CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

SHARED SERVICES PANEL

TABLE OF CONTENTS

I. INTRODUCTION

Q. Would the members of the Shared Services Panel ("Panel") please state your names and business addresses?

A. Our names are Saddie L. Smith, Manuel Cancel, Richard Bagwell, Joan Jacobs, Carlos D. Torres, Margarett Jolly, Michael Haggerty, and Michele Campanella. Our business address is 4 Irving Place, New York, NY 10003.

Q. By whom are the panel members employed?

A. We are all employed by Consolidated Edison Company of New York, Inc. ("Con Edison" or the "Company").

Q. Please explain your educational backgrounds, work experience, and current general responsibilities.

A. **(Smith)** I am currently the Vice President of Facilities and Field Services for the Company. I have been employed by Con Edison since 1982, holding positions of increasing responsibility in a variety of support and operating positions including: Senior Attorney, Law Department; Director of Equal Employment Opportunity ("EEO") Affairs; Director of Facilities Management; Vice President, Electric Operations – Staten Island; Secretary and Associate General Counsel; and Vice President, Facilities. Effective August 2014, I was elected to my current position, Vice President of Facilities and Field Services. As Vice President of Facilities and Field Services, I am responsible for

operating and maintaining over 40 facilities (office buildings and field operations locations/service centers) within the service territories of Con Edison and Orange and Rockland Utilities, Inc. ("O&R"), including: planning and project management; engineering services; environment, health and safety; and office services. I am also responsible for all the garages throughout Con Edison and O&R as well as Automotive Engineering and Fleet Administration, and for providing tanker support, material delivery services, and other logistics and emergency support services for the Company. I am responsible for approximately 600 employees between both Con Edison and O&R. I earned a Juris Doctorate from Columbia University in 1978 and a Bachelor's Degree in Classics from Bowdoin College in 1975.

(Cancel) I have been employed by Con Edison since 1981, holding positions of increasing responsibility in Engineering, Customer Service, Information Technology ("IT") and Internal Audit. I was elected to my current position, Vice President of Information Technology in June 2013. As Vice President of Information Technology, I am responsible for all corporate information technology initiatives, including application development, network and data center operations and cyber security. I hold a

Masters of Business Administration from Cornell University and a Bachelor's degree in Management Information Systems from Baruch College. There are approximately 400 employees in Information Technology.

(Bagwell) I am currently the Vice President of Human Resources ("HR"). I assumed this position in August 2014. In my current position, I am responsible for various human resources activities including Benefits, Compensation, Human Resource Support, Employee and Labor Relations, and Occupational Health. Specifically, my responsibilities include developing human resource policies and programs for the Company; negotiating and administering labor agreements that are compliant with federal, state and city regulations for human resource related activities (*e.g.*, Family and Medical Leave Act ("FMLA"), Employee Retirement Income Security Act ("ERISA"), Health Insurance Portability and Accountability Act ("HIPAA")); directing the preparation of information requested or required for compliance; establishing wage and salary structure pay policies; implementing cost containment strategies for health benefit programs; negotiating administrative fees with health insurance carriers; recommending alternate benefit administrators and plan changes; managing a staff of over 100 professionals; and developing, implementing and

monitoring all aspects of the Company's executive compensation.

I joined Con Edison in 1973 and have held positions of increasing responsibility in a variety of operating and support positions including: Director of Employee and Labor Relations, Director of Auditing; Director of The Learning Center; Deputy Corporate Ombudsman; and Brooklyn Queens Overhead Construction Manager. I earned a BBA in Accounting from Pace University and an MBA in Finance from Iona College. I also graduated from the Executive Management Programs at Wharton Business School and Darden Graduate School.

(Jacobs) I am currently the Vice President of Learning and Inclusion ("L&I"). I assumed this position in August 2014. In this role, I oversee the Company's training and conference facility called The Learning Center ("TLC"). I am responsible for design and delivery of professional leadership and technical training programs that meet the training needs of the Company. In addition to training and development, I am also responsible for engaging the workforce in fostering diversity and inclusion throughout the Company. My areas of responsibility include recruitment and staffing, skills training, leadership and career development, diversity and inclusion, performance

management, and organizational development. I am responsible for managing a staff of over 200 professionals. I have over twenty-six years' experience in human resource management and law. I joined the Company in 2001 as Director of Talent Management, and have also held the positions of Director of HR Support Services, Director of EEO Affairs and Labor Relations Administrator. Prior to joining Con Edison, I was a labor attorney at New York Health and Human Services Union 1199. I also worked at the Ontario Human Rights Tribunal, the Labor Relations Board, and the Pay Equity Commission, in Toronto. I hold a Bachelor's degree in political science from McGill University and a Juris Doctorate from University of Windsor Law School. I am currently a board member for CORO a leadership development organization that trains ethical, diverse civic leaders nationwide. I am also a graduate of CORO New York.

(Torres) I am currently the Vice President of Emergency Management ("EM") for the Company. I have been employed by Con Edison since 1985. I joined the Company as a management intern and have held numerous positions of increasing responsibility throughout my career, including a Field Engineering supervisor in Gas Operations, an engineer and manager in Steam Operations, a section manager in both

Manhattan and Bronx/Westchester Electric Construction, project manager in Emergency Management, Director of Electric Operations Emergency Management, and General Manager of Construction Services. In my current role as the Vice President of Emergency Management, I am responsible for overseeing the continued development of the Company's emergency management program, making sure the program is consistent with the Corporate Emergency Management Strategy and for leading 31 Con Edison and Orange and Rockland Utilities professionals tasked with handling emergency management functions. Also, as the Company's lead liaison for Emergency Management, I facilitate the communication, outreach and cooperation between Con Edison and the many federal, state, and local agencies and organizations the Company works with during events of local, regional, and national concern. I received a Bachelor of Science degree in Mechanical Engineering in 1985 and a Master of Science degree in Engineering Management in 1994, both from the New Jersey Institute of Technology – Newark College of Engineering. I also completed the Power Technologies Inc., distribution engineering course in 2004.

(Jolly) I am the Director of Research and Development ("R&D"). I graduated in 1997 with a Bachelor of

Engineering in Mechanical Engineering from The Cooper Union for The Advancement of Science and Art. I have been employed by Con Edison since 1997 and have held various engineering and managerial positions in the Steam business unit, Energy Policy and Regulatory Affairs, Distribution Engineering, and R&D. I was appointed to my current position, as the Director of Research and Development in December 2013. In this position, I am responsible for developing new products and processes to enhance the safety, reliability, efficiency, operational excellence, and customer engagement for Con Edison. I oversee fourteen employees, including twelve staff members dedicated to managing R&D projects to support the Company's Electric, Gas, and Steam business units. I guide the overall department strategy and manage the overall R&D budget.

(Haggerty) I am currently the Vice President of Supply Chain. I have been employed by Con Edison since 1983, holding positions of increasing responsibility in a variety of support and operating positions including: Construction Management, Gas Operations, Human Resources, The Learning Center, Central Field Services, and Corporate Environment, Health and Safety ("EH&S"). As Vice President of Supply Chain, I am responsible for the procurement and the delivery of approximately $1.8 billion in materials and

services for Con Edison and O&R. I earned an MBA from Fordham University and a Bachelor's degree in Civil Engineering from Manhattan College.

I am responsible for approximately 280 employees between both Con Edison and O&R. Approximately 80 Supply Chain employees are responsible for procuring materials and services, including construction services, for operations and support departments such as within Shared Services. Approximately 200 employees handle, store, manage and deliver material to Operations.

(Campanella) I am the Director of Corporate Security. I graduated from Clarkson University with a Bachelor of Science degree in Accounting in 1978 and from New York Law School with a Juris Doctor degree in 1989. I am an active member of the Security Committees for both the American Gas Association and the Edison Electric Institute. I am also a member of the Domestic Security Alliance Council, which is a collaboration between the Federal Bureau of Investigation ("FBI"), Department of Homeland Security ("DHS") and private industry. Prior to Con Edison, I was a Special Agent of the FBI from 1980 to 2008. Among other duties, I served as the Assistant Special Agent in Charge ("ASAC") in the Washington Field Office, a position that included oversight of the Security Branch. As the ASAC, I was

responsible for the protection of the Attorney General of the United States and the Director of the FBI, the physical security of the properties within the Washington Field Office territory, and the investigative services related to personnel security, including polygraphs, background investigations, and clearances. Since September 2008, I have been the Director of Corporate Security for Con Edison. As the Director of Corporate Security, I formulate and direct security policies, practices, and procedures for the Company. I direct the investigative and security related activities of thirty-six investigators and staff; act as a liaison with Federal, State, and local law enforcement agencies; advise senior executives on security-related matters; direct physical security surveys of Company facilities; and make and implement security recommendations throughout the Company. In addition, I develop specifications, monitor the performance of contract guard services and implement training requirements for Company security personnel.

Q. Have any panel members previously submitted testimony in a proceeding before the New York State Public Service Commission ("PSC" or the "Commission")?

A. All witnesses, with the exception of Mr. Haggerty, have either previously submitted testimony or testified before

the Commission. Ms. Jacobs has testified before the New York State Attorney General's office.

II. PURPOSE OF TESTIMONY

Q. Please explain the purpose of the testimony and the relationship of Shared Services efforts to the Company as a whole.

A. Shared Services is a support organization, performing a number of different support functions. These support functions include logistical support activities; business software development; maintaining and improving computing, communications, and the supply chain infrastructure throughout the Company; providing human resource services and support to employees and retirees; hiring and training employees and, where necessary, contractors; and maintaining the Company's properties. All of the projects and programs discussed in our testimony are common to the Company's Electric, Gas and/or Steam businesses and, in many cases, to O&R. The Company's Accounting Panel explains how these costs are allocated to Con Edison's electric, gas and/or steam service and, where applicable, O&R.

Q. Please summarize the Panel's testimony.

A. We describe numerous Shared Services efforts needed to support programs throughout the Company. Our testimony

also discusses various efforts that Shared Services undertakes to reduce risk and enhance public and employee safety, increase operational performance and flexibility, and enhance the customer experience by engaging our customers, in order for the Company to continue to provide utility services in a safe, reliable, and cost-efficient manner.

First, we explain the Company's capital request for general equipment.

Second, we discuss the major planned IT-related capital investments and IT Operating and Maintenance ("O&M") expenses.

Third, we explain the need to modernize, upgrade, and improve various equipment, systems and infrastructures associated with the various buildings coming under Facilities' responsibilities. We also explain the projected capital and O&M costs associated with maintaining our fleet and providing fuel to our vehicles.

Fourth, we discuss Corporate Security capital projects, an advanced security platform and its associated O&M costs, and the replacement of obsolete closed-circuit television ("CCTV") cameras throughout the Company. We also discuss O&M expenses associated with cyber forensic investigative activities.

Fifth, we discuss EM's initiatives aimed at improving the Company's effectiveness in response to emergency events.

Sixth, we address three new capital program initiatives within HR, including the Occupational Health Department Integrated Data Management Platform, the HR Help Desk application, and an upgrade to our HR Payroll application. We also address O&M costs associated with strike contingency preparations.

Seventh, we describe a capital program within L&I for the PeopleSoft Recruitment Module. We also explain an O&M program related to the corporate wide Diversity and Inclusion training program.

Eighth, we explain the forecasted level of Electric and Gas R&D expenditures, excluding Company labor, and discuss our past successes along with projects being undertaken in the Rate Year.

Finally, we discuss the Company's need for additional resources to support Gas Operations.

Q. What period does this testimony cover?

A. The Panel will present the projects and programs planned for the 12 month period ending December 31, 2017 ("Rate Year" or "RY1"). While, as discussed by the Company's Accounting Panel, the Company is not proposing a multi-year rate plan in this rate filing, the Company is interested in

pursuing, through settlement discussions with Staff and interested parties, a multi-year rate plan. Accordingly, we address certain capital plant additions and other programs and initiatives in the two years following the Rate Year. For the sake of convenience, we will refer to the twelve month periods ending December 31, 2018 and December 31, 2019 as “RY2” and “RY3,” respectively.

III. GENERAL EQUIPMENT

Q. Please explain the Company’s category of capital expenditures known as General Equipment.

A. General Equipment represents specific categories of capital equipment, defined below, that are classified under the Uniform System of Accounts as General Plant. In general, these items have a purchase cost equal to or greater than $500 and have a life expectancy of more than one year, as detailed in the Company’s Corporate Instruction CI-610-2.

Q. Do you have an exhibit entitled “Shared Services - General Equipment” that includes Corporate Instruction CI-610-2 and a white paper for each category of General Equipment?

A. Yes.

Q. Was it prepared under the Panel’s direction and supervision?

A. Yes, it was.

MARK FOR IDENTIFICATION AS EXHIBIT __ (SSP-1)

Q. What are the categories of General Equipment?

A. General Equipment consists of nine main categories of capital plant or “tools.” Each is commonly referred to as an XM, which is a unique budget reference coding for the Company’s General Equipment. The following is a list of the Company’s XMs.

- Office Furniture (XM-1)
- Transportation Equipment (XM-2/XM-13)
- Stores Equipment (XM-3)
- Shop Equipment (XM-4)
- Laboratory and Test Equipment (XM-5/XM-15)
- Tools & Work Equipment (XM-6)
- Miscellaneous Equipment (XM-7)
- Communication Equipment (XM-8)
- Computer Equipment (XM-10)

Q. Please generally describe the nature of and need for General Equipment.

A. General Equipment represents the tools and work equipment necessary and critical for employees to perform their day-to-day job functions. It includes, among other items, desks for offices, bucket trucks for overhead operations, shelving for store rooms, equipment for testing before entering manholes, jack hammers to break the street to locate underground equipment, safety hoists for entering

underground structures, and radio frequency (“RF”) equipment for employees to communicate as well as the computer used to prepare this testimony.

More specifically, the following example illustrates the vital role General Equipment plays and how it is interwoven into the Company’s daily operations from the standpoint of reliability, efficiency and safety. An underground splicing crew requires, in addition to splicing equipment such as a propane torch, a van (XM-2) to deploy the crew to the site. A mandatory rescue device (XM-7) is setup for employee safety before entering the structure. The actual work of splicing the cable requires the mechanic to use various cutter and crimper equipment (XM-6) to install the new section of cable. The work is recorded into the work management system through a computer or tablet (XM-10). Replacement for General Equipment is driven by normal wear and tear, changing operational requirements, and changes in technology, among other factors, and is intended to provide Company employees the tools necessary to complete their tasks in a safe and efficient manner.

