—continued. In its July 2018 status report, Silverpoint notified Staff that it could not continue to absorb the budgetary impact of inefficiencies caused by the company's inability to follow established protocols. At that time, over eighty data request responses were overdue, sixty of them by more than a month.

In August, the company asked to take a hiatus from the audit, leaving a dozen or more interview requests unscheduled. Ultimately, some of these interviews took place in October, November, and December. A key accounting interview related to affiliate transaction testing that we first requested in July did not occur until mid-December, however. During this interview with Staff and Silverpoint, the company promised to expedite remaining field work, including outstanding interviews and affiliate transaction testing, by the end of January 2019. Silverpoint was never contacted by the company to make any arrangements, and we officially closed our field work as of the end of January.

Of the sixty total interviews that we requested, eight related to operational issues were never scheduled.[11] Although the company did provide answers to a handful of data requests after January, roughly two dozen were ultimately never answered. The company never honored our requests to facilitate detailed discussions and associated testing of affiliate transaction accounting.[12]

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[10] Any documents distributed by the company at interviews, regardless of relevance, were subsequently requested in formal data requests so that all parties could have a complete record of what was provided during the audit.

[11] Silverpoint's engineering team offered and held open many available dates for these interviews. By way of contrast, during a recent New York management audit, O&R and CECONY were able to accommodate nearly 250 interviews and provide nearly a thousand data request responses in roughly nine months. "Comprehensive Management and Operations Audits of Consolidated Edison Company of New York, Inc., and Orange and Rockland Utilities, Inc.," April 21, 2016, New York State Public Service Commission Case No. 14-M-0001, p. II-8.

[12] The implications of the company's inability to schedule these interviews are discussed in later chapters of this report. See in particular, Chapter VIII, Sections C through G, and Chapter X, Sections E, F, and G.

The company never fully explained its inability to comply with New Jersey audit protocols, although our team did have the impression that O&R personnel were distracted by activity in New York. The day after our kick-off meeting in January 2018, O&R filed electric and natural gas rate cases with the New York PSC. In March, New York began a comprehensive investigation into utility storm preparation and response that required the time and attention of O&R personnel. The slowdown in late summer/early fall appeared to coincide with rate case settlement negotiations. O&R has considerable ongoing obligations associated with various REV proceedings, and during our audit it was still filing implementation status reports in connection with two recent New York audits. Preoccupation with New York requirements may have led to the company's tardiness in responding to our requests, but it would not adequately explain the company's unwillingness to schedule certain interviews or to cooperate with our investigation of affiliate transactions.

Despite delays and other difficulties, our subject matter experts were nonetheless able to obtain valuable insights about O&R's operating functions and CECONY support services during in-depth interview sessions and field visits. We found company personnel to be very knowledgeable and capable, and they were generally quite candid and open during our discussions with them. Silverpoint was ultimately able to conduct a thorough audit, and our final report reflects an independent and objective assessment of the company's performance in all areas.

Silverpoint submitted individual chapters of our draft report to BPU Staff for review, and they subsequently authorized Silverpoint to release chapters of the report to the company to review for factual accuracy and to raise issues of confidentiality. This review process was ultimately concluded in July 2019. Immediately thereafter, Silverpoint delivered the final version of the report to Staff.

D. Prior Audit Recommendations

Silverpoint reviewed the final report from the previous audit of RECO that was prepared by PMC Management Consultants. The report contained a handful of recommendations pertaining mainly to operational and distribution planning issues. In a November 2010 order, the BPU ordered RECO to implement all recommendations in the report, which were as follows: [13]

- Periodically review the Joint Operating Agreement, and provide a formal opinion of the applicability of the intercompany transactions.
- Improve reliability by focusing on the reduction of tree- and equipment failure-related service interruptions.
- Analyze and develop estimates of improvements to the RECO distribution system reliability performance indicators, the magnitude of potential customer cost reductions, and any other quantifiable and operational benefits that may be realized from the smart grid project.

[13] "A Review of Electric Discount and Energy Competition Act (EDECA), Energy Purchase, and Affiliate Relationships Of The Rockland Electric Company," Docket No. EA08080560, November 2, 2009, and "Management Audit of The Rockland Electric Company," Docket No. EA08080560, March 15, 2010.

- Review and update the Distribution Planning Criteria document; designate the effective date and the date of the most recent revision.
- Compile all applicable work procedures into a RECO-specific document to avert confusion regarding which CECONY or O&R work procedures and practices apply to RECO.
- Implement projects in the first five-year portion of the fifteen-year electric delivery planning study and continue to monitor and update project priorities for the remaining portions.
- Assure sufficient resources are made available to implement all recommendations in the company's internal task forecast report regarding internal controls associated with the procurement and management of contractor services.
- Compile standardized contractor inspection procedures and forms in a field inspection manual.

These recommendations were general in nature (e.g., improve reliability, implement capital investment plans) or related to transitory issues (e.g., internal task reports). During our investigation, Silverpoint examined in detail the same subject areas addressed by these recommendations—system planning, vegetation management, capital investment, work methods, system reliability, contractor management, and the Joint Operating Agreement. We found that the prior audit recommendations were either no longer relevant or that they have been otherwise superseded by the analysis, conclusions and recommendations of this audit.

E. Organization of the Report

Silverpoint's report contains fourteen chapters. Chapter I is the Executive Summary and this one, Chapter II, provides an overview of the company, describes the audit scope and our conduct of the audit, and also addresses recommendations from the previous audit. The first seven of the remaining twelve chapters of the report deal with subject areas that are for the most part corporate or affiliate in nature. The remaining chapters focus on O&R's utility operational areas—distribution and customer service—as well as associated support functions. The twelve subject matter chapters are organized as follows:

- Chapter III Corporate Governance and Executive Management
- Chapter IV Strategic Planning
- Chapter V Finance and Cash Management
- Chapter VI Human Resources
- Chapter VII Affiliate Relationships
- Chapter VIII Accounting and Cost Allocation
- Chapter IX Electricity Procurement and Market Conditions
- Chapter X Distribution and Operations Management

- Chapter XI Customer Service
- Chapter XII Information Technology and Cybersecurity
- Chapter XIII Support Services
- Chapter XIV External Relations.

Our discussions throughout the report make reference to, but do not reveal, confidential information. All confidential information is contained in a separately bound Confidential Appendix.

The following table provides a cross-reference that maps each work area in the RFP to the chapter(s) in which it is discussed.

Exhibit II-6
Coverage of RFP Work Areas

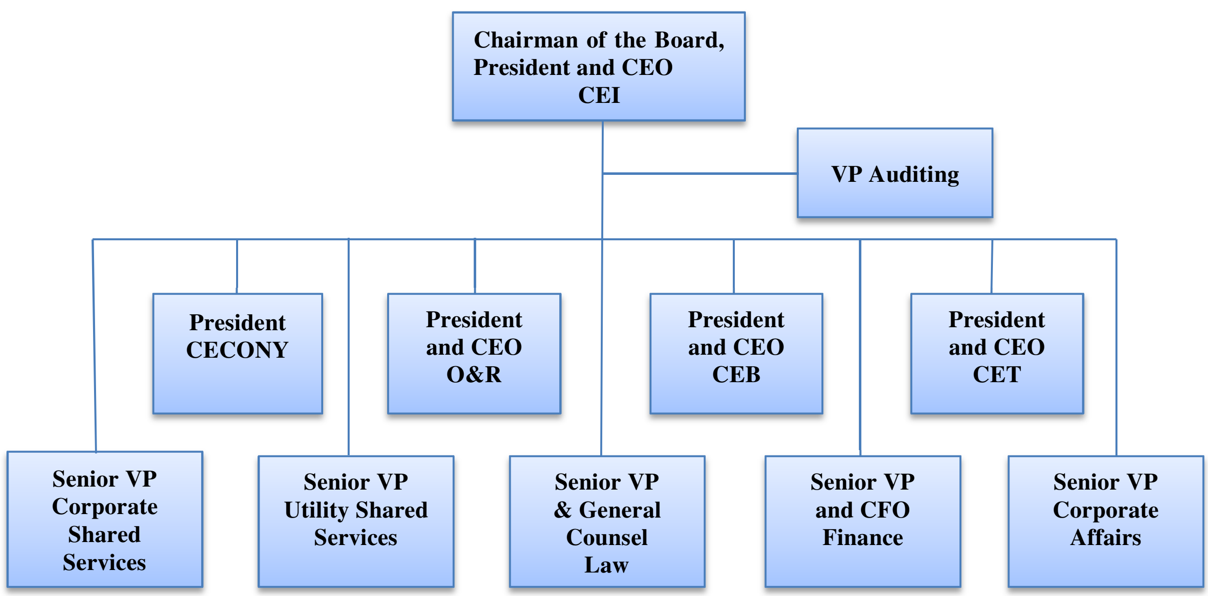
RFP Section	Report Chapter
3.1.1 Procurement and Purchasing	IX
3.1.2 Affiliate Relationships	VII
3.1.3 Market Conditions	IX
3.1.4 Recommendations and Review of Previous Audit	II
3.1.5 Affiliate Cost Allocation Methodologies	VIII
3.2.1 Executive Management and Governance	III
3.2.2 Organizational Structure	VII
3.2.3 Human Resources	VI
3.2.4 Strategic Planning	IV
3.2.5 Finance	V
3.2.6 Cash Management	V
3.2.7 Accounting and Property Records	VIII
3.2.8 Distribution and Operations Management	X
3.2.9 Clean Energy	VIII
3.2.10 Customer Service	XI
3.2.11 External Relations	XIV
3.2.12 Support Services	XII, XIII
3.2.13 Contractor Performance	X

III. Corporate Governance and Executive Management

A. Overview

CEI, incorporated in New York State in 1997, is a holding company that owns all of the outstanding common stock of subsidiaries CECONY, O&R, CET, and CEB. CEI and O&R are each governed by a Board of Directors; CECONY is governed by a Board of Trustees. CEI's operating subsidiaries are each led by a President who reports directly to the CEI Chairman of the Board, President and Chief Executive Officer (CEO). There are ten senior vice presidents, all of whom are CECONY employees. Five report directly to the President of CECONY and are responsible for operations and customer-related functions. The remaining five report directly to the Chairman of the Board, President and CEO of CEI, and manage corporate and utility shared services as well as the legal, financial, and corporate affairs functions. The CEI senior management organization is illustrated in the following chart.

Exhibit III-1
CEI Senior Management Organization



There were several structural changes at CEI during the audit period. CEI formed the CET subsidiary in 2014 to invest in electric and gas transmission opportunities. In 2016, CEI formed the holding company CEB as the new parent company to subsidiaries Con Edison Solutions, Con Edison Development, and Con Edison Energy. The same year, CEI sold the retail commodity business of Con Edison Solutions to Exelon and O&R sold off its Pennsylvania subsidiary, Pike County Light & Power Company.

In addition to the new President and CEO positions at CET and CEB, there were several other changes at the senior management level during the audit period. Timothy Cawley, President and CEO of O&R at the beginning of the audit period, left O&R to become President of CECONY, succeeding Craig Ivey, who retired at the end of 2017. Mr. Cawley was replaced by Robert

Sanchez. At the beginning of the audit period, Mr. Sanchez was Vice President of System and Transmission Operations at CECONY. Later in 2014 he became Vice President of Brooklyn and Queens Operations, and in late 2016 became the Senior Vice President of Corporate Shared Services. While there was no turnover in the top executives of the legal, corporate affairs, auditing, or finance areas, Corporate Shared Services had three different senior executives during the audit period and Utility Shared Services had two.

At O&R, Edwin Ortiz, O&R's Vice President of Customer Service, retired and was replaced by Christina Ho in March 2017. Ms. Ho had been General Manager of Steam Services for CECONY since early 2014; before then she was Energy Manager, System and Transmission Operations.[14] Frank Peverly, the Vice President of Operations, was the only member of O&R senior management to remain in place during the entire audit period.

The governance of CEI, CECONY, and O&R was an area of considerable focus in a recent New York management audit in part due to the requirements associated with the CEO certification process required in that state.[15] As a general matter, the auditors found the structure and operation of the CEI Board, its Committees, and the Boards of subsidiaries O&R and CECONY to be consistent with preferred industry practices. They concluded that corporate governance was effective and that the Boards and management properly represent and address the interests of all customers.[16] Given those findings, Silverpoint focuses its discussion in this chapter on topics not covered in the New York audit, including executive and director compensation; we also examine in more detail two functions that are closely linked with governance and senior management—internal audit and enterprise risk management. We discuss the role of the CEI and O&R Boards in connection with strategic planning, financial matters, and performance management in later chapters of our report.

B. Corporate Boards and Board Committees

CEI and CECONY

As of the end of 2017, the CEI Board of Directors had twelve members, all of which are external except for John McAvoy, the Chairman of the Board, President and CEO. Ten of the eleven external Directors are independent under New York Stock Exchange (NYSE) listing standards and one is not.[17] CEI Directors are elected at the annual stockholder meeting and also serve as CECONY Trustees.[18] Directors hold office until the next annual meeting or until their respective successors are elected and qualified. CEI Directors are permitted to stand for election each year

[14] Response to Data Request #179.

[15] The CEO must certify to the New York Commission that it has internal controls, policies and procedures designed to ensure compliance with requirements of Public Service Law §65 including the obligation to provide safe and adequate service.

[16] "Comprehensive Management and Operations Audits of Consolidated Edison Company of New York, Inc., and Orange and Rockland Utilities, Inc.," April 21, 2016, New York State Public State Service Commission Case No. 14-M-0001, pp. III-9 to III-16.

[17] Ms. Futter is not independent—she is President of the American Museum of Natural History, to which the company makes charitable contributions, and her husband provides legal services to the company.

[18] The CECONY Trustees are elected by CEI as sole stockholder.

until they reach the mandatory retirement age of 75. Board Directors are not permitted to sit on more than four other public boards, although none currently serve on more than two. The background and expertise of the members of the CEI Board of Directors are summarized in the following table.[19]

Exhibit III-2
CEI Board Member Background and Expertise (Year-end 2017)

Name /Age/Tenure	Primary Occupation/Career Highlight	Areas of Expertise
Vincent A. Calarco, 75 Director since 2001	Non-Executive Chairman of Yale New Haven Health System and previously of Newmont Mining	• Public company leadership • Financial and operations oversight
George Campbell, Jr., 72 Director since 2000	Former Non-Executive Chairman, Webb Institute; former President of Cooper Union for the Advancement of Science and Art	• Engineer and Science • Management and R&D
Michael J. Del Giudice, 75, Director since 1999	Founder and Senior Managing Director, Millennium Capital Markets LLC	• Power and energy private equity • NY State government service
Ellen V. Futter, 68 Director since 1997	President, American Museum of Natural History; former President of Barnard College	• Non-profit management and operations • Legal and financial
John F. Killian, 63 Director since 2007	Former Executive Vice President and CFO, Verizon Communications Inc.	• Telecommunications leadership experience • Financial reporting, internal audit
John McAvoy, 57 Director since 2013	Chairman, President and CEO, Consolidated Edison Inc.	• Utility leadership, engineering, financial, and operations
William J. Mulrow, 62 Director since 2017	Senior Advisory Director, The Blackstone Group; previously Secretary to New York State Governor	• Business and leadership • Finance, accounting, asset management
Armando J. Olivera, 68 Director since 2014	Former President and CEO, Florida Power & Light Company	• Utility leadership, engineering and operations
Michael W. Ranger, 60 Director since 2008	Senior Managing Director, Diamond Castle Holdings LLC	• Energy investment banking
Linda S. Sanford, 65 Director since 2015	Former Senior Vice President, Enterprise Transformation, IBM Corporation	• Information Technology (IT) leadership experience • IT, cybersecurity, customer relations, corporate planning
Deirdre Stanley, 53 Director since 2017	Executive Vice President and General Counsel, Thomson Reuters	• Leadership, legal and operations • Corporate governance, risk management, M&A
L. Frederick Sutherland, 66 Director since 2006	Former Executive Vice President and CFO, Aramark Corp.	• Financial reporting, internal auditing, M&A, risk management, corporate planning and compliance

There were no lawsuits brought before the Board related to executive management or corporate governance issues during the audit period.[20]

In 2017, non-employee members of the CEI Board with a full year of service received between $254,500 and $320,000 in total cash compensation and stock awards. According to an analysis by the company's consultant Mercer, compensation of CEI Directors approximates the median of

[19] CEI 2017 and 2018 Proxy Statements.
[20] Response to Data Request #251.

compensation paid to directors at companies in its defined peer group.[21] CEI does not share any details on Mercer's analysis in its proxy statement—given the size of the compensation package, we believe the company should consider being more transparent on this subject.

The CEI Board currently has seven standing committees, which is more than most utilities.[22] Members serve the same role on both CEI and CECONY committees; some CEI and CECONY committee meetings are combined, others separate. Board committee membership as of year-end 2017 is shown in the following table.[23]

Exhibit III-3
Board Committee Membership (Year-end 2017)

Committee Chair Bold and Shaded	**Audit**	**Corporate Governance and Nominating**	**Environment, Health, and Safety**	**Executive**	**Finance**	**Management Development and Compensation**	**Operations Oversight**
Vincent A. Calarco	**X**	X		X		X	
George Campbell, Jr.		X		X		**X**	X
Michael J. Del Giudice	X	**X**		X		X	
Ellen V. Futter			**X**				X
John F. Killian	X	X				X	
John McAvoy				**X**			
William J. Mulrow			X		X	X	
Armando J. Olivera			X		X		X
Michael W. Ranger	X				X		**X**
Linda S. Sanford		X	X		X		
Deirdre Stanley		X	X				X
L. Frederick Sutherland	X				**X**	X	

Each committee has a charter approved by the Board that it reviews annually consistent with governance best practice; proposed changes to a charter are considered by the Corporate Governance and Nominating Committee.[24] The next table summarizes the primary responsibilities of the standing committees.

[21] CEI 2018 Proxy Statement, pp. 19-20. Mercer's fees for director and executive compensation consulting were approximately $540,000 in 2017.
[22] The Planning Committee made recommendations regarding long-range planning and oversaw management of risks; the Board dissolved the Planning Committee in May 2015 and reassigned its responsibilities.
[23] CEI 2017 and 2018 Proxy Statements. Messrs. Calarco and Del Giudice retired in early 2018 after reaching age 75. Mr. Ranger replaced Mr. Del Giudice as chair of the Corporate Governance and Nominating Committee and Mr. Killian replaced Mr. Calarco as the chair of the Audit Committee (response to Data Request #249).
[24] CEI Corporate Governance Guidelines, available on the company's website.

Exhibit III-4
Overview of Board Committee Responsibilities

Board Committee	Responsibilities
Audit	• Appointment of independent accountants • Review of internal controls and accounting matters, financial statements, SEC filings and earnings press releases • Scope and results of PwC and Internal Audit department programs • Oversight of risk assessment and management policies and programs related to its duties
Corporate Governance and Nominating	• Director performance, nomination, and recruitment • Recommendation of director compensation • Corporate governance matters and guidelines including independence
Environmental, Health and Safety (EH&S)	• Advice and counsel to management on EH&S matters • Review significant EH&S issues and company compliance with environmental, health and safety laws and regulations
Executive	• Exercise of powers vested in the Board, except for certain specified matters, between meetings of the Board
Finance	• Recommendations regarding financial conditions and policies, budgets, forecasts, financings, investments, bank credit, and dividend policy • Recommendations regarding strategic business plans and litigation settlements
Management Development and Compensation	• Recommendation of officer and senior management appointments • Oversight of executive compensation and benefit plans and policies; administration of equity plans • Approval of compensation to named executive officers[25]
Operations Oversight	• Oversight of company efforts relating to operating systems, customer impact, and compliance with laws, regulations and corporate policies

The Audit Committee provides oversight of the independent auditors, PricewaterhouseCoopers (PwC), which has served as the company's or its predecessor's auditor since 1938. The Sarbanes-Oxley Act of 2002 (SOX) requires switching out the audit partner every five years, and PwC has done so recently.[26] A CEO and Chief Financial Officer (CFO) certification is required under SOX, and PwC provides an opinion on the financial statements and internal controls over financial reporting. In 2017, PwC was paid $6.9 million for their services as independent auditors.[27]

Many corporations separate the roles of board chairman and CEO so that the chairman can serve as a critical mentor and advisor to the CEO, and as such ask probing questions about the logic of strategic decisions or organizational performance. CEI combines the CEO and Chairman of the Board roles, which is not a best practice, but mitigates its impact by having an Independent Lead Director role that is performed by the Chair of the Corporate Governance and Nominating Committee. Consistent with CEI's Corporate Governance Guidelines, the Lead Director serves

[25] The salary of the President and CEO of O&R is approved by the O&R Board rather than the CEI Board.
[26] Interview #4.
[27] CEI 2018 Proxy Statement, p. 24.

as a liaison between other directors and CEI management, and coordinates with the Chairman on agendas, schedules, and other matters pertinent to CEI and the Board.

O&R and RECO Boards

The O&R Board has three members—the Chairman of the Board, President and CEO of CEI, the President and CEO of O&R, and one outside director, Mary Scheutte, who started her employment at CECONY in 1985 and retired as Vice President of Law in 2014.[28] The O&R Board is not truly independent—CEI's chief executive is a member and the sole external director is a former CECONY executive—but many subsidiaries of public traded utilities have internal boards of this kind.[29] The President and CEO of O&R is the sole member of the RECO Board.

C. Executive Compensation

The components of executive compensation are the same as those for non-officer management employees—base salary, annual variable incentive pay, and long-term incentive compensation in the form of stock. The CEI Board approves final compensation levels for all corporate officers except for officers of O&R, which are approved by O&R's Board. The Management Development and Compensation (MD&C) Committee retains Mercer as an independent consultant to provide it with information, analysis, and recommendations on all elements of compensation. Mercer benchmarking studies are based on an industry peer group of publicly traded utilities of comparable size and scope to CEI.[30]

Under Security and Exchange Commission (SEC) rules, a company must disclose information concerning the amount and type of compensation paid to its chief executive officer, chief financial officer and the three other most highly compensated executive officers. A company also must disclose the criteria used in reaching executive compensation decisions and the relationship between the company's executive compensation practices and corporate performance. CEI's proxy statement describes the objectives of the company's executive compensation program as it pertains to five Named Executive Officers of CEI—Chairman of the Board, President and CEO of CEI; the Senior Vice President and Chief Financial Officer; the President of CECONY; the Senior Vice President and General Counsel; and the President and CEO of O&R—which are summarized in the next table.

[28] Response to Data Request #180. The O&R Board has no committees. The CFO and Controller, Treasurer, and Corporate Secretary at CECONY fulfill these same roles on the O&R Board.

[29] In theory, the structure could allow the interest of the parent to take precedence over that of the subsidiary. Silverpoint reviewed O&R and RECO Board minutes from the audit period and noted nothing unusual. (Confidential review of the response to Data Request #324). Our request to review CEI Board meetings minutes was denied (Response to Data Request #184).

[30] CEI 2018 Proxy Statement, p. 32. The peer group had median revenues of $11 billion compared to CEI's $12 billion. Although the group includes significantly larger utilities such as Duke Energy, Southern Company, PG&E and AEP, the majority of companies are smaller and CEI is at the 64th percentile of the group for revenues.

Exhibit III-5
Objectives of the Executive Compensation Program

Type	Component	Objective
Performance-based Compensation	Annual Incentive Compensation	• Achievement of financial and operating objectives for which the named executive officers have individual and collective responsibility.
	Long-Term Incentive Compensation	• Achievement, over a multi-year period, of financial and operating objectives critical to the performance of the company's business plans and strategies. • Achievement, over a three-year period, of the company's cumulative total shareholder return relative to the company's compensation peer group companies.
Fixed and Other Compensation	Base Salary, Retirement Programs, Benefits and Perquisites	• Differentiate base salary based on individual responsibility and performance. • Provide retirement and other benefits that reflect the competitive practices of the industry and provide limited and specific perquisites.

The philosophy of the MD&C Committee is that performance-based compensation should represent the most significant portion of each officer's target total direct compensation in order to motivate strong annual and multi-year company performance. In that context, the company targets base salary as 15 percent of total compensation for the CEO, and as 28 percent of the total for other Named Executives. The MD&C also believes that most performance-based compensation should be in the form of long-term, rather than annual, incentives to emphasize the importance of sustained company performance. Total salary, incentive plan, and stock awards for Named Executives for 2017 are shown in the following table.[31]

Exhibit III-6
Named Executive Officer Direct Compensation (Year-end 2017)

	Salary	Annual Incentive	Stock Awards	Total Direct Compensation
Chairman, President and CEO	$ 1,257,083	$ 1,864,800	$ 5,507,622	$ 8,629,505
President, CECONY	819,208	691,800	1,990,622	3,501,630
Senior Vice President and CFO	742,892	440,900	1,441,970	2,625,762
President and CEO, O&R	420,975	449,700	815,944	1,686,619
Senior V.P. and General Counsel	626,275	371,700	914,420	1,912,395

In its benchmarking study, Mercer concluded that base salary, target annual cash incentives, and target long-term equity-based incentives are competitive with the median target level of compensation in its peer comparison group. The next table shows the company's target compensation as a percentage of the peer group median.[32]

[31] CEI 2018 Proxy Statement, p. 46; figures do not reflect the value of perquisites, changes in pension values and deferred compensation, which can be worth almost as much as the total compensation shown.
[32] CEI 2018 Proxy Statement, p. 29. Information on compensation paid to CEI executives other than the top five highest paid is not included in proxy statements or otherwise publicly available.

Exhibit III-7
Comparison of Named Executive Target Compensation to Peer Group Median

	Base Salary	Base Salary plus Target Annual Incentive	Target Long-term Incentive	Target Total Direct Compensation
Chairman, President and CEO	102%	98%	94%	96%
Other Named Executives (Average)	112%	105%	111%	106%

It should be noted that executives actually receive significantly higher than target values. Unlike the short-term incentive plan for non-executive management that has a maximum payout of 120 percent of target against earnings, operations and maintenance (O&M) costs, and key performance metric targets, payouts under the executive incentive pay program can go as high as 200 percent of target. For example, in 2017 the President and CEO of O&R earned an incentive that was 133.2 percent of his targeted annual incentive level.[33]

Under new SEC rules for 2018, a publicly traded company must disclose its pay ratio—the ratio between the total compensation of the CEO and the median annual total compensation of all company employees (excluding the CEO). CEI's pay ratio is 96 to 1; subtracting the change in pension value from this comparison would yield a ratio of 80 to 1.[34] By way of comparison, a recent study of the pay ratios of roughly 2,000 public companies indicates a median pay ratio of 69:1 and an average pay ratio of 144:1; the median pay ratio for the utility sector was 59:1, significantly lower than that of CEI.[35]

In its 2018 New York electric rate case filing, O&R presented the results of Mercer's benchmark compensation analysis for its three officers. Under the short-term variable pay program, executives earn an annual cash incentive in addition to their base salary if certain predetermined company goals are attained. The target short-term cash incentive for the President and CEO is equal to 80 percent of his base salary, and for vice presidents it is equal to 40 percent; equivalent long-term incentives are targeted at 200 percent and 60 percent of base salary, respectively. Mercer concluded that target compensation levels for these positions are within +/- 15 percent of the 50th percentile of what it considers to be market, as summarized in the next table.[36]

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[33] CEI 2018 Proxy Statement, p. 37. The President and CEO of O&R had an incentive target of 80 percent of his salary of $422,000; he earned 133.2 percent of that target or an annual incentive of $499,700. The same year, O&R management employees earned 112.3 percent of their targeted annual incentive level (Response to Data Request #167).

[34] CEI 2018 Proxy Statement, p. 59. The disclosure is required by the Dodd-Frank financial reform act.

[35] "The CEO Pay Ratio: Data and Perspectives from the 2018 Proxy Season," posted October 14, 2018 on the Harvard Law School Forum on Corporate Governance and Financial Regulation website.

[36] New York State Department of Public Service, Case No. 18-G-0068, Electric Rate Filing – Volume 2 Testimony and Electric Rate Filing - Exhibits Volume 2, Exhibit C/BP-7, filed January 26, 2018. Base salary shown is as of February 2017. In its filing, O&R elected not to seek recovery of the variable pay or long-term stock incentives.

Exhibit III-8
Mercer Benchmarking of O&R Officer Compensation (July 2017)

	Base Salary	Annual Incentive Target (% of salary, $)		Long-term Incentive Target (% of salary, $)		Total
O&R Officer Position						
President and CEO	$ 422,000	80%	$ 337,600	200%	$ 844,000	$ 1,603,600
Vice President – Operations	277,000	40%	110,800	60%	166,200	554,000
Vice President – Customer Service	210,000	40%	84,000	60%	126,000	420,000
50th Percentile Equivalent						
President and CEO	$ 483,000	75%	$ 362,000	143%	$ 692,000	$ 1,537,000
Vice President – Operations	275,000	42%	115,000	53%	144,000	534,000
Vice President – Customer Service	234,000	40%	94,000	41%	96,000	424,000

Mercer concluded that target base salary and total compensation for these three positions are at approximately median levels.[37]

D. Enterprise Risk Management

The stated objective of CEI's Enterprise Risk Management (ERM) program is to identify and manage risk for the purpose of creating, preserving, and realizing value. CEI has adopted a holistic approach to ERM that is applied consistently across all business units. The ERM process addresses risk at both the corporate and the departmental level, and is an important adjunct to the company's strategic planning efforts. The CEI Board provides general oversight for the ERM program, and it is shaped by an ERM Steering Committee chaired by the CFO. A five-person group reporting to the CFO is responsible for facilitating the corporate-wide ERM process and for preparing a comprehensive report for the Board every October. The company benchmarks its ERM efforts through participation in the Utility Roundtable and the Edison Electric Institute (EEI), which are utility company specific, and through the North Carolina State ERM Roundtable Initiative and the St. John's University program, which are not.[38]

The lifecycle of the ERM process involves 1) prioritization of identified risks (e.g. cyberattack) for each line of business in terms of severity, likelihood of occurrence, and controllability; 2) development and implementation of risk mitigation strategies; and 3) ongoing monitoring and management of specific risks. The ERM process utilizes both a bottom up and a top down approach in order to properly assess existing and newly emerging risks; it also makes a clear distinction between corporate risks and departmental risks. At O&R, a departmental risk might be an oil spill within a substation that has significant environmental impact. A corporate risk on the other hand would be one deemed significant enough to report to the Board, such as a major storm damaging the system and the company's response failing to meet expectations.[39]

[37] This benchmark comparison is somewhat misleading because it uses O&R and peer incentive compensation based on target levels, i.e., at 100 percent payout. In many companies, executives have a 50/50 chance of achieving 100 percent for their annual incentive payout, whereas at O&R there is in our view a much higher likelihood of doing so.
[38] Interview #4.
[39] Response to Data Request #23.

A key aspect of the ERM program is the development of risk mitigation strategies, and as part of the process each identified risk is formally assigned a risk officer who ultimately approves the strategy. Each subsidiary company at CEI has its own Corporate Risk Committee, although initially a committee existed only at the CECONY level. O&R's Corporate Risk Committee was formed in 2015 and is monitored by the O&R Board. The committee includes vice presidents and general managers and is chaired by O&R's President; it meets quarterly to discuss updates on the management of existing corporate risks and to discuss new or emerging ones.[40] Each O&R department—electric operations, gas operations, customer operations, and EH&S—develops its own risk profile and manages its own mitigation efforts. The departmental risk profiles resulting from the ERM process in 2017 for O&R's electric operations group and customer service organization are included in the Confidential Appendix.

Each year CEI lists in its annual report the major risks identified as a result of its ERM program. Silverpoint reviewed a confidential summary of the results of the ERM corporate risk assessment process at the CEI level as of year-end 2017 and found it generally consistent with information reported publicly.[41] A summary of issues in the 2017 annual report is shown in the next table.[42]

Exhibit III-9
CEI Major Business Risks – 2017 Annual Report

Regulatory/Compliance Risks
• Extensive regulation means the companies are subject to penalties • Utility rate plans may not provide a reasonable return • Utilities may be adversely affected by changes to rate plans • Intentional misconduct by employees or contractors could adversely affect the company
Operations/Environmental Risks
• CEI companies could be adversely affected by facility failure or damages, or by cyberattack • Companies have risk exposure from the environmental consequences of their operations
Financial/Market Risks
• Companies could be adversely affected by wholesale energy market disruption/energy supplier failure • The utilities have substantial unfunded pension and OPEB liabilities • CEI's ability to pay dividends and interest depends on dividends from subsidiaries • Companies require access to capital markets to satisfy funding requirements • Changes to tax laws could adversely affect the companies
Other Risks
• CEI's strategies to address a changing business environment may not be effective • The companies face other risks beyond their control (e.g., severe economic downturn, terrorism)

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[40] Silverpoint reviewed O&R Corporate Risk Committee agendas provided in response to Data Request #189. The committee did not produce formal minutes until the middle of 2017 and only two sets were available for review.
[41] ERM Corporate Risks Assessment as of December 31, 2017 provided in response to Data Request #187.
[42] CEI 2017 Annual Report. The company added the risk of changes in tax laws beginning in 2016, but otherwise the identified risks were the same throughout the audit period.

The company provides additional commentary on each identified risk in its annual report. In connection with access to capital markets, for example, CEI states that changes in financial market conditions or in the credit ratings of its subsidiary companies could adversely affect the ability to raise new capital and the cost thereof.

E. Internal Audit

The CECONY Internal Audit department is organized into three director-led groups: 1) Customer Operations, Finance and Business Controls Auditing, 2) Financial Integrity Group, and 3) EH&S, Operations, IT, Construction, Contractor Activity, and Energy Services. The department has approximately 60 employees, some with many years of internal audit experience but also those relatively new to auditing with experience from other business areas. The department is led by the Vice President and General Auditor, who reports administratively to CEI's CEO and functionally to the Audit Committee of the Board of Directors.

Internal Audit works independently and objectively in accordance with the Institute of Internal Auditors (IIA) Standards and Code of Ethics, although it does coordinate with the company's external auditor, PwC. The department has in place a detailed Auditing Operating Manual that addresses topics such as annual risk assessments, audit planning, audit field work, work papers, and Audit Committee reports, and that also includes comprehensive corporate audit policies.[43] The responsibilities of the Internal Audit department include the following:[44]

- Conducting risk-aligned audits and process reviews for all CEI affiliates
- Testing all activities necessary to comply with Sarbanes-Oxley (SOX) requirements
- Providing advisory services such as pre-implementation reviews, typically related to implementation of new systems
- Coordination with the external auditor PwC
- Providing regular updates to the Audit Committee
- Participating in Corporate Leadership Team meetings, as well as other company committees, industry roundtables, and conferences.

A relatively recent addition to the department's responsibilities is proactively managing fraud risks enterprise-wide. The Financial Integrity Group was created in December 2017 in response to a few public incidents at CECONY. The group will focus more proactively and systematically on fraud prevention and detection issues and coordinate with other groups to test and validate controls.

The EH&S, Operations, IT, Construction, Contractor Activity, and Energy Services group covers a broad range of subject areas, each of which is approached a bit differently. In the operations

[43] Response to Data Request #192.
[44] Interview #19 and response to Data Request #190. Corporate Policy Statement CEI-020–Function of the Auditing Operation, provided in response to Data Request #357, describes the mission and responsibilities of the department.

area, for example, the group performs audits that focus on procedures, work practices, field activity, and efficiency improvements. For the IT area, the group works to ensure general controls are in place covering change management, recovery, security, and business continuity, as well as specific focus areas such as cybersecurity.[45] Many of the group's EH&S audits are unannounced; as noted in Chapter XIII, Silverpoint considers this a best practice.

The Customer Operations, Finance and Business Controls Auditing group reviews financial and accounting activities and financial reporting, and monitors changes in the company's Oracle financial package. It also audits customer operational areas such as billing and the call center, as well as fuels and energy procurement activities. The group is responsible for coordinating SOX testing necessary for the CFO and CEO certification process for the company's 10-K reports. At present, approximately 13 percent of the Internal Audit department budget is devoted to SOX testing. The company's SOX testing process has been simplified somewhat over the years and PwC has been working with the department to streamline the process even further.[46] The company's SOX control matrix contains over 1,700 control objectives; Internal Audit tests all key SOX controls twice each year and non-key controls on a rotational basis over a seven-year period. There were no material SOX weaknesses during the audit period.[47]

The Internal Audit department has a structured process for developing an annual audit plan. Each year, the group updates its "audit universe," which is a list of approximately 700 auditable areas across the corporation. The group obtains input on these areas from the business units and the CECONY Ombudsman; audit personnel also review information from industry groups to ensure they are appropriately capturing emerging risks in their audit universe.[48] Internal Audit personnel perform a structured risk assessment of each auditable area based on scored factors such as materiality, transaction volume, and control risk.[49] The department maintains a separate risk assessment spreadsheet for each of six auditing categories: customer operations, financial, EH&S, operations, information technology, and construction and contractor activity; risk scoring in each category is performed by the relevant audit group. This risk assessment analysis is different from, but aligned with, the company's ERM process—the more comprehensive ERM assessment focuses on key controls, whereas Internal Audit reviews processes universally.

The Corporate Leadership Team (i.e., the CEO and his direct reports, which include the General Auditor) also informs the development of the yearly audit plan. Internal Audit includes in its plan approximately 80-100 items per year from the audit universe based on risk prioritization while taking into account input from audit managers and when each area was last audited. The Board's Audit Committee approves the annual audit plan each October. Work stemming from the annual audit plan typically runs from January to April of the following year. The department generally

[45] Interview #19. Internal Audit is not involved in penetration testing audits, which are coordinated by IT.

[46] CEI Corporate Instruction CEI-210 "Compliance with Section 404 of the Sarbanes-Oxley Act of 2002" defines responsibilities including those of the SOX Steering Committee chaired by the CFO (Response to Data Request #347). SOX Steering Committee meetings between members of Internal Audit and PwC are held throughout the year; Silverpoint reviewed agendas but no meeting minutes were available (Response to Data Request #186).

[47] Interview #19. SOX control matrix provided in response to Data Request #18.

[48] The CECONY Office of the Corporate Ombudsman provides employees with an independent office to which they can confidentially refer suspected violations of Code of Conduct or ethical and legal concerns.

[49] Risk assessment template provided in response to Data Request #191.

completes all items in the annual plan, and can add audits to the current plan when warranted. While most audit work is performed in house, the company will on occasion utilize an external auditor, particularly if specialized expertise is required.

During the year, the Internal Audit department provides updates to the Audit Committee regarding completed audits and SOX testing work, including progress against the annual plan. The General Auditor meets with the Audit Committee in public and private sessions but can also meet or discuss items with them informally if required. The Audit Committee receives Quarterly Operations Summary Reports that include SOX statistics (e.g., number of control deficiencies, significant deficiencies, and material weaknesses), as well as a summary of the department's audit progress and recommendations.[50]

The Internal Audit department undergoes a comprehensive External Quality Assessment (EQA) by the IIA every five years. The EQA is an objective peer review of internal auditing effectiveness and conformance to IIA Standards and is designed to identify opportunities to improve the value of auditing to the corporation and to benchmark against best practices. The Internal Audit department has its own Quality Assurance Improvement Program (QAIP), which formalizes efforts to continue benchmarking the group's processes and to monitor its continued compliance with IIA Standards. As part of the EQA review, the IIA reviews the company's QAIP reports; the last EQA report was completed in 2013, and the next one was slated for some time in 2018. As a result of the last review, Internal Audit implemented a process to proactively track progress on open audit recommendations using a spreadsheet that is updated monthly; the tool has proven helpful for following up with the employees responsible for implementing their recommendations.

The Internal Audit group completed approximately 500 audits during the audit period.[51] The final reports on these audits are considered confidential. Silverpoint reviewed approximately forty audit reports across a range of areas such as EH&S, cybersecurity, customer operations, and capital projects.[52] These audits focused primarily on the adequacy of controls. In general, we found the audits to be substantive, and the auditors offered useful and constructive observations and recommendations. Silverpoint also reviewed the most recent (2013) EQA peer review report and a report by PwC regarding its assessment of CEI's SOX program; additional information on these reports is also included in the Confidential Appendix.[53]

[50] Interview #19.
[51] Response to Data Request #208.
[52] Confidential review of Internal Audit reports and documents conducted as Interviews #30 and #34.
[53] During the confidential review sessions, Silverpoint also examined the risk assessment spreadsheets used to develop the annual audit plan, as well as examples of the open audit recommendations spreadsheet, quarterly reports provided to the Audit Committee, and QAIP self-assessments.

F. Conclusions

1. The structure and operation of the CEI Board and Board Committees are consistent with preferred governance practices, and senior executives have appropriate qualifications and experience for their positions.

Directors are well-qualified and have the background and professional experience appropriate for overseeing the company's business. The CEI Board is tenure-diverse and includes men and women with varied backgrounds who can offer a range of perspectives. Board committees are governed by formal charters and are well structured with appropriate membership. There was considerable turnover in senior management during the audit period, particularly at O&R; executives appear to have adequate management experience for their new positions, although not always direct subject matter expertise.

2. Executive compensation is reasonably competitive with comparable utility companies.

Executive compensation programs are clearly defined and well-documented in the company's proxy statements. Compensation levels are generally competitive with those in the industry, and program incentives are appropriately based on measurable operational and financial performance. As discussed elsewhere in this report, however, Silverpoint remains concerned that the opportunity to earn significant incentive payouts by underspending O&M budgets could potentially interfere with clear and timely decision-making.

3. CEI has an appropriate Enterprise Risk Management program.

CEI has a well-established program for identifying, prioritizing, and assessing risks affecting its operating companies, and for implementing risk mitigation strategies at the corporate and departmental levels. The ERM effort receives proper attention of senior management and the CEI and O&R Boards, and is appropriately integrated into strategic planning as well as utility operations and decision–making. O&R's corporate and departmental risk assessments are appropriate, identify relevant factors, and are routinely reviewed and discussed by management throughout the year.

4. CEI has robust internal audit and SOX testing programs in place.

The Internal Audit department is independent and well managed, and staff brings insights and perspective from prior roles in other functional areas of the company. The department has an organized process for developing an annual audit plan that sets priorities based on risk and materiality, and that incorporates the judgment of the Audit Committee and senior management. Internal Audit uses appropriate professional standards, conducts frequent benchmarking and self-assessments, and is focused on continuous improvement. The group has adopted a reasonable approach to SOX compliance and has worked to improve and streamline its SOX testing process. During the audit period, the company met its SOX requirements and there were no material SOX weaknesses.

G. Recommendations

Silverpoint has no recommendations in this area.

IV. Strategic Planning

A. Background

The Strategic Planning department is part of the CECONY Finance organization, and is led by a vice president who reports directly to the Senior Vice President and CFO. At the time of the Silverpoint's review, the department had 19 employees and was comprised of four director-led teams—electric long range planning, corporate development, non-traditional utility growth, and gas long range planning—with the following responsibilities:[54]

- Electric Long Range Planning – managing the twenty-year long range planning process including risk management and planned capital investments; monitoring and assessing issues such as clean energy policy, climate change, REV, the growth of distributed energy resources, advanced metering infrastructure (AMI), and the customer experience
- Non-traditional Utility Growth – monitoring regulatory, policy, and market trends, and analyzing new products and services such as distributed generation, solar and wind generation, energy storage, electric vehicles, and large scale renewables
- Corporate Development – merger and acquisition analysis, development of long-term corporate financials, corporate profiling, peer review, and other financial and investment analysis
- Gas Long Range Planning – managing the twenty-year long range planning process including risk management and planned capital investments; monitoring and assessing issues such as oil to gas conversions, commodity price trends, and gas expansion.

The Strategic Planning department's mission is to provide sound strategic advice to senior management and the CEI Board to position the company to increase shareholder value and achieve long term success. Department personnel lead the long range planning efforts for each area of the company, and produce the targeted research and analysis necessary to support sound planning. The department's primary objective is to develop strategies that strengthen existing core businesses. Beyond planning, the group also contributes to plan execution by supporting business development opportunities, corporate transactions, and other cross-functional initiatives.

B. Strategic Planning Process

The Strategic Planning department is responsible for producing twenty-year strategic plans and financial models for the corporation as a whole and for individual businesses. The group defines as its main objective making the future the company is planning for explicit and transparent to decision makers. Planning and analysis at CEI is a continuous process, although there are specific milestones for delivery of both long range and shorter term plans, as illustrated in the next graphic.[55]

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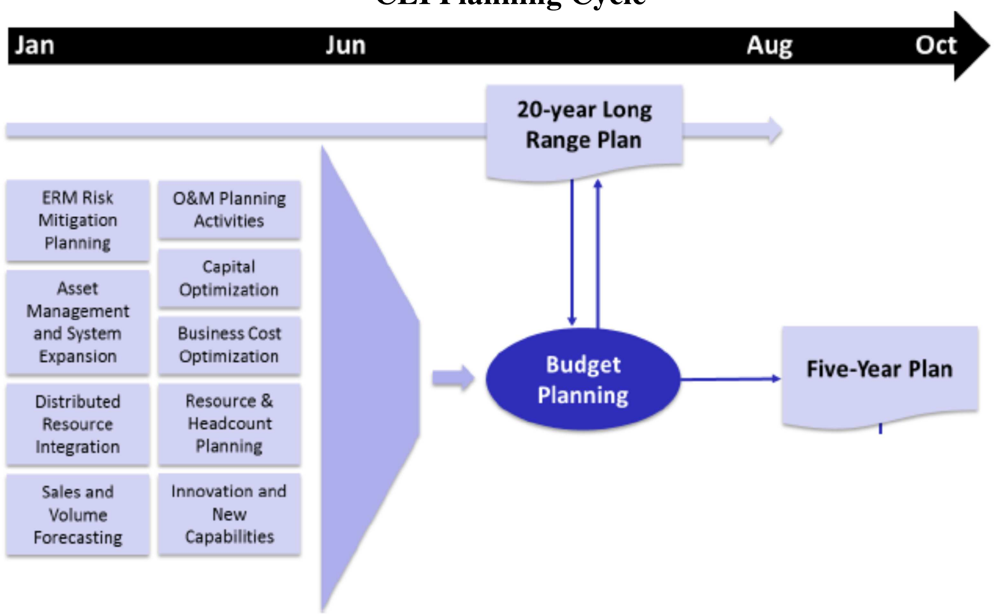
[54] Interview #17. Planning for O&R's electric business is grouped with gas planning to equalize workload.
[55] Response to Data Request #309.

Exhibit IV-1
CEI Planning Cycle



At the business unit level, a host of inputs flow into the planning process from parallel activities such as enterprise risk management, capital optimization, and sales forecasting. At O&R, the Vice President of Customer Service serves as the utility's lead liaison in that regard. A separate group in the CECONY Finance organization, Business Finance, is responsible for developing and maintaining five-year business unit and departmental budgeting models and plans. Throughout the planning cycle there is an iterative process between these groups—strategic planning personnel focus on long-term influences from a top-down perspective, while business finance teams focus on shorter term trends from a bottom-up perspective. The two groups work together to ensure that the five-year and twenty-year financial models are ultimately consistent.

Finalizing strategic plans with company leadership is similarly iterative. After working with the business units themselves, Strategic Planning next reviews plans with the CEI leadership team, which includes senior managers from O&R as well as non-regulated businesses CET and CEB. Ultimately, the strategic plans for all CEI affiliate businesses—O&R electric, O&R gas, CECONY electric, CECONY gas, CECONY steam, CEB, and CET—are individually brought to a strategy steering committee; long-range plans are also presented periodically to the CEI Board. A preliminary five-year plan is presented to the Board each October, and the Board approves the annual budget in November. In the case of O&R, the annual budget is first approved by the O&R Board. In their review, the CEI Board does not specifically limit the amount of capital that utilities can spend but instead focuses on assessing whether investments are required to meet strategic goals.[56]

Strategic analysis is commonly defined as the process of conducting research on the business environment in which an organization operates, and on the operation itself, in order to formulate

[56] Interview #17. Theoretically, the CEI Board can adjust O&R's budget, although this has not happened in recent memory.

strategy. There are a number of planning tools that are commonly used by corporations to develop in-depth knowledge of markets and the surrounding business environment—SWOT (strengths, weaknesses, opportunities and threats) and PESTLE (political, economic, social, technological, legal, and environmental) being perhaps the most well-known. CEI does not utilize structured strategic planning analytical tools, but nonetheless has adopted a comprehensive and holistic approach to determining trends and setting strategies.

During the planning cycle, each of the strategic planning teams conducts a wide variety of analyses with input and assistance as needed from the business units. These efforts incorporate risk management considerations, and focus on policy and regulatory impacts, changing customer patterns, and technology trends. Utility-related groups, for example, may investigate the technical and economic potential of roof-top solar installations. The corporate development team, by way of contrast, typically compares CEI to other companies in terms of the value they present to investors. These analyses assist department personnel in developing planning scenarios that reflect potential uncertainties that could affect the business. Other examples of analysis pertinent to the regulated and non-regulated lines of business, as well as to the corporation as a whole, are listed in the following table.[57]

Exhibit IV-2
Strategic Planning Team Analysis

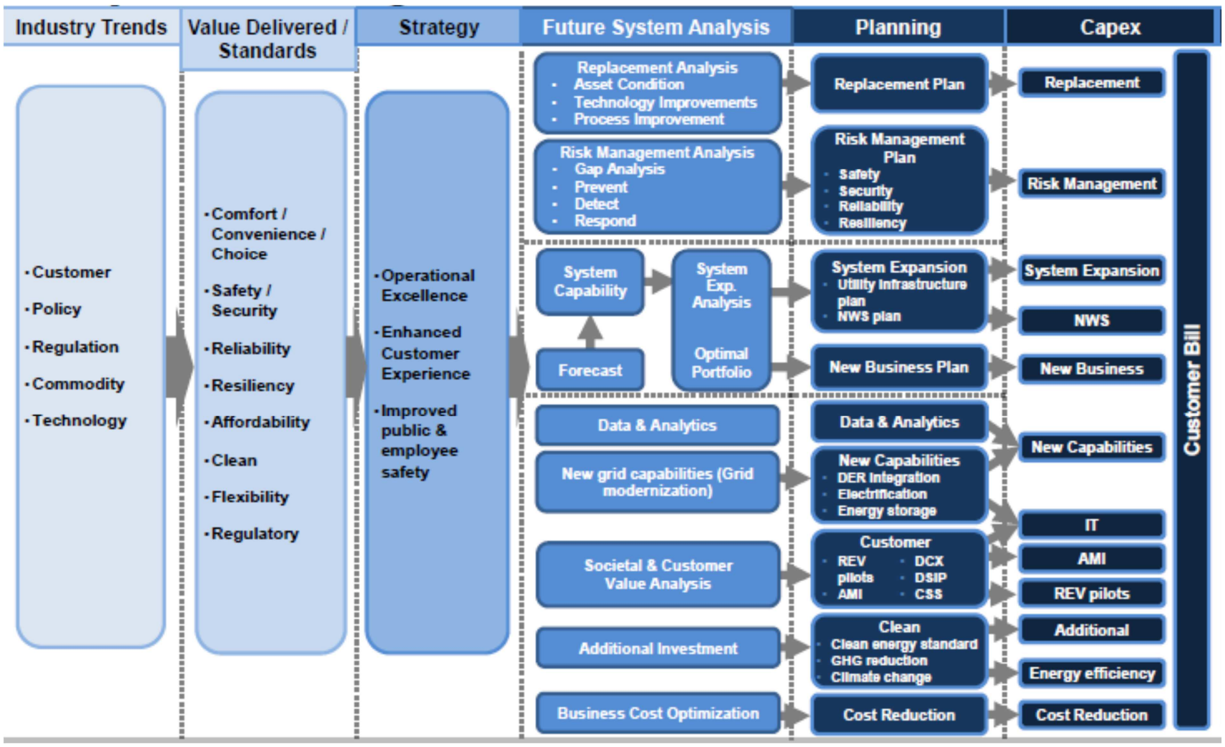
Electric Long Range Planning	
20-year capital plan	ERM integration into long range planning
Replacement analysis and capex implications	Energy efficiency analysis
Climate change implications	Regulatory implications to business model
DER growth and network/system implications	Electric customer 20-year bill trends
Corporate Development	
Merger and acquisitions (M&A) screening	Valuation of candidates and M&As
Corporate profiles and peer review	Rationalization of M&A activity
Support of CET business development	Support of CEB business development
Non-Traditional Utility Growth	
Regulatory and policy trends	Identification of disruptive technologies
Renewable pricing and trends	Identification of offshore wind opportunities
Electric vehicle/energy storage opportunities	
Gas Long Range Planning	
20-year capital plan	Oil-to-gas analysis
Commodity pricing trends/gas supply analysis	Carbon reduction/electrification plan/analysis
Gas leak benchmarking	Gas customer 20-year bill trends

These analyses are an integral part of developing the twenty-year strategic plan for each commodity and company, and aid in stress testing base case plans through scenario analysis (e.g., a greenhouse gas reduction scenario). The Strategic Planning department utilizes the same overall analytical framework to provide consistency across the companies. The following graphic

[57] Interview #17 and response to Data Request #309. During the interview, Silverpoint was permitted to review, but not retain, an example of the company's detailed analysis, in this case an economic analysis of solar photovoltaics and energy efficiency. Silverpoint found the analysis to be thorough and well done.

illustrates how twenty-year capital expenditure and customer bill impact analysis flow from the long range planning process for the electric utility business—O&R and CECONY combined.[58]

Exhibit IV-3
Utility Long Range Planning Process



The strategic long range planning process for the utility business unit begins with an analysis of industry trends, most of which is performed in-house by the planning group. The Strategic Planning department also incorporates input from sources such as Bloomberg New Energy Finance, IHS Markit, EEI, the American Gas Association (AGA), and the Electric Power Research Institute (EPRI), and utilizes consultants on a targeted basis, including Bain, McKinsey, Navigant, and Accenture. The company also gains knowledge from its participation in joint industry studies, and may also seek advice from other utilities.[59]

The company's insights about industry trends help it to define the values that it delivers to its customers. For example, one of the values the electric utilities deliver is "comfort, convenience and choice;" others include reliability and resilience. Regulatory value in particular refers to the concept that utilities can implement standards or initiatives that politicians or regulators impose, such as REV. These values drive the company's fundamental strategies to strengthen the core utility business—operational excellence, enhanced customer experience, and improved public and employee safety. These three core strategies have been in place for several years and form

[58] Response to Data Request #309.
[59] Interview #17. Examples of joint industry studies include an EPRI electrification study with NYSERDA and a greenhouse gas reduction study with New York City.

the basis for the structure of the strategic plan and how it is communicated to employees and other audiences.[60] The next step of the long range planning process is a future system analysis using a variety of tools and models designed to focus on gaps between where the company currently is and where it needs to be. A strategy of enhanced customer experience, for example, ultimately led to utility capital investments in AMI that may satisfy customers wanting a better digital experience. Two-thirds to three-quarters of the utility's capital spending, however, is ultimately driven by reliability-related replacements.

This analysis and planning exercise becomes the basis for the twenty-year strategic and capital spending plans that Strategic Planning updates each year. The twenty-year portfolio analysis of capital investments reflects forecasts of sales, peak demand, energy prices and trends, impacts of energy efficiency, and similar factors. Determining when to pursue various projects and related investments is more art than science, and is based on three considerations: logical sequencing—AMI, for example, enables certain demand response efforts; resource considerations; and the resultant customer bill impacts. For O&R specifically, limitations on spending are primarily determined through the rate case process.

Business Cost Optimization
In 2017, the company implemented a new Business Cost Optimization (BCO) process that is being coordinated by the CECONY Business Finance group. The program complements the strategic planning process, and focuses on the cost drivers of a business and on opportunities for transformational change. The company is working with a consulting firm to identify areas in which other utilities have been successful at achieving substantive cost savings. Both O&R and CECONY are actively involved in the effort, which covers both existing processes as well as new opportunities such as AMI.[61] Additional information about the BCO effort is included in the Confidential Appendix.

C. Company Strategic Plans

Each year, the Strategic Planning department publishes a long-range plan for CEI and for each business entity, including O&R (there is no separate plan for RECO). If the mission, vision, and values underlying the strategic plan have not changed from the prior year, the department will typically issue a strategic update.[62] These abbreviated plans include a recap of industry trends and changes, and discuss updates to business plan projections, risk management efforts, and capital forecasts. The 2017 O&R strategic plan update, for example, discusses opportunities and challenges associated with strengthening the core utility business and includes the current twenty-year infrastructure capital investment plan. CEI strategic plan updates include focused reviews of each major line of business including steam, electric, gas, CET and CEB; they also provide projections of financial measures such as rate base, net income, earnings per share, and dividends per share.

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[60] Interview #17. In some instances, the company articulates a fourth value, which is sustainability.
[61] Interview #17.
[62] The corporate mission, vision and values defined in the 2013 plans remained constant throughout the audit period.

During their interview with Silverpoint, Strategic Planning personnel walked through presentations on the most recent plan updates for CEI and O&R—the 2017 Update to the Business Plan that was presented to the CEI Board, and the O&R Utilities 2017 Long-Range Plan Update that was presented to the strategic steering team in September 2017. Silverpoint was not permitted to retain a copy of these presentations or request the plans themselves, as the company considers these highly confidential.[63] The company has however publicly discussed its overall corporate strategy, and in a recent EEI presentation, CEI management summarized it as follows:

- Strengthen the core utility delivery businesses
- Pursue additional regulated growth opportunities to add value in the evolving industry
- Grow existing competitive energy businesses
- Pursue additional clean energy growth opportunities consistent with the company's risk appetite.

The company's customer-focused strategy was designed to provide safe and reliable service, to enhance the customer experience, and to achieve operational excellence and cost optimization. In terms of value offered to shareholders, the plan was designed to provide steady, predictable earnings, maintain balance sheet stability, and pay attractive and growing dividends.[64] Silverpoint found these public statements to be consistent with the confidential materials we reviewed.

CEI's major initiatives during the audit period and more recently are consistent with its long-range strategic plan. CEI first identified transmission as a strategic investment opportunity to leverage core utility capabilities a decade ago; after finally identifying the right projects, the company created CET in 2014 to invest in electric and gas transmission and storage opportunities. In 2016, CEI sold off Con Edison Solutions' retail commodity business, consistent with management's decision to instead focus on nationwide investment opportunities in solar. In late 2018, CEI announced its proposed acquisition of Sempra Solar Holdings; CEB is already among the top owners of utility-scaled solar photovoltaics in the country, and its portfolio was expected to nearly double with the purchase.

The company views its strategies as quite conservative. The ongoing investment in AMI is cited as an example of the company *not* being an early adopter. CEI consciously does not invest in "bleeding edge" technologies—those that are so new that they could have a high risk of being unreliable and cause adopters to incur great expense in order to make use of them. Unlike some utilities that emphasize net income growth over stability, CEI's primary corporate financial goal is to provide visible and consistent dividend growth through stable cash flows. The company has raised its dividend every year for more than 40 years, and is therefore included in the S&P 500 Dividend Aristocrats, a category of stocks with 25+ years of rising dividends.[65] Additional information about CEI's dividend policy is included in the Confidential Appendix.

[63] Interview #17.
[64] Con Edison, Inc., EEI Financial Conference, November 11-13, 2018.
[65] Interview #17.

The utility business will continue to dominate CEI's business mix. The company recognizes that the fundamental elements of the energy delivery industry—how customers use energy and how energy is sourced—are changing. It also recognizes changing customer preferences, with the increased need for resiliency, reliability and safety, especially with the increasing urban density. Strategic Planning has defined four areas of focus for the energy delivery business:

- Delivering reliable service to customers
- Meeting customers' increasing expectations, e.g., real time information
- Delivering programs that meet societal goals, such as energy efficiency, renewable standards, and carbon reduction
- Stakeholder engagement, including both customers and regulators.

Each of these focus areas requires investments, and the company works to find optimal solutions while managing customer bill impacts.[66]

Consistent with its strategy to pursue additional regulated growth opportunities, CEI is making substantial non-traditional utility investments in New York, primarily driven by the REV initiative. Policy and regulatory trends affect the company's investment decisions, and New Jersey issues such as the Governor's interest in offshore wind and storage are among those currently being monitored. The company also sees strategic value in retaining the energy efficiency business relationship with customers, and is substantially increasing its level of investment in energy efficiency programs, more than doubling its investments by 2019.[67]

D. Conclusions

1. CEI has a mature and robust strategic planning process.

The Strategic Planning department is staffed with experienced and highly capable personnel and its mission and objectives are clear. The company has a well-defined strategic planning process that is well integrated with five-year and one-year planning and budgeting cycles. Strategic Planning conducts extensive strategic analyses appropriate to each line of business that incorporates input from outside experts where appropriate. Assessments of business uncertainties and future market environments are appropriately reflected in the long-range plans developed for each business entity. The planning cycle incorporates an appropriate senior management and Board level review process, and O&R and RECO receive adequate attention during the planning process.

[66] Interview #17.
[67] Interview #17 and Con Edison, Inc., EEI Financial Conference, November 6-8, 2016, provided in response to Data Request #310.

2. The company's strategic plans are well considered, and non-utility affiliate goals are not in conflict with those of O&R and RECO.

The company's long-range strategic plans reflect objective situational and stakeholder analysis, reflect clarity of purpose, and incorporate realistic goals and aspirations. The plans emphasize core values, and properly identify short- and long-term goals and objectives. Corporate and utility plans adequately address changing industry and market dynamics, customer impacts and financial risk, and recognize the commitment and financial resources necessary for implementation. Corporate strategies for non-utility business segments, as well as CEI's recent acquisition and divestiture activities, do not disadvantage the core utility business segment including O&R and RECO.

E. Recommendations

Silverpoint has no recommendations in this area.

V. Finance and Cash Management

A. Introduction

The regulated utility business is the primary source of revenue and net income for CEI. As of the end of the audit period, O&R and CECONY represented 90 percent of the total assets of the corporation. CEI's operating revenues, net income, and assets by business segment as of year-end 2017 are summarized in the following table.[68]

Exhibit V-1
CEI Operating Revenues, Net Income and Assets by Business Segment
(Year Ended December 31, 2017)

$ Million	Operating Revenues		Net Income		Assets	
CECONY	$10,468	87%	$1,104	72%	$40,451	84%
O&R	874	7%	64	4%	2,773	6%
Total Utilities	11,342	94%	1,168	76%	43,224	90%
CEB	694	6%	332	22%	2,735	6%
CET	3	-	44	3%	1,222	2%
Other	(6)	-	(19)	(1%)	930	2%
Total CEI	**$12,033**		**$1,525**		**$48,111**	

In recent years CEI derived 90 to 95 percent of its total net income from the utility segment; in 2017, however, roughly 25 percent came from CEB and CET, primarily due to the one-time gain recognized as a result of the new federal tax law.[69] CEI made significant investments in the non-utility business segment during 2018, and by year's end the regulated utility portion of total assets fell to 85 percent, although the share of total net income remained stable at 91 percent. CEI earnings per share by business segment for the last five years are shown on the next table.[70]

Exhibit V-2
CEI Earnings per Share by Business Segment

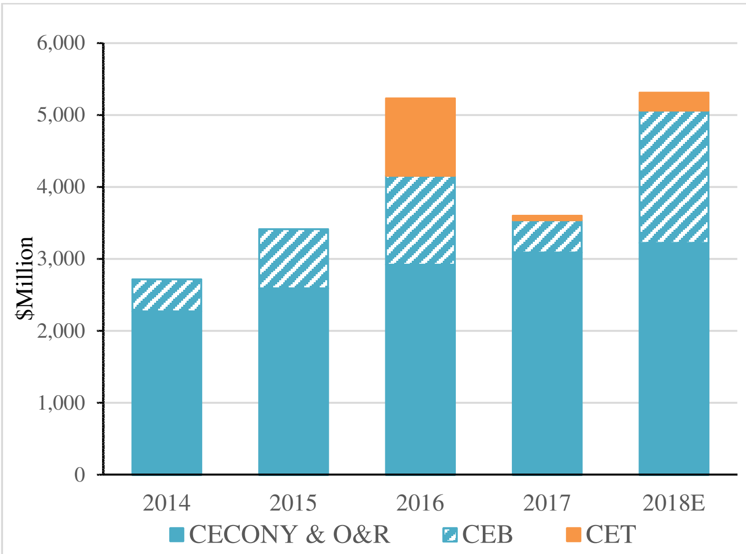
	2018	2017	2016	2015	2014
CECONY	$3.84	$3.59	$3.52	$3.70	$3.61
O&R	0.19	0.21	0.20	0.18	0.20
CEB	0.46	1.08	0.39	0.20	(0.05)
CET	0.15	0.15	0.07	-	-
Other	(.21)	(0.06)	(0.03)	(0.01)	(0.03)
Total CEI	**$4.43**	**$4.97**	**$4.15**	**$4.07**	**$3.73**

[68] CEI 2017 Annual Report. A comparable table of CEI year-end results for 2018 is shown in Chapter II Section A.
[69] CEI re-measured deferred tax assets and liabilities based on the corporate income tax rate under the new federal tax law enacted in December 2017 and as a result recognized $259 million in net income for 2017. Non-utility net income for 2017 also reflects the positive effect of the divestiture of the retail electricity and gas business in 2016.
[70] CEI Annual Reports.