Q. Do you have exhibits that explain each category of General Equipment in more detail?

A. Yes. This information is included as part of Exhibit __ (SSP-1).

Q. Please discuss the manner in which General Equipment requirements are developed.

A. To begin, the Company has identified organizations that act as Control Agencies to meet corporate standards for quality and compatibility for this equipment and also provide for economies of scale in purchasing this capital equipment. The Control Agencies are:

- Facilities and Field Services' Automotive Engineering/Fleet Administration
  - Vehicles (XM-2/XM-13)
- Facilities and Field Services' Operations Services
  - Office Furniture (XM-1)
  - Stores Equipment (XM-3)
  - Laboratory and Test Equipment (XM-5/XM-15)
  - Tools & Work Equipment(XM-6)
  - Safety & Miscellaneous Equipment(XM-7)
- Maintenance and Construction - Van Nest Shops
  - Shop Equipment (XM-4)
- Information Technology
  - Communication Equipment (XM-8)
  - Computer Equipment (XM-10)

Q. Please explain how the General Equipment budgeting process works.

A. On an annual basis, each Control Agency develops projected costs for each XM category for which it is responsible. With the exception of XM-2/XM-13 (which is explained later in this testimony), the projected spending levels are based on the Company's historical needs for such equipment, as modified during the budget review process in which each organization forecasts their future capital equipment needs for the upcoming period. During the budget process, each Control Agency requests that user organizations provide expected equipment needs. An equipment list, which includes prices, is provided to user organizations to assist them in developing their expected General Equipment requirements.

The user organizations notify their respective Control Agencies of their expected needs by XM category for the upcoming period. The appropriate Control Agencies review the submissions and compile all the requests.

Q. What occurs once the Control Agencies have developed the overall XM budget?

A. Projects are prioritized via a Capital Optimization methodology that identifies an optimal portfolio of projects that closely align with the Company's strategic goals. The Company has established a set of strategic drivers, each with relative weights based on long-term

objectives, which are used to prioritize all projects on a consistent basis. Each project is measured by the strategic drivers and therefore aligned to the Company's strategic objectives. The strategic assessment of each project is then presented to each organization's Capital Optimization Team for approval. After approval of the assessment of all projects, a prioritization analysis is performed utilizing optimization software and an optimized portfolio is generated.

Q. Once the portfolio is optimized, what occurs next?

A. For the "Common" capital budget, which is essentially all the XMs as well as the many other projects discussed in this testimony, plus some IT projects discussed in other testimonies and exhibits of other Company witnesses, the projects are reviewed by another group, the Common Governance Committee ("CGC").

Q. What does the CGC do?

A. The CGC is comprised of officers that oversee Common capital expenditures. They review the initial budget and meet monthly throughout the year to review the status of all the projects in the Common portfolio. The CGC reviews and approves projects included in the Common budget, including XMs, before it is formally incorporated into the budget. During the year, if there are projects below

budget, the below budget amounts can be re-allocated to projects that may need additional funding or emerging projects.

Q. When is the final budget approved?

A. A final budget, including the XM budgets, is approved for the upcoming one calendar-year period each November. Other operating needs, such as unplanned or emergent events, may cause variations in the General Equipment expenditures during the year. As recognized by the terms of the Company's rate plans, the Company maintains the ability to re-prioritize or reallocate funds for projects that arise during each year.

Q. Turning back to the budget process, once the list of needed equipment is finalized, what do the Control Agencies do?

A. Each Control Agency issues purchase requisitions for the category of General Equipment for which it is responsible throughout the year. The Control Agency is required to standardize the equipment purchased to maintain quality, reliability and the safety of the employees using the equipment. This function also involves the aggregation of General Equipment purchases to allow for the most competitive pricing. For example, Facilities and Field Services provides a listing of transportation equipment that can be purchased, such as cars, trucks, and mini-vans.

Q. Does the Control Agency also have a monitoring function for the XM budget under its responsibility?

A. Yes. The Control Agency monitors commitments and expenditures in an effort to avoid exceeding the authorization levels established in the approved XM Budget for each user organization.

Q. What is the Company projecting for General Equipment expenditure levels over RY1 through RY3?

A. We project to expend the following:

- RY1 - $83.4 million
- RY2 - $81.3 million
- RY3 - $76.0 million

Q. Have you prepared an exhibit entitled “General Equipment Request” detailing projected expenditures for XM General Equipment?

A. Yes.

Q. Was this exhibit prepared under your direction and supervision?

A. Yes, it was.

MARK FOR IDENTIFICATION AS EXHIBIT __ (SSP-2)

Q. What does this Exhibit show?

A. This Exhibit shows the expenditures for each category of General Equipment from RY1 through RY3.

Q. Please explain the Company's 2015 and 2016 General Equipment expenditure levels.

A. In 2015, we expended approximately $96.3 million for General Equipment. In 2016, we project spending $71.6 million for General Equipment.

Q. Why is the 2015 General Equipment expenditure level higher than the 2016 budget?

A. Three major drivers were responsible for the higher level of 2015 expenditures. First, approximately $1.6 million was spent in 2015 under the XM-2/XM-13 Vehicle equipment budget to upgrade the existing fleet of vehicles with the installation of "fuel rings," which allow Company vehicles to transmit information from the onboard computers to the new state-of-the-art card reading fueling authorization systems that are being installed as a part of the Gasoline and Diesel Fuel Station Upgrades capital project explained later in the testimony. The 2015 expenditures include the installation costs for the majority of the existing fleet and, because this is a one-time cost, it will not have a significant impact for their installation on new vehicles in future years.

Q. Please continue.

A. Second, approximately $12.7 million of equipment purchases were advanced from 2016 into 2015. During its budgeting

process, the Company re-evaluated the annual expenditures for the Common capital budget, and funding was shifted within some projects and programs to balance the overall capital spending in the Common portfolio. As a part of these shifts, funding for three General Equipment categories was shifted into 2015, which was used to accelerate the purchase of equipment required for 2016. The breakdown of accelerated expenditures is:

- $6.2 million for XM-2/XM-13 – Transportation Equipment
- $1.0 million for XM-6 – Tools and Work Equipment
- $5.5 million for XM-10 – Computer Equipment

Of the $5.5 million for XM-10, $3.5 million was used specifically to address computer obsolescence, discussed next.

Q. Please continue.

A. Third, a total of approximately $6.0 million was spent in 2015 (which includes the $3.5 million above in acceleration amounts) to address computer obsolescence. This was double the amount spent on average in prior years for XM-10 obsolescence and replacement and was required due to the funding of other priorities that limited funding in this area during the previous years. This resulted in the purchase of the following equipment which is intended to

cover XM-10 requirements for new employees, devices damaged beyond repair, and obsolescence needs:

- 535 desktops
- 2,460 laptops
- 1,361 tablets
- 39 MDTs
- 282 printers and plotters

In 2017-2020, the XM-10 budget includes approximately $15.4 million in total for PC, laptop and mobile device replacements.

Q. Does the 2016 budget reflect any changes relating to Gas and other work?

A. Yes. The budget for 2016 reflects an increase in the purchase of General Equipment relative to 2015 due to the Gas Operations expansion explained by the Gas Operations and Infrastructure Panel ("GIOP"). Approximately $2.8 million more will be spent in 2016 for Gas Operations for XM-6 than was spent in 2015. Additionally, there is a higher amount of projected expenditures in 2016 for XM-4, XM-5/XM-15, and XM-8 for replacements requested from end users (operations) and other necessary replacements that further reduces the difference between 2015 and 2016 by an additional $1.8 million.

Q. Please explain the impact of the Gas Operations increases to the overall General Equipment capital budget.

A. Beginning in 2015, Gas Operations began increasing its workforce, with a plan to continue an increase in hiring through RY3, as discussed by the GIOP. Based on the forecasted increases, additional expenditures in General Equipment are needed to purchase and supply the workforce with the vehicles, tools, and equipment necessary for them to meet their needs with an increased workload.

Q. Why is it necessary to purchase this additional equipment for Gas Operations?

A. This equipment is necessary to equip the additional workforce being hired over the next several years with the proper tools and equipment for them to perform their daily work in a safe and efficient manner. For example, step vans are necessary to transport the crews and their equipment to the field locations where the work must occur. Backhoes and pneumatic digging tools are necessary to excavate the street to install and/or replace pipe. Saws, cutters, tapping, and fusion equipment are needed to cut and connect pipe to the gas infrastructure. Gas detectors are necessary for determining proper gas flow and for detecting leaks. Computers and phones are needed to coordinate and document the work being done in the field.

Chairs, workstations, and A/V equipment are necessary for the work environment needed by the supervisors and other staff to plan and coordinate the work for the field forces.

Q. How much in additional funding to the General Equipment capital budget will this workforce increase require?

A. For RY1 through RY3, the impact to the various General Equipment budgets is as follows:

- RY1 - $13.5 million
- RY2 - $10.2 million
- RY3 - $3.3 million

As Gas Operations' hiring plan has smaller levels of incremental additions in the later years, lower levels of additional equipment purchases are required in RY2 and RY3.

Q. Have you prepared an exhibit entitled "General Equipment Forecasts for Gas Operations' Increase" detailing the projected expenditures of General Equipment specifically to address the increased workload for Gas Operations?

A. Yes.

Q. Was this exhibit prepared under your direction and supervision?

A. Yes, it was.

MARK FOR IDENTIFICATION AS EXHIBIT __ (SSP-3)

XM-1, XM-3, XM-5/XM-15, XM-6 and XM-7

Q. Please describe the categories of equipment controlled by Facilities and Field Services' Operations Services.

A. Facilities and Field Services' Operations Services is the Control Agency for Office Furniture (XM-1), Stores Equipment (XM-3), Laboratory Equipment (XM-5/XM-15), Tools and Work Equipment (XM-6), and Miscellaneous Equipment (XM-7).

The XM-1 budget category purchases chairs, desks, workstations, modular office partitions, and other general office furniture.

The XM-3 budget category replaces warehouse and material handling equipment, including storage bins, pallet racks, pipe racks, shelving, and strapping/wrapping equipment. This equipment is used in the central warehouse/ distribution facility and regional storerooms to operate and maintain materials and supplies for distribution to operating groups, and other Company organizations. The Company maintains a central warehouse to provide materials needed in the routine maintenance and construction of the Company's transmission and distribution systems and infrastructure. It also operates approximately 15 smaller satellite locations at various major workout centers. Some of the key satellite locations are located at Van Nest (Bronx), College Point Boulevard (Queens), Third Avenue

Yard (Brooklyn), and Neptune Avenue (Brooklyn). All these facilities are linked via work-processes and computer systems to facilitate the effective use of inventory and critical spare components. Materials are moved to and from the main warehouse as well as to field locations, such as a specific street job or a substation.

Q. Please continue.

A. The XM-5/XM-15 budget category replaces both laboratory and testing equipment.

Q. Please describe laboratory and testing equipment.

A. Laboratory and testing equipment includes volt meters, gas detectors, recorders, test boxes, and pressure gauges. These devices are used by field forces to test and evaluate electric and gas system components, including gas levels in the atmosphere when a worker descends into a manhole or around excavations.

Q. What is in the XM-6 budget?

A. The XM-6 budget category is designated for the replacement of tools and equipment, including portable pumps, chain saws, and hydraulic jacks, pneumatic hammers, parts washers, and tire repair equipment. These devices are used by field forces to assist in the installation, repair and maintenance of system components as well as for the repair of fleet vehicles.

Q. Please continue.

A. The XM-7 budget category represents the Company's miscellaneous equipment, such as cafeteria and kitchen equipment, safety and training equipment, fire protection, and A/V and photographic equipment, including security cameras and recorders.

Q. What is the procedure or process associated with the replacement requirements for XM-1, XM-3, XM-5/XM-15, XM-6, and XM-7 categories?

A. Items covered under these categories are typically replaced when they are deemed un-repairable or beyond economical repair. Tools and equipment are also replaced due to procedure and/or specification changes. These changes are usually initiated by the operating departments due to operating or work practice changes and can be related to new tasks, or improvements in safety, quality and/or productivity.

Q. Can you provide an example of these changes?

A. Yes. One example is the replacement of retrieval devices. The retrieval devices are included in the XM-6 budget and are used as rescue and material handling apparatus for our field crews that work in enclosed spaces. The units are positioned over manholes and vaults and are used as lifting devices. The existing devices were improved based upon

feedback from the field by making specification changes to the unit. The new devices offer improved ergonomics and durability over the present units.

Q. Please explain the ramifications if the Company is unable to acquire and have available the replacement tools, equipment and furniture in these categories.

A. The current inventory of tools, equipment and furniture would need to be uneconomically maintained beyond their useful life and, in many cases, personnel would be using outdated equipment. In addition to increased maintenance and repair costs on older equipment, the use of outdated equipment would result in potential delays to the operating organizations and adversely affect efficiency and productivity.

Significantly, the XM-7 equipment category includes devices that are critical to the life and safety of our employees, such as the safety lifting devices that allow employees who are overcome in a confined space to be lifted out by fellow employees from above, and Self-Contained Breathing Apparatus (“SCBA”) and Respirators with Escape Bottles to allow employees to enter underground structures and confined spaces when the atmosphere is suspect in supporting human life.

In addition, if the Company is unable to acquire tools and equipment with technology improvements, such as noise reduction and ergonomics, this could potentially have an adverse effect on employee safety. For example, certain employees, due to their medical conditions, require ergonomic furniture to be able to perform their duties.

Q. Do the projected spending levels included in this case reflect any efforts by the Company to minimize expenditures for these tools, equipment and furniture?

A. Yes. Tools, equipment, and furniture are evaluated before being replaced; only those that are deemed un-repairable or uneconomic to repair are replaced, except when the replacement equipment is purchased due to operating or work practice changes justifying a new type of device. As a general practice, desks, chairs, and office partitions are reused within the Company whenever possible. In addition, the majority of contracts utilized to purchase new tools, equipment and furniture are competitively bid, and where possible, orders are consolidated to take advantage of volume discounts.

Q. What is the projected spending in RY1 through RY3 for these General Equipment categories, XM-1, XM-3, XM-5/XM-15, XM-6, and XM-7?

A. The projected spending levels for these General Equipment categories are $18.7 million in RY1, $17.0 million in RY2, and $15.1 million in RY3. The spending levels for each separate category are listed in Exhibit __ (SSP-2).

Q. Why are the projected spending levels for these General Equipment categories decreasing from RY1 through RY3?

A. As mentioned earlier in this testimony, we project our spending to decrease over the course of the rate years consistent with the scheduled decline in the projected number of Gas Operations employee additions. Excluding the additional Gas Operations-related equipment, which is detailed in Exhibit __ (SSP-3), the forecasted expenditures for these General Equipment categories are essentially the same, approximately $13.8 million for each of RY1 and RY2, and $14.0 million for RY3.

XM-2/XM-13

Q. Please discuss the next category of XM equipment.

A. The next category is items covered in General Equipment XM-2/XM-13, Transportation Equipment. XM-2/XM-13 provides for the purchase of fleet vehicles and equipment, such as trucks, cars, cranes, construction equipment and forklifts used throughout our operations. Through XM-2/XM-13, the Company owns approximately 4,000 over-the-road self-propelled vehicles, including passenger vehicles, bucket

trucks and tractor-trailers. Factoring in other pieces of mobile equipment, like backhoes, aerial devices, forklifts, and trailers used to move equipment and materials, the Company owns over 5,000 pieces of rolling equipment. This figure includes highway, non-highway powered equipment, trailers and mounted equipment for tracking purposes. Exhibit __ (SSP-2) sets forth projected XM-2/XM-13 expenditures related to the replacement of existing equipment.

Q. Please describe how XM-2/XM-13 is budgeted.

A. The Company selects for replacement fleet vehicles and equipment based on age, maintenance, and reliability. This methodology, referred to as the lifecycle model, utilizes factors related to capital cost, residual value, cost of maintenance and utilization over the life of a representative asset to determine an appropriate point at which it makes financial sense to replace such asset. The Company maintains a database of these assets and their associated operating costs. Annually, the Company identifies vehicles and other equipment that are at or beyond lifecycle for the specified budget year. The Company uses actual (historical) and expected maintenance data, as well as vehicle utilization data, to determine the most economical point to replace an asset rather than

endure increasing maintenance costs and reduced reliability that would adversely impact our ability to respond to the maintenance needs of the T&D systems. The lifecycle model also takes into account the change in maintenance costs as the asset ages. This optimizes the Company's overall cost to own and maintain these assets, and serves as a starting point for vehicle replacement decisions. The Company also utilizes its judgment and experience, as well as case-by-case evaluations of certain assets, in making replacement decisions.

Q. How is that analysis used to budget from year to year?

A. The Company maintains a table of various asset-types and their ideal/economic replacement age. This is a starting point and is further refined by looking at the specific assets chosen as candidates for replacement. Based on that review, the Company may either retain an asset that has performed better than its peer group, or accelerate the replacement of an asset that is performing below its peer group. For instance, the current expected life-cycle analysis for utility trucks indicates it is advantageous to replace these types of assets roughly every eight years. That analysis, as well as those performed for other classes of assets, is based on nearly 30 years of accumulated

maintenance data from the Company's Vehicle Management System.

Q. Do all fleet vehicles have an eight year life-cycle?

A. No. Life-cycles can vary depending on location, vehicle usage, application, etc. For example, a utility truck in Manhattan used for three shifts, seven days a week could be replaced before an older vehicle in Westchester that has two shifts of five day usage in a typical week.

Q. What would be the ramifications of not meeting the purchase requirements in XM-2/XM-13?

A. The cost to operate fleet vehicles and equipment beyond its economic life compounds if not replaced at an optimal point in its life-cycle. Over time, we have found that the cost to maintain this equipment can rise substantially in a short period of time if the replacement of equipment is deferred or delayed (based on the lifecycle model). Reduced spending on replacement equipment would result in older and less reliable fleet vehicles and equipment being kept in service. Vehicle availability may also be impacted, and in some cases, equipment would age beyond our ability to purchase replacement parts. The consequence of this would be the introduction of an adverse effect on operating personnel's ability to respond to emergencies and to perform routine maintenance and necessary construction

projects. The Company cannot operate vehicles, such as red wagons, flush trucks, or bucket trucks that are not road worthy or capable of performing their functions. If adequate numbers of vehicles are not available, responses to system equipment failures, storm and weather related events and other emergent conditions could adversely affect customer restoration time.

While some vehicles can feasibly be maintained longer than the life-cycle would suggest with “average” performance, some critical equipment can begin to suffer structural failures due to age. The catastrophic mechanical failure of bucket-trucks, cable-pulling equipment, heavy trucks and cranes, for example, could result in injuries to equipment operators and the public.

Q. Do the projected spending levels include any cost reduction efforts?

A. Yes, in addition to the vehicle replacement process described, Transportation employees have worked with manufacturers and engineers to improve maintenance designs and remove common failures. For instance, in 2013, Transportation’s engineers improved upon the design of its bucket truck body. The improved design, which incorporated lighter material, allowed for the purchase of a lower gross vehicle weight rated (“GVWR”) chassis and reduced the

overall vehicle purchase cost. We also expect to see reduced maintenance costs as a result of this change. In addition, in 2014, Transportation's engineers piloted an improved flush truck design that eliminates several high priced components, incorporates a simpler more efficient water heating system and hydraulic drive system which reduces the overall purchase cost. With these improved designs, we also expect to see reduced maintenance costs by eliminating known high maintenance components. And finally, by competitively bidding large contracts to multiple vendors, negotiating volume discounts with the major Original Equipment Manufacturers and establishing multi-year agreements, the Company leverages its buying power, reducing the up-front cost of the equipment. The department also employs qualified mechanics, with the appropriate technology to effectively diagnose and repair equipment. These factors reduce initial cost and maintenance, all of which translate into being able to prolong the life of our assets and/or maximize the effect of our capital replacement programs. Although we are increasing our vehicle levels due to the Gas Operations expansion, we continue to monitor and analyze the fleet size and seek fleet reduction opportunities where feasible.

Q. Are there any factors that may increase the initial purchase cost of Transportation assets?

A. Yes, the United States Environmental Protection Agency ("EPA") continues to require diesel-emission engine control equipment for new vehicles such as greenhouse gas and fuel-efficiency Phase 1 standards, which took effect in 2014 and will continue through 2019. In previous years, these diesel emissions components added approximately $15,000 to the purchase price of every diesel vehicle. However, the additional cost of meeting this regulatory standard through 2019 is not known at this time. The budget for these costs includes the existing component cost since the Company cannot reasonably predict the costs for any new engine upgrades to meet these efficiency standards. The Company annually purchases about 150 diesel-powered vehicles that are affected by these regulations.

Q. What is the projected spending from RY1 to RY3 for XM-2/XM-13?

A. We project to spend $48.1 million in RY1, $49.1 million in RY2, and $46.0 million in RY3.

Q. Please explain the spending levels in RY1, RY2, and RY3.

A. The spending in those years is primarily attributed to the Gas Operations expansion program which includes the purchase of approximately 80 additional vehicles and pieces

of equipment in RY1, 70 in RY2 and 20 in RY3, which equates to $8.1 million in RY1, $6.7 million in RY2 and $2.1 million in RY3.

Q. What is the projected spending from RY1 through RY3 without the additional vehicles for the Gas Operations expansion?

A. The projected spending without the additional Gas vehicles would be approximately $40.0 million in RY1, $42.4 million in RY2, and $43.9 million in RY3. In comparing these levels to Exhibit __ (SSP-2), these XM-2/XM-13 expenditure levels, absent the Gas Operations' needs, are slightly higher than in prior years. This increase is due primarily to the timing of replacement lifecycles.

XM-4

Q. Please describe the category of equipment known as XM-4.

A. This is the Shop Equipment category. The equipment includes floor grinders, lathes, milling machines, welding equipment, drill presses, jib cranes and hoists, and specialized equipment to repair network transformers and switch gear equipment.

Q. Please describe how the budget is designed for XM-4 equipment and what the basis is for the equipment requirement and use.

A. The XM-4 Budget replaces Shop Equipment at the Van Nest Shops Operations Facility, the Transformer Shop in Astoria,

and the Electric Operations Metering Facility located at Van Dam Street in Long Island City. The equipment requirement is based upon workload, including emergency fabrication of specialized parts, such as obsolete motor and pump seals, wear rings for pumps, and bushings; substation bus bars, bushings, tap changer items, bus duct, and disconnect switches; and gas CNG bypass equipment, cutting and taping tools, and regulator stations. The three facilities mentioned above support Electric and Gas Operations. For example, under XM-4, there have been repairs to feeder pipe lines, fabricating gas regulating stations, and repairs to disconnect switches and circuit breakers.

Failing to perform this support work could have an adverse impact on delivery time of repairs and fabricating new parts, and returning generation/distribution equipment to service.

Q. What are some of the planned equipment replacements for Van Nest's Shop Operations from RY1 through RY3?

A. Some of our major equipment purchases under this category will include a pipe bender, Faro Arm, hydraulic shear, and heavy duty bending Brake.

Q. Please describe the types of equipment expected to be purchased in XM-4 in RY1-RY3.

A. We expect a mix similar to prior years to continue in the years RY1 through RY3. For example, in 2014, we purchased $500,000 of equipment comprised of Flow Jet and machining equipment, whereas in 2015, we spent approximately $600,000 on a hydraulic heavy press break and a hydraulic shearing machine.

Q. How much do you plan to spend from RY1 to RY3 for XM-4?

A. We expect to spend approximately $400,000 annually from RY1 through RY3 for XM-4.

Q. Do the projected spending levels included in this case reflect any efforts by the Company to minimize expenditures for this equipment?

A. Yes, the equipment purchased with the XM-4 budget is procured through the Company’s Supply Chain organization, which employs a bidding process for vendors on pricing pieces of specialized equipment. This process can yield lower prices for equipment, and in some cases, cost savings can be acquired through combining the purchase of multiple pieces of equipment through a single vendor.

XM-8 and XM-10

Q. Please describe the categories known as Communication Equipment (XM-8) and Computer Equipment (XM-10).

A. The equipment in XM-8 and XM-10 provide the means for Company employees to communicate and access business

systems, including the Customer Information System (“CIS”), Outage Management systems, electric and gas monitoring and control systems as well as financial, human resource, and legal systems.

XM-8 “Communication Equipment” is capital communications equipment, which is mostly carrier-grade, including fiber optic cables, electronic and optical communications protocol components, transmitters, receivers, amplifiers, reflectors, towers, radios, telephones, vehicle mounted radios, walkie-talkies, telephone switches and microwave equipment.

XM-10 “Computer Equipment” is computer equipment used throughout the Company and includes servers, storage, Uninterruptable Power Supplies (“UPS”), mainframes, printers, plotters, computer network equipment often referred to as routers, and switches as well as laptops, tablets, desktops, and mobile data terminals (“MDTs”). Computers are essential to conducting the Company’s day-to-day business functions and the needs for this equipment have grown in criticality as the Company becomes more automated and the use of sophisticated business systems has grown. There are approximately 500 business applications accessed via the Company computers and the number grows each year. E-mail, contact lists, and calendaring

functions are essential communication and time management tools for employees. Computers purchased through XM-10 provide access to the information and control of the Company's energy management systems, financial systems, work management systems, and customer billing information.

Q. What is the process associated with the replacement requirements for the XM-8 and XM-10 categories?

A. XM-8 equipment has an extended life and is replaced at eight to ten year increments.

Items covered under XM-10 are normally replaced on industry standard practice of five years or as business requirements dictate new technology specifications.

Q. Under XM-10, please provide a summary of the approximate number of PCs, Servers, and Networks within Con Edison.

A. As of December 1, 2015, Con Edison had:

- Tablets – 1,299
- MDTs – 1,896
- Laptops – 4,342
- Desktops – 7,688
- Total Servers – 2,660

Note: This table does not reflect the 2015 XM-10 purchases discussed earlier. This equipment is scheduled for deployment in early 2016.

With respect to number of Networks, Con Edison has one Logical Corporate Information IP network used for enterprise business applications including email, intranet, and file resources. There are also operating control networks that are separated from the Corporate Network by firewalls. Firewalls are devices that provide security between networks. The control networks are located in our control centers and use a combination of Company-owned and public carrier communications circuits to communicate to field assets. The network which connects the control centers and substations is called SCADANet, discussed later in this testimony.

Q. How many computer devices are purchased on a yearly basis?

A. Since approximately 2011, the total number of laptops and desktops has stabilized and purchases are mostly limited to address obsolescence and repairs. As computers are retired and replaced, employees are moving to laptops and tablets and away from desktop PCs to allow for mobility. This trend is expected to continue and the overall number of devices increases marginally as field devices (tablets) become more prevalent for the work force. Specifically, we expect to see growth in the newer tablet market where field crews can use less expensive and more functional devices than the traditional MDTs.

Improvements in technology have enabled access to systems and information from any computer or tablet. This allows employees to use personal devices and eliminates the need for employees to have multiple Company devices to facilitate remote access, allowing the Company to maintain a lower total number of devices. Our mobile operating workforce requires immediate access to maps and procedures to perform their jobs wherever their work takes them.

Q. How much do you plan to spend in RY1 – RY3 for these XM categories?

A. In RY1, we expect to spend $3.3 million and $12.8 million on XM-8 and XM-10, respectively. In RY2, we expect to spend $2.8 million and $11.9 million on XM-8 and XM-10, respectively. In RY3, we expect to spend $2.8 million and $11.7 million on XM-8 and XM-10, respectively.

Q. How much of this funding is attributed to the increases in the Gas Operations Department?

A. The additional equipment needed for Gas Operations increases the XM-8 in all three rate years by a de minimus amount and XM-10 budgets by $409,000 in RY1, $288,000 in RY2 and $94,000 in RY3.

Q. Please explain the ramifications for the Company if it is unable to meet its projected needs in XM-8 and XM-10.

A. In XM-8, failure to perform upgrades and expansion to the Company's communication systems would result in an increased failure rate and limit performance and capacity of communication services affecting energy delivery systems, voice communications, and feeder protection circuits. Reliable communications systems and distribution automation systems are required to support field restoration activities and the automation of the distribution systems that maintain electric service. Con Edison operates a wireless communication system that is used by Electric Operations to manage the electric distribution network. The system provides radio coverage to pole tops and is used to operate switching devices to minimize outage duration and provide more rapid restoration during system disturbances, like storms and feeder trip-outs due to peak loading and faults. Con Edison also operates a single master site wireless communication system for voice service supporting Electric and Gas business units. The system provides on-street radio coverage for Con Edison's operations personnel throughout its 660-square mile service territory. It incorporates a man-down safety feature that alerts control center personnel to a potential safety situation affecting a field operator and is essential to Con Edison's public utility services in both

routine and emergency situations. This equipment also improves system reliability by allowing for communications between the control center and substations even during events that affect public carrier communications. If the needed equipment in the XM-10 category is not available, the Company's ability to provide reliable access to all Company computing systems would be adversely impacted. This equipment is necessary and essential to the operations, maintenance, and expansion of the electric and gas systems, and is also an integral part of other infrastructure and business systems used by the rest of the Company including Customer Operations, Finance, and Transportation. The equipment includes items such as server hardware and software, storage, network switches, and routers, as well as PCs, tablets and laptops.