CEI recently stated that its twenty-year outlook for contribution to earnings per share from O&R and CECONY is 85-89 percent.[71]

Despite very significant investments in CEB and CET—$1.1 billion and $1.2 billion, respectively, in 2016 alone—CEI steadily increased its annual investment in the utility business during the audit period, from $2.3 billion in 2014 to $3.1 billion in 2017, as illustrated in the following graph.[72]

Exhibit V-3
CEI Capital Expenditures



None of the corporate investment activities during the audit period affected CEI or utility credit ratings. That changed in 2018 after CEI announced its intention to acquire Sempra Solar Holdings for approximately $1.54 billion, including the assumption of $576 million of project debt, to be financed by CEI-issued equity and up to $825 million in new debt that was non-recourse to CEI.[73]

Finance Organization

The CECONY Finance organization is composed of six departments: Corporate Accounting, Business Finance, Strategic Planning, Tax, Treasury, and Enterprise Risk Management. CEI has no centralized credit organization, as the credit function associated with customer sales is performed by each subsidiary. The only corporate-level financial risk function is performed by the Energy Risk Management group, which implements commodity risk management for each utility and for CEB.[74] The CECONY Treasury department consists of six groups—Corporate

[71] Con Edison, Inc., EEI Financial Conference, November 6-8, 2016, provided in response to Data Request #310.
[72] Con Edison, Inc., EEI Financial Conference, November 11-13, 2018.
[73] Con Edison, Inc., EEI Financial Conference, November 11-13, 2018.
[74] Interview #33. There is no financial risk management function at the CEI level as the corporation does not hedge interest rates. Energy risk management related to electricity procurement for RECO is discussed in Chapter IX.

Finance, Energy Risk Management, Insurance, Pension Management, Treasury Operations, and Investor Relations—and provides services to CEI, the utilities and non-regulated affiliates. In this chapter, Silverpoint focuses primarily on functions supported by the Treasury and Tax departments.[75]

B. Long-term Financing and Credit

The Corporate Finance group in the Treasury department is responsible for developing long-term financing plans, negotiating corporate credit facilities, issuing debt and equity, and meeting or monitoring compliance and covenant requirements under financing arrangements for CEI and affiliates.[76] Finance group personnel prepare monthly cash forecasts to identify the amount and timing of capital needs on a rolling twelve-month basis for three groups: 1) O&R and RECO, 2) CECONY, and 3) CEI, CET and CEB. Corporate Finance uses as its starting point the five-year monthly cash forecast produced during the annual budgeting process, and develops a monthly forecast for each group based on additional information such as the timing of tax payments, customer payments, and other cash inflows and outflows.

CEI and CECONY have an existing shelf registration under which they can issue equity in a public offering, although timing of issuances must take into account SEC public offering requirements and information disclosure rules. During the audit period, CEI made offerings of common shares in 2016 and 2017 valued at $702 million and $343 million, respectively.[77] In November 2018, CEI announced an offering of up to $1.15 billion of common shares, a portion of which was necessary to fund its acquisition of Sempra Solar Holdings.

The Board of Directors must authorize debt issuances, and Corporate Finance seeks this authority annually based on needs identified through the budgeting process.[78] The company uses agents to issue debt to the market and tends to rotate this business among its qualified banks, which are typically those in its credit facility. CEI has issued debt obligations at the holding company level since the 1999 merger with O&R, three of which were outstanding during the audit period and due to mature in 2020, 2021, and 2022. Any cross collateralization or guarantees among affiliates is prohibited under affiliate relations agreements with regulators. All debt issued for the benefit of CEI, CEB, and CET is similarly non-recourse to the utilities.[79]

As of year-end 2017, O&R had $654 million of long-term debt; amounts set to expire in 2018 and 2019 were $50 million and $60 million, respectively. In August 2018, O&R issued $125 million of 4.35 percent debentures due in 2048 and agreed to issue an additional $25 million in December on the same terms.[80] O&R has been using private placements of senior unsecured

[75] The Strategic Planning department is discussed in Chapter IV, and Enterprise Risk Management is discussed in Chapter III. Corporate Accounting functions are discussed in Chapter VIII.
[76] As confirmed in Data Request #253, the company has formal policies in place regarding long-term debt and equity issuance, debt compliance, short-term borrowings, and interest and principal payments.
[77] CEI 2016 and 2017 Annual Reports.
[78] Debt maturing in more than one year also requires approval from state regulators.
[79] Interview #32. Revised Con Edison Corporate Structure Conditions provided in response to Data Request #20.
[80] O&R 2017 FERC Form 1 and Con Edison, Inc., EEI Financial Conference, November 11-13, 2018.

bonds to insurance companies for its long-term financing. O&R's placements are relatively small and the private market is a more efficient option for O&R because the public market expects issues to be eligible for inclusion in the corporate bond index, which currently requires a size of $350 million or more.[81]

RECO has no long-term corporate debt outstanding; the utility has done no external borrowing since 1997, and its last bond expired in 2007. Rockland Electric Company Transition Funding, LLC, is a special purpose entity (SPE) and RECO subsidiary that issued $46.3 million in securitization transition bonds in 2004. As of year-end 2017, approximately $7 million in bonds was outstanding, and they are due to fully mature in May 2019. O&R is the servicer for the RECO transition bonds under a separate service agreement with the SPE, and these bonds are included in O&R's long-term debt.[82]

A summary of the current capital structure of CEI, CECONY, O&R, and the non-regulated businesses is provided in the next table.[83]

Exhibit V-4
Capital Structure (As of September 30, 2018)

	Debt		Equity		Total
	$ Millions	***%***	***$ Millions***	***%***	
CECONY	$13,662	51%	$12,869	49%	$26,531
O&R	733	52%	690	48%	1,423
Parent and Other	2,213	49%	2,339	51%	4,552
CEI Total	$16,608	51%	15,898	49%	32,506

In the last CECONY rate case, New York regulators approved a settlement agreement that included incremental ring-fencing conditions. If CEI's cash flow, assets, or revenues from non-regulated businesses ever exceeds 15 percent of the total, or if 20 percent of total CEI debt is holding company debt—similar to rating agency guidelines—CECONY would be required to submit either a plan for incremental ring-fencing or a filing explaining why such protections were not needed. A similar provision was included in a settlement agreement approved as part of O&R's 2018 rate case in New York. Examples of incremental ring-fencing protections could include "golden share" bankruptcy protections.[84] Silverpoint asked about the expected impact of the $1.5 billion acquisition of Sempra Solar Holdings on CEI financials and the company indicated that it did not expect to exceed the New York PSC ring-fencing trigger threshold.[85]

[81] Interview #32.
[82] Interview #5.
[83] Con Edison, Inc., EEI Financial Conference, November 11-13, 2018. Amounts exclude notes payable and include the current portion of long-term debt. RECO's capital structure consists of 100 percent equity and it uses O&R's 48 debt/52 equity structure for ratemaking purposes.
[84] Interview #32.
[85] Response to Data Request #398.

Credit ratings by Moody's, Standard and Poor's (S&P) and Fitch for O&R, CECONY, and CEI unsecured senior debt remained the same during the audit period; corporate ratings were similarly unchanged.[86] After the Tax Cuts and Jobs Act (TCJA) was enacted in December 2017, Moody's changed its outlook from stable to negative for all three companies.[87] By the fourth quarter of 2018—after the announced acquisition of Sempra Solar Holdings—debt ratings for all three companies had been downgraded by Moody's.[88]

Exhibit V-5
CEI and Utility Senior Unsecured Debt Credit Ratings

	S&P	**Fitch**	**Moody's**	
	2014-17	***2014-17***	***2014-17***	***4Q 2018***
CEI	BBB+	BBB+	A3	Baa1
CECONY	A-	A-	A2	A3
O&R	A-	A-	A3	Baaa1

A Moody's Rating Action report from October 2018 indicated that the O&R and CECONY downgrades were caused by weakening cash flow metrics as a result of the enactment of the TCJA. The downgrade of CEI reflected the cash flow reductions at its utility subsidiaries but was exacerbated by CEI's intent to issue $825 million of incremental debt in connection with the Sempra acquisition, which would bring non-utility debt to about 16 percent of consolidated debt, up from about 13 percent. The report indicated that future downgrades of CEI would be possible if unregulated operations grew to 15-20 percent of earnings before interest, taxes, depreciation and amortization (EBITDA). In concert with the downgrades, Moody's revised its outlook for all three companies from negative to stable.[89]

C. Cash Management and Short-term Borrowing

The Treasury Operations group is responsible for the day-to-day cash management functions for CEI and all affiliates.[90] The group's functions consist of 1) receiving customer payments, 2) disbursements, 3) investing any excess cash, and 4) short-term borrowing to meet daily cash needs. Treasury Operations manages the Company's bank relationships by negotiating depository, disbursing, and commercial paper services. All affiliates including RECO have separate bank accounts, and there is no commingling of cash among affiliates.[91] The CEI Board

[86] Interview #5 and response to Data Request #12. Moody's no longer rates RECO debt as its long-term debt matured in 2007 but includes RECO business in its ratings for O&R consolidated.
[87] Interview #5. Other utilities were similarly downgraded based on the impact the recent tax legislation could have on their financial metrics, since credits to ratepayers can affect cash flow.
[88] 2018 ratings from Con Edison, Inc., EEI Financial Conference, November 11-13, 2018.
[89] Moody's Investor Services, "Rating Action: Moody's downgrades ConEd to Baa1, CECONY to A3 and O&R to Baa1; outlooks stable," October 30, 2018.
[90] As confirmed in Data Request #253, Treasury has comprehensive cash management policies in place covering such areas as payment processing, cash management, payroll distribution and funding, check disbursements, and short-term investments. These areas are also covered by SOX controls.
[91] CEI does not maintain money pools and has no plans to introduce them.

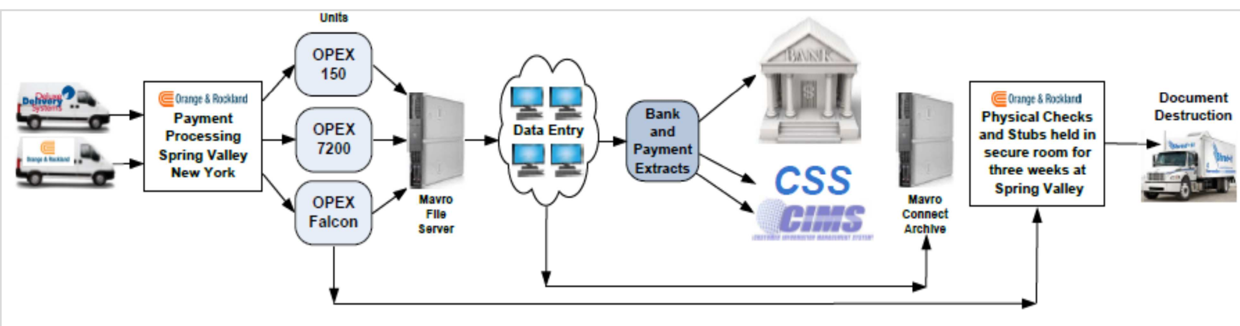
approves which banks are used and future changes would require its approval. CEI currently has the following bank relationships:

- JP Morgan Chase – customer payment lockbox for CECONY and O&R
- Bank of New York Mellon – disbursements, payroll, and customer refunds for CECONY, O&R, and CEI, and for all purposes for CET and CEB
- Citibank – commercial paper programs for CEI, CECONY, and O&R.

The company's bank fees did not increase during the audit period, even though fees in general have gone up industry wide. RECO receives the benefit of bank fee discounts because of the high volumes of CECONY and O&R. Treasury Operations utilizes leading practices and has implemented extensive fraud prevention measures (e.g., encryption programs for communication with banks and debit blocks to prevent authorized access to company accounts); the group also routinely reviews new bank tools to take full advantage of new technology where applicable.[92]

The O&R Payment Processing group, which is responsible for handling payment checks mailed by RECO, O&R and CECONY customers, reports to Treasury Operations. At the processing center in Spring Valley, checks and payment stubs are extracted and electronically scanned using Opex mail extraction units. Approximately 65 to 70 percent of check payments flow successfully through automatic processing; the rest must be reviewed and processed manually by clerical staff. Check images go to the bank for deposit and customer accounts are credited in each utility's customer information system. The company retains check images for two years, but physical checks are destroyed after three weeks—the lifecycle of a customer payment check is illustrated in the following graphic.[93]

Exhibit V-6
Customer Payment Check Lifecycle



The processing center has significant excess capacity. Approximately 30 percent of customer payments are currently made by check, and the number continues to decline as customers take advantage of other direct payment options.[94] At present, there are approximately 1.4 million

[92] Interview #32.
[93] Response to Data Request #11.
[94] Interview #2.

utility customers who have authorized payment of their bill through an Automated Clearing House (ACH) transaction initiated by the company.[95]

Treasury Operations invests excess cash consistent with the company's short-term investment policy, which requires it to maintain liquidity, preserve capital, and achieve appropriate returns consistent with a conservative risk profile. The policy is applicable to CEI and all utilities including RECO, and provides for conservative investment options that meet specific investment criteria. Currently, Treasury Operations limits investments to allowable government or prime money market funds. For example, RECO invests only in money market funds with a minimum of $5 billion in assets domiciled in the United States that are AAA-rated by at least two credit rating agencies.[96]

CEI has a five-year credit facility, with two extension options, that was issued in 2016 and is administered by Bank of America. Eighteen banks are committed to provide loans and letters of credit on a revolving credit basis up to $2.25 billion, with letters of credit limited to $1.2 billion. Under this credit facility, $2.25 billion is available to CECONY, $1.0 billion is available to CEI, and $200 million is available to O&R. Affiliates also have their own separate bilateral agreements with some of these banks. For example, CECONY and O&R have bilateral letter of credit agreements for hedging counterparties and construction projects, and CEI has a separate bilateral agreement for letters of credit.[97]

CEI, CECONY, and O&R each have commercial paper programs backed by their respective availability under the credit agreement, and O&R currently borrows through its own commercial paper program. O&R can experience slightly higher rates for its commercial paper due to its relatively small size compared to CEI or CECONY.[98] RECO has no such commercial paper program or access under CEI's revolving credit facility, but can obtain up to $30 million in intercompany loans or short-term debt from O&R under an arm's length arrangement if necessary.[99] RECO did not borrow any cash during the audit period—RECO's cash flow is such that it maintained a cash balance of approximately $20 million during the audit period and has not needed to borrow from O&R. This practice was in place before the merger with CECONY and has remained—it is more efficient for other affiliates to borrow rather than dividend RECO's cash to O&R and then borrow at RECO.[100]

During the audit period, O&R's commercial paper ratings—P-2 from Moody's, A-2 from S&P and F2 from Fitch—were unchanged. In October 2018, Moody's downgraded CECONY's short-

[95] Interview #32. ACH is an electronic payment system whereby funds are available the next day. In contrast, wires go through Federal Reserve banks and funds are available the same day; they are however more expensive.
[96] Response to Data Request #12. Treasury Operations Procedure provided in response to Data Request #127.
[97] Interview #32.
[98] Interview #5.
[99] Interview #32 and response to Data Request #12. The FERC authorizes issuance of short-term debt, and RECO is authorized to borrow from O&R through March 31, 2019. FERC "Order Authorizing Acquisition of Indebtedness" provided in response to Data Request #124.
[100] Interview #32. In order for RECO to pay dividends to O&R, the RECO Board (which consists solely of the president of O&R) would have to approve any dividend through a Board resolution.

term commercial paper from P-1 to P-2, but the P-2 rating for O&R (and CEI) remained unchanged.[101]

Dividend Policy

Affiliates provide a portion of their profits to CEI to support the quarterly dividends paid to external shareholders. None of the CEI affiliates had a formal dividend policy during the audit period, but the current guideline is to pay 60-70 percent of net income to CEI while maintaining an appropriate capital structure. O&R provides dividends to CEI every quarter, and the O&R Board approves the dividend quarterly. Dividend restrictions stemming from the merger, which are reflected in the company's Affiliate Relations Policy, limit the O&R dividend to 100 percent of net income. [102]

O&R's Financial Services group works closely with the Treasury department regarding dividend payouts. In 2017, O&R paid $44 million to CEI, and increased the yearly dividend to $46 million beginning in 2018. O&R tries to maintain a 70 percent payout ratio, although that rate has been higher of late due to pressure on past years' earnings. In 2017, O&R's actual earnings were higher than budget, but during 2014 to 2016 they were less, primarily due to regulatory changes that yielded unexpected higher costs.[103]

D. Capital and O&M Budgeting

The O&R Financial Services department is responsible for the utility's operating and capital budgeting process and for developing one- and five-year financial forecasts. The group receives support throughout the budgeting process from CECONY Corporate Accounting and Business Finance groups. O&R and CECONY use budgeting tool Hyperion Planning to develop five-year O&M, clearing, and shared service budgets, and use Hyperion Strategic Finance for five-year financial forecasting including income statements, balance sheets, and cash flow.[104] They also use a web-based reporting and analytics tool called Oracle Business Intelligence (Oracle BI) that allows users to access general ledger information and monitor actual spending versus budget on a monthly basis. For capital budgeting, both utilities use the Microsoft Portfolio Intelligence (PI 360) capital optimization application.

At CEI, five-year capital and O&M budgets are designed to be consistent with the direction and priorities set forth in the company's strategic long-range plans. Utility budgets also reflect the capital and O&M costs that are included in existing New York rate agreements.[105] The planning processes at CECONY and O&R are separate but coordinated. In early spring, O&R's President

[101] Moody's Investor Services, "Rating Action: Moody's downgrades ConEd to Baa1, CECONY to A3 and O&R to Baa1; outlooks stable," October 30, 2018.
[102] Interview #32 and response to Data Request #126. Revised O&R Standards of Competitive Conduct provided in response to Data Request #20.
[103] Interview #29.
[104] Oracle E-Business Suite (EBS) is the primary accounting system, which performs general ledger, project costing, accounts payable and receivable functions; Oracle Financial Management is used for consolidation and reporting.
[105] New York rate case agreements are based on forecasts so the relationship between rates and forecasts is more direct; New Jersey rates are based on a historical test year and may not line up well with O&M and capital budgets.

and Financial Services Director conduct joint discussions with their counterparts at CECONY in which the two utilities ultimately arrive at a consistent set of guidelines and assumptions— wage escalation rates and percentage productivity improvement for example—that will be used by both in the budgeting process. These general assumptions are incorporated into the financial planning and budgeting guidelines sent by the CECONY Business Finance department to all subsidiaries in early May.[106]

Throughout the year, O&R management and departmental personnel invest considerable time in monitoring actual performance against budgets. Each month, Financial Services assembles cost information from the general ledger, and O&R departments provide the group with monthly variance reports, opportunity and risk reports, and year-end projections; the financial group in turn prepares consolidated information packages for O&R departments and senior management that include updated current year forecasts. Financial Services prepares reports for the Corporate Governance Committee (CGC), which meets with O&R departments each month to discuss capital project spending. Financial Services also analyzes variances between actual and budgeted O&M and meets monthly with representatives from O&R's operating departments to review the results.[107] O&R's senior vice presidents generally meet with their departments each week to discuss O&M costs and potential impacts on the budget.[108]

Financial Services prepares detailed monthly briefing reports for the O&R Board that summarize financial earnings, expenses, and budget variances, and that provide updates on regulatory, customer, and operations matters. Before each Board meeting, the department also prepares a financial presentation that discusses major drivers of earning variations, updates on capital expenditures to date, return on equity, commercial paper and cash balances, and similar topics.[109]

O&M Budgeting

The O&R Financial Services group sends out a business plan document in May to kick off the financial and business planning process. The memo sets forth O&M budgeting guidelines and timetables, and schedules for meetings between O&R management and department personnel to review their recommended budgets. The document also includes pro forma five-year O&M budgets developed by Financial Services that are based on the prior year's budget. While each O&R department develops its own recommended budget, these pro forma budgets serve as a jumping off point for discussions with management in June and July.[110] Additional information about assumptions for the 2017-2022 planning cycle has been included in the Confidential Appendix.

In July or August, Financial Services enters its preliminary financial forecast into Hyperion Strategic Finance, and the Treasury organization assesses the debt and cash implications of the

[106] Interview #29. Five-year Business Plan (2017-2021) memorandum provided in the confidential response to Data Request #250.
[107] September 2017 reports provided in response to Data Requests #262 and #263.
[108] Interview #29.
[109] Board briefing report for September 2017 provided in response to Data Request #260. Financial Report to the Board of Directors, October 23, 2017, provided in response to Data Request #261.
[110] Interview #29.

five-year budget. The O&R Board reviews the five-year O&M budget in late October, and in early November approves the final budget for the following year.[111] A summary of actual and budgeted O&M costs is shown in the next table; a non-redacted version of the table is contained in the Confidential Appendix. O&R remained under budget every year of the audit period.[112]

Exhibit V-7
O&R Actual and Budgeted O&M Costs

	2014		2015		2016		2017	
$ Millions	**Actual**	**Budget**	**Actual**	**Budget**	**Actual**	**Budget**	**Actual**	**Budget**
Gas Operations & Engineering								
Electric Ops and Engineering								
Substation Ops/Control Centers								
Other Operations								
Support Ops (Finance/EH&S)								
Customer Service								
Public Affairs								
Facilities and Field Services								
IT								
Other Support Functions								
Total Departmental	**$130.7**	**$131.5**	**$131.6**	**$138.8**	**$144.2**	**$147.5**	**$149.4**	**$151.1**
Benefits and Corporate Items								
Amortizations/Reconciliations								
Total O&M Expense	**$320.0**	**$325.1**	**$317.4**	**$332.4**	**$301.8**	**$303.5**	**$318.7**	**$325.5**

The company includes as a corporate cost item in the O&M budget a "corporate contingency," which is typically used to offset unexpected costs such as incremental storm costs. In New Jersey, for example, the company can defer storm costs associated with restorations after major events; relevant costs are tracked and recovered separately and do not have an effect on O&M expenses or the income statement. However, if the company incurs emergency preparation costs but the storm event does not occur or does not meet automatic deferral criteria, the costs remain part of O&M expenses. Just such a situation occurred in March 2018, when O&R spent approximately $6 million preparing for a predicted third nor'easter that never materialized. Afterward, management was quite focused on determining how to reduce costs in other areas to make up for this unplanned expense.[113]

[111] Interview #29. The five-year forecast is typically only updated annually unless some major event occurs.
[112] Response to Data Requests #259 and #325. Benefits include health insurance, disability, and workers' compensation; corporate costs include shared services and similar charges.
[113] Interview #29. Company personnel stated that O&R secured 400 full time equivalents (FTEs) of outside assistance in advance of Winter Storm Toby based on the impact of the prior two storms on its system.

During our interviews, O&R personnel have acknowledged that the company is actually very good at such "belt-tightening." As we discuss elsewhere in this report, adherence to O&M budgets is a significant factor in company incentive compensation plans for executive and management employees. While Silverpoint has no issue with the company's O&M budgeting process, we are concerned with the extent to which budget concerns may interfere with appropriate and timely action. For example, as we discuss in Chapter XI, Silverpoint found that O&R failed to implement remediation efforts when customer service levels began to deteriorate as early as February 2018.

Capital Budgeting

The objective of the capital project portfolio selection process is to better align investments with corporate strategy in order to maximize the value per dollar spent given regulatory and financial constraints.[114] The capital budget cycle starts in March or April, when each O&R functional area such as engineering, customer service, and transportation enters its requested projects into the PI 360 capital optimization application. Project sponsors input information on each project that includes estimated cost and benefits, white papers (if available) and risk assessments, and also designate a project category—regulatory mandated, operationally required, strategic, or in-flight. Regulatory mandated projects can include new business or public improvement projects, whereas operationally required projects typically involve critical repairs, emergency response, or work to relieve capacity constraints. Strategic projects can include storm hardening, efficiency and process improvements, and system or component upgrades to improve service or reliability.

The key to the PI 360 capital optimization process is the assignment of strategic impact ratings to each project. Every two years, CECONY and O&R jointly agree on a set of corporate strategic drivers for capital investments and assign the same relative priorities to them to ensure consistency in the optimization process. Utility personnel rate their project in terms of whether it has an extreme, strong, moderate, low, or no impact on each of the strategic drivers; the company has defined impact statements for each driver that provide guidance in assigning these ratings. The nine corporate strategic drivers in the 2017 capital optimization process are listed in the next table; a non-redacted version of the table showing assigned weights is contained in the Confidential Appendix.[115]

[114] O&R Optimization Process presentation provided in response to Data Request #143.
[115] Response to Data Request #143.

Exhibit V-8
Capital Optimization Process Corporate Strategic Drivers

Strategic Driver	Assigned Weight
Improve customer experience	
Improve public and employee safety	
Provide reliable service	
Reduce and manage risk	
Reduce cost to customers	
Strengthen and develop employees	
Enhance external relationships	
Strengthen company processes	
Sustain environmental excellence	

After all project information has been entered in PI 360, there is a two day vetting process in which O&R section managers and subject matter experts challenge the categorization of individual projects (e.g., critical versus strategic) and their strategic impact ratings. In May the finance team uses PI 360 to generate a preliminary list of requested capital projects that have been prioritized based on the relative weight of strategic drivers.

Determining which of these projects are ultimately included in the final proposed budget is an iterative process that continues over the summer. Members of the CGC and their direct reports hold detailed discussions with departmental personnel as needed to continue the vetting process. Certain projects such as AMI may be included in the final budget regardless of optimization results because they have already been agreed to by regulators. In a similar vein, New York rates include a two-year-ahead capital forecast, and specific projects may be scheduled earlier rather than later in the final project portfolio.[116] Throughout this process, the financial group generates alternative budget scenarios based on specified financial or business constraints.

O&R's President reviews the capital budget in September and the five-year capital forecast is presented to the O&R Board in October; the annual budget is then approved by the O&R Board in November. The O&R budget is reported to the CEI Board for consolidation purposes, but no formal approval is required—O&R's capital budget is based on its own capital structure (i.e., debt/equity ratio), and there is no competition for capital among CEI affiliates.[117] A summary of the O&R total budget and actual capital expenditures during the audit period is shown in the next table; a non-redacted version is included in the Confidential Appendix.[118]

[116] By way of contrast, in New Jersey rates are based on historical costs and so the company pursues separate riders for significant capital programs such as AMI and storm hardening.
[117] Interview #10.
[118] Confidential response to Data Request #145.

Exhibit V-9
O&R Actual and Budgeted Capital Expenditures

$ Millions	2014		2015		2016		2017	
	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget
Control Center & Substations								
Transmission & Substation Engr.								
Distribution Eng. & Project Mgmt.								
Gas Operations & Engineering								
Electric Operations								
Smart Grid								
Subtotal - Operations	**$129.0**	**$128.6**	**$139.8**	**$138.4**	**$133.5**	**$147.5**	**$142.9**	**$146.4**
IT								
Facilities and Transportation								
Customer Service								
AMI								
Miscellaneous								
Subtotal - Other	**$19.1**	**$18.8**	**$27.3**	**$26.6**	**$37.5**	**$43.1**	**$54.6**	**$49.2**
Total	**$148.1**	**147.5**	**$167.1**	**$165.0**	**$171.0**	**$190.6**	**$197.4**	**$195.6**

Except for 2016, O&R's actual capital spending aligned well with the budget; approximately half of the shortfall in 2016 spending was due to delays in AMI implementation. Silverpoint discusses the capital project selection in more detail in connection with distribution system planning in Chapter X.

E. Post-Employment Benefits

The Pension Management group within Treasury is responsible for managing the investment of funds set aside to provide benefits to eligible retirees under CEI's various retirement plans. The company offers retiree medical programs to employees, with different cost-sharing formulas depending on age and whether the employee was management or union when retiring.[119] CEI has seven separate trusts that were established in accordance with Internal Revenue Service (IRS) and Employee Retirement Income Security Act of 1974 (ERISA) requirements—one pension trust and six Voluntary Employees Beneficiary Association (VEBA) trusts. The pension trust covers both O&R and CECONY retirees—although each utility has a separate pension plan, the assets are combined and managed together. A portion of the pension trust is designated for CECONY retiree medical benefits. The six VEBA trusts fund other post-employment benefit obligations (OPEB) of O&R and CECONY.[120]

[119] Retiree medical program information provided in response to Data Request #158.
[120] Interview #32. Three CECONY VEBA trusts hold all assets under weekly health, management life, and long-term disability plans. One O&R VEBA trust holds assets for retired hourly employee insurance; the other two are for O&R management health and life insurance plans.

The company's actuary firm, Conduent (formerly Buck Consultants), performs studies to determine liabilities related to its pension and OPEB liabilities and expenses. Company practice is to contribute an amount to the funds equal to the actuarial expense to the extent the amount is tax deductible. Although trust funds are commingled, benefit liabilities and expenses, contributions into the trusts, and benefits paid from the trusts are accounted for by individual company. In a similar vein, all gains and losses from trust investments are allocated to companies on a pro rata basis.[121]

CEI has rather substantial underfunded pension and OPEB liabilities, as shown on the next table.[122] There has been significant improvement in funded status over the 2015-2017 timeframe due to the recent closing of the pension plan to new participants and the positive effects that increasing discount rates and asset returns had on both the pension obligations and funds.[123]

Exhibit V-10
CEI Pension and OPEB – Funding Status

$ Millions	**2017**	**2016**	**2015**
Pension			
Year-end Projected Benefit Obligation	$15,536	$14,095	$14,377
Year-end Fair Value of Plan Assets	14,274	12,472	11,759
Funded Status	$(1,262)	$(1,623)	$(2,618)
OPEB			
Year-end Projected Benefit Obligation	$1,219	1,198	1,287
Year-end Fair Value of Plan Assets	1,039	975	994
Funded Status	$(180)	$(223)	$(293)

Approximately 94 percent of CEI's 2017 year-end pension benefit obligation is associated with CECONY retirees, as is approximately 81 percent of the OPEB obligation.

Pension and OPEB plan assets are managed according to specific policy statements that describe investment objectives and strategic asset allocations (i.e., investment types and percentages), and that outline the roles and responsibilities of the CECONY Board of Trustees, the Board's MD&C Committee, the Named Fiduciary Committee (NFC), and the Treasury department.[124] The CECONY Board determines the investment policy for the trust funds but has delegated general oversight responsibility to the MD&C Committee. The MD&C Committee receives a report three times a year from the NFC and Treasury regarding trust fund performance and fees, investment policy changes, and developing issues. The MD&C Committee in turn reviews and makes recommendations to the CECONY Board regarding administration of the benefit plans,

[121] Interview #32.
[122] CEI 10-K Reports.
[123] Interview #32. CEI has moved away from away from traditional pension programs, and as of January 1, 2017, new management hires are placed in an enhanced 401K plan rather than the legacy pension plans.
[124] Investment Policy Statements provided in response to Data Request #322.

performance of the trust funds, actuarial reports, funding policy, contributions to the plan, and investment policy.

The NFC holds the primary governance role over the retirement trust funds.[125] The NFC meets monthly and exercises authority over administration of plan assets according to ERISA requirements. They select, implement, and monitor strategic asset allocations, and appoint, monitor, and terminate investment managers. Managers are chosen for their particular style and approach to investing, and each receives specific investing guidelines. The Pension Management group functions as an extension of the NFC by implementing the day-to-day activities required to carry out its decisions, such as moving money in and out of the trusts for contributions and retiree benefit payments, changing investment managers, and monitoring investment performance and fund fees.

The company uses studies that analyze an extensive number of scenarios that vary economic data (e.g., GDP, interest rates, and unemployment) and financial variables (e.g., risk premiums and bond spreads) to identify portfolios that offer the highest expected return for a defined level of risk. CEI commissions these asset-liability studies every few years and has been doing so for two decades. The last studies for the pension trust and the VEBA trusts were done in 2016 and 2017, respectively, by AON Consulting. The current strategic asset allocations for trusts as of May 31, 2018 are summarized in the next table; a non-redacted version of the table is included in the Confidential Appendix.[126]

Exhibit V-11
Pension and OPEB Trusts - Current Asset Allocations

	Asset Class	Weight
Pension Trust	Equity (public and private)	58.2%
	Debt:	
	Long investment grade	
	Core intermediate	
	High yield	
	Emerging market	
	Total	33%
	Real estate	8.6%
VEBA Trusts	Global equity	50%
	Fixed income	50%

The company's current emphasis is on maximizing returns and minimizing expense and contribution volatility rather than supporting the funded status, which would require more

[125] Permanent members of the NFC include the Vice President of Human Resources, the CFO, and the Vice President and Controller. Two other members are selected from CECONY or O&R and these two roles are rotated. Fiduciary training is given to new members and others when changes occur. The New York audit recommended replacing the CFO and Controller with other executives; the company rejected the recommendation after benchmarking best practices at other corporations.
[126] Interview #32 and response to Data Request #323.

closely matching assets and liabilities. A close match ensures that assets are available as liabilities become due. The company expects to better match assets and liabilities for the pension fund once the plan is fully funded.[127]

F. Taxes

The thirty-five member Tax department is part of the CECONY Finance organization, and handles income tax accounting and filing, tax compliance, tax planning, and tax controversy services (e.g., challenges to state/city tax exposure). The Tax department supports all businesses except CEB, which has its own tax professionals who are nonetheless functionally managed by the department through a dotted line reporting relationship. One Tax department employee focuses on O&R and RECO property taxes and is stationed in Pearl River.

Tax Allocation Agreement

Tax sharing arrangements, in which the parent company interacts with tax authorities on behalf of a group of subsidiaries, are common among utility holding companies. These agreements set forth when federal and state tax liabilities and credits will be allocated among participants, and how cash will be settled throughout the year. At CEI, all subsidiaries including RECO are member parties to the Consolidated Edison, Inc. and Subsidiaries Tax Allocation Agreement (Tax Allocation Agreement) dated August 29, 2016.[128] The Tax Allocation Agreement replaced equivalent agreements that CEI had with each company individually; language in the new consolidated agreement makes clearer the treatment of losses, but the underlying principles remained the same.

Under the Tax Allocation Agreement, CEI calculates current federal tax liabilities for each subsidiary on a stand-alone basis, and each member pays taxes to the parent company. CEI's consolidated tax liability is allocated among all participants in the same percentage of total tax as if computed on a stand-alone basis. Any member with tax losses that are used in the consolidation is reimbursed for its tax benefit, but only to the extent that the loss is used in the consolidated return. Losses are carried forward and paid in the future when used. The agreement works in a similar fashion for state taxes. RECO, however, pays its New Jersey taxes directly to the state, as there are no other entities with which to consolidate. RECO pays no taxes to New York—although New York requires a consolidated income tax filing and RECO contributes to CEI's taxable income, none of the taxes are allocated back to it.

During the audit period, RECO had no operating losses, and its taxes under the Tax Allocation Agreement were the same as if it were a stand-alone utility. RECO's federal tax rate was 35 percent, which was the same for all subsidiaries.[129]

[127] Interview #32.
[128] Tax Allocation Agreement provided in the confidential response to Data Request #13.
[129] Interview #51.

Other Tax Matters

The Tax Cuts and Jobs Act signed on December 22, 2017 reduced the federal corporate tax rate to 21 percent effective January 1, 2018. While these tax reform changes are outside the audit period, RECO did have to record, on its 2017 financial statements, the impact of the TCJA on its deferred taxes. The BPU has since ruled on how the utility should handle the transition and recovery of these benefits by ratepayers.

There has been no effect on RECO of any unresolved uncertain federal tax positions reported by CEI in its financial statements during the audit period. RECO does have a New Jersey uncertain tax position related to the Transitional Energy Facility Assessment (TEFA), a temporary tax enacted and codified in 1997 to bolster tax revenue following the change from taxing gross receipts to taxing income. The TEFA temporary tax was removed in 2013. Soon thereafter, RECO filed amended Corporate Business Tax returns for the period January 1, 2008 through December 31, 2011 with the State of New Jersey, alleging that the company paid higher taxes when it mistakenly added back the TEFA to taxable income. In the amended returns, RECO removed the TEFA from taxable income. After receiving letters from the Director of the New Jersey Division of Taxation denying the amended returns, RECO subsequently filed a claim with the Tax Court of New Jersey (Tax Court) requesting a refund of $2.3 million for open tax years 2008-2011. That claim was denied by the Tax Court on April 30, 2108.[130] The matter is under appeal, and the company expects a resolution in 2019 in the New Jersey appellate court.[131]

G. Conclusions

1. O&R's capital spending increased during the audit period and was not appreciably affected by significant corporate acquisition activities.

O&R's annual capital expenditures increased from $148 million in 2014 to $197 million in 2017, during the same time period that parent CEI invested over $4 billion in its non-regulated businesses. CEI's financing requirements for the new CET and CEB investments during that period did not impact O&R's credit ratings or cash flow, and there was no cross collateralization of new debt by the utilities.

2. RECO will likely be protected by stricter ring-fencing measures if CEI makes further significant investments in its non-regulated businesses.

In recent O&R and CECONY rate cases, New York regulators approved settlement agreements that included incremental ring-fencing conditions. More specifically, if the parent company's non-regulated assets, debt, and/or cash flows exceed certain threshold levels, the utilities would be required to submit either a plan for incremental ring-fencing or a filing explaining why such protections were not needed. The recent $1.5 billion acquisition of Sempra Solar Holdings did not cause CEI to exceed the predefined financial limits, but was nonetheless a contributing factor

[130] Rockland Electric Company v. Director, Division of Taxation, Tax Court of New Jersey, Docket No. 008111-2016, decided April 30, 2018.
[131] Interview #51.

in a recent downgrade to its senior debt ratings. Given CEI's credit downgrade and the recent rate case orders, we believe New York regulators will impose substantial ring-fencing conditions on both utilities if CEI exceeds these threshold levels. Any such financial protections would logically extend to RECO.

3. CEI's management of affiliate long-term financing needs has been appropriate.

The Treasury department has sound practices in place for assessing long-term financing requirements, and annual cash forecasting for O&R and RECO is performed separately from CECONY, CEI, or the non-regulated affiliates. The company's use of private placements for O&R debt is reasonable and cost effective given the relatively small size of its requirements. Cross collateralization or guarantees among affiliates is prohibited under agreements with regulators, although the company should confirm with Staff that all CEI debt obligations are consistent with these requirements. Debt associated with CEB and CET is non-recourse to the utilities, and these affiliates do not benefit from RECO net income as the utility pays no dividends.

4. CEI has effective cash management practices and short-term borrowing programs, and current dividend guidelines are reasonable.

Cash management processes make good use of current technology and fraud protection. All affiliates have separate bank accounts and there is no commingling of cash, although all affiliates benefit from lower bank fees due to consolidating banking relationships. CEI has flexible credit facilities in place, and O&R has its own commercial paper program independent of non-regulated affiliates. CEI has no formal dividend policy, although post-merger provisions limit O&R yearly dividends to 100 percent of net income. O&R currently pays approximately 70 percent of its net income to the parent subject to maintaining its capital structure.

5. O&R has a sound capital and O&M budgeting process.

The capital and O&M budgeting processes are well-organized and effective, and incorporate a balanced top down/bottom up approach. Financial Services personnel are highly capable and utilize appropriate financial budgeting and modeling tools. All budgeting is nominally zero-based, although O&M budgets are clearly influenced by prior year results as well as existing rate agreements with New York regulators. Capital projects are selected so as to maximize benefits to the utility and its stakeholders and are consistent with the company's strategic priorities. O&R's capital expenditure budgets are set internally and do not depend on CEI Board approval.

6. O&R proactively monitors actual O&M and capital expenditures against budget and has a strong culture of cost containment.

Senior management has made conformance to yearly O&M and capital budgets a clear priority. Employees at all levels are very attuned to budget concerns, and management meets with department personnel as often as weekly to discuss the status of capital projects and O&M spending. The monthly Corporate Governance Committee review process allows for prompt decision-making about necessary course corrections. The corporate predilection for belt-tightening, however, could unduly delay actions that are otherwise necessary.

7. CEI has an adequate program for managing the investment of retiree pension and benefit trust funds.

The Treasury department manages O&R and CECONY pension and OPEB plan assets according to formal guidelines that are subject to Board-level review. Investment strategies for trust fund assets are based on extensive actuarial-based studies. The CECONY and O&R combined pension trust is underfunded by $1.3 billion, and OPEB-related trusts are underfunded by nearly $200 million. Current asset allocations are, however, designed to maximize returns to improve the funded status.

8. The tax methodology applied to RECO through the Tax Allocation Agreement and predecessor agreement is reasonable and has not affected the utility's state or federal tax liability.

RECO's allocated share of CEI consolidated federal income taxes and tax rate of 35 percent of book income during the audit period were the same as they would be if it were a stand-alone utility. RECO's state tax liability is similarly not adversely affected by the Tax Allocation Agreement.

H. Recommendations

V-1 Identify and evaluate opportunities to utilize excess capacity at the O&R payment processing center.

The number of utility customers making payments by check continues to decline, and the processing center has considerable excess capacity. It is unlikely the CECONY, O&R, and RECO will be able to totally eliminate this function in the near future, and as such the company should investigate the possibility of performing payment processing for similar companies (e.g., municipal utilities).

VI. Human Resources

A. Background

In 2014, CECONY separated its human resources organization into two distinct groups—Human Resources, and Learning and Inclusion—in part to better serve the needs of an increasingly younger and more diverse workforce. The Human Resources organization now manages more transactional aspects such as compensation and benefits, while Learning and Inclusion focuses on areas such as recruitment, diversity and inclusion, and training. Both groups are part of CECONY Corporate Shared Services.

There are five departments in the Human Resources organization, each of which reports to the group's Vice President.[132] Three of these groups—Compensation, Employee Benefits, and Human Resources Support—provide shared services to CEI affiliates including O&R. O&R does not take services from the other two—CECONY Employee and Labor Relations and the Employee Wellness Center—as O&R has its own personnel to perform these functions. The Employee Benefits department is responsible for administering benefit plans including health care, group life insurance, disability, 401(k) plans, and pensions for management and union employees as well as retirees, and is also responsible for assuring appropriate cost controls. The Compensation department responsibilities include administration of salary and incentive programs. Human Resources Support group functions include communications, payroll support, employee services, and reporting.[133]

The Learning and Inclusion organization consists of four departments that each report to the group's Vice President: Talent Management, Diversity and Inclusion, The Learning Center, and Workforce Planning and Special Projects. Learning and Inclusion provides organizational development, technical training, Equal Employment Opportunity (EEO), diversity and inclusion, and data analytics support to CEI affiliates including O&R. The Talent Management department develops and implements activities related to recruitment, organizational development, performance management, and employee programs. Diversity and Inclusion works to foster ongoing culture change and oversees the company's EEO and affirmative action compliance. The Workforce Planning and Special Projects group supports budgeting and rate cases and provides analytics that facilitate management decision-making.

The Learning Center (TLC), based in Long Island City, administers instructor-led and eLearning training and employee testing. TLC partners with utility operating groups to develop appropriate and necessary training. The company has as an objective reducing classroom time through the use of hands-on training with new methods (e.g., video and virtual reality), and it is currently considering a new digital learning system to assist with field training.[134]

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[132] The company's Deputy Ombudsman has a dotted line reporting relationship to the Vice President of Human Resources, and a solid line reporting relationship to the Chairman of the Board, as does the External Ombudsman.

[133] Interview #15 and response to Data Request #153. At the time of the audit, the Human Resources group had a total of 139 employees, four of which were stationed at O&R.

[134] Interview #15 and response to Data Request #162. At the time of the audit, Learning and Inclusion had a total of 211 employees, which included approximately 70 in the company's GOLD internship program.

CECONY and O&R converted their work force administration, benefits, time and labor, and payroll systems to PeopleSoft Human Capital Management (HCM) in 2009; more functionality has been added over time, such as the HR help desk, which facilitates the handling of employee requests and serves as a knowledge base for common questions. In 2018, the company implemented the recruitment module in PeopleSoft HCM. The company has dozens of human resource-related policies, procedures, and guidance memos in place covering topics such as overtime, disability benefits, drug and alcohol testing, and job postings; over time, nearly all O&R policies and procedures were combined with those of CECONY, with only a few differences remaining.[135]

O&R Human Resources, Training, and Labor Relations

O&R has its own Human Resources Support and Training groups whose personnel are managed by the corresponding CECONY department.[136] The responsibilities of the O&R Human Resources Support group include the following:

- Managing worker's compensation, disability insurance, and the sick time program
- Administering the company's collective bargaining agreement
- Managing union and management employee recruitment efforts
- Implementing affirmative action policies and strategies set by CECONY Diversity and Inclusion, and tracking compliance with state affirmative action requirements
- Managing all health and wellness matters for the utility's employees.[137]

O&R employees generally do not attend on-site training at the CECONY TLC due to its location, but do take part in eLearning programs. An O&R Training group composed of a section manager and eleven subject matter experts facilitate and manage the customer service, operations, EH&S, and emergency response training and testing needs of O&R employees.[138]

O&R has its own Labor Relations group and its Director reports to the utility's President. O&R's union, International Brotherhood of Electrical Workers (IBEW) Local Union 503, represents approximately 600 employees. Although there is no formal labor management committee at O&R, the Director of Labor Relations meets monthly with the union President to maintain a strong relationship. The group works to understand the union's interests and tries to match them to the company's need for productivity, efficiency, and cost containment.[139] Information about O&R's union grievance history during the audit period has been included in the Confidential Appendix.

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[135] Interview #15 and response to Data Request #130.
[136] O&M costs for these two groups are approximately $2.5 million per year.
[137] O&R does not maintain an on-site clinic and has outsourced its wellness and lab testing.
[138] First line supervisors are typically involved in training union employees, and trainers for electrical operations personnel are union members.
[139] Interview #15. The O&M cost for the Labor Relations group is approximately $0.3 million per year.

B. Compensation and Benefits

Compensation

All management employees, including executives, have three components of compensation—base salary, annual variable incentive pay, and long-term incentive compensation in the form of stock. The CECONY Compensation department is responsible for developing and administering the salary plan for CEI's approximately 5,500 management employees.[140] The plan is structured around four broad salary bands, each of which is broken into a high and low category, for a total of eight salary groups. Band 4 includes employees at the general manager and director level, Band 3 includes department and section managers; Band 2 includes mid-level managers and some analysts, and Band 1 includes supervisors of union employees. Most salaried employees are in the 1 High, 2 Low, and 2 High categories. The top fifty or so corporate executives are not included in the banding and are generally paid above Band 4 levels.[141] Administrative support personnel salaries lie below the Band 1 level.

Salary minimum and maximum levels are reviewed and updated annually. During the audit period, the company increased the overall management salary structure by two percent per year based on its own informal market reviews. The company also makes structural changes to the salary bands as needed. These structural changes, when applied to the high end of the bands, allow increases for employees with more years of service who might otherwise be at the maximum of their band. The CECONY Compensation group participates in salary surveys and benchmarking for management salaries, but only uses this data for new hires. There is no separate process for assuring current employees are not overpaid other than the broad compensation and benefit benchmarking studies that are traditionally included with rate case testimony.[142] Annual employee base salary increases have averaged three percent in recent years. The company sets the size of the merit pool based on informal market reviews, and managers distribute pool dollars based on employee performance, rather than applying the same percentage increase across the board.

The philosophy behind CEI's incentive compensation program is to reward employees for their contribution to the overall performance of the company. Under O&R's short-term variable pay program—the Annual Team Incentive Plan (ATIP)—employees earn an annual cash incentive in addition to their base salary if certain predetermined company goals are attained. The ATIP is similar to CECONY's Management Variable Pay (MVP) program in that both define the employee's targeted annual incentive in terms of a percentage of base salary. Percentage of salary target levels for non-executive salary groups 1 Low through 4 High and for administrative support personnel are summarized in the next table; targets for executives, which are discussed in Chapter III, are shown for comparison purposes.[143]

[140] Compensation also administers executive and outside director compensation, which are discussed in Chapter III.
[141] Interview #15. Union employee compensation and benefits are dictated by contract terms and not discussed here.
[142] Interview #15 and response to Data Request #165.
[143] Response to Data Request #166. At O&R, the Board is responsible for approving the variable compensation targets and ATIP payments at the close of the plan year.

Exhibit VI-1
Annual Incentive Plan Percentage of Salary Targets

	Percentage of Salary	
Band/Category	**2014 and 2015**	**2016 and 2017**
Administrative support	4.5	5.0
1 Low/1 High	5.0	6.0
2 Low	6.0	7.0
2 High	7.5	9.0
3 Low/3 High	12.0	15.0
4 Low	17.0	21.0
4 High	21.0	25.0
Vice President	35.0	40.0
President	80.0	80.0

The company increased the targeted level of annual incentives for all non-executive management employees in 2016; these percentages remain significantly lower than those used for executives, which is common practice. Actual payout under the ATIP and MVP plans varies from 0-120 percent of the percentage of salary target. For example, an employee in Band 3 would receive only his or her base salary if the ATIP payout is zero (an extremely unlikely occurrence); alternatively, at the maximum ATIP payout, the employee would likely receive variable pay equal to 18 percent of his or her base salary (i.e., 120 percent of 15 percent).

At both CECONY and O&R, 60 percent of an employee's annual incentive plan payout is based on corporate performance; the remaining 40 percent is based on individual performance and therefore relies on manager discretion.[144] The relative weight of the performance components of O&R's ATIP program are shown in the next table.[145]

Exhibit VI-2
O&R ATIP Performance Components

	2014, 2015 and 2016	2017
Earnings	25%	20%
O&M Budget	25%	25%
Corporate KPIs	50%	50%
Capital Projects		5%

In 2017, 50 percent of the ATIP payout was based on twenty corporate key performance indicators (KPIs) in four categories—employee and public safety, environment and sustainability, operational excellence, and customer experience—that tied to corporate priorities

[144] CECONY also incorporates departmental-level performance, which is impractical for O&R given its size.
[145] Interview #15 and response to Data Request #167.

and were equally weighted.[146] The payout for the corporate KPI component is based on the number of individual targets that are achieved, although the payout is zero if too few of the KPI targets (e.g., fewer than 12 of the 20) are attained.[147] The O&M and earnings targets for each year of the audit period are summarized on the following table.[148]

Exhibit VI-3
ATIP Earnings and O&M Targeted and Actual Performance

($ Millions)	2014	2015	2016	2017
Earnings Target	$59.0	$61.0	$60.0	$61.8
Actual Earnings	$60.1	$55.2	$59.2	$63.9
O&M Target	$189.5	$194.3	$205.1	$207.3
Actual ATIP O&M Spending	$187.7	$182.4	197.2	$201.1

The structure of the ATIP is such that underspending the O&M budget increases the percentage payout up to a maximum of 30 percent (i.e., 120 percent of 25 percent). Actual ATIP payouts during the audit period are summarized in the next table— payouts in all years except 2015 were greater than 100 percent.[149]

Exhibit VI-4
O&R Year-end Actual ATIP Payout

	Year-end Actual Payout	Payout by Component			
		O&M	Earnings	KPIs	Capital
2014	109.8%	28.8%	26.0%	55%	-
2015	95.5%	30%	15.5%	50%	-
2016	113.7%	30%	23.7%	60%	-
2017	112.3%	30%	21.3%	55%	6%

In the recent New York management audit, O&R's ATIP was reviewed as part of a broader examination of the utility's performance management process, including the use of KPIs. The auditor's criticisms were not directed at the design of the ATIP but rather the KPIs and targets chosen, the implication being that the payouts were too easy to achieve. We discuss this issue in more detail later in this chapter.

CEI management employees also participate in a stock-based long term incentive plan. Each year, the company sets aside 100,000 restricted stock units with a three-year vesting period. Vice presidents are each given an allocation of shares and choose which of their employees should

[146] Corporate level KPIs for O&R and CECONY are not identical but are very similar.
[147] Supplemental response to Data Request #167. In 2014, the payout for the corporate KPI component would be zero if fewer than seven of twelve KPIs were attained; in 2015 and 2016, the minimum was eight of thirteen.
[148] Supplemental response to Data Request #167.
[149] Response to Data Request #167. In 2014, for example, underspending the O&M budget by 1.25 percent would yield a 120 percent payout on that component.

receive the restricted stock units. Generally, three-quarters of the shares are awarded to employees in Bands 3 and 4, with the rest in Bands 1 and 2.[150]

Employee Benefits

In 2012 and 2013, the company evaluated its long-term employee benefit strategy for management and non-union employees with the assistance of AON Hewitt. O&R's management benefit programs were subsequently aligned with those of CECONY, and certain adjustments were made to help contain costs. For example, sick benefits at the company were historically generous plans tied to years of service, but sick pay is now capped at six months after which point long-term disability plans begin.[151] The company also developed wellness incentives for employees participating in annual screenings and health risk assessments.[152] The company has continued to take steps to contain the steeply rising trend in health benefit costs. Active employees currently pay roughly one-quarter of health care premium costs, and they have choices as to which health care plan to enroll in, including two high deductible plans; all plans cover 100 percent of the cost of preventative care.[153]

CEI has also made a series of changes to its retirement programs over the past decade to make them more cost-effective. O&R's defined benefit pension plans have been closed to new hires and the utility now offers a defined contribution plan as part of the thrift savings plan. Effective dates of O&R's three existing pension plans are shown in the next table.[154]

Exhibit VI-5
O&R Pension Plans

Pension Plan	Employment Start Date	
	Bargaining Unit	Management
Career Average Defined Benefit	Prior to 1/1/10	Prior to 1/1/01
Cash Balance Defined Benefit	1/1/10 to 5/31/14	1/1/01 to 12/31/16
Defined Contribution	On or after 6/1/14	On or after 1/1/17

Union and management employees currently in the cash balance pension plan have the option to transfer to the defined contribution plan. The 401(k) program administrator, Vanguard, offers fund choices to match the aggressiveness of an employee's investment portfolio.[155]

In a recent EEI financial presentation, CEI included information about the cost of CECONY health care and other employee benefits; that information, along with Silverpoint's calculation of yearly percentage increases, is summarized in the next table.[156]

[150] Interview #15.
[151] Changes to sick time rules were also part of 2014 union negotiations.
[152] Interview #15 and responses to Data Requests #153 and #206.
[153] Interview #15.
[154] Response to Data Request #155.
[155] Interview #15. During the audit period, the company passed its 401(k) non-discrimination tests to prove the plan meets IRS standards and does not discriminate in favor of employees with higher incomes.
[156] Con Edison, Inc., EEI Financial Conference, November 11-13, 2018.

Exhibit VI-6
CECONY Health Care and Other Employee Benefit Costs

	$ Million	Calculated % Increase
2013	$133	-
2014	149	12.0%
2015	159	6.7%
2016	160	0.7%
2017	170	6.3%
2018 est.	182	7.1%

Based on this information, the compound average growth rate in CECONY (and ostensibly O&R) health care and employee benefit costs in this period appears to be approximately six percent. By way of comparison, PwC's Health Research Institute, which projects the growth of medical costs in the employer insurance market, indicates that growth in medical costs trended between 5.5 and 7 percent per year during the same period.

Compensation and Benefits Benchmarking

In New York rate cases, utilities are required to demonstrate the overall competitiveness and reasonableness of their total compensation and benefits package by presenting a comparison with a peer group of companies that include both utilities and non-utilities. In order to obtain recovery of variable pay, a utility must also demonstrate that overall compensation including the variable pay component is reasonable relative to similarly situated companies. In its 2018 New York electric rate case filing, O&R presented benefit and compensation analysis performed by AON. The comparison group for these studies consisted of a blended peer group of 25 utility and 25 New York Metropolitan area general industry companies. The results of AON's cost comparison of O&R's employee benefits with those of the peer group are summarized in the following table.[157]

Exhibit VI-7
O&R 2017 Benefit Comparison

	O&R Benefits vs Blended Peer Group
All benefits	106.4
All post-retirement benefits	136.9
All pre-retirement welfare benefits	95.8
Vacation and holidays	97.1

- Post-retirement includes pensions and thrift savings; retiree health plans; and life insurance
- Pre-retirement includes active health plans, dental and vision; sick, short- and long-term disability; and paid vacations and holidays

[157] Response to Data Request #160 and New York State Department of Public Service, Case No. 18-G-0068, Electric Rate Filing - Exhibits Volume 2, filed January 26, 2018, Exhibit C/BP-2. AON utilized its proprietary Benefit Index tool for the analysis.

AON concluded that the value of O&R's benefit package was "market competitive," or within +/- 10 percent of the average cost of the peer group (i.e., 106.4 versus 100). When considered separately, however, O&R's retiree benefits are significantly more costly than the peer group. AON also compared the combined compensation and benefit value for non-officer management positions at O&R to equivalent positions at other peer group companies, finding them also to be market competitive. They found that the value of O&R's total benefit and compensation package was approximately 5 percent below the blended peer group median and 3 percent below the group average. A summary of AON's findings are shown in the following table; the figures represent the average of all positions that were examined.[158]

Exhibit VI-8
O&R 2017 Salary and Benefit Comparison

($ Thousands)	**O&R**	**50th Percentile**	**O&R vs Median**	**Average**	**O&R vs Average**
Base salary	$ 117.1	$ 123.5	94.8%	$ 120.0	97.6%
Target total cash compensation	$ 127.1	$ 138.4	91.9%	$ 134.8	94.3%
Total direct compensation	$ 127.9	$ 140.9	90.8%	$ 137.7	92.9%
Total benefit value	$ 39.2	$ 35.1	111.5%	$ 34.6	113.1%
Total benefits and compensation	$ 167.1	$176.0	94.9%	$ 172.3	97.0%

In this analysis, O&R's target total cash compensation represents base salary and the value of the ATIP at target values (i.e., 100 percent payout); total direct compensation includes the estimated value of the long-term incentive stock program. It should be noted that O&R employees actually received higher than target values in three of the four years of the audit period; adjusting for actual ATIP proceeds, O&R would likely be at or above the peer group average. As required, AON also assessed the reasonableness of O&R's variable pay component by comparing target awards under the ATIP to the incentive compensation rates in the blended peer group, as summarized in the following table.[159]

Exhibit VI-9
AON Annual Variable Performance-based Pay Comparison

Band/Category	**O&R Short-term Variable Pay**	**Blended Peer Group Median**
1 Low	6.0%	9.0%
1 High	6.0%	10.0%
2 Low	7.0%	12.0%
2 High	9.0%	12.0%
3 Low	15.0%	15.0%
3 High	15.0%	20.0%
4 Low	21.0%	20.0%
4 High	25.0%	30.0%

[158] New York State Department of Public Service, Case No. 18-G-0068, Electric Rate Filing - Exhibits Volume 2, filed January 26, 2018, Exhibit C/BP-5.
[159] New York State Department of Public Service, Case No. 18-G-0068, Electric Rate Filing - Exhibits Volume 2, filed January 26, 2018, Exhibit C/BP-6.

AON concluded that O&R's annual ATIP award opportunities lag the market for most employee salary band levels. This finding could be offset to some degree by the fact that meeting or exceeding ATIP targets at O&R may be easier than the norm.

C. Talent Management

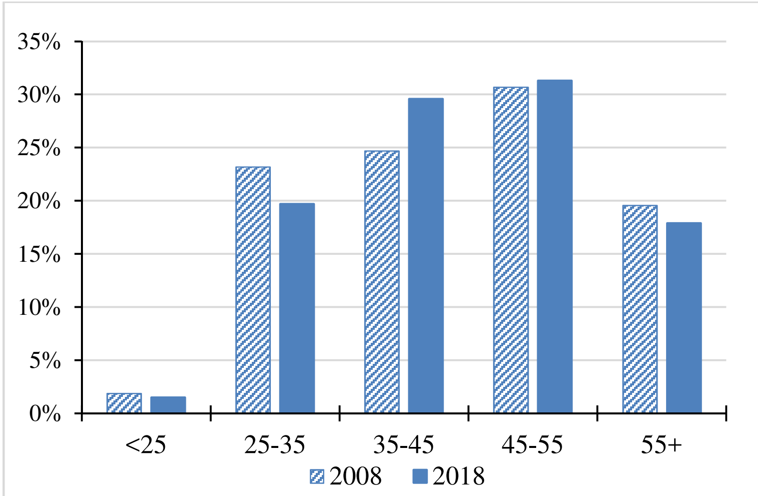
Talent management is the ongoing process of attracting, developing, and retaining employees. To be effective, activities such as recruitment, succession planning, and career development must be well aligned with a company's strategic plan and its overall business needs. At CEI, the primary objectives of the Talent Management department are consistent with that approach:[160]

- Recruitment – delivering strategic sourcing solutions to attract and retain a diversely talented workforce, and creating strategic partnerships to develop a talent pipeline to meet current and future business needs
- Organizational Development – providing a broad range of solutions to organizations to promote effectiveness including leadership development, conflict resolution, change management, career development, mentoring, and team building
- Performance Management – developing processes, systems, and techniques for employee appraisals that promote individual and organizational effectiveness
- Employee Programs and Services – providing technical and leadership development through career transition programs and educational services.

From the early- to mid-2000s, CEI was hiring new employees at a rate of 1,000 to 1,100 per year to begin replacing its retirees. Hiring levels slowed for several years thereafter, but started to increase again in 2013 and CEI is now hiring between 800 and 1,100 employees per year. In all, roughly 50 percent of CEI's employees have turned over in the last six to seven years. The age distribution of O&R employees now versus ten years ago is illustrated in the next graph.[161]

[160] Interview #15 and response to Data Request #154.
[161] Response to Data Request #178.

Exhibit VI-10
O&R Workforce by Age



CECONY's workforce is somewhat younger, with approximately 25 percent of its employees in the 45-55 age category compared to O&R's 31 percent.

In the view of Talent Management personnel, the company has already addressed much of the "graying workforce" problem facing the utility industry. The company's recruitment efforts are currently focused on diversity efforts that include the hiring of veterans, and so dovetail with the relationship building work being done by the Diversity and Inclusion group.[162] During our interview, Talent Management personnel indicated that the company has little difficulty attracting talented resources, and that there are no labor shortages per se.[163] While we expect that this is true generally for utilities in the New York Metropolitan area, the company's IT group has noted that the market for cybersecurity resources in particular is very constrained, and the company has had difficulty filling open positions.[164]

An important component of the company's recruitment efforts is the Growth Opportunities for Leadership Development (GOLD) internship program, which typically has 70 employees in the program at any one time. The program has been in place for twenty-five years, and hires 30 to 35 college graduates a year with backgrounds in science, technology, engineering and math (STEM) and business. During the 18-month program, associates complete three six-month assignments in diverse areas of the corporation (including potentially O&R), with one of the assignments in a frontline supervisory role. The program is overseen by eight GOLD Committee members who are typically at the section manager level. All GOLD interns have mentors and most find jobs within CEI through postings particularly targeted to them.[165]

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[162] Recruiting sources for O&R include the Society of Hispanic Engineers, Society of Women Engineers, Hiring Our Heroes job fairs, and the Fort Drum Skill Boot Camps.
[163] Interview #15.
[164] Interview #43.
[165] Interview #15.

The Talent Management group directs the company's annual succession planning process. In the first quarter of the year, management identifies approximately 400 employees corporate wide that have the potential for further promotions. A career development plan is then created for each of these high potential employees. The Talent Management group utilizes a template to keep track of the positions that each high potential employee might be able to fill, along with his or her level of readiness (i.e., ready now, ready soon or ready later). As part of the process, managers meet with direct reports in order to discuss positions and establish consensus. Succession planning and career development discussions continue at the senior vice president level, and the annual succession plan is eventually reported to the CEO.[166]

CEI's succession planning and career development programs are closely linked and based on two tenets: 1) identification of talent early on in order to develop that talent through rotations and challenging projects, and 2) broad-based career development rather than development within silos. Employee rotations are considered based on the type of development needed, e.g., subject-matter or leadership experience. There is no prescribed timeframe for rotational assignments, although four years is usually the maximum. The company has a cross-functional committee to help administer this program that can also orchestrate more complicated multi-departmental swaps. Positions at the Band 4 level and above are filled from the succession plan without employees applying for the position, and most executives are promoted from within.[167]

As discussed in Chapter III, the company's philosophy toward career development and succession planning was clearly evident by the nature and frequency of employee movement during the audit period, particularly among senior management. During our interviews, Silverpoint asked Talent Management personnel whether senior managers can really be effective without adequate subject matter background—the new vice president of customer service at O&R, for example, came from the CECONY steam business. Company participants stated that in such cases, senior managers are well supported by experienced employees who report to them.

Over the last several years, the company has been re-examining its performance management process. Historically, numerical employee appraisals that were based on the traditional one-through-five rating system skewed above average. Efforts to recalibrate the distribution were not successful, and the company stopped using a numeric rating scale after 2016. Instead, Talent Management implemented a new performance management process that focuses on teaching managers how to conduct productive employee feedback sessions throughout the year rather than only at the annual performance review. The intent of the change was to focus more on performance conversations throughout the year, providing positive and constructive feedback to improve future performance and development.[168]

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[166] Succession planning template provided in response to Data Request #173.
[167] Interview #15. An internal objective for the Talent Management department is that 75 percent of employee moves come from the succession plan.
[168] Interview #15 and response to Data Request #164.

D. Diversity and EEO

The primary objective of the Diversity and Inclusion organization is to foster ongoing culture change to a more diverse and inclusive work environment. The department supports the company's EEO and affirmative action compliance through policy development and reinforcement, workforce analysis, training and communication, and by investigating allegations of discrimination. The department designs and delivers workforce educational programs and has developed a messaging strategy to generate awareness and promote understanding of EEO, diversity, and inclusion. The group provides metrics and data on diversity and inclusion efforts as part of affirmative action planning and preparation of the annual Diversity and Inclusion Report.

Workforce diversity and development were discussed in O&R's 2017 long-range plan update, and are a current focus of executive management. The four-pronged corporate strategy in this area, implemented through the Diversity and Inclusion department, is as follows:[169]

- Advancing diversity and inclusion through learning, starting with new employee orientation to help all employees feel as if they belong and are valued
- Connecting diversity and inclusion across the company through local leadership-led initiatives
- Fostering a diverse and inclusive environment through talent management policies, practices, and systems
- Communicating and engaging to ensure that all employees and dimensions of diversity are celebrated, where employees see themselves in the company's messaging (e.g., "diversity means me").