Q. Do the levels included in the XM-8 General Equipment category reflect any cost reduction efforts by the Company?

A. Yes. Within XM-8, all equipment purchases are made through competitively bid contracts. We have also been successful in re-using communication huts that have been decommissioned by external carriers, such as at our Queens Boulevard location. We consider smaller and less expensive environmentally sound cabinets where they can be used, instead of a standard communications hut, saving

approximately $50,000 per cabinet. To support our radio systems, we look for opportunities to use transmission towers as cell sites, as opposed to incurring lease costs at private locations. We have also been successful in deploying mobile generators when needed rather than installing permanent units at each cell site.

Q. Do the levels included in the XM-10 General Equipment category reflect any cost reduction efforts by the Company?

A. Yes. The RY1 capital expenditure for this category is lower than it otherwise would have been. For example, IT has initiated programs to optimize its mainframe costs. One such program leverages IBM hardware and software products against non-IBM vendors suggesting suitable IBM replacement products and uncovers duplicate functionality between software products as well as products not being utilized. For required tools of which there are no suitable IBM replacements, IT has been utilizing in its contract negotiations best practices obtained from an industry consulting expert for price and duration of contracts. In addition, IT has been attempting to improve the run time efficiencies of several of the largest production batch jobs. Based on these practices, the Company has saved over $500,000 in total during the past three years.

Con Edison has also instituted the use of virtual servers and Storage Area Network ("SAN") technology, which allows more efficient use of computer hardware and reduces costs. Server virtualization allows multiple logical servers to reside on a single physical server. During 2015, the server virtualization program achieved a rate of approximately 79% virtualization, which has reduced the need for over 2,000 physical servers. This also improves disaster recovery by migrating electronic virtual server images from one server farm to another, and also reduces the power and cooling necessary for physical servers. Cost savings are realized by avoiding the need to acquire as many physical servers and house those servers in server farms with the appropriate cooling and power capacity. Each virtual server saves approximately $10,000 in avoided capital costs, a $3.75 million savings in 2015 alone based on 375 servers. As a result of these efforts, we have been able to defer building a new Company-owned server farm to host servers from 2014 to 2018, as discussed in the IT portion of this testimony.

IV. INFORMATION TECHNOLOGY

Q. Please describe the IT organization and its organizational structure.

A. IT supports the various corporate information technology initiatives. The organization is comprised of four sections: (1) Application Services, (2) IT Planning, (3) Technology Services, and (4) Quality Assurance/Contract Administration/Operation Support.

Q. What are the functional responsibilities of the four sections?

A. (1) Application Services provides and maintains computer-based applications for Con Edison. This group facilitates change and improvement of business practices and processes through the use of enabling technologies, and information and application software.

(2) IT Planning establishes hardware and software standards for the computing and communications infrastructure; introduces new technology into the architecture; and is responsible for cybersecurity policy. IT Planning also provides planning and operations support for the Corporate Communication Transmission Network ("CCTN"), a private communications network, as well as multiple Company-owned radio and telephone systems.

(3) Technology Services provides the organizational support and operations for the Company's IT in the areas of data and visual communication, equipment, and disaster recovery.

(4) Quality Assurance/Contract Administration/Operation Support assures quality for IT processes in areas of operational security and audit management. The group provides administrative services for corporate computing and telecommunications contracts.

Q. How are the overall information technology needs of the Company addressed?

A. IT assigns employees to work with operating and/or support organizations to assist with those organizations' technology needs. IT staff and the business area organizations work together to determine the needs and develop proposed solutions for those needs. For example, the Electric Infrastructure and Operations Panel ("EIOP") testimony describes a number of IT projects aimed at improving outage and storm response, distribution automation, and work management improvements whereas the GIOP testimony explains its technology plan to improve the Company's work and asset management processes. IT is responsible for all corporate information technology needs associated with these types of activities.

Q. How does IT work to support the Company?

A. The Company's IT organization works closely with the Company's various operating and support organizations. IT forecasts and plans future technology needs, develops

standards, and assesses and influences product roadmaps for technologies. It also establishes vendor selection criteria so that technology may be maintained and best fit solutions to future needs may be obtained to mitigate technology risks.

Q. What measures is the Company taking to enhance management of its IT portfolio?

A. We are developing a Company-wide approach to technology choices (standardization) to the greatest extent possible. The Company's technology components, such as programming languages, database management systems, reporting tools, and vendor applications need to be upgraded and changed periodically. Every component also requires varying levels of knowledge in order to utilize the capabilities. With thousands of choices in technology components, standardization will help the Company to manage both costs and risks in the long term.

In addition to standardization, on-going oversight of the IT portfolio helps the Company avoid repeated upgrades to the same applications. The Company is attempting to reduce these iterative upgrades by planning bundled component upgrades.

Q. Please discuss IT's role in large IT projects with Company-wide implications.

A. IT, working with all corporate organizations and senior management, contributes to the staging of technology initiatives. As explained in more detail below, the Company has a number of major technology initiatives planned over the next few years, including implementing:

- Advanced Metering Infrastructure ("AMI"),
- Digital Customer Experience ("DCX"),
- Gas Work and Asset Management ("Gas WAM"),
- Reforming the Energy Vision ("REV"),
- Distribution System Implementation Plan ("DSIP"), and
- Customer Service System ("CSS").

These are all significant undertakings intended to improve the effectiveness and the range of services that we are able to offer to our customers. Undertaking any major technology project is inevitably complex and must be carefully managed. Implementing multiple major technology projects at the same time adds to the overall project complexity, especially when the projects are related. The Company, therefore, tries to strategically stage such projects.

Q. Has the Company recently implemented Company-wide systems?

A. Yes. Over the past decade, the Company has implemented a new Human Resource and Payroll System, a new Finance and Supply Chain platform, a new enterprise electronic card

access system linking all aspects of physical security into the Security Operations Center ("SOC"), and a new work management platform in Electric Operations. Additionally, as discussed by other Company witnesses in their testimony, Con Edison is implementing the DCX solution, is planning implementation of an AMI system, and is identifying technology opportunities to support the Commission's REV strategy.

Q. When the need for a Company-wide system is identified, what is the Company's process for developing such a system?

A. Generally, when the need for a new core utility system is identified, a team is formed to study the options, costs, and benefits. This team works to develop requirements and perform what is commonly referred to as an implementation study (also known as a Phase 0 study).

Q. What is an implementation study?

A. An implementation study is a pre-requisite for the implementation of major IT business projects. Con Edison has completed implementation studies prior to installing and implementing major corporate systems. Most recently, implementation studies were completed for most of the projects described above.

Q. Why is an implementation study performed?

A. For two reasons. First, the implementation study is intended to assist the Company in determining the scope of the project. Second, because the study details the scope of the project, the steps necessary to undertake and complete the project as well as the necessary associated labor, the study provides the Company with a detailed cost estimate. These two steps are important to controlling the project and its costs.

Q. Please describe how the implementation team is comprised and the team's function.

A. The team includes a project manager, business area subject matter experts and IT personnel. The team also typically includes resources from an IT consulting firm that has experience with implementing the target technology. The deliverables from the analysis include a detailed implementation plan with rollout schedules. Key components needed to develop this plan include:

- a summary of business requirements, including which functions need to be developed and implemented;
- a detailed project schedule with:
  - o implementation options,
  - o necessary resources, and
  - o a fully developed cost estimate;
- a comprehensive data conversion plan;

- a complete testing plan;
- a rollout plan; and
- change management plans.

Q. How long does it generally take to develop an implementation plan?

A. Typically, for a major system, it takes six to nine months to complete the implementation plan.

Q. What happens next?

A. After the implementation plan is completed, the executive sponsor of the project seeks approval from senior management. Once the project is approved, the implementation team is compiled as well as an executive steering committee which guides and monitors the implementation process.

Q. How does the Company determine what corporate-wide IT initiatives will be undertaken?

A. IT works with business areas to establish priorities and a technology strategy designed to achieve our business objectives. Senior management also guides and governs the process. As a result, the Company performs a strategic planning process to develop a technology roadmap and evaluate whether or not to undertake projects considering, among other items, value to customers, risk mitigation,

cost benefit and rate impact and resources required to complete the projects.

Q. Has IT developed a plan for maintaining and supporting the Company's computing infrastructure needs as well?

A. Yes. IT has established a comprehensive plan for the next five years to continue to support the Company's IT environment, control costs, and enable new systems and technology. These investments also provide support for new business IT projects. The plan contains many initiatives and includes a combination of new program changes (O&M expenses) and capital projects. Two of these initiatives, Cybersecurity and the Server Farm plan, contain elements of both capital investment and program changes.

Q. Before discussing the IT programs, please generally explain the nature of the Company's relationship with software vendors.

A. Computing companies' business strategy is based on two items: (1) releasing new versions of their systems, perhaps addressing prior issues with the old version of the system or adding enhancements to the system; and (2) having a license contract where the consumer must buy upgrades and support for a certain time period. Many of these upgrades are necessary to maintain pace with technology as well as

address cyber security vulnerabilities that may be exposed over time for the product.

Q. Does the Company have to upgrade systems and procure licenses?

A. Yes. And we are seeing more vendors adopting this type of strategy. In fact, in these rate filings, there are funding requests for upgrading systems or for license fees due to the billing structure of the contracts. Not upgrading or maintaining licenses can leave those technologies vulnerable to security threats. There are currently approximately 500 software applications supported by our IT organization. These applications are operated on numerous hardware and communication systems acquired at different times for particular purposes. The software, hardware and communications infrastructure may also become obsolete. The Company must engage in a regular program of technology replacement and upgrades that generally require data conversion and full testing of the upgraded technology.

The potentially costly and extensive effort required for upgrades requires careful IT project and portfolio planning to manage project risks.

Usage of vendor software and cloud platforms requires comprehensive license management. The Company must comply with license requirements.

IT Capital and O&M Expenditures

Q. What is the forecasted level of capital and O&M expenditures for IT?

A. For capital, we are projecting approximately $29.6 million in expenditures in RY1, approximately $51.2 million in expenditures in RY2 (including $30 million for the new server farm), and approximately $21.2 million in expenditures in RY3.

For O&M, we are projecting program changes for $8.3 million in incremental expenditures in RY1, $4.0 million in in RY2 and $1.3 million in RY3, exclusive of escalation.

Q. Have you prepared exhibits entitled “Information Technology – Cybersecurity Programs” and “Shared Services - Information Technology White Papers” detailing the projects and programs for the IT organization?

A. Yes, we have.

Q. Were these exhibits prepared under your direction and supervision?

A. Yes, they were.

MARK FOR IDENTIFICATION AS EXHIBITS __ (SSP-4, SSP-5)

Q. What is the forecasted aggregate level of expenditures?

A. In total, for capital (excluding XM-8 and XM-10) for RY1 through RY3, the capital expenditure will be $102 million. For O&M, we are projecting approximately $13.6 million of incremental costs for the three rate years, excluding escalation.

Q. Please list the categories of IT expenditures that are discussed.

A. We sponsor capital and O&M requests for the following projects:

- Cybersecurity
- Server Farm Expansion and Infrastructure

We sponsor O&M requests for the following projects:

- Cloud Computing IaaS
- Cloud Computing SaaS
- Application Architecture
- Frame Relay Decommissioning
- Data Analytics
- Electric Ops Support
- Gas Ops Support
- Mainframe Software Maintenance
- Software Maintenance

We sponsor capital requests for the following projects:

- Five CCTN Projects

- SCADANet
- Application Monitoring and Management
- BSS Database Plan
- BSS Server OS Plan
- Business Systems Sustainability Desktop OS Plan
- CCAS (Computer Enhancements)
- Collaboration Tools
- Data Center Renovation NOC
- Desktop Infrastructure
- Enterprise Applications
- IT Asset Management (IRIS)
- New Technology

Cybersecurity

Q. Turning to your first program, please describe the Company's cybersecurity initiative.

A. Cybersecurity is the process of maintaining the confidentiality, integrity and availability of computing resources against attacks from hackers and malicious software. It is important because of the risks to both our critical infrastructure and customer information, including personally identifiable information ("PII"). A successful cyber attack could, for example, have safety and/or reliability consequences for our customers, our employees

and the general public. And, there continue to be more successful cyber attacks against various companies.

Q. Please continue.

A. The Company has identified cybersecurity as one of its top corporate risks and addressing this risk is being incorporated into every aspect of our business. While many steps have already been taken to design and implement a security perimeter to defend Company cyber resources, new risks are identified each day and new techniques are needed to stay secure, improve our defenses, and stay ahead of malicious actors. Attack vectors change and responses to them must be swift and definitive. The risks from cyber attacks include operating failures of control systems, damage to transmission and distribution assets, the loss of sensitive data and employee and public safety.

Q. Are there other initiatives that affect the nature of the Company's actions to address cybersecurity?

A. There are several initiatives/rules that affect our actions. They include:

1) this Commission's recommendations, in Case 13-M-0178, for utilities to handle, protect, secure and dispose of customer PII,

2) North American Electric Reliability Council's ("NERC") Critical Infrastructure Protection standards ("CIPv5"),

which contain federally enforceable cyber security rules for the bulk electric system,

3) National Institute of Standards and Technology ("NIST") framework, which contains a voluntary framework for cyber security standards, and

(4) potential legislation at both the federal and state level regarding cybersecurity, including data breaches.

Q. How has the Company been addressing the cybersecurity challenge?

A. The Company continues to address cybersecurity from three main vantage points: (1) preventing and educating, (2) monitoring, detecting and alerting, and (3) responding to incidents, including recovery/mitigation. These three areas are described below.

Q. What does the Company mean by prevention and education?

A. Prevention is aimed at avoiding any attacks on our system. Education provides employees with information on their role in preventing cyber intrusions.

Q. Please explain some of the prevention-related steps the Company undertakes?

A. Under prevention, there are many steps that the Company undertakes to protect its systems. For example, the Company:

- protects the perimeter and internal IT assets with the latest firewall and intrusion prevention technology;
- deploys technologies on the internal network to either detect or prevent malicious traffic (the downloading of viruses);
- performs proactive vulnerability scanning using the latest tools to identify risks and exposures, and mitigate risks through aggressive patching and configuration policies;
- installs intrusion prevention systems to protect servers that contain PII and has acquired tools to identify PII in our environment and detect PII leaving the Company network;
- established standards and policies to secure and protect Company systems, such as a new policy requiring two-factor authentication for all server administrative access; and
- engaged an external security expert to perform penetration tests on the Company's system and perform an overall vulnerability assessment.

Q. How does the Company educate its employees regarding cyber risks?

A. The Company uses several methods to do this. First, Con Edison has established a "CyberAware" brand and regularly

publishes advisories and best practice information to employees. Bulletins are provided to employees when there are potential threats that employees can assist in detecting or the threat may affect their Company or personal equipment.

Second, the Company performs phishing tests three times annually for all employees to raise awareness regarding potential phishing type of emails. Phishing test results are shared with Company employees so employees understand the risk of clicking on inappropriate links.

Third, each year, a segment of the Company's Standards of Business Conduct training is dedicated to cyber security. One year, the segment was on social engineering and phishing, another year, the focus was on PII.

Q. Turning to the second step, detection, what does the Company do?

A. The Company has a 24x7 Network Operations Center ("NOC"), which monitors our entire computing network to detect threats and vulnerabilities. Once detected, the NOC alerts the necessary personnel of potential vulnerabilities or attacks. The NOC also receives any unclassified, information-sharing related alerts from government agencies. Once this information is received, the NOC reviews the information contained in the alerts and checks

to determine any indicators of compromise on our system. Appropriate responses are identified and undertaken if compromises are detected either due to alerts or monitoring information. For example, the NOC reviews system activity logs to determine if malicious code has entered into the system.

We also work with external entities that provide the Company with information on potential threats on a real time basis. The monitoring includes working with other utilities and federal entities to gain information on both the risk profile as well as review of the Company's network traffic and having this information analyzed on almost a real-time basis.

Q. Please explain your third cybersecurity area: Incident Response and Recovery/Mitigation.

A. The Company has designed its network to minimize the impact of a breach. The Company has also developed plans and procedures to respond to cyber attacks and data breaches. In addition, the Company's has developed procedures so that its response to any incident includes using forensics to determine what occurred, how to address the issue and then correcting the issue. We have forensics experts in both IT and Corporate Security (discussed later in this testimony).

Q. Is there more work to do in the cybersecurity area?

A. Yes. While Con Edison has invested in people, process, and technology to implement a security strategy and program highlighted by applying layers of defense, given the rise in the volume of threats, especially in the energy sector, and the increased complexity of threats, we must continue to implement technology to improve detection, resiliency, and recoverability.

Q. How are you addressing the continued work?

A. To stay ahead of the threats that exist, we must have the technology in place to prevent and detect threats and upgrade these technologies as new or upgraded versions becomes available. Cybersecurity risks today are evolving into advanced persistent threats (“APTs”), which are unlikely to be detected using dated technology. In addition, as noted earlier, the Company must continue to pay license and upgrade fees for both new and upgraded technologies, so that we can have the latest intelligence and are not affected by a zero-day incident.

Staying ahead of the threats means continuing many of the items we have mentioned above. The Company will also continue to work with outside experts on security and threat monitoring.

Q. Describe the O&M program changes relating to cyber security.

A. The O&M program changes are approximately $7.6 million starting in RY1 and continuing through RY3. The annual amounts are $1.0 million in RY1 and $3.3 million in each of RY2 and RY3.

The total projected capital costs are $13.2 million. The annual amounts are $4.4 million in each of RY1 through RY3. These initiatives are described in Exhibit __ (SSP-4), which are being submitted on a confidential basis.

Q. Are there additional, unanticipated expenditures to address cyber security threats that may be necessary?

A. Yes. As mentioned above, there are on-going initiatives and legislation that may affect the programs the Company is undertaking. For example, in the REV proceeding, Staff is considering implementing the Department of Energy Voluntary Code of Conduct for protecting customer information. Implementation of this Code of Conduct could have significant costs.

Equally important, new cybersecurity vulnerabilities and subsequent exploitation of these vulnerabilities could occur, leaving us exposed to serious risks. In these cases, the Company would take any actions necessary to implement protections immediately. Addressing these risks would assume very high priorities within the Company process for allocating additional investment.

Server Farms and Cloud Computing

Q. Please explain server farms.

A. The use of computers, computer systems and business applications require servers and storage capacity. Business systems and applications enable critical business functions for the Company and include financial systems, customer systems and control systems. A server is large and powerful computer that hosts business systems or files and services requests from PCs or other servers. A server farm is a facility that houses the servers in a secure and equipped (power, cooling, cabling) environment.

Q. What is cloud computing?

A. Cloud computing is an architecture where servers are deployed in an environment that is scalable and reliable with large capacity and high availability schemes, including load balancing and automatic failover to protect against loss of data. Cloud computing could be deployed within a private company’s environment or purchased as a service from a cloud provider. The major benefit of using a cloud provider is that the physical server farm is managed and supported by the provider, allowing a company to concentrate on its core business IT needs.

Q. Please describe the Company’s plan for Server Farms and cloud computing.

A. The Company has established a five-year plan that uses both private and provider cloud computing environments to enable the continued operation of the IT environment and have the capacity to meet the need for new systems. This is commonly referred to as a “Hybrid Cloud.”

Q. Please explain a hybrid cloud in more detail

A. Critical and sensitive IT systems and information will reside in the private Company server farms while test and development servers and certain files systems can be moved to a public cloud. The advantage to this approach is that the large costs associated with building server farms can be reduced and deferred, such as the Company’s decision to defer one server farm from 2016 to 2018.

Q. You mentioned the need for hybrid clouds to support new systems. What systems were you referring to?

A. Future systems include plans for AMI and other systems such as Meter Data Management System (“MDMS”), Gas WAM and systems that would support REV.

Q. Please further explain your cloud computing plan.

A. There are four programs associated with this plan: two capital related to server farms (Server Infrastructure and Server Farm Expansion); and two O&M that are related to cloud computing (Software as a Service (“SaaS”) and Infrastructure as a Service (“IaaS”)).

Q. Please describe the Server Infrastructure capital project

A. The Server Infrastructure project provides for upgrades to server farms.

Under this program, the Company plans to spend $1.2 million in RY1 and $1.5 million in each of RY2 and RY3. Work to be performed in this program includes, among other items, upgrading power, cabling, and HVAC systems to support storage arrays and server capacity, replacing batteries at various units, upgrading power infrastructure at various units, and adding fiber capacity at various units.

Q. Why is there a need to upgrade the server farms?

A. The server farms need to be upgraded based on the projected volume of computing needs. Systems like AMI, DCX, Electric and Gas WAM, MDMS as well as existing systems require additional computing space. As we grow in systems and systems grow in complexity, this increase will continue.

Q. Please describe the Server Expansion capital project.

A. The Company’s server farm expansion project is a multi-year project intended to address the need to decommission the 4 Irving Place data center, which must be relocated elsewhere in order to maintain operations. The 4 Irving Place Data Center contains both mainframes and servers.

Q. How is the Company addressing this need?

A. First, during 2015-2016, the Company is expanding the existing server farm at Van Nest to support relocation of the mainframe and servers from the 4 Irving Place data center. As part of this relocation, the Van Nest server farm will be expanded with network, server and storage capabilities. The cost of the Van Nest project is approximately $13.0 million during 2015-2016.
Second, the Company will construct a new server farm at Worth Street in 2017-2018 for use in 2018. The Worth Street server farm allows the Company to plan for future computing storage needs for the computing initiatives mentioned earlier, like AMI, MDM, REV and Gas WAM. The availability of the Worth Street server farm will assist with providing available space and computing resources for those initiatives. Under this capital program, the Company plans to spend $10.0 million in RY1, $30.0 million in RY2 and $1.5 million in RY3, with expenditures for Worth Street comprising approximately $40 million.

Q. Is there another component to the server farm plan?

A. As explained below, in conjunction with these server farm expansions and additions, the Company intends to use cloud computing to provide additional storage and server capability, explained later.

Q. To be ready for the hybrid cloud, has the Company undertaken other projects?

A. During 2015, at a cost of approximately $2.0 million, the Company acquired tools to monitor and manage storage and server capacity and to automate provisioning.

Q. Please discuss the cloud computing and hybrid cloud projects.

A. Starting in 2015, Con Edison began incorporating public cloud services and plans to steadily increase the use of the cloud services over the next few years through multiple cloud providers. There are two types of cloud services we plan to deploy, SaaS and IaaS.

Q. What is SaaS?

A. SaaS is a subscription/service with a monthly or annual cost and does not require a capital investment for hardware and server software. SaaS requires the purchase of a license to use software, as opposed to purchasing the software itself. Under SaaS, when upgrades are made on software, it is automatically received by the user, as opposed to the user needing to install it.

Q. How will the Company use SaaS?

A. The Company plans to deploy the next version of office products, such as Word, Excel and/or PowerPoint, to employee computers using cloud services based on the

subscription model. Services available today provide up-to-date software for office systems including e-mail, spreadsheets, documents, and presentations located in secure repositories within the cloud for offsite storage and, as a result, are accessible from any location. We expect this initiative to be more cost effective than purchasing the software licenses in the traditional fashion and installing the software on 15,000 computers. The plan calls for a phased rollout to the SaaS model over a three-year period. In 2015, the Company deployed this technology to 600 employees. In 2016, the number will increase to approximately 1,000 employees. For RY1, the Company will spend $900,000 for 7,500 users. By RY2, the rollout will be complete, with all users, approximately 15,000 in total, receiving subscriptions at an annual cost of $1.8 million.

Q. Please explain IaaS.

A. The Company plans to engage and contract with IaaS cloud service providers for data center capacity to expand resources and improve reliability. The cloud service would be securely connected to the Company’s network and provide multiple benefits. IaaS is also deployed with a monthly or annual subscription model, as opposed to a capital investment of a server farm and associated server and storage hardware.

Q. What does IaaS do?

A. IaaS services, which will be combined with our own private server farm capacity and referred to as a hybrid cloud, offers scalable solutions that are designed to quickly provision servers and storage. The IaaS services would be deployed in such a way as to provide mobility between the service providers and Company facilities offering Con Edison granular control over workload location. The use of these services will reduce and defer capital expenditures that would have been otherwise required to construct data centers and purchase network and server hardware. While there are projects to expand Van Nest and build a Worth Street server farm, absent the IaaS solution, the Company would have been accelerating and increasing projects for additional server farms to meet existing and projected computing needs.

Q. What is the projected O&M cost for IaaS?

A. In 2016, we expect to procure this service at a cost of $500,000 and increase to $1.0 million in RY1, $1.5 million in RY2 and $2.0 million in RY3.

Q. Are there cost benefits associated with IaaS?

A. Yes, IaaS pricing is structured in a way that only charges for computer cycles in use. By deploying a hybrid environment, the Company can use IaaS cloud services to

host workloads that are not required on a 24x7 basis and, therefore, only pay for those services when used. Two examples where we intend to use this technology include test and development severs and remote access servers, where server capacity must be increased during Company events to support additional remote employee access to systems.

Q. Why are these cloud computing and server farm projects important to Con Edison and its customers?

A. Computer systems and business applications require servers and storage capacity. Business systems and applications enable critical business functions for the Company and include financial systems, customer systems and control systems. Servers also provide access to Company data in the form of email, files and maps. The ability to access these systems and resources is critical to the Company. The amount of electronic data has grown ten-fold over the past five years and the rate is expected to continue. These projects are designed with redundancy, diversity, and provide a secure and reliable environment for resources for the next decade. The Worth Street server farm will also present opportunities to deploy systems faster and access resources faster and more reliably than today by deploying private cloud automation. Ultimately, the hybrid cloud

environment will facilitate an efficient and flexible operation, which would be able to be expanded as needed for planned business systems as well as provide the necessary performance and reliability.

Remaining IT O&M Programs

Q. Please describe additional planned IT O&M programs.

A. We have several O&M programs. The first four programs planned describe the need for incremental IT support staff and the remaining three programs involve equipment.

Q. Can you please explain the first four programs involving additional human resource support?

A. Yes. These projects, which are described in more detail in Exhibit __ (SSP-5), are:

- Enterprise Data Analytics: This program requests funding for eight technical FTEs to support a new analytics organization. Different organizations throughout the Company look to access volumes of data and for the capability to use advanced analytics that combine data from the enterprise systems, legacy systems and external sources. Given the large volumes of data collected, the Company intends to develop a centralized group with core skills, tools and solutions for data analytics. This information could also be used to support departmental projects. Analytics allows the quick use of multiple

data sets to provide information to employees for business decisions. This initiative comprises the (1) acquisition and/or training of data architects, data scientists and data analysts, and (2) acquisition of data analytical modeling and development platforms and tools. The key to analytics technology is that it requires high speed computers to index and search large data repositories at high speeds. The Company plans to increase its spending by $1.7 million in each of RY1-RY3 to meet the Company's growing needs for this type of data.

- Electric Operations Support: As described in Exhibit __ (SSP-5), this program will add three technical developer FTEs as part of the business systems sustainability initiative for Con Edison's Distribution Electric Control Center's ("DECC") application portfolio. Con Edison plans to increase the IT support staff to assist in maintaining electric systems, such as work management and outage response systems. These three people will handle the growing number of electric system applications beginning in RY1 and the increase in spending is $360,000 in each of RY1, RY2 and RY3.
- Gas Operations Support: This program adds two experienced IT developers to support the Gas application portfolio.

The need for this work is similar to the electric support explained above as well as in Exhibit __ (SSP-5). The cost associated with the FTEs is $240,000 in each of RY1, RY2 and RY3.

- Application Architecture: This program is needed to add two technical architects to guide application decisions for commodity and business shared service IT portfolios. They will assist in decision-making regarding the implementation, replacement or extension of new and existing applications, employing software, such as reporting or web components, and building technology services that would be used for new commodity or business shared service applications. The need for these positions is described in Exhibit __ (SSP-5). The cost for the FTEs is $240,000 in each of RY1-RY3.

Q. Please continue with the remaining three O&M program changes.

A. These projects, which are more fully described in Exhibit __ (SSP-5), include the decommissioning of frame relay public carrier circuits, increased software maintenance and increased hardware maintenance and are described below:

- Decommissioning of Frame Relay Carrier Circuits: Verizon announced during the fourth quarter of 2012 that its frame relay service will be decommissioned by December

2015, but was extended to June 2017. Multiple organizations within the Company use this frame relay service for numerous critical applications, including SCADA systems. This critical technology provides operating areas with communications from control centers to assets at substations and other field locations. AS explained in Exhibit __ (SSP-5), all 823 frame relay circuits must be replaced with an alternative technology, Multiprotocol Label Switching ("MPLS"), by the time Verizon decommissions its frame relay service. Of those 823 circuits, 778 are 56kb circuits that will cost an additional $77 monthly. The Company has investigated various technologies to replace the frame relay service and MPLS technology is the best fit for the Company. As of December 2015, 306 circuits have been converted. The total additional cost will be about $700,000 each year, beginning in RY1, as all relays would be converted by the beginning of RY1.