In terms of measuring its effectiveness in implementing this strategy, the Diversity and Inclusion department currently has only qualitative measures. The company does not use numerical KPIs to measure EEO and similar efforts because they could be misconstrued as quotas.[170] The group recently began utilizing Global Diversity and Inclusion Benchmarks, which are tools and templates to help define and measure progress in order to improve the quality of practices in such areas as leadership, accountability, and infrastructure.[171]

At both O&R and CECONY, the percentage of the workforce comprised of women and minorities has increased over the audit period, as summarized in the next table; the utilities also saw improvement in the percentage of women and minorities in positions of section manager and higher.[172]

[169] Interview #15.
[170] Interview #15.
[171] Response to Data Request #207. "Global Diversity & Inclusion Benchmarks: Standards for Organizations Around the World" was developed by the Centre for Global Inclusion which, according to its website, is a nonprofit public charity seeking to serve as a resource for research and education for individuals and organizations.
[172] Diversity and Inclusion Annual Reports provided in response to Data Request #174.

Exhibit VI-11
Workforce Distribution

	2014			2017		
	Employees	**Women**	**Minorities**	**Employees**	**Women**	**Minorities**
O&R	1,099	24.4%	18.6%	1,192	25.6%	21.6%
CECONY	13,240	19.5%	48.5%	13,698	20.7%	50.8%

E. Key Performance Indicators

Key performance indicators are a useful tool for assessing how effective a company has been at achieving its business objectives. At CECONY and O&R, KPIs are strongly linked to the company's management compensation program and have helped drive strategic improvements in areas such as reliability and safety. In the third quarter, the CECONY Cost Management group in the Business Finance department issues KPI guidelines for the upcoming year that provide direction for how departments should set their targets. The most recent set of guidelines indicate that KPIs should be 1) stretch but achievable, 2) defined and quantifiable, and 3) drivers of appropriate behaviors. The guidelines also suggest that if a current KPI target already meets operational, regulatory and financial needs, it should remain at status quo.[173]

O&R is responsible for developing its own corporate-level KPI measures, as is CECONY, although CECONY also develops an additional 2,400 departmental-level KPIs. Business units evaluate KPIs each year to determine if any should be removed or new ones added. Suggestions for new measures come from the bottom up through departments or top down from senior management, but in general the companies try to align KPIs with strategic objectives. The senior management team at each business unit is responsible for assuring that appropriate measures are in place as part of the planning and budgeting process. The MD&C Committee of the CEI Board reviews proposed KPI targets and may propose changes before approving them.[174]

O&R's performance management process and KPIs were reviewed in detail during the New York management audit in 2015. While the auditors found that KPIs were appropriately developed and aligned with O&R's mission, vision and strategic objectives, they concluded that certain measures had become stagnant and should be revisited. At the time of that audit, ATIP program payouts exceeded 100 percent in each of the prior five years. The auditors recommended that O&R adopt more aggressive targets and add more metrics with targets meant to drive performance improvement.[175] Silverpoint concurs with that assessment. At that time, KPIs and associated targets were generally based on historical trends, and only a limited number of metrics such as safety and reliability had targets that varied annually to achieve performance

[173] KPI Guidelines provided in response to Data Request #307. The company's "stretch but achievable" philosophy for KPIs was reportedly put in place over ten years ago.
[174] Interview #28.
[175] "Comprehensive Management and Operations Audits of Consolidated Edison Company of New York, Inc., and Orange and Rockland Utilities, Inc.," April 21, 2016, New York State Public Service Commission Case No. 14-M-0001, pp. VIII-22 to VIII-23.

improvement. Several KPIs were indexes—the safety index KPI for example included eight sub-measures—and O&R did not need to meet all sub-measures in order to achieve the KPI.

The New York PSC required O&R to implement the auditor's recommendations, and based on input from the Board both utilities redesigned their corporate level KPIs for 2017. KPIs now more often measure results as opposed to activities or tasks. CEI eliminated indexed KPIs, which previously involved a set of rules and scaling for sub-measure results to determine if the KPI was achieved or missed. KPIs with sub-measures remain, such as those associated with reliability performance, but the utility must meet all sub-measure targets in order to achieve the KPI. The new measures reflect corporate priorities and evolving industry trends, and make objectives more explicit.

O&R's KPI targets and actual performance for 2017 are summarized on the following table.[176]

Exhibit VI-12
O&R 2017 Corporate KPIs

KPI	Target	Actual		Target	Actual
Employee and Public Safety			**Operational Excellence**		
Injury/Illness Incidence Rate	≤ 1.5	1.93	Cyber Security	0	0
Significant High Hazard Injuries	0	1	Physical Security	0	0
Motor Vehicle Collisions	≤ 44	41	Outage Frequency (SAIFI) *	≤ 1.20	0.88
Operating Errors	≤ 30	10	Outage Duration (CAIDI) *	≤ 115.5	105.1
Damage Prevention * (total damages per 1,000 tickets)	≤ 2.5	1.77	Gas Leak Response	≥85%	89.2%
			Total Gas Leak Inventory	≤40	15
Environ/Sustainability			**Customer Experience**		
Gas Conversions	≥220	223	Customer Appointments	≥95%	95.5%
Customer Emissions - Energy Efficiency MHh reductions	≥19,300	22,159	New Business Electrical Services Energized ≤ 7 Days	≥90%	98.0%
PCB Transformer Removals	≥35	35	PSC Transactional Survey *	≥91%	96.2%
Solar Connections	2	2	AMI Implementation Milestones	100%	100%
			Storm Scorecard	≥90%	91.1

* Subject to New York PSC penalty

[176] Response to Data Request #167.

F. Conclusions

1. O&R's short-term variable pay program is appropriately linked to achievement of corporate goals and objectives.

Payout levels under the O&R incentive pay program are dependent on meeting earnings projections and on controlling O&M costs—both of which were the focus of considerable management attention during the audit period. Payouts are also dependent on meeting targets for a group of performance metrics, which have been recently revised to better focus on driving improvement in key areas and to reflect targets that are challenging yet attainable.

2. O&R has demonstrated the reasonableness of its management compensation and benefit structure, and has taken appropriate steps to control the growth of benefit costs.

Third-party benchmarking studies submitted by the company in its 2018 New York rate case concluded that O&R's non-officer management compensation and benefits were "market competitive" based on a comparison to peer group companies. Over the last several years, CEI has made adjustments to benefit programs including sick pay, health, and pension plans to help contain costs, and the rate of growth in company benefit costs appears to be in line with industry averages.

3. The corporation's human resource management strategy emphasizes employee development, succession planning, and ongoing training.

The responsibilities of the CECONY Talent Management department—recruitment, organizational development, performance management, and employee programs—are properly aligned with current and future needs of the business. Succession planning and career development programs are closely linked as part of a corporate wide organizational development plan. Technical and leadership development opportunities are offered at all employee levels, and the Learning and Inclusion organization adequately supports O&R's requirements for ongoing testing and training.

4. The company has taken steps to address the issue of a graying utility workforce.

CEI has for many years been hiring large numbers of employees to replace its utility retirees. Nearly half of current CEI employees were hired within the last seven years, and the corporation now has an appreciably younger workforce than it did a decade ago. The average age of O&R's workforce has decreased over the last decade as well, although significant numbers are still eligible for retirement within a few years. Retirement brain drain is still an ongoing issue, particularly in the areas of electric system planning and operations, and therefore the Talent Management group must still remain focused on this issue.

5. Workforce diversity and inclusion are clear corporate priorities.

Senior management views workforce diversity as a key component of strengthening the core utility business. CECONY Diversity and Inclusion develops well-informed corporate policies and strategies to promote understanding of EEO, diversity and inclusion. O&R's Human Resources Support personnel effectively implement corporate programs and messaging at the local level, and recruiting efforts were consistent with diversity objectives—roughly 47 percent of O&R employees are women and minorities, up from 43 percent at the beginning of the audit period,

6. O&R appropriately restructured its key performance indicators and associated targets during the audit period.

Neither O&R nor CEI have formal continuous improvement programs. As such, the use of key performance indicators in conjunction with incentive pay plans offers the companies a way to link employee objectives and performance targets to achievement of overall corporate goals and objectives. The KPIs utilized in the first half of the audit period were criticized in a recent New York management audit, and based on the auditor's recommendations CEI redesigned its corporate level KPI program for 2017. O&R's KPIs now focus more directly on corporate priorities, and associated targets are better designed to drive performance improvements. Performance improvement should be an ongoing process, and therefore regulators should expect O&R to review its KPIs and targets annually to assess their continued relevance.

G. Recommendations

Silverpoint has no recommendations in this area.

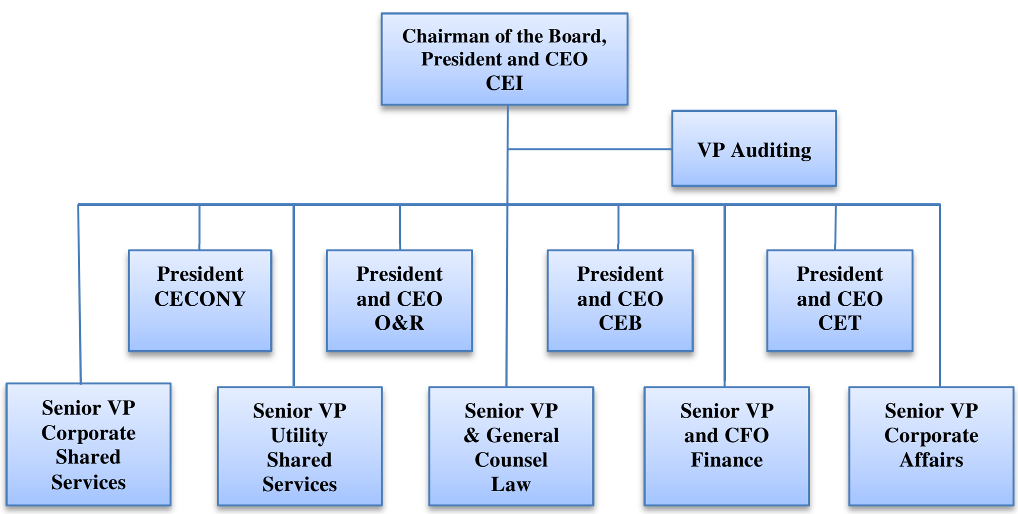
VII. Affiliate Relationships

A. Organizational Structure

In this section of the report, Silverpoint describes the nature of the relationships among CEI's affiliates, focusing in particular on those that involve or can potentially affect RECO. Consistent with Section 3.2.2 of the RFP, we evaluated the policies and procedures that define the necessity, legal entitlement, and nature of relationships among affiliates. As part of that evaluation we assessed the appropriateness of affiliated interest contracts and the efficacy of measures in place to ensure compliance with regulatory and contractual requirements.

RECO has no relationship with affiliates other than O&R, and O&R has no relationship with affiliates other than CECONY in connection with shared corporate and utility services. The nature of the relationship between O&R and CECONY is unusual in that most large utility holding companies form a service company—with separate books and records—to provide shared business functions, particularly when those functions are being provided to both regulated and non-regulated affiliates. Restrictions imposed by the Federal Energy Regulatory Commission (FERC) on affiliate transactions require that non-power goods and services be sold at the higher of cost or market, and that utilities purchasing non-power goods or services from a centralized service company do so at cost.[177] While a utility is not precluded from acting as a de facto service company, most would agree that having a separate service company subsidiary allows for more straightforward and transparent bookkeeping. At CEI, nearly all personnel and costs for shared services are embedded in CECONY departments. These departments report to the CEO of CEI, however, not CECONY, as illustrated in the following chart.

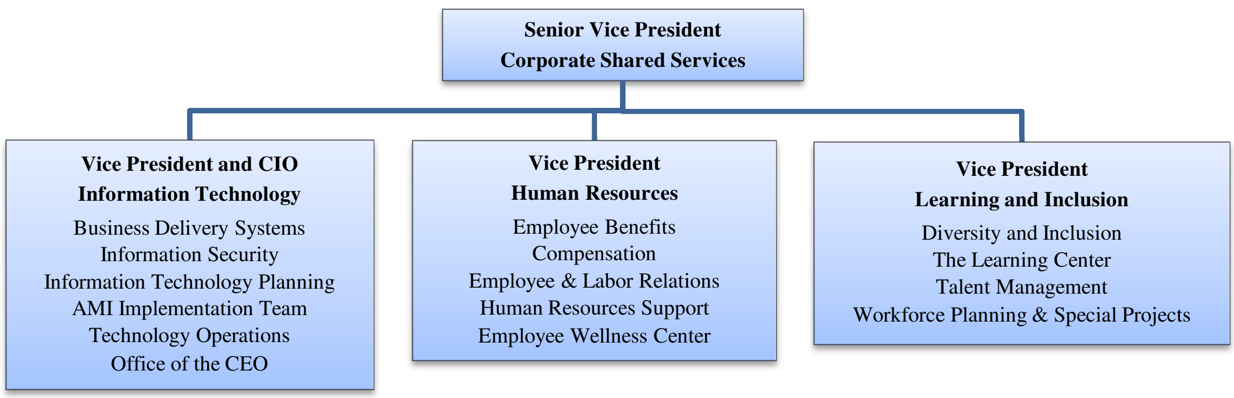
Exhibit VII-1
CEI and CECONY Organization



[177] FERC Order No. 707 expanded the applicability of affiliate transaction restrictions meant to prevent franchised public utilities from unfairly subsidizing their unregulated affiliates at the captive customers' expense. In its order approving National Grid's acquisition of KeySpan, FERC applied those conditions more broadly to the relationship between the utility and all of its other affiliates, even those that do not engage in power sales.

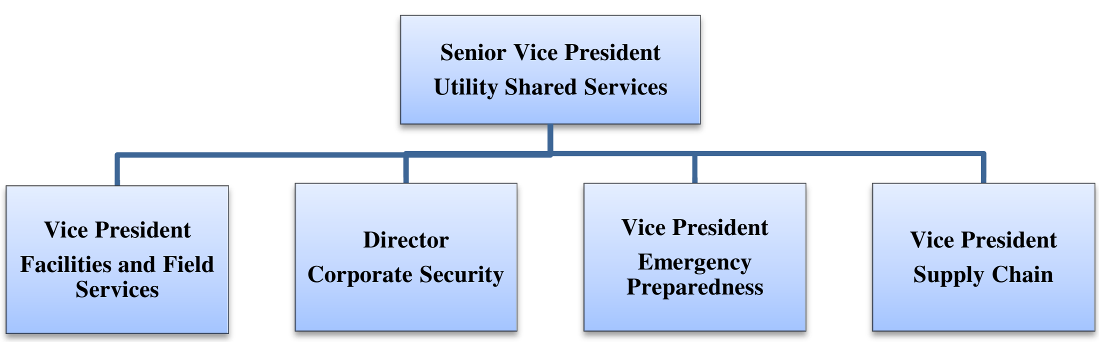
It is important to note that CEI has no employees, and so CECONY provides governance-and enterprise-level services to CEI such as strategic planning and investor relations that are in turn allocated out to all affiliates. Corporate affairs, legal services, and finance-related services (including internal auditing and accounting) are provided to affiliates and the parent company by three separate organizations at CECONY, each headed by a senior vice president. CEI has grouped other shared services into two separate organizations—Corporate Shared Services and Utility Shared Services—each also headed by a CECONY senior vice president. The following chart shows the departments and functions within the CECONY Corporate Shared Services organization.

Exhibit VII-2
CECONY Corporate Shared Services Organization



The following chart illustrates the departments within the CECONY Utility Shared Services organization.[178]

Exhibit VII-3
CECONY Utility Shared Services Organization



Besides procurement services, Supply Chain includes the stores and warehousing functions; the Facilities and Field Services organization also includes transportation and real estate.

[178] An expanded chart showing reporting relationships of O&R departments is provided in Chapter XIII.

O&R departments also provide some shared services—check processing through the O&R payment processing center, rubber goods testing by the protective equipment testing group, and IT support from O&R's Information Resource group—but only to CECONY.

B. CECONY Shared Services Agreements

All transactions for goods and services among CEI and its affiliates are subject to the pricing and accounting guidelines set forth in the merger settlement agreement approved by the New York PSC in 1999.[179] These accounting procedures incorporate cost allocation protocols that are consistent with SEC and Cost Accounting Standards Board guidelines and dictate pricing based on fully loaded costs. Other principles incorporated in the guidelines are: 1) costs should be directly assigned to individual affiliates to the maximum extent possible; 2) costs not directly assignable should be accumulated and allocated on a cost causative basis; and 3) when cost drivers cannot be determined, allocations should be based on reasonable and related proportional relationships such as number of employees or revenues.

CECONY has individual agreements to provide shared services with O&R, CET, and each of the three CEB subsidiaries—Con Edison Solutions, Con Edison Energy, and Con Edison Development. The agreement between CECONY and O&R for provision of "administrative support services" was signed in November 1999, and refers explicitly to pricing in accordance with the New York merger settlement agreement.[180] The agreement between CECONY and CET covering corporate services—defined as including but not limited to corporate governance, administrative, legal and accounting services—was signed in February 2016. This agreement differs from the O&R agreement in that services are to be billed on a per-hour basis. The contract states that pricing will comply with applicable federal and state laws including orders of state public utility commissions; as such its pricing is consistent with the merger settlement agreement.[181]

Even before the formation of CEB, the clean energy businesses had their own shared service organization and generally procured limited services from CECONY. CECONY's agreements with Con Edison Solutions, Con Edison Development and Con Edison Energy were signed in November 1997, January 1998 and May 1998, respectively—all before the merger—and all three are worded the same way.[182] CECONY prices its services to CEB subsidiaries in a fashion consistent with the merger settlement agreement, although the language of these three agreements is somewhat confusing.[183]

[179] The Merger Settlement Agreement dated March 8, 1999 was approved by PSC Order dated April 2, 1999 in Case No. 98-M-0961; Appendix D to the Settlement Agreement is entitled "Accounting for Affiliate Transactions."
[180] Agreement between Consolidated Edison Company of New York, Inc. and Orange and Rockland Utilities, Inc. provided in response to Data Request #4. The agreement covers services from CECONY to O&R and vice versa.
[181] Master Service Agreement provided in response to Data Request #4.
[182] Agreements provided in response to Data Request #4. CECONY also has a contract management agreement with Con Edison Solutions that is unrelated to shared services.
[183] Interview #6. Under the agreements, service pricing is to be the higher of fully loaded cost plus ten percent or the price charged to third parties; CECONY interprets this language as applicable only to non-corporate services.

As noted above, CECONY provides governance-and enterprise-level services to CEI that are in turn allocated out to all affiliates. While these transactions are covered by formal accounting procedures, there is no agreement between CECONY and CEI, nor are there agreements between CEI and its affiliates. Even though CECONY prices its services to CEI in a fashion consistent with the New York merger settlement agreement, the company may want to consider implementing formal agreements between and among the parties.

C. Agreements between O&R and RECO

RECO has no operating employees and no facilities of its own for operating or maintaining its transmission and distribution (T&D) system assets. Under the terms of the agreement between O&R and RECO effective February 5, 1976—commonly referred to as the Joint Operating Agreement (JOA)—O&R provides essentially all work that would ordinarily be performed by an operating utility company.[184] Under the terms of the JOA, construction, maintenance and operating costs are to be charged on a direct basis wherever possible. Otherwise, costs are allocated using one of several revenue and customer ratios. Calculation of those allocation ratios included the revenues and customers of O&R's Pennsylvania subsidiary Pike County Light & Power (Pike) until its divestiture in 2016.[185] The JOA does not contain explicit language about fully loaded costs, but pricing is nonetheless subject to the same accounting guidelines set forth in the merger settlement agreement.

There are many utilities in the United States like O&R that operate in more than one jurisdiction. The issue of establishing an equitable allocation of costs between states is therefore quite common, although the approaches for doing can differ considerably. Wisconsin Electric Power Company, for example, allocates costs between Michigan and Wisconsin according to a historical "slice of system" approach. By way of contrast, Potomac Electric Power Company (Pepco) allocations are similar in several ways to the JOA. Pepco O&M costs that can be directly identified and assigned (e.g., incremental storm costs or tree trimming) are charged to Maryland or the District of Columbia, with the rest assigned based on a detailed analysis of O&M FERC accounts or allocated using specific ratios. Administrative and general (A&G) costs generally follow the same distribution as O&M costs, although customer account-related expenses are allocated based on number of customers.

O&R and RECO are somewhat unusual in that the jurisdictional allocation method is described in a formal written agreement between the utilities rather than being established through rate cases or other regulatory proceedings. Allocation protocols typically evolve over time and are rarely locked in place for over forty years, as is the case with the JOA. Nonetheless, Silverpoint found that the JOA, despite its age, remains a reasonable framework for allocating O&R's costs between New York and New Jersey as long as its underlying provisions are accurately applied.

[184] Agreement By and Between Orange and Rockland Utilities, Inc. and Rockland Electric Company provided in response to Data Request #2.
[185] O&R had a similar joint operating agreement with Pike County Light & Power prior to its divestiture.

O&R purchases energy and capacity from the New York Independent System Operator for a small portion of RECO non-shopping customers and for its New York non-shopping customers through bilateral contracts. RECO pays a share of these costs under the terms of a formal agreement between the two utilities, the Power Supply Agreement (PSA), which was first executed in 1993.[186] The PSA is part of the FERC electric rate schedule filing required for transactions involving the sale and delivery of electricity. Pricing under the agreement is based on O&R's cost of rendering service, and most allocations are based on the use of energy, demand, and/or joint use ratios. As we discuss in more detail in connection with electricity procurement in Chapter IX, we found that the PSA presents a reasonable framework for allocating costs between O&R and RECO as long as its underlying provisions are accurately applied.

D. EDECA and Affiliate Standards

In response to the Electric Discount and Energy Competition Act (EDECA), the BPU adopted the Affiliate Relations, Fair Competition and Accounting Standards and Related Reporting Requirements (Affiliate Standards), set forth as N.J.A.C. 14:4-3.1 et seq., which describe standards of conduct applicable to transactions between an electric or gas utility and a related competitive business segment (RCBS) of the utility holding company or of the utility itself. In connection with the merger proceeding in 1999, O&R adopted a formal code of conduct and affiliate relations standards, both of which are consistent with the requirements of the BPU's Affiliate Standards and applicable to RECO as its affiliate.[187]

Neither O&R nor RECO offer competitive services to customers in New Jersey, and neither utility is currently engaged in any non-regulated activities. During the first part of the audit period, CEI subsidiary Con Edison Solutions did provide competitive retail electric services in New Jersey, including in RECO's service territory, and met the definition of an RCBS of a public utility holding company serving retail customers as defined in N.J.A.C. 14:4-3.1. CEI sold the competitive retail electric and gas portion of Con Edison Solutions to a subsidiary of Exelon Corporation during 2016. Another RCBS, Con Edison Energy, participated in the Basic Generation Service auctions in RECO's territory during the audit period but was not a winning bidder.

In RECO's 2017 Affiliate Standards compliance plan report, the company describes Con Edison Solutions as providing electricity to retail customers even though CEI had by then divested that business.[188] Silverpoint did not have access to the 2018 version of the compliance report and cannot verify whether RECO has since updated this information; if not, it should be corrected in future filings. We note that during the audit period, RECO did not discuss CET or provide

[186] Power Supply Agreement provided in response to Data Request #2.

[187] The Revised O&R Standards of Competitive Conduct and the Revised O&R Affiliate Relations Conditions are Appendices B and C, respectively, of the New York merger settlement agreement. Company employees are required each year to take a course on standards of business conduct (Response to Data Request #12).

[188] "Rockland Electric Company's Compliance Plan Relating to the Board of Public Utilities' Affiliate Relations, Fair Competition and Accounting Standards and Related Reporting Requirements" for years 2014 through 2017, provided in response to Data Request #16.

information on CET officers or directors in its compliance reports. The company considers CET to be a regulated business because it does not offer competitive services and its transmission-related investments are regulated by FERC.[189] During 2016 the President of O&R (and sole member of the RECO Board) was on the Board of CET—this would be unacceptable only if CET were an RCBS.

In its yearly compliance plan reports, RECO discusses company policies and procedures that satisfy the various provisions of the BPU's Affiliate Standards—nondiscrimination, information disclosure, separation, competitive product and service offerings, and regulatory oversight—and reaffirms its commitment to adhere to those requirements. We have not repeated that information again here, and have otherwise assumed that RECO has accurately reported its compliance.[190] For example, during the audit period, one employee was transferred from CEB, a non-regulated subsidiary, to O&R. In such cases, transferring the same employee back to the non-regulated subsidiary within one year is prohibited under N.J.A.C. 14:4-3.5(r), and we assume the company abided by that provision.[191]

EDECA requires that assignment or allocation of costs between affiliates should not result in utility subsidization of non-regulated businesses. CEI's non-utility subsidiaries CET and CEB do not provide any services to O&R or RECO, nor do the utilities provide services to them. However both regulated and non-regulated subsidiaries receive shared services from CECONY, and the EDECA principles apply to these transactions as well. In particular, cost allocation methods should not shift costs to the regulated businesses (including CECONY) and should reflect fully loaded costs. These principles are echoed in the New York merger settlement agreement and have been incorporated in the company's accounting cost allocation manual and associated corporate accounting policies and procedures, which we discuss in more detail in the next chapter of this report. As a general matter, we found that those policies and procedures adequately support compliance with relevant regulatory and contractual requirements.

E. Conclusions

1. Affiliate agreements for shared services are reasonable and will not result in cross-subsidization if accounting guidelines are appropriately applied.

CECONY has individual agreements to provide shared services with O&R, CET, and each of the three CEB subsidiaries. All transactions under these affiliate agreements are subject to guidelines set forth in the New York merger settlement agreement, although not all agreements contain specific wording to this effect. If corporate accounting policies and procedures are consistently applied, charges for shared services will be based on fully loaded costs, consistent with requirements under EDECA and the BPU's Affiliate Standards.

[189] Under EDECA, the term "competitive service" means any services, goods, or products offered by an electric public utility or a gas public utility that the Board has already determined or that the Board shall in the future determine to be competitive pursuant to section 8 or section 10 of the Act or that is not regulated by the Board.
[190] We did confirm that there were no asset transfers between CEI regulated and non-regulated affiliates during the audit period (Response to Data Request #391).
[191] Response to Data Request #256.

2. The Joint Operating Agreement is a reasonable method for allocating costs between RECO and O&R's New York operations.

RECO has no operating employees and therefore no ability to perform the type of construction, maintenance, customer service, and administrative functions normally associated with a regulated utility. Under the JOA, O&R provides all work normally performed by an operating utility except for the supply of electricity, which is covered by a separate agreement between the parties. Charges under the JOA are subject to the accounting and pricing guidelines agreed to as part of the New York merger settlement agreement, which are consistent with the EDECA prohibitions against cross-subsidization. Even though the JOA is more than forty years old, the basic framework is still sound and will yield equitable results as long as costing provisions are accurately applied.

3. The company's affiliate policies and procedures support adherence to legal, regulatory and contractual requirements.

The Revised O&R Standards of Competitive Conduct, the Revised O&R Affiliate Relations Conditions, and the affiliate transaction accounting guidelines adopted by CEI and its affiliates as part of the settlement in the merger proceeding are consistent with the provisions of the BPU's Affiliate Standards. The company's cost allocation manual and associated accounting policies and procedures provide sufficient general guidelines to employees regarding compliance with relevant regulatory and contractual requirements. RECO has reaffirmed its commitment to adhere to these requirements in its annual compliance plan filings, and we found no evidence of intentional non-compliance during the conduct of our audit.

F. Recommendations

Silverpoint has no recommendations in this area.

VIII. Accounting and Cost Allocation

A. Accounting Functions and Controls

CEI's primary accounting system is Oracle E-Business Suite (EBS), which performs general ledger, accounts payable, accounts receivable, and project costing functions and interfaces with the company's treasury, payroll, work management, and asset management systems. Accounting functions are centralized in the Corporate Accounting department, which is part of the CECONY Finance organization. The department contains several groups including General Accounting, which maintains books and records for CEI, CECONY, O&R, RECO, and CET (but not CEB) and prepares subsidiary and consolidated financial statements and reports for regulatory authorities including the SEC. Other groups in the department include Property Records, which monitors and tracks utility plant in service, construction work in process (CWIP), non-utility plant and plant held for future use, and Corporate Cost Accounting, which is responsible for preparing intercompany invoices for shared services.[192]

CECONY, O&R, and RECO are required to maintain books and records in accordance with the Uniform System of Accounts of state regulatory authorities and the FERC. The company's guidelines for maintaining the chart of accounts are in accordance with these requirements, and its accounting policies are consistent with Generally Accepted Accounting Principles (GAAP). Common accounting functions such as accounts payable, accounts receivable, and payroll are routinely examined by the company's independent auditors, PwC, and are covered by SOX controls subject to routine testing by Internal Audit.

At CEI, General Accounting Procedures (GAPs) provide guidelines for processing accounting transactions and work to ensure accounting details and financial data are in accordance with GAAP, corporate policy statements and instructions, and relevant rules and regulations. These GAPs help form a documented basis for ensuring an adequate system of internal control over financial reporting. In many instances these procedures extend beyond accounting to address controls in operational areas as well. For example, the Stores Operations GAP provides guidelines for establishing, controlling, maintaining and properly accounting for inventoried material at CECONY and O&R, but also documents the responsibilities of local warehouse personnel who manage activities surrounding physical inventory including access. CEI and its affiliates have in place over 200 GAPs covering a broad range of subjects, from processing journal entries to accounting for specific rate case outcomes.

The Silverpoint accounting team requested a sample of 44 GAPs, listed on the next table, for the purpose of comparing them to best practices in each area.[193]

[192] Interviews #5 and #6. CEB has its own separate accounting system, PeopleSoft.
[193] Procedures and applicability information provided in response to Data Requests #8, #326 and #372.

Exhibit VIII-1
Sample of General Accounting Procedures

GAP #		GAP #	
	Applicable to CECONY and O&R		**Applicable to CECONY and O&R**
023C	Capitalization of Administrative and General Costs	501C	Stores Operations
028C	Labor Fringe Billing and Overhead Rate	601C	Payroll for Weekly/Semi-Monthly Employees
036C	Provision for Customer Uncollectibles	605C	Military Duty Allowance Payroll
070C	Maintaining General Ledger Chart of Accounts	606C	Payment in Lieu of Vested Vacation Payroll
110C	Vehicle Mgmt. System–Cost Allocation Sub.	700C	Plant Additions and Retirements
131C	Acctg. - Purchase of Receivables from Energy Services Co.	800C	Meter Installations
207C	Allowance for Funds Used During Construction	803C	Misc. Billing Trans. Charged to Billing Projects
209C	Journal Entries	900C	Determination of Book Depreciation
210C	General Accounts Section-Closing Procedures	954C	Related Parties
300C	Unhonored Payments		**Applicable to CEI Only**
301C	Direct and Management Labor Rates	007CEI	Preparation of the MD&A (for 10-Ks and 10-Qs)
303C	Capitalization of Fringe Benefits	008CEI	Guidelines - Prep. of Annual SEC 10-Q and 10-K
306C	Stores Overheads	067CEI	Application of GAAP
307C	Processing/Control-Cash Receipts from Customers	069CEI	Issuance of General Accounting Procedures
311C	Corporate Accounts Receivable and Billing		**Applicable to O&R Only**
314C	Preparation-“Distribution of Company Labor” Report	001B	Purchase Power Accounting Procedures
393C	Fees Paid to Independent Accountants	084B	Accounting for Annual Team Incentive Plan
401C	Mgmt. Expense Reimbursements Paid thru iExpense	309B	Daily Balancing of Customer A/R-Electric and Gas
404C	Accounts Payable Accruals	807B	Line Transformers Purchases and Installations
405C	Payment of Invoices	904B	Accounting for the NJ Societal Benefits Charge
408C	Process. Pymt. Certificates/Acctg. for Contract Retainage	952B	Accounting for 2016 Rockland Electric Rate Case
412C	Processing Payment - Accounting Not Yet Determined		**Applicable to CEI, CECONY and O&R**
415C	Accounting for Corporate Procurement Cards	003CEI	Combined Notes to the Financial Statements
419C	Automotive Parts Payment System - Autoease		

Overall, Silverpoint found the company’s GAPs, and the Corporate Instructions referenced within them, to be sufficiently detailed and relatively easy to follow.[194] In a few instances, the company’s procedures were different from what is typically seen at other utilities, but nonetheless still appropriate.[195] Most of these GAPs have been updated within the past five years, and we found them reasonable and generally consistent with good utility practice, although we do offer a few suggestions for improvement:

- O&R’s purchase power accounting procedure, GAP-001B, was last revised in 2012 and should be updated due to its age and the fact that it still refers to Pike.
- The overview of GAP-606C, payment in lieu of vested vacation payroll, indicates approval is required by a vice president but the procedure refers to “the section manager or the next higher level of management;” the difference in wording should be clarified.
- For GAPs covering areas that have the potential for theft (e.g., stores and auto parts), the procedure for book to physical adjustments could be expanded to include a review for reasonableness so that amounts outside a defined tolerance threshold are investigated. In a similar vein, the procedures for P-card and expense reimbursement procedures could be strengthened to place further emphasis on controls to prevent misuse.

[194] Corporate Instructions related to SOX compliance, budgeting, the audit function, hiring of independent accountants, and FERC compliance provided in response to Data Requests #347, #348, and #357.

[195] For example, CECONY and O&R adjust for funds used during construction once a year, which is more conservative than most utilities, which typically do so twice with an interim estimate and year-end actual adjustment.

- GAP-023C, capitalization of administrative and general costs, is based on a three-year average derived from time studies, but the process for these studies is not described and could be clarified.
- GAP-900C, determination of book depreciation, does not address how depreciation is calculated on a monthly basis (including possible use of a half month convention) nor does it specify the frequency of depreciation studies, and could be clarified.

Property Records

The company's procedure for plant additions and retirements, GAP-700C, is consistent with FERC and state regulatory guidelines, and the CEI Property Accounting Manual referenced in that procedure is sufficiently detailed and complete. The PowerPlant system facilitates prompt recording of plant additions with an auto-close process that moves routine capital work such as poles into plant accounting records, although less typical work does require some additional manual steps. In our experience, utilities generally record capital investments in a timely fashion—the issue is usually with recording associated retirements. As part of the company's formal procedures, Property Records reviews an unprocessed retirements report each month to ensure retirements are being processed in a timely fashion.[196] Overall, controls in this area appear reasonable.

Time Reporting

CECONY, O&R, and CET use the PeopleSoft payroll system for time reporting (CEB has its own stand-alone system). CECONY and O&R union employees must positively report their time every week. Bargaining unit employee hours are charged to specific work orders or project numbers in the utility work management system, which interfaces with PeopleSoft for payroll purposes. Management employees—except for corporate officers and their staff—have a payroll home account that corresponds to a specific department cost center or one or more clearing accounts. Absent any exception reporting, labor costs are charged automatically to each employee's home account. Management employees are responsible for entering their own exception time, which may be associated with work for a specific affiliate or project, or to designate non-productive time such as vacations or jury duty; any such time entries must be approved by a supervisor or manager.

There is no time reporting or set default payroll distribution for CECONY corporate officers and their assistants. Instead, their labor costs are allocated based on distributions approved by the Assistant Controller and set forth in formal authority letters. CECONY officers (vice-president and above)—except for the CEO, CFO, and President/Chief Operating Officer (COO)—identify how much time they expect to work for CEI, CET, and CEB during the coming six month period so that a portion of their labor costs can be charged out to those entities instead of their home organization within CECONY; labor charges for assistants follow those of the officer. As an example, during the latter part of 2017, 30 percent of the labor costs of the CECONY Deputy General Counsel were allocated to affiliates, half of which was directed to CET. Estimates of officer time must be updated at least twice per year, although during the audit period it was done

[196] Property Accounting Manual provided in response to Data Request #358. The dashboard report, created with PowerPlant data, provides a snapshot of current retirements that need processing (Response to Data Request #359).

much more frequently to reflect small changes. The labor cost allocation process for O&R and CET officers is similar. For example, during 2016 and 2017, the President of O&R was on the Board of CET and allocated four percent of his time to that affiliate.[197]

The distributions for three top CECONY officers are handled differently. The company calculates the ratio of CEI assets to total CEI plus CECONY assets to derive a percentage of CEO and CFO labor that will be charged to CEI instead of CECONY. This rate is updated quarterly, and during 2017 was roughly 29 percent. The President/COO and his administrative staff are charged 100 percent to CECONY.

B. Affiliate Cost Allocation Manual and Related Procedures

Most public utility holding companies have a service company subsidiary that provides shared services to affiliates. Typically, such companies have a cost allocation manual that serves as a central reference on policies and procedures for distributing costs among subsidiaries including information on why particular costs are handled in specific ways. In our view, maintaining a clear, comprehensive cost allocation manual is an essential component of demonstrating compliance with regulatory requirements regarding affiliate transactions. This is particularly important when shared service costs originate from utility departments rather than a separate service company, as is the case with CEI. Although the company has written policies and procedures regarding affiliate transactions, it had no formal cost allocation manual until October 2016.

CEI's corporate policy statement on affiliate transactions reiterates its commitment to comply with the principles set forth in the 1999 New York merger settlement agreement. Those principles are as follows: 1) affiliate transaction pricing will be based on fully loaded costs, 2) costs will be directly charged to the maximum extent possible; 3) costs not directly charged will be allocated using factors related to cost causation if possible; and 4) the use of indirect or general allocators will be minimized. The company's accounting procedures related to affiliate transactions include the following:[198]

- GAP-006 CEI – Accounting for Affiliate Transactions with CEI, which provides accounting guidelines for asset transfers and the provision of services from the regulated affiliates to CEI, and the subsequent allocation of these CEI costs to all affiliates
- GAP-008C (CECONY) – Accounting for Affiliate Transactions between the Regulated and Unregulated Affiliates, which provides accounting guidelines for asset and employee transfers and provision of services between regulated affiliates CECONY, O&R, and CET and unregulated affiliate CEB
- GAP-040C (CECONY) – Accounting for Transactions between CECONY, O&R, and CET, which provides accounting guidelines for transfers of assets and employees and provision of services between the regulated affiliates

[197] Interview #6. Authority Letters for CECONY and O&R provided in response to Data Requests #36 and #54, respectively. As of 2018, no O&R officer allocated time outside of the utility.
[198] Corporate Policy CEI-404 and GAPs provided in response to Data Requests #20 and #22, respectively.

- GAP-057B (O&R) – Common Expense Allocations, which provides general guidelines regarding common expense allocations among O&R, RECO, and Pike.

During the recent New York management audit of O&R and CECONY, the auditors concluded that the company's allocation procedures failed to provide overall guidance as to how costs pass through the organization. They found these procedures to be high level and often vague in identifying specific accounts to be included in each shared service cost allocation pool.[199] We agree with this assessment. We found that while in some cases the GAPs show details such as debits and credits by account number, they do little to explain how individual types of costs (e.g., insurance premiums) are treated. GAP-057B is also out of date as it still references Pike.

The New York auditors recommended that the utilities develop a corporate cost allocation manual that provides an overview of all allocations in the CEI enterprise. CEI subsequently released the first Affiliate Cost Allocation Manual (ACAM) in October 2016. Appendix A to the ACAM lists the agreements to which it applies—the shared service agreements between CECONY and CEI affiliates and the JOA between O&R and RECO.[200] While the ACAM is a step in the right direction it does not, in our view, address the vagueness of the company's accounting procedures first identified in the New York audit. The manual does reiterate the company's commitment to the merger agreement pricing principles and provides a general overview of the company's process, but little else. The detailed aspects of affiliate transaction accounting are not captured in the ACAM or in the company's GAPs.

Silverpoint found some portions of the ACAM to be unclear or even contradictory to other sources. For example, as we discussed in connection with time reporting, CECONY officers identify how much time they expect to work for CEI, CET, and CEB during the coming six month period so that a portion of their labor costs can be charged to the appropriate affiliate. Authority letters and accounting data we examined clearly showed officer time allocations to CET. The ACAM, however, states that officer salaries are apportioned to CEI and CEB based on a semi-annual survey but makes no mention of CET.[201]

From the perspective of explaining affiliate transactions between O&R and RECO, the ACAM is woefully inadequate. The PSA between O&R and RECO is not addressed at all, and the few paragraphs on the JOA do not describe the types of costs included in allocations nor any cost pools. The JOA states that the allocation of A&G expense between O&R and RECO is based on a revenue ratio; the ACAM, however, states that it is based on a four-part formula comprised of number of customers, net revenue, T&D expenses, and net T&D plant, all equally weighed. GAP-057B indicates that this four-part formula is used to adjust certain A&G allocations that are based on revenue ratios, and that this adjustment was approved in a 1999 New York gas rate case. All three sources are stating something quite different.

[199] "Comprehensive Management and Operations Audits of Consolidated Edison Company of New York, Inc., and Orange and Rockland Utilities, Inc.," April 21, 2016, New York State Public Service Commission Case No. 14-M-0001, p. X-8.
[200] ACAM provided in response to Data Request #4.
[201] ACAM p. 13.

CECONY Shared Services

Five CECONY organizations provide business services, listed on the following table, to some or all of the CEI affiliates.

Exhibit VIII-2
Shared Services Provided by CECONY

Finance		**Utility Shared Services**	
Corporate Accounting	Business Finance	Supply Chain	Facilities & Field Services
Treasury	Rate Engineering	Security	Emergency Management
Investor Relations	Strategic Planning	Energy Policy	Regulatory Affairs
Tax	Auditing		
Law		**Corporate Shared Services**	
Law, Ethics, Compliance	Regulatory Services	Human Resources	Learning & Inclusion
Corporate Affairs			IT

The costs of shared services are distributed in several ways, which are summarized in the next table. Each year approximately $50 million of costs that are governance- or enterprise-related in nature are charged from CECONY to CEI and then allocated to all subsidiaries based on a three-factor formula. A portion of the remaining cost of shared corporate and utility services is charged to O&R each month, usually based on an allocation although some is directly charged. Services provided by CECONY departments to CET and CEB are directly charged at their fully loaded costs; an offsetting credit is provided to O&R at year-end to recognize its share of those receipts. Non-labor charges such as employee benefits and bank fees are directly charged to the appropriate affiliate. O&R provides a few shared services to CECONY, the cost of which is allocated between the two utilities.

Exhibit VIII-3
Distribution of Shared Services Costs

Category	**Components of Charges**
Governance/enterprise-level costs (charged from CECONY to CEI and then allocated to all affiliates)	• Total cost of certain departments (e.g., strategic planning) • Direct charges for admin. services (e.g., law, accounting) • Labor cost for designated percentage of CECONY officer time • CEI-incurred external direct costs (e.g. subscriptions, fees) • Majority of insurance premiums
CECONY shared services costs allocated to O&R	• Allocated monthly charge based on budgeted amount, with true-up • Offsetting credit at year-end for share of direct charges to CET/CEB
CECONY direct charges or non-standard allocations to O&R	• Direct charges for employee benefits, purchases, fees • Direct charges for work separately tracked for O&R or subject to specially-defined direct assignment percentages
CECONY charges to CEB companies–shared services and other costs	• Direct charges to CEB for non-labor costs such as benefits and joint purchases with additional loaders • Direct charges for services at fully loaded cost plus A&G loader
CECONY charges to CET companies–shared services and other costs	• Direct charges for non-labor costs (e.g., benefits, bank fees) • Direct charges to CET for services at fully loaded cost
O&R shared services costs allocated to CECONY	• Allocation of approx. 93 percent of monthly check processing, protective equipment testing, and IT function costs • Direct charges for print shop work and similar incidentals

Three-factor Allocation Formula

CEI uses a three-factor formula to allocate the majority of CECONY shared services costs to affiliates. When the CEI holding company was formed, the company adopted a three-factor allocation formula based on assets, payroll, and gross margin instead of the more widely used Massachusetts formula that is based on revenues, assets and payroll.[202] The company believed that using revenues would produce an allocation that was not commensurate with the benefits each affiliate would receive—in particular because revenues for CEB businesses were artificially inflated by purchases and sales of commodity electricity and gas. The following table summarizes the allocation percentages for CEI costs in place during the audit period.[203]

Exhibit VIII-4
Three-Factor Allocation Percentages

	2014 Rate	2015 Rate	2016 Rate	2017 Rate
CECONY	90.51	91.26	89.08	88.02
O&R	6.90	7.09	6.86	6.90
CEB Shared Service	0.12	0.11	.09	}
Con Edison Energy/Con Edison Development	1.20	1.13	2.28	} 4.253
Con Edison Solutions	1.28	0.42	.86	}
CET	n/a	n/a	.83	.83
Total	100.00	100.00	100.00	100.00

In the recent New York management audit, the auditors pointed out that the company's use of the modified Massachusetts formula (i.e., gross margin instead of revenues) resulted in a cross subsidy to Con Edison Solutions in 2015, when the affiliate had a negative gross margin that artificially depressed its share of the corporate cost burden. Other affiliates including O&R received a slightly higher allocation than they otherwise would. Most of the effect was felt by CECONY, however, and according to our rough calculations, the impact on O&R was in the range of $5,000.

The New York auditors recommended the modified three-factor formula be replaced with a more appropriate one. Beginning in January 2017, gross margin was replaced by revenues in the three-factor formula, after the change was approved by the New York PSC.[204] Other changes were made at that time as well. Prior to 2017, three-factor formula percentages were calculated based on prior year actuals with no regular updates. The formula is now updated twice a year—in January based on forecasted data and in mid-year based on actual and forecasted data. The change to the use of forecasted data was reportedly at the behest of the New York PSC, which was concerned about capturing the effect of the dynamic growth of CET.[205]

202 The original formula relied on Cost Accounting Standard 403, which allowed for a special allocation other than the average of revenue, assets and payroll.
203 Response to Data Request #44, Subpart 1, Attachments 1-4. Numbers may not sum due to rounding.
204 CECONY and O&R Audit Implementation Plan Update, October 13, 2017, New York State Public Service Commission Case No. 14-M-0001, pp. 89-90. Because CEI had divested the retail energy supply portion of Con Edison Solutions in 2016, the company was no longer averse to the use of revenues in the three-factor formula.
205 Interview #6.

The three-factor formula is also used by CECONY for allocating many of the shared services costs between itself and O&R. During most of the audit period, these percentages were also based on the modified Massachusetts formula but as of 2017 are calculated using revenue, assets, and payroll. O&R's allocation percentage was 7.30 percent in 2014 and 2015, 7.15 percent in 2016 and 7.25 percent in 2017.[206]

Affiliate Billing Procedures

CECONY bills CEI each month for services performed and expenses paid on its behalf. CEI in turn invoices each affiliate for its share of these governance- and enterprise-related costs based on the three-factor allocation formula. Accounting personnel prepare monthly invoices from CECONY to CEB and to CET containing their designated share of corporate officer time, any direct charges for services provided by CECONY employees, and relevant non-labor charges such as health insurance. There are two separate invoices from CECONY to O&R. The first is for O&R's roughly seven percent share of CECONY shared services costs. The second is an "everything else" bill containing charges not subject to the normal shared service allocation, which includes miscellaneous charges such as those for shared software projects allocated according to specific authority letters (e.g., AMI-related software). There is also a separate invoice from O&R to CECONY for shared services. The company maintains that cash settlement of intercompany bills occurs within thirty days.[207]

Until recently, affiliate billing was performed manually by CECONY Corporate Cost Accounting personnel using a series of Excel spreadsheets—some containing as many as 100 tabs. Each month Oracle data was downloaded, filtered and aggregated to derive direct and allocated charges for each affiliate. In the New York management audit, the auditors recommended that the company automate this data extraction and consolidation process to improve operational efficiency, accuracy and control. The company completed the design, programming and testing of its automated billing process by January 2017 and updated its relevant GAPs accordingly.[208]

The CECONY General Accounting group is responsible for preparing the intercompany bill between O&R and RECO. This billing process was formalized in 2012 so that the company could reconcile intercompany charges on the balance sheet. The bill is not part of the accounts receivable process but does go through the general invoicing system. Accounting personnel indicated that there is a real cash settlement of the intercompany payable every month.[209]

Labor Loaders and Special Loaders for Non-regulated Affiliates

All services to affiliates must be priced at fully loaded cost. As such, labor charges must include overheads such as fringe benefits, office supplies and expenses, and office space and facilities costs. The CECONY Corporate Accounting group is responsible for developing these overhead rates based on annual studies, and the accounting system applies the loaders to labor costs

[206] Response to Data Request #42. The 2016 percentage was reportedly updated after Pike was sold in September.
[207] Interview #6.
[208] CECONY and O&R Audit Implementation Plan Update, October 13, 2017, New York State Public Service Commission Case No. 14-M-0001, pp. 82-86.
[209] Interview #6.

automatically. Fringe benefit loaders are calculated annually based on the current year budget and reviewed several times during the year and updated if necessary. In 2017, the fringe benefit loader for CECONY union and management employees was 54.58 percent; the equivalent loader for O&R employees ranged from 55.17 to 59.68 percent. The fringe benefit rate includes such items as pension and OPEB, health and group life insurance, long-term disability insurance, payroll taxes, workers' compensation, vested vacation, variable pay and thrift savings.[210] Two other loaders are applicable to management employee labor—an office supplies and expenses loader and an office space and facilities loader; the latter charge is calculated for each employee based on his or her management level.[211] O&R has its own office supplies and expense and facilities loaders for labor charged to CECONY.[212]

Direct labor charges from CECONY to non-regulated affiliate CEB receive an additional loader for A&G costs of approximately four percent. This loader is derived by dividing the salaries and expenses of selected corporate departments that directly support corporate employees—for example human resources and facilities—by total CECONY straight time payroll.[213] CEB is also charged a mark-up of approximately 0.14 percent on all accounts payable purchases, and charges for health plans are marked up by two percent to reflect administrative costs.[214] These loaders are appropriate because the affiliate does not otherwise pay a share of these administrative costs.

C. Accounting Testing

Testing is an essential part of any audit of affiliate transactions. As we outlined in our original proposal, Silverpoint planned to conduct detailed testing and review sessions with company personnel in order to assess the general accuracy of affiliate transaction accounting and the sufficiency of supporting documentation. In an audit of affiliate transactions, the devil is in the details. One of the main purposes of testing is for the auditor to develop a more nuanced understanding of how individual types of costs are being tracked and distributed. Only then can one adequately assess whether the associated accounting treatment is equitable and appropriate. Testing is also necessary to substantiate that what takes place in actual practice is consistent with a company's written policies and procedures and with regulatory requirements such as the use of fully-loaded costs and an emphasis on direct charging rather than allocation.

Silverpoint conducted a full day of interviews with CECONY accounting personnel in mid-March 2018 in order to obtain an initial yet substantive overview of the company's processes for billing affiliates for shared services and for billing charges to RECO under the JOA. At those

[210] Interview #6, response to Data Request #21, and ACAM p. 21.
[211] The loader for officers is based on an allocation of 720 square feet; employees in Bands 3 and 4 are based on 200 square feet, and Bands 1 and 2 are based on 120 square feet.
[212] The CECONY office supplies and expenses loader for 2017 was 11.41 percent; the office space and facilities loader rate was based on $42.12 per square foot. O&R's facilities loader for 2017 was 18.40 percent, derived as common plant overhead ($24.5 million) divided by total budgeted gross payroll ($133 million) (Response to Data Request #147).
[213] Interview #6 and ACAM p. 21. O&R and CET already receive a share of such costs in their allocated charges, and are ultimately reimbursed for their share of these costs paid by CEB.
[214] Interview #6.

interviews, accounting personnel discussed topics such as allocation ratios and overhead loaders, described accounting conventions such as the use of authority letters, and walked through sample invoices and billing spreadsheets. At that time, Silverpoint informed the company of the need for additional work sessions in order for us to learn more about accounting charges and to conduct affiliate transaction testing. The company later requested an overview of the work we planned to conduct during these sessions. Silverpoint subsequently provided an outline that included: 1) charges from O&R to RECO under the JOA; 2) charges from CECONY to CEI that are allocated to all affiliates; and 3) charges between O&R and CECONY for shared services. A copy of Silverpoint's work plan outline is included in the Confidential Appendix.

Company personnel expressed uncertainty about the types of questions and level of effort that would be involved in testing. For example, it was unclear whether accounting personnel could accommodate live testing without having detailed agendas or specific questions well in advance. Silverpoint provided a handful of relatively straightforward sample test questions designed to help the company determine how best to arrange these work sessions.[215] In July, Silverpoint submitted these same questions as an interview request in an attempt to move the discussions forward, however, the company did not schedule an interview to discuss these sample test questions or commit to other work sessions. [216] In the interim, Silverpoint submitted other testing-related questions as data requests but most went unanswered. In mid-December the company finally scheduled a brief phone interview to review its responses to our set of sample test questions. On this call the company agreed to expedite any remaining field work by the end of January 2019, however Silverpoint was never contacted by the company to make any such arrangements.

Follow-up testing and interview sessions were necessary to allow our team the opportunity to clarify how different types of costs are actually being treated under affiliate agreements. For example, Silverpoint planned to investigate the nature of more than $20 million per year in charges from CECONY to O&R that were above and beyond the standard allocation of corporate and utility shared services.[217] We also expected to develop a better sense of the extent to which O&R's charges to RECO under the JOA reflect the cost of compliance with New York REV. Other examples of the type of questions that Silverpoint expected to explore during detailed work and testing sessions include the following:

- How O&R's share of insurance premiums not otherwise allocated to all CEI affiliates (e.g., all risk property) is calculated (submitted as part of a formal data request)[218]
- How RECO's share of O&R's vehicle and equipment capital cost (approx. $7 million in 2017) is treated under the JOA

[215] As an example of one of our sample test items, Silverpoint asked O&R to explain how the costs for employees deployed to Puerto Rico were captured and excluded from any charges to RECO under the JOA.
[216] Interview Request #35 submitted July 30, 2018.
[217] Silverpoint's inquiry into these charges was submitted as Data Request #333 on September 14, 2018.
[218] During Interview #33, Insurance personnel indicated that premiums for O&R coverage were charged directly to the utility, which is inconsistent with the data we received. Silverpoint submitted Data Request #364 on October 19, 2018 for more information on insurance coverage and allocation of premiums; it was never answered.

- How equipment and vehicle O&M costs (approx. $11 million in 2017) flow through individual O&R departments and are ultimately reflected in charges to RECO
- How the O&R (and RECO) share of CECONY's cost of AMI meters and associated software development projects are calculated, and the basis for any direct cost assignment
- How O&R was charged for the mutual assistance it received from CECONY crews in connection with a November 2014 storm event[219]
- How charges for each of the shared services that are allocated or directly charged to O&R ultimately make their way to RECO through the JOA.

Another accounting area that Silverpoint expected to explore during testing was RECO's payments to third parties through accounts payable. In addition to the $70 to 100 million per year that RECO pays to O&R under the JOA, the utility also makes direct payments of roughly $100 million to third parties such as electricity suppliers, vendors, outside law firms, municipalities, and the State of New Jersey. Silverpoint found some discrepancies between the charges that were reportedly paid by RECO and the company's accounts payable records. For example, Silverpoint asked the Law department to provide the total fees paid by RECO to its New Jersey counsel Riker Danzig during the audit period. As shown on the next table, these amounts do not correlate to what was paid according to the company's accounts payable records.[220]

Exhibit VIII-5
RECO Fees for Outside Counsel

	Law Department	Accounts Payable
2014	$258,602.41	$359,318.55
2015	$204,626.05	$139,237.60
2016	$153,328.11	$111,456.64
2017	$169,111.47	$0.00
Total	$785,668.04	$610,012.79

Silverpoint asked the company to reconcile these figures, but accounting personnel never responded to our request.[221] Silverpoint identified a similar discrepancy with payments to providers of Solar Renewable Energy Certificates, discussed later in this chapter.

By way of summary, during the conduct of our audit, the company failed to provide adequate access to accounting information and personnel that would have permitted us to render an opinion on the general accuracy of the company's accounting for affiliate transactions and its conformance to New Jersey regulatory requirements. Silverpoint suggests that the BPU order a follow-up investigation of charges to RECO under the JOA and of charges to O&R from CECONY and CEI that are in turn allocated to RECO.

[219] This was a sample testing question that was never answered (see response to Data Request #390). In the BPU major event report on this storm, RECO stated that CECONY provided 31 lines crews as well as contractor crews.
[220] Legal fees provided in response to Data Request #352. Accounts payable information provided in response to Data Requests #53 and #149.
[221] Data Request #360 submitted October 18, 2018.

D. CEI Corporate Expenses

A significant portion of CECONY shared services costs—approximately $50 million per year—are designated as governance- or enterprise-level costs. These are essentially the costs of activities required for an entity to exist and operate as a corporation and cannot be identified as being driven by the demands of particular subsidiaries or businesses. A large portion of these costs are associated with premiums for excess liability, fiduciary, director and officer, and similar types of insurance coverage. The balance includes CECONY executive time allocated to CEI business activities and governance-related costs such as Board of Trustee and committee fees. It also includes the full cost of the strategic planning, investor relations, investor services, and consolidation accounting functions, as well as direct charges to CEI for IT, audit, or accounting services from CECONY departments.

Rather than CECONY billing these costs, they are instead charged to CEI each month (based on a forecast with yearly true-up); CEI in turn allocates them to all subsidiaries. This is merely an accounting convention, as there is no separate agreement between CECONY and CEI for shared services. CEI allocates these charges using a three-factor formula, which is a fairly typical approach in the industry for governance- and enterprise-level costs. The amounts allocated to each CEI affiliate during the audit period are summarized in the following table.[222]

Exhibit VIII-6
Allocation of CEI Corporate Service Expenses

($000)	2014	2015	2016	2017
CECONY	$ 39,021	$43,326	$46,391	$46,530
Orange & Rockland	2,984	3,350	3,548	3,643
CET Businesses	n/a	n/a	173	908
CEB Businesses	1,143	1,236	1,605	2,112
Total	**$ 43,149**	**$47,913**	**$51,717**	**$53,193**

A detailed breakdown of the $53.2 million in total CEI expenses for 2017 is included in the Confidential Appendix.

During an interview session with CECONY Cost Accounting personnel, the company walked through an example of a monthly invoice showing charges billed from CECONY to CEI for corporate expenses. The invoice also reflected how total charges were allocated and billed by CEI to each of the subsidiaries—CECONY, O&R, CET, and CEB. Charges from CECONY to CEI included direct charges from functions such as auditing, financial reporting, treasury, and corporate accounting research. Other charges included Board director fees, costs of the annual shareholders meeting and the annual report, and financial consolidation. During the interview, accounting personnel provided data extracted from the general ledger that supported these charges.[223] Silverpoint was satisfied with the reasonableness of the company's overall approach

[222] Response to Data Request #44, Subpart 1, Attachments 1-4. Prior to the formation of CEB, support services were provided by Competitive Shared Services, Inc. (CSS), a wholly-owned subsidiary of CEI; CSS employees were transferred to CEB. Numbers may not sum due to rounding.
[223] Interview #6. March 2017 CECONY to CEI billing spreadsheet provided in response to Data Request #37.

for handling these expenses. As we had no opportunity to conduct testing, were unable assess the accuracy of the company's process.

E. Corporate and Utility Shared Service Expenses

CECONY accounting personnel invoice O&R each month for its allocated share of the forecasted cost of corporate and utility shared services, exclusive of those billed to CEI as governance- and enterprise-level costs. During the audit period, O&R's seven percent share of these corporate and utility shared service costs averaged $21 million, based on the three-factor formula. CECONY accounting personnel issue another, separate invoice to O&R for all other charges, which in 2017 totaled $24 million. A summary of the allocated and "direct" charges from CECONY to O&R during the audit period is shown in the next table.[224]

Exhibit VIII-7
CECONY Direct and Allocation Charges to O&R

	2014	2015	2016	2017
Allocated Charges	$21,013,000	$22,104,000	$20,640,000	$20,424,000
"Direct" Charges	$14,238,125	$14,467,658	$18,498,193	$24,160,965
Total	$35,251,125	$36,571,658	$39,138,193	$44,584,965

Using a general allocator like the three-factor formula to allocate such a large amount of costs to O&R—$20 million in 2017—is not ideal, as there is no strong link to cost causation. In this case, however, CECONY's use of the three-factor formula does not appear to disadvantage O&R. For example, the General Accounting group has twenty professionals, roughly eight of whom work exclusively on O&R and RECO accounts; rather than being directly charged for these accountants, O&R receives the cost equivalent of 1.4 accountants (i.e., seven percent of 20) in its allocated charges.[225] For some categories of shared services—for example, facilities management, garages, stores, and security—O&R has its own employees that perform the function. In those instances O&R is charged for a share of CECONY management oversight only, not the entire function, which is appropriate.[226] O&R receives a credit to its allocated costs to account for any services that were directly charged by CECONY personnel to CEB, CET and CEI during the year. In 2017, there were roughly $3.5 million of such direct service charges, and O&R received a credit of 7.25 percent of the total, or approximately $0.25 million.[227]

O&R was charged approximately $24 million in "direct" charges during 2017, of which approximately $8 million was for employee benefits, pensions, and similar costs. The term direct is somewhat of a misnomer, as these are simply charges that are not subject to the typical seven percent allocation from CECONY to O&R. Some of these charges are directly assigned based on accounting authority letters that dictate how such charges are to be allocated between CECONY and O&R, while other such as postage may be based on direct measurement. Silverpoint selected

[224] Response to Data Request #44, Subpart 2, Attachments 1-4.
[225] Interview #5.
[226] Interview #6.
[227] Response to Data Request #42.

billing work orders that represented roughly half of the $24 million in direct charges from CECONY to O&R during 2017, many of which are IT-related costs, to learn more about the basis for these charges. These test items are summarized in the next table.

Exhibit VIII-8
Selected 2017 Direct Charges from CECONY to O&R

Work Order	Description	Total
WO# 60003	Consultants- Reported - PWC	$1,041,670
WO# 60003	Postage	1,583,256
WO# 68738	Info. Resource Maintenance	1,727,088
WO# 20742631-0004	Info. Resource Mainframe Costs	685,739
WO# 69458	DCX (Digital Customer Experience)	1,102,907
WO# 69490	Oracle Upgrade - Software	650,261
WO# 69470	AMI	4,322,788
WO# n/a	AMI Maintenance	123,469
WO# 69587	AMI - MAMS (Phase 2)	133,275
WO# 69588	AMI - MDMS (Phase 2)	293,056
N/A	Total Employee Benefits	8,140,248

Silverpoint asked the company to explain how each direct charge amount was determined—whether from direct labor charges by CECONY personnel, a set percentage of vendor invoices, or direct assignment based on a predetermined allocation—and to provide the authority letter or similar document that set forth the attribution method if applicable. We asked a similar question regarding the total employee benefit charges of $8 million. The company never responded to our request.[228]

CET and CEB do not receive any allocation of corporate or utility shared service cost from CECONY, only direct charges. A large portion of those charges are non-labor costs for employee benefits, pensions, and retiree benefits. Other charges include the cost of CECONY officer time and direct charges for services performed by CECONY departments (e.g., tax and auditing). Personnel in the Law department, for example, track their time by matter number for CET and CEB work so that it can be directly charged. CEB is also directly charged for fifty percent of the cost of the Energy Risk Management group, which is part of the Treasury function.[229] Total charges from CECONY to CEB and CET in 2017 were in the range of $8 million and $2 million, respectively.[230]

During an interview session with CECONY Cost Accounting personnel, the company walked through an example of a monthly invoice showing charges billed from CECONY to O&R and

[228] Data Request #333 submitted September 14, 2018.
[229] Interview #6. At one time CEI had two separate groups performing this function that were subsequently consolidated.
[230] Data Request #44, Subparts 3 and 5.

CEB.[231] Silverpoint did not have the opportunity to conduct further testing, clarify how certain charges were calculated, or develop a sense of the overall accuracy of the company's process.

O&R Shared Service

O&R invoices CECONY each month for approximately 93 percent of the cost of specific shared services that include cash processing, IT, and rubber glove testing, and for direct charges such as those from the O&R print shop. Charges from O&R to CECONY for shared services are in the range of $16 million per year, a large portion of which is associated with the 93 percent share of O&R's Information Resources group.[232] During an interview session with CECONY Cost Accounting personnel, the company briefly walked through an example of a monthly invoice that showed charges billed from O&R to CECONY for its monthly allocation of shared services and for direct charges.[233] We were not permitted to conduct any testing or further inquiry that would have allowed us the opportunity to develop a better sense of the overall accuracy of the accounting process.

F. Charges under the JOA

The JOA contains two pricing provisions: Article 2–Charges for Operations and Article 3–Charges for Jointly Used Property. O&R invoices RECO each month based on a forecast of JOA-related charges that is then trued-up at year end. The next table summarizes the charges from O&R under the JOA during the audit period as reported in RECO's annual informational filing to the BPU.[234]

[231] Interview #6. March 2017 CECONY to O&R and O&R to CEB billing spreadsheets provided in response to Data Requests #38 and #39, respectively.
[232] Response to Data Request #44, Subpart 4, Attachments 1-4 and response to Data Request #40.
[233] Interview #6. March 2017 O&R to CECONY billing spreadsheet provided in response to Data Request #40.
[234] Responses to Data Requests #15 and #52. Numbers may not sum due to rounding.