- Increased Software Maintenance and Increased Hardware Maintenance: As explained in Exhibit __ (SSP-5), these two projects involve additional software and hardware for new systems and cyber security initiatives. These two projects include maintenance increases for both the mainframe and the distributed computing environments. As

explained earlier, Con Edison makes many technology investments each year for the continued operation of the computing and network environment in place and, in many cases, we must pay for maintenance, licensing fees and upgrades.

Generally, the Company purchases technology solutions through capital investments that include a negotiated maintenance period. As explained earlier, the increased software and hardware maintenance program change is for costs for these systems once warranties and initial maintenance expire. For mainframe technology as well as hardware and software, $1.8 million in RY1, nearly $2.0 million in RY2, and $2.4 million in RY3 is required for these patches, upgrades and new releases.

Other IT Capital Projects

Q. Other than cybersecurity and server farm/cloud computing projects, please explain the additional capital programs sponsored by IT.

A. The Company is sponsoring 17 additional IT capital projects over RY1-RY3. These projects total approximately $43.3 million, with approximately $14.0 million in RY1, approximately $15.4 million in RY2, and approximately $13.9 million in RY3.

Q. What are the major projects in the plan?

A. We have a number of projects that are listed below and explained in Exhibit __ (SSP-5):

- Five CCTN Projects
- SCADANet
- Application Monitoring and Management
- BSS Database Plan
- BSS Server OS Plan
- Business Systems Sustainability Desktop OS Plan
- CCAS (Computer Enhancements)
- Collaboration Tools
- Data Center Renovation NOC
- Desktop Infrastructure
- Enterprise Applications
- IT Asset Management (IRIS)
- New Technology

Q. Please explain CCTN.

A. CCTN is the corporate backbone for all communication services for the foreseeable future. It services SCADA and provides data services to critical substations. It provides the Company with a high-speed, reliable and cost effective alternative and complement to public carriers. Con Edison owns and operates CCTN at over 120 Company locations. CCTN enables computing resource consolidation,

disaster recovery, and the reduction of public carrier costs. It requires capital projects to improve diversity and capacity.

Q. What projects will the Company be undertaking for CCTN during RY1 through RY3?

A. The Company will be undertaking five projects:

- Upgrade and expand CCTN fiber spans
- Maintain and upgrade existing equipment
- Migrate CCTN from Lucent systems
- Wireless Mobile Access - Upgrade CCTN Radio system
- Develop a CCTN Mapping system

These projects are described in more detail in Exhibit __ (SSP-5).

Q. What is the cost of these five planned CCTN projects?

A. The total cost is $15.9 million. The annual amounts are $4.9 million in RY1, $5.5 million in RY2 and $5.5 million in RY3.

Q. Please discuss the project relating to the CCTN fiber spans.

A. During RY1 – RY3, we plan to upgrade CCTN fiber spans for six fiber runs, as well as installing a new fiber span between East River Generating Station and the new Gold Street communications hut in Brooklyn. The six upgrades include:

- Dunwoodie and Sprainbrook (RY1)
- Sprainbrook and Eastview (RY1)
- Eastview and Pleasantville (RY2)
- Murray Hill and West End Ave (RY2)
- Pleasantville and Millwood (RY3)
- Millwood and Buchanan (RY3)

Q. Why is the Company undertaking these projects?

A. The above fiber spans were installed more than 20 years ago and have been experiencing gradual degradation due to continual exposure to the elements and must be upgraded.

Q. Why is the Company installing a new fiber run between East River and Gold Street?

A. The existing fiber run is operating at near capacity and does not have sufficient bandwidth for our ongoing communication requirements.

Q. What are the costs for upgrading and expanding fiber spans?

A. The cost of these projects total $3.5 million in RY1 – RY3, with $750,000 in RY1 and approximately $1.4 million in each of RY2 and RY3.

Q. Please explain the CCTN project relating to maintaining and upgrading existing equipment.

A. The Company plans to maintain and upgrade the support equipment at the locations where CCTN communication equipment resides. Replacing this support equipment, which

in some cases has been in service for 15-20 years, helps to keep the equipment in service, which is necessary given the extent of the CCTN system. This includes upgrading HVAC equipment, modernizing cable spans, replacing power backup and battery systems as well as remediating grounding exposures.

Q. What is the cost of this work?

A. The expected cost to maintain and upgrade the equipment is $533,000 in RY1 and $550,000 in each of RY2 and RY3.

Q. Please explain the third CCTN project, migrating the CCTN communications equipment to a new technology.

A. The Company expects to migrate the existing CCTN communications equipment from legacy Lucent equipment (which no longer supports such equipment) to our new standard equipment and increase the bandwidth of this equipment. In later years, the Company plans to convert this equipment to Multi-Protocol Label Switching (“MPLS”) technology, similar to the technology described in the Frame Relay program.

Q. Why is this project necessary?

A. There are over 120 Company locations, which host the CCTN equipment, called CCTN nodes. These CCTN nodes are equipped with communications equipment, which must be upgraded (1) to move to the new equipment provider and (2)

to move to a more secure standard. The conversion process started several years ago and, through the end of 2015, 95% of the Lucent equipment has been replaced. The next step is to upgrade the standard.

Q. What is the fourth CCTN project?

A. Wireless Mobile Access which includes upgrading radio systems. CCTN includes multiple radio systems to support voice to field crews and connectivity for the man-down radio systems and energy SCADA Systems which require wireless communication from control systems to field assets.

Q. What work does the Company intend to perform on this system?

A. The Company plans to upgrade the back-end radio console technology on these portions of the system and make investments in wireless radio systems that will allow the Company to have all its wireless systems on one IP based system. In 2017, we plan to begin replacing the existing 800 MHZ radio system to incorporate new data requirements for field applications as well as maintain voice capability.

Q. Why is this work necessary?

A. To maintain communications and improve operational capability between the control center and field workers. It has safety and reliability impacts and benefits as well.

Q. What is the cost of this work?

A. The cost of this project is $3.25 million in each of RY1-RY3.

Q. Please describe the CCTN Mapping System project.

A. The Company has been developing a mapping system for CCTN, since the system contains over 475 miles of fiber optic cable. The mapping system will be used to provide asset inventory and circuit layout records so that a disruption on the fiber network can be quickly identified and the impact immediately known. This will also facilitate a timelier repair. The mapping system will provide an electronic repository of the CCTN locations, which includes specific locations of the CCTN and will allow the Company to track the location and disposition of CCTN assets, which is a critical system.

The mapping system will be upgraded to include capability for managing the thousands of circuits provided in the CCTN network.

Q. What is the cost of this work?

A. The cost is $125,000 in each of RY1 – RY3.

Q. Turning to the next capital project, please explain what SCADANet is and why it is important.

A. The electric industry is undergoing a radical change in the use of technology. Field components are equipped with microprocessors and the capability to collect power quality and load data. Con Edison is currently designing and implementing multiple new systems including distribution automation, AMI, REV, and Smart Grid applications. SCADANet is a computer network that provides a secure transport for energy delivery systems. SCADANet provides secure communications and reduces risk. SCADANet infrastructure supports the following initiatives:

- Sectionalized Switching for electric distribution;
- Secondary Model validation;
- Gas RTU monitoring;
- Transformer Monitoring;
- Distributed Generation; and
- AMI.

Q. On a topic related to systems such as SCADANet and CCTN, please describe how Con Edison is using carrier wireless networks to save costs and to support its future distribution automation projects.

A. Con Edison has worked with Verizon Wireless to develop a private carrier solution that allows the Company to

securely communicate with field assets such as remote switches and remote metering points using Verizon Wireless' network. This is accomplished by using network addressing that allows only devices in the Company network to communicate with the remote devices, without using the Internet. Con Edison has established a connection into Verizon Wireless' network that allows it to communicate directly with these devices. This solution provides a cost effective means of supporting remote smart grid applications in a secure manner and does not require capital expenditures on behalf of the Company to connect these devices. By using private carriers in conjunction with CCTN and SCADANet, the Company mitigates the costs otherwise associated with extending fiber optic cable (estimated at $150,000 per mile in the underground network) to each field device.

Q. Please describe the SCADANet project.

A. The SCADANet project will construct a computing network transport for machine-to-machine communication. The network is isolated and protected from risks associated with public and corporate networks and runs energy delivery systems controlling the electric, gas, and steam systems. This is needed primarily for cybersecurity reasons, but it

also improves the performance of the applications by isolating critical operational traffic from PC users.

Q. Is this network able to use carrier communications?

A. Yes, the network is designed to allow for any number of "last mile" connections including carrier wired or wireless, private wireless or private fiber. In fact, we have established a private wireless network with Verizon Wireless that allows any SCADA application to securely connect to the control centers and eliminate any concerns about the Internet. A second carrier option is planned to be available in 2016.

Q. Please describe the plans for SCADANet under this capital project?

A. The Company plans to expand the existing SCADANet to additional substations as well as the network management components for securing, alerting and monitoring the network for electric, gas, and steam systems.

Q. What is the projected cost for this SCADANet project?

A. The projected cost over RY1 – RY3 is $2.3 million. The annual amounts are $750,000 in each of RY1-RY3.

Q. Are there any additional capital projects for IT?

A. Yes, there are 11 additional projects totaling $25.1 million over the three year period, with $8.4 million in RY1, $9.1 million in RY2, and $7.6 million in RY3.

Q. Can you please provide a brief description of these additional capital projects, which are more fully explained and described in the white papers contained in Exhibit __ (SSP-5)?

A. Yes. These projects are:

- Business Systems Sustainability is comprised of three different projects investing in sustaining the server OS, database, and PC software. The three projects in total will spend $3.6 million in RY1, and $4.0 million in each of RY2 and RY3.
- New Technology is a project that allows the IT planning team to track and pilot the latest technologies and introduce solutions to solve business problems. The cost of the project is $750,000 in RY1 and $900,000 in each of RY2 and RY3.
- Enterprise Applications focuses on implementing new, and upgrades to, infrastructure applications that support the enterprise in a variety of functions such as secure file exchange, electronic faxing, accessing Intranet applications, and security for user accounts, infrastructure management, and enterprise operations management. Enterprise applications are used by all employees and enable standard processes resulting in operating efficiencies for core business functions as

well as information technology functions. The cost of this project is $525,000 in RY1, $325,000 in RY2, and $326,000 in RY3.

- Information Resources Inventory System ("IRIS") focuses on providing a single relational repository for IT assets. Upgrades in this system will focus on linking servers and storage assets to applications and automating the recovery of applications from one server farm to another. The cost of this project is $281,000 in RY1, $225,000 in each of RY2 and RY3.
- The Advanced Application Monitoring and Configuration Management project provides a more consistent, holistic approach to managing the Company's IT portfolio. This project provides visibility into the vendor components that are used within each application and the corresponding commitments from vendors for support. The cost of this project is $1.5 million in RY1 and RY2.
- Desktop Infrastructure focuses on the Company's "Desktop of the Future" strategy aimed at providing access to computing resources anywhere from any device. Investments include virtualizing applications and virtual desktops. The cost of the project is $782,000 in RY1, and $703,000 in each of RY2 and RY3.

- Collaboration Tools is a project to improve employee collaboration using IT resources. Investments include social media technologies and team collaboration portals. The cost of the project is $251,000 in RY1, and $901,000 in each of RY2 and RY3. The increase in the last two rate years is expected as a result of a new SharePoint version and the anticipated integration into the email and desktop environment.
- Computer and Communications Accounting System – This is an enhanced application to monitor, track, and manage billing and inventory for all wireless and landline communication devices. The enhancements will allow for better cost control for using organizations. The program requires $113,000 in RY1.
- Data Center Renovation for the Network Operations Center ("NOC") – As explained earlier, the Company has a NOC which monitors critical communications and computing resources for potential issues. The NOC plans on implementing a number of new technologies to assist in its mission of providing computing and communications information to the Company. Some of these changes include a software module to assist business users when they have issues, service level measurement and other

items. We expect to expend $600,000 during each of RY1 through RY3.

Q. Are there any cost savings initiatives associated with these projects?

A. All equipment purchased for these projects is competitively bid to manage costs. Most of the cost savings initiatives have been described in the XM-8 and XM-10 testimony sections above and the savings are already reflected in the revenue requirement in terms of costs lower than they otherwise would be.

V. FACILITIES AND FIELD SERVICES

Q. Please explain the services provided by Facilities and Field Services.

A. Facilities and Field Services is a support organization comprised of three major groups:

1. Facilities, which provides logistical support activities and maintains the Company’s properties;
2. Transportation Operations, which provides maintenance and repairs to the corporate fleet and manages the fleet vehicle replacement program; and
3. Astoria Operations, which provides crane and rigging services, tanker support, technical services, material delivery service Company-wide, and manages and operates a hazardous waste storage facility in

Astoria. There are no requests for additional funding for Astoria Operations in this filing.

Facilities and Field Services provide logistical and support services during contingencies and other emergencies.

Q. What projects and programs are Facilities and Field Services sponsoring in this testimony?

A. Facilities and Field Services are sponsoring 13 capital projects and programs, which can be grouped into two separate categories: Eight capital projects and programs associated with our Facilities group, and five projects associated with Transportation Operations. In addition, there are two O&M projects associated with the Facilities group.

Q. Have you prepared an exhibit titled “Shared Services – Facilities and Field Services White Papers” that discusses these projects and programs?

A. Yes, we have.

Q. Was this exhibit prepared under the Panel’s direction and supervision?

A. Yes, it was.

MARK FOR IDENTIFICATION AS EXHIBIT __ (SSP-6)

Q. What are the forecasted capital and incremental O&M expenditures for Facilities and capital expenditures for Transportation Operations during RY1 through RY3?

A. The Company expects to spend approximately $72.8 million in RY1, $124.8 million in RY2 and $80.2 million in RY3 for Facilities Capital projects and programs. For the incremental Facilities O&M projects, the Company forecasts expenditures of approximately $1.5 million for RY1, $2.6 million for RY2, and $1.1 million for RY3, exclusive of escalations.

For Transportation Operations Capital projects, the Company expects to spend $15.0 million in RY1, $9.5 million in RY2, and $2.5 million in RY3.

Facilities Projects and Programs

Q. Please explain the activities of the Facilities group.

A. Facilities plans, directs, and controls the maintenance of all building systems and the day-to-day building and yard operations at Company-owned and leased office buildings and service centers. With the assistance of Central Engineering – Facilities Engineering, we perform periodic assessments and inspections of all buildings and, if necessary, prepare corrective action plans, so that critical building systems are operated and maintained appropriately.