Exhibit VIII-9
Summary of Joint Operating Agreement Charges

	2014	2015	2016	2017
Article 2 Charges				
Other Power Supply	$0	$0	$0	$973,000
Transmission O&M	1,323,033	988,866	572,818	935,384
Distribution O&M	2,911,043	2,868,596	4,538,484	4,461,138
Customer Ops and Sales Exp.	5,117,225	5,106,325	5,701,310	5,448,641
A&G	16,801,680	17,332,661	16,735,292	16,941,339
Subtotal O&M Expenses	26,152,982	26,296,449	27,547,905	28,759,502
Other Charges for Operations:				
Taxes Other Than Income	1,251,077	1,226,756	1,258,464	1,301,817
Electric Plant in Service	8,749,533	20,139,589	16,234,251	18,650,972
Current Assets	36,548,499	41,374,315	20,381,688	(2,506,790)
Regulatory Assets/Other Def.	13,294,271	15,470,644	13,897,169	12,470,858
Current Liabilities	(11,795,266)	(14,719,188)	(5,828,411)	76,023
Other Inc. State./Bal Sheet	745,529	818,156	1,095,122	2,273,938
Total Other Charges	48,793,644	64,310,271	47,038,283	32,266,817
Article 3 Charges				
Charges for Jointly Used Prop	5,675,802	5,777,154	4,770,844	5,910,852
Total	**$80,622,428**	**$96,383,874**	**$79,357,032**	**$66,937,172**

Article 2 charges represent the costs associated with construction, maintenance, and operation of RECO's T&D system as well as a share of the business functions associated with operating an electric distribution utility (e.g., customer service). Costs that cannot be directly charged to RECO are allocated using revenue ratios for new business and A&G expenses and customer ratios for all other expenses. Each year, accounting personnel calculate four distinct customer ratios and four distinct revenue ratios, some of which reflect the gas business and Pike and some that do not. This tailored approach to allocations is appropriate. Allocating the cost of the customer call center across the total number of RECO, Pike, and O&R New York gas and electric customers is reasonable, but may not be so for other functions. Silverpoint reviewed the company's calculation of the common expense allocation ratios used during the audit period and they appeared to be accurate.[235]

Of the roughly $22 million in customer service and A&G charges to RECO in 2017, approximately 95 percent were allocated. T&D O&M costs under the JOA in 2017 totaling $5.4 million are all based on direct charges. During our interviews with operations personnel, Silverpoint confirmed that O&R utilizes distinct project numbers in its work management system to track New Jersey construction and maintenance work. The marked increase in distribution O&M in 2016 and 2017 was mainly due to higher overhead line maintenance expenses. The

[235] Authority letters CA-038, O&R Common Expense Split, provided in response to Data Request #17; supporting spreadsheet calculations provided in response to Data Request #46.

charge for other power supply in 2017 was an anomaly—it was to reimburse O&R for an invoice it incorrectly paid to one of RECO's default service electricity suppliers. More than half of the charges under Article 2 of the JOA are non-O&M costs for operations, including capital additions, regulatory assets, and taxes. Nearly all of these costs are directly charged; only taxes and a small amount of miscellaneous income deductions are allocated, apparently using a revenue ratio.

Article 3 of the JOA relates to direct charges for jointly used plant and property, such as the Spring Valley operations center. No detail on these charges or how they are calculated is provided in the company's filings. As the company did not schedule any of our requested testing or working sessions, we were unable to explore the nature of any of the JOA charges in any further detail.

Beginning in 2016, O&R had a series of agreements with Pike's new owners, Corning Natural Gas Holding Corporation (Corning) to provide field operations and customer services.[236] These functions including the call center, meter reading, collections, payment processing, retail access, and electric operations field services including operations, construction management, trouble calls, emergency response, and supervisory control and data acquisition (SCADA) monitoring and reporting. Flat rate charges for customer service, technology and SCADA were approximately $31,000 per month ($375,000 per year), plus a general carrying charge for systems and facilities of another $33,800 per month—a total of roughly $778,000 per year. The contract also specifies hourly rates for electric and gas operations and meter operations personnel, although we have no way to estimate how much Corning was actually charged for those services. Silverpoint asked the company to explain how the costs of providing these services to Corning were captured and if they were deducted from the costs shared with RECO under the JOA. The company indicated that payments received from Corning were treated as operating revenue on O&R's income statement. The cost of providing these services to Pike's new owners, however, were evidently never backed out of total costs allocated to RECO under the JOA.[237]

G. Charges under the PSA

Silverpoint discusses the PSA in more detail in Chapter IX in connection with electricity procurement, but as with the JOA, the company did not respond to Silverpoint's request for more information on charges under this agreement. We could not ascertain whether the revenues received from Pike's new owners for electricity supply are correctly credited against the costs charged to RECO under the PSA. For example, Corning paid over $50,000 per month to reimburse O&R for the maintenance and operations of infrastructure used to deliver energy supply to Pennsylvania customers.[238] These payments were likely treated as operating revenue on O&R's income statement, with no offset provided to RECO if applicable.

[236] Transition Services Agreement provided in response to Data Request #26.
[237] Response to Data Request #390. Operations personnel charge work to project numbers and therefore it is possible that work for Pike could have been separately tracked, but it is not clear that meter reading personnel would do so.
[238] Electric Supply Agreement provided in response to Data Request #26.

H. Accounting for Clean Energy and Related Programs

Consistent with the RFP, Silverpoint assessed RECO's accounting controls related to the Clean Energy program and its own energy efficiency and solar programs. Silverpoint expanded the review to include accounting procedures associated with the Solar Renewable Energy Certificate (SREC) financing program.

Clean Energy Program

New Jersey's Clean Energy Program, which is administered through the BPU's Office of Clean Energy, promotes energy efficiency programs and the development of clean, renewable sources of energy. Since its inception, the BPU has instituted a number of initiatives to help ratepayers reduce peak demand, conserve finite resources, and promote new technologies.[239] The Clean Energy Program is funded through the Societal Benefits Charge (SBC), which was established as a provision of EDECA in 1999. The SBC has three components for rate filing purposes: DSM and Clean Energy (referred to as the SBC component), Universal Service Fund (USF), and Lifeline. The amount of the SBC component to be paid by each utility during the fiscal year is set by Board Order. During the audit period, RECO's fiscal year funding requirements remained level at $5.2 million.[240]

The company pays the BPU each month for the SBC component through the use of a General Office Invoice. Silverpoint confirmed monthly payments to the State totaling approximately $21 million during the four year audit period through a review of detailed accounts payable information.[241] The company's written accounting procedures address all three portions of the SBC and adequately describe the payment process, associated FERC accounting, and the process for reconciliation of over/under collections.[242]

Energy Efficiency and Solar Programs

As discussed in more detail in Chapter XI, O&R's Energy Services department administers low income energy efficiency programs as required by New Jersey law. These programs support direct installations of electric energy efficiency measures in customer homes. The company tracks costs for each program, which include marketing and administrative costs as well as payments to Honeywell for installed energy efficiency measures. Costs for the low income program are recovered under the Regional Greenhouse Gas Initiative (RGGI) surcharge, which is applicable to all rate schedules on an equal cents per kilowatt-hour basis. The surcharge is reconciled and adjusted by the BPU on an annual basis, incorporating a true-up for any prior period over- or under-recoveries and an estimate of the revenue requirements and the forecasted kWh sales to customers during the upcoming year. As RECO's RGGI surcharge calculations are

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[239] All of RECO's Clean Energy programs are currently managed by the Office of Clean Energy.

[240] Interview #59. The SBC is also used to recover funding for social programs, nuclear plant decommissioning costs, historical demand side management programs, manufactured gas plant remediation costs and the cost of consumer education. RECO has no demand response or demand side management programs in New Jersey.

[241] Accounts payable information provided in response to Data Requests #53 and #149.

[242] Interview #59 and GAP 904B, Accounting for the New Jersey Societal Benefits Charge, provided in response to Data Request #372. O&R's Energy Services department determines the monthly payment for the USF and Lifeline components of the SBC based on monthly billed kWh sales at rates in effect in the current RECO tariff.

routinely examined by regulators, we have not reviewed the company's accounting procedures again here. RECO had no customer solar programs in New Jersey during the audit period.[243]

Solar Renewable Energy Certificate Program

In 1999, EDECA established New Jersey's Renewable Portfolio Standard (RPS). The Solar Renewable Energy Certificate (SREC) program provides a means for electric suppliers to meet their solar RPS requirements. Solar projects installed in New Jersey that are registered with the program are qualified to generate SRECs; an SREC is a tradable commodity that represents the renewable attributes of one megawatt-hour of electricity generated from a solar energy source. The SREC financing initiative was introduced by the BPU to bring greater price certainty to the SREC system, and was designed to stimulate solar activity in New Jersey by giving host developers a firm source of revenues. Under this initiative, utilities are required to purchase a designated number of SRECs each year and hold them for a specified amount of time. An auction of utility SRECs is held twice a year, and net proceeds or losses are reconciled through a utility's RGGI surcharge.

Under its approved program, RECO procures certificates from a pool of 21 solar power providers at fixed contracted prices. Each quarter, meter readings are entered into the PJM Interconnection LLC (PJM) Generation Attribute Tracking System (GATS) by the solar provider and O&R; once the data is verified in GATS, SRECs are generated for each provider. The company calculates the payment due each provider based on the fixed contract price and number of SRECs generated. Payments are produced using the Oracle Sundry system and routed for approval; once approved, checks and statements are sent to each solar provider and payment transactions are recorded to the appropriate project and task.[244]

The company utilizes GATS to determine the vintage and quantity of SRECs available for each auction. Auctions are coordinated by NERA, which sets the auction price based on market conditions; the price is approved in advance by all electric distribution companies participating in the auction. After the auction, RECO enters into master agreements with each successful bidder, and transaction confirmation letters are sent to each bidder with quantity purchased, amount due and wire transfer information. The CECONY Treasury department confirms that payment has been received before SRECs are sent to the successful bidder in GATS.[245]

The next table summarizes the number of SRECs procured and sold by RECO during the audit period.[246]

[243] Interview #59.
[244] Interview #59.
[245] Interview #59.
[246] Response to Data Requests #290 and #291.

Exhibit VIII-10
SREC Procurements and Auction Proceeds

	2014	2015	2016	2017
Total SRECs Procured	4,217	4,167	4,636	4,101
Total Paid ($000)	$1,608	$1,588	$1,766	$1,564
Total SRECs Sold	3,747	4,169	4,527	4,463
Total Proceeds ($000)	$902	$792	$702	$897

Silverpoint compared the amounts paid to individual third parties for purchases of SRECs to RECO accounts payable records—the data did not tie.[247] Silverpoint asked for an explanation but the company never responded to our request.[248]

As discussed in Chapter IX, the company also purchases SRECs for the power for New Jersey customers that are not supplied through the BGS auction in order to comply with the requirements of the New Jersey Clean Energy Act.[249] The cost of SRECs that are purchased (typically 4,000 to 4,500 per year) is included in the charges under the PSA.

I. Conclusions

1. The company's internal controls over accounting functions are adequate.

The company has in place more than 200 General Accounting Procedures that constitute a suitable framework of internal control over financial reporting and help to ensure accounting data are in accordance with relevant rules and regulations. Silverpoint found these procedures to be sufficiently detailed and generally consistent with good utility practice. Common accounting functions such as accounts payable, accounts receivable, and payroll are subject to extensive SOX controls that have been routinely examined by external and internal auditors and found to be adequate and effective.

2. The company's cost allocation manual and accounting procedures describe policies that are consistent with regulatory requirements for affiliate transactions but are vague in terms of detailed practices.

Policies described in the company's cost allocation manual and affiliate transaction accounting procedures—the use of fully loaded costs, the preference for direct assignment over allocation, and the emphasis on traceability to the Uniform System of Accounts—are consistent with the pricing principles required under EDECA, the Affiliate Standards, and the merger settlement agreement. Taken together, the manual and procedures provide a general overview of the company's accounting processes, but otherwise lack clarity and sufficient granularity on detailed practices that would ensure appropriate pricing principles are reflected in actual practice. In the

[247] Accounts payable data provided in response to Data Requests #53 and #149.
[248] Data Request #317 submitted August 6, 2018.
[249] Suppliers in the BGS auction procure their own SRECs.

cost allocation manual, for example, descriptions of charges under the JOA are thin and contradictory to other sources, while charges to RECO under the PSA are not addressed at all.

3. The accuracy of the company's accounting for affiliate transactions and its conformance to New Jersey regulatory requirements are uncertain.

During the audit period, CECONY charged O&R approximately $40 million per year for corporate and utility shared services, nearly half of which was based on non-standard allocations and charging methods not adequately documented in the company's cost accounting manual or associated procedures. In a similar vein, O&R annually charged RECO an average of $80 million in costs through the JOA, the derivation of which was poorly documented or otherwise inadequately explained. To develop a clear understanding of how these costs were actually accumulated and distributed, the Silverpoint team needed to obtain more information from company accounting personnel, primarily through detailed testing and interview sessions.

The company was never able to accommodate our requests for detailed reviews of affiliate transaction accounting and cost allocation methods, nor did it respond to data requests aimed at addressing our questions and concerns in these areas. Silverpoint was ultimately unable to complete certain audit activities set forth in the RFP including: (a) determining the accuracy of allocations, (b) reviewing and assessing affiliate pricing policies, and (c) reviewing affiliate charges and cost allocation methodologies for adherence to legal, regulatory and contractual requirements. As such, Silverpoint suggests that the BPU order a follow-up investigation of: 1) charges to RECO under the JOA, 2) charges from CEI to O&R, 3) charges between CECONY and O&R, and 4) direct payments by RECO to third parties.

4. The company's current approach for allocating CEI governance- and enterprise-level costs appears reasonable and will yield equitable results if accurately applied.

Approximately $50 million per year of CECONY expenses are designated as governance- or enterprise-related costs and charged to CEI, which in turn allocates them to all affiliates based on a three-factor formula. This is a common approach in the industry for costs of this type. The majority of these charges relate to insurance coverage for common forms of risk; other costs relate to activities that benefit all subsidiaries (e.g., strategic planning) or that are governance-related in nature (e.g., director and committee fees). During the first three years of the audit period, CEI utilized a three-factor formula to allocate these costs that was based on gross margin, payroll and assets—an approach criticized in a recent New York audit for causing cross-subsidization of a non-regulated affiliate. Since 2017, the company allocates these costs using the Massachusetts formula based on revenue, payroll and assets, which is a more traditional approach that better minimizes the risk of cross-subsidization. Silverpoint was unable to assess the accuracy of the company's accounting process for these costs, however, as we had no opportunity to conduct a detailed review and testing of charges.

5. RECO appears to have been overcharged for operations and customer service-related functions under the JOA during the audit period.

In 2016, O&R entered into agreements to provide field operations and customer services to the new owner of its Pennsylvania subsidiary, Pike County Light & Power. Payments to O&R under these agreements were approximately $1 million per year and were treated as operating revenue on O&R's income statement. Silverpoint asked the company to explain how the costs of providing these services were deducted from those allocated to RECO under the JOA. Based on the company's lack of response, we presume that charges to RECO for certain cost categories were calculated incorrectly.

J. Recommendations

VIII-1 Develop detailed accounting practice guidelines to ensure the calculation of charges under the JOA and PSA are accurate and adequately documented.

The detailed assumptions and methods that are utilized by O&R to calculate charges to RECO under affiliate agreements should be transparent and well-documented. These charges form the basis of rates paid by New Jersey customers, and clear descriptions of their derivation should be readily available to regulators and their designees. Affiliate transaction accounting is rather specialized in nature, and without detailed documentation the company appears to be overly reliant on the institutional knowledge of a small handful of employees. Detailed information about methods, such as mapping charges to source accounting records in Oracle, should be added to the current affiliate cost allocation manual and procedures, or else developed as stand-alone reference guides or job aids for accounting personnel and others. During this documentation process, inconsistencies between the current cost accounting manual, affiliate transaction accounting procedures, and other sources such as affiliate agreements should be eliminated.

It was our initial impression that more detailed accounting procedural documentation may already exist for allocations and direct charges from CECONY to O&R (e.g., authority letters). If this is not the case, however, the company should develop similarly comprehensive guidelines and job aids that adequately describe charges to O&R that are ultimately shared by RECO.

VIII-2 Determine the impact on New Jersey ratepayers of O&R's failure to compensate RECO for the benefit of the sale of services to Pike's new owners.

O&R provided operations and customer-related services to the new owner of Pike under formal written agreements. RECO ostensibly paid its share of the cost of these third-party services in charges under the JOA, but did not receive a share of any offsetting revenues. The company should calculate the amount that RECO was overcharged under the JOA during the audit period and determine the effect, if any, on the rates that were being paid by New Jersey customers.

IX. Electricity Procurement and Market Conditions

A. Electricity Procurement

Most of RECO's requirements for default service supply—approximately 90 percent—are for its Eastern Division customers in Bergen County.[250] These customers are considered part of PJM load, and the company procures these requirements through the BPU's yearly Basic Generation Service (BGS) auctions. The remaining ten percent of the requirements are for Central and Western Division customers who do not purchase electricity from third-party suppliers. O&R purchases energy and capacity from the New York Independent System Operator (ISO) for these RECO customers and for its New York non-shopping customers based on spot market prices. RECO pays a share of the cost of these contracts under the terms of a formal agreement between the two utilities. RECO blends the cost from the BGS auctions and the New York ISO so that all New Jersey non-shopping customers, regardless of location, pay the same rate.[251]

The New Jersey BGS Residential and Small Commercial Pricing (BGS-RSCP) auction serves the needs of smaller customers, while the Commercial and Industrial Energy Pricing (BGS-CIEP) auction focuses on larger customers taking hourly-priced service. The BGS-RSCP auction is designed to procure roughly one-third of a utility's annual requirements for a three-year term, while the BGS-CIEP auction procures service for a one-year period.[252] The results from recent RECO BGS auctions are summarized in the next table; no CEI affiliates were winning bidders during the audit period.[253]

Exhibit IX-1
RECO BGS Auction Results

	2014	2015	2016	2017
BGS-RSCP				
Tranches Awarded by Company:				
Exelon Generation Company	1			
NextEra Energy Power Marketing	1	1	1	2
Final Price ¢/kWh	9.561	9.066	8.502	8.050
Peak Load Share (MW)	192.25	97.65	100.98	203.95
BGS-CIEP				
Tranches Awarded by Company:				
Exelon Generation Company	1	1		
PSEG Energy Resources and Trade			1	1
Final Price $/MW-day	290.41	272.14	277.50	223.61
Peak Load Share (MW)	65.5	64.4	55.1	56.1

[250] RECO's Eastern Division is the New Jersey portion of O&R's Eastern Operating Division, i.e., Bergen County; RECO's Central Division includes Passaic County and the Western Division includes a portion of Sussex County.
[251] Interview #13.
[252] BGS-RSCP auction tranches are for approximately 100 MW of peak load; because RECO's load is relatively small, it procures one tranche each year and a second tranche once every three years.
[253] Response to Data Request #286.

Winning bidders are responsible for fulfilling all requirements of a PJM load-serving entity, including capacity, energy, ancillary services, and transmission. Utilities calculate a blended BGS-RSCP rate each year based on the outcome of the auction; they also make routine filings with the BPU to reconcile differences between the cost of BGS and the revenues from customers for that service.[254]

To mitigate the effect of spot market price fluctuations on the New York ISO supply, RECO procures financial hedges, the cost of which is recovered through the BGS reconciliation mechanism.[255] The CECONY Energy Risk Management organization financially hedges the energy portion of the supply. New York and New Jersey portions of the supply are handled separately because each state has different rules governing hedging. The BPU reviews the RECO hedging strategy each year in advance.[256] Silverpoint reviewed the company's policies, procedures, and guidelines in the energy risk management area and found them sufficient.[257]

To comply with New Jersey's Clean Energy Act, RECO purchases solar renewable energy certificates—typically 4,000 to 4,500 per year—for its portion of the New York ISO supply, the cost of which is included in monthly charges to RECO under the Power Supply Agreement.[258] The original PSA between O&R and RECO was signed in 1993, and was most recently amended in December 2016 to remove Pike as a party to the agreement. That same year, O&R entered into a separate electric supply agreement with Pike's new owner that has a different pricing structure from the PSA, including per-month carrying costs and service fees that start at approximately $51,000 per month and continue to escalate.[259]

Silverpoint asked the company to explain how components of the PSA such as allocation ratios and charges for jointly used utility plant are calculated, and to describe the source of data for these calculations. During our interview, corporate accounting personnel walked through their process for calculating monthly charges and demonstrated how RECO's charges were derived for a sample month.[260] The CECONY Rate Engineering group calculates two key ratios that are used in PSA calculations—the Energy Delivery Ratio and the Energy Sales Ratio. Representatives from this group explained to us that they use a spreadsheet to make these calculations using information from sources such as substation sendout reports and data on third-party sales to determine the portion of New York ISO energy assignable to RECO customers. Pike is reportedly treated as a customer of O&R for the purpose of deriving these ratios, which

[254] Interview #13. These filings are subject to review by Staff.
[255] Response to Data Request #277.
[256] Interview #33. All risk associated with BGS auction supply is absorbed by bidders so no hedging is required
[257] Corporate Instruction CI-2015, for example, outlines risk governance, including the roles of the Board and Risk Oversight Committees; others include CECONY Energy Risk Management Policy 620-1, Energy Risk Procedures RRM-200 and Energy Credit Procedures ERM-100. Documents provided in response to Data Request #320.
[258] Interview #59. Suppliers in the BGS auction procure their own SRECs. PSA provided in response to Data Request #2.
[259] Electric Supply Agreement provided in response to Data Request #26. Carrying costs represent O&R's cost to maintain and operate the physical infrastructure required to deliver the energy supply.
[260] Interview #13. Silverpoint subsequently requested a copy of the presentation but it was never provided (Data Request #271 submitted June 27, 2018).

would be appropriate. Silverpoint subsequently asked for an example of the spreadsheet and ratio calculations to review but the company never provided them.[261]

Charges to RECO under the PSA include costs charged by the New York ISO for jointly used T&D assets. RECO receives a credit under the PSA for costs associated with O&R's New Jersey jointly used T&D assets, although during the interview the company was unable to specify what percentage of RECO assets these represented. Silverpoint subsequently asked the company to confirm PSA joint use percentages in both states. We were specifically interested in whether these percentages were still appropriate given how the system has evolved over time, and in particular since the divestiture of Pike. The company never responded to our questions.[262] It also never responded to our request to clarify whether there was any overlap in the O&R transmission-related costs that RECO pays under the JOA and those it pays under the PSA.[263]

Silverpoint was unable to assess the accuracy of charges under the PSA, including the calculation of key ratios and charges for jointly used assets. We were also unable to verify 1) whether charges received from Pike's new owner are properly taken into account in the calculation of charges to RECO under the PSA; 2) whether the company's assumptions regarding jointly used assets are still appropriate; and 3) whether there is any potential double recovery of transmission costs under the two affiliate agreements. As such, Staff may want to consider examining these issues when it reviews future RECO filings.[264]

B. Market Conditions

During the audit period, RECO did not engage in any other types of market transactions for energy and capacity other than supplies procured through the BGS auctions and the PSA. Neither RECO nor O&R engaged in market transactions related to emissions. Silverpoint discussed purchases and sales under RECO's solar renewable energy certificate program, and associated accounting, in Chapter VIII.

Third-Party Suppliers

The number of electric third-party suppliers in RECO's territory serving residential, small and large commercial and industrial (C&I), and lighting customers has been relatively stable over the audit period, as summarized on the next table.[265]

[261] Data Request #281 submitted June 27, 2018.
[262] Data Requests #278 and #279 submitted June 27, 2018.
[263] Data Request #280 submitted June 27, 2018.
[264] Silverpoint has not suggested a follow-up audit, as we have done elsewhere in this report, because the charges under the PSA are already subject to Staff review as part of RECO's schedule for electric service tariff filing.
[265] Response to Data Request #283.

Exhibit IX-2
New Jersey Third-Party Suppliers

Customer Type	2014	2015	2016	2017
Residential	24	26	28	27
Small C&I	12	13	15	13
Large C&I	28	26	27	26
Lighting	6	6	8	9

Sales of electricity by third-party suppliers, as measured by number of customers and total megawatt hours, declined during the audit period. While slightly more commercial customers are shopping with third-party suppliers, fewer residential customers are doing so. The following table summarizes the number of customers shopping with third-party suppliers as a percentage of total RECO customers, as well as the associated megawatt hour sales.[266]

Exhibit IX-3
RECO Customers Shopping with Electric Third-Party Suppliers

	Customers Shopping with TPS					MWH Sales by Third-Party Suppliers			
	2014		2017			2014		2017	
	Number	% Total RECO	Number	% Total RECO		MWH Sales	% Total MWH	MWH Sales	% Total MWH
Residential	6,465	10.2%	4,989	7.8%		98,734	13.7%	68,441	9.7%
Small C&I	1,575	18.4%	1,738	20.1%		433,123	61.1%	387,778	58.2%
Large C&I	48	75.0%	48	77.4%		141,797	86.3%	148,518	94.0%
Lighting	62	7.8%	71	8.7%		4,181	35.2%	3,742	31.5%
Total	8,150	11.2%	6,846	9.3%		677,835	42.2%	608,479	39.5%

In terms of total customer base, only 9.3 percent of RECO customers purchased from third-party suppliers in 2017 compared to 11.2 percent in 2014. Total electricity provided by third-party suppliers decreased from 42.2 percent to 39.5 percent during the same period.

C. Conclusions

1. The Power Supply Agreement is an acceptable method for allocating costs associated with electric supply from the New York ISO.

Customers in RECO's Central and Western Division who opt to purchase BGS receive electricity purchased by O&R from the New York ISO. The terms of the PSA are reasonable and will yield equitable results if correctly calculated and applied.

[266] Response to Data Request #283.

2. Total electricity purchased from third-party suppliers declined during the audit period.

Customers in all rate classes had an adequate number of third-party suppliers to choose from as alternatives to default electric service. However, less than ten percent of RECO's total customers shop for power, and approximately 60 percent of total electricity is still obtained through Basic Generation Service. Megawatt hour sales by third-party suppliers to all rate classes except for large commercial declined during the audit period.

D. Recommendations

Silverpoint has no recommendations in this area.

X. Distribution and Operations Management

A. Background

Consistent with the RFP, Silverpoint conducted a focused investigation of O&R's distribution and operations management to identify any issues that may have caused financial harm to ratepayers. As part of our review, the team assessed the company's system planning and analysis efforts, and considered the adequacy of recent capital investments in the New Jersey portion of the T&D system. We examined system reliability and resiliency and the company's recent and planned investments in smart grid and related initiatives. On the operations side, the team assessed the adequacy of inspection and maintenance programs including vegetation management, as well as operating and work management practices. The Silverpoint team also examined the company's management of contractor performance and assessed O&R's storm response preparedness.

System Overview
Through its subsidiary RECO, O&R provides electric service to New Jersey customers in portions of Bergen, Passaic, and Sussex Counties. In New York, O&R provides electric and gas service to customers in Orange, Rockland, and Sullivan Counties. These service territories are illustrated below.

Exhibit X-1
Orange and Rockland and RECO Service Territories

The following table summarizes additional statistics on the O&R system; a non-redacted version of the table is included in the Confidential Appendix.[267]

Exhibit X-2
O&R System Overview

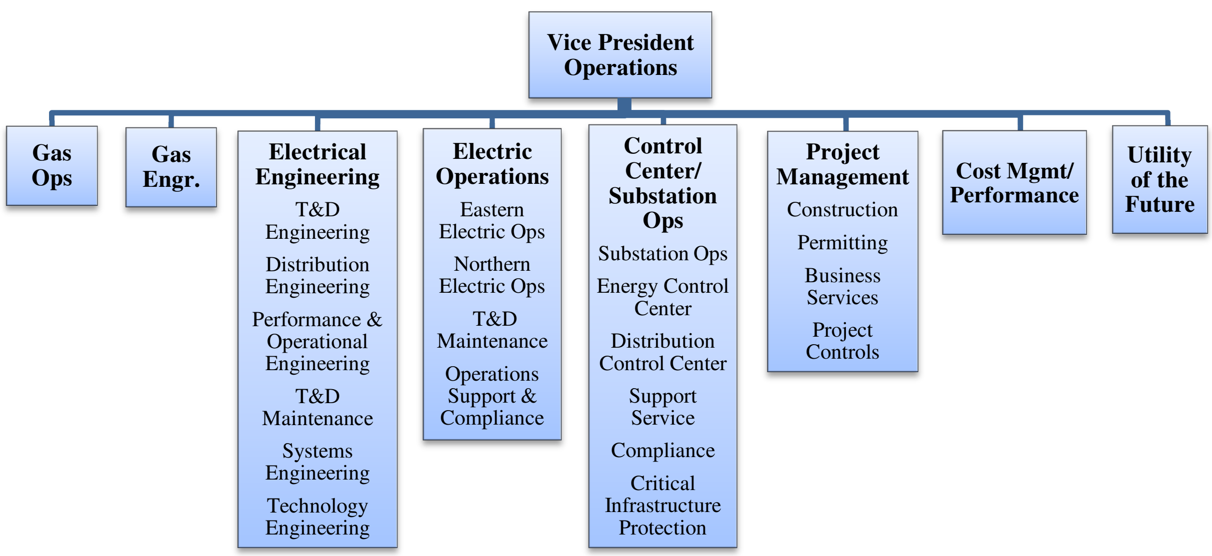
	New Jersey	New York	Total O&R
Service territory - square miles	240	1,060	1,300
Electric customers (approximate)	72,000	232,000	304,000
Transmission lines – circuit miles	78	454	532
OH distribution line – pole miles	801	2,942	3,743
Distribution circuits	98	202	300
Underground distribution lines - miles	579	1,559	2,138
Distribution poles (approximate)	41,500	91,500	133,000
Transmission substations			
Distribution-only substations			

Additional information about the O&R and RECO T&D systems, including system maps, is included in the Confidential Appendix.

Organization and Staffing

The O&R Operations organization is comprised of eight departments, each of which reports directly to the Vice President of Operations, as illustrated in the following chart.

Exhibit X-3
Orange and Rockland Operations Organization



[267] CEI 2017 Annual Report, Interview #22, responses to Data Requests #28 and #328, and the O&R website.

The total number of Operations employees grew by ten percent during the audit period; staffing levels in terms of full time equivalents (FTEs) are summarized in the following table.[268]

Exhibit X-4
O&R Operations Organization Staffing by Department

Total FTEs	2014		2015		2016		2017	
Category	**Mgmt.**	**Union**	**Mgmt.**	**Union**	**Mgmt.**	**Union**	**Mgmt.**	**Union**
Gas Operations	36	113	39	105	46	109	49	105
Gas Engineering	31	4	22.5	15	25	14	25	15
Electric Operations	50	165	48	172	48	170	53	181
Substation Operations	6	40	6	39	7	39	7	44
Control Center Operations	40	8	42	9	47	9	48	9
Project Mgmt. and Other *	36	0	29.5	0	37	0	39	0
Electrical Engineering	53	26	56.5	29	64	28	66	27
Total Operations	**252**	**356**	**243.5**	**369**	**274**	**369**	**287**	**381**

* Other includes the Utility of the Future and Cost Management/Performance groups

There was a seven percent increase in union employees over the audit period, with most of that increase occurring in Electric Operations. Manpower levels in that area tend to fluctuate because O&R does not immediately replace retirees or transfers but instead hires new linemen in blocks of ten to fifteen at a time to send through line school.[269] The net increase in total management employees from 252 to 287 implies an increase of 14 percent; however, twelve Project Management operations system support employees were moved to the O&R Information Resources group in 2015, so the increase is considerably higher. Some of the increase was due to the creation of the new Utility of the Future group, but Electrical Engineering also grew by 25 percent. Some portion of the increase in management employees was due to ongoing requirements under the New York REV initiative. During the audit Silverpoint asked for more information to determine if and to what extent these additional resources benefit New Jersey customers, but the company never responded to our interview request.[270]

O&M costs for Operations departments during the audit period are summarized on the next table.[271]

[268] Data provided in response to Data Request #241.
[269] Interview #25. It takes 42 months to become a fully qualified overhead lineman and 36 months to be fully qualified for underground.
[270] Interview Request #47 submitted September 10, 2018. The increase in O&M costs during the audit period attributable to the Utility of the Future group and expanded Electrical Engineering department was approximately $3 million. During its review of the draft report, the company indicated that these employees contribute to New Jersey Clean Energy initiatives and New Jersey Energy Master Plan tasks, but we have not verified this information.
[271] Response to Data Request #65. Operations System Support was excluded from the 2014 Project Management total for clarity, as the group was moved to Information Resources in 2015. Numbers may not sum due to rounding.

Exhibit X-5
O&R Actual O&M Costs by Organization

$(000)	2014	2015	2016	2017
Gas Operations	$ 19,529	$ 16,534	$ 21,155	$ 21,981
Gas Engineering	1,793	4,290	4,620	4,840
Electric Operations	38,384	39,357	41,172	39,787
Electrical Engineering	6,068	5,654	7,030	7,177
Substation Operations	6,093	6,553	5,104	6,628
Control Center Operations	7,283	7,159	8,165	8,753
Cost Mgmt./Performance	47	152	233	250
Project Management	548	685	925	756
Utility of the Future	-	534	1,938	2,289
Total	**$ 79,745**	**$ 80,918**	**$ 90,341**	**$ 92,460**

Actual O&M costs were within one percent of budget in all years but 2015, when actual spending was almost $4 million under budget; the shortfall was fairly evenly split between gas and electric operations departments.

Benchmarking

The O&R electric operations organization participates in the New Jersey Utilities Association (NJUA), as well as an equivalent process in New York, that allows it to share best practice information with other members. Engineering and operating department employees are committee members or regular attendees at organizations such as EPRI, EEI, the Institute of Electrical and Electronics Engineers (IEEE) and the Association of Edison Illuminating Companies (AEIC) and share knowledge, insights, and best practices in that fashion.[272] O&R shares information on best practices with CECONY and in some instances with other utilities; for example, the corporate emergency management group recently arranged a visit to Florida Power and Light to review that utility's storm restoration practices.[273] The company does not participate in subscription third-party utility cost or performance benchmarking groups.

Recent New York Audits and the REV Initiative

During the audit period, aspects of O&R's operations function were examined in three separate audits initiated by the New York PSC. Two of these audits were directed at all utilities in the state and the third was a focused management and operations audit of O&R and CECONY. While Silverpoint's audit was underway, O&R filed with regulators a total of six implementation plan updates connected with two of these audits, the last as late as December 2018. Silverpoint leveraged information from the audit reports and implementation plans where possible to avoid duplication of efforts, particularly given the limited availability of O&R's personnel.

[272] Interview #4. According to its website, AEIC is an operations-focused trade association that enables the exchange of technical information and best practices through a committee structure, staffed with experts from management of member companies, to solve challenges and create opportunities for electric utilities worldwide.
[273] Interview #25.

The first of the state-wide audits included an assessment of the completeness and accuracy of electric reliability metrics and the reasonableness of utility methods and procedures used to calculate them. The auditors ultimately concluded that procedural and process controls at O&R were adequate to ensure the accuracy of performance data and reported results.[274] The management audit of O&R and CECONY included an in-depth review of operational areas such as system planning, project management, work management, and contractor performance; we discuss some of the recommendations from this audit later in this chapter.[275] The other state-wide investigation was aimed at assessing utility staffing levels to identify best practices in terms of the appropriate mix of employees and outside contractors.[276] The benchmarking aspect of the study had significant analytical shortcomings that meant it was not particularly useful for assessing individual utilities. However, the utility-specific portion of the review echoed some of the same concerns as the earlier management audit and we discuss them later in this chapter.

In addition to the three audits, the New York REV initiative created significant incremental workload for operational groups during the audit period. As one example, REV requires utilities to expand system planning to include the ability to integrate distributed energy resources (DERs) into the distribution system. O&R filed a 350-plus page Distributed System Implementation Plan (DSIP) in 2016 that was meant to be an initial assessment of its distribution system in the context of REV policies and goals, including DER and the development of hosting capacity.[277] Engineering personnel and other O&R employees do not separately track the time they spend on New York audits or REV-related matters, and therefore the costs associated with these activities would be shared with RECO. Silverpoint raises the topic here primarily to acknowledge that such costs have, in our view, been significant. In general terms, O&R believes that New Jersey will eventually benefit from REV initiatives—it sees the difference between states as really a matter of timing.[278]

B. System Planning and Engineering

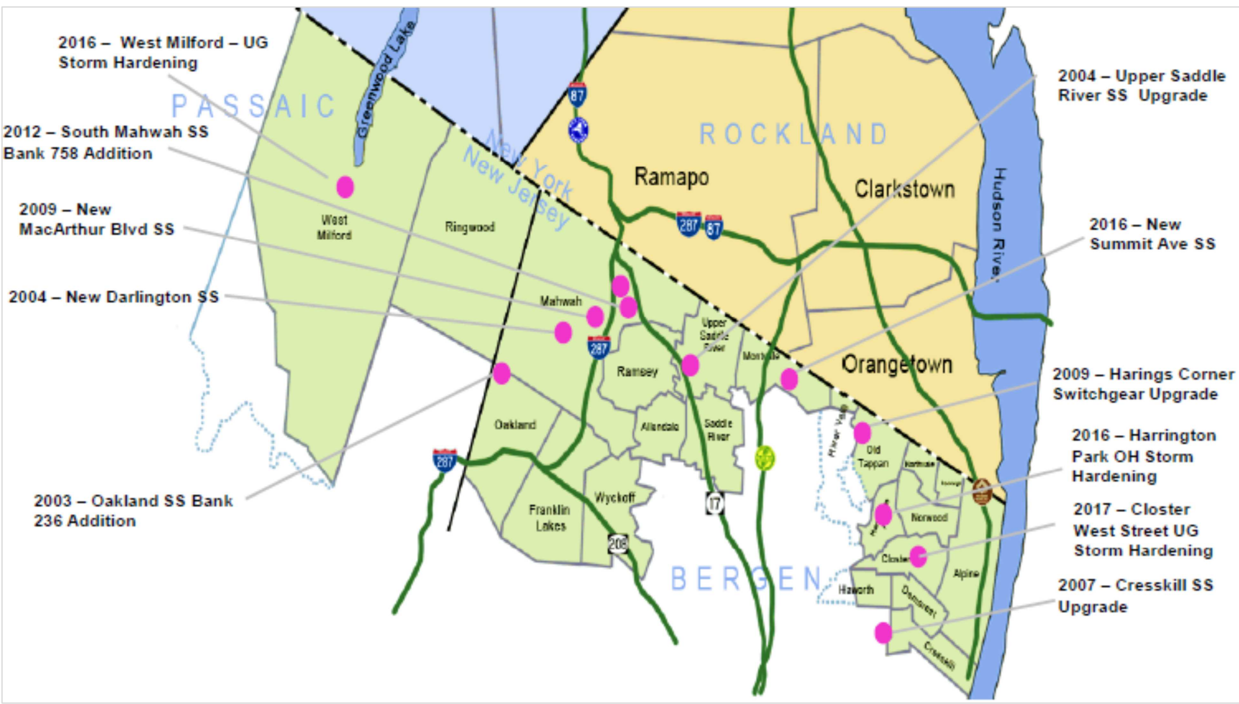
Utilities design their systems to meet internal company planning criteria so that they continue to operate in a stable and reliable fashion even after the loss of an important facility such as a transformer. Before O&R was acquired by CECONY, the utility had been capital-starved for some time, and areas of its system began to fall out of compliance. By the time the merger was completed, only 40 percent of the system met normal reliability criteria. As a result, O&R has for the last twenty years been playing catch-up, trying to bring its system closer to full compliance with "worst single contingency" design standards that are generally considered to be good utility

[274] "Operations Audit of the Accuracy of New York State Utilities' Self-Reported Data – Electric Reliability," April 2015, New York State Public Service Commission Case No. 13-M-0314.
[275] "Comprehensive Management and Operations Audits of Consolidated Edison Company of New York, Inc., and Orange and Rockland Utilities, Inc.," April 21, 2016, New York State Public Service Commission Case No. 14-M-0001.
[276] "Operations Audit of Staffing Levels at the Major New York State Energy Utilities," February 21, 2017, New York State Public Service Commission Case No. 13-M-0449.
[277] Initial Distributed System Implementation Plan, June 30, 2016, New York State Public Service Commission Case No. 14-M-0401.
[278] Interview #1.

practice. In recent years, the company has focused on remedying shortfalls in transmission reliability created when generation in Rockland County was retired in 2007. Currently, 93 percent of the transmission system serving RECO's territory meets the company's design standard. The only area that fails to meet design criteria is the 69kV loop between Harings Corner and West Nyack, which feeds into the eastern part of Bergen County, New Jersey. An upgrade to the 69kV system in the Closter, New Jersey area planned for 2020 will address this shortfall.[279]

On the distribution side, O&R is closest to meeting its design criteria in the New Jersey portion of its territory; the recently completed Summit Avenue substation project and the storm hardening projects at West Milford, Harrington Park, and Closter Street have helped in that regard. The following graphic illustrates major improvements to the distribution system in RECO's territory since 2003.[280]

Exhibit X-6
RECO Substation and Distribution System Improvement History



Currently, 100 percent of the company's distribution substations in New Jersey meet planning criteria, as do all distribution circuits except one in Franklin Lakes. A currently planned upgrade at the Franklin Lakes substation in 2022 would remedy this issue.[281]

[279] Interviews #1, #10, and #24. The upgrade will bring transmission supply into compliance with design criteria.
[280] Response to Data Request #28.
[281] Interview #1.

O&R's annual system planning process begins with forecasting to determine weather-normalized loads on a system-wide, area, bank, and circuit basis.[282] The company uses regression analysis of historical data to develop a forecast of weather adjusted peak load while taking into account load area growth rates. Next, it adjusts the forecast to reflect the effect of certain load modifiers such as energy efficiency, demand response, and photovoltaics. The company develops a ten-year load forecast at the bank level and a two-year forecast at the circuit level. O&R also derives weather adjusted peak for various load areas based on the distribution banks and lines that feed in and out of that area. These peak loads are utilized in the risk-based contingency analysis performed by the distribution engineering team on each individual bank and circuit.[283]

The O&R distribution system is at or below roughly 60 percent of peak for approximately 90 percent of the hours each year, and planning standards are based on achieving full single contingency design for approximately 90 percent of annual operating hours. The company's reliability and contingency criteria account for both load loss and customer exposure risk tolerances. For example, O&R's design standard for customer reliability after a substation transformer failure is a maximum of 60,000 customer-hours of interruption (e.g., 2,500 customers out of service for 24 hours). Planning criteria include the use of normal equipment ratings rather than Long Term Emergency (LTE) ratings for outages lasting more than four hours. Design criteria for substations and circuits are summarized in the following table.[284]

Exhibit X-7
Distribution System Design Standards

Single-Bank Substations
• 60% of customer load must be restorable within four hours using adjacent circuit ties • Remaining customer load must be restorable within 24 hours by mobile transformer • Total customer-hours of interruptions must be ≤ 60,000
Two-Bank and Three-Bank Substations
• 100% of customer load must be restorable using the remaining bank at its LTE rating and with adjacent circuit ties within four hours • For an outage greater than four hours, 60% of the load must be restorable by the remaining bank at its normal rating and with adjacent circuit ties; remaining customer load must be restorable within 24 hours by mobile transformer • Total customer-hours of interruptions must be ≤ 60,000
Circuits
• 100% of customer load must be restorable from adjacent circuit ties using a maximum of four switching steps within two hours • Total customer-hours of interruptions must be ≤ 2,000

282 O&R forecasts loads using a temperature variable (TV) of 85 degrees, which is based on a benchmarking study from the late 1990s. The TV is used to calculate future system peak demands by taking into account summer weather conditions over a three day period, with a 1-in-3 probability load will meet or exceed design capacity.
283 The distribution engineering team performs its contingency analysis manually with the aid of a spreadsheet that maintains basic information such as the ties available for each substation bank and whether any automatic switching schemes are in place, as the analysis assumes any auto switching will occur.
284 Responses to Data Requests #28 and #134, and Interviews #1 and #10.

When performing these studies, O&R routinely calibrates its planning assumptions to actual operating experience. Unlike many utilities, O&R extends its contingency analysis to the circuit and feeder level in order to better determine system capability during peak conditions. We consider this a best practice, and the company has in fact shared its methodology within EPRI working groups. The company has informally benchmarked its risk-based contingency analysis to that of utilities that include Atlantic City Electric, Jersey Central Power & Light, and Public Service Electric and Gas, and found that most use either load or customer criteria, but not both.[285]

O&R's five-year capital budgeting and project prioritization processes are heavily influenced by the forecasting and contingency analysis work, and so we felt it important to review these planning studies in some detail. The Silverpoint engineering team requested copies of the most recent distribution forecast and contingency analysis reports and the distribution summer study.[286] We found the company's analyses to be very thorough and well organized. The substation-level summary of the contingency analysis was particularly helpful for understanding the system on an area or geographical basis. The report summarizes the ability of each bank and circuit originating from a given substation to meet design standards over the next two-year and five-year period, and includes a brief synopsis of possible or planned projects that remedy anticipated system constraints or that provide general load relief in the area.

Beginning in 2018, O&R changed its distribution system planning from a five-year to a ten-year horizon, which will facilitate its analysis of non-wires alternatives (NWAs) and other REV initiatives. The utility typically requires six or seven years to design and implement an NWA solution, and a five-year forecast will not provide the utility enough time to identify and act on opportunities.[287] The Electrical Engineering department (Engineering) has begun building planning tools that factor in utility-of-the-future considerations such as distributed generation, electric vehicles, energy efficiency, and the like into system design and planning efforts. O&R recently developed detailed distribution system planning flow diagrams of its system, bank, and circuit forecasting process and its contingency analysis process to facilitate the expanded analysis required under New York REV.[288] These flow diagrams also serve as a training aid for employees new to their system, and Silverpoint found them to be quite useful during our review.

Transmission System Planning

The company's distribution system substation bank forecast feeds its transmission modeling for bus loads. O&R plans and designs transmission on an overall system basis, and from an operational perspective there is no real distinction between New York and New Jersey—there are transmission feeders in New York that feed New Jersey customers and vice versa.[289] Transmission design standards for O&R's facilities are governed by North American Electric

[285] Interview #10.

[286] 2017-2021 Distribution Contingency Analysis Report, 2017-2021 Distribution Forecast Report, and 2017 Distribution Summer Study and Distribution Planning Studies, provided in response to Data Requests #136-138.

[287] The company will have to allow four to five years to implement a more traditional substation solution in the event that an NWA RFP process is unsuccessful.

[288] Interview #10. Distribution system planning flow diagrams provided in response to Data Request #135.

[289] RECO's New Jersey transmission and O&R's New York transmission are both considered jointly owned.

Reliability Corporation (NERC), PJM, New York ISO, and the regional reliability organizations—Northeast Power Coordinating Council (NPCC) and ReliabilityFirst Corporation (RF).[290] At N-1 operating conditions, O&R's system is below the normal thermal rating of equipment, and between 95 percent and 105 percent of nominal bus voltage.[291] Silverpoint's engineering team reviewed O&R's most recent long range transmission plan and system summer peaking operating study, which present the results of its transmission thermal, voltage and short circuit analysis.[292] We found that O&R performed thorough analysis to identify short-term (in the operating study) and longer-term (in the planning studies) performance violations that appear to follow New York ISO, PJM, RF, NPCC, and NERC requirements. O&R has developed operating procedures and identified projects to address these violations that are in most cases well documented in its planning reports.[293]

Distribution System Planning and Design Alternatives

Utilities plan their distribution systems on a load area basis, which allows engineers to consider alternative solutions to address future contingencies at individual substations. After reviewing O&R's contingency analysis reports, we could not determine how it had selected the alternatives that were now planned projects in the current five-year capital budget. In a similar vein, we found that planning documents prepared during the audit period, such as the project charter for the Summit Avenue substation, did not explain how and why that particular option had been selected as the best solution.[294]

In the original agenda for our system planning interview, Silverpoint had asked the company to provide examples of its process for evaluating alternative solutions so that we could assess the extent to which large capital projects are adequately justified and documented. The company was not able to produce any such analysis or documentation for the interview.[295] Engineering agreed that it would be useful to maintain a document trail as projects develop from their initial concept stage, especially since some projects are delayed or replaced by different approaches as circumstances change over time. Silverpoint selected two projects for further discussion: a major substation project completed during the audit period in RECO's territory—the Summit Avenue substation—and a major capital project planned for the near future—the Franklin Lakes substation rebuild in 2022. Engineering agreed to a follow-up meeting to walk through the decision-making process that led to the selection of these specific alternatives after piecing together whatever records were kept by engineers involved in the process.

[290] NPCC includes the New York ISO and RFP includes PJM.
[291] N-1 refers to failure of a single element or failure of multiple elements that are physically or electrically linked and fail together as one.
[292] O&R 2017 Transmission System Summer Peak Operating Study and Long Range Transmission Plans 2015-2025 and 2017-2027 provided in response to Data Requests #139 and #140. Silverpoint also reviewed the O&R Facility Rating Procedure provided in response to Data Request #148.
[293] Silverpoint identified some areas that could be clarified. For example, the North Rockland Station project, which would correct several line overloads, is delayed until 2021 and it is unclear whether operating measures have been identified to correct the violations until then. Line 51 is identified as loading to 100 percent of its LTE rating for loss of Bank 258, but the preferred solution of reconductoring the line is not identified as a project in either study.
[294] Project Charter for the Summit Avenue Substation project provided in response to Data Request #142.
[295] Interview #10.

In the subsequent interview, the O&R engineering team provided a detailed overview of past planning decisions in the Western Bergen Load Area, which includes Franklin Lakes, Allendale and Wyckoff.[296] For example, after the Darlington substation went into service in 2004, constructing a new substation at Wyckoff became the preferred solution to address future contingencies at the Allendale and Franklin Lakes substations. At present, however, the current preferred option is to defer Wyckoff and instead re-build and upgrade Franklin Lakes, which was originally built in the 1960s. O&R plans to rebuild Franklin Lakes on the same site next to the existing structure, increase capacity, and add two additional feeders; the plan also includes adding two new underground circuits to Wyckoff for load relief and automation. The original Wyckoff project was estimated to cost $60 to $70 million. By constructing the Franklin Lakes project at a much lower cost, the new Wyckoff substation project can likely be deferred beyond twenty years.[297]

In a similar fashion, Engineering walked through past planning decisions in the Central Bergen Load Area, which includes Montvale and Upper Saddle River. The company added a new substation at Monsey in 2001 to provide relief in the area when transformer banks at Montvale and Upper Saddle River failed to meet design standards, and expected to later rebuild the Grand Avenue substation on site. That approach proved to be infeasible, and O&R subsequently searched for property for a new substation, ultimately purchasing the Summit Avenue location. The new Summit Avenue substation picks up load from the Montvale substation so that it can eventually be rebuilt (and later expanded) to address issues with existing equipment.[298]

Based on this interview and other similar discussions during the audit, Silverpoint was satisfied that the company's analysis of alternatives and decision-making process are essentially sound. Engineering indicated that it had taken considerable effort to piece together the information needed to fulfill our request, and ultimately concluded that it should be able to recreate the history of capital projects "at the push of a button." To that end, the group will in the future create a planning charter, centered on an identified system need, that documents planning for the specific geographic area. The company does not plan to create such charters for currently planned projects, however. O&R has already updated its system planning flow diagrams to include the planning charter as an explicit step to document the decision-making timeline leading up to a capital project.[299]

Although Silverpoint's audit request was a contributing factor, we believe the major impetus behind the company's decision to revise its system planning process is the current REV requirement to consider third-party non-wires alternatives—developers will undoubtedly challenge utility analysis and so proper documentation will be important. NWA options

[296] Load area planning background summaries, timelines, and corresponding contingency reports provided in response to Data Requests #293-295.
[297] Interview #24. The Franklin Lakes project has the additional benefit of addressing asset condition issues at that substation. A map of the Western Bergen load area is included in the Confidential Appendix.
[298] Interview #24. Summit Avenue was built for 138kV capability but currently operates at 69kV. A map of the Central Bergen load area is included in the Confidential Appendix.
[299] Updated distribution system planning flow diagrams provided in response to Data Request #294. The Planning Charter is modeled after a similar document used by Project Management.

generally provide small incremental benefits and not a permanent fix to capacity shortfalls when compared to traditional utility upgrades, which are designed to provide large blocks of increased capacity. As such, O&R expects to perform iterative cost-benefit studies to evaluate NWAs versus traditional utility upgrades over time, and Engineering has already updated its system planning process flow to include consideration of NWAs according to criteria approved by New York regulators.[300]

During our discussions, the company was not able to provide any examples of cost-benefit analysis for system design alternatives. Engineering indicated that in the past such analysis was not a routine part of the planning process, and if it was performed the results were not documented. O&R reportedly plans to incorporate such analysis into the planning process moving forward; unlike CECONY, however, the utility does not have any formal guidelines for determining cost avoidance or cost savings potential for capital or O&M projects.[301]

Most utilities (including CECONY) have a formal asset management program, but O&R does not. Asset age and obsolescence issues are taken into consideration during area planning studies, but the company has been mainly focused on getting the T&D system back within design standards. Engineering has only recently begun to consider the issue of aging infrastructure by prioritizing replacement of equipment such as breakers, transformers, and switchgear.[302] In a similar vein, in the wake of the terrorist attack at a California substation, Engineering recently reexamined system vulnerabilities and updated O&R's spares program for equipment with long lead times (e.g., large distribution transformers and high voltage breakers).[303]

In addition to system planning and major capital projects, Engineering is responsible for the planning and design of nearly all T&D-related programs and initiatives, including smart grid, storm hardening and distribution automation programs, NERC Critical Infrastructure Protection (CIP) compliance, cyber and system security, and REV-related requirements such as interconnection of DERs. The department is also responsible for maintaining design and construction standards, which Silverpoint found to be appropriately detailed and complete.[304] New design standards for underground distribution circuits, for example, now involve the use of ethylene propylene rubber-insulated (EPR) cable to replace older existing systems.[305] Engineering has adopted a standard design, layout and switchgear configuration for substations—overall a simple effective design that is good for consistency. At Summit Avenue, O&R extended the underground exit portion of feeders leaving the station as a way to improve

[300] NWA suitability matrix provided in response to Data Request #297. The matrix was developed jointly by New York utilities and promotes the use of NWAs for load relief, capacity, and future load growth; NWAs are typically not a viable option when system solutions are required due to age/condition/safety/voltage/operating issues.
[301] Interview #24. CECONY Cost Benefit Analysis Guidelines provided in response to Data Request #371.
[302] Interviews #10 and #24.
[303] Interview #1 and response to Data Request #141. O&R cannot share most of this type of equipment with CECONY, which typically has different requirements that drive up costs (e.g., low noise transformers).
[304] T&D construction and materials standards provided in response to Data Request #303. The company's systems are designed to comply with National Electrical Safety Code (NESC) standards.
[305] Older underground systems include high molecular weight polyethylene (HMWPE) and cross-linked polyethylene (XLPE) cable. O&R also rejuvenates older underground cable by injecting silicone, which extends life by 10-15 years.

reliability—now a standard design component for future substations. Engineering also recently reintroduced the use of spacer cable in overhead construction projects such as those in the RECO storm hardening and system resiliency initiative.[306] The recently completed Harriet Avenue project, for example, involved 5,500 feet of new spacer cable, creation of a feeder tie, and installation of motor operated air-breakers (MOABs) to allow backfeeding customers in the event of a system failure.[307]

C. Capital Investment and Project Management

System planning is a key input to the annual capital budgeting process, and T&D projects generally constitute about 75-85 percent of RECO's total yearly capital spending. Engineering has its own process for prioritizing among proposed T&D projects that is based on weighing each project according to a prescribed set of factors (e.g., whether the project addresses a poor performing area, eliminates the need for another project, or is customer driven) that guides the development of the five-year operations budget request.[308] Proposed T&D projects compete for capital dollars against those from other areas such as customer service and IT in the company's capital optimization process.[309] Project sponsors input information on each project into the PI 360 application that includes estimated cost, risk assessments, and project justifications or white papers if available. Smaller capital projects, such as those associated with distribution automation or Underground Residential Distribution (URD) cable replacement, are generally grouped together as part of an initiative or program rather than being input separately.

Silverpoint reviewed project white papers for New Jersey projects approved during the 2017 capital budgeting process and found them reasonably thorough and complete.[310] The process of capturing white papers and project justification reports during the capital budgeting process started with the implementation of the PI 360 application in 2016. Before that time, O&R's capital project vetting process was less formal but reportedly yielded similar results.

Actual and budgeted capital spending during the audit period by responsible operational organization is summarized on the next table; a non-redacted version of the table is contained in the Confidential Appendix.[311]

[306] Interview #1. RECO storm hardening projects involve replacement of aluminum conductor construction.
[307] Silverpoint visited the Harriet Avenue project and found the work very well done and up to the latest standards for spacer cable construction. Field visits conducted as Interview #31.
[308] The Electrical Engineering group assesses all T&D-related projects, even if another department such as Electric Operations is ultimately the project sponsor.
[309] Silverpoint discussed the capital optimization process, the PI 360 application, and O&R's levels of actual and budgeted capital spending during the audit period in Chapter IV.
[310] Documents provided in response to Data Request #147.
[311] Response to Data Request #145.

Exhibit X-8
O&R Actual and Budget Capital Expenditures – Operations

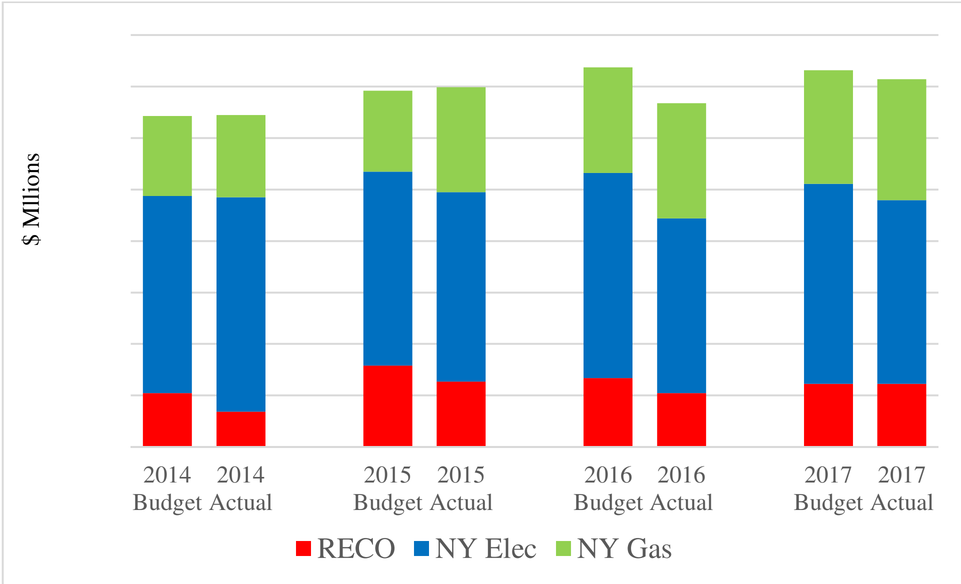
$ Millions	**2014**		**2015**		**2016**		**2017**	
	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget
Control Center & Substations								
Transmission & Substation Engr.								
Distribution Engr. & Proj. Mgmt.								
Gas Operations & Engineering								
Electric Operations								
Smart Grid								
Total Operations	**$129.0**	**$128.6**	**$139.8**	**$138.4**	**$133.5**	**$147.5**	**$142.9**	**$146.4**

While much of the focus in capital budgeting often centers on major system reinforcement projects such as new substations or updates to banks, breakers, and switchgear, much of the capital budget is spent elsewhere. Requirements for sustaining or operationally required capital are significant—O&R electric distribution and transformer blanket spending, for example, has been in the range of $25 million per year. A sizable portion of the budget can be devoted to regulatory mandated projects such as new business or required investments to comply with NERC CIP and other security standards—in 2014, for example, O&R invested $8 million to upgrade its two control centers. O&R's strategic projects during the audit period included storm hardening, smart grid-related investments, and other upgrades to improve service or reliability. Total storm hardening spending in the 2013-2017 period was $16.8 million, with much of that aimed at selective undergrounding or other programs such as accelerated pole replacement.[312] Smart grid investments are discussed in more detail in the next section of this chapter.

One of Silverpoint's objectives was to assess whether O&R is investing adequate amounts of capital in New Jersey. The next graph illustrates O&R's actual and budgeted capital associated with RECO, the gas business, and the New York portion of the electric system during each year of the audit period; a non-redacted version is included in the Confidential Appendix.[313]

[312] Interview #1.
[313] RECO and O&R data provided in response to Data Requests #144 and #145, respectively. Silverpoint derived New York electric figures by subtracting RECO and gas operations and engineering-related capital from O&R total; as such the New York electric totals include Pike capital for 2014 and 2015, which was de minimis.

Exhibit X-9
Operations-related Budgeted and Actual Capital Spending



In the first three years of the audit period, actual capital expenditures in New Jersey were clearly significantly lower than budgeted. We explored this subject with Engineering and confirmed that some of the shortfall in New Jersey spending is due to timing issues on larger projects. On the Summit Avenue substation and Ringwood underground projects, for example, approximately $6 million of the 2014 budget for these projects was unspent and appeared in the next year's budget.[314] We also found that the company includes a sizable contingency allowance in some capital blankets—actual spending under the New Jersey distribution operations and transformer blanket has been about $2 million less than budget each year. Most of the shortfall appears to be explainable, and our conclusion was that RECO's planned capital was not being explicitly diverted to the New York electric and gas businesses, although unspent RECO capital budget dollars are ultimately redirected to New York projects. This seems appropriate as RECO's T&D system is closer to meeting full design standards than is O&R's system in New York. Also, when Silverpoint walked through the Engineering group's project prioritization in some detail, we were comfortable that planned New Jersey projects such as upgrades to the Montvale and Franklin Lakes substations were not being inappropriately delayed.[315]

Capital spending in RECO's territory averaged $20 million per year during the audit period, and $20-25 million has been the average in terms of yearly budget. These figures appeared to us to be reasonable. In terms of dollars of capital per customer, the two territories were roughly equivalent—O&R invested approximately $1,275 in T&D capital per New York customer over the four-year period compared to roughly $1,175 in New Jersey. As is true of most utilities, the largest share of this capital spending was for sustaining capital to keep the system operational and ensure current levels of reliability—whether for the short term such as emergency

[314] Interview #24.
[315] Interview #10 and response to Data Request #134.

restorations or for the longer term through system reinforcement projects and replacement of aging infrastructure. The company also made significant investments in initiatives designed to either improve its reliability measures or to modernize the grid (e.g., distribution automation) that, while improving reliability, have corollary benefits including synergies with AMI and cost reduction. In particular, the company spent $6.5 million on the RECO smart grid program through the end of the audit period.

Capital Project Management

After the capital budget has been finalized and approved by the O&R Board, project sponsors prepare formal project charters for larger projects—generally $5 million and above—that focus on project scope. These charters may be updated several times during the design and permitting stages of a project, although any changes to the original project charter require management approval, which helps prevent scope creep.[316] Project sponsors also prepare authorization and appropriation requests that set forth scope, location, schedule and capital cost. When approved, these documents formally grant approval to dedicate a specific amount of funds to a project; any increases or decreases to appropriations are overseen as part of management's monthly review process. When Silverpoint reviewed capital authorization and appropriation requests for New Jersey projects included in the 2017 capital budgeting process, we found them reasonably thorough and complete.[317]

As discussed earlier in this report, the Corporate Governance Committee meets with departments each month to discuss capital project spending and variances between actual and budget. The CGC approves any revisions to project budgets, and as circumstances and priorities change during the year, the group determines how best to manage the capital dollars available. Financial Services prepares comprehensive reports in advance of each CGC meeting that include year-to-date summaries and detailed information on budget funding requests, including white papers for proposed new projects.[318] The CGC also receives a compilation of detailed project reviews and status update reports on major projects and initiatives.[319]

T&D capital projects can be managed by the Engineering, Electric Operations, or Project Management departments. All smart grid projects, for example, are managed within Engineering as are all underground projects except for URD cable and underground service projects—those are directly managed by Electric Operations. The Project Management department generally handles higher dollar value or strategic projects at the request of the project's sponsoring department, although some larger projects are retained by Engineering because of their complexity and scope. Project Management oversees its own contractors, but Electric Operations manages most other outside vendors performing capital work on the T&D system.[320]

[316] Silverpoint reviewed version 1.6 of the Summit Avenue Substation project charter provided in response to Data Request #142; we found the report sufficiently detailed and the revision history was clearly documented.
[317] Documents provided in response to Data Request #147. Silverpoint also reviewed all authorization approval forms associated with the Summit Avenue project provided in response to Data Request #299.
[318] September 2017 governance committee report provided in response to Data Request #262.
[319] CGC project status reports and updates for June 2016 and June 2017 provided in response to Data Request #217.
[320] Interviews #24 and #25. Engineering still manages some contractors (e.g., for distribution automation), although beginning in 2019 this work will be taken over by Operations.