Q. What projects are in the Facilities capital spending plan?

A. The capital spending plan contains the following projects:

- Facilities Compliance Projects (which includes Local Law 26 (that has an O&M component);
- Critical Infrastructure – Short Term Priority Projects and Program projects;
- Roof Projects;
- Irving Place Window Replacement Project;
- Flood Mitigation Projects;
- Service Center Renovation Projects; and
- Sherman Creek Work Out Center (also O&M).

The white papers for each of these projects and programs are included in Exhibit __ (SSP-6).

Q. Is there also an O&M project that is discussed?

A. Yes. In addition to the O&M for the Sherman Creek Work Out Center, we have one additional O&M project entitled Irving Place Exterior Landmarks Preservation Metal Component Restoration.

Q. Please discuss the projected Facilities capital spending level and why it is necessary to modernize, upgrade, and improve the Company’s facilities.

A. Most of the Company’s facilities are over 20 years old. Certain buildings, such as at 4 Irving Place, Cleveland Street, Rye Service Center, and various auxiliary buildings

at the 3rd Ave Yard site, were constructed over 60 years ago. Projects set forth in Exhibit __ (SSP-6) are necessary either to: correct potentially unsafe conditions, address environmental issues, comply with local, state or federal regulatory requirements/building codes, maintain the structural integrity of the buildings, and/or improve a building's overall condition. Also, various equipment and systems required to operate these facilities have reached the end of their useful lives and are no longer economical or practical to operate. For example, HVAC equipment in many locations, such as Irving Place, Van Nest, the Cleveland Street Service Center, and Bruckner Boulevard, are close to or over 20 years old and need to be replaced due to age and wear and tear. When these systems are replaced, the Company intends to use efficient systems that contain environmentally friendly refrigerants. Similarly, emergency generators, electrical systems, bathrooms and locker rooms, exterior facades, sidewalks, drainage systems, and paved areas at certain locations are aging, and, in some places, are in a state of disrepair. Exterior windows and doors need to be replaced due to age and wear and tear, and will be upgraded to meet present day energy standards. In light of security concerns, security fencing and access improvements are required at certain locations.

Q. What does Facilities do to minimize costs?

A. Facilities minimizes costs in two ways; both relate to the proper identification and then strict monitoring of projects and their associated costs. With the assistance of Facilities Engineering, Facilities identifies its projects via periodic programmatic assessments, such as the Facilities Roof Inspection, Steel/Concrete/Façade Inspection, Emergency Diesel Generator and Electrical System, Bathroom/Locker Room, and HVAC Evaluation Programs, which are performed approximately every five years. In addition, the Engineering Service Request ("ESR") process, which evaluates a particular problem, assesses various solution options and provides a conceptual scope of work/budgetary order of magnitude cost estimate. Facilities uses this information to then prioritize projects according to the following categories: "compliance," "critical infrastructure – short-term priority or programs," "roof," "windows," "flood mitigation," or "service center renovation." By studying, evaluating, and assessing the condition of its equipment and systems, developing work scopes and cost estimates, and categorizing and prioritizing its projects accordingly, Facilities develops an understanding of where to allocate its project funding and resources. This method had

generally identified “compliance” projects as targets for funding in the short-term, with projects categorized as “critical infrastructure – short-term priority or programs,” “roofs,” “windows,” and “service center renovations” being deferred until later years.

Q. Do you have an example of how Facilities Engineering studies, evaluates and assesses the condition of equipment, and then develops an efficient work scope to address a problem?

A. Yes. One example of the process described above is the Rye Generator Replacement Project for the location at Theodore Fremd Avenue. Facilities Engineering evaluated a like-in-kind replacement option (which would only have fed approximately half the building load) and an option that fed the entire building electrical load in the event of a power outage. The analysis determined that the full size generator was the best overall option and thus the project has proceeded in that direction.

Q. Have you prepared an exhibit entitled “Facilities Capital Budget Plan” detailing these programs and your projected capital expenditures?

A. Yes, we have.

Q. Was this exhibit prepared under the Panel’s direction and supervision?

A. Yes, it was.

MARK FOR IDENTIFICATION AS EXHIBIT __ (SSP-7)

Facilities Capital Compliance Projects

Q. Please explain the first category of capital projects, compliance projects.

A. Compliance projects are required to address potentially unsafe conditions and environmental issues, as well as to comply with local, state or federal regulatory requirements and building codes.

Q. What are the projected costs of all of the compliance projects that you have addressed?

A. The estimated capital costs for this category of projects are $41.5 million in RY1, $21.5 million in RY2, and $5.0 million in RY3. The RY1 and RY2 expenditures are primarily for a project to comply with Local Law 26 (“LL26”), which must be completed by July 2019.

Local Law 26 Compliance

Q. Is there one project that accounts for much of the spending in the compliance category?

A. Yes. In terms of expenditures and time, the largest regulatory requirement project involves compliance with New York City Department of Buildings (“DOB”) LL26. LL26 requires full sprinklering, which is a water-based fire suppression system. It applies to office buildings 100

feet or more in height. Under this law, water-based sprinkler systems are required by no later than July 1, 2019, in all office areas and other areas such as electrical closets, mechanical/fan rooms, computer/LAN/UPS rooms, and tower stages of buildings. LL26 is based on recommendations made by the World Trade Center Building Code Task Force in February 2003, and signed into law by then-Mayor Bloomberg on June 24, 2004.

Q. Has the Company discussed LL26 in prior rate proceedings?

A. Yes, rate plans adopted by the Commission in the Company's past Electric, Gas, and Steam rate cases reflect expenditures to comply with LL26.

Q. To which Company facilities does LL26 apply?

A. LL26 applies only to the Company's headquarters at 4 Irving Place because it is the only facility taller than 100 feet.

Q. What steps are necessary for the Company to timely satisfy the LL26 requirement?

A. The Company has determined that the most efficient means for meeting the LL26 requirement is to continue to install the required sprinkler systems for a certain number of floors each year until completed.

When the Company renovates a floor, the Company, pursuant to its "restacking" program, temporarily relocates, as

needed, the affected employees to another part of 4 Irving Place, or outside of the building.

Q. Is the Company moving forward to meet the deadline?

A. Yes. In order to meet LL26's 2019 deadline, the Company needs to continue on its current renovation schedule. We would note that an interim report is required to be submitted on July 1, 2018, to explain the progress of the program at Irving Place, and a final affidavit report is required to be filed by July 1, 2019.

Q. Please discuss the need to move employees during the LL26 process.

A. When the Company renovates a floor, it temporarily relocates, as needed, the affected employees to another part of 4 Irving Place or outside of the building. This is because it is logistically difficult or practically impossible to maintain employees in their current work area during the renovation process. This is due to the physical arrangements of ceilings and other building infrastructure and the presence of environmentally sensitive materials (such as lead and asbestos) that need to be addressed during the renovation process.

Q. Please detail the issues associated with performing renovations while floors are occupied.

A. It would be neither safe nor practical or efficient to perform the required renovation and sprinkler installation during off-shifts, when personnel have vacated the space, and allow the affected personnel to return to work during their normal work hours (thereby requiring a set-up and take-down of the work area daily). Most importantly, the safe removal of any environmentally sensitive materials, while the area is occupied, is logistically difficult. Having personnel completely vacate the space until the renovation (and any required abatement) is finished enables the Company to completely abate the environmentally sensitive materials in a safe and efficient manner.

Q. Can sprinklering be accomplished absent full floor renovations?

A. No. To install sprinklers, one must remove all the asbestos and other materials from the ceiling, which serves as the structural support base for the sprinkler pipe. Thus, this project basically requires the complete renovation on the respective floors as there is no practical manner to install sprinklers without doing extensive ceiling renovation work.

Q. If the Company follows its current renovation schedule, will it be in compliance with the LL26 requirement by 2019?

A. Yes. At the current rate of floor renovations (*i.e.*, two to three floors per year) which has been provided in the Restacking Plan schedule, and dictated, in part, by available temporary space, the Company expects to comply with LL26 by the 2019 deadline.

Q. What is the status of the plan?

A. Currently, office renovation and associated sprinklering projects have been mostly completed on the following twenty three floors: basement, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 15th, portions of the 17th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th, and 27th floors and the stages.

Five un-renovated floors currently remain – 14th, 16th, 17th, 18th, 19th and the first floor mailroom/Lobby.

Q. What is the plan for addressing these remaining floors?

A. The remaining schedule through 2018 is as follows:

- 2016 - Complete the 16th, 17th and 19th floors
- 2017 - Complete the 14th and 18th floors and the 1st floor mailroom and Lobby.
- 2018 - Complete all remaining miscellaneous electrical and mechanical equipment rooms and project closeout (*i.e.*, receiving final agency inspections/certificate of completion).

Q. What are the costs associated with completing these six floors?

A. The estimated cost to finish the LL26 program is $39.0 million in 2016 and RY1 each, and $19.0 million in RY2.

Q. What impact does this program have on the temporary relocation of employees?

A. Some of the affected personnel have been relocated from 4 Irving Place until the project is complete due to space limitations.

Q. What are the O&M costs associated with LL26 compliance?

A. The O&M costs associated with this project are for the lease of approximately 16,000 square feet at 111 Broadway, Manhattan. The rent prices consist of a base lease and infrastructure rents, which include fiber leases, cooling surcharges and building management charges. The leasing expense associated with the temporary relocation of personnel is projected to continue at approximately $600,000 annually until the LL26 program is completed.

Other Compliance Projects

Q Are there other regulatory compliance projects that need to be undertaken?

A. Yes. The white paper entitled “Facilities Buildings and Yards - (Safety Environmental Regulatory)”, included in Exhibit __ (SSP-6), contains additional examples of capital

compliance projects. These projects are generally required for compliance with the Occupational Safety and Health Administration ("OSHA"), the New York State Department of Environmental Conservation ("NYSDEC") and other regulatory agencies.

Q. Do you have examples of some of the projects included in this category?

A. Yes. These projects include:

- Installation of Fall Protection/Guardrails on the Roofs of Various Regional Buildings of Facilities, estimated to be $1.5 million in RY1, $587,000 in RY2 and $2.0 million in RY3. The Company's EH&S personnel have identified roofs and elevated working locations and platforms that do not have adequate protective guardrails (which are for fall protection and generally consist of a raised wall on the roof). There are approximately 25 buildings that require full roof protection. The Manhattan and Queens locations were addressed in 2013/2014, the Bronx/Westchester locations (including Rye Headquarters and Eastview Service Center) were completed in 2015, Van Nest Service Center is being addressed in 2015/2016, and Brooklyn/Staten Island locations such as Flatbush, Neptune Avenue and Cleveland Street will be addressed in 2016 and 2017. Each roof has a different scope of work and cost depending upon the

amount of work to be done. For example, the system used at Rye Headquarters and Cleveland Street is a parapet mounted guardrail system, which is relatively simple to install with a price of approximately $500,000. A more complicated system, such as that installed at Van Nest, includes the crane and roof flexible lifeline system and fall arrest anchor system (which needs to be supported from building structural members) with a projected cost of approximately $1 million.

- Fire Alarm/Sprinkler Alarm Improvement Program is based on the Fire Department of New York (“FDNY”) Technical Management Bulletin 03/2012, which discusses the process for obtaining letters of approval (“LOA”) for fire alarm/sprinkler systems for New York City buildings. The program will upgrade systems at Astoria, Irving Place, Bruckner Blvd., Van Nest, and College Point Blvd. Service Centers to add smoke detectors, horns/strobe audible/visual notification devices, tamper and flow switches and will bring the locations in compliance with the appropriate fire codes. The cost of the program is estimated to be approximately $1.0 million in RY1, $1.9 million in RY2 and $1.0 million in RY3.
- Replacement of an oil-filled Pad Mounted Transformer at Van Nest to prevent potential oil spills to the sewer at a

capital cost of $735,000 in RY3. This project will install a new 480V dry type transformer to feed equipment that is currently connected to the oil-filled transformer. The project will not only reduce the size of the existing transformer but also relocate it inside of the building. The new 480V distribution system will include new disconnect switches, a new 800A distribution switch, local disconnect switches and wiring.

Q. Are there other projects in this category?

A. Yes. The three mentioned above are examples of larger type projects in this category. There are smaller cost projects, such as upgrading the room 165 Tech Lab ventilation at Van Nest at a cost of $75,000 and bracing an office ceiling at Cleveland Street at a cost of $35,000. These projects are all described in Exhibit __ (SSP-7).

Q. Do you expect other similar projects to be required in RY2 and RY3?

A. Yes. Projects of this type must be addressed as they arise. For example, changes to laws and regulations may occur, and if they do, new compliance projects may be required in the next several years.

Q. What are the projected costs associated with the other compliance category in RY1 – RY3?

A. We plan to spend approximately $2.5 million in each of RY1 and RY2, and $5.0 million in RY3.

Critical Infrastructure – Short Term Priority Projects and Programs

Q. Are there additional categories of projects to be undertaken?

A. Yes. There are two categories of work performed under Facilities Buildings and Yards - Critical Infrastructure Short Term Priority, or Critical Infrastructure. These projects are listed in a white paper included in Exhibit __ (SSP-6).

Q. Please describe the projects under Critical Infrastructure - Short Term Priority.

A. These are projects that have been initiated because they are deemed necessary to maintain the structural integrity of the Facilities' buildings, to allow them to operate as designed, or to protect critical equipment (*e.g.*, HVAC systems, LAN Room AC Installations, Chiller Steam turbine condensate drain enhancements, building water supply rehabilitations). Critical Infrastructure Short Term Priority projects may be added to the list as ESRs are completed, equipment nears failure, or programmatic assessments are performed and deem these projects as high priority. Despite planning and other preventative maintenance actions, projects of this nature and type are

generally identified when systems, equipment, and components are at or close to failure. These types of projects usually need to be completed in a quick time frame.

Q. Are there any costs for this category in the Rate Years?

A. No. There no projects currently listed in this category for the rate years, but past history has shown that projects will arise and need to be undertaken on an expedited basis. We expect that during the rate years, we may need to shift funding into this category.

Q. Please describe programs under Critical Infrastructure.

A. These capital programs are intended to maintain and improve the overall conditions at the buildings and yards and maintain the facilities. The program addresses facility improvements, including efficiency improvements and/or equipment modernization or upgrades and projects, that are evaluated/prioritized based on facility assessments. These projects generally involve yard paving/resurfacing, roof replacements identified in the Facilities' roof inspection program, HVAC systems nearing the end of their expected useful life, general office renovations for buildings other than 4 Irving Place, and elevator upgrades.

Projects are listed in the Critical Infrastructure - Programs Category either as a result of a completed ESR or

program assessment or based on engineering or historical knowledge of the systems and equipment (*e.g.*, since the expected life of a Freon-based HVAC system is approximately 20 years, units that are 15 years or older are listed in the five year plan). A completed ESR provides a scope of work and budgetary order of magnitude cost estimate required to address a particular system problem.