The Project Management (PM) department currently handles $30 to $40 million in projects each year. The department was formed in 2010 to assist with larger projects and its employees are organized into three groups: Project Controls, Project Management and Construction Management, and Permitting and Business Services. PM operates as a centralized Project Management Organization (PMO) in line with the framework and principles of the Project Management Institute (PMI) and the Project Management Body of Knowledge (PMBOK).[321] The PM group manages projects according to a Capital Projects Playbook and a more granular Project Execution Manual that are in accordance with PMI principles.[322] In addition to managing entire projects, PM also provides a la carte support, such as permitting assistance or cost scheduling for multi-year projects. RECO projects that were managed by the PM group include the new Summit Avenue substation, demolition of the Grand Avenue substation, and the West Milford underground distribution circuit.[323]

Capital project management was a major focus area in the recent audit of O&R and CECONY in New York. To assess the utilities' management of capital programs and projects, the auditors selected nineteen CECONY and seven O&R capital projects (five of which were electric) for in-depth review. The auditors examined project white papers, authorizations, appropriations, schedules and cost estimates, and assessed the adequacy of controls over scope changes and cost and schedule variances. They also evaluated the adequacy of quality control, contractor oversight, and project close out activities. Silverpoint originally planned a similar review to assess the effectiveness of O&R's project and construction management practices, but we were satisfied that the earlier review was sufficiently thorough and saw no need to duplicate it.

In terms of management oversight, the New York auditors concluded that O&R had a sound process for reviewing program and project costs including the monthly capital budget policy committee (now CGC) meetings and monthly status meetings held by the PM group. Overall, the auditors found O&R's capital project management processes and practices to be adequate, but did identify some opportunities for improvement, particularly as it pertained to smaller projects. For example, they found that project schedules were appropriately developed and diligently updated on larger projects, but not always on smaller ones. Several of their suggestions were procedural. For example, O&R rotates assignment of construction inspectors, a practice that minimizes opportunities for malfeasance, but the auditors pointed out that the utility did not have a formal written policy covering it. In a similar vein, the procedures for change orders used by the PM group were adequate but the auditors felt the O&R Contract Administration Manual, which is used for smaller projects, was not sufficiently detailed on that subject.[324]

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[321] The PMBOK is a set of standard terminology and guidelines for project and program management that is widely recognized as good practice.

[322] Capital Projects Playbook and Project Execution Manual provided in response to Data Requests #210 and #211, respectively.

[323] Interview #20. The PM group also performed permitting and planning work for two RECO projects being built by Operations—Ringwood and the Line 47 project.

[324] "Comprehensive Management and Operations Audits of Consolidated Edison Company of New York, Inc., and Orange and Rockland Utilities, Inc.," April 21, 2016, New York State Public Service Commission Case No. 14-M-0001, Chapter VI. The company subsequently addressed these issues.

The main recommendation from the New York audit was that O&R and CECONY adopt a consistent approach to project management, and that they standardize PM departmental practices in order to do so. The utilities implemented this recommendation, and the Enterprise Project Management Organization (EPMO), part of the CECONY Business Finance function, was formed in 2016 to serve as a "center of excellence." This group works to standardize practices and implement PMI tools across the entire CEI organization—for example, the EPMO plans to implement a new estimating software platform that will be used by both utilities. Operating groups such as Engineering were encouraged to start using the PM Capital Projects Playbook in 2017 to manage their own projects, and by 2018 all operating groups are required to do so. The more granular Project Execution Manual is currently being used by the CECONY and O&R PMOs, but not the operating groups.[325]

D. Reliability Performance and Smart Grid Investments

One way to assess whether adequate capital is being invested on behalf of RECO customers is to look at system performance. RECO's reliability performance, as measured by System Average Interruption Frequency Index (SAIFI), continued to improve during the audit period. RECO's Customer Average Interruption Duration Index (CAIDI), however, continued to worsen, and has been trending upward with the decrease in SAIFI. This effect is fairly typical—while the number of sustained outages is reduced by automated feeder switching, the restoration time is not really affected for those customers remaining without power after automated switching operations have occurred.[326] RECO's performance compared to the BPU's benchmark and minimum requirements under N.J.A.C. 14:5-8.10 is summarized on the next table.[327]

Exhibit X-10
RECO Reliability Performance

	SAIFI	CAIDI
BPU Benchmark	**.92**	**110**
BPU Minimum	**1.18**	**129.4**
2014	.92	111.8
2015	.83	115.1
2016	.92	135.3
2017	.80	123.8

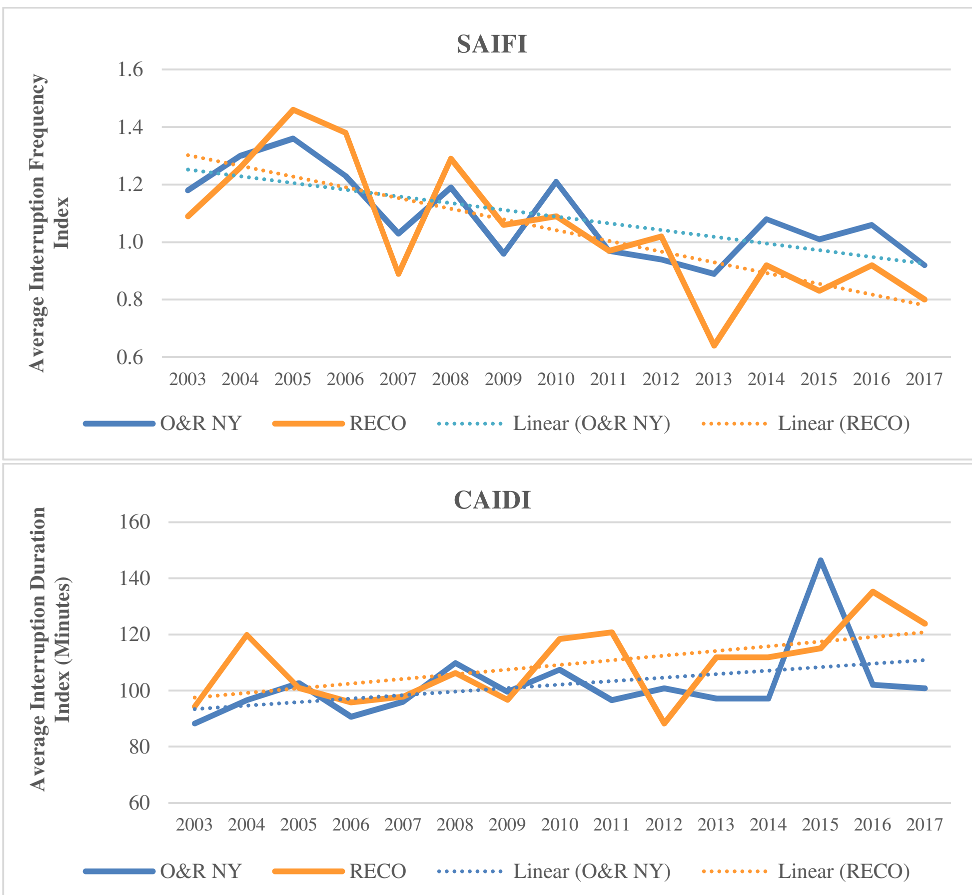
The company was at or below the BPU SAIFI benchmark each year of the audit period; RECO never met the BPU benchmark for CAIDI, however, and failed to meet BPU minimum requirements in 2016.

[325] While all operating groups are now required to follow the playbook, CEB groups are excluded, as are corporate IT groups, which have their own project management process.
[326] Reducing CAIDI would require reducing restoration times for those remaining without power.
[327] Service Reliability Filing for 2015 System Performance and response to Data Request #28.

The company credits its continued SAIFI improvement to, among other things, its worst performing feeder program and an increase in the number of feeder ties on the system. O&R reviews feeder reliability statistics, outages, and affected customers each week in order to analyze system performance not only by individual circuit, but also by segment.[328] O&R has a considerable number of tie points on its distribution system that help it restore customers on the unaffected portion of a feeder relatively quickly. Engineering continues to assess opportunities to "fill in the gaps" by installing spans of wire to create feeder ties between circuits that are currently close to each other but not connected.[329]

Silverpoint compared RECO's system reliability to that of O&R's New York territory as shown on the following graphs.[330]

Exhibit X-11
Comparison of O&R New York and New Jersey SAIFI and CAIDI



[328] One circuit can have as many as 10-15 segments.
[329] Interview #49.
[330] RECO data from response to Data Request #28 (slide 79); O&R New York data from New York Department of Public Service, Electric Reliability Performance Report for years 2007, 2010, 2014 and 2017.

New York and New Jersey have slightly different definitions for excludable events and weather obviously does not affect each state the same way, but these factors are not enough to significantly affect the overall trend in reported reliability statistics.[331] Over the past ten years, O&R's SAIFI performance in New Jersey has been better than in New York, and the gap has begun to widen. We believe part of that difference has to do with the pace of spending on distribution automation. Differences in spending levels might be intentional. O&R is penalized in New York for failure to meet reliability metric targets, and its five-year average CAIDI as of 2017 was 109 minutes, which is very close to the target maximum of 111 minutes.[332]

Calculating reliability statistics involves examining various sources of information for events logged in the outage management system (OMS). If an event is a sustained (as opposed to momentary) outage, O&R analysts review switching orders, information from customer calls, and SCADA data to determine the outage cause, the time it started, when customers were actually restored, and what equipment was affected. In 2015, New York auditors concluded that controls were adequate to ensure accurately reported performance results, and Silverpoint confirmed that there was no change to O&R's analysis or data gathering process after the new OMS was implemented at the end of 2017. O&R's quality assurance personnel conduct a formal review of electric reliability metrics every two years. The last review, performed in 2017 on 2016 data, included statistical sampling of OMS events and a review of the process flow; the company concluded that the proper process is being followed and the data are correct.[333]

During the audit period, tree-related incidents remained the leading cause of outages as measured by total hours of customer interruption; in terms of absolute number of interruptions, equipment failure remained the leading cause. Silverpoint asked O&R to explain the increasing trend over the last ten years in the number of interruptions due to equipment failure as reported in RECO's Service Reliability Filings. The company indicated that the number of equipment failures has been increasing but the number of customers affected and customer outage hours have been trending downward; in other words, equipment failure outages now tend to involve smaller numbers of customers—for example occurring on secondary lines—and are not widespread. As such, the company does not see equipment failures as a major issue affecting its reliability performance. During our conversations with the company, we questioned an inconsistency in the 2017 Service Reliability Filing between the equipment failure data shown in tables (Tables 2.2 to 2.4) versus bar graphs (Figure 2.3). O&R later explained that queries to extract data from the mainframe database for graphs and tables are done separately, and that the bar graph data incorrectly included storms. The company stated that it plans to make the appropriate correction for future reports.[334]

[331] For example, two events during the audit period met the criteria for exclusion from reliability metrics in New Jersey but eight events were excluded in New York (Response to Data Request #118).
[332] New York Department of Public Service, 2017 Electric Reliability Performance Report. O&R failed to meet the New York CAIDI target in 2015.
[333] Interview #49.
[334] Interview #49.

Smart Grid and Distribution System Automation

The U.S. Department of Energy (DOE) describes smart grid as an intelligent electricity grid—one that uses digital communications technology, information systems, and automation to detect and react to local changes in usage, improve system operating efficiency, and, in turn, reduce operating costs while maintaining high system reliability.[335] Smart grid technology includes advanced sensors that allow operators to assess grid stability, relays that sense and recover from substation faults automatically, and automated feeder switches that re-route power around problems; it also includes AMI, which give consumers better information and automatically reports outages.

O&R's distribution automation program is a seventeen-year initiative—begun four to five years ago—that will eventually encompass 2,300 devices across the entire O&R system.[336] The program in New Jersey involves approximately 90 circuits, and the company expects full grid automation deployment in RECO's territory within the next five to seven years. RECO's current stipulation with the BPU requires smart grid spending of approximately $3.3 million per year, which yields a faster implementation rate than in the larger New York portion of O&R's territory, where the utility is currently spending about $4 million per year.[337] One of the main objectives of the smart grid program is to improve system reliability through application of automated fault location, isolation, and service restoration (FLISR) technology via recloser auto loop design. It also includes additional segmentation of feeders using MOABs that isolate faults to segments of 250 customers or less.

As noted earlier, the company spent $6.5 million on the RECO smart grid program through the end of the audit period. A summary of the program as of year-end 2017, as well as planned work for 2018, is summarized in the next table.[338]

Exhibit X-12
RECO Smart Grid Program Overview

Total Installed Devices	• 92 reclosers • 51 MOABS • 8 SCADA capacitor banks
Automated Loops	• 37 circuits are in auto loop scheme • 23 circuits have automation but no auto loop • 25 circuits have no automation • 1 fully smart grid enabled area (5 circuits, 20 reclosers)
2018 Work Plan	• 4 new auto loops • 28 MOABS • 8 reclosers

[335] DOE, "Transforming the Nation's Electricity System: The Second Installment of the Quadrennial Energy Review," January 2017.
[336] Interview #12.
[337] Interview #1.
[338] Interview #1 and response to Data Request #28.

Early in the program, the utility's approach to distribution automation and smart grid installations was rather intuitive. For example, if O&R expected to undertake a larger project in the next two or three years near a given circuit, that circuit would typically be passed over for consideration. As it has now transitioned to distribution automation implementation on a more widespread basis, the company created a more formal methodology to determine which circuits should be addressed first.[339]

During the audit period, O&R focused on enhancing its SCADA communications to support the utility's initial foray into smart grid technology.[340] Two high capacity communications hubs were established at RECO's Darlington and South Mahwah substations in 2015 to provide data transport between RECO and the O&R control centers in Spring Valley and Blooming Grove. These sites were designed to provide redundancy so that every substation site in New Jersey can get access to one hub or the other, with back-up through private microwave and phone carriers. Additional fiber expansion is planned for RECO's territory for 2018 and 2019.[341]

Another objective of the smart grid program is to centralize automation control, and to that end, O&R plans to implement an advanced distribution management system (ADMS) in 2019.[342] ADMS is a software platform that integrates numerous utility systems and provides automated outage restoration and optimization of distribution grid performance; typical functions include automated FLISR, volt/volt-ampere reactive (volt/VAR) optimization, conservation voltage reduction, peak demand management, and support for microgrids. An ADMS allows a utility to automate steps that are currently done manually from the control center, and provides an integrated real-time (or near-real-time) system model for both T&D.[343]

O&R's current distribution automation relies on distributed intelligence such as loop recloser schemes. With the implementation of the ADMS, O&R will move to a "model centric" approach, in which the central computer will make decisions based on information transmitted by field devices. With sensors, automated reclosers, and MOAB switches in place, the ADMS will utilize neural networks to determine where a fault is located on the system, isolate the troubled area, and send signals to restore service to unaffected portions of the system. O&R believes the ADMS will provide a more robust response to system trouble conditions, and also ensure that loading and voltages are within limits. The company expects its new system to provide better situational awareness and help to minimize the number of recorded outages because it will be able to respond to and restore portions of the system within five minutes, thereby turning sustained outages into momentary ones.[344]

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[339] Interviews #1 and #24.
[340] Interview #10.
[341] Interview #1 and response to Data Request #28.
[342] Interview #1.
[343] "Insights into Advanced Distribution Management Systems," U.S. Department of Energy, Office of Electricity Deliverability & Energy Reliability, February 2015.
[344] Interviews #10, #12, and #49. SAIFI should improve because momentary outages are excluded from metrics.

O&R has approximately 500 distribution SCADA (DSCADA) devices in the field but currently has limited expansion capabilities.[345] Those constraints will be addressed with the ADMS project. Along with ADMS, O&R plans to implement a new DSCADA system that will have a more robust data historian to collect information from field devices. The company has already begun to install optical voltage sensors on its system that provide more information on network conditions, which should ultimately allow for better situational awareness and improvements in system operating efficiency. Along with ADMS, O&R intends to implement a distributed energy resource management system (DERMS) that would allow the utility to manage the grid with a variety of interconnected DER resources.[346]

Traditional distribution automation is clearly beneficial for improving “blue sky” reliability or system reliability during minor events, but it is generally considered to be of limited value during major outage events. Automatic sectionalizing and restoration (ASR) schemes reduce what would ordinarily be a sustained outage to a momentary outage, but the logic of these systems cannot make proper decisions when there are many outages on the system—in such cases switch automation is designed to shut down and revert back to manual mode. ADMS essentially combines outage management and distribution automation. The extent to which ADMS is able to improve restoration during major events, such as those during March 2018, remains to be seen. It is unclear whether these systems are capable of optimal performance during major storm events, but by knowing more precisely where system problems are located, a utility should at least be able to better manage its crew resources during restorations.

Following the March 2018 storms, the company used SCADA data to analyze the events in more detail in order to assess how current automation and smart grid systems impacted storm response. The analysis reportedly indicated that the technology saved approximately 6,700 New Jersey customers from an outage and 2,500 from sustained outages, although the company acknowledged that this analysis was somewhat subjective and based on engineering judgment.[347] Silverpoint asked to discuss the company’s analysis in more detail in an in-person interview but the company was never able to accommodate our request.[348]

E. Operations and Maintenance

Control Center Organizations and the OMS

O&R’s Energy Control Center (ECC) and Distribution Control Center (DCC) are part of the Control Center and Substation Operations department. Additional information about control center organizations and their responsibilities has been included in the separately bound Confidential Appendix.

[345] Interview #1. DSCADA is a separate system for pole mounted switches. As of 2018, O&R has about 300 reclosers and had been adding 15 to 20 per year—that pace will increase with ADMS (Interview #22).

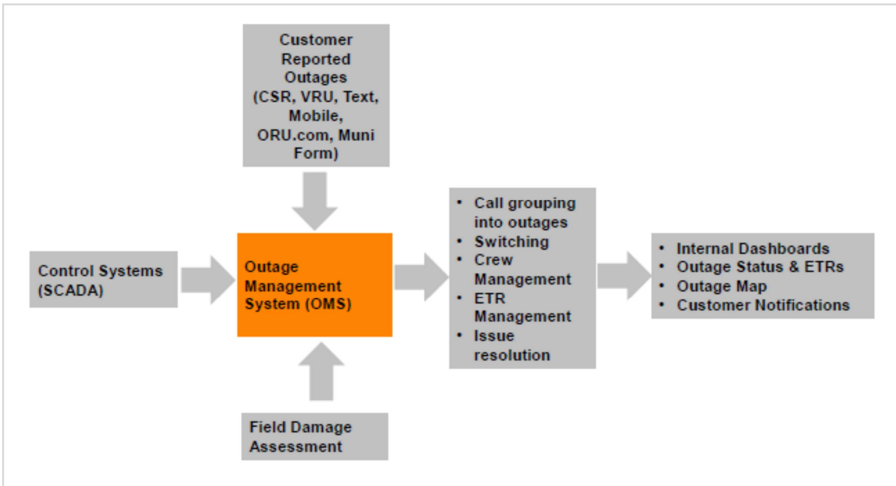
[346] A DERMS would communicate with individual DERs and with other back-office systems (e.g., OMS, GIS) about the status and capabilities of the DERs in aggregate.

[347] Interview #49.

[348] Interview Request #60 to discuss in more detail the analysis of benefits from smart grid, storm hardening and distribution automation-related investments during the March 2018 storm events submitted November 16, 2018.

In November 2017, O&R replaced its legacy OMS with the latest version of the Oracle Network Management System (NMS). Approximately 80 utilities use some version of the NMS system, which is a decided benefit—Oracle routinely seeks feedback from users to suggest functionality improvements and sponsors a yearly storm summit to learn more about how NMS is used during storm events. O&R's old and new OMS systems are similar in many ways, although NMS has additional capabilities the old system did not have. Basic information inputs and process flows, illustrated in the following graphic, are essentially unchanged.[349]

Exhibit X-13
O&R Outage Management System Process Flow



In terms of outputs, the OMS provides a file feed to the customer information system that can be processed to structure data for outage maps. NMS has an algorithm that automatically calculates estimated times of restoration (ETRs) based on time of day and other assumptions.[350] An OMS dashboard feature displays information such as active outages by county, active incidents, and outages by circuit and division. O&R also created an interface to NMS so that personnel can view the dashboard without having to be logged in to NMS, an issue that bogged down the prior system.[351]

Operations and Maintenance Organization

O&R's electric service territory is divided into three operating divisions: the Eastern Division (Rockland County in New York and North Bergen County in New Jersey), the Central Division (Orange County, New York and portions of Passaic County, New Jersey) and the Western Division (Orange and Sullivan Counties in New York and Sussex County in New Jersey). Each operating division has multiple locations out of which crews work—the Eastern Division for example works out of Spring Valley, West Nyack, Harrington Park, Wyckoff, and Mt. Ivy.

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[349] Interview #12 and response to Data Request #114.
[350] During larger outage events, O&R typically turns off the automatic ETR function and instead utilizes historical storm data and other information to determine an overall global ETR. As more information is gathered from the field, the company can further refine ETRs to the regional or local level.
[351] Interview #12.

O&R's Electric Operations department is composed of four groups: T&D Maintenance, Operations Support and Compliance, Eastern Electric Operations, and Northern Electric Operations (covering the Western and Central Divisions). T&D Maintenance is responsible for Extra High Voltage (EHV) work in all divisions as well as vegetation management; the group also manages contractor resources for O&M work including civil and overhead construction. The Operations Support and Compliance group consists of non-union work planners who, among other duties, assist supervisors and managers in assigning work to crews; the group also includes a compliance specialist who updates procedures and standards and performs activities such as quality assurance and crew checks.

The Northern and Eastern Electric Operations groups each have a section manager, manager, and six supervisors. Each supervisor is assigned three to four crews.[352] O&R has roughly 180 union FTEs in the overhead, underground, and transmission EHV functions, of which two-thirds perform distribution overhead work in the three operating divisions.[353] Union worker classifications are chief (the working foreman), first class (journeyman line worker), second class, and third class (apprentice/ground man). Qualified crews consist of a minimum of a chief plus a first class lineman, although O&R typically utilizes three- and four-person crews. These crews perform capital and O&M work on the first shift, with overtime generally reserved for off-hours emergencies.[354] Troubleshooter crews, which address outages and trouble calls, consist of a minimum of two first class line workers. Troubleshooters perform minor primary work, triage large problems and may also perform switching and other short duration repairs such as streetlights. Normal Electric Operations staffing of troubleshooter crews is generally 24/6, with Sundays worked on a call-in or standby basis.[355]

The Substation Operations group is part of the Control Center and Substations Operations department, and includes union electricians and relay technicians. Crews perform all operations, construction and emergency work at the substations. Substation Operations has one shift five days per week, with standby crews available during off hours.[356] Both the Substation Operations and Electric Operations groups maintain comprehensive operations and maintenance procedures manuals and related documentation on the company's SharePoint site to facilitate employee reference.[357]

The next table summarizes T&D O&M costs for the Substation Operations group and the overhead and underground cost centers in Electric Operations during the audit period; RECO's share of total T&D O&M costs ranged from 12 to 16 percent.[358]

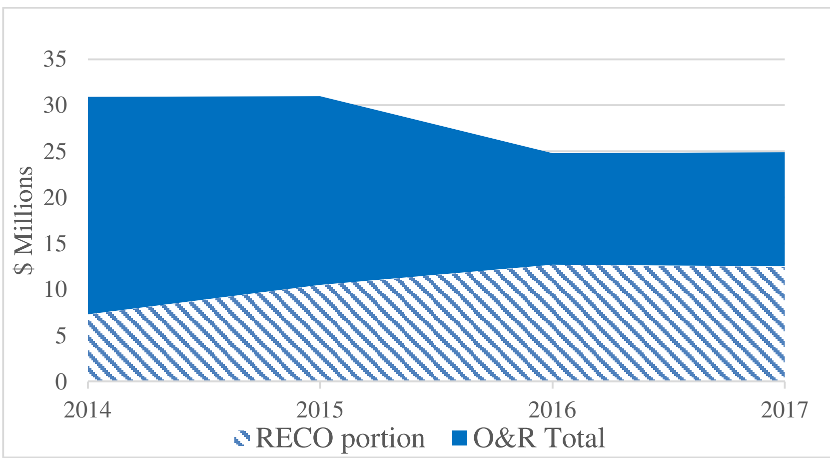
[352] The Northern and Eastern Divisions each have one overhead planner and a distribution engineer who writes up smaller jobs and performs activities such as fuse coordination and phase balancing. Another planner handles the underground work in all divisions.
[353] Interviews #1 and #25.
[354] Project work is performed on straight time, and O&R uses very little discretionary overtime; approximately 90 percent of overtime is for emergency work (Interview #25).
[355] Each division generally has two troubleshooter crews on first shift, two on second shift, and one on third shift.
[356] Interview #25.
[357] Response to Data Requests #242 and #304.
[358] Cost by Activity reports provided in response to Data Request #244. O&R totals are consistent with actual O&M costs for Electric Operations and Substation Operations in Exhibit X-5. Numbers may not sum due to rounding.

Exhibit X-14
T&D O&M by Cost Center ($ Millions)

Category		2014	2015	2016	2017
Electric Operations OH	RECO	$5.3	$ 4.3	$ 5.8	$ 6.3
	O&R	33.4	34.1	35.9	34.1
Electric Operations UG	RECO	0.6	0.5	0.5	0.5
	O&R	4.9	5.2	5.2	5.7
Substation Operations	RECO	0.7	0.7	0.4	0.9
	O&R	6.1	6.6	5.1	6.6
Total O&M	RECO	6.6	5.5	6.8	7.6
	O&R	44.5	45.9	46.3	46.4

The information source for this table was not clear enough for Silverpoint to clearly separate distribution from transmission or operations from maintenance, although the cost figures for 2014 and 2015 appear to be consistent with those reported on FERC Form 1 reports. Those for 2016 and 2017 do not. The following graph shows maintenance costs for distribution overhead lines as reported to FERC.[359]

Exhibit X-15
FERC Form 1 – Maintenance of Distribution Overhead Lines



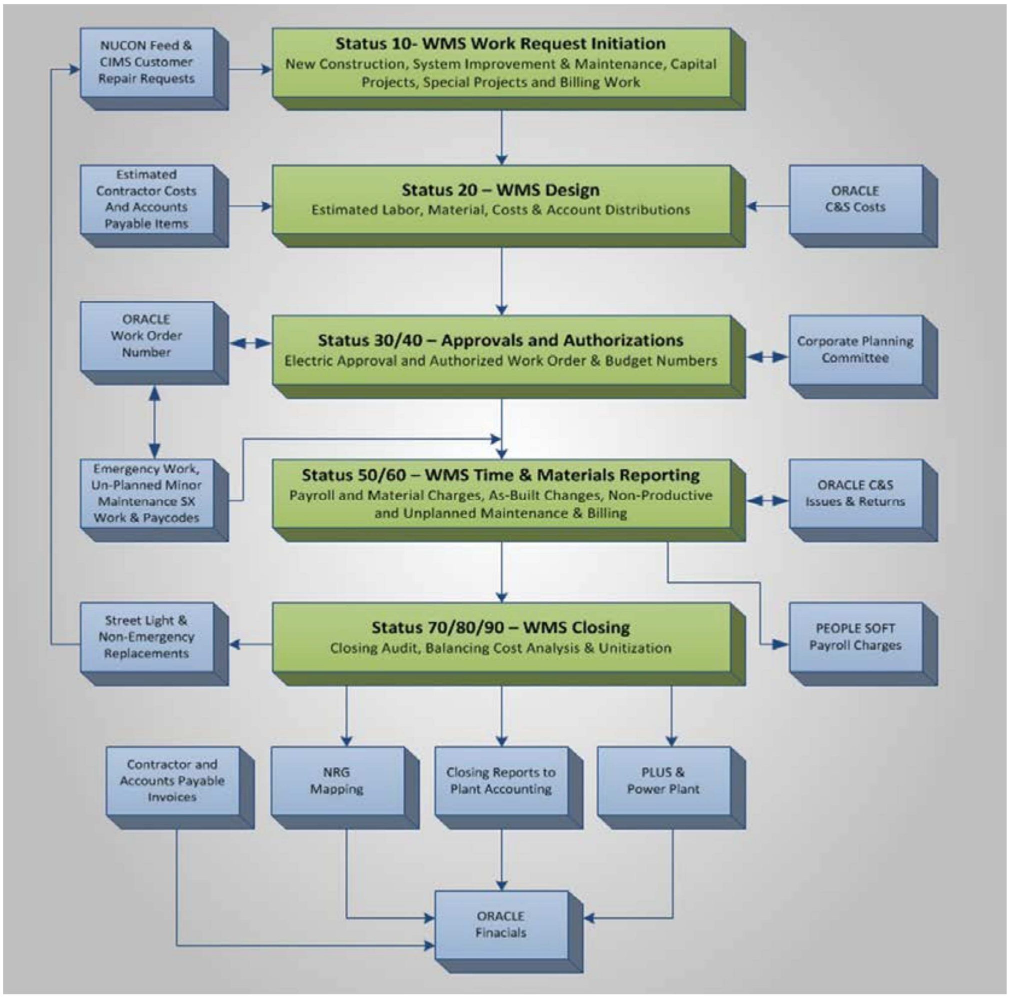
FERC figures indicate a significant decrease in distribution overhead line maintenance but also a doubling of RECO's share of those costs. Silverpoint asked O&R to explain this inconsistency but the company never responded to our request.[360] We suggest the company explain this discrepancy to the BPU in its next rate case filing.

[359] FERC Form 1 Reports for RECO and O&R provided in response to Data Requests #9 and #315, respectively: Electric Operation and Maintenance Expense, Distribution, FERC Account 593 – Maintenance of Overhead Lines. Figures are consistent with those included in the Annual Report filed with the BPU (Response to Data Request #14).
[360] Interview Request #48 submitted September 9, 2018 but never scheduled.

Work Management System

Electric Operations and Substation Operations use the Work Management System (WMS) to manage capital and maintenance work through the job lifecycle. WMS was originally a gas system that O&R obtained from South Carolina Electric and Gas in 1990 and modified to include electric. This mainframe-based system has been modified and upgraded over the years including the addition of a web interface. WMS interfaces with many other company systems and applications including the customer information system, NRG geographic information system (GIS) mapping system, PeopleSoft payroll, and Oracle plant accounting, inventory, and general ledger systems.[361] There are, however, no direct tie-ins between WMS and the OMS. An overview of the WMS system and its primary interfaces is illustrated in the following graphic.[362]

Exhibit X-16
WMS Work System and Interface Flow Chart



[361] For example, the interface with Oracle Inventory allows O&R to forecast material needs and automatically create a bill of materials for each job. Oracle General Ledger sends updated material cost information to WMS weekly to ensure estimates reflect the most current costs. Each work request captures the grid location of the project; the GIS system can access historical information on jobs by grid location back to the 1990s.
[362] WMS Work System and Interface Flow Chart provided in response to Data Request #219.

The structure of WMS is based on a job cycle that is delineated by status levels—Status 40, for example, represents an approved job available for scheduling—and the status code of each work request increases as the job progresses. When a job is created in WMS, it is assigned a job type (e.g., new business, streetlight), a request type (e.g., defective pole, line technical service, system integrity), and a unique work request number. There are separate job requirements associated with each status level—the Status 20 Design stage, for example, includes engineering review and supervisor approval requirements—although not all job types include all requirements. The WMS requirements at each status level provide a measure of control; variances over 15 percent, for example, must be explained before a work order can progress to closing. Executive approvals are needed at specific points of the job lifecycle depending on project cost.[363]

WMS contains pre-designed standard templates that detail the components—labor, materials, and equipment—required for each type of work request. As part of the Status 20 design stage, planners define each work order in terms of these components to aggregate a budgeted cost for the job. These job cost estimates are locked at the time they are established as overhead rates change frequently. O&R uses WMS to manage both longer term and day-to-day workflow. Planners track upcoming work in WMS, and when it moves to Status 40—ready to be worked—they coordinate with other groups to manage and schedule the work. Out in the field, supervisors have access to WMS, as well as the mapping system and OMS, on laptops in their trucks. All union workers charge their time to WMS work request numbers; management hours spent on a job are entered in PeopleSoft and information is later sent to WMS.[364]

WMS reporting capabilities include work order tracking such as progress of approvals and capital project reports that show actual and budget amounts that can be used to monitor job cost estimates. Reports on crew performance including actual hours and utilization can be created to support manpower productivity analysis. WMS has a capital projects tool, reports on productivity, reports on hours of available capital and O&M work, budgetary tracking, and overtime tracking, as well as a custom reporting feature.[365]

Maintenance Programs

O&R utilizes a home grown database system, the Electric Information Management System (EIMS), to track maintenance and inspection information and results for many of its T&D line facilities. EIMS contains detailed inspection checklist forms that are printed on paper for crews to use in the field when performing inspections.[366] The system stores information on overhead system devices such as capacitor banks, line regulators, line reclosers and sectionalizers, as well as the results of pole inspections and stray voltage tests. EIMS can track the history of inspections and maintenance on each device by serial number. The system has a field devices dashboard that can generate reports such as a list of devices that need to be maintained, but in

[363] Interview #21.

[364] Interview #25. Electric Operations crews have Toughbook computers in their trucks. Work order information is given to crews on paper, in a job folder, with maps. The crew marks up the map with as-built information.

[365] Interview #25.

[366] Sample capacitor field inspection form provided in response to Data Request #246. Some maintenance records such as aerial inspections of transmission structures are still maintained on paper and are not in EIMS.

general, reporting capabilities are somewhat limited—for example EIMS cannot generate a report to indicate whether all required inspections were performed in a given year.[367]

The Substation department utilizes detailed substation monthly inspection forms to collect information during its reviews.[368] O&R has a separate Substation Information System (SIS) database to store substation equipment information, but is currently upgrading EIMS to incorporate SIS. O&R also uses a Substation Test Report (STR) database for storing computer files with lengthy reports of test results (e.g., Doble tests and dissolved gas analysis) that is slated to be upgraded.[369]

The Engineering department specifies the structure of the company's T&D inspection and maintenance programs. All scheduled maintenance and inspection programs are time-based. Maintenance activities are tracked and scheduled through WMS, which can automatically generate tickets for maintenance and inspection work.[370] Silverpoint walked through the company's preventative maintenance programs for O&R's overhead and underground T&D system with Operations personnel and found that the nature and frequency were consistent with good utility practice; a summary of these programs appears in the next table.[371]

[367] Interview #22.
[368] Sample substation inspection report provided in response to Data Request #301.
[369] Interview #25.
[370] Interviews #1 and #22.
[371] Interviews #1, #22 and #25. The company performs no regular maintenance on manual switches; Gang Operated Air Break (GOAB) switches are not part of a specific maintenance program but are covered through other visual patrols and infrared inspections.

Exhibit X-17
Overview of Preventative Maintenance Programs

Overhead Transmission	• Annual ground patrol and structure inspection; climbing inspection – 5 years • Annual wood pole inspection - sounded and bored if needed • Infrared inspection of system twice a year • Helicopter aerial patrols – monthly on 345/500 kV, otherwise bi-monthly
Underground Transmission	• Annual inspection of ROW and pressurized plant tests • Monthly inspections of terminations /cathodic/pressurizing plants • Semi-annual infrared testing of terminations • Manhole inspections every five years
Substations	• Monthly visual inspection; infrared testing twice annually • Transformer inspections twice a year including fans/pumps/compressors • Annual battery maintenance for NERC compliance • Transformer oil samples 1-4 times per year based on size/voltage • Transformer testing – 4 years; load tap changer inspection – 10 years • Breaker testing – 5 to 10 years based on voltage level • In-service relay maintenance and trip test every 4 to 8 years
Distribution Overhead Lines	• Visual inspection on all facilities on five-year cycle • Infrared inspection annually on three-phase; three-year cycle on single-phase
Distribution Wood Poles (60% O&R, 40% Verizon)	• Inspection every 10 to 12 years by contractor Osmose (spot checked) • Verizon notified of follow-up actions on its poles
Distribution Underground System	• No routine maintenance/inspection of underground lines in NJ • Stray voltage test manholes/switchgear/transformers every 5 years (NY only) • Check of stray voltage check performed when opening transformer/switchgear or entering manhole to ensure employee safety
Line Reclosers (300 total) **Sectionalizers** (50 total)	• Annual visual inspection; functional test – 3 years • Bypass/operate recloser; test Hotline tag; battery check/self-test

Capacitor Banks (500 total) **Voltage Regulators** (112 total)	• Annual visual inspection and functional tests:
	  • For Banks – record min/max voltages, setting, counters
	  • Regulators – operate, exercise switch, reset drag hands

MOABS (151 total)	• Exercise and document operation every 12 months • Functional testing procedure being developed to execute switch order test

Beyond routine scheduled preventative maintenance, O&R employees perform a variety of other inspection and corrective maintenance work on the system. For example, Engineering has a summer prep program for the T&D system to ensure that work needed for the upcoming summer peak load period is completed by June 1st. O&R conducts a similar effort for winter readiness. O&R also has a circuit ownership program for its fifteen worst performing overhead circuits that is designed to identify issues before an outage occurs. Circuits are assigned to a supervisor to patrol twice per year, as well as before and after storms. Open repair items are apparently tracked in spreadsheets maintained by distribution engineers, not within WMS.[372]

On the underground distribution system, it has been O&R's practice in the event of a fault to perform switching to restore affected customers, but not immediately repair the faulted cable, which has created a maintenance backlog.[373] O&R has an initiative underway to reduce the

[372] Interview #22. Silverpoint requested further information on the circuits included in this program but the company did not provide it (Data Request #247 submitted June 4, 2018).
[373] Silverpoint inquired about cases in which a second cable faults and customers cannot be restored by switching; O&R stated that it would bring in transformers on a trailer and lay cables across the ground to restore customers.

backlog of faulted cable by 30 percent; as of year-end 2017, O&R had 127 faulted URDs and a goal to repair 39 by June 1, 2018. Silverpoint requested additional information on the backlog, including date of original fault, location, and scheduled or actual repair date, but the company never provided it.[374] As such, we were unable to determine whether this backlog of maintenance work is kept in engineer spreadsheets or exists as work orders in WMS.

During inspection patrols or routine preventative maintenance, a utility should have an organized system to record deficiencies that were identified. Corrective maintenance items need to be tracked and prioritized—for example, "A" items addressed within six months and "B" items within the next one to two years—according to some defined criteria.[375] In some cases it may be appropriate to create an immediate work order request (e.g., a breaker cabinet door falling off), but often corrective maintenance items are grouped together or incorporated into other planned work. Because of manpower shortfalls or cost cutting measures, utilities can sometimes end up accumulating a large backlog of relatively minor maintenance items; even though each deficiency by itself may not be significant, their combined effect could be felt during large scale weather events.

The subject of maintenance backlogs was discussed in the recent New York management audit in the context of work management. Although the auditors presented information on CECONY backlogs, they were apparently unsuccessful at securing any from O&R, and merely repeated the company's responses to two data requests: 1) "O&R runs weekly backlog reports using WMS and retains them for five weeks. O&R plans to change this to a yearly report that will be retained for five years for future tracking and analysis," and 2) "O&R states that it does not have excessive backlogs in Electric Operations, Substation Operations, or Gas Operations."[376]

After our interview with Electric Operations personnel, Silverpoint requested an example of a weekly WMS backlog report.[377] Over two months later, we finally received one—whether the delay was intentional or coincidental is unknown. The report showed approximately 500 Eastern Division overhead distribution work order requests ready for scheduling (Status 50) out of Spring Valley, most of which related to joint use poles, and another 200 work orders on hold waiting for approvals (Status 30 and 40). It is important to note that when a job is ready for scheduling, company planners consider current supervisor workload. At times, ready jobs will not be moved to Status 50 if a supervisor and crews are unavailable but instead held back in Status 30/40. As such, the size of O&R's backlog is not always easily discernible in WMS.[378]

In order to get a better sense of the extent of O&R's total backlog, we requested information on work orders for other asset types—underground, substation, EHV and street lighting—not only out of Spring Valley but across all operating divisions. O&R never responded to our request;

[374] Data Request #245 submitted June 4, 2018.
[375] It was not clear if O&R had a formal process to record and manage the backlog of corrective maintenance items.
[376] "Comprehensive Management and Operations Audits of Consolidated Edison Company of New York, Inc., and Orange and Rockland Utilities, Inc.," April 21, 2016, New York State Public Service Commission Case No. 14-M-0001, p. VII-32. Based on O&R's statements, the auditors concluded the utility does not have excessive backlogs.
[377] Data Request #302 submitted June 29, 2018 and answered September 7, 2018.
[378] Interview #21.

other unanswered questions in the interview request concerning backlog reports and maintenance item tracking included the following: [379]

- How and where O&R tracks items in need of repair or maintenance that are not deemed to be high priority items, such as issues identified during inspections of overhead equipment and substations, or by the vendor during pole inspections
- When these items ultimately make their way into work orders in WMS
- How items identified as part of the circuit adoption program and summer/winter readiness programs are tracked, and how they are treated in WMS
- What items that are not yet in WMS are considered to be maintenance backlog.

F. Work Management

During the last few years, O&R's work management practices were reviewed quite extensively in two audits conducted on behalf of New York regulators. Of particular focus in those audits was the company's use of outside contractors and employee overtime. Throughout Silverpoint's audit, the company has continued to file regular updates with the New York PSC to report on its progress in implementing recommendations from those audits. In that context, we concentrated our team's efforts in this audit on understanding recent changes.

By way of background, nearly all O&M work at O&R except for vegetation management is performed by internal resources. The company does, however, employ contractors for certain lesser-skilled activities such as mark-outs and wood pole inspections—allowing it to focus its skilled crews elsewhere—or for specialized work such as infrared inspections at substations. Outside contractors are used more extensively for capital construction work. On substation and transmission projects, for example, O&R typically contracts out both the civil and electrical work, although in some cases the utility will use its own EHV and substation crews to perform electrical construction, particularly on smaller jobs. Contractors are currently being used to perform overhead distribution automation and underground cable rehabilitation work.[380]

The recent New York management audit included a focused investigation of O&R and CECONY work management practices, including resource planning, construction and maintenance planning, scheduling, monitoring, and improvement of day-to-day activities. Silverpoint reviewed the audit findings presented in the 2016 final report and found the conclusions to be reasonable and well-supported. For example, the auditors concluded that the 20 percent overtime target that was in place at the time for O&R's field personnel was too high; at the same time they recognized that actual overtime levels were appreciably lower as overtime at O&R is used primarily for electric outages, off-hours gas calls, or substation equipment failures. Like Silverpoint, they found WMS to be an effective system to schedule work and requisition

[379] Interview Request #52 submitted September 17, 2018.
[380] Interviews #1, #20, #24, and #25.

material that provides adequate controls, tracking, and reporting. Recommendations in the report that relate to O&R include the following: [381]

- Develop formal reports on trends in work load levels, workforce productivity and utilization
- Develop formal work management practices for engineering organizations, leveraging CECONY's continuous improvement program where possible
- Develop overtime targets based on economic analyses and verified industry norms
- Develop formal studies and provide updates of contractor versus in-house costs every three to five years, and use the studies in resource planning to determine the optimal use of contractors.

The company reported on its progress on the first two recommendations in audit implementation plan updates filed with the New York PSC, the most recent of which was filed in October 2018. The remaining two recommendations were consolidated into the company's reporting on similar issues from the later New York staffing audit, the most recent update of which was filed in December 2018.

O&R's Electric Operations and Substation Operations groups utilize monthly productivity reports from WMS in their planning activities, but the New York auditors concluded that the addition of trend reports would help identify areas that are performing well or where improvements are needed. Such reports would also serve as a foundation for development of strategies to improve work force performance. O&R subsequently developed new trending reports on work load, productivity, and utilization leveraging data already in WMS; these reports were finalized and in use by the latter half of 2017.[382]

The New York auditors found that neither O&R nor CECONY had formal engineering work management programs. With the help of Ernst & Young, the two utilities conducted a feasibility analysis, including internal and external benchmarking, to gather information about best practices. The study concluded that CECONY and O&R engineering work management practices as a whole were aligned with its peer companies. The utilities recognized, however, that their current work practices were not formally defined. O&R and CECONY met to compare practices and existing documentation, ultimately concluding that formal documentation would represent a basis from which each engineering organization can share best practices. O&R and CECONY ultimately developed a Corporate Guide for Engineering Work Management.[383] Silverpoint requested more information on this subject, including an opportunity to review the

[381] New York PSC Case No. 14-M-0001, "Comprehensive Management and Operations Audits of Consolidated Edison Company of New York, Inc., and Orange and Rockland Utilities, Inc.," April 21, 2016, pp. VII-37-38.
[382] CECONY and O&R Audit Implementation Plan Update, October 13, 2017, New York State Public Service Commission Case No. 14-M-0001, pp. 60-65.
[383] CECONY and O&R Audit Implementation Plan Update, October 13, 2018, New York State Public Service Commission Case No. 14-M-0001, pp. 47-52.

Ernst & Young report and the corporate guide, but the company never responded to our request.[384]

The other New York audit was aimed at assessing staffing levels at the state's utilities, focusing in particular on internal and contractor resources engaged in planning, management and execution of electric and gas work on network infrastructure. This audit began before, but finished after, the management audit. According to the RFP for this audit, key questions to be answered included the following:

- Whether utilities are retaining an adequate workforce to perform core functions for engineering and operations
- Whether the methods and procedures used to determine whether to retain external resources are appropriate, given the nature of the function and industry best practices
- Whether utilities provide adequate quality, cost, and performance oversight of contractors
- Whether adequate succession plans or similar protocols are in place to address the industry-wide issue of the loss of experienced personnel due to retirements and attrition.

The final report on this audit included a benchmarking-type analysis as well as a company-specific process review of each utility. New York utilities vary greatly in size, and because New York's larger utilities would otherwise dominate the data, the auditors constructed a hypothetical utility operation—a straw man created to provide a basis upon which to assess how individual utilities differed. Attributes included miles of overhead T&D, number of customers and substations, customer density, peak demand and electric sales. After collecting data in a way that they hoped was consistent across utilities, the auditors used models to estimate utility staffing levels that were billed as an "objective yardstick." Most of the conclusions about each utility appear to be based on data from the 2009 to 2013 period. In our view, the benchmarking aspects of the study might have been useful for purposes of trying to glean overall statewide trends (even though it had serious analytical shortcomings) but was not useful for assessing individual utilities including O&R.[385] The process review portion of the report did, however, provide more information on the issues of contractor usage and overtime that were first raised in the management audit report. Recommendations of note included the following:[386]

- O&R and CECONY resource planning should include data driven analyses that help management evaluate the trade-offs for overtime, contractors and internal staff at the functional and work group levels.
- O&R should conduct a structured re-evaluation of the role of internal staffing in long-range plans, as internal staffing will help attain optimal overtime targets.

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[384] Interview Request #55 submitted September 25, 2018.

[385] It was unclear, for example, whether the auditors understood that O&R relies on off-hours call outs because it is not a 24/7 three-shift operation for regular crews.

[386] "Operations Audit of Staffing Levels at the Major New York State Energy Utilities, Final Report: Orange and Rockland," February 21, 2017, New York State Public Service Commission Case No. 13-M-0449, pp. 44, 50, and 69-70.

- O&R should develop a more analytical process to determine the optimal level of overtime, and include all relevant factors in decision-making regarding overtime.

Work and manpower planning is already an integral part of the annual O&R budgeting process. The company utilizes a capability model to help in forecasting the level of resources—employees on regular time, employees on overtime, and contractors—that will be needed to accomplish the proposed yearly work plan. In response to the audit recommendation, the company noted that institutional knowledge and experience are used to determine the optimal balance of resources but acknowledged that utilizing historical data to support those decisions would be beneficial. O&R subsequently updated its capability model in early 2018. To further analyze internal staffing, O&R also developed an optimization model—originally in Excel but later incorporated into WMS—that utilized pre-existing logic from CECONY applications. The company plans to use this model in conjunction with WMS work and manpower planning tools to routinely analyze the mix of resources as circumstances change to determine if adjustments are required.[387]

In connection with the second and third recommendations, O&R and CECONY opted to develop an analytically supported method for determining optimum overtime levels including control measures that facilitate the maintenance of overtime levels within an acceptable range. The utilities again engaged Ernst & Young to perform a benchmarking survey to determine the norms for setting overtime targets; based on the results, the companies concluded that their calculation methods and targets were close to industry norms. O&R subsequently analyzed a year of data to develop an annual target level and control bands, which were then coordinated with the capability model. O&R also developed a cost management policy to guide the administration and management of overtime for weekly employees as of year-end 2018.[388] Silverpoint requested more information on these changes, including an opportunity to review the Ernst & Young report as well as a live demonstration of the updated capability model and optimization model, but the company never responded to our request.[389]

G. Vegetation Management

O&R's Vegetation Management group is part of the T&D Maintenance department in Electric Operations. In addition to a manager, the group has a planner, an analyst, and two chief inspectors that interface with customers in the field and supervise third-party contractors. O&R currently employs three certified arborists from the vendor Environmental Consultants as additional contractor inspectors. O&R typically has 15 to 18 vegetation management (VM) crews working on its property. Of these, approximately 50 percent are dedicated to capital work,

[387] CECONY and O&R Staffing Audit Implementation Plan Update, December 17, 2018, New York State Public Service Commission Case No. 13-M-0449, pp. 39-41 and 79-83. The company's implementation plan in this area also addressed the recommendation in the management audit regarding the optimal use of contractors.
[388] CECONY and O&R Staffing Audit Implementation Plan Update, December 17, 2018, New York State Public Service Commission Case No. 13-M-0449, pp. 59-62. The company's implementation plan in this area also addressed the recommendation in the management audit regarding overtime targets.
[389] Interview Request #55 submitted September 25, 2018.

30 percent to maintenance, and 20 percent to hot spotting; much of the hot spotting work is post storm.

O&R uses a substation-based approach to distribution VM whereby all circuits leading from a particular substation are trimmed in the same time frame. O&R's trimming specifications in New Jersey—10 to 15 feet to the side and underneath conductors—were developed based on the typical growth of the community forest and the four-year trimming cycle required by N.J.A.C. 14:5-9.4(b). New Jersey introduced a new standard in 2016 requiring removal of all tree canopies above the feeder within the lockout zone, and O&R began trimming to the new standard at the beginning of the year in anticipation of its going into effect.[390] The company also put into effect operating procedures to fulfill the BPU's requirement to track unmitigated hazard trees.[391]

NERC requires transmission owners to have a VM plan in place but does not dictate a specific approach. Since the 2003 blackout, however, NERC requires utilities to totally remove non-compatible trees from the transmission right-of-way (ROW) rather than trimming them, and O&R's plan reflects that policy. O&R's transmission VM practices include revisiting ROWs maintained the prior year to look for newly emerging non-compatible species; if warranted, contractors apply herbicides to stem new growth. Silverpoint reviewed the company's T&D VM standards and procedures and found them to be comprehensive, complete, and consistent with all regulatory requirements.[392] The company's transmission VM plans meet NERC and state regulatory requirements; distribution VM plans are less formal and consist primarily of a list of substations and mileage targets by year and by state.[393]

The O&R system has 3,100 miles of distribution primaries, 900 of which are in New Jersey, and the company estimates that on average there are roughly 200 trees per circuit mile. Roughly ten percent of the trees in O&R's territory across both states are ash. The emerald ash borer is an invasive beetle species highly destructive to ash trees, and once ash trees are compromised they can become unstable within three to five years. The company has identified the emerald ash borer as an emerging issue and is currently evaluating strategies to deal with the eventual impact to its VM plans.

Consistent with New Jersey requirements, O&R provides direct notice by mail to customers that will be affected by upcoming tree trimming. These letters contain silhouette illustrations of trees

[390] Interview #23. The lockout zone is the portion of a circuit from the substation out to the first set of protection devices. If a fault occurs in the lockout zone, all customers served by that circuit will experience an outage. There is no similar requirement to remove canopy in New York.

[391] Operating Procedures TD-003, Hazard Tree Mitigation Program, provided in response to Data Request #239; the procedures apply to trees on the main line and those operating at 69 kV or higher. O&R defines a hazard tree as any tree that could potentially impact the system; a danger tree is one with identifiable hazard conditions or instabilities.

[392] Transmission VM and Distribution VM Specifications provided in response to Data Request #237; the documents are structured as project specifications for the vendor contracts.

[393] Planned T&D VM schedules provided in response to Data Request #235; Transmission Vegetation Management Plans provided in response to Data Request #228. O&R's transmission VM plan does not change much year to year, although it was updated in January 2017 to reflect New York's modified requirements for clean-up within the ROW.

subjected to standard trimming practice.[394] Company personnel have spoken with municipalities about the new requirement to remove tree canopies in the lockout zone, and have been going door to door in the areas affected by the new requirements to help assuage customer concerns.[395] O&R does not do direct mailings for its transmission system trimming, but instead attempts to reach customers in person. Vegetation Management group personnel memorialize discussions with affected customers using a communication record that captures information such as type of trimming and equipment required, and the number of attempts made to contact the customer through door hangers, phone messages or certified letter.[396]

CECONY Supply Chain manages the competitive bidding process for VM vendors; Vegetation Management performs technical bidder reviews but is not privy to bid pricing information and does not make the final selection. The company's transmission VM contractor for 2018 was JAFLO, working under a lump sum-based contract. The company currently uses Trees, Inc. and Nelson Tree Service for distribution VM, one for the Eastern Division and one for the Northern Division. The most recent three-year contracts, signed in 2017, are unit price-based. O&R expects future costs for maintenance trimming to be lower once the lockout zone is initially trimmed to meet the standard.[397] Additional information on distribution VM costs is contained in the Confidential Appendix.

VM contractors cannot be paid for their work until it is verified by one of the company's inspectors, who are with vendor crews every day. O&R utilizes a formal checklist to record inspection of transmission work, but no formal inspection records are maintained for distribution work. The company routinely evaluates its contractors for safety, and each contractor's own supervisors perform crew inspections to ensure compliance with VM standards. The Vegetation Management group's manager conducts quality assurance inspections of contracted inspectors and VM companies on average five times per month.[398] He is also responsible for conducting investigations of tree-related outages affecting 500 or more customers.[399]

During the audit, Silverpoint conducted informal assessments of the company's tree trimming practices, as well as a more systematic review as part of a two-day guided tour of RECO's territory. Our engineering team spent a day observing the condition of the overhead distribution system, including VM, and visited transmission ROWs. They visited recently trimmed circuits, including those trimmed to the new lockout zone standard, as well as areas currently scheduled to be cycle trimmed to examine vegetation growth at the end of the cycle.[400] In all, the team found no issues to report. We do, however, echo the company's concern that trees in the lockout zone may experience stress after the first round of heavy overhang removal. Company personnel

[394] Customer letter provided in response to Data Request #231. Canopy removal standards are not illustrated to prevent confusion, as the new standard actually affects a relatively small portion of customers.
[395] Interview #23.
[396] Communication record, brochure, and door hanger provided in response to Data Requests #232-#234, respectively.
[397] Interview #23 and response to Data Request #28.
[398] Quality Assurance/Specification Adherence Inspection form provided in response to Data Request #230.
[399] Interview #23. O&R indicated that there are thirty to fifty such outages per year.
[400] Operational field visits scheduled as Interview #31.

have been revisiting some of these areas to look for dead trees on an informal basis, and we suggest they continue the process, albeit more systematically.

O&R's actual and budgeted O&M costs during the audit period for T&D VM in New Jersey are summarized in the next table; the table also shows the percentage of the system inspected or maintained each year as reported in RECO's annual reliability reports filed with the BPU. A non-redacted version of the table is included in the Confidential Appendix.[401]

Exhibit X-18
RECO T&D Vegetation Management

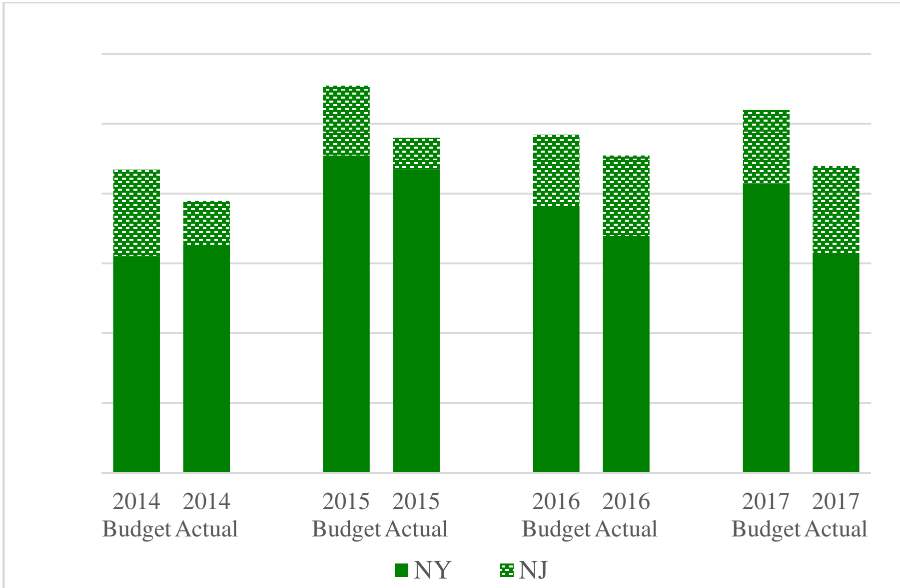
	Distribution					**Transmission**			
	$ Millions			**% Inspected/ Trimmed**					**% Corridor Maintained**
	Budget	**Actual**	**Var.**	**2016 Report**	**2017 Report**	**Budget**	**Actual**	**Var.**	**2017 Report**
2013				32.7 %	-				
2014				13.6 %	17.7 %				6.5%
2015				9.6 %	7.3 %				55.3%
2016				27.4 %	35.4 %				40.6%
2017				-	32.3 %				27.4%
Total				83.3 %	92.7 %				

During our interview, Silverpoint asked why the company trimmed less than ten percent of the system in 2015, but the participants were unable to provide a clear answer.[402] Silverpoint requested a follow-up interview with the Vegetation Management group but the company never scheduled it.[403] As noted in the above table, RECO changed the numbers it reported for the percentage of its distribution system that had been trimmed for the years 2014 to 2016 in its annual reliability filing reports. Regardless of which numbers are correct, the company did not trim 100 percent of its system in a four-year cycle as required under N.J.A.C. 14:5-9.4(b).

The next graph illustrates actual versus budgeted O&M costs by state for VM maintenance work during the audit period; a non-redacted version of the graph is included in the Confidential Appendix.[404] We were unable to learn why O&R completed its budgeted 2014 and 2015 distribution VM in New York but not in New Jersey.

[401] Service Reliability Filings provided in response to Data Request #29; RECO actual and budget O&M costs provided in response to Data Request #238.
[402] Interview #23.
[403] Interview Request #40 submitted August 16, 2018.
[404] Data provided in response to Data Request #244; RECO actual and budgeted O&M figures are higher than those provided in response to Data Request #238 reflected in the previous table.

Exhibit X-19
Distribution Vegetation Management
Actual versus Budgeted O&M Cost by State ($ Million)



RECO's Service Reliability Filing reports for 2014 and 2015 create the impression that the company completed the trimming that it intended to do each year. The feeders shown as scheduled for trimming in the report do not appear to correlate with the original O&M budgets approved in October or November of the prior year, and were ostensibly revised downward to reflect updated estimates. Silverpoint requested examples of routine VM progress reports used by management during the audit period, but instead received two charts from 2018 showing year-to-date progress on T&D line clearing; the pace of distribution VM was 1,200 miles per year—a three-year not four-year cycle—so O&R may have been playing catch-up across its system during 2018.[405]

As part of the agreement in connection with recovery of storm hardening program costs, RECO agreed to spend an average of $1.7 million per year on VM over the three-year period beginning in 2016.[406] It appears that RECO met the minimum requirement for 2016 and 2017. Given the company's tendency to underspend on distribution VM in New Jersey, we suggest that the BPU continue to impose minimum spending requirements for vegetation management as part of rate case or other proceedings.

[405] Line clearance graphs and statistics for May 2018 year-to-date provided in response to Data Request #236.
[406] Decision and Order Approving Stipulation, Docket Nos AX13030197 and ER14030250, January 28, 2016, provided in response to Data Request #33.

H. Storm Response Preparedness

The Emergency Preparedness organization is part of CECONY Utility Shared Services. The group provides support to O&R in the regulatory and planning aspects of emergency management as well as weather forecasting and other technical analytical services. Emergency Preparedness is responsible for reviewing and updating the Emergency Response Plans (ERPs) that O&R and CECONY file with regulators. These ERPs are based on the Incident Command System (ICS) and ICS command structure, and both utilities have separate plans for their gas and electric operations.[407] The Emergency Preparedness group also manages an internal website that serves as a central corporate repository for emergency response related materials, such as O&R's Corporate Response Guidelines that provide basic information about the process by which personnel and departments prepare for, respond to, and manage emergency conditions.[408]

A utility's emergency response plan should encompass all the aspects of the response process, from pre-event planning and alerts through ramp down and return to normal operations. We found O&R's ERP to be appropriately comprehensive, and built on the key principles of major outage response that are consistent with good utility practice.[409] The roles and responsibilities of O&R's emergency response organization are consistent with prevalent utility standards. The storm officer role is usually filled by a vice president, and the incident commander role is typically assumed by an employee at the general manager/director level. Operations-level incident response groups include the System Emergency Response Team (SERT), which consists of internal and external linemen, tree crews, and related service restoration personnel, and a Priority Response Group that attends to high priority locations and works with municipalities to coordinate activities such as road clearing.[410]

O&R's ERP is unusual in that it includes a storm classification and staffing matrix, something not included by CECONY in its ERP or in plans we reviewed from other area utilities. The company developed the storm classification and staffing matrix based on historical information from past storm events, and it has been adjusted over time. The complete matrix defines the number of projected outage jobs, customers out of service, and days of restoration associated with each category of storm event. It also outlines the minimum staffing levels for operations, planning, command, logistics and administrative support areas that are required for each event category. The matrix is based on a predetermined restoration rate and certain assumptions about the size and nature of outage jobs.[411]

An excerpt from the storm classification matrix is shown in the next table; the complete storm classification and staffing matrix is included in the Confidential Appendix.[412]

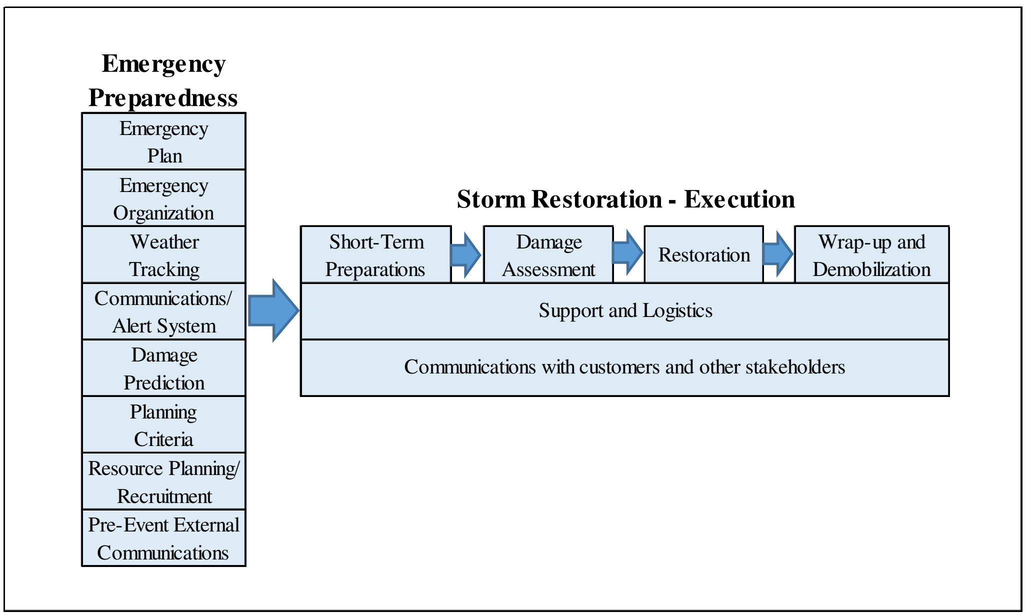
[407] The Incident Command System (ICS) is a standardized, on-scene, all-risk incident management concept that was developed in the 1970s following a series of catastrophic fires in California's urban interface. The ICS command structure provides an orderly chain of command that is consistent across all responding organizations.
[408] Corporate Response to Incidents and Emergencies Guideline provided in response to Data Request #104.
[409] Emergency Response Plan dated April 11, 2018 provided in response to Data Request #106.
[410] During an emergency event, the DCC section manager is the operations chief and leads the SERT. O&R may eliminate the Priority Response Group and roll its responsibilities into the SERT.
[411] Interview #11.
[412] Appendix 12 of the Electric Emergency Response Plan provided in response to Data Request #106.

Exhibit X-20
O&R Storm Classifications

Storm Category	ICS Classification
1 – Upgraded	1
2 – Serious	2A
	2B
	2C
3 – Serious	3A
	3B
	3C
4 – Full Scale	4A
	4B
	4C
5 – Full Scale	5
Disaster Response	6

As illustrated in the next graphic, storm response preparedness goes beyond the emergency response plan and organization and encompasses activities such as pre-event alerts and communications, weather tracking, recruitment of outside resources, and damage prediction.

Exhibit X-21
Storm Response Preparation and Execution



In terms of resource recruitment, CEI belongs to the North Atlantic Mutual Assistance Group (NAMAG). Requests for mutual assistance for both O&R and CECONY are coordinated at the corporate level by Emergency Preparedness as one consolidated request. The company's internal protocol for dividing mutual assistance crews between CECONY and O&R is a 60/40 allocation. Both utilities have access to contractor employees already working on their utility systems, and CEI also has contracts for emergency support with over thirty contractor firms all over the country. Both utilities typically use mutual assistance for any event higher than Category 1. In terms of logistics, O&R currently has located three of its staging sites in New Jersey, two in

Mahwah and one in Wyckoff, which can be used for materials laydown. These staging areas are not used by mutual assistance crews, which are dispatched from hotels and do not report to a central location.[413]

A utility should have an effective communications system to inform, alert, and mobilize its response organization on short notice. O&R uses an email notification system as well as phone calls and text messaging via the Send Word Now application to alert its employees. There are additional distribution lists that ICS members use to reach out to large groups such as the union. Pre-event external communications at O&R are handled by the Regional and Community Affairs and the Corporate Communications departments; these storm-related roles are discussed in more detail in Chapter XIV.

Weather tracking is a critical aspect of storm readiness, and CECONY Emergency Preparedness has its own weather forecasting group that includes two full-time meteorologists. The group has access to free global, regional, and local weather-related information including Doppler radar, weather satellite, and local weather station data; the company has also installed eight of its own weather stations, three of which are in O&R's territory. The company subscribes to DTN, a weather information service tailored to utilities, and StormVista, which provides access to various short-range and mid-to-long-range global and North American weather models.[414] The meteorologists synthesize weather data and monitor weather models in order to develop their own daily forecast report that is then distributed via email to a predefined set of employees, although distribution is wider when impactful weather events are expected. In addition to its daily reports, the weather team prepares winter and summer seasonal forecasts and provides tropical update reports as needed.[415]

In addition to a tabular summary of the weekly weather forecast, the daily forecast report identifies the likelihood that certain trigger conditions (e.g., extreme heat or cold, or precipitation in excess of certain amounts) will be exceeded. As of April 2016, the report also includes an assessment of the impact of predicted weather events on the underground and overhead systems, stated in terms of the number of outage jobs, in four geographic areas—Brooklyn/Queens, Bronx/Westchester, Staten Island, and O&R. These estimates are derived using the company's proprietary impact model (i.e., damage prediction model), which is based on historical storm damage information.[416]

The Emergency Preparedness group supports exercises and training at the corporate and local levels. CEI has an annual corporate-wide functional exercise that requires months of pre-planning; it also participates in GridEx, the NERC biennial grid security and emergency response exercise. At the O&R level, each of the functional positions in the ICS is required to hold annual training in their areas. O&R also performs table top exercises each year with municipal personnel including police and emergency management officers.

[413] Interview #38. During the March storms, O&R only implemented a New Jersey material staging site in Mahwah.
[414] Sample DTN forecasts provided in response to Data Request #108. According to its website, DTN offers weather information and tools tailored to utilities for both emergency preparedness and response and load forecasting.
[415] Sample daily forecasts, weather assessments and season forecasts provided in response to Data Request #107.
[416] Interview #11. Prior to 2016, there was no impact model for O&R's territory.

O&R performs a lessons learned review for every Category 2 or higher event using an internal scorecard to evaluate its response in four categories—preparation, operational response, communications, and other (e.g., ETR accuracy).[417] The scorecard is patterned after, but less detailed than, the one implemented by the New York PSC that must be submitted after major events.[418] O&R had nine internal scorecard events during the audit period—one in 2014, three in 2016 and five in 2017—all of which were Category 2. We noticed that several of the events (e.g., thunderstorm) were categorized as unanticipated and as such the company did not assess its preparedness.

Like in sports, planning, preparation and training are important, but what ultimately counts is how well the team executes its plays on game day. There were only two outage events in RECO's territory during the audit period, both relatively small, that met the BPU definition of a major event, i.e., one that affected at least ten percent of the customers in an operating area. Both occurred in November 2014 and affected approximately 2,000 customers in the company's Northern Division. Silverpoint reviewed the company's major event reports filed with the BPU, but there was too little information from which to develop an opinion about the company's storm response capabilities.[419] Shortly after the March 2018 outage events—winter storms Riley (March 2) and Quinn (March 7)—Silverpoint requested a multi-day interview session with company personnel knowledgeable about O&R's storm preparation and response. The BPU ultimately issued an order in July 2018 addressing O&R's response to these events, and we therefore did not investigate the subject further.[420]

I. Contractor Performance

The Contractor Oversight System is an enterprise-wide contractor evaluation system, managed by the CECONY Supply Chain organization, that is used to track and report on contractor EH&S and work performance. The system allows employees to provide feedback, positive or negative, on any contractor on the company's property at any time. Supply Chain requires each operating group to evaluate its contractors and submit reports into the system at least once every six months, although in practice these reports are submitted more frequently. The Contractor Oversight System facilitates assessment of past contractor performance, which is taken into account by Supply Chain during bid evaluations.[421]

The Contractor Field Observation Report is used by field inspectors to rate performance—satisfactory, unsatisfactory, or not observed—while work is still underway. The report includes a standard set of categories; the individual items included in each category will vary based on the nature of work being performed. These categories, along with sample items, are shown on the following table.[422]

[417] O&R Electric System Storm Scorecards provided in response to Data Request #110.
[418] New York Emergency Response Performance Measures and guide provided in response to Data Request #111.
[419] Major event reports provided in response to Data Request #60.
[420] In the Matter of the Board's Review of Major Storm Events of March 2018, Docket No. EO18030255, Order Accepting Staff's Report Requiring Utilities to Implement Recommendations, dated July 25, 2018.
[421] Interviews #20 and #23.
[422] Sample Contractor Field Observation Reports provided in response to Data Request #217.

Exhibit X-22
Contractor Field Observation Report Categories and Example Items

Quality/Specification Compliance • Quality of workmanship/quality of material • Work meets requirements of specifications • Reconciliation of field reports (e.g. timesheets)	**Administrative** • Health and safety plan (HASP) on site; knowledge of HASP • Permits/licenses/certificates of fitness
Construction Project • Confined space; fall protection • Hoists/cranes/derricks/rigging/scaffolding • Lockout/tagout procedure; flammable gases/liquids	**Worksite and Work Area Protection** • Barricades/cones/barrier tape/flags/mark-outs • Traffic control/flagging • Competent person/job briefing/housekeeping • Electrical enclosed spaces/ventilation/fire protection
Environmental Project • Work plan/project book/contractor certification • Secondary containment/decontamination area • Dumpster/tank/drums; warning signs/postings	**Asbestos Project** • Abatement contract/scope of work • Notifications/permits/manifests/variances/licenses • OSHA warnings; enclosure/waste storage
Tools/Equipment • Electric/pneumatic/welding/hand tools • Soil/structure conditions	**Vehicles/Trailers** • Vehicle/trailer appearance and housekeeping • Bucket/aerial/di-electric inspections; emergency response guide
Personal Protective Equipment • Safety shoes/hard hats/vests/gloves • Eye/hearing/face protection	**Environmental** • Spill kits; fluid leaks • Soil/structure conditions

The other main report in the system is the Contractor Evaluation Report, which is typically completed at the end of a project or every six months. Infraction Reports are used to document EH&S issues that occur but that are resolved with the contractor; Action Lines are used to report issues that cannot be resolved and that require intervention by Supply Chain.

Overhead Line Contractors

O&R typically has 20 to 35 distribution line contractors on the property to perform work under unit pricing contracts.[423] The Contract Services group, part of the Electric Operations T&D Maintenance department, is responsible for overseeing maintenance and capital work performed by contractors on the overhead distribution system, including vegetation management. The Contract Services group has 22 employees including a section manager, a manager, and three supervisors, and is responsible for ensuring that work is built to design specifications and according to O&R construction standards. Field supervisors meet with contractor crews daily to review scheduled work, handle material requisitioning, and ensure proper adherence to EH&S requirements. Also, as part of the contractor invoicing and payment process, O&R on-site inspectors verify with a contractor representative that work has been satisfactorily completed.

As discussed earlier in this chapter, project management and construction was a major focus of the recent New York audit of O&R and CECONY. One aspect of that review was an assessment of the adequacy of the utilities' oversight of contractor work and documentation of contractor

[423] Interview #22.

performance. The auditors concluded that O&R had appropriate organizations to oversee the work of contractors, and that it appropriately documented contractor performance in the corporate-wide Contractor Oversight System.[424] We agree with this conclusion, and note that the Internal Audit group conducts routine, focused reviews of the contractor performance process.

The only New York audit recommendation in this area relative to O&R was that the utility revise its contract management procedures to provide its employees with more detailed guidance regarding the use of the Supply Chain system. O&R subsequently revised its Construction Management Manual to provide adequate guidelines on the subject.[425]

One Call Mark-out Contractors

The Damage Prevention and Compliance department is part of O&R's Gas Operations organization, and is composed of two groups. The Damage Prevention group consists of five management and fifteen union employees, the latter working as locators; there are two operating supervisors responsible for RECO territory and Rockland County and one responsible for Orange, Sullivan and the remaining New York counties. Members of the Compliance group perform job site inspections for gas projects, and often conduct inspections of contractor mark-outs because they are already on site for other purposes.[426]

Customers submit their requests for utility mark-outs in RECO's territory to the New Jersey One Call system, which automatically generates work tickets and sends them to the appropriate utility companies. At O&R, these tickets are automatically downloaded into the Digtrack system. O&R receives approximately 50,000 mark-out requests each year, of which roughly 40 percent are in RECO's territory. A considerable number of tickets are from O&R itself, since it must go through the same One Call protocols for its construction and repair activities. The utility has three days to complete the mark-out unless there are explainable delays such as weather. Once the work is completed, the Digtrack system sends a completion notice back via email to the original customer who requested the mark-out.

O&R has written standards and working rules for employees and contractors performing electric or gas line locations in states in which it operates.[427] Even if the company's system maps indicate that there are no O&R facilities in the customer's dig location, locators still visit to verify using electronic locating equipment before closing out the ticket electronically. All but emergency mark-outs in New Jersey are performed exclusively by contractor locators. Digtrack automatically assigns routine mark-out requests in RECO's territory directly to the contractor. When an emergency mark-out request comes in, an alarm is triggered and the control room assigns the ticket to a specific locator. These emergency requests are typically associated with

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[424] "Comprehensive Management and Operations Audits of Consolidated Edison Company of New York, Inc., and Orange and Rockland Utilities, Inc.," April 21, 2016, New York State Public Service Commission Case No. 14-M-0001, pp. VI-22-25.

[425] CECONY and O&R Audit Implementation Plan Update, October 13, 2017, New York State Public Service Commission Case No. 14-M-0001.

[426] Interviews #42 and #58.

[427] Location of Underground Facilities/One Call System and Rules of Locating provided in response to Data Request #342.

repair or replacement of utility facilities. In New Jersey, the mark-out contractor is assigned all emergency mark-outs during the 7 a.m. to 3 p.m. shift. O&R's employee locator working the 11 a.m. to 7 p.m. shift takes over from the vendor starting at 3 p.m. and then is on call for emergencies until 7 a.m. the next day.[428]

O&R conducts a seminar every year to educate and share information with construction companies and excavators, and the response has been positive. The company also offers to visit construction company locations to help educate their personnel on safe digging practices. During the four-year audit period, there were only thirteen instances of damages in New Jersey caused by excavation. None of these were due to missed or incorrect mark-outs, all were excavator dig-ins. O&R performs a root cause analysis when there is a dig in, and the contractor is billed for damages—the utility collected approximately $65,000 from excavators in New Jersey during the audit period.[429]

RECO reports its performance of on-time mark-outs to the BPU; the company's performance during the audit period is summarized in the following table.[430]

Exhibit X-23
Reported One Call Ticket Compliance

	Total Tickets	Met	Missed	% On Time	BPU Fines Imposed ($000)
2014	14,295	13,568	727	94.91%	$21
2015	17,254	15,936	1,318	92.36%	25
2016	18,419	17,970	449	97.56%	30
2017	18,291	16,541	1,750	90.43%	33

UtiliQuest had been the sole contractor in New Jersey, but the company changed to USIC during 2016.[431] The company attributes the relatively high percentage of missed tickets in 2017 to the fact that it had changed vendors. Under the One Call provisions, fines for missed or late tickets can range from $1,000-2,500 per occurrence. The BPU determines which tickets result in fines; in most cases fines are imposed after a complaint from a customer of no mark-out or damage where the utility is found to be responsible.[432]

O&R uses an electronic job site technical evaluation form in Digtrack to review work by both vendor and employee locators. Supervisors record observations in up to fourteen areas (e.g., use of correct wording and markings), and the form is then signed by both the supervisor and locator.[433] Any infractions by contractors are recorded on specific templates in the Supply Chain

[428] Interviews #42 and #58.
[429] Interview #42. O&R has a corporate level KPI for damages of 2.25 per 1,000 tickets—year-to-date performance as of early October 2018 was approximately 1.93 for New York and New Jersey combined. The dig-in rate is much higher in New York due to the prevalence of underground gas facilities.
[430] Response to Data Request #345.
[431] O&R currently pays approximately $12 per ticket for New Jersey requests; the cost for contractors in New York is higher because of the need to locate both gas and electric facilities.
[432] Interviews #42 and #58.
[433] Sample template provided in response to Data Request #344.

Contractor Oversight System; there were 19 infraction reports during the audit period.[434] Vendor locators with unsatisfactory performance are retrained; those with continued failures are removed from the property.[435]

Contractors were not mandated contractually to conduct their own inspections until the new agreement with USIC in 2016. Weekly reports of inspections performed by the vendor's supervisors are retained by an O&R manager but are not stored in Digtrack.[436] Vendors record information such as whether or not its locator arrived on time, whether marks were accurate and clear, whether the job site was restored, and the reason for failure if applicable. During our discussions with company personnel, they were unable to confirm whether a minimum number of inspections is required, and if so, whether USIC had satisfied its inspection requirements.[437]

J. Conclusions

1. The RECO T&D system currently falls short of full design standards, although planned capital projects should eliminate this shortfall within the next few years.

Twenty years ago, only 40 percent of the O&R T&D system met the type of "worst single contingency" design standards that are generally considered to be good utility practice. After two decades of steady capital investment, O&R is closest to meeting these standards in the New Jersey portion of its territory. At present, 93 percent of the transmission system, 100 percent of substations, and 99 percent of distribution circuits in RECO's territory meet worst single contingency standards. Projects designed to address these deficiencies have been included in the five-year capital budget and when completed, will bring the RECO system into full compliance.

2. O&R has an effective and comprehensive approach to system planning but does not adequately document the evaluation and selection of alternatives for major capital projects.

O&R's planning, forecasting and analysis processes and methods are in line with good utility industry practices, and certain aspects reflect best practices. Engineering develops reasonable approaches to address system contingencies, maintaining a fluid approach that recognizes the need for a longer-term outlook to accommodate the evolving demands of grid modernization. The Engineering department has an appropriate process for prioritizing among proposed projects that guides the development of the five-year capital budget. The department does not, however, adequately document the analysis and assessment process behind its selection of specific alternatives to address system contingencies.

[434] Interview #58.
[435] Interview #58. To date one USIC locator was removed from the property; previously some Utiliquest locators had been removed for continued failures.
[436] Response to Data Request #343 and Interview #58.
[437] Interview #58.

3. The level of capital investment in RECO's system during the audit period was adequate.

Capital investments in RECO's T&D system during the audit period averaged $20 million per year, and the amount of capital invested by O&R in the New York and New Jersey portions of its system has been equivalent on a dollar per customer basis. Actual RECO spending was typically less than budget in most years, but there is no evidence that New Jersey capital projects were inappropriately deferred. The majority of spending was for sustaining capital work, although the company also made modest investments in storm hardening and smart grid technology during the audit period.

4. RECO's system reliability as measured by SAIFI continued to improve during the audit period, although CAIDI performance continued to worsen.

RECO was at or below the Board's SAIFI benchmark each year of the audit period. The company's continued improvements are due at least in part to the worst performing feeder program, addition of more feeder ties, and early distribution automation projects. Company performance as measured by CAIDI continued to erode, due largely to how that measure is calculated—grid improvements can cause CAIDI values to increase because simpler outages are avoided while more difficult ones remain.

5. O&R's use of technology and automation are reasonably consistent with good utility practice, and further expansion is underway.

All of O&R's New Jersey substations and nearly all of its New York substations are under full SCADA control. The utility has approximately 500 DSCADA devices in the field, and has begun installing optical sensors that provide information on system conditions. Expansion capabilities are currently limited but will be addressed by implementation of an advanced distribution management system and new DSCADA system in 2019.

Until recently, O&R capital spending has been focused on achieving compliance with design standards and the utility is somewhat late to the game in terms of distribution automation. The utility began making modest investments in automatic circuit tie schemes and adaptive relaying strategies during the audit period. Full grid automation deployment in RECO's territory is expected to take an additional five to seven years, and RECO enhanced its SCADA communications capabilities during the audit period to better support this smart grid technology.

6. O&R's time-based preventative maintenance programs are appropriate.

The nature and frequency of the company's inspection and maintenance programs for its substations and overhead and underground T&D assets are consistent with good utility practice. Work orders for required preventative maintenance are automatically generated and scheduled in WMS, and the company has adequate applications to track maintenance and inspection information and testing results, although reporting capabilities are somewhat limited. All normal preventative maintenance work activities are consistently completed each year as required.

7. The extent of O&R's maintenance backlog is unclear.

Silverpoint is uncomfortable with the company's lack of transparency on the subject of work order backlog and the tracking of items in need of repair or maintenance that are not deemed to be high priority. If a utility's objective is belt-tightening, management can do little to affect the "O" portion of O&M costs; it can really only impact the "M." Cutting back on corrective maintenance is the primary pressure relief valve for T&D system O&M spending. As we discuss elsewhere in this report, the structure of O&R's incentive compensation plan is such that underspending O&M budgets increases the percentage of payout—particularly for senior executives. To the extent any such deferrals have taken place, it is thus far not evident in RECO's reliability performance, although the impact during major outage events is unknown. The company's reluctance to provide much information on this subject in both our audit and the New York one is troubling, and the BPU may want to consider requiring a follow-up review in this area.

8. O&R recently formalized its work management program and implemented enhanced analytical and reporting tools to support decision-making regarding the use of outside contractors and employee overtime.

O&R's work management practices were reviewed in two separate New York investigations during the audit period—one a management audit of O&R and CECONY and the other a state-wide audit aimed at assessing utility staffing levels that focused on internal and contractor resources. Neither of the New York auditors successfully challenged the amount of O&R's actual overtime nor the extent of its use of contractors. Concerns raised in these audits centered on the absence of formalized, documented work management procedures and the need for more sophisticated tools to support trend analysis and assess the use of overtime and outside contractors. Based on these recommendations, O&R and CECONY subsequently developed a corporate guide for engineering work management. O&R also incorporated productivity and utilization trend reporting and an optimization model into WMS to supplement existing capability analysis.

9. O&R's vegetation management standards and procedures are adequate but the company failed to meet the required four-year trim cycle in New Jersey.

The company's vegetation management standards and procedures are comprehensive and consistent with regulatory requirements, and O&R effectively communicates with customers and other stakeholders affected by upcoming work. In 2014 and 2015, O&R significantly underspent its distribution VM budget for New Jersey, but not New York. As a result, the company failed to trim 100 percent of the RECO distribution system during the four-year periods ending in 2016 and 2017. The company has not been forthcoming about the reasons for this shortfall. It is possible that the shift of spending to New York could be related to that state's ratemaking process.

10. O&R's storm preparedness practices are very good.

O&R's emergency response plan and organization are consistent with good utility practice, and appropriately incorporate procedures for activities such as pre-event alerting, external communications, and mutual assistance. The utility conducts adequate function-specific training, and participates in corporate-wide emergency response exercises. Sophisticated weather forecasting and monitoring programs are in place to provide high quality weather risk assessments tailored to each geographic area in the corporate footprint, including O&R's territory. Pre-event damage prediction is a recognized utility best practice in major outage response, and the company has incorporated this process as part of its weather forecasting efforts. While we concluded that O&R is well prepared for storm events, we were not able to form an opinion about its actual performance, either during the audit period or in 2018.

11. O&R operations personnel provide adequate oversight of contractors performing work on the overhead distribution system.

O&R has adequate procedures and practices in place for inspecting work of contractors engaged to perform overhead line work on its distribution system. Contractor oversight and performance assurance is built into the company's everyday work practices. Field inspectors verify satisfactory completion of scheduled work daily to ensure its conformance to design specifications and construction standards. The Contractor Oversight System managed by Supply Chain provides O&R with an effective tool for documenting contractor EH&S and work performance.

12. O&R has an effective program for managing contracted services for line location and mark-out services in New Jersey.

O&R's Gas Operations department is responsible for overseeing the vendor performing mark-out work in RECO's territory. The company conducts frequent random field audits and reviews the accuracy of contractor mark-outs, and takes appropriate corrective action when deficiencies are discovered—vendor locators with unsatisfactory performance are retrained, and those with continued failures are dismissed. Overall, the company's mark-out performance during the audit period has been quite good, with relatively few incidents of dig-ins and modest fines from the BPU for missed tickets.

K. Recommendations

X-1 Create planning charters to document the analysis and selection of major capital projects and system reinforcements, beginning with load areas that serve RECO customers.

O&R's Engineering department recognizes the benefit of documenting the analytical process that leads to the selection of major capital projects that address system contingencies. It is not unusual for projects to be delayed and eventually supplanted by alternatives as circumstances change over time. As such, the department plans to create planning charters, centered on identified system needs, that document planning for a specific geographic area—but not for currently planned projects, only future ones. Silverpoint agrees with this approach but disagrees with the scope and timing of its implementation.

As discussed in an earlier chapter of this report, retirement brain drain is an ongoing issue, particularly in the areas of electric system planning and operations. Developing these planning charters sooner rather than later is an effective way to institutionalize the knowledge of company experts. Significant engineering resources have been and will continue to be devoted to initiatives driven by New York REV, so for the sake of balance we believe it is appropriate for O&R to focus first on constructing planning charters for all load areas within RECO's territory.

X-2 Develop formal cost-benefit analysis guidelines for evaluating capital and O&M projects.

O&R has no established method for determining cost avoidance or cost savings potential for capital or O&M projects. Cost-benefit analysis is a systematic approach for determining whether a given project is sound, justifiable and reasonable. It provides a baseline for making comparisons among alternatives and facilitates the decision making process. Cost-benefit analysis will be an important aspect of the system planning process, particularly when comparing traditional utility projects to non-wires alternatives. CECONY already has formal cost-benefit guidelines and a cost-benefit system application, so it may be appropriate for O&R to consider adopting a similar approach, particularly since both utilities are affected by REV and already utilize the same capital optimization process.

X-3 Implement a more formalized asset management program.

Until recently, O&R had been primarily focused on bringing its system closer to compliance with engineering design standards. Asset age and obsolescence issues were considered during system planning, but not within the context of the broader issue of replacement of aging infrastructure. As such, O&R cannot properly assess whether capital spending thus far for major equipment replacement has been adequate. O&R is considerably overdue in developing a formal asset management program, and in that regard, Engineering may be able to adapt some of the systems and methods from CECONY's program as a means to jump start its own.

The timing is also appropriate for O&R to begin incorporating asset management principles into its system maintenance practices. The upcoming implementation of ADMS will allow O&R to take better advantage of SCADA, DSCADA, system sensors and other technologies that facilitate data collection. The combination of real time performance data and predictive algorithms can yield cost effective predictive maintenance techniques that both minimize risk of failure and maximize equipment life.

X-4 Develop an initiative that focuses on reducing CAIDI.

O&R's plans to expand the amount of distribution automation on its system will likely lead to better SAIFI performance but may also continue to erode CAIDI. O&R is inching toward non-compliance with the New York PSC target, and failed to meet minimum BPU requirements in

2015. Reducing CAIDI would require reducing restoration times for those remaining without power after automated feeder switching operations have occurred—which by implication will require better communications and coordination of field work. O&R should therefore form a task force or similar initiative that focuses on identifying and implementing methods to improve its response times during outage events.

XI. Customer Service

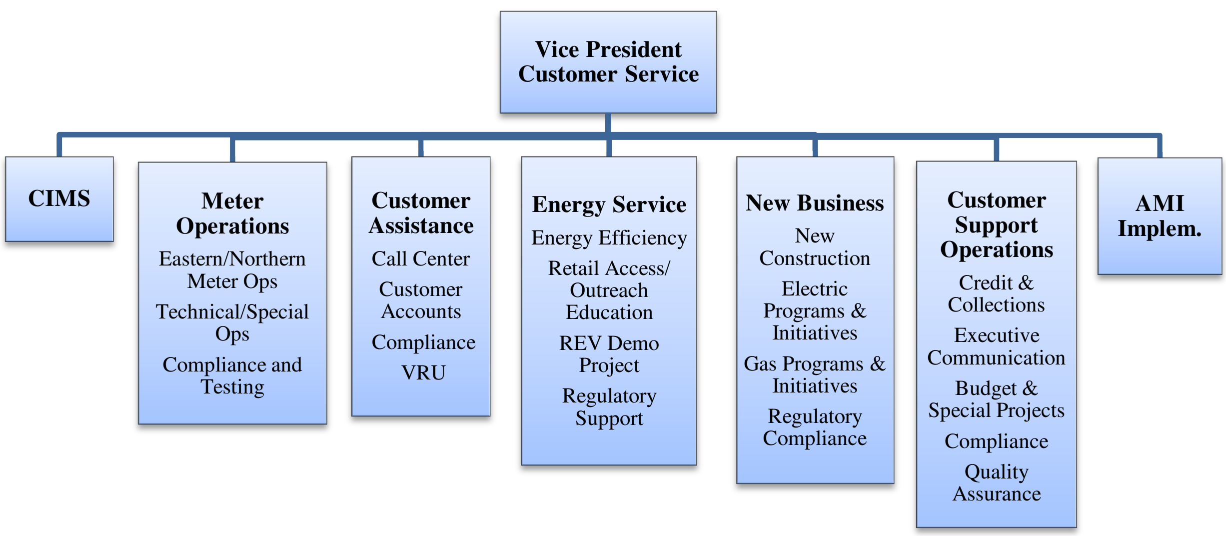
A. Background

Silverpoint conducted a focused investigation of O&R's customer service, evaluating the overall efficiency and effectiveness of specific functions such as meter reading, the call center, billing, and credit and collections. Our evaluation included a review of relevant policies, procedures, and practices, although our emphasis was on assessing actual performance. After our initial review, the team concentrated on the functions we found to be most problematic—the call center, and, to a somewhat lesser extent, customer accounts.

Organization and Staffing

The O&R Customer Service organization supports both electric and gas customers and is organized primarily by function. There are currently seven departments, each of which reports directly to the Vice President of Customer Service, as illustrated in the following chart.

Exhibit XI-1
Orange and Rockland Customer Service Organization



Customer Assistance manages O&R's call centers in Spring Valley and Blooming Grove, as well as customer payment centers and kiosks in the utility's four business office locations. In addition to handling customer telephone calls, customer service representatives (CSRs) also respond to written and on-line inquiries. The customer accounts team handles back office functions involving monthly rate and bill calculations; it also investigates and resolves billing exceptions.

The Meter Operations department is composed of several groups including meter reading. The field services group is responsible for performing turn-off and turn-ons, meter rereads, field collection activities, and for investigating potential theft of service cases. The meter testing group installs and removes meters and field tests electric meters. Personnel at the electric meter shop in Blooming Grove test new meters, process meters returned from the field, and conduct retired meter tests.

Customer Support Operations manages credit and collections activities as well as complaints, regulatory reporting, and customer surveys, and the New Business department handles all customer requests for new gas and electric service and for upgrades to existing facilities. The CIMS department is responsible for managing and implementing maintenance and enhancements for various customer-related IT systems. Energy Services manages O&R's retail access and energy efficiency programs and provides regulatory support, and the AMI Implementation department is currently managing O&R's Advanced Metering Infrastructure project.

The total number of Customer Service employees grew modestly during the audit period; staffing levels by department are summarized on the following table.[438]

Exhibit XI-2
Customer Service Organization Staffing by Department

Year End FTEs	**2014**		**2015**		**2016**		**2017**	
	Mgmt.	**Union**	**Mgmt.**	**Union**	**Mgmt.**	**Union**	**Mgmt.**	**Union**
Customer Assistance	13	67	11	64	13	63.5	12	67
Meter Operations	18	90.5	17	94	18	90.5	17	90
Customer Support Operations	13	0	12	0	13	0	12	0
New Business	24	4	24.5	4	26.5	3	27	4
CIMS/Business Systems	19	0	19	0	21	0	23	0
Energy Services	17	0	21	0	19.5	0	21	0
AMI Implementation	-	-	4	0	6	0	11	0
Total Customer Service	104	161.5	108.5	162	117	157	123	161

Much of the growth in staffing is associated with the implementation of new technologies and customer applications such as AMI. There was no decrease in overall staffing after the divestiture of Pike in 2016, as O&R provided customer service support to the new owner under a transition service agreement through the end of the audit period.[439]

For most of the audit period, O&R Customer Service has had a supplemental workforce of thirteen agents through an arrangement with an outside vendor, Global Receivables Solutions, Inc. (GRS). These agents handle certain collection activities as well as incoming customer calls for connects and disconnects. For budgetary purposes, eight of these agents are assigned to the credit and collections function and five are assigned to the call center, although all thirteen perform both activities.[440] O&R also has the ability to patch in the vendor's agents to support

[438] Data provided in response to Data Request #241.
[439] Transition Service Agreement provided in response to Data Request #26.
[440] Customer Support Operations is responsible for managing the vendor relationship. Calls through the IVR for connects and disconnects are handled by GRS unless the customer opts to go directly to an O&R CSR.

emergency outage situations, although it utilized this option only once, during Hurricane Sandy.[441]

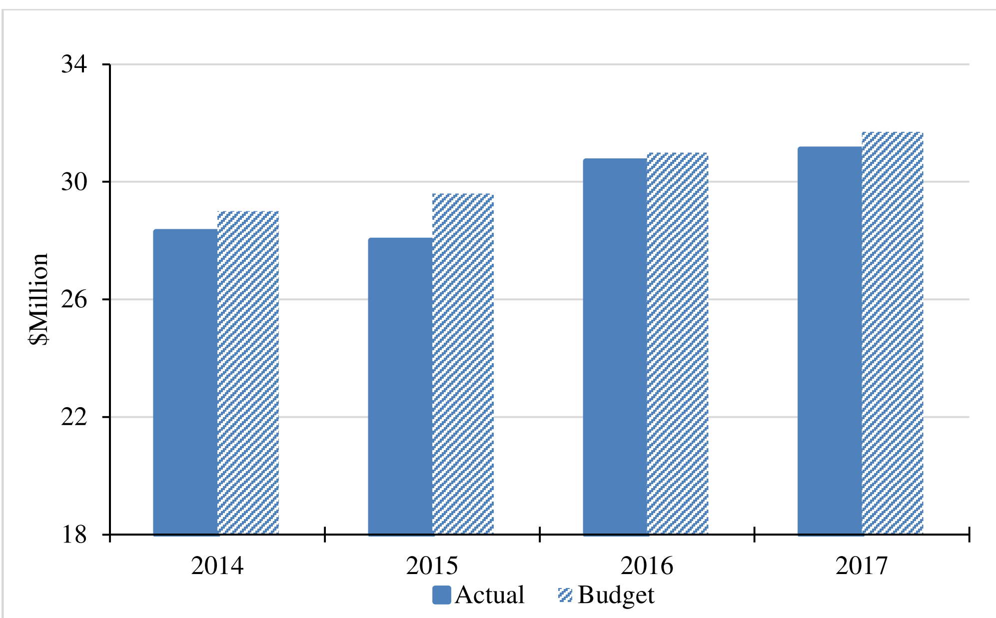
Actual and budgeted O&M costs for Customer Service personnel during the audit period are summarized on the following table; a non-redacted version is in the Confidential Appendix.[442]

Exhibit XI-3
Customer Service O&M Budget and Actual Costs ($ Millions)

	2014		2015		2016		2017	
	Actual	**Budget**	**Actual**	**Budget**	**Actual**	**Budget**	**Actual**	**Budget**
Customer Assistance								
Meter Operations								
Customer Support Ops.								
New Business								
CIMS/Business Systems								
Energy Services								
AMI Implementation								
Total Customer Service	$ 28.3	$ 29.0	$ 28.0	$ 29.6	$ 30.7	$ 31.0	$ 31.1	$ 31.7

The Customer Service organization in total underspent its O&M budget each year of the audit period, as illustrated in the following graph.

Exhibit XI-4
Comparison of Customer Service O&M Actual vs. Budget



441 Interview #10.
442 Response to Data Request #65. O&M totals exclude Uncollectibles.

Customer Information Management System (CIMS)
The cornerstone of O&R's customer service technology is CIMS, a twenty year old Accenture mainframe application known as Customer/1 that has been heavily customized. CIMS interfaces with dozens of other accounting, operations, and customer service related systems, and performs a multitude of functions including processing customer transactions and meter readings, calculating and formatting bills, and facilitating credit and collection activities. Service orders for activities such as changing out a meter or making field calls for non-payment are created in CIMS and processed during nightly batch runs. CIMS also generates billing work orders referred to as work flow managers (WFMs, pronounced "woofums"), a large percentage of which are billing exceptions. A high/low billing exception WFM, for example, is automatically generated if a customer's current meter reading is less than 30 percent or more than 200 percent of the prior month's reading.

The CECONY system is considerably older than CIMS, and the current plan is for the corporation to select a system within the next five years that could replace both the CECONY system and CIMS. O&R has thus far adopted a wait-and-see approach and will continue with CIMS until at least 2023, which would require at least one more multi-year contract with software support vendors.[443] Information on CIMS disaster recovery and business continuity is contained in the Confidential Appendix.

Customer Service Centers and Call Centers
O&R has three customer service walk-in centers at its business office locations in New York—Spring Valley, Blooming Grove, and Port Jervis—and one walk-in center in Mahwah, New Jersey. Business office hours are Monday through Friday, 8:00 a.m. to 4:30 p.m. O&R's call centers in Spring Valley and Blooming Grove are staffed from 8 a.m. to 8 p.m. Monday through Friday, although they are open to the public only until 7 p.m., which gives CSRs time to clear the queue and complete any follow-up paperwork. The Customer Assistance group has a total of 59 budgeted CSR positions. Of these, seven are for the walk-in centers; the remaining CSRs can access CIMS and handle customer service calls. Eleven CSRs are bilingual in English and Spanish.[444]

The Customer Interaction Center (CIC) has a server-based Voice over Internet Provider (VoIP) call center software system from Altivon Solutions (Altivon), with 144 lines available on the CSR side. Until the Altivon VoIP system was implemented in 2016, O&R used an analog phone system. The CIC phone system can utilize eighteen available Primary Rate Interface (PRI) lines serving various corporate locations.[445] Should the local CIC become unavailable, O&R has the ability to bring up service at satellite locations. During business hours all incoming calls are answered first by the Interactive Voice Response (IVR) system. IVR call flow options include payments, turn on/turn off services, emergency and outage reporting, credit, billing, and retail access, as well as the option to speak to a CSR. The IVR has messaging capabilities so that

[443] Interview #18.
[444] Interview #9. O&R utilizes a phone-based translation service to assist customers in other languages, and has the capability to assist hearing-impaired customers.
[445] A PRI line is a form of Integrated Services Digital Network (ISDN) line that enables lines to carry voice, data and video traffic. Total trunk capacity is 184 calls at one time.

additional information—a notice about long wait times as an example—can be inserted into the call flow. The IVR contains additional functionality including post-call surveys and easy payment options, and can make outbound calls to customers regarding scheduled outages; the system's call-back feature, however, was not activated during the audit period.

The Twenty First Century Communications (TFCC) high call volume answering system is activated both during major outage events and after regular business hours in case there is an event during off hours. During outage events, customers typically have two options in TFCC—to report a gas emergency or to report an electric outage. In either case, after hours these types of calls are routed to and answered by O&R Operations. Otherwise, TFCC provides a third option to handle other business, at which point it routes the call back to the regular IVR system for the customer to utilize self-service options. O&R can also turn on the TFCC system during times of high call volumes, as it provides a place to hold calls in order to free up room in the IVR queue. The TFCC IVR has messaging capabilities and alert functionality (e.g., robocalls to life support equipment customers), and supports two-way text messaging for outage reporting. O&R also has a Mutual Assistance Routing System (MARS) that can allow CSRs to handle customer calls from certain partner utilities; O&R used MARS to provide support to Florida utilities during recent hurricanes.[446]

Recent New York Audits

During the audit period, aspects of O&R's customer service function were examined in two separate audits by the New York PSC. The purpose of the earlier of the two audits was to assess the completeness and accuracy of roughly two dozen customer service performance metrics that utilities report monthly to New York regulators. The auditors concluded that procedural and process controls were adequate to ensure the accuracy of O&R's performance data and reported results.[447] The second was a management and operations audit of O&R and CECONY. The customer service portion of that audit focused primarily on controls related to New York rules and regulations rather than on the efficiency and effectiveness of the underlying business functions. For example, the auditors examined the adequacy of utility procedures for security deposits, collection notices, and payment agreements, and tested O&R's compliance with required bill content and with turn on/turn off schedules. Recommendations from that audit were either not relevant to New Jersey or otherwise de minimis.[448]

B. Meter Operations

The Meter Operations department is responsible for meter reading, customer field services, revenue protection, and electric meter field installation, removal and testing. The department also manages the electric meter testing shop and provides various meter engineering and technical services. Non-supervisory jobs in Meter Operations are generally bargaining unit positions.

[446] Interviews #9 and #18.

[447] "Operations Audit of the Accuracy of the New York State Utilities' Self-Reported Data – Customer Service," April 2015, New York State Public Service Commission Case No. 13-M-0314. New York utilities report performance in such areas as meter reading, billing, the call center, and customer complaints.

[448] New York PSC Case No. 14-M-0001, "Comprehensive Management and Operations Audits of Consolidated Edison Company of New York, Inc., and Orange and Rockland Utilities, Inc.," April 21, 2016.

Staffing levels in the department remained constant throughout the audit period, and O&M costs remained flat at approximately $10 million per year.[449]

Meter Operations has well over one hundred written procedures that provide guidance to employees on subjects that include, to cite a few examples, collection restrictions, meter removal, revenue protection investigations, customer key handling, and field meter testing.[450] Department managers utilize detailed monthly reports to track performance in meter testing, field services, meter reading, and technical services areas. In addition to monitoring O&M and capital costs and customer-focused measures such as appointments kept, they also track a variety of safety and operational excellence measures such as recordable vehicle accidents, close calls, and collection backlogs.[451] In 2017, Meter Operations was assigned specific performance objectives in five areas; the department met or exceeded targeted performance in four of the five measures, as summarized in the following table.[452]

Exhibit XI-5
2017 Meter Operations Targeted Performance Measures

	Target	Actual
Meters Read on Cycle	=>92%	96.17%
Reduce Consecutive Estimates > 6 months	=<0.15%	0.14%
Workable Collection Backlog	=<20 days	23.7 days
Completed Field Collection Stops	=>4,000	35,680
State Regulatory Test Programs	100% by 12/31	101%

Meter Reading

During the audit period, the number of meters readers declined from 54 to 48, primarily due to attrition. Meter reading is an entry level position for union employees; the average tenure is two to three years, as meter readers are typically recruited to fill positions elsewhere in the organization. By the time AMI is fully implemented, O&R expects to have only a small number of part-time meter readers. Meter readers Silverpoint spoke with during our visit to Blooming Grove were comfortable with AMI—they view it as a career opportunity because O&R has committed to retraining displaced meter readers for other available positions.[453]

O&R utilizes Itron hand-held processors and software to collect meter readings and transfer usage data to CIMS. Meter reading for each bill cycle must occur within a three day window—on the day before the scheduled billing date (as designated on the customer's bill), on the scheduled billing date, or on the day after the scheduled billing date. Thus for any given bill cycle, a meter can be read ahead, read on schedule, or read one day late, which is considered a critical read. Those not read by the third day are forced complete, and CIMS utilizes an estimate

[449] Responses to Data Requests #65 and #241.
[450] Responses to Data Requests #66, #67, #68, and #74.
[451] Interview #2 and response to Data Request #10.
[452] Response to Data Request #64. As Silverpoint noted during Interview #26, O&R calculates the year-end value for meters read on cycle as a simple average of twelve months of results, which is not arithmetically accurate.
[453] Interview #26.

of usage for billing purposes. O&R tends to read ahead as much as possible, as operations can fall behind rather quickly because of manpower shortages.[454] In some cases, the company assigns third-class field service technicians to meter reading duties in order to supplement the daily complement.[455] Overall, 98.5 percent of meters were read within the billing cycle during the audit period. Summary meter reading statistics for 2017, which are typical of the audit period, are shown in the following table.[456]

Exhibit XI-6
2017 Meter Reading Statistics

Read Ahead	Read on Schedule	Read Critical	Forced Complete	Total
1,950,323	2,937,379	635,301	84,344	5,607,347
34.8%	52.4%	28.4%	1.5%	

Meter readers work out of three New York locations—Middletown, West Nyack, and Blooming Grove. A given meter reading route can span both New York and New Jersey, and in New York can include both gas and electric meters. At each dispatch location, a meter reader chief downloads information on the day's work and assigns it to the available manpower through the hand-held Itron units docked in the office. To aid in making these assignments, chiefs maintain information in spreadsheets about the routes associated with each bill cycle day, including the estimated time to complete each route. When new meters are installed or customer accounts are dropped, meter routes are updated accordingly. In the past, O&R engaged an outside firm to optimize meter reading routes in one of its divisions for efficiency, but results were not deemed successful enough for the company to expand the effort.[457]

The Itron system performs automatic checks on each read to determine if it is within a reasonable range based on the customer's usage history. If the Itron system flags a reading as outside the range, the meter reader re-reads and enters the new reading in the Itron hand-held processor. Meter reading data is subjected to more refined checks after it is downloaded into CIMS, as the billing system has access to more extensive customer usage data. In some cases, CIMS generates a WFM (i.e., work order) for a reread that the meter chief then works into employee routes. If the reread is not accomplished within the billing cycle, CIMS will use an estimate.

O&R also has an Itron MV90 system at Blooming Grove that it uses to gather daily meter readings from large substation-type customers, interchange points, and state line crossings; the system is also used to gather readings for load research. Employees at Blooming Grove monitor the MV90 data that is received daily, either wirelessly or over phone lines, from approximately 700 meters; data is subsequently managed with the company's Load Profile Data System (LPDS).

[454] On the day of Silverpoint's visit to Blooming Grove, for example, two meter readers were out sick, two were on vacation, and several others were attending a four-hour training session at Spring Valley, which reduced the equivalent number of readers to two for the day.
[455] Interview #26.
[456] Response to Data Request #61.
[457] Interview #26.

The corporate goal for read rate—successful reads versus attempts—is 92 percent, and O&R's read rate has been fairly consistent at 96 percent over the audit period.[458] Roughly thirteen percent of O&R customer meters are indoors. If a meter reader cannot obtain access to take a reading, O&R must estimate the bill, although the customer also has the option to report an actual reading through the call center. O&R has the right to terminate customers in New Jersey for continued no access, but does not utilize it, and instead works with customers to resolve the issue.[459] Meter Operations has access keys for some customers that are kept in a locked cabinet at each dispatch location; meter readers receive only the keys needed on their route for the day, and formal key check-in/check-out procedures are in place. If meter readers notice unusual customer conditions or safety concerns on their routes, they can note the issue on the customer's account via the Itron, which will trigger a service order request in CIMS.[460] Meter readers also can report cases of suspected theft of service while on their routes through a service request that is then routed to Field Services.

During our field visit to Blooming Grove, Silverpoint observed the morning briefing for meter readers, which included a safety message, weather report, expected traffic conditions, vehicle inspection checklist, and assignment of vehicles. Employees are required to sign off on the briefing outline as part of standard procedure. Meter readers demonstrated their daily vehicle and equipment checks; standard equipment on vehicles includes safety gear for emergency situations such as standing by downed wires.

Field Services

Field Services technicians perform collections, turn-ons/turn-offs, and tasks such as investigating locked meters with consumption and investigating suspected theft of service; they can also cover meter routes and perform reread orders as needed. The Field Order Route Design (FORD) work management system is used to dispatch and complete work orders created in CIMS, such as disconnects. Supervisors review service orders in FORD before assigning them to field technicians according to their skill group designation. Third class technicians, for example, typically perform activities such as connects, disconnects, and collections, but first class technicians can perform more complex work. FORD helps supervisors assign work to individual employees to minimize travel time, and the system prevents orders from being assigned to individuals with the wrong skill level. FORD also allows the company to track the physical location of each employee, which makes it easier for supervisors to dispatch emergent work such as turn-on orders.

Field service technicians use wireless tablets to receive, track, and report on completed work. Technicians can download work orders, forms, procedures, and notices in the field; the tablets can also be used as cameras. Technicians can upload reports that are later used to update customer account information. Information on completed orders is downloaded at the end of the workday and synchronized to CIMS through FORD. In addition to the service orders from

[458] Response to Data Request #62. The metric is calculated as total reads (company reads plus customer reads) divided by the number of attempts (scheduled reads minus forced reads).

[459] O&R does not have the same right in New York, but can charges customers a fee for no access conditions.

[460] The type of service order and follow up depends on the issue; if there is asbestos present, for example, the customer will ultimately receive letters requiring him to address the condition.

FORD, field service supervisors receive requests for other work, such as supporting overhead line crews, that takes priority over system-generated work.

Collection work is normally not time sensitive, and is assigned based on the available manpower on any given day. It is very unusual for supervisors to assign collections or cut off orders for a customer with arrears of less than $200 unless there are special circumstances, such as more than six months without a payment.[461] Field service employees receive some guidance from management regarding field collections, but are able to exercise judgment based on the customer's history and situation; they are, for example, able to accept partial payments in lieu of cutting off service. For disconnects, O&R typically performs a soft lock on residential accounts, but will do an actual meter disconnect on commercial accounts. Connect and disconnect work orders will decrease as more AMI meters are installed.

O&R has written procedures for collection and connect/disconnect activities that reflect requirements for certain customer groups such as the elderly or those with a medical hardship.[462] New York and New Jersey have different regulations regarding cutting off service to customers, particularly during hot and cold weather, that are reflected in these procedures. In New Jersey, for example, the company cannot cut off service on Fridays or before a holiday, since customers cannot come in the next day to make a payment and have their service restored. Both states also have differing regulations regarding the timing of service restoration after a customer has made a full payment. In New York, residential customers must be reconnected within 24 hours but in New Jersey it must be within twelve hours, and O&R has a written procedure to ensure timely reconnection of service.

In order to assess overall effectiveness of field collection activities, management monitors customer field visits and the associated payments made on those accounts within a five day period of field action. O&R's yearly total field collections during the audit period ranged between $13 million and $17 million.[463] Money handling procedures are quite formalized, and during our field visit to Blooming Grove, Silverpoint observed the cash out procedure for money collected during the day by field collectors. A supervisor reconciles cash with each employee, deposits it in separate dedicated bags, and places these bags in a combination safe in the office. Bags containing the receipts are picked up by security contractor Loomis the next business day and delivered to Spring Valley. The safe must be opened by two people, a supervisor and bargaining unit employee, each having a separate code for the combination. Final reconciliation is completed by the Treasury group.[464]

Revenue protection activities are managed from the Middletown, New York location. Most cases of service theft involve customers tampering with meters, rather than tapping into a wire or pole. Customers are billed for substantiated cases of theft. O&R's theft rates were generally declining

[461] Interview #26.
[462] Field Collection and Connect Procedures provided in response to Data Request #68.
[463] Response to Data Request #64.
[464] Interview #26.

during the audit period; collections during the audit period for RECO and total O&R are summarized on the following table.[465]

Exhibit XI-7
Revenue Protection - Total Billed to Customers

	O&R Gas and Electric		RECO	
	Revenue		***Revenue***	***kWh***
2014	$199,715		$44,986	258,591
2015	301,004		15,750	89,315
2016	186,124		40,752	238,297
2017	188,019		28,986	161,357

Meter Testing and Electric Meter Shop

The meter testing group is responsible for activities such as changing, removing, and field testing electric meters. The electric meter shop at Blooming Grove tests new meters, processes meters returned from the field, and conducts retired meter tests. Monthly management reports track the amount and type of work performed in the field, including the number of complaint test work orders generated from customer calls to the call center regarding a perceived high bill. Management reports similarly track the number of meter tests of each type performed in the meter shop along with meter accuracy statistics.[466]

O&R has no requirement to remove and replace meters based on age. New Jersey and New York each has its own requirements regarding testing of electric meters; for example all meters retired and removed from the field in New Jersey require a retirement test. New Jersey provides for meter testing to be performed under BPU observation (if a customer requests it), which must be conducted within the state. As O&R's meter testing facility is in New York, the company has an agreement with PSEG to use its testing facilities if ever needed. The company makes quarterly filings to the BPU that summarize its scheduled electric meter testing, and files an annual report that summarizes its sample electric meter testing.[467] During Silverpoint's visit to Blooming Grove, meter testing personnel demonstrated testing of four new AMI meters for accuracy, communication, and operability of switches.

465 Response to Data Request #70. O&R has a reward program to encourage employees to report suspected cases of theft.
466 Response to Data Request #64.
467 Reports provided in response to Data Request #73.

C. Customer Assistance - Customer Call Center

Introduction

The Customer Assistance department incorporates two groups—the customer service call center and customer accounts. The customer service call center handles customer telephone calls, responds to written and on-line inquiries, and staffs customer payment centers; the customer accounts group manages monthly rate and bill calculations, and investigates and resolves billing exceptions. As of year-end 2017, there was a total of twelve management and 67 hourly FTEs in both groups. The budgeted and actual labor expense for the Customer Assistance department, including a breakdown for regular and overtime costs, is summarized on the following table; a non-redacted version is contained in the Confidential Appendix.[468]

Exhibit XI-8
Customer Assistance Labor Expense Summary ($ Millions)

	2014		2015		2016		2017	
	Actual	**Budget**	**Actual**	**Budget**	**Actual**	**Budget**	**Actual**	**Budget**
Union								
Management								
Total	$6.86	$6.81	$6.44	$7.02	$6.40	$7.11	$6.77	$7.21
Regular/OT Breakdown								
Regular								
OT								

Since 2015, the Customer Assistance department underspent its labor budget by approximately $500,000 per year. Additional information about bargaining unit protocols regarding overtime for this department is contained in the Confidential Appendix.

Customer Assistance department managers utilize a detailed monthly staff report to track operating statistics such as call volume and response times, collections at customer payment centers, and numbers of customers utilizing alternative methods of payment such as the internet. The report also tracks a modest set of performance metrics, although it does not reflect common call center measures such as call abandonment rate or average wait time. During the first two years of the audit period, Telephone Service Factor (TSF), which measures the percentage of calls answered within 30 seconds by CSRs and the IVR, was a key metric; other metrics included the percentage of adjusted bills and calls answered and the results of a transactional customer survey. In 2016, management's focus shifted to responsiveness to internet inquiries and written correspondence, as well as targets for increases in e-bill participation.

First call resolution and post-call survey performance were introduced as departmental metrics for the first time in 2017, albeit without specific targets.[469] Metric results included on

[468] Response to Data Request #93 (revised).

[469] O&R defines first call resolution as situations in which the customer does not call back within a 24-hour period for any reason. The new Altivon system has a post-call survey feature that gives customers the option of remaining on the line after a call has been completed to participate in the survey.

management reports are summarized on the following table; none of the metrics were included as corporate KPIs in O&R's 2017 ATIP.[470]

Exhibit XI-9
2017 Customer Assistance Performance Metrics

	Target	Actual
Telephone Service Factor (TSF)	>=74.0%	77.5%
Customer Service Factor (CSF)	>57.5%	58.6%
First Call Resolution Rate	None	83.35%
Post Call Surveys	None	89.5%
Written Correspondence within 5 business days	94%	93.8%
Internet Inquiries within 24 hrs.	93%	95.0%
Adjusted bills	0.22%	0.16%
Increase in e-bill participation	3,000	3,983

The Customer Service Factor (CSF) measures the percentage of calls answered within 30 seconds by a CSR during "normal" business hours, and excludes calls that are answered only by the IVR; the time clock begins when a customer pushes a button in the IVR to request an agent. The New York PSC imposes a significant penalty for non-performance in the CSF measure. As of November, 2017, the CSF reflects call center performance by outside vendors as well as utility employees.[471] The company updated its TSF metric in a similar fashion.[472]

Silverpoint's review of the customer call center function within the Customer Assistance department follows; the customer accounts function is discussed in Section D of this chapter.

Customer Call Center

O&R's call centers in Spring Valley and Blooming Grove contain large wall-mounted monitors that display information such as the number of CSRs that are logged into the system, on in-bound calls, completing post-call paperwork, and out to lunch or on break.[473] Information reflects O&R employees in the two call centers as well as those at home (but not GRS agents). The monitors also show the number of customers waiting in the queue, average speed of answer, and longest wait time, as well as the CSF. The CSF rate displayed does not reflect the quicker response rates of vendor CSRs.[474]

CSRs have two computer monitors at their work stations, one to access CIMS and another to access information from other systems such as the OMS or from the internet as needed. CSRs

[470] Response to Data Request #91.
[471] Interview #27 and response to Data Request #269. GRS call performance reflects both the connect/disconnect calls coming from O&R's IVR and inbound calls from customers responding to earlier outbound credit calls.
[472] During Interview #27, Silverpoint identified a calculation error in the TSF that O&R plans to correct. The company failed to include calls coming into GRS's separate phone number in the total number of calls coming through an IVR; the correction will have a positive effect on TSF results.
[473] The call centers also have monitors that display closed circuit feeds from O&R's business offices and pay kiosks.
[474] Interview #2.

can also access various communication job aids and O&R's extensive procedures and training documents that are listed alphabetically for ease of use. During a typical customer call, a CSR will access three or four screens in CIMS. The Altivon call center system records all calls, which are retained for three years. The system also records all screens the CSR accessed during a given call, a feature not available on the prior system. If a CSR cannot resolve a customer inquiry or complaint, the call is escalated within the call center organization, from CSR to senior CSR to supervisor to manager; if at that point the customer is still not satisfied, the call is sent to the Customer Support Operations department.[475]

O&R's agents are trained to handle all call types, and do not work from specific scripts (as do CSRs at CECONY). Training for new CSRs lasts a few months, and the program requires near full-time commitment by a supervisor. The company's long term plan for the call center is to add more bilingual agents and move more CSRs to home-based positions. Home-based agents are typically more readily available during inclement weather conditions, and provide space and related cost savings.[476] The move to home-based agents is partially for quality of life reasons, as many CSRs would otherwise have lengthy commutes.[477]

Beyond its own employees, the call center group has additional agents through vendor GRS who handle move in/move out calls that come through the IVR. The third-party CSRs are considerably less expensive than O&R employees.[478] Connect/disconnect calls are relatively straightforward and therefore require less training and expertise to handle. The number of incoming connect/disconnect calls handled by GRS agents, summarized on the following table, has increased during the audit period.[479]

Exhibit XI-10
Third-Party Vendor Incoming Call Statistics

	Calls Answered	Abandonment Rate
2014	51,611	3.11%
2015	56,076	3.81%
2016	59,509	5.29%
2017	62,299	5.04%

The same GRS agents who handle move in/move all calls also make outbound credit collection calls, which help minimizes idle time. The company's own CSRs typically do not have much downtime, as they are also utilized to perform tasks in the customer accounts area such as entering billing edits into CIMS.

Call center supervisors routinely evaluate the performance of company and vendor CSRs by listening in on calls or reviewing random prerecorded calls; these assessments are recorded on

[475] O&R does not specifically track statistics such as number of complaints through the call center.
[476] Interview #9.
[477] O&R provides a computer, chair and related equipment, and the home-based CSR must maintain a dedicated phone line and appropriate work space. Managers visit home agents twice a year to inspect their work environments.
[478] Additional information on the relative cost of CSRs is contained in the Confidential Appendix.
[479] Response to Data Request #95.

standard call monitoring forms.[480] Supervisors also conduct more in-depth formal reviews of two CSRs per month by listening to recorded calls. During our visit to Blooming Grove, Silverpoint listened in on live calls. We found that CSRs were professional and knowledgeable, were able to address each customer's issues, and seemed to appreciate that each customer had experienced a long wait time before the call was answered. One call related to a final meter reading for a customer moving out of the territory. Despite the long queue, the CSR explained an additional service by an outside agency that handles other service transfers (e.g., cable) associated with a move; we subsequently learned that O&R receives a payment from that agency for successful referrals. Silverpoint also listened to recorded calls that were part of the supervisor's regular performance appraisal process, including one involving a home agent.[481]

The O&R call centers in Spring Valley and Blooming Grove are staffed from 8 a.m. to 8 p.m. Monday through Friday, and open for incoming calls until 7 p.m. The following table summarizes call volume data included in monthly staff reports during the audit period.[482]

Exhibit XI-11
O&R Call Center Volume

	"Normal" Business Hours 8 am-4:30 pm	"Off" Business Hours 4:30-9 pm	Total Business Hours	Non-Business Hours M-F 9pm-8 am, Sat/Sun
2014	740,542	165,482	906,024	267,423
2015	707,925	156,834	864,759	260,221
2016	673,232	145,534	818,766	252,756
2017	750,639	161,813	912,452	275,540

Management tracks call center volumes by time intervals that are unrelated to the call center's actual business hours—the "normal" business hours designation reflects the formula for calculating the CSF metric in New York. Business hours at the call center do not extend to 9 p.m. either. During interviews, the company has stated that 57 percent of the total business hour calls in 2017 were handled by CSRs, the balance by the IVR.[483] The percentage of calls being handled by the IVR during "normal" business hours increased from approximately 36 percent in 2014 to 43 percent in 2017 as more callers stayed within the IVR to complete their activity.[484]

Until recently, O&R did not track the reasons for customer calls, and only began to use the wrap-up code feature in the Customer Interaction Center during the latter part of 2017. Data on wrap up codes collected in 2017 are summarized in the next table.[485]

[480] Call monitoring forms provided in response to Data Request #94.
[481] Interview #26.
[482] Response to Data Request #91.
[483] Interview #2 and response to Data Request #10.
[484] Response to Data Request #91.
[485] Response to Data Request #92.

Exhibit XI-12
Wrap Up Code Results

Reason	Number	Reason	Number
AMI / Opt Out	288	Meter Order	12,807
Billing	39,722	Meter Reading	6,640
Budget Billing	7,370	Mixed Meter	300
Connect/Disconnect	22,064	NS	18,957
Credit	15,224	Operations Follow up	762
Customer Not Authorized	2,285	Other	6,918
Customer Request Issues	27,791	Payment Only	13,630
Dangerous Conditions	2	Problem with oru.com	902
Electric Outage	14,167	Retail Access	8,398
Empty Line	11,083	Shared Meter	444
Gas Emergency	11	Transferred – Non Gas	5
Gas Issues	3,638	West Issues	1,372
High Bill	1,152	Wrap up/Transfer	1
Language Line	897	Total	216,830

Management estimated the distribution of calls during 2017 as follows: credit and collection–50 percent; billing/payment processing–13 percent; meter reading–6 percent; and other (e.g. outage reports, retail choice)–31 percent.[486] That distribution appears to differ from the actual, albeit limited, data from wrap-up codes.[487]

Given the type of data included in routine management reports, it was difficult for Silverpoint to develop a clear sense of the quality of customer service—as seen from the customer's perspective—during the audit period. We had little way to determine, for example, if customers experienced overly long wait times, and if so, why. One thing we did conclude was that management's priorities seem focused on meeting New York metric targets and avoiding financial penalties.

Early in Silverpoint's audit, certain underlying issues became more apparent as the performance of the call center began to decline. The next table captures our point-in-time observations of the call center monitors during our 2018 fieldwork.[488]

[486] Response to Data Request #10.
[487] Beyond being used to track statistics on call types, wrap-up codes and associated call resolution codes can also be used by CSRs to quickly ascertain a customer's call history.
[488] Interview #2, #26, #27, #39, and #53. There is no obvious correlation between CSF and wait times in the observations shown, as CSF varies based on time of day.

Exhibit XI-13
Silverpoint Observations of Call Center Performance

Date (2018)	CSF	Average Speed of Answer	Longest Wait Time	Calls in Queue
February 21	8%	8 min.	13 min.	12
June 20	1%	n/a	50 min.	65
June 22	1%	n/a	n/a	n/a
October 4	4%	1 hr. 49 min.	4 hr. 13 min.	234
October 5	7%	1 hr. 8 min.	2 hr. 34 min.	316

Customer call abandonment rates are clearly related to waiting times—more and more customers abandon their place in the queue as wait times become excessive. The following table summarizes call volume data included in an O&R daily call report from June 18, 2018.[489]

Exhibit XI-14
Call Volume Statistics – Normal Business Hours (June 18, 2018)

	Total Calls	# Answered	# Abandoned/ % Abandoned	Avg. Speed of Answer (seconds)	Answered < 30 Sec
Agent (Altivon)	1,528	820	708 (46%)	816	168 (15%)
GRS Inbound Connect/Disconnect	261	227	34 (13%)	-	-
GRS Inbound Return Credit Calls	134	74	60 (45%)	-	-
Subtotal Inbound CSR	1,923	-	-	-	168
IVR only	1,664	1,664	0	-	1,664
Total	3,587	-	-	-	1,832

Every industry has different ranges of reasonableness, but typically anything more than 10-15 percent abandonment rate is considered very poor performance—and during "normal" business hours on this day O&R's agents had rates of 46 percent. The equivalent rate for the whole of 2018 was approximately 37 percent.[490] What became clear to us from reviewing data on this and similar reports is that O&R has been meeting its CSF target in New York only because of the relatively high percentage of calls answered within 30 seconds by the outside vendor GRS.

During Silverpoint's field visit to Blooming Grove on June 20th, for example, only 26 CSRs were logged into the Altivon system; due to a prescheduled communications meeting, at least six CSRs were not available to answer phones.[491] With other employees on lunch or breaks and some performing final wrap up work or paperwork, at times during the day there were only five to seven CSRs actually available to answer phones. CSRs worked a total of 26 hours of overtime in the call center this day (18 pre-shift and 8 post-shift), all of which had been scheduled the

[489] Response to Data Request #265.
[490] Response to Data Request #400.
[491] Union employees had originally proposed the idea of routine communications meetings and O&R now holds one every six months; the company was reluctant to postpone such meetings despite long customer wait times.

prior week. During the visit to Spring Valley two days later, the CSF was 1 percent, and at one point there were only ten CSRs working on the phones.[492]

During our interviews in June, the company indicated that call center volumes in 2018 were much higher than normal, and that it was working with Altivon to redesign the IVR call flow by utilizing data on call types, feedback from CSRs, and the results of researching utility IVR best practices. Management stated that with the increase in the number of ways that customers can self-serve (e.g., website or mobile applications), CSRs were now handling the more complicated calls, and so average call time was increasing. Call volumes had also increase over time due to inquiries in areas like energy efficiency, solar, and third-party suppliers.[493]

On September 10, 2018, O&R issued a press release on its website stating that the company had seen a substantial increase in customer calls with a corresponding increase in wait times. O&R was extending its call center hours to 9 p.m. on weekdays, and beginning Saturday hours from 8 a.m. to 4:30 p.m. The press release stated that O&R had deployed a new call-back feature, hired new CSRs, and retained a temporary service to provide additional support; it also streamlined the IVR to make self-serve options more readily accessible. According to the press release most of the call volume issues were driven by temporary circumstances and were not expected to persist.[494]

In early October, Silverpoint secured an interview with O&R personnel to follow up on the press release and learn more about the changes to improve call center effectiveness. O&R stated that call volumes were up more than 50 percent over 2017 levels.[495] Volumes began to grow during the March storms because O&R had to issue estimated bills. Increased call volumes meant that CSRs could no longer assist with customer accounting activities. Customer accounting fell behind in issuing bills because of outstanding WFMs or bill exceptions, which led to even more calls. There was a jump in solar installations but because of a paperwork backlog, customers were receiving estimated bills for several months—leading to more calls. Customers were also calling about the new AMI meters. According to management, any of the reasons would have caused a spike in calls, but all of them caused the problem to continue to snowball. The company expected the expanded hours in the call center to continue until its service levels were back to normal, hopefully by the end of the year.[496]

Since Silverpoint's discussion with Customer Assistance department personnel in June, the company had tried to implement steps to get the problem under control, including the use of considerable overtime. Two part-time CSRs were made full time, and O&R had recently hired four new CSRs that were currently in training. O&R expanded the role of its third-party vendor,

[492] Interview #27. Anecdotally, when returning from lunch, Silverpoint encountered a customer entering the Spring Valley payment center; he said he originally thought coming in person would be a good idea—he had hung up after waiting on the phone for two hours—but was extremely disappointed to see long lines at the center as well.
[493] Interviews #18 and #27.
[494] ORU.com press release dated September 10, 2018, "O&R Takes Steps to Improve Its Call Center Effectiveness."
[495] Silverpoint confirmed this statement—there were 1.68 million calls in 2018 compared to roughly 1.1 million per year in 2017. Some of that increased volume was handled by the IVR, and the net increase in calls handled by CSRs was roughly 30 percent. (Response to Data Request #400).
[496] Interview #53.

GRS, which now received credit calls directly from the IVR, although if the vendor's agents could not actually handle the call, it would return back to the O&R call center. By that point, GRS had increased its agents from 13 to 27, and was working toward a level of 30. The vendor was reportedly handling a few hundred credit calls per day. O&R had also redesigned IVR choices so that more customers remain there to complete their activities; it also added messages up front in the IVR to direct customers to the website to handle issues including setting up payment plans.[497]

O&R had originally planned to implement the phone system call back feature in November, but decided to implement it early, in August. This ultimately created even more problems because the company did not have the appropriate logistics in place. O&R ultimately divided its CSRs into two groups, one that responded to call backs and another that handled incoming calls. As summarized in the following table, during our October visit, data on the Spring Valley call center monitor at mid-day indicated average wait times of over one hour, a longest expected wait time of over four hours, and a CSF of about four percent.[498]

Exhibit XI-15
Spring Valley Call Center Monitor Data – October 4, 2018

Agents Available	Agents Logged in	Calls in Queue	Total Calls
0	26	234	2,164
Agents on Inbound Calls	**Agents on Work/ Paperwork**	**Agents on Break**	**Agents at Lunch**
7	5/9	3	1
Average Talk Time	**Average Speed of Answer**	**Longest Wait**	**CSF**
00:07:11	1:49:35	4:13:32	4%

O&R indicated that the data did not reflect the bifurcation of CSRs, and so performance was not quite as bad as it appeared.[499] The company's year-to-date CSF as of late September 2018 was about 20 percent. O&R will fail to meet its New York target, resulting in a penalty of $450,000.[500]

D. Customer Assistance - Customer Accounts

O&R has twenty billing groups, or cycles, that correspond to meter reading days. The company has outsourced its bill printing and mailing function to a third-party vendor, Broadridge, who processes the daily billing files generated in CIMS.[501] The Customer Assistance department

[497] Interview #53.
[498] Interview #53.
[499] Interview #53.
[500] Interview #53. A recent New York PSC report states that O&R's call answer rate (CSF) averaged 20 percent for 2018 (versus a target of 57.5 percent) and that its monthly performance continues to be below target in 2019. ("2018 Utility Service Quality Report," June 2019, New York Public Service Commission, Case No. 19-M-0307, p. 15.)
[501] Bill formats have been designed to conform to regulatory requirements in each state.

currently has nine customer accounting representatives. Each accounting rep has been assigned a variety of daily billing-related responsibilities such as summary billing, manual billing, and the processing of customer refunds. Reps receive ongoing cross training in billing tasks to ensure adequate backup support within the department; senior reps are experienced enough to handle any type of activity. Each rep is also trained to handle specific categories of billing exceptions, such as high/low WFMs. CSRs in the call center traditionally work certain categories of WFMs either on overtime or during their downtime; management traditionally utilizes relatively little overtime in the customer accounts area.[502] On a one month rotation, reps assume the responsibility for performing morning bill checks—verifying that a dozen different billing issues, such as late fees, were handled correctly on one of the bills generated during the nightly batch run. This practice has rarely identified a problem.[503]

One measure of the customer accounts area is included in the Customer Assistance monthly performance report—percentage of adjusted bills. This measure was also included in O&R's ATIP goals during the audit period. The target rate is less than 2.42 percent, which is the threshold level above which the New York PSC imposes a penalty. O&R's actual yearly performance ranged from 0.13-0.16 percent during the audit period, although the company's calculation takes into account only New York bills, not New Jersey.[504] Most of the reports monitored by management in the customer accounts and billing areas are daily or ad hoc ones, such as WFM reports.[505] There are no formal metrics or reports designed to track performance in factors such as bill timeliness or billing exception rate.

When an employee is working on billing WFMs, he or she attempts to resolve an exception (or group of exceptions) on a customer account by accessing information from CIMS and other sources as needed. In the case of a high/low WFM, for example, a rep is usually able to determine whether a flagged meter reading is valid by reviewing prior year bills and actual read history, or by other circumstances such as confirming the account is a seasonal one. If a rep cannot resolve a high/low WFM, he or she may issue a service request for a new field reading. Once the rep closes a WFM in CIMS, a bill can be generated in the next batch run if no other unresolved exceptions are on the account.

During our field visits, Silverpoint observed customer accounting reps working on billing exception WFMs. The rep selects a WFM to work on from a list sorted primarily by category of exception. While in many instances the rep can efficiently investigate, resolve, and close a selected WFM, on occasion the rep ultimately abandons an investigation without resolving the exception. In some cases, the information needed to resolve the WFM is not yet available or the exception requires a different skill set—some types of WFMs are more complex and must be handled by senior reps. It was unclear to us why more sophisticated reporting capabilities in

[502] Interview #9.
[503] Interview #27.
[504] The New York audit report stated that controls over billing accuracy were adequate and the subject of routine review by Internal Audit; Silverpoint saw no need to revisit the issue in this audit.
[505] Interview #9.

CIMS or other analytical tools were not being used to create exception lists better designed to reduce nonproductive time.[506]

Not all WFMs are the type that can be worked by customer service personnel—WFMs for rereads, for example, are worked by Meter Operations personnel. The number of WFMs that are created by CIMS during the night batch run varies. By way of example, this year during the week of June 11th, CIMS created approximately 23,000 WFMs. Roughly 17,000 WFMs were completed that week, 8,200 of them by Customer Service personnel.[507] CSRs normally handle certain categories of WFMs, but with the increased call volume in the call center, they were not able to do so.

Despite the company bringing customer accounting reps and CSRs in on Saturdays and after their regular shifts for overtime, backlogs during 2018 continued to grow. By Silverpoint's June 22nd visit, over 42,000 WFMs were pending, half of which were at least thirty days old, and at least 40,000 of which had potential billing impact. This total, however, did reflect some double counting, as about one-third of WFMs were "no bill" exceptions, which are often generated by CIMS because there are other WFMs open on an account.[508] From January through May more than 60 employees—customer accounting reps, CSRs, and business office employees—worked a total of 103,000 WFMs either during regular business hours or on overtime.[509] At its worst, O&R had a backlog of 57,000 WFMs. By September, the company had worked down the backlog to about 7,000 through the use of overtime for CSRs and customer account reps—some CSRs started at 5 a.m. to work WFMs before beginning their regular call center shifts.[510]

Silverpoint was not able to determine to what extent similar issues occurred during the audit period. The company can only create same-day backlog reports, and management could provide no historical information. To our knowledge, the company has not explored whether some WFMs can be eliminated through programming changes in CIMS.

E. Customer Support Operations

The responsibilities of the Customer Support Operations (CSO) department include credit and collections, complaint handling, regulatory reporting and compliance, and customer surveys. CSO is also responsible for coordinating with various federal, state, and private assistance programs. Some of these programs pay the utility for a portion of the customer's bill, and others make payments directly to the customer, who is meant to, in turn, pay the utility. Programs include Low Income Home Energy Assistance Program (LIHEAP), a federal social services program, and the Universal Service Fund, Fresh Start, and Lifeline Credit state programs. Others include Payment Assistance for Gas and Electric (PAGE), a BPU program for customers not in a LIHEAP program, and New Jersey SHARE, which is a non-profit. Staffing levels in the

[506] Silverpoint formally observed customer accounting reps during Interview #27.
[507] Interview #27.
[508] CIMS report "User WFMs – Aged by Group/Type" provided in response to Data Request #267.
[509] Ad hoc report "WFMs Completed 2018 Report," provided in response to Data Request #266.
[510] Interview #53.

department fluctuated between 12 and 13 FTEs throughout the audit period, and employee O&M costs were approximately $2.0 million per year.[511]

In New Jersey, N.J.A.C. and N.J.S.A. regulate aspects of utility customer service such as customer deposits, discontinuation and restoration of service, deferred payment plans, service appointments, and meter reading and testing. In New York, every customer service-related regulation must be covered by a formal written policy and procedure. The CSO compliance group focuses on ensuring the utility's compliance with these regulations and with commission orders related to customer service areas. The team also manages life support and medical hardship programs.

Credit and Collections

New York and New Jersey have different requirements regarding termination notices, reconnection fees, and other aspects of service, and the company has designed its credit time lines and collection guidelines consistent with these regulatory mandates.[512] RECO provides monthly and annual reports to the BPU in this area—in a typical year, the utility sends more than 40,000 delinquency-related notices, and total dollars in arrears are in the range of $2 million.[513] Management routinely reviews aging receivable reports and payment agreement arrears reports.[514] Departmental metrics include uncollectible expense and 90 day arrears for gas and electric combined. In 2017, RECO had $389,000 in uncollectible expense involving 895 accounts, and 1,550 accounts were more than 90 days in arrears totaling $700,000.[515]

Work orders for collection activities are automatically generated from CIMS. Nearly all outbound collection calls on active customer accounts are made by the company's third-party vendor, GRS, whose agents also process any payments that are collected. CSO credit and collections personnel provide oversight, and monitor the vendor's collection success rate; annual results during the audit period are summarized on the following table.[516]

Exhibit XI-16
Outbound Vendor Contact & Success Rate

	2014	2015	2016	2017
Contact/Messages	40,100	39,664	32,527	33,963
Contact Rate	29.79%	30.02%	27.6%	29.00%
Payments Taken	26,853	31,055	24,615	23,990
Dollars Collected	$9,074,824	$10,494,876	$7,494,545	$7,478,012

511 Responses to Data Requests #65 and #241.
512 Interview #8. Customer Service Organization Joint Operating Procedures provided in response to Data Request #77.
513 Responses to Data Requests #86 and #395. RECO sends on average 3,300 notices per month.
514 Responses to Data Requests #79, #80, and #81.
515 Responses to Data Request #2 and Data Request #78.
516 Response to Data Request #84.

CSO credit and collections personnel monitor the collection activity of O&R's Field Services personnel, and prevent collection activities during winter and summer moratoriums. These employees have more of a policy role, and look for accounts in which to intervene; they are to a large degree self-directed, although they meet with management in the spring and winter to discuss guidelines for their activities.[517]

CSO also manages five outside collection agencies that handle collections associated with final bills, which are typically issued 45 days after an account has been closed. Four of the agencies handle the first stage of collections, and O&R distributes the work evenly among the firms. The fifth firm is a warehousing agency that attempts to collect on final bills after other efforts have been unsuccessful. All outside agencies receive a percentage of the funds they collect, with the warehousing agency receiving the highest payout. Agency recoveries during the audit period for New Jersey customers are summarized in the following table.[518]

Exhibit XI-17
Collection Agency Success

	2014	2015	2016	2017
Placed with agency	$657,835	$629,898	$645,285	$2,081,534
Recovered	$110,117	$95,411	$115,135	$104,186
Success rate %	16.7%	15.2%	17.8%	5.0%

Customer Complaints and Surveys

CSO handles complaints and inquiries that come through the call center, web inquiries, customer letters, executive hotline, other O&R departments, and the BPU. There have been relatively few RECO complaints through the BPU during the audit period; in 2017, for example, there were only 18.[519] Relatively few calls coming in through the call center are ever escalated to the point that they reach the CSO department.[520]

O&R reports customer satisfaction measures to the New York PSC, which imposes a penalty at performance below 91 percent; New Jersey has no similar requirements. Approximately 2,800 transactional customer satisfaction surveys are conducted on the company's behalf each year, of which roughly ten percent involve New Jersey customers. O&R routinely sends a list of CSR transactions to a third-party vendor, which selects customers randomly by transaction type and performs the surveys. The vendor treats a rating of seven to ten on the survey as "satisfied" in its reported statistics; average results for the year during the audit period ranged from 95 to 97 percent.[521]

[517] Interview #8.
[518] Response to Data Request #85.
[519] Response to Data Request #10.
[520] Interview #8.
[521] Interview #27 and response to Data Request #89. O&R Customer Contact Satisfaction Survey questions have remained the same for roughly twenty years and differ depending on whether or not the call related to an emergency. Customers can provide comments during surveys that are forwarded to O&R, but most are not actionable.

The company conducts no other broadly-based surveys, although O&R recently started an invitation-only on-line community, ORYou Exchange, to gather additional customer insights and opinions. About 2,000 customers currently participate; response rate is good, and customers can earn points for providing information. The O&R program mirrors that of CECONY, and both are managed by the same third-party vendor with input and oversight by corporate communications.

O&R participates in J.D. Power surveys, which are email based and consist of 150 questions in such areas as corporate citizenship, power quality, environmental impact, communications, and customer service. The results for O&R's electric business are based on surveys of approximately 1,000 customers. O&R as a utility did not score well overall, but was in the first or second quartile in the customer service area among a group of 12 to 15 Eastern midsize utilities (e.g., Potomac Edison and Atlantic City Electric).[522] Attributes that are included in the scorecard of residential satisfaction include courtesy and knowledge of CSRs, website clarity and ease of use, and timeliness of problem resolution. Based on insights from the surveys, O&R developed a set of five action items to focus on improving customer communications, including making customers more aware of capabilities such as outage maps.

F. CIMS

The CIMS department is responsible for managing and maintaining O&R's customer service-related IT systems, processing nightly system batch runs, and troubleshooting all production issues. The group is a bit of a hybrid. All members of the department are O&R employees, but the group has dotted line reporting responsibility to CECONY Corporate IT. Some CIMS employees charge their time directly to O&R, but others charge their time to a clearing account that it allocated as part of corporate shared services.[523] Staffing levels in the department increased from 19 to 23 FTEs during the audit period, and annual employee O&M costs grew from $3.2 million to $4.0 million.[524]

The CIMS system is the linchpin of O&R's customer service organization, and requires extensive nightly processing. Processing CIMS billing information is a high priority within the department; a complete billing file must be sent to Broadridge, the bill print vendor, by 2 a.m., and so far the department has never missed a deadline. Accenture provides 24/7 programming support for the CIMS system under a multi-year agreement. Under the most recent four-year Accenture Business Process Management (BPM) contract signed in 2016, the vendor provides approximately 16 FTEs, although the contract allows O&R to increase or decrease the level of support if warranted.[525] The CIMS department retains overall responsibility for the system, and the collaboration between Accenture and O&R has thus far been successful. O&R is a member of the Accenture Customer/1 user group that meets twice a year to discuss common issues, and has benefitted from synergies with other utilities using the same system—if an issue arises that

[522] Interview #2 and response to Data Request #90.
[523] Interview #18.
[524] Responses to Data Requests #65 and #241.
[525] All charges flow directly to O&R's O&M. Additional information on contract charges is included in the Confidential Appendix.

Accenture has already addressed at another utility, the same fix for O&R will often be quicker and less expensive.

CIMS contains vast amounts of programing logic relevant to all aspects of customer service, such as calculating estimated usage for unread meters, triggering collection notices, and creating turn-off orders. An important aspect of the group's responsibilities is managing the process for programming and testing system modifications to correct program errors or incorporate necessary updates such as tariff changes. The CIMS department maintains a SharePoint site for documenting change requests from CIMS users; it typically bundles such changes and issues them as a new CIMS release roughly every four months. The group holds weekly meetings to discuss lessons learned, change requests, and software problems previously identified and currently being worked on by the Accenture team. The department follows the corporate IT change management process and utilizes an issue tracking tool to document system updates.[526]

CIMS interfaces with dozens of other systems and applications. Department personnel perform the programming needed to maintain and enhance most of these interfaces including those with the OMS, WMS, and the NRG mapping system. The Streetlight Portal application, for example, is used by municipalities to manage their inventory. The department also maintains some of these applications and in some cases even developed the original application.[527] A graphic illustrating CIMS interfaces is included in the Confidential Appendix.

CIMS interfaces include meter reading-related systems such as FORD, Itron, Intellimeter, Metretek, and LDPS,[528] as well as customer self-service applications such as ORU.com and My Account. Other interfaces with CIMS include: Retail Access Information System (RAIS), which sends and receives information on third-party supplier transactions; Meter Asset Management System (MAMS), which tracks all meters and associated customer accounts and is tied to the NRG mapping system; Meter Data Management System (MDMS), which receives and stores information from customer meters; and West, which provides limited access to vendor GRS for move in/move out and payment processing.[529]

During the audit period, the CIMS department built two new applications for the New Business group, NUCON and Project Center; it is currently working on further enhancements to these systems as well as integrating the new OMS into the outage map platform. The O&R CIMS department is at times directly involved with CECONY in software and hardware initiatives. The recent Digital Customer Experience (DCX)/My Account dashboard update to the company's website, for example, was a joint project with CECONY IT, although the actual programming work was performed by an outside vendor. This updated customer interface now includes simplified billing and payment history information. Customers can now view graphical representations of their usage, which for those with AMI meters is in fifteen minute increments.

[526] Interview #18.
[527] The Ditch Repair Orders (DRO) application, for example, was originally developed by the CIMS group and is used to create repair orders to be performed by contractors (e.g., repairing damaged lawns) after the primary repair work has been completed in WMS.
[528] LDPS holds meter usage data for large power interval billing from the MV90 system.
[529] Response to Data Request #222.

Other joint projects include Green Button Connect,[530] the Enterprise Data Analytics Platform, and bill redesign.[531]

G. New Business Services and Energy Services

New Business Services

The New Business Services department handles all customer requests for new gas and electric service and upgrades to existing facilities, as well as requests for distributed generation including solar and electric vehicles. It also provides notice, outreach, and education for New Jersey Commercial and Industrial Energy Pricing (CIEP) customers.[532] New Business Services maintains liaison contact with municipal emergency responders and handles areas such as long range planning, departmental budgets, analytics, and regulatory audits. The department's electric programs and services team manages load relief and street light programs, priority customer programs such as 24/7 support for key accounts, and regulatory-mandated programs. Staffing of the department increased during the audit period; union employees were stable at four FTEs but management grew from 24 to 27 FTEs. Annual employee O&M costs grew from $3.2 million to $3.7 million.[533]

O&R recently implemented a new construction project management system, NUCON, which was created by the CIMS department. NUCON has built-in check lists and metrics that help New Business Services project managers maintain compliance and control of their projects. The system interfaces with WMS on the operations side and CIMS on the billing side; it also interfaces with Project Center, a new customer-facing application on the O&R website also developed in-house. Project Center is currently a one-way system by which customers can submit applications for new facilities. Soon the application will allow two-way communications so that customers will have the capability to monitor project milestones. Project Center also interfaces with WMS and will eventually tie to the mapping system.[534]

New Business Services measures its own performance in areas that include electric revenue, applications requests through Project Center, speed of applications processing, and customer relations (e.g. meeting with 20 percent of priority customers). The department met or exceeded its internal objectives for 2017 and cites the following as its accomplishments for the year:[535]

- Processing 905 applications for new service and expansion of service
- Assisting customers with installation of 457 electric meters
- Assisting customers with 328 electric service upgrades

[530] Green Button Connect is a national data sharing standard that provides customers with easy access to their energy usage data in consumer friendly and computer friendly formats.
[531] Interviews #2 and #18.
[532] RECO has no real industrial customers, only large commercial ones; the largest customers are the NYSE data center, a United Parcel Service center, Ramapo College, and Howmedics Osteonics.
[533] Responses to Data Requests #65 and #241.
[534] Interview #18 and response to Data Request #222.
[535] Data Request #10.

- Conducting 11 large customer visits
- Achieving electric connected revenue of $2.8 million.

One of the department's measures was included in O&R's 2017 ATIP for 2017—new business electric services energized in seven days or less. The target was 90 percent or better, and the department performed at 98 percent.[536]

Energy Services
The Energy Services department is responsible for retail access, outreach education, and regulatory support, including assistance with New York REV demonstration projects. The group also administers low income programs to implement energy efficiency as required by New Jersey law. During the audit period, staffing of Energy Services increased from 17 to 21 FTEs, and annual employee O&M costs grew from $1.3 million to $2.1 million.[537]

RECO has over the last decade filed petitions with the BPU proposing three energy efficiency stimulus programs for low income customers. The first two programs focused on customers that were participants in the state's Universal Service Fund program, and included energy audits, education, health and safety testing, and installation of electric efficiency measures. Honeywell, the administrator for both programs, performed energy audits and oversaw installations of energy efficiency measures such as weather stripping and insulation.

The company's low income programs have been reasonably successful. From 2010 to 2016, approximately 80 percent of Universal Service Fund customers participated in a program. The Low Income Audit II program in effect during the audit period had 120 participants. Spending on energy efficiency measures averaged $1,554 per home, considerably less than the budgeted $2,500 per home; a summary of budget and actual spending is shown in the next table.[538]

Exhibit XI-18
Low Income II Program
Budget and Actual Expenditures

	Budget	Actual
2015	$321,300	$ 73,023
2016	328,330	186,251
2017		34,111 *
Total	$649,630	$293,385

*spending for program close out

RECO filed for approval for the Low Income Audit III Program in 2017, but the program has not yet begun. This latest program proposes new marketing strategies to serve other needy customers through partnerships with community-based organizations, food banks, and local agencies.[539]

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[536] Response to Data Request #23.
[537] Responses to Data Requests #65 and #241.
[538] Interview #59 and responses to Data Requests #393 and #394.
[539] Response to Data Request #393.

H. AMI Implementation

The BPU approved a $16.5 million program for deployment of AMI in August 2017.[540] The program will involve over 70,000 smart meters and 145 network devices in RECO's territory. The AMI Implementation department was formed to manage the infrastructure, meter deployment, and network aspects of the program. Staffing of the AMI Implementation group grew from 4 FTEs in 2015 to 11 by 2017 and employee O&M costs grew to $0.8 million over the same period.[541] Meter installation started in New Jersey in late May 2018 and is being performed by third-party vendors; O&R expects to complete RECO's territory during 2019.

The AMI system currently being installed by O&R and CECONY is reportedly the most advanced in the world, with the capability to provide fifteen minutes of data every fifteen minutes for residential customers (and every five minutes for commercial customers). The CEI system represents a leap forward over those implemented four or five years ago under federal grant programs. The pressure on the company to pursue this aggressive 15/15 data standard came from the REV process in New York. The company secured very favorable meter pricing because it is the first utility to implement this new technology, and also because it will ultimately be installing over four million meters at both utilities. The cost of the AMI program would clearly be cost prohibitive if O&R were implementing it in New Jersey alone.

A separate AMI implementation team was formed in Corporate IT to focus on enterprise-wide AMI software that will be used by both CECONY and O&R to handle vast amounts of meter data. The communications infrastructures at each utility will be different owing to differences in topography and density.[542] The Silverspring communication network that will be used by O&R for two-way communications between the utility and its customers will make use of redundant paths which ensure that data will be collected even if there is a local power outage. While the AMI meters do not collect personal identifiable information (PII), the company selected Silverspring as its network vendor because it is highly rated in terms of data security.[543]

The twenty-year business case for AMI that was presented to the BPU claimed $82 million of potential total savings, much of it associated with avoided meter reading costs. During the time of our audit, the company was not far enough along in its implementation for Silverpoint to assess the impact of the program in such areas as manual meter reading routes, billing, remote turn on/turn offs, and customer opt-out requests. We would have assessed, for example, whether AMI communications devices, meters, and functions are working according to plan, and whether the company is seeing expected benefits in terms of turn on/turn offs. As the company routinely reports to the Board on this matter we are offering no specific conclusions or recommendations in this area.

[540] Order dated August 23, 2017 in Docket No. ER16060524, provided in response to Data Request #32 The Order included metric and reporting requirements but does not pre-approve prudency or cost recovery for the program.
[541] Responses to Data Requests #65 and #241.
[542] Interview #16.
[543] Interview #2.

I. Benchmarking and Best Practices

Customer service is one area of any company that lends itself particularly well to benchmarking and performance metrics. Many companies, for instance, track more than two dozen measures related to the call center alone. Alternatively, some experts believe less is more and that most metrics are only marginally relevant except for a few such as cost per call, customer satisfaction, or first contact resolution rate. Company attitudes and approaches to benchmarking differ, but good utility practice requires some effort toward performance measurement, benchmarking and assessment of best practices.

O&R does not participate in third-party customer service benchmarking studies and does little in the way of industry-level performance benchmarking. Nor does it benchmark its performance against sister utility CECONY. Although O&R is a member of both EEI and AGA, it does not take advantage of their DataSource customer service benchmarking program, which involves annual surveys of customer care functions and intelligence on the industry's best customer service practices in areas such as field services, meter reading, call center, business office, credit and collections, and revenue protection.[544] The utility does however participate in the NJUA, as well as an equivalent process in New York, that allows it to share best practice information with other members.[545]

In terms of monitoring its own performance, O&R management focuses to a large degree on what it is required to report to the New York PSC and on meeting targets in order to avoid financial penalties. Each month, New York utilities report more than twenty customer service metrics, which are summarized on the next table.

[544] Information on DataSource available on the EEI website in early 2018.
[545] Interview #2.

Exhibit XI-19
Customer Service Metrics Reported in New York

Appointments	
Appointments Made	Appointments Kept
Adjusted Bills	
Total Bills Issued	Total Bills Adjusted
Telephone Answer Response	
Total Incoming Calls Received	Percent of Calls Answered
Total Incoming Calls Requesting a CSR	% Calls Answered by CSR w/in 30 seconds
Non-emergency Service Response	
Average Days to Complete All Service/Meter Work Orders	Days to Complete All Service/Meter Work Orders
Service/Meter Work Orders Received	Street Light Work Orders Received
Days to Complete All Street Light Work Orders	Average Days to Complete All Street Light Work Orders
Tree Trimming Work Orders Received	Days to Complete All Tree Trimming Work Orders
Average Days to Complete All Tree Trimming Work Orders	
Estimated Meter Readings	
Total Meters Scheduled to be Read	Total Estimated Readings Made
Consumer Complaints to the PSC	
Complaints per 100,000 Customers	
Customer Satisfaction	
Percent of Customers Satisfied	Satisfaction Index

Two of these measures—appointments kept and percent of customers satisfied–were included in O&R's ATIP goals in 2017. In prior years, O&R's ATIP included a customer experience index that reflected the customer service factor, bill adjustment, and PSC complaint metrics, all of which involve penalties for shortfalls in performance. Beyond these measures, most departments in the Customer Service organization do a reasonable job utilizing other metrics to monitor and improve their performance.

Utilities in New Jersey submit a semi-annual Customer Service Telephone Report pursuant to N.J.A.C. 14:3-6.8 that covers topics such as locations and hours of business offices, numbers of CSRs and trunk lines, training, and billing cycles. The report does not actually describe the quality of O&R's customer service, however. The definition of good customer service continues to evolve, and BPU Staff may want to consider working with utilities to develop meaningful customer service measures moving forward. In the interim, O&R could provide the New York reports on an informational basis. Although not all metrics reflect New Jersey data, there should be no meaningful difference between the performances in one state versus the other, as the company does not distinguish between states in the conduct of most day-to-day activities.

J. Emerging Issues

At the time of the merger, the O&R customer information system was new, and it would have made little sense to replace it with CECONY's much older system.[546] Twenty years later, however, the corporation is planning to select a new system that will not only replace the one at CECONY but likely CIMS as well.[547] This is not only a once-in-a-generation opportunity to consolidate customer information systems, but also the ideal time to reconfigure customer service as a utility shared service.[548] The company has successfully consolidated other utility functions such as transportation and materials management. As we discuss in Chapter XIII, such shared services are very well-managed, and both utilities reap the benefits of centralized programs while still maintaining the flexibility to accommodate local differences.

The transition to a new system is four or five years away, and so the utilities have ample time to rethink, and potentially reinvent, the entire customer service function. The new computer system will serve as the principle tool for managing the customer relationship, the nature of which is changing. For some, customer service means more advanced self-serve options with greater access to data and analytics; for others, customer service requires considerable hands-on management through the call center to address issues such as chronic delinquency. This transformation will take place well before the next RECO audit. As such, Silverpoint recommends that RECO keep BPU Staff well informed along the way.

K. Conclusions

1. O&R's Meter Operations department is well managed and productive, and consistently meets its performance objectives.

O&R has implemented systems and technology that support efficient meter-related and field service activities. The Meter Operations department has comprehensive written operating procedures and guidelines in place—particularly important when entry level positions have a relatively high attrition rate. O&M costs for meter reading, field collections, revenue protection, and related functions have remained constant during the audit period, and management actively monitors team performance using an appropriate range of metrics.

2. O&R's call center systems and technology are adequate for current needs but the company has been slow to implement important functionality.

Customer Service updated its call center system in 2016, but failed to promptly activate beneficial features such as post-call transaction surveys. Tracking the reasons for customer calls and the resolution of those calls is standard practice for call centers, yet the company did not

[546] The merger occurred in 1999 and CIMS was implemented in 1998.

[547] CECONY rate case testimony claims a total capital and O&M cost of $505 million for the new system, of which $38 million would be allocated to O&R (New York State Public Service Commission Case No. 19-E-0065).

[548] In order to develop a consistent shared system platform, O&R and CECONY will have to standardize certain business practices and procedures; during these efforts, the utilities should seek to streamline work flows and processes.

implement wrap-up codes until the end of 2017. Using a call-back option to reduce call abandonment rates and improve customer satisfaction is commonplace; however, O&R did not activate this feature until August 2018, and even then did so without proper preparation, which created further problems. While O&R has a suitable high volume answering system and IVR, it had no regular process for updating and optimizing system logic.

3. The call center has well-trained, skilled CSRs who are a credit to the company.

Customer Assistance provides comprehensive and in-depth training so that each CSR is able to field any type of incoming call. CSRs are very knowledgeable, capable, disciplined, compassionate, and sensitive to the needs of customers. Communication job aids, procedures, and training documents are set up for easy access during calls, and call escalation procedures adequately support CSRs having difficulty resolving a customer inquiry or complaint.

4. Call center volume in 2018 was approximately 50 percent higher than levels seen during the audit period.

Call volumes in 2018 were significantly higher than at any time in the audit period. The new AMI program, winter storms, and similar issues were undoubtedly contributing factors. What is not clear, however, is the extent to which this growth was exacerbated by the call center's extraordinarily high abandonment rates. Most customers opting out of the IVR actually do need to speak with a CSR—if they abandon the queue due to long wait times they have no choice but to call again or visit in person.

5. O&R did not adequately anticipate and plan for increased call volume and call length in 2018.

The Customer Assistance department was unprepared for, and lacked the resources and flexibility to accommodate, significant workload increases in the call center in 2018. Some of this surge could have been foreseen and either prevented or mitigated. O&R should be prepared for situations in which large blocks of customer bills are sent with estimated readings, as happened after the March storms—bill inserts or prominent messages on bills for example could have helped reduce calls about higher-than-normal bills. Management should be able to distinguish customers that need information from those that truly need service, and configure the IVR accordingly.

6. O&R failed to implement adequate remediation efforts when service levels deteriorated in 2018.

Interim measures to improve customer service levels identified in O&R's September press release—hiring new CSRs, increasing vendor agent support, expanding service hours, and adding a call-back feature—were appropriate, but significantly lagged need. Problems in coping with call volumes were evident as early as Silverpoint's first interview in February, and only grew worse with each subsequent visit.

The company did little to either prevent the reasons for more calls or bring adequate resources to bear. For example, to the extent overtime was being used, management scheduled it a week in advance, not because of contract limitations but because they could not maintain the timely recordkeeping required to offer it equitably in real time. Although the phone system call-back feature would have been useful for smoothing out peak periods during the day, it was not utilized until late in the year. Even so, implementation was clumsy and the company split its workforce between live calls and call-backs, ultimately accomplishing little in reducing the backlog. O&R's efforts were too little too late—when Silverpoint visited the call center in October, customers still had unacceptably long wait times to reach a CSR.

7. The customer accounts function is overly dependent on the call center workforce.

The flexibility to use CSRs to perform customer account activities during slow periods is appropriate, but these resources cannot be relied upon, particularly during excessive work conditions. During 2018, high call center volumes meant that CSRs were unavailable for such duties. The Customer Accounts group was left with insufficient resources to handle a growing backlog of billing exceptions. The backlog in turn undoubtedly triggered countless customer inquiries, further increasing call center workload.

8. The number of billing exceptions is too high, and the process for resolving exceptions requires improvement.

The number of billing exceptions that are created during night batch runs varies, but during one week in June, CIMS created 23,000 WFMs. At this rate, significant backlogs are inevitable, leading to late bills and an increase in customer inquiries through the call center. Customer Account reps are also not as efficient as they could otherwise be, as they often attempt to investigate WFMs that are either incompatible with their skill level or that are not yet ripe for resolution due to missing information or pending actions.

9. O&R's use of a supplemental workforce during the audit period was cost effective.

During the audit period, the company utilized lower-cost vendor agents to field connect and disconnect calls coming through the IVR and to make outbound collection calls, thereby reducing the company's average cost per call. The use of vendor CSRs for in-bound calls improved the company's speed-of-answer performance, and utilizing these same agents to make outbound credits calls minimized their idle time.

10. The Customer Support Operations department effectively manages the credit and collections function.

O&R appropriately utilizes less costly third-party agents for routine collection call activity. Staffing levels and employee O&M costs for the Customer Support Operations department, which actively monitors vendor and field service collection performance, remained level throughout the audit period, and RECO's uncollectible expense and 90 days arrears rate are within reasonable ranges.

11. Delinquency rates in New Jersey may be excessive.

The company issues over 3,000 delinquency notices each month in New Jersey on a customer base of approximately 72,000. While it is in some ways laudable to be sympathetic to customers that have difficulty paying, it nonetheless taxes the company's resources and increases costs borne by paying customers.

12. The CIMS department provides cost-effective support for the customer information management system and other important applications.

The department has a long-term, productive working relationship with Accenture, and the vendor adequately supports requirements for CIMS programming changes in a timely fashion. The group has a well-organized process for issuing new releases of the system and follows appropriate change management protocols. Growth in staffing during the audit period was modest and consistent with the group's current workload for application and interface development and support.

13. The New Business Services department is well managed and productive, and consistently meets its performance objectives.

The department implemented two new customer-facing applications during the audit period that improve its project management capabilities. Management actively monitors group performance and the department has met or exceeded its internal performance goals. In particular, the department has had stellar performance in terms of on-time delivery of new electric services energized in seven days or less.

14. Customer Service has no benchmarking program, and performance monitoring and analysis efforts are overly focused on meeting New York metric targets.

O&R informally monitors customer service best practices, however it does not take advantage of ample benchmarking information available from industry associations like EEI, nor does it compare itself to CECONY. Some Customer Service departments do a reasonable job utilizing performance metrics and statistics to monitor and improve their performance. However, management in the call center and customer accounting appears to be focused mainly on avoiding financial penalties from New York regulators. Management reports provide no information on other important aspects of customer service performance such as abandonment rates, call wait times, timeliness of bills, or billing exception rates. Managers outside of the customer service area were apparently unaware of excessive backlogs or that customer bills (and therefore cash flow) were being held up for long periods because of exceptions.

L. Recommendations

XI-1 Begin a data driven process improvement program for the Customer Service organization.

Data driven customer service improvement efforts should focus on processes, rather than individual departments or functions. For example, O&R should identify the reasons that customers contact the call center, and then work to reduce those reasons. The company's own policies, procedures, and practices themselves in some cases may be causing unnecessary work. O&R should analyze root causes for excess WFMs to determine what each group does (or does not do) that ultimately causes them, and historical data should be analyzed to identify situations in which billing exceptions were unfounded.

These efforts should dovetail with the company's current Business Cost Optimization program, which focuses on cost drivers and opportunities for transformational change. The process improvement program should also be integrated with the collaborative efforts underway with CECONY regarding a new customer information management system, focusing on streamlining associated work flows.

XI-2 Improve all facets of call center performance.

Although the recommended data driven process improvement program spans departments and functions, the company should nonetheless continue problem solving within functional areas to improve performance. O&R should identify and implement solutions to (a) reduce call volumes, (b) reduce time per call, (c) reduce call wait time, and (d) reduce abandonment rate. For example, the company should ascertain the best combination of employees and third-party agents to provide cost-effective yet flexible staffing that can accommodate peak demands for service. To allow better tactical use of overtime, managers should develop a spreadsheet tool to facilitate the recordkeeping required to comply with union overtime rules. As the IVR is the first customer window and can address a majority of needs, the company should work with an external consultant to develop a more efficient configuration of options and more effective messaging.

XI-3 Reduce the volume of billing exceptions and improve the efficiency of processing.

O&R should identify ways to reduce the number of billing exceptions being created in CIMS. For example, employees resolve high/low billing exceptions by applying common sense logic to information readily available on customer accounts; that same logic could be incorporated into CIMS to preclude creation of WFMs in the first place. In lieu of modifying CIMS, the company could develop an advanced analytics application capable of automatically resolving certain exceptions, thereby reducing employee workload. To increase the efficiency of reps when processing exceptions, O&R should improve WFM reports so employees can more readily focus on exceptions they can resolve.

XI-4 Implement a benchmarking program and expand customer service metrics and statistics as a means to drive improvement.

O&R's EH&S department, as well as the managers of utility shared service functions such as transportation and supply chain, recognize the value of benchmarking. Similar efforts should be embraced in the customer service area. O&R should also benchmark its own performance against CECONY. Given the likely future of a shared customer information system, it is important that the utilities understand each other's work flows, and benchmarking provides a useful means for doing so. O&R should also expand data collection, metrics, and management reporting to include, for example, call abandonment rates, call wait times, bill timeliness, billing exception rates, and speed of clearing billing exceptions in order to facilitate improvement efforts.

XII. Information Technology and Cybersecurity

A. Information Technology

The CECONY Information Technology (IT) department is part of the Corporate Shared Services organization. There are six groups in IT, each of which reports to the Vice President and Chief Information Officer (CIO): IT Planning, Technology Operations, Information Security, Business System Delivery, AMI Implementation Team, and Office of the CIO. Current staffing levels and the primary responsibilities of each group are summarized in the following table.[549]

Exhibit XII-1
IT Group Responsibilities and Current Staffing

Group	Staffing *	Responsibilities	Major Initiatives
IT Planning	75 employees 12 contractors	• Computing, communications and network hardware/software standards • Evaluation/implementation of new technologies • Infrastructure and communications planning • Corporate IT Plan and strategy development	• Data center strategy (e.g., cloud migration) • Corporate communications transmission network • Mobility architecture
Technology Operations	149 employees 84 contractors	• Operation of the Network Operations Centers, Helpdesk, and IT Lab • IT and application infrastructure (e.g., firewalls, databases) • Servicing of mainframes and related operating systems	• Data center transformation/ cloud deployment • Windows 10/Office 365 • Portal redesign • SolarWinds network performance monitoring
Information Security	27 employees 3 contractors	• 24/7 security, threat analysis, incident response • Development and implementation of security standards, processes, and policies • Compliance and software licensing • SOX, NERC CIP, privacy (e.g. PII)	• Penetration testing • User behavior analysis • Data classification • Cybersecurity architecture • Internal controls program
Business System Delivery (BSD)	213 employees 194 contractors	• Application support for all CEI companies • Business strategy/planning – IT roadmaps (e.g. planned obsolescence) • IT solutions to enable productivity/efficiency • Facilitation of changing business practices	• Cross platform integration of critical business systems • Business capability consolidation/rationalization • Increased enterprise solutions
AMI Implementation Team	38 employees 100 contractors (approx.)	• Co-lead of company AMI project • Implement and operate AMI IT platform including applications for meter data and asset management and associated infrastructure	• Implementation of AMI IT platform and advanced AMI functionality
Office of the CIO	28 employees 2 contractors	• Operation of IT as a business • Facilitation of strategic, consistent, transparent approach to the use of IT across the enterprise • Business cost optimization • Benchmarking/training	• Strategy and governance • Analytics Center of Excellence • IT Project Management office • Enterprise integration environment

* Staffing numbers reflect both CECONY and O&R employees at the time of the audit.

549 Interview #16 and confidential responses to Data Requests #195, #373, and #376.

Business System Delivery (BSD) provides application support and is the largest group in the CECONY IT department. The group consists of four director-led organizations that work closely with each of the business areas they support: Customer Operations and Energy Management; Electric Operations; Central Operations and Gas; and Shared Services. There are approximately 500 software applications currently in use across the enterprise. The vast majority are managed and maintained by BSD group personnel, although IT formed a separate group, the AMI Implementation Team, to focus in particular on enterprise-wide AMI software that will be used by both CECONY and O&R.

Guiding principles of the group include fostering innovation, maximizing business value, and promoting a move toward "one enterprise."[550] To help reduce the sheer volume of applications, there is an ongoing effort toward more consistent software and design standards across the utilities, particularly as older systems are replaced. Rather than implementing a particular technology that meets the needs of only one entity, the company now looks for broader solutions from an enterprise perspective. The current plan to implement a new enterprise-wide customer information management system is consistent with this strategy. Last year, for example, O&R replaced its OMS with the system used by CECONY, and CECONY recently implemented Primavera project management software, which was already in use at O&R. Certain applications such as work management, however, will remain utility specific for the foreseeable future given their complexity and highly customized interfaces to other systems.[551]

The Technology Operations group manages areas that include infrastructure, hardware maintenance, the help desk, and the network operation centers (NOCs). NOCs are centralized locations from which the company can support its computer network and telecom infrastructure, detect and resolve IT infrastructure incidents, and ultimately ensure data center availability.

Consistent with its Incident Response Plan (IRP), IT conducts regular disaster recovery drills on a rotating basis for mainframe, client servers, system infrastructure (e.g. gateways and web services), the intranet, and Internet applications supported by BDS to assure processes and procedures can be ably performed in the event of an actual disaster.[552] Additional information about this subject area is included in the Confidential Appendix.

Among other duties, the IT Planning group is responsible for preparing the annual departmental plan, which includes an IT strategy and the IT roadmap with specific projects and milestones. The mission and vision of the annual IT plan generally echo those of CEI's strategic plan. The 2017 five year plan mission, for example, states that "the strategic use of information technology improves the customer experience, enables operational excellence, drives innovation and reduces costs." [553] Strategic corporate-level IT initiatives in 2017 included improving project management, rationalizing the applications portfolio to reduce cost and complexity, and building

[550] Confidential response to Data Request #201.
[551] Interview #16. Development and support for such applications are typically managed at the utility level. Corporate IT is also not responsible for utility SCADA systems, which are maintained by local operations.
[552] Disaster recovery information and the IRP provided in confidential responses to Data Requests #203 and #204, respectively.
[553] Annual corporate IT plans and strategy reports for the audit period provided in response to Data Request #197.

an Analytics Center of Excellence to focus on specific cases in which big data analytics may be beneficial, such as with AMI enterprise data for both CECONY and O&R.

The Office of the CIO group was formed a few years ago, its mission being to run IT as a business and to facilitate a strategic, consistent, and transparent approach to the use of IT across the enterprise. There is a higher demand for IT services than there is supply, and the group is responsible for determining how to meet the needs of the business units more efficiently while managing the peaks and valleys of demand. As part of its business cost optimization process, the group analyzes which IT needs should be met by internal resources and expertise and which can and should be outsourced; it recently implemented an IT Board composed of business users to approach this type of resource planning in a more collaborative way.[554] The group is also responsible for managing the IT Project Management Office (PMO), which vets potential technology projects before they become part of the IT roadmap.

The Office of the CIO is responsible for governance of the IT function through a consistent set of corporate-level policies and controls across CECONY and O&R that cover areas such as cybersecurity, communications network standards, centralized device management, and IT billing.[555] These corporate-level policies are typically supported by detailed IT procedures; as an example, the Corporate Response to Incidents and Emergencies Policy is buttressed by an IT Incident Response Procedure. There are additional affiliate-level policies and controls that cover infrastructure and devices such as smart grid, radio systems, and desktop support. The Office of the CIO is also responsible for benchmarking. The company is part of an IT benchmarking consortium of U.S. electric and gas utilities, called UNITE, that shares data on metrics that apply to all aspects of IT.[556]

Total O&M expenses for the CECONY IT department in 2017 were approximately $90 million. In addition to O&M and capital budget targets, CECONY has in place departmental KPIs for senior IT management that measure performance in areas such as system availability, cybersecurity, risk and controls, program and project management, and process improvement. Some KPIs relate to specific project deliverables, such as development and deployment of an IT project dashboard tool for the PMO or implementation of an Enterprise Data Analytics Platform (EDAP). More departmental KPIs were added in 2017 and there are currently a few dozen performance metrics in place across the organization, which are summarized in the next table.[557]

[554] Interview #16.
[555] Confidential response to Data Request #196.
[556] Additional details are not available. In response to Data Request #202, the company stated that UNITE members would not agree to release the reports to the audit team.
[557] Confidential response to Data Request #205.

Exhibit XII-2
2017 IT Departmental Performance Measures

Unit of Measure Targets	
Compliance with Sarbanes Oxley	Cybersecurity measures
Critical projects within 10% of est. cost/schedule	OSHA incidence rate
Cost savings of $500K via technology/innovation	Phishing test performance
IT storm measures	Maintaining advanced cybersecurity rating
Application monitoring /Increased reliability	Compliance process for operational organizations
Business systems availability	Data classification policies
System availability measures (infrastructure, server farms, telephony, WANs)	Help Desk call answer rate and calls resolved without escalation
Storm infrastructure availability	IT service mgmt. process enhancements/tools
Business system project launch	IT cost transparency/cost reduction
PC and telecom inventory	Application development project audits
Polyvom video and Microsoft cloud deployment	Battery replacements
Project Deliverables	
Implement Phase 1 of EDAP	Go-live with Phase I AMI IT platform
Deployment of AMI meters in Staten Island	Implementation of behavior analysis tool
Penetration and vulnerability assessments	Security event management for SCADANet
IT Project Dashboard	Establishment of Enterprise Analytics Team
Deployment of enterprise tools	Application Portfolio Management (APM)

The IT department typically met or exceeded its performance targets during the audit period.[558] Additional information on target and actual performance for the IT department overall and for the cybersecurity area in particular is included in the Confidential Appendix.

O&R Information Resources Department

O&R's IT employees report to CECONY managers and are well integrated into the corporate IT department, although they typically focus on local utility projects. Staffing in O&R's Information Resources group, summarized in the next table, has been relatively flat during the audit period.[559] Annual O&M expenses during this time period ranged from $4.3 to $5.5 million.[560] The O&R Information Resources group does not have department-specific performance metrics.

[558] Targeted and actual KPI performance information provided in the confidential response to Data Request #205.
[559] Responses to Data Requests #241 and #374. Support for CIMS is part of O&R Customer Service, not IT.
[560] Response to Data Requests #259 and #325.

Exhibit XII-3
O&R Information Resources Staffing (FTEs)

	2014	2015	2016	2017
Software maintenance	1	1	1	1
Technology support	10	11	9	10
Telecommunications	11	11	11	11
O&R application services	26	23	25	26
Project mgmt. ops system support*	12	11	9	10
Total	60	57	55	58

* This group was part of the O&R Project Management department within Operations until 2015.

O&R's budget for IT capital projects is derived as part of the utility's capital optimization process and is not driven by the corporate IT department. Most budget items are normal blankets for equipment, mainframe upgrades and the like, but others are for specific projects and initiatives, which in 2017 included implementing the new OMS, creating an OMS dashboard, and expanding the high-capacity corporate communications transmission infrastructure to key stations in RECO's territory. A table summarizing O&R's budgeted and actual IT-related capital spending during the audit period is contained in the Confidential Appendix.

O&R's IT initiatives in this period were aimed toward improving performance and reliability, reducing the risk of large scale disruptions, and improving the customer experience.[561] Key initiatives included AMI, enhancements to the customer website interface, infrastructure upgrades, and REV-related distribution system platform advancements.

B. Cybersecurity

Upon the request of Staff, Silverpoint expanded its review of IT to focus in more depth on the subject of cybersecurity. In particular, the team assessed the company's compliance with the cybersecurity program requirements in the Board's March 18, 2016 Cybersecurity Order.[562] The Order directs utilities to mitigate cyber risk to critical systems, i.e., utility industrial control systems at the distribution level and business systems that affect customer personal identifiable information (PII).[563] For RECO, the critical systems affected by the Order are the O&R Electric Control Center (ECC), DSCADA, and Customer Operations-related applications and systems.

Utility cybersecurity programs must meet specific minimum requirements identified in the Board's Order, which are summarized in the following table.

[561] Confidential response to Data Request #199.
[562] The scope of this review was not included in the RFP for this audit.
[563] Docket No. AO16030196. Industrial control systems are defined as computerized systems capable of gathering and processing data from utility facilities or applying operational command and control over utility facilities and/or systems.

Exhibit XII-4
Summary of BPU Cybersecurity Program Minimum Requirements

Cyber Risk Management	• Process to conduct an annual inventory of critical systems and to document changes • Risk methodology, process, and criteria for an annual assessment and prioritization of cyber risks, including vulnerability and current threat assessment, disaster recovery and business continuity • Process to measure, monitor, and review the risk assessment process
Situational Awareness	• Process to monitor log files of critical systems on a regular and consistent basis • Process to monitor internal and external threats and vulnerability information sources, and to determine applicability and response • Method to review vendor patches and implement as appropriate
Incident Reporting	• Reporting of breaches of customer PII or unusual activity that has the potential to compromise critical systems for which controls are ineffective • Process for reporting cyber events related to industrial control systems involving: o Person or entity accessing without authorization or exceeding authorized access o Discovery of unauthorized programs, information, code, or commands o Threats of damage for purposes of extortion
Response and Recovery	• Cybersecurity Incident Response Plan in place that addresses the life cycle of an event • Exercise to test the Plan every two years including lessons learned
Security Awareness and Training	• Development and implementation of cybersecurity awareness program • Periodic communications on cybersecurity awareness • Development and implementation of cybersecurity training • Development and implementation of protocols for training new personnel as well as refresher training

The cybersecurity program at CEI is not utility specific, but rather applies across the entire enterprise including O&R, CECONY, and other affiliates. As a practical matter, the company assures compliance with both New Jersey and New York regulatory requirements by adopting the more restrictive requirement in any given area.[564] Primary responsibility for IT cybersecurity activities lies with the Information Security group. The group's director reports to the Vice President and CIO, who in turn reports to the Senior Vice President of Corporate Shared Services. The five main areas of responsibility within the group are as follows:[565]

- Cybersecurity Operations Center (Threat Management) – operates 24/7 to monitor potential and real cybersecurity activity and threats; responsible for response if required
- Risk Management – sets security standards, conducts assessments of vendors and third-party energy suppliers; conducts routine vulnerability scans of all activity with an emphasis on situational awareness
- Security Operations – implements firewalls and other standards defined by Risk Management

[564] The New York PSC, for example, requires an independent audit each year by a third party of the company's PII controls whereas New Jersey requirements contain more detailed specifics, including an incidence notification system.
[565] Interview #43.

- IT Compliance – manages NERC-CIP, SOX, audit, and software licensing compliance
- Cybersecurity Compliance – manages privacy, NERC CIP, cybersecurity compliance and quality assurance.

Unlike other IT areas, contractors and employees working in the Information Security group are subjected to extensive background checks, and internal employees are required to undergo psychological screening.

While the Information Security group is responsible for day-to-day cybersecurity management, the broader subject of corporate cyber risk is managed as part of the framework of CEI's Enterprise Risk Management process. Cybersecurity threats are examined and prioritized against other corporate risks as part of the annual risk assessment process. Oversight of CEI's cybersecurity program is provided by the Security Executive Committee, composed of selected vice presidents who meet quarterly to provide executive direction on both cyber and physical security matters. The CEI Board of Directors and the Board's Audit Committee also provide oversight, and receive presentations on cybersecurity issues at least twice a year.[566] There are also corporate policies and instruction in place that deal with computer data security and the protection of PII.[567]

The subjects of cyber risk and security receive management attention at all levels. The IT Information Security team provides updates at least annually to the CEI Corporate Leadership Team, which is comprised of the CEO and his direct reports, and to the Corporate Leadership Forum comprised of company vice presidents. The team also provides briefings to the Information Exchange, which includes employees at the director level and above. At O&R, IT and cybersecurity issues are the focus of quarterly meetings, and O&R has put in place written operational procedures to ensure that the customer service organization appropriately collects, stores, and disposes of customer PII.[568]

A discussion of the company's compliance with the cybersecurity program requirements in the Board's March 18, 2016 Cybersecurity Order is contained in the Confidential Appendix.

[566] One of the Board's Directors was previously a senior vice president at IBM and has cybersecurity experience.
[567] Interview #43 and confidential response to Data Request #354. Corporate policies include CEI 310-2 Computer Data Security; CEI-310-6 Protection of Personal Computers Against Malicious Software; CEI-CI-215 Acquisition, Deployment and Support of Information Technology; and CEI-CI-211 Protection of Personally Identifiable Information.
[568] Customer Service procedure related to PII provided in the confidential response to Data Request #354.

C. Conclusions

1. The corporate IT department is well managed and effectively supports the business needs of O&R and RECO.

The IT function is centrally managed by CECONY as a corporate shared service. The corporate IT department has a sound planning process, and current priorities such as simplifying the applications portfolio and improving capabilities in big data analytics are consistent with the corporate emphasis on cost reduction, innovation, and operational excellence. IT policies and procedures are comprehensive and well-documented, and controls in areas such as business continuity, disaster recovery, and change management are routinely reviewed by Internal Auditing. The IT department proactively monitors best practices through industry benchmarking, and extensive performance measures ensure accountability and continuous improvement.

Each functional area of the corporate IT department is led by experienced managers and staffed by knowledgeable, skilled employees and contractors. Resource planning is a collaborative process between the IT department and business units like O&R to ensure that hardware and software requirements are met in a timely fashion.

2. CEI has a rigorous, well-developed cybersecurity program that fully complies with the Board's Cybersecurity Order.

CEI's cybersecurity program compares very favorably to similarly sized companies, and reflects the company's culture of continuous improvement through benchmarking, performance metrics, structured self-assessments, third-party testing, and sharing of best practices. The program receives appropriate levels of oversight by senior management, and cyber risk assessment is well-integrated into the enterprise risk management process. The company has a robust cybersecurity process and framework in place to ensure that the Board's requirements for cyber risk management, situational awareness, incident reporting, response and recovery, security awareness, and training are consistently met. Corporate IT maintains a process-driven approach to cyber threat management, and has implemented effective cybersecurity technology, tools, and data analytics. Cybersecurity policies, processes, and procedures are adequate and consistently applied, and standards are reinforced through employee continuous awareness programs.

D. Recommendations

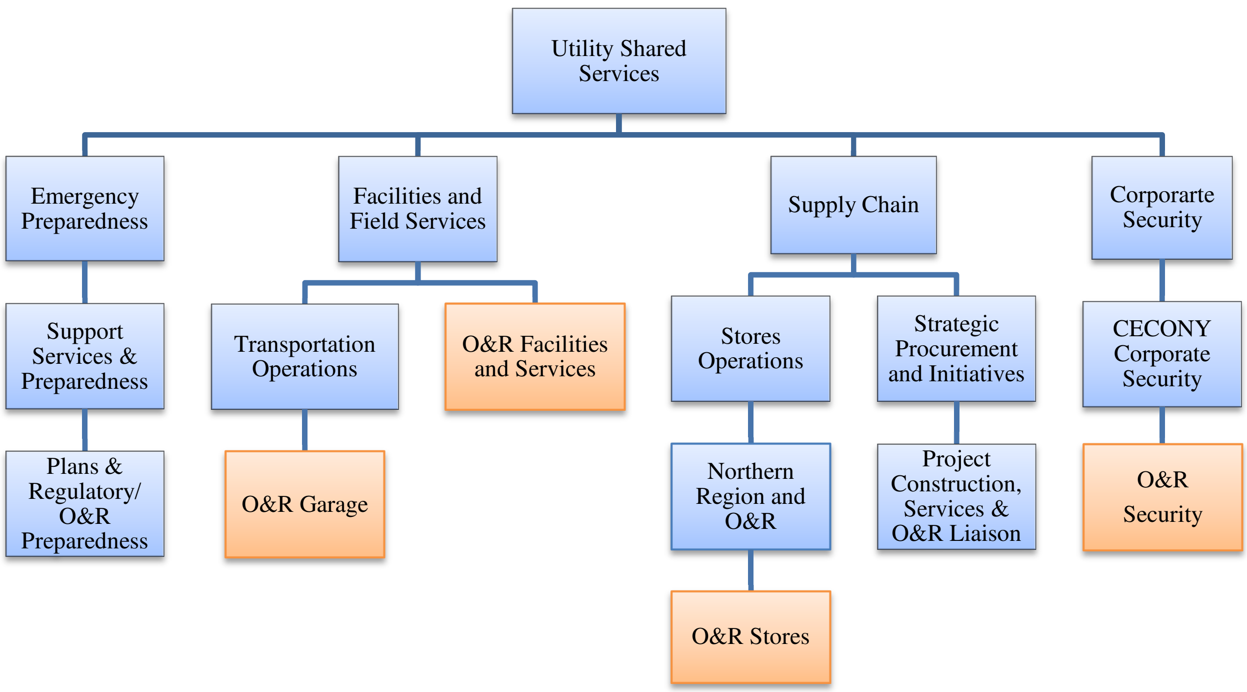
Silverpoint has no recommendations in this area.

XIII. Support Services

A. Introduction

Silverpoint assessed the overall effectiveness of functions that support O&R's business and utility operations. Five of these support services—transportation, materials management, facilities management, security, and records management—are provided primarily by O&R personnel with some degree of integration or oversight by CECONY's Utility Shared Services organization, as illustrated in the following abridged organization chart.

Exhibit XIII-1
Utility Shared Services Organization – Select Departments



Three other services—legal, insurance, and real estate—are provided wholly at the CECONY level. Although EH&S was not specifically identified as a support service in the RFP, Silverpoint nonetheless included it in our review given the corporate emphasis in this area. We also expanded our review of materials management in order to follow up on supply chain issues that had been raised in the recent New York audit.

B. Transportation

The Transportation Operations department is part of CECONY's Utility Shared Services group. The department is responsible for managing the procurement, maintenance, repair, and disposal of all utility vehicles and equipment, and also oversees parts procurement, warranty work, licensing, and recordkeeping. The department's primary objective is to provide CECONY and

O&R with safe, dependable vehicles and equipment in a cost-effective and environmentally-focused manner.[569] The two utilities share transportation-related operating procedures, corporate instructions, and guidance documents that address topics such as take home vehicles, auto parts and the auto parts room, fueling at vendor stations, contracted automotive body repairs, scheduling and control of work orders, and the disposal of mobile equipment, garage equipment, and automotive parts.[570]

The manager of O&R's garage operations reports to the general manager of Transportation Operations. Each of the three O&R garage locations—Spring Valley, Blooming Grove, and Middletown—has an operating supervisor, and there are currently twenty mechanics in total.[571] All three locations work two shifts covering the hours of 7 a.m. to 11:30 p.m.; overtime is typically less than ten percent each year, and is mostly driven by storm activity.[572] Staffing of O&R's garage operations remained relatively flat during the audit period; management remained steady at four FTEs and hourly employees grew slightly from 19 in 2014 to 21 FTEs by 2017.[573]

All vehicles and equipment are purchased. The current O&R fleet includes approximately 550 mobile vehicles and over 200 pieces of equipment such as backhoes, trailers, and compressors. These assets are assigned to specific garage locations, as summarized on the next table, although some vehicles and equipment are normally stationed at work-out locations such as Wyckoff, Harrington Park, and West Milford.[574]

Exhibit XIII-2
O&R Fleet by Garage

Garage	Mobile Vehicles	Equipment
Spring Valley	311	105
Blooming Grove	125	50
Middletown	124	54

O&M costs associated with O&R's garage operations are charged out to vehicle user departments. The annual O&M clearing budget is approximately $11.4 million, including labor, parts, fuel, and depreciation.[575] Auto parts and supplies, contracted auto body repairs, and fuel for both O&R and CECONY are purchased under blanket agreements established by the CECONY Supply Chain group.

[569] Interview #36. Its mission statement is to provide reliable fleet services that are customer focused through an atmosphere that fosters teamwork, creatively, resourcefulness and an inclusive environment that anticipates customer needs.
[570] Operating procedures and related documents provided in response to Data Request #379.
[571] There are four mechanic classes: garage attendant, service attendant, technician, and certified master technician.
[572] Interview #36.
[573] Response to Data Request #241.
[574] Interview #36 and response to Data Request #380. O&R also has approximately 130 pieces of truck-mounted equipment including buckets and diggers.
[575] Interview #36 and response to Data Request #380.

During the audit period, O&R invested capital to upgrade its fuel stations at all three garages. These fuel stations record vehicle and employee information as part of the fuel dispensing process, and send data to the vehicle management system. O&R's annual capital budget for vehicle and equipment replacement is typically around $4.5 million, although recently the company's actual spending has been higher.[576] Budgeted and actual capital spending during the audit period is summarized on the following table; a non-redacted version is contained in the Confidential Appendix.

Exhibit XIII-3
O&R Transportation Capital Spending ($Millions)

	2014		**2015**		**2016**		**2017**	
	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual
Vehicle/Equip. Replacement								
Fuel Station and Other								
Total	$4.8	$4.2	$6.9	$5.1	$6.4	$6.3	$4.6	$7.5

O&R's capital budget has been sufficient to replace approximately ten percent of the fleet per year, i.e., 40 to 50 vehicles. Transportation Operations uses a tier system to prioritize vehicles for replacement. Tier 1, for example, consists of critical vehicles that will be at the end of their life cycle during the replacement budget year. The group also takes into account utilization, repair history, and lifetime maintenance costs when selecting vehicles for replacement. Several times a year, the company auctions off vehicles and equipment that have reached the end of their useful lives. An outside vendor handles all aspects of these auctions, and all proceeds are credited back to the capital accounts of operating departments.

New vehicle and equipment purchasing specifications are developed by a committee of transportation and operations personnel including union employees. The company has worked toward melding and standardizing O&R and CECONY specifications. Supply Chain is responsible for requesting quotations and setting up contracts for vehicles and equipment with input from Transportation Operations. In general, the company's philosophy is to establish multi-year contracts with vendors, and to have a blended fleet with a mix of suppliers and brands (e.g., Altec and Terex for bucket trucks, Cummins and Ford for diesel engines.) Blending the fleet helps ensure adequate vehicles should a problem arise with a particular supplier, model, or type of equipment. Supply Chain combines O&R and CECONY orders to take advantage of larger volume pricing.

For vehicles that are fitted with specialized bodies and equipment such as bucket trucks, the company bids and orders the chassis separately from the body and equipment. Chassis are shipped to a body builder/upfitter, which installs the bodies and equipment and paints the vehicles. Transportation personnel inspect vehicles for correctness and completion prior to acceptance. After vehicles are received at O&R or CECONY locations, plates and any other company-supplied equipment are installed to make the vehicle ready. Vendors typically provide company employees with operator and repair training.

576 Interview #36 and response to Data Request #145.

From an environmental perspective, the company makes extensive use of bio-diesel to meet the Energy Policy Act of 1992 (EPAct) requirements. Also, as part of EEI's Fleet Electrification Initiative, O&R and CECONY joined more than 70 investor-owned utilities in committing to devote at least five percent of their annual fleet acquisition budgets to clean vehicles.[577] Because of their limited range, electric vehicles are more practical in CECONY's territory, although O&R already owns some environmentally-friendly vehicles such as Honda hybrids and the Chevrolet Volt. Both of these vehicles have been discontinued by the manufacturer, however, and the company is currently evaluating other alternatives, including the use of electric-powered aerial lift devices.[578]

The Vehicle Management System (VMS) is a home grown mainframe system with user interface that tracks utility vehicles and equipment inventory, as well as the work order, repair, and repair cost history for each item. The system can automatically generate work orders for preventative maintenance based on mileage using fuel consumption as a proxy. VMS can also provide life-to-date maintenance history on vehicles, and users can drill down to view individual job jackets and cost detail. The functionality of VMS is somewhat limited and cannot support more advanced analytics, which must be performed separately using Excel spreadsheets. VMS can, however, provide a series of standard reports (e.g., out of service, repetitive repair, and utilization based on fuel consumption) that are routinely used by management.

The company has recognized the limitations of VMS and recently selected a new system, FleetWave, as its replacement. The new system is slated to be installed by August 2019; data mapping work has been completed and the company is currently working to clean up VMS data. FleetWave is a widely used system, and a user group meets regularly to discuss upgrades and system functionality. The new system will enable managers to perform ad hoc inquiries and data analytics such as life cycle costs for vehicles and equipment, and will also support data entry by mechanics via tablets.

Most vehicle and equipment repairs are performed by O&R personnel with the exception of body and fender work, although occasionally the company will contract out work if it involves a major repair such as a transmission. Scheduled maintenance is generally performed on the second shift to minimize the impact on operations. Every vehicle, chassis, and piece of equipment has a maintenance program associated with it, and the company generally follows the manufacturer's recommendations on maintenance processes and schedules. Preventative maintenance intervals are typically based on either time or mileage.[579] O&R has a mobile repair vehicle that can be dispatched to do minor repairs in the field or at satellite locations. There are relatively few emergency repairs, however, because the company stays up to date with preventative maintenance—the O&R garages completed 100 percent of required preventative maintenance each year of the audit period.[580]

[577] The objective of the EEI fleet electrification initiative is to further commercialize electric transportation technologies such as plug-in electric vehicles.
[578] Interview #36.
[579] Preventative maintenance frequency tables provided in response to Data Request #382. Car maintenance, for example, is generally time based except for those cars that are high mileage.
[580] Preventative maintenance completion data provided in response to Data Request #380.

Despite a slight increase in the number of vehicles and equipment over the audit period, O&R has reduced total annual maintenance costs by approximately $270,000, as summarized on the following table.[581]

Exhibit XIII-4
O&R Vehicle and Equipment Age and Maintenance Cost Comparison

	Average # of Vehicles			Average Age			Average Maintenance/Month	
	2017	2014		2017	2014		2017	2014
Passenger Vehicles	273	276		10.4	12.1		$296	$280
Light Duty Trucks	60	43		9.1	11.2		275	326
Medium Duty Trucks	62	58		11.2	12.2		404	525
Heavy Duty Trucks	21	22		14.0	14.9		597	578
Test Trucks	1	1		6.1	6.1		113	90
Construction Equip.	32	33		14.1	14.3		320	362
One Man Bucket Emergency #9	15	20		11.4	12.1		1,355	1,209
One Man Bucket Construction	2	0		4.9	-		920	-
Two Man Bucket & Mat. Handler	56	55		12.3	13.1		1,038	1,178
Auger/Derrick OH	15	17		14.8	15.3		1,216	1,282
Tankers	5	5		26.0	26.0		274	364
Forklifts	23	23		16.1	17.1		135	168
Misc. - Specific Spec Codes	178	176		18.9	19.1		312	354
Rack w/Boom - Knuckle, etc.	12	12		9.3	10.3		647	732
Weighted average				13.1	14.3		$413	$451
Total Vehicles/Annual Cost	755	741					$3.74 MM	$4.01 MM

The overall mix of vehicle and equipment types remained relatively consistent over the audit period. The average age of total inventory decreased from 14.3 years to 13.1 years, and the average monthly maintenance cost declined for nearly all categories.

Transportation Operations has a vehicle and equipment availability rate goal of 94 percent across the corporation. During the audit period, vehicle availability for O&R overall has been 98 or 99 percent.[582] The three-year average availability for the three New Jersey work-out locations—Wyckoff, Harrington Park, and West Milford—was 96 percent, and at no time did if fall below 95 percent. A vehicle is considered unavailable for the day if it is not in service at 7 a.m. due to an open work order. In most cases, user departments are not inconvenienced by the unavailability—either because a spare vehicle is provided or because the user department does not need a full complement of vehicles due to absences and vacations.

Transportation Operations participates in the Utilimarc benchmarking group, which includes approximately 50 electric and gas utilities. Members provide data that are compiled and reported annually to participants. Utilimarc also allows members to request surveys covering a wide range

[581] Response to Data Request #383. Maintenance cost excludes fuel and depreciation.
[582] Fleet availability data provided in response to Data Request #380.

of transportation subjects. Currently, the company provides only CECONY fleet data, since the data gathering effort is rather extensive.[583] As part of the corporate Business Cost Optimization process, the transportation group recently hired Accenture to examine best practices in areas such as vehicle utilization and fleet right-sizing. The issue of excess vehicles is primarily a CECONY one, and thus far the group has identified only seven O&R vehicles as potentially unnecessary. The department is also revisiting the issue of vehicle paint schemes. Best practice in the industry is to order vehicles in a single color; if a second color is used, it is added as a stripe, typically made of tape. Moving to single-color vehicles would save an estimated $200,000 to $250,000 per year across both utilities. The two-color paint scheme of O&R and CECONY vehicles is considered part of corporate branding, and therefore transportation personnel will not be able to make the final decision on this issue.[584]

C. Materials Management and Supply Chain

At the beginning of the audit period, O&R's stores and materials management functions were managed as part of the CECONY Facilities and Field Services group; purchasing services were provided by a corporate procurement group and supported locally by two utility employees. In September 2014, the CECONY Utility Shared Services group reconstituted the procurement and stores functions as the Supply Chain department.[585] CECONY's Supply Chain department has five major groups: Stores Operations, Strategic Initiatives, Strategic Procurement Initiatives, Procurement Operations, and Supplier Diversity. The organization's mission is to partner with its customers to provide high quality, innovative, cost-effective supply chain services and solutions.[586]

Stores and Materials Management

The O&R Stores department currently includes four management and fifteen union employees who report to a section manager in the CECONY Stores Operations group. During the audit period, staffing of this function remained relatively flat, with management stable at 4 FTEs and hourly employees growing slightly from 13 to 14 FTEs by 2017.[587] The Blooming Grove storeroom has an operations supervisor and three union personnel, as does Middletown. Spring Valley has an operations supervisor, a field operations planner, and nine union personnel including an administrative assistant. A smaller storeroom facility at West Nyack is staffed part time by an employee that has other assigned duties.[588] The company maintains six small unstaffed storage areas at workout locations such as Wyckoff and Harrington Park to store emergency stock and grab-and-go items, but other materials for these locations are fulfilled out of the principle storerooms.

583 The company also attends the annual Electric Utility Fleet Manager's Conference at which best practices and equipment are demonstrated and discussed.
584 Interview #36.
585 After the reorganization, there was no real change in the level of service that was provided to O&R; O&R still has one union procurement support employee.
586 Interview #37.
587 Response to Data Request #241.
588 West Nyack receives no direct deliveries except for poles; all other materials are stocked out of Spring Valley.

During the audit period, annual issuances from O&R's storerooms ranged between $20.5 million and $23.3 million.[589] The O&R Stores department has an O&M clearing budget of $4.5 million, which includes labor, freight, and the cost of minor items such as nuts and bolts. The organization has a small capital budget of approximately $26,000, which is used for items such as racking.[590] Current inventory in all O&R storerooms is approximately $18.9 million, which does not include station transformers.[591]

Storeroom hours at principle locations are 7 a.m. to 4:30 p.m., and personnel work staggered shifts to provide coverage during these hours. Morning start times for gas operations, electric operations, and engineering crews are staggered to help avoid long wait times. The storeroom assembles kits in advance for larger jobs as ordered by operations; otherwise, materials are loaded at the beginning of the shift consistent with approved materials requisition forms.[592] Contractors pick up material for their jobs after 10 a.m. so the dispatch of O&R crews is not delayed. Crew waiting time has not been an issue—only 883 man-hours in total were attributed to waiting for materials in WMS during the entire four year audit period.[593]

In the storeroom building, material is stored on pallet racks by item class and stock number. Tools, batteries, gloves, safety equipment, and similar items are kept in a secured area with a counter; access is restricted to Stores employees and escorted operations personnel. Next to the counter area is a grab-and-go area stocked with high volume, low cost materials (i.e., less than $25) such as nuts, bolts, and pipe fittings. Stock is rotated on a first in first out basis. Material returned by crews is inspected by storeroom personnel and returned to stock if acceptable and scrapped if it is not. The Spring Valley storeroom has an ARC program that hires the disabled to process certain scrap such as street lights, electric meters, and paper from the payment processing center; the program has been cost effective.

Outside in the yard, Stores maintains separate areas for pole storage, for large outdoor material (e.g. pad mount and pole top transformers), for scrap and hazmat material, for after-hours emergency material for crews to access, and for materials put aside as storm stock.[594] During major storm restorations, materials are delivered to predetermined staging sites, and storeroom personnel are responsible for managing the laydown areas; during smaller events, crews are supplied out of storeroom locations. The quantity and type of storm stock maintained at each storeroom location is determined collaboratively by stores and operations personnel; in general, storm stock is scaled for a Hurricane Sandy-sized event and is designed to last for approximately five days.[595]

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[589] Response to Data Request #388.
[590] The cost of any major improvements to storeroom buildings is part of the Facilities department capital budget.
[591] Interview #37.
[592] Pole vendors can drop poles at job site locations, but it is unusual for Stores to deliver materials to a job site.
[593] Interview #37.
[594] Scrap and hazmat material are removed by approved vendors. Transformers removed in the field are brought back to the yard to be scrapped; those leaking PCBs are stored in a separate hazmat building on site.
[595] Supply Chain has also added stocking requirements to agreements with pole vendors requiring them to have one order of poles available nearby so that utilities can get speedy replenishment if needed during major restorations.

Stores personnel are responsible for receiving and inspecting shipments of new materials and rejecting any that do not conform to order specifications. Material specifications and standards are developed and revised by personnel in the electric and gas engineering groups; the safety group is responsible for developing specifications for equipment in its own area. Standards engineers work directly with suppliers, and may inspect certain materials such as cable, coated pipe, and concrete products at vendor manufacturing plants.

O&R typically carries a ten business day inventory based on usage and lead time. Minimum and maximum inventory levels for each item are set by the field operations planner based on a three year average. Stores and operations personnel hold routine materials requirement planning meetings to identify any upcoming needs and to adjust minimum and maximum inventory levels. The company uses an Oracle materials management system to track inventory. Over 90 percent of inventory items, generally the lower cost/higher volume type, are subject to automatic reordering when minimum inventory levels are reached. The Oracle system interfaces with WMS to generate material pick lists for upcoming jobs that are sent to the Stores group for fulfilment, and storeroom personnel can view upcoming material reservations that could affect normal reorder points. The materials management system also interfaces with vendor websites so that storeroom supervisory personnel can directly order certain items from pre-approved catalogs that were set up on the company's behalf. All storeroom and yard material is inventoried on a rotating basis once a year. Each day the Oracle system provides a list of items to be inventoried; storeroom personnel enter a blind count for each item and the system reconciles the manual count with the system count. Discrepancies greater than 25 percent in number or $100 in value are flagged and must be investigated and resolved.[596]

O&R uses Oracle BI to generate management reports through a dashboard. Weekly reports provide information such as current, maximum, and minimum inventory levels by category at all four primary warehouse locations. Managers can assess levels in each storeroom and if necessary move material from one location to another to minimize overstocking. The Stores group does not utilize the system's standard reports on stock outs or inventory turnover. Stock outs have reportedly not been an issue because minimum inventory levels are designed to avoid them.[597] The O&R Stores department does not have its own performance metrics, nor does the company benchmark its materials management performance using standard measures such as inventory turnover. Stores personnel do however monitor industry practices and have visited other utilities to observe operations, processes, and procedures for the purpose of making improvements to their operations. For example, the company is currently exploring the use of vending machines for certain stock items.

Supply Chain

Two groups in the Supply Chain department—Strategic Procurement Initiatives and Procurement Operations—administer approximately $2.6 billion in material and services contracts each year.[598] The Strategic Procurement Initiatives group focuses on procurement of larger, more strategic services and materials (e.g., cable and transformers) that constitute approximately 75

[596] Interview #37.
[597] Interview #37.
[598] Interview #54. Supply Chain does not handle power or commodity purchases or procurement of legal services.

percent of the total company spending handled by Supply Chain. The Procurement Operations group manages all other procurements such as facility or flagging services.

Supply Chain has several dozen comprehensive purchasing policies and procedures covering topics such as bid evaluations and negotiations, supplier qualifications, contractor and supplier performance, and corporate procurement cards. Supply Chain Operating Procedure 301, for example, provides guidelines regarding the use of competitive, non-competitive, and sole source procurements.[599] The company prefers to have a primary and a secondary supplier for essential items in order to mitigate risk; low risk and low priced items are typically supplied through a single contract with one vendor. Most major contracts have a term of three years, and it is common practice for Supply Chain to aggregate demand and leverage spending for services and materials that are common across both CECONY and O&R.[600]

The supply chain function was a focus area in the recent New York management audit of O&R and CECONY. The audit report was critical of the company's over-reliance on non-competitive and sole source procurements, as well as its tendency to utilize contract extensions that exacerbated the problem. The auditors based their conclusions in large part on an analysis of material and service contract data that indicated competitive procurement levels in 2015 were significantly lower than in recent years (i.e., 62 percent versus 86 percent). According to the company, results for 2015 appeared drastically different from preceding years only because different data parameters were used to measure competitive levels (i.e., executed contract full-term value versus actual contract spend).[601]

The New York audit report recommended the company conduct a benchmarking study of large utility purchasing functions to establish best in class performance and to set targets for future performance goals.[602] Supply Chain subsequently surveyed a group of similarly-sized utility companies in five areas: definitions of competitive, non-competitive, and sole source spending; contract approval levels; competitive bidding requirements; contract extensions; and performance metrics. Consistent with the findings of that survey and other recommendations from the audit, Supply Chain modified its operating procedures to add more clarity and rigor to the requirements to support non-competitive or sole source procurements. It also implemented a policy to limit contract extensions to six months; beyond that point, user departments must supply formal documentation to justify further extension, and higher approval levels are needed. The company also added enhancement to the Oracle system to better classify spending type and improve performance reporting.[603]

[599] In sole source procurements, there are truly no other sources (e.g., patent protected items); non-competitive procurements refer to business decisions to forego competitive procurement for a specific reason such as continuity.
[600] Interview #54. Operating procedures provided in response to Data Request #387.
[601] Interview #54 and response to Data Request #389. The company provided supplemental analysis to the auditors to demonstrate that competitive procurement levels in 2015 were about the same as in recent prior years.
[602] The implementation plan for this recommendation was completed in June 2017; see CECONY and O&R Audit Implementation Plan Update, October 13, 2017, New York State Public Service Commission Case No. 14-M-0001, pp. 31-38.
[603] Based on our discussions with the company, the issues identified in the New York audit report do not appear to be related to non-adherence to procedures.

The New York auditors also recommended adoption of a competitive procurement KPI, and the company subsequently established a competitive spending level goal of 90 percent. Supply Chain achieved a level of 86 percent in May 2016 and since then the level has ranged from 85 percent to 91 percent. Supply Chain has become more proactive in working with user departments to eliminate or mitigate non-competitive and sole source contracts.[604]

Supply Chain benchmarking efforts continue. The recently-formed Strategic Initiatives group focuses on best practices as well as identifying opportunities for savings and process improvements. The group is, for example, currently working with Accenture to investigate the possibility of just-in-time material delivery. The company is also working with Accenture to implement category management, which is a strategic approach that organizes procurement resources to focus on specific areas of spending. The Supply Chain group will be reorganized within the next year to reflect this focus. Instead of working on contracts based on schedules and on contract-by-contract negotiations, Supply Chain will focus on like or associated spending in order to identify opportunities for savings over the life of the contract. The department will focus its high performers in more strategic roles and utilize other employees to focus on the day-to-day aspects of managing contracts (e.g., price adjustments). Because its efforts in this area are well underway, other utilities have contacted CECONY for advice on moving to category management.[605]

D. Facilities Management

The Facilities and Services department is responsible for building O&M, planning and project management, as well as engineering and architectural services at O&R's office buildings, service centers and other properties. An administrative services group manages O&R's print shop, mail room, and records retention services.[606] The organization also includes the protective equipment testing group, which performs rubber goods testing for O&R and CECONY. The department currently has a staff of fifteen management and twenty-five union personnel, all O&R employees. During the audit period, staffing was relatively flat, with management growing slightly from 14.5 to 16 FTEs; union employees grew from 25 to 27 FTEs during the audit period, all due to growth in the protective equipment testing area.[607] The Director of Facilities and Services reports administratively to the CECONY Vice President of Facilities and Field Services, but meets regularly with O&R management to discuss current projects and other operational issues.

The department manages fourteen facilities, listed in the following table, including the major operations centers in Spring Valley, Middletown, West Nyack and Blooming Grove. All facilities are owned by O&R except for three rental locations: the headquarters office space in

[604] Interview #54 and response to Data Request #389.
[605] Interview #54.
[606] The company processes over 300,000 pieces of mail per year, and produces corporate reprographic work for both O&R and CECONY. The records management function is discussed later in this chapter in Section J.
[607] Response to Data Request #241.

Blue Hill Plaza and the commercial space in Mahwah and Port Jervis for customer business offices.[608]

Exhibit XIII-5
Locations Managed by Facilities Services

Major operations centers	Blooming Grove, Spring Valley, Middletown, West Nyack
Headquarters	Blue Hill
Business offices	Mahwah, Port Jervis
Training centers	Goshen, Elk Lodge
Small operations facilities and crew barns	Harrington Park, Mount Ivy, Port Jervis, West Milford, Wyckoff

Facilities and Services handles approximately 5,000 work requests each year that are tracked in Mainsaver, O&R's facilities work order software system.[609] The department's standard is completion of routine work requests within five days. Certain services such as fire system maintenance, custodial services, and snow plowing at smaller facilities are performed by outside contractors. The Facilities group is also responsible for managing the grass cutting outside O&R substations, which is done by contractors. CECONY Supply Chain has established blanket agreements with certain vendors for facilities-related services, although O&R has latitude in its choice of vendors and does not necessarily use the same ones as CECONY in all cases. Departmental personnel complete routine contractor performance evaluations as required by Supply Chain. Such evaluations are particularly important for custodian contractors, which can sometimes have problems with retaining qualified employees that can meet quality standards.[610]

The yearly O&M budget for the Facilities and Services department as a whole is approximately $3.0 million per year, including the cost of the print shop, mail room, and records management services. Actual spending was relatively flat during the audit period, and includes roughly $300,000 in forestry costs at O&R's Elk Lodge conference center and $0.5 million for protective equipment testing.[611] Approximately $4 million per year in facilities maintenance costs, which includes the cost of many of the group's personnel as well as outside contractors, is charged to clearing accounts that are in turn charged out to O&R departments through a facilities overhead loader. The department has a capital budget of approximately $4-5 million per year, and its projects compete with others in the O&R capital optimization process.

The O&R Facilities and Services department supports the CECONY Facilities and Field Services group business plan goals and O&R KPIs, and tracks its own performance statistics such as on-time completion of work requests and mail items handled. Over the next few years, the department plans to review the operations of the protective equipment testing area and establish a new O&R training facility.

[608] Response to Data Request #339.
[609] CECONY uses a different system, a module in Maximo, for tracking its facilities work requests.
[610] Interview #38.
[611] Response to Data Request #65.

E. Security Management

The O&R Security section operates independently, but receives significant direction and support from CECONY. It shares the same policies and the same mission—Deter, Detect, Prevent, and Respond. The responsibilities of corporate security are detailed in written policy statements, and various operating procedures and instructions provide further guidance on topics such as reporting threats to company facilities and responding to a serious workplace violence event.[612] O&R Security is led by a section manager who reports administratively to the CECONY Corporate Security department within Utility Shared Services. He meets monthly with O&R's President and informally with other senior managers. The section also includes a manager and three project specialists, one of whom is responsible for administrative functions such as budgeting, planning, and badging; there is currently one unfilled vacancy. The manager of Security Services is responsible for leading investigations, overseeing all contractors, acting as liaison with law enforcement, and managing day-to-day activities. During the audit period, staffing of the section ranged from five to six FTEs, and annual O&M costs ranged from $600,000 to $700,000.[613]

The O&R Security section is on call around the clock in case of emergency, and conducts approximately twenty investigations per year. Investigator positions in Corporate Security require a minimum of twenty years of law enforcement experience at a position of at least detective second grade (i.e., sergeant). All members of the O&R team except the administrative specialist are qualified. The section manager, for example, was a captain in the White Plains Police Department, and the manager was formerly with the New York Police Department (NYPD) Joint Terrorism Task Force (JTTF).[614] Security personnel use EthicsPoint, an incident management system, for tracking investigations; the system is also utilized by legal and labor departments for business ethics, workers' compensation, and similar investigations. The O&R security team has very good informal contacts with local police departments, and to date the level of cooperation during investigations has been sufficient.[615]

There are two security tiers at O&R and CECONY facilities: Tier One or Tier Two. Tier One facilities are defined as vital to sustaining energy production, delivery, or business viability, the loss of which would have a debilitating impact to the company and/or the community. A debilitating impact is defined by the company as one in which restoration is expected to exceed six days. Tier Two facilities are defined as essential, rather than vital, and their loss would have a significant, rather than debilitating, impact. O&R uses a centralized video management system, and additional countermeasures such as intrusion detection systems are standard for Tier One facilities. There are approximately 650 cameras in the field at substations, gas gates, and other important facilities, and O&R uses infra-red motion detection sensors and camera analytics at many of them. O&R security personnel perform routine, thorough security audits and site vulnerability assessments. The team's eight page site vulnerability assessment survey, for

[612] Interview #39. A specific corporate policy is discussed in the Confidential Appendix.
[613] Responses to Data Requests #65 and #241.
[614] Additional information contained in the Confidential Appendix.
[615] Interview #39.

example, is quite extensive, and covers all facets of physical security including those specific to Tier One facilities.[616]

Both O&R and CECONY use a Pro-Watch card access system that has a front end system for managing access to specific entry points, including granting temporary access to a facility. O&R employs roughly 30 guards from Allied Barton, the current security contractor. All fixed guard positions are in New York, there are none in New Jersey. There are two gate guards at Blooming Grove and one at Middletown, but these are not staffed around the clock. At Spring Valley, there are two guards at the gates, and in the security operations center, two contractors, one a supervisor, monitor camera feeds and alarms on a 24-hour basis. O&R deploys two guards on roving car patrols throughout the New Jersey and New York portions of its territory. In addition to contractor security guards, the company also uses outside vendors for installing and maintaining security cameras and other equipment and for fencing. O&R Security personnel complete performance reviews on these vendors in the Contractor Oversight System as required by Supply Chain.[617]

The company follows security best practices issued by the BPU and the New York PSC.[618] For example, the BPU's four-page guideline, "New Jersey Security Preparedness Task Force, Information Advisory Committee, Energy Sector Best Practices," focuses on bulk power transmission, and lists issues, risk exposures, and best practices in areas such as perimeter security and threat assessment. The BPU's security personnel visit four O&R sites per year, and O&R security and emergency preparedness personnel participate in monthly calls with the New Jersey Domestic Security Preparedness Task Force.[619]

The day before Silverpoint's interview, security personnel conducted a hostile intruder/armed shooter drill at O&R's Middletown facility. The purpose of the drill and associated training is to help employees learn how to react in these situations (e.g., Avoid/Barricade/Confront), as well as how to recognize indicators of potential violence by a fellow employee. CECONY began performing these drills in 2015, and O&R conducted its first one at Spring Valley in 2016. Local police forces are involved in the drills, which are designed to be as realistic as possible, including real weapons with noise-making rounds. CEI is among the early adopters of such training programs, and other utilities such as PSEG and National Grid have reached out to CECONY to learn more about how it conducts such drills.[620]

The O&R Security team measures its performance with metrics such as the percentage of investigations completed within 21 days and the number of liaisons with local law enforcement. The group met its targets each year of the audit period; targeted and actual performance during 2017 is summarized in the next table.[621]

[616] O&R Corporate Security Audit Worksheet and Corporate Security Department Site Vulnerability Assessment Survey Form provided in response to Data Request #340.
[617] Interview #39.
[618] Interview #39. The company indicated that the requirements for both states are similar.
[619] The task force was created by the New Jersey Domestic Security Preparedness Act, October, 4, 2001.
[620] Interview #39.
[621] Response to Data Request #340.

Exhibit XIII-6
O&R Security Performance Metrics – 2017

	Target	Actual
Annual security awareness meetings	10	21
Annual vulnerability site assessments	20	20
Annual security audits	36	36
Investigations completed within 21 days	85%	88%
Annual law enforcement liaisons	35	37
Conduct of security exercises	1	1

Both O&R and CECONY have a corporate level KPI for physical security. The O&R KPI is zero intrusions, which is defined as no intrusions of critical areas at critical locations such as the control room floor of the ECC. Unauthorized intrusions exclude those resulting from corporate audits or security intrusion tests, as are NERC Find Fix Track and Report (FFT) issues.[622]

F. Safety

The O&R Environmental Health and Safety department has fifteen employees. Staffing remained steady at fifteen FTEs during the audit period, and annual O&M expenses for the group's personnel were in the $2.1-2.3 million range.[623] The director of EH&S reports to the President of O&R. The department consists of four groups: Quality Assurance and Compliance, Safety, Environmental Services, and Remediation. The Quality Assurance and Compliance group has two employees and performs independent reviews of projects and programs including O&R crews, examines compliance with project specifications, facilitates operational self-assessments, and examines issues such as stray voltage. Remediation has one person who manages remediation project work at the company's seven former manufactured gas plant sites. Environmental Services has six employees and focuses on areas such as construction permitting, greenhouse gas reporting, and hazardous waste; the group is also responsible for emergency response, spill standby, and related policies and procedures.[624]

The Safety group has five employees who are responsible for the Safety Management Systems utilized by employees and for performing contractor EH&S reviews. The group also facilitates various safety-related initiatives and activities, as well as quarterly fire and evacuation drills; during emergencies the group performs safety briefings and wellness checks for mutual aid crews. Safety personnel also perform job site safety observations of O&R employees, and record both contractor and employee reviews in the Supply Chain Contractor Oversight System; contractor negligence issues automatically trigger an action item. Targets for annual employee

[622] Response to Data Request #368. As part of our review of this area, Silverpoint reviewed Internal Audit reports on physical facility security. Confidential review of Internal Audit reports conducted as Interview #34.
[623] Responses to Data Requests #65 and #241.
[624] Interview #41.

and contractor field safety inspections are included in O&R's KPIs, and the group has consistently surpassed its goals.[625]

O&R's EH&S Director shares safety-related information at the monthly Corporate Policy Committee (CPC) meetings, and meets with union leadership every other month. When a safety-related recommendation is approved by the CPC, an executive sponsor and implementation schedule are assigned, and follow-up is monitored by EH&S using an action tracking system.[626] The director also holds a bi-monthly meeting with the Corporate Safety Committee, which includes O&R senior management, the president of Local 503, and union safety representatives. These are content-rich meetings, typically accompanied by extensive slide presentations that cover a wide range of topics including an O&R Safety Team report and an update on current statistics; meetings include a detailed discussion of topics such as regulatory updates, contractor issues, and field observations.[627] The O&R Safety Team is composed of both management and union employees, with EH&S serving as facilitator, and is guided by a formal team charter.[628] O&R also has thirteen smaller internal safety teams organized around common processes or functions such as meter reading.

While the O&R safety department operates independently from that of CECONY, they do share one overarching corporate EH&S policy. Corporate programs are implemented through local policy. These policies drive EH&S programs and initiatives, some of which are specific to O&R and others that are more corporate wide. O&R has its own formal EH&S policy statement that, among other things, identifies responsibilities for implementing the corporate EH&S policy. O&R has safety guidelines for subjects such as injury investigations and facility inspections, and has its own company safety manual.

O&R has a number of illness and injury reduction initiatives, including analysis of "close calls," i.e., accidents without an injury. EH&S keeps track of close calls in an information system. Any employee can input an incident into the system, and there is follow up on each item, with an emphasis on determining root cause in order to prevent similar occurrences in the future. O&R also has initiatives to emphasize reduction in motor vehicle collisions. The company's Human Performance Initiative focuses on accident prevention, with tools such as a self-checking "STAR" review (i.e., Stop, Think, Act, and Review).

O&R requires ten annual refresher training courses for its employees, available on-line, in subjects such as first responder awareness and hazardous materials. In addition to frequent training on safe work practices, there is a steady stream of safety-related communications within O&R. For example, after an injury has been reported, a Safety Alert injury report is provided to

[625] Interview #41 and response to Data Request #335. In 2017, for example, the goal was to complete 800 safety observations of contractors and 2,000 observations of employees.
[626] A sample summary report from the action tracking system provided in response to Data Request #336 shows considerable detail including responsible person and department, original and actual completion dates, and description of completion activities.
[627] Response to Data Request #335. For example, the August 2018 safety meeting was scheduled to last two hours; minutes from the meeting were more than five pages long and there were more than fifty presentation slides.
[628] Safety team charter provided in response to Data Request #337.

supervisors to share with their crews. Safety personnel meet with all contractors on a monthly basis, sometimes with both gas and electric contractors together, where they review information on incidents and share feedback on performance. O&R and CECONY also routinely share information such as lessons learned, and include each other's personnel in distribution lists.[629]

In advance of the interview, Silverpoint asked O&R to prepare examples of three recent field incidents in order to assess how the company processed and responded to actual events. EH&S personnel walked through one motor vehicle and two injury incidents, and reviewed the company's standard protocols for responding to and investigating reportable incidents. O&R confirmed that the standard procedure for field incidents is for the supervisor to be notified and the employee to stay in place; often the supervisor is also the one to respond in person, although at times another employee in the immediate vicinity may be dispatched to provide assistance. We found that the incident reports for these events were complete and included a clear description of the event, root cause, preventative measures, and recommendations; Safety Alert injury reports were also issued on the two injuries.[630]

The company uses benchmarking information from sources such as the AGA and EEI in designing KPIs and associated targets. Current safety metrics include employee Occupational Safety and Health Administration (OSHA) incidence rate, motor vehicle collisions, and operating errors; the following table summarizes O&R's recent performance in these areas.[631]

Exhibit XIII-7
O&R Safety-related Performance

	Employee OSHA Incidence Rate		**Motor Vehicle Collisions**		**Operating Errors**	
Year	**Target**	**Actual**	**Target**	**Actual**	**Target**	**Actual**
2011	4.42	2.88	40	42	26	13
2012	3.53	2.19	40	32	20	11
2013	3.00	2.01	40	26	17	11
2014	2.50	1.26	36	28	15	6
2015	2.00	2.42	49	52	9	8
2016	1.75	1.63	46	33	9	14
2017	1.50	1.93	44	41	30	10
2018 YTD*	1.25	0.64	40	42	28	2

*As of September 11, 2018

OSHA incidence rate in particular has declined steadily in recent years, reflecting the continued emphasis of senior management in this area.[632] While O&R and CECONY have achieved second

[629] Interview #41.
[630] Interview #41 and response to Data Request #338.
[631] Performance data provided in response to Data Request #335.
[632] OSHA incidence rate is calculated by multiplying the number of recordable cases by 200,000 (the average total work hours per year per 100 employees), and then dividing by the total number of employee labor hours worked.

quartile performance, the company's ultimate goal is first quartile—a rate of 1.0.[633] During the same 2011 to 2018 period, the company's KPI target for high hazard injury has been zero; there was one such incident in 2017.[634]

O&R and CECONY are still in the third or fourth quartile for motor vehicle collisions. For 2011 to 2014, the metric measured "preventable" motor vehicle collisions, which was changed in 2015 to "recordable" accidents (i.e., all collisions except for being rear-ended, animal collision, etc.). Approximately twenty percent of preventable accidents are occurring in the company's own lots, which is an obvious area of concern and focus. O&R's goal is 35 by 2020, which would be second quartile performance.[635]

Operating error is generally defined as anything that causes an outage, property damage, or injury. In 2015, the company revised this measure to include incidents that are the result of mapping errors or miscalculations; targets were later adjusted to reflect this more expansive definition. At O&R, each operating error, whether preventable or non-preventable, is investigated, and a corrective action is identified, assigned, and tracked. Preventable incidents can be accompanied by disciplinary action, a practice the union has accepted.[636]

Observational Field Visits

The Silverpoint engineering team spent two days in the field to assess the overall condition of O&R's New Jersey facilities, and to evaluate and observe the effectiveness of operations, maintenance, and vegetation management practices.[637] During that time, the team visited four New Jersey substations—South Mahwah, Summit Avenue, Montvale, and Harings Corner. Although it was not the focus of our review, we nonetheless noted some EH&S concerns at the three older substations. The most serious was at the 69kV yard at South Mahwah—at the first breaker cabinet the company opened for us, the heavy door fell off and narrowly missed seriously injuring the people there.[638] Other observations include the following:

- At Montvale, a sign at the front gate indicates that some areas may not meet OSHA minimum approach distance; there were signs at the breakers, and one breaker had a visual barrier chain around it to identify the area of concern, but the other did not[639]
- At South Mahwah, a sign at the front gate indicates that some areas may not meet OSHA minimum approach distance; there were no signs or warning chains

[633] Interview #41. The company also tracked contractor OSHA incident rates from 2013 to 2016 and did see a significant improvement during that time, but has since discontinued using it as a KPI.

[634] A high hazard injury is one that arises from electrical or gas systems including electrical shocks, burns, exposure to asphyxiants, equipment/material impacts, or falls from heights greater than four feet, and requires hospitalization for medical treatment exclusive of observation/diagnostic procedures (Response to Data Request #370).

[635] Interview #41. The goal translates to 225,000 miles between collisions.

[636] Interview #41.

[637] Operational field visits conducted as Interview #31.

[638] We suggest that all breakers of this vintage be inspected for rusted or weak hinges; a safety chain could be added to the top of the breaker door so that if the hinge breaks the chain would prevent it from falling on top of someone.

[639] The 69 kV breakers are not high enough off the ground, so the bottoms of the 69 kV bushings are below the OSHA limit for minimum approach to energized equipment. The company could consider fixing this by raising the breakers as an interim solution and ultimately replacing the breakers as necessary based on asset condition.

- At the South Mahwah 345/138/69/13.2 kV substation, there were multiple potential trip hazards throughout the yard, including old foundations that were sticking up, equipment located in the yard as spare equipment, and some mounding of crushed stone
- At the South Mahwah 69kV yard, there was no oil containment under the older 69/13 kV transformer or around the old oil-filled 69kV breakers[640]
- Inside the 69kV control house at South Mahwah and the control house at Harings Corner, panels had protection relay equipment that was out of service but not marked as such
- At Harings Corner, general housekeeping could be improved; for example old equipment such as busbars and sections of old bus duct are stored in the yard as spare parts, and piles of crushed stone remained along the inside perimeter of the yard, ostensibly from snow plowing.

Our objective in raising these issues is primarily to underscore the benefit of having a fresh set of eyes involved in safety assessments. In that context, we consider the Internal Audit department's unannounced EH&S audit program to be an industry best practice. We understand that the company plans to continue this program and we are therefore making no further recommendations in this regard.[641]

G. Legal

The CECONY Law department serves the entire corporate family, and its stated mission is to partner with client organizations and anticipate their needs in order to provide high-quality, cost-effective legal services. At the time of our audit, the department has 84 lawyers and 131 support staff, including administrative support, collection and claims personnel, investigators, and paralegals. The head of the department, the Senior Vice President and General Counsel, reports directly to President and CEO of CEI. CECONY maintains a relatively large legal department in order to reduce its dependence on outside counsel. While it still relies on outside firms for specialized needs such as patent law, the company continues to bring other types of legal expertise in house; for example, the department has recently hired former FERC attorneys. [642]

In addition to the Office of the Corporate Secretary, the department has five groups: Legal Services; Environmental; Regulatory Services; Business Ethics and Compliance; and Commercial Transactions, Corporate and Finance. The largest group is Legal Services, which includes a general litigation and investigations team that handles utility-related tort issues; the group also supports labor and employment, benefits, and workers' compensation matters. The Commercial Transactions, Corporate, and Finance group handles real estate and other commercial transactions, including vendor relationships. The Business Ethics and Compliance

[640] During its review of the draft report, the company noted that the Spill Prevention, Control, and Countermeasure (SPCC) plan states that the substation perimeter has a berm, which is a preventative containment system for oil release in the event of a catastrophic spill. Silverpoint has not verified this information.
[641] As part of our review of this area, Silverpoint reviewed Internal Audit reports on EH&S compliance audits. Confidential review of Internal Audit reports conducted as Interviews #30 and #34.
[642] Interview #44 and response to Data Request #352.

group addresses potential internal improper or illegal activity, and is involved in employee outreach and education efforts; the group also provides support for the company's SOX compliance efforts and the CEO certification process required in New York.[643] The focus of the Regulatory Services and Environmental groups is self-explanatory.

The Regulatory Services group utilizes its own attorneys for RECO rate cases and other proceedings before the BPU. The company regularly hires James Meyer, Esq., a partner at the New Jersey firm of Riker Danzig Scherer Lyland & Perretti LLP (Riker Danzig), to act as local outside counsel for these proceedings, a relationship that extends more than twenty years. The legal team is very satisfied with this working relationship, given Mr. Meyer's strong institutional knowledge and reasonable hourly rates. To contain costs, the Regulatory Group does not utilize any of the firm's associates. Personal injury and property damage litigation for RECO are handled by the Law Offices of John E. Bruder, and monitored by the legal department. Currently RECO is involved in one outstanding injury case. Other than workers' compensation or auto-related claims, there were no other claims against O&R or RECO during the audit period.[644] Insurance claims are investigated and managed by the department's own investigators, however the company uses Liberty Mutual to process and litigate workers' compensation claims.[645]

The legal department utilizes its own competitive procurement process, as Supply Chain cannot provide the expertise required to select or evaluate appropriate legal services providers, outside counsel, and consultants.[646] The department has refined the process for retaining and paying for outside counsel services by using standard retainer agreements and electronic billing. Along those same lines, CECONY legal personnel recently took the lead in formalizing agreements among transmission-owning utilities regarding the outside law firms used by the group to represent them in various matters. The company is also working to assure that firms providing legal services meet company cybersecurity and PII standards.

The Law department uses the Case Works System, which manages and retains documents electronically and has helped improve the department's transition to paperless. The system is utilized across the corporation, and is used by O&R and CECONY to manage regulatory filings. The legal department also utilizes Law Manager, a legal matter management system. As with other departments, experienced legal people are retiring; the company is taking steps to preserve that institutional knowledge, such as through the use of shared digitized documents. There has also been a recent push to have lawyers spend more time on high value work and less time on tasks such as editing white papers in support of capital projects.[647]

[643] During its review of the draft report, the company noted that this group was moved to the Law Department in 2012 as part of a corporate re-structuring, and that it provides a helpline and reporting mechanism for financial control issues. Silverpoint has not verified this information.
[644] Interview #33 and response to Data Request #363.
[645] Interview #44.
[646] Interview #44 and response to Data Request #361. The legal department routinely evaluates outside counsel and consultants used in ongoing legal matters, albeit not using the Supply Chain Contractor Oversight System.
[647] Interview #44.

All CEI subsidiaries including O&R and RECO are directly charged for work performed by outside counsel. Generally, legal department employees track their time by matter number for CET and CEB only so that the subsidiaries can be directly charged. Otherwise, legal employee costs are generally allocated unless there is a specific requirement for an attorney to track legal fees.[648] The legal department complies with affiliate standard rules to assure the company meets regulatory standards for separation of regulated and unregulated activities. Silverpoint specifically inquired about the amount of legal resources being devoted to New York REV-related matters. The legal group acknowledged that the workload is significant—currently three or four attorneys devote a significant portion of their time to supporting REV efforts—but the company believes that New Jersey also benefits from some of these initiatives, such as AMI.[649]

The company has done some informal benchmarking through EEI and AGA, but has not found it helpful, as it has been difficult to find benchmarking that appropriately captures both internal and external legal expenses. While corporate KPIs in general have shifted toward more outcome-related measures, this has proven more difficult for support functions like legal. The departmental KPIs for the Law department are activity or input-oriented (e.g., number of training or outreach sessions), rather than being focused on outputs. Examples of KPI measures in place during the audit period include the following:[650]

- Completing presentations on cybersecurity legal issues to client organizations
- Identifying process improvements for rate case filings
- Participating in cross-functional teams addressing business issues within the organization
- Reviewing and rehearsing cyber-attack scenarios
- Implementing a Law Department of the Future matrix to share ideas, best practices, and lessons learned at departmental staff meetings.

H. Real Estate and Land Management

The Real Estate department has a total of nine employees. The group's director reports to the Vice President of Facilities and Field Services, who in turn reports to the Senior Vice President of Utility Shared Services.[651] The core responsibilities of the Real Estate group are to acquire property to meet company needs (e.g., for possible future substations), to generate revenue through sale or lease of surplus property, and to manage the existing real property leasing portfolio. The types of non-ownership property agreements that the group manages include leases, licenses and easements, both exclusive and non-exclusive. Properties are owned by individual subsidiaries, and there are corporate procedures in place to define the responsibilities for owners, including custodial duties such as maintenance, security, and snow plowing.

[648] Response to Data Request #362. Departmental employees receive a quarterly reminder about appropriately charging their time to non-regulated subsidiaries.
[649] Interview #44.
[650] Response to Data Request #352. The Law department used to survey clients about their satisfaction, but stopped that practice in 2014—the company had so many surveys that they had become meaningless.
[651] The Real Estate department was moved from Treasury to Facilities and Field Services in 2015.

The company has a distinct process for addressing new facility and property requirements, and Real Estate makes the buy-versus-lease decision based on practical considerations, including whether the need is short or long term. Real Estate first considers the corporation's currently owned but underutilized properties; if none are available or appropriate, the group typically works with a broker to identify potential properties that meet the need. In the case of a future substation site, utility personnel are responsible for analyzing the relative cost of each potential option, taking into account, for example, the incremental cost to move lines that would be required for one site but not another. After obtaining a professional appraisal of the selected property, Real Estate approaches the owner or works through a broker to negotiate a sale. Company policy is to not pay more than the appraised value, while recognizing that appraisals can vary by 10-15 percent.[652]

The Real Estate group facilitated the purchase of property that was used for O&R's new Summit Avenue substation. As part of the agreement to secure the property, the company had to agree to dedicate 2.5 acres of the site purchased for the new substation to Montvale, New Jersey as a quid pro quo for securing permits to build. During the audit period, the Real Estate group added more floor space to the lease at O&R's headquarters in Blue Hill Plaza. It also acquired on O&R's behalf additional properties for future needs in Blooming Grove and Wurtsboro, New York, as well as a property easement from the Ringwood Water Company in New Jersey.[653] The book value of O&R's land held for future use totals $9.2 million, of which $0.2 million is in New Jersey.[654]

The Real Estate department is responsible for generating revenue through the sale of surplus company property, and this process is documented in a corporate procedure.[655] When a subsidiary determines that it no longer needs a property, the location is first reviewed by corporate EH&S to determine whether there are any potential issues. Once cleared for sale by the legal department, the company obtains a real estate appraisal and conducts an auction to sell the property at fair market value. Net proceeds on utility property are returned to ratepayers. During the audit period, the Real Estate group sold O&R property at the old Ramsey and Warwick Substations in New Jersey and New York, respectively.[656] Where appropriate, the Real Estate department will generate additional revenue by leasing surplus company property. CECONY, for example, currently rents out space on the ground floor of its headquarters at 4 Irving Place to two tenants, a bank and a sports club; O&R currently has 98 leases or licenses as landlord.[657]

Silverpoint specifically inquired about the marketability of O&R's Sullivan County property, Elk Lodge. The facility is equipped with a kitchen, central meeting room, and relatively basic accommodations, and is currently used for meetings and off-site training. The property is

[652] Interview #46.
[653] Interview #46 and response to Data Request #350.
[654] Response to Data Request #351.
[655] Corporate Procedure 210-3, Disposition of Real Property Interests. List of applicable corporate instructions and procedures provided in response to Data Request #350. CECONY is currently considering the sale of valuable waterfront property in Brooklyn.
[656] Response to Data Request #350.
[657] Interview #46 and response to Data Request #350.

surrounded by a thousand acres of woodlands, and forestry costs have been approximately $300,000 per year. Given the cost of upkeep and relatively infrequent use of the facilities, the property would ordinarily be a candidate for divestiture. The company cannot sell this property outright, however, but would have to sell it back to the State for $1.[658] In that context, continuing to maintain the property appears reasonable.

The Real Estate group is responsible for managing company leases, whether as tenant or landlord. O&R is currently a tenant on 218 licenses or leases, the majority of these being associated with third-party providers of wireless communications.[659] Real Estate processes rent payments and associated fees for properties leased by the company. It works with accounting, property tax, and other departments to ensure that the company's tenants are properly billed for rent and other payments, and department personnel are responsible for inspecting properties to ensure tenant compliance with lease obligations.[660] Real Estate maintains records on transmission and substation-related easements in a spreadsheet data base, but does not actively manage distribution easements.[661]

In addition to sharing in the common KPIs for the Facilities and Field Services department, Real Estate has its own performance targets for measures such as number of annual property inspections to ensure tenant compliance and updates to operating leases in which O&R and CECONY are the tenant. The group also has a defined deliverable KPI objective for 2018—to develop a Real Estate Rate Card that will be used to evaluate how efficiently various groups and departments throughout the corporation are utilizing their space.

I. Insurance

The CECONY Insurance department is responsible for placing all commercial insurance for CEI and its subsidiaries, including O&R and RECO. Insurance is part of the Treasury department within the CECONY Finance organization, and the department's mission is to obtain the broadest insurance coverage at the best pricing while maintaining reliable claims processing. The group has four employees, and the departmental manager is a member of the corporate Enterprise Risk Management team. Decisions regarding insurance coverage and expenses do not require review or approval by the CEI, CECONY or O&R Boards or CEI Board committees.[662]

CEI makes use of all top global insurance markets, including U.S., Bermuda, and Europe, although the company will not use an insurer with an A.M. Best rating below A-.[663] Much of

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[658] Interview #46.
[659] Response to Data Request #350.
[660] The Real Estate department uses accounts receivable and accounts payable functionality in Trimble Manhattan software to initiate invoices or payments that then flow to Oracle. Trimble Manhattan is an integrated workplace management system to help plan, manage and optimize the real estate and workplace portfolio.
[661] Records on distribution easements are voluminous (there are roughly 10,000 distribution easements); these records were at one time captured on file cards that have since been scanned.
[662] Response to Data Request #365.
[663] A.M. Best issues ratings on approximately 3,400 insurance companies in more than 90 countries worldwide, and is recognized as a benchmark for assessing financial strength and stability in the insurance industry.

CEI's coverage is through mutual insurance companies such as Associated Electric & Gas Insurance Services Limited (AEGIS) that are owned by their policyholder members.[664] Other mutual insurance companies utilized by CEI are Energy Insurance Mutual (EIM) and Nuclear Electric Insurance Limited (NEIL). CEI uses major industry brokers and advisors including Marsh, Willis, and AON, which provide assistance in developing the company's renewal strategy and recommend appropriate levels of coverage. As these firms provide insurance placements for most of the utility industry, they have good knowledge of the market and are able to benchmark levels of coverage.[665]

The next table lists the type of insurance coverage applicable to O&R during 2018. Most cover all CEI subsidiaries, although in some cases there are sub-policies or additional terms specific to O&R. The list does not include other policies that may apply exclusively to CEI's non-regulated businesses.[666] The Insurance group considers the limits of its insurance coverage and similar information to be confidential; a non-redacted version of the table along with additional information about CEI's insurance coverage is contained in the Confidential Appendix.

Exhibit XIII-8
CEI Insurance Coverage Applicable to O&R

Insurance Type	Limit	Deductible	Premium and Tax
Excess Liability			
Professional Liability			
Fiduciary Liability			
All Risk Property			
Boiler and machinery			
CT, NJ, PA Worker's Comp			
NY Excess Workers' Comp			
NY Excess Workers' Comp			
Cyber			
Directors and Officers			
Crime/Fidelity			
Total			

Risk property insurance covers all property except that of the non-regulated subsidiaries, and current coverage is at the maximum that CEI could obtain.[667] This insurance covers all premises except overhead, underground, and underwater T&D systems.[668] Boiler and machinery insurance is a type of property coverage that focuses on specific equipment such as turbines and transformers. Silverpoint specifically inquired about the company's obligations for facilities and

[664] AEGIS, for example, was formed in the 1970s to serve the energy industry, including gas and electric utilities.
[665] Interview #33.
[666] Response to Data Request #318.
[667] Since the investments of CET are minority shares, the company is not responsible for securing insurance coverage for these assets.
[668] In particular, substations and transformers are covered, but underground pipelines and overhead wires are not.

sites it may no longer own, such as nuclear plants or other generation. The Insurance group indicated that the company's older insurance policies were occurrence-based and may provide coverage depending on the type of claim at such sites.[669]

The company is self-insured for workers' compensation in New York up to a specific level of claim but carries insurance for the excess. It also purchases an additional buy-down policy for O&R so that the utility is self-insured up to a lower level than CECONY. CEI also has workers' compensation coverage for O&R in New Jersey. O&R and CECONY are both self-insured for automobile liability in New York up to a specific claim level, with additional amounts covered by its excess liability insurance.[670] Directors and officers insurance coverage indemnifies and defends individual directors or officers. Willis, the company's broker for this insurance, recommends coverage levels based on its own benchmarking and from monitoring trends in litigation. Crime and fidelity coverage is required by ERISA, and protects against loss due to employee fraud.[671]

CEI has had cyber coverage for approximately four years, with AEGIS providing primary coverage. This policy covers loss by CEI and economic loss by a third party arising out of a cyber incident, and also covers PII. Cyber policies have become increasingly well-developed over time, and insurers typically retain experts to assess a company's cyber risks—if insurers are not impressed with a company's cyber experts, they will not offer coverage.[672]

J. Records Management

The Records Management group at O&R is part of the Facilities and Services department. Although the CECONY legal group provides overall guidance on the subject, O&R has its own separate records management policies and record retention schedules, which were designed to ensure that records are retained and destroyed in accordance with all legal requirements, business needs, and applicable statutory and regulatory retention periods.[673] Records management retention schedules differ by department and type of document (e.g., project files, time sheets). Long-term document storage is provided by Iron Mountain. Documents are kept at several Iron Mountain locations, and the vendor can typically turn around a request to return a specific record box in one day.[674] The company uses an Iron Mountain application, AccuTrac, for keeping track of record boxes that are sent for storage. A menu lists the types of documents and schedules relevant for each department, and the application allows for free form searches to locate boxes already in storage. When records are beyond the date they must be retained, Iron Mountain returns them to O&R to be destroyed on site by a third-party vendor.

[669] Interview #33.
[670] Response to Data Request #366. As discussed in Interview #15, the company self-insures its health benefit plans with no additional stop-loss coverage.
[671] ERISA sets minimum standards for most voluntarily established pension and health plans in private industry to provide protection for individuals in these plans.
[672] Interview #33.
[673] O&R Policy 5.14, Records Management and Retention, provided in response to Data Request #377.
[674] The company has examined pricing for alternative suppliers in recent years but has determined it was best to stay with Iron Mountain.

The O&R Records Management group has two employees who are responsible for overseeing the function at the company's locations. There are also 65 records coordinators at O&R, one for each department, who are responsible for managing records processing for that group. Coordinators receive training in how to use the AccuTrac system and in the records retention schedule that is applicable for the documents in their departments. Coordinator responsibilities include completing destruction authorization forms that must be circulated internally and approved before documents can be destroyed. The Records Management group does not use specific metrics to measure performance but collects statistics on overall work flow, such as how many boxes have been retrieved from storage or destroyed.[675]

K. Conclusions

1. Transportation departments are well managed and provide efficient, cost-effective vehicle and equipment-related services.

The O&R Garage organization has solid maintenance programs in place, as is evident from the infrequency of emergency repairs and the very high rate of vehicle availability. The department has successfully reduced total maintenance costs during the audit period despite modest increases in vehicle and equipment inventory. CECONY Transportation Operations has worked to consolidate vehicle and equipment specifications across both utilities, and effectively manages the procurement and disposal process. Management has appropriately decided to replace the obsolete vehicle maintenance system to improve functionality and enhance analytical capabilities, and the department has been proactive in monitoring and assessing industry best practices.

2. The O&R materials management function is efficient and cost effective, and the company's Supply Chain organization is adequately focused on minimizing non-competitive and sole source procurements.

The Stores department provides O&R operations and engineering departments with efficient warehousing and material handling services. Inventory levels are effectively managed to both avoid stock outs and minimize cost, and adequate quantities of materials are set aside as storm stock at each principal storeroom location. The Supply Chain organization implemented appropriate process and procedural improvements based on recommendations from the New York audit; management has adopted aggressive competitive spending level goals, and is continuing to evaluate and implement procurement best practices.

3. O&R's facilities and office services are efficiently and effectively managed.

O&M costs for facilities maintenance, protective equipment testing, and administrative services such as the mail room and print shop have remained relatively constant during the audit period.

[675] Interview #56.

The Facilities and Services department appropriately maintains O&R buildings and properties with straightforward processes for managing repair and upgrade projects. Supply Chain has negotiated blanket agreements for facilities-related services that allow O&R to take advantage of combined buying power where appropriate.

4. The O&R security organization is highly capable; security programs are mature and provide adequate protection to O&R facilities and employees.

The corporate security organization is a leader in the implementation of best practices among utilities in the region. The corporation has been very successful in recruiting highly experienced security and investigative professionals, and the O&R team consists of seasoned employees with exemplary qualifications. O&R has adequate security measures and protections in place at its facilities, and around-the-clock monitoring at critical locations. The utility's Security Services group has appropriate performance targets in place that emphasize the importance of an ongoing program of security audits and vulnerability assessments at company locations.

5. O&R's safety program is comprehensive and has produced measurable improvements in performance.

The corporation has adopted a zero harm culture, and senior management has made improved safety performance a priority. O&R appropriately emphasizes safety-conscious work practices and protocols, and invests significant amounts of employee time in safety-related programs. Management and union employees at all levels, as well as contractors, participate in safety-related discussions and activities including root cause analysis and incident investigations. O&R's robust field safety inspection programs and injury reduction initiatives, along with Internal Audit's EH&S ongoing audit program, will likely yield further improvements in job site safety performance.

6. O&R and RECO are well supported by cost-effective legal services.

The size and depth of expertise of the CECONY legal department allow the company to minimize the use of more expensive outside legal resources. Firms that are engaged for RECO regulatory matters have strong institutional knowledge and are used sparingly. The legal department is appropriately focused on improved productivity and cost reduction, and KPIs appear to be well considered and useful.

7. The corporate Real Estate department adequately supports O&R and RECO to ensure prudent acquisition and ownership of land consistent with business needs.

Policies and procedures for acquiring and divesting property and facilities are well defined, as are those for managing leases and easements. The group routinely examines current real estate and land holdings at each subsidiary, and effectively manages existing resources to contain costs. The Real Estate department remains focused on cost reduction, and recently began a corporate-wide initiative to improve the efficient utilization of office space.

8. The insurance function is well managed, and the company's coverages and costs appear to be consistent with industry norms.

The Insurance department has a comprehensive and well-coordinated process for managing insurance coverage and costs, and the insurance function is well-integrated into corporate enterprise risk management efforts. The company's brokers and advisors are extremely knowledgeable about the utility industry and provide well-informed advice about appropriate levels of coverage.

9. O&R's records management function adequately meets the company's needs.

O&R's records management program includes appropriate policies, retention schedules, management tools, and off-site storage capabilities that can make information accessible in a complete and timely manner.

L. Recommendations

Silverpoint has no recommendations in this area.

XIV. External Relations

A. Background

The external relations function at O&R is performed primarily by four departments—Regional and Community Affairs, Economic Development, Strategic Partnerships, and Corporate Communications. Employees in these departments report administratively to managers in CECONY Corporate Affairs, which is headed by a senior vice president. During the audit period, total staffing in these O&R departments was relatively flat, with a slight increase from 20 to 21 FTEs.[676]

O&R has no separate regulatory affairs function; instead, regulatory relations with the New Jersey BPU and New York PSC are handled by individual O&R departments on a decentralized basis. At the state level, the company monitors legislative activity through the NJUA. O&R has no need to do direct lobbying in New Jersey, as its interests mirror those of the State's larger utilities that are typically more active in this regard. As a member of EEI, the utility supports the organization's industry lobbying, which is primarily at the national level. CEI has a political action committee for funding Federal and New York candidates, but O&R has not had one since the 1990s.[677]

B. Corporate Affairs Functions

Regional and Community Affairs

The O&R Regional and Community Affairs department focuses on managing the company's relationships with municipalities and local governmental agencies. O&R serves more than 90 county and municipal jurisdictions, roughly one-quarter of which are in New Jersey. Of the six managers in the Regional and Community Affairs group, two handle local government relations within New Jersey. O&R tries to maintain a high profile with local government officials throughout its territory. Senior management meets with the two mayors associations in RECO's territory annually to discuss what is occurring within the company, and at least every two years O&R holds a municipality information exchange that focuses on specific topics such as smart meters.

The Regional and Community Affairs group sends a letter each year to municipalities in which major capital or O&R projects have occurred discussing how money has been invested in the community. The group tracks the number, type and resolution of inquiries and questions it receives from municipalities throughout the year—street lighting and tree trimming are always top issues.[678] It also tracks the formal notifications that O&R provides to municipals during each year, most of which pertain to vegetation management but that also includes topics such as smart

[676] Response to Data Request #241.
[677] Interview #45.
[678] As of late November, 2018, for example, there were approximately 200 contacts from New Jersey municipalities.

meter installation, scheduled outages, and system upgrades.[679] The group strives to be as visible and accessible as possible to the utility's constituents. Group employees provide municipal officials with contact cards that contain work, home and cell phone numbers so they can be reached at any time; local Offices of Emergency Management (OEMs) as well as highway and police departments receive emergency contact cards with phone numbers for relevant operations and field personnel such as vegetation management specialists or facility locators.

Community Affairs personnel reach out to appropriate municipal officials in advance of significant capital projects to assure they are well informed about the utility's activities. In a similar fashion, O&R reaches out to local shade tree commissions to keep them informed of planned tree trimming activities. The utility provides localities with assistance in addressing problem trees, such as removing the top half of trees around wires. Many local groups recognize that utility involvement increases safety and decreases cost, and as a result have become less resistant to tree removal in general.[680] New Jersey municipalities continue to press utilities to use their police for traffic control; O&R was one of the last utilities in the State to acquiesce to using these services, preferring instead to use its own flagging teams for greater safety and to reduce costs. The utility still pushes back when possible; generally, O&R uses police flagging on major streets with traffic control devices but can still use its own flaggers when working on side streets.[681]

One of the greatest challenges to the O&R Regional and Community Affairs group over the last several years has been the increased focus on emergency and storm management. The department developed a formal Response and Recovery Guide with procedures and protocols to help ensure that municipal officials and local leaders receive pertinent information on the utility's restoration activities. Among other things, the guide sets forth functions and responsibilities for members of the community response team during major events, including pre-emergency and demobilization check lists. The guide also includes a detailed communications flow chart for each operating division in O&R's territory that illustrates the chain of relevant OEM and police department contacts.[682]

During large storm events, some employees have storm assignments as on-site municipal liaisons; generally four people are assigned to each OEM in New Jersey to provide 24/7 coverage as needed. In those roles, employees provide municipalities with information through access to outage management and mapping systems, as well as restoration updates. This practice has been in place for at least twenty years. During outages, the company works to respond to municipal emergencies and has, for example, changed the priority of restoration efforts to prevent a sewage spill or to restore power to polling sites on an election day. The company sends pre-storm email blasts to municipal officials including safety precautions and management contact information. Once a storm hits, O&R sets up and staffs a storm command center in the Spring Valley training room with employees who can react to municipalities and provide

[679] Constituent tracking and municipal notification reports provided in response to Data Request #378.
[680] Interview #45.
[681] Interview #45. Municipalities typically charge $125-150 per hour for flagging services.
[682] Interview #45. Response and Recovery Guide provided in response to Data Request #378.

additional support to company liaisons in the field. Each day of the restoration, the company holds a daily conference call to relay information and answer questions from elected officials, police, and emergency management representatives, and there may be up to four additional daily email message blasts as needed.

During the March 2018 storm events, some local governmental officials complained to the Regional and Community Affairs group about lack of communication; this was particularly the case in Wyckoff, where the effects of the storms were greater than during Hurricane Sandy. According to O&R, there was no lack of communication in this case, but rather a problem with information accuracy. In some cases, preliminary reports from the field about restoration times were overly optimistic, failing to indicate that customers might be out of power for as long as they were. Based on lessons learned from the March storms, O&R in the future intends to prepare a daily work plan to keep everyone informed where restoration work will be taking place, and it is currently working toward providing better restoration time estimates.[683]

Economic Development

The role of O&R's Economic Development department is to administer, market, and support the attraction and expansion of the business community across O&R's New York and New Jersey footprint. RECO in particular has two rate incentive programs—the building expansion rider and the building utilization rider—that are available to eligible commercial and industrial businesses receiving economic incentives by local municipality or state authorities.[684]

Strategic Partnerships and Charitable Giving

A two-person team of employees manages O&R's strategic partnership and charitable giving programs. O&R currently funds projects that align with one of five goals: education, especially science, technology, engineering and math (STEM); the environment; arts and culture; public safety and first responders; and civic groups. In 2015, the company's annual level of charitable giving increased from approximately $400,000 to $630,000 after corporate senior management recognized that the utilities lagged behind their peers in this area. Of the $630,000 in charitable giving by O&R in 2017, $118,000 was spent in New Jersey. O&R tries to maintain the ratio in proportion to the number of customers in both states while recognizing that there are substantial demographic differences—New Jersey customers overall are more affluent and use 50 percent more electricity than New York customers.[685]

Examples of organizations funded by O&R in New Jersey include Ramapo College Scholarship funding for STEM, Hackensack Riverkeepers, and Center for Food Action in Mahwah. The company has supported a New Jersey high school robotics team for ten years and has recently begun mentoring other competitive robotics teams in New York. Sponsorship of events, dinners, and the like has fallen off quite dramatically, and the company no longer provides funding for

[683] Interview #45. Both New York and New Jersey have requirements for utilities to provide a global ETR, but there are no regulatory requirements for local ETRs.
[684] Response to Data Request #384.
[685] Interview #45. All charitable contributions are below the line and paid for by shareholders.

hospitals, preferring instead to fund grants that have a more significant impact on smaller non-profits. The company's charitable programs include the following:[686]

- Community Investment Program: a twelve-member group that includes eight union and non-union employees and four outside shareholders who live in the O&R service territory, which reviews on-line grant requests and selects non-profits to receive funding
- Strategic Corporate Giving: a more formal, managed program involving larger dollar amounts in which the company has a larger hands-on role
- O&R STEM Classroom Grants: an advisory team that decides on roughly thirty $1,000 grants to teachers, students, clubs, and youth groups serving students pre-K to 12th grade
- Fuel Fund in New Jersey: funding of New Jersey Shares by matching each dollar a customer donates to support families in need with their utility bills
- Dollars for Doers: grants of up to $699 each to support employees who volunteer
- Dollars for Donors: matching of employee donations to non-profits in the service territory
- United Way: matching of employee and retiree donations ($100,000 in 2017).

C. Corporate Communications and Media Relations

The O&R Corporate Communications group includes a variety of skills including video production, graphic design, advertising, and social media expertise. The group defines its mission as initiating and ensuring one-way and two-way communications with key audiences—customers and employees. The company utilizes a variety of mediums for communication with customers including advertising, direct mail, bill inserts, email, website, social media, and an online customer survey group called ORYou Exchange. To communicate with employees, O&R utilizes a bi-weekly printed newsletter (Currents), e-boards, emails, the corporate intranet, monthly all-employee meetings, and occasional President or executive communications. The Corporate Communications group occasionally assists the O&R President and other executives with speeches or presentations, and is responsible for developing and managing the content on the O&R website.

Over the last eighteen months O&R has focused on expanding its in-house video production capabilities and its presence on social media. O&R has expanded from two social media outlets, Facebook and Twitter, to four by adding LinkedIn and Instagram. When the company receives a question on Facebook, a company representative reaches out via direct message to try to address it. On Twitter, the response to queries can be automated, with questions routed directly to the appropriate group (e.g., Customer Service). The Corporate Communications group has begun to share more video productions on both social media and the company website, such as testimonials by small businesses about O&R's efficient lighting assistance. To gain further insights, O&R recently participated in a peer benchmarking review of the top five Eastern

[686] Interview #45.

midsize utilities regarding aspects of their use of various social media outlets such as frequency of postings and number of followers.[687]

The Corporate Communications group sends emails weekly to the roughly one-third of utility customers who have provided email addresses, 25 percent of which are in New Jersey. In some instances, O&R communicates with customers regarding support for company initiatives, such as sustainability and renewable energy. The communications group attempts to address customer issues and questions that routinely arise on subjects such as vegetation management and smart meters though frequently asked questions (FAQs) on the website. The group manages the on-line customer survey group, ORYou Exchange, to better understand customer opinions, and conducts weekly surveys of the exchange's 2,000 customer-members. Surveys could seek customer opinions on branding issues or include questions about company initiatives, and the company typically receives a response rate of about 25 percent.

O&R has one person devoted to media relations who is responsible for writing the company's press releases and providing media support. The media relations manager shares on-call spokesperson responsibilities with three Corporate Communications employees in order to provide media support 24/7 in the case of an accident or outages. Most media support is for state and regional outlets, although occasionally the company will need to respond to national stories. There are about a dozen media outlets in O&R's territory, although that number is shrinking due to mergers; News 12 is the main New Jersey television outlet, particularly during storms.

A good portion of the company's media relations work is proactive. For example, O&R may communicate with the public about rate proceedings or specific capital initiatives, or to inform them about general topics such as its corporate giving.[688] About half of O&R press releases are directed to New Jersey matters (e.g., smart meter installations and the Norwood transmission project). Press releases are often used as the basis for communications in a variety of other mediums, including the website, social media, and e-boards.

The company recognizes that customers want timely, accurate and actionable information before, during, and after a storm. The O&R Corporate Communications group has its own separate Response and Recovery Guide for the Information Office, which during an emergency response situation oversees services ranging from media relations and corporate communication to social media and the website.[689] This guide describes functions and responsibilities throughout the timeline of an event, and includes sample press releases for storm watch, storm alert, and storm restoration phases. During major events, media relations gathers information from throughout the company to write press releases about topics such as number of outages, location of damage, where crews are working and how many customers were restored during the day. Those press releases become the basis for website, social media, and other company communications.[690] The

[687] Interview #45.
[688] Some of these communications are designed to help increase O&R's J.D. Power scores by, for example, raising customer awareness of its charitable giving programs.
[689] The section manager of Corporate Communications usually acts as the Information Officer, who reports directly to the Incident Commander.
[690] Interview #45. Response and Recovery Guide provided in response to Data Request #378.

company has a storm communications quality control team as part of the ICS that works to keep messaging consistent across all channels (e.g. website, media relations, and the IVR) and social media outlets as it is updated throughout the pre- and post-event cycle.[691]

Social media now plays a large role for the company during storms. During the March storms, the communications group had two people working on social media during the day and two at night, and answered 6,000 messages over the twelve day restoration period that would otherwise have to be handled by Customer Service. The Corporate Communications group has turned over future responsibility for direct messaging via social media during storms to Customer Service; messages are generally developed by the CECONY Corporate Affairs organization and customized for O&R.[692]

D. Conclusions

1. O&R has effective procedures and organizations for managing its relationships with stakeholders during both emergency and normal operating conditions.

O&R's Regional and Community Affairs personnel are accessible and responsive to municipal officials and local authorities. Adequate resources are devoted to business and economic development efforts in New Jersey, and the State receives an appropriate portion of O&R's charitable giving. The company communicates frequently through a variety of channels with its stakeholders including customers, local communities, the media, and employees. O&R has adequate emergency response plans in place for its communications and community relations functions, and expects to use lessons learned from recent storms to improve the availability and accuracy of information provided to stakeholders during outage events.

E. Recommendations

Silverpoint has no recommendations in this area.

[691] Interview #11.
[692] Interview #45.