Q. Please provide some examples of this type of capital work.

A. There are currently over two hundred projects currently identified in the Programmatic Site Improvements category, which are listed in Exhibit __ (SSP–7). These include:

- 3rd Ave Yard Expanded Cable Area - $320,000 in 2017
- Astoria – Salt Bulk Storage Area - $535,000 in 2017
- Cleveland Street – Yazaki Absorption Unit Replacement - $1.5 million in 2017
- Astoria Chem Lab HVAC – $820,000 in 2017
- Irving Place – Building Management System Upgrade - $1.0 million in 2016/2017
- Irving Place - Load Bank for Emergency Diesel Generator Testing- $1.5 million in 2017
- Irving Place – Emergency Diesel Generator Automatic Transfer Switch Monitoring System - $1.5 million in 2018

- Astoria - Transportation Building 2nd Floor Renovation/HVAC upgrade - $1.3 million in 2016/2017

Q. How much is the Company planning on spending in this critical infrastructure category for short term priority projects and other programs during RY1 through RY3?

A. We plan on spending $12 million in RY1, $15.0 million in RY2 and $17.5 million in RY3. The increase in costs in RY2 and RY3 is attributed to the wind-down of the Irving Place LL26 program, which allows funds and capital expenditures to be directed to this program, whose projects list continues to grow from ESRs, customer needs and programmatic assessments. Since the Company has been focusing expenditures to complete the LL26 renovations, many of these projects have been placed on hold. Exhibit __ (SSP-7) shows the projects to be completed during the rate years.

Roofs Replacement Program

Q. What is the Company planning to do for roof replacements?

A. Facilities Engineering inspects each roof on a periodic basis and recommends critical repairs or roof replacements as required. A roof generally has a life-span of 20 to 25 years, provided that repairs are made based on the five-year inspection reports.

We plan to address the various roof replacements at facilities throughout the system. As noted earlier, many of our buildings are at least 20 years old and the useful life for the roof has expired. Some of the roofs are already leaking and, in other cases, the roof project will address an issue before there is a leak to avoid facility damage. Examples of where we will be replacing roofs include the Astoria Transformer Shop, Van Dam, Van Nest, Eastview, Neptune Avenue, and The Learning Center – as indicated in Exhibit __ (SSP-7). In most cases, aging black roofs will be replaced by white roofs and may also be replaced by green roofs. These roof projects will allow for water tightness in the buildings and are a pre-requisite to performing any interior or façade related projects (*i.e.*, office renovations, painting, carpeting, etc.).

Q. How much do you plan on spending on the roof replacement project?

A. For roof replacement and other anticipated work as a result of the ongoing roof inspection program, we project spending approximately $3.0 million in RY1, $10.0 million in RY2, and $11.0 million in RY3. Like compliance projects, the increase in budgeted costs in RY2 and RY3 is attributed to the wind-down of the LL26 program, which allows funds and

capital expenditures to be directed to the roof program. The capital exhibit shows the associated roof projects that are being requested (*i.e.*, approximately thirteen over the three rate years).

Irving Place Window Replacement

Q. What is the Company planning to do for Irving Place Windows?

A. As described in Exhibit __ (SSP-6), the Company plans to remove and replace approximately 2,100 windows assemblies throughout the building envelope, with the exception of the courtyard and tower stage area facades and the windows along the first three floors on the street elevations.

Q. Please continue.

A. No existing window framing will be removed as the new windows will be retrofitted onto the existing support system and secured in place. All windows will be American Architectural Manufacturers Association designated and approved tilt-in thermal aluminum and glass architectural window models.

Q. Please explain the need for this project.

A. The existing single pane windows assemblies are 85 to 100 years old and lack most of the energy saving and noise attenuation/reduction features found in modern windows. Thermal imaging of the building facade conducted during a

recent energy audit identified the windows as a major source of heat loss. This, in addition to high ambient noise from street and vehicular traffic below, can affect employee productivity. The Company accordingly will replace the windows.

Q. Please explain how this project will address these findings.

A. This project will provide an energy efficient double pane window system that will reduce the building’s carbon footprint, improve interior comfort levels by reducing temperature differentials/air current flows between the windows and floor occupants, produce an 80% reduction in heat conduction and air infiltration, a 60% reduction in solar heat gain coefficient, and overall reduction in steam usage.

Q. How much do you plan on spending on the Irving Place Window Replacement project?

A. The estimated project cost based on detailed design drawings is $30.0 million. The project will be phased over four years and starting in RY2 with an approximate expenditure of $5.0 million and $7.5 million in RY3. The remaining work will carry over into 2020 and 2021.

Facilities Flood Mitigation

Q. Are there Company facilities that have been affected by storms?

A. Yes. We would note that many of the facilities that require storm hardening were addressed through the Facilities storm hardening projects that are planned to be completed in 2016. Two locations remain to be addressed – Eastview Service Center in Westchester County and the basement of TLC.

Eastview Service Center experienced its most severe flooding events during heavy rain events such as Hurricane Irene, although not during Superstorm Sandy, and is naturally prone to flooding because of its topography and proximity to the Saw Mill River.

As has been explained in Case 13-E-0030, *et al*, TLC has also experienced significant flooding. The Company's storm hardening program addressed many of TLC's issues except for the basement. At TLC, there are areas that house critical mechanical, electrical and life safety equipment, and that were not addressed during the Hurricane Hardening program, which primarily reinforced the perimeter of the building to mitigate the effects of water infiltration.

Q. What work will be done at these two properties as part of the Flood Mitigation Program?

A. As explained in Exhibit __ (SSP-6), the Flood Mitigation program will harden portions of the buildings at Eastview that are subject to flooding from the adjacent Saw Mill River as well as the critical areas located in the lower level at TLC.

Q. Please explain what will be done at Eastview.

A. This effort will include similar measures that have been undertaken in the Storm/Hurricane Hardening program (*e.g.*, waterproofing and/or hardening walls and installing storm resistant doors, storm drain backflow preventers and sump pumps systems). The work includes hardening, waterproofing and sealing existing interior and exterior concrete walls for equipment rooms to protect critical equipment, replacing existing doors/windows and sealing wall penetrations/concrete slabs.

Q. What work will be done at TLC?

A. The major work remaining to be done is primarily waterproofing the areas and installing flood resistant doors.

Q. Does the Company have an estimate of costs?

A. The cost estimate is $2.0 million for Eastview and $3.0 million for TLC, both of which will be completed in RY1.

Facilities Service Center Renovation Program

Q. Please explain your Facilities Service Center Renovation Program.

A. Facilities plans to perform renovation projects each year to maintain and improve on overall conditions at various buildings and yards. This program will renovate various office spaces throughout the Facilities Regional Headquarter Buildings and Service Centers.

Q. Please explain the need for such a program.

A. Many locations have not been renovated since the building’s original construction. Interior offices, in certain cases, do not meet current space-use, NYC or Westchester Building Code, or present day industry life-safety standards. Con Edison's policies emphasize open communication and working in teams, and the open plan concept reflects and supports this management approach. The renovations to be undertaken will bring the floors to Company standards for new office buildings.

Q. Please explain the issues that this program addresses and the associated benefits.

A. As explained in Exhibit __ (SSP-6), the focus of this program is to provide a productive work environment that is

easy to maintain and will require no additional investment for many years.

Much of the infrastructure at our buildings and yards is outdated. The air conditioning is essentially unchanged since it was installed and as such has inefficient controls and comfort levels in the buildings are unsatisfactory. As part of the renovations, all the distribution ductwork back to the source and the controls will be replaced.

Similarly, lighting will be completely replaced with an energy-efficient system that responds to a central controller and dims at the perimeter to respond to available daylight. All renovated floors will have wireless access.

Q. Does the Company have an estimate of costs?

A. An estimated cost of approximately $300/Square Foot (“SF”) is required for a full renovation, which includes new lighting, HVAC systems, carpeting, power & communication equipment, fire protection and furniture. A typical service center ranges from 25,000SF (Victory Blvd & Neptune Ave) to 75,000SF (Bruckner Blvd). Facilities requests approximately $5.0 million in each of RY2 and RY3. The exhibit shows the associated office renovation projects being requested in the rate years beginning in RY2. These include:

- Eastview Service Center Renovation for $5.0 million in RY2.
- The Bronx/Westchester Alternate Control Center Renovation for $1.5 million in RY3.
- 28th Street Service Center 2nd Floor Renovation for $2.0 million in RY3.
- College Point Blvd. 2nd Floor Renovation for $1.5 million in RY3.

Sherman Creek Work Out Center

Q. Is the Company considering developing a new Work Out Center? If so, why?

A. Yes. The GIOP explains its need to increase its workforce significantly in the next several years to complete additional gas main replacement, gas leak repair, oil-to-gas conversion and new business projects. In addition, there is increased congestion at the existing Manhattan and Bronx service centers. Given the increase in staffing and the pre-existing congestion, the Company believes that a new service center will address both issues as is explained in Exhibit __ (SSP-6).

Q. Please explain what you mean by increased congestion at the existing work out locations.

A. The existing Manhattan service centers are currently operating at 17% over-capacity. They regularly experience

congestion in getting in and out of the yards, which is impacting pedestrian and vehicular safety, while also affecting crew response times and productivity. Also, the existing 28th Street service center is affected by continued development in the surrounding area, which includes the Hudson Yards development. In addition, construction of the Gateway tunnel over the next decade will exacerbate the congestion and related issues.

This congestion is expected to increase as the Gas Operations work force grows over the next five years, by approximately 500 people (a 50% increase).

Q. Where does the Company intend to locate this new Service Center?

A. The Company owns land at Sherman Creek in the Inwood section of Northern Manhattan, which is the location best suited to build this service center.

Q. What is the Company looking to build at Sherman Creek?

A. While detailed engineering plans have not yet been developed, the Company anticipates that the new service center would entail the development of two buildings to house office and field support space as well as warehouse, storage and vehicular parking for Company passenger and heavy duty trucks and other equipment. Engineering studies

are underway to refine and finalize the size and layout of the proposed service center.

Q. Are there alternatives to constructing the new service center?

A. The Company evaluated its owned properties in Manhattan and elsewhere as part of an effort to de-load and optimize operations at the existing Manhattan service centers and to address the need to accommodate the additional Gas personnel and vehicles. The existing service centers, Sherman Creek, 59th Street Generating Station, 74th Street Generating Station, East River Generating Station and various substation sites were amongst those considered. In addition, real estate personnel worked with commercial brokers to identify whether there were any suitable privately owned properties available either for purchase or leasing. Given the robust development market in New York City, particularly Manhattan, few industrial zones sites were identified as available either for purchase or lease and all were cost prohibitive, particularly when development costs are taken into consideration. Of all the sites reviewed, the available Sherman Creek parcels hold the most promise because of their size and lack of building structures.

Q. What are the forecasted capital costs for this project?

A. As explained in Exhibit __ (SSP-6), the estimated project cost based on engineering conceptual estimates is $113.6 million. The project will be phased over three years and spending is estimated at approximately $11.3 million in RY1, $68.3 million in RY2, and $34.0 million in RY3.

Q. Are there any O&M costs associated with the proposed Sherman Creek Workout Center?

A. Once built, this new facility will require maintenance associated with the Capital project.

Q. What is the maintenance associated with Capital for this location?

A. The maintenance associated with Capital costs will be incurred in the final phase and post-construction in 2018-2020. These expenses include: swing space rental and associated setup cost and relocation costs for employees and equipment that will be moved into the new building.

Q. What are the forecasted maintenance costs for this project during the Rate Years?

A. The forecasted maintenance associated with Capital costs, described in Exhibit __ (SSP-6), will be approximately $1.1 million each year in RY2 and RY3. Based on the findings from a feasibility study, which is expected to be completed in April 2016, the Company will provide an update if available at the time of the update.

Irving Place Exterior Landmarks Preservation Metal Component Restoration

Q. Please explain the O&M project named Irving Place Exterior Landmarks Preservation Metal Component Restoration project.

A. This project will repair and restore the Irving Place historical decorative cast iron components and the storefront windows/canopies. The project includes scraping, painting, sealing and re-caulking type maintenance work and is further described in Exhibit __ (SSP-6).

Q. Please explain further.

A. The exterior Landmarks Preservation metal components along the Irving Place street elevations and associated storefront windows have deteriorated from aging as well as exposure to the elements. The major defects are characterized by flaking paint, open seams, bowed window sashes and disintegrated metal components.

Q. What is the overall goal of this work?

A. This work will seal the building so that it is water-tight and repair the deteriorated parts. Because the building is landmarked, any repairs to the façade must identify and catalog all elements, followed by careful dismantling and packaging of each piece. Each will then be shipped offsite for repair or replication and returned for re-installation.

Q. Please describe the restoration work to be done.

A. The existing cast iron components, such as the columns, seams, and aprons, will be restored and sealed, including replacing any missing items, such as screws as well as repairing open seams.

Q. Why is this work necessary?

A. This restoration work will make the building envelope water-tight by extending the life of the metal components. The presence of de-icing salts has corroded the cast-iron aprons along the street elevation, making it possible for water to flow directly into the sub-basement resulting in heat loss from the building. Failure to address these issues can cause severe structural damage to the basement structure as the surrounding environment is highly corrosive from de-icing salts.

Q. What is the total cost of this project?

A. The O&M cost is $3.0 million. The planned costs are $1.5 million in each of RY1 and RY2.

Transportation Operations

Q. Please explain the activities of the Transportation Operations group.

A. Transportation Operations provides automotive engineering and fleet support for the Company, including managing fuel deliveries to Company fueling stations, creating specifications for new vehicle and equipment purchases,

administering parts and service contracts for fleet vehicle support, and managing the XM-2/XM-13 capital budget.

Q. What does Transportation do to minimize costs?

A. In addition to the cost minimization items described earlier in the General Equipment section as well as earlier in this section, Transportation continues to purchase clean Alternative Fuel Vehicles ("AFVs") that reduce gasoline and diesel fuel consumption. We are also introducing bucket trucks that use electric power to operate the boom. In addition, we are committed to looking at ways to reduce the fleet size (vehicle pooling, etc.) and we continue to use our relationships with suppliers and manufacturers to obtain skills training for our staff of mechanics. Improved skills have allowed Transportation to maintain a diverse fleet with no staffing increases. And finally, we also work with Supply Chain to leverage better pricing initiatives by establishing multi-year vehicle contracts and by consolidating parts and service contracts.

Q. Please describe the capital projects Transportation is planning to undertake.

A. Transportation has five capital projects planned between RY1 and RY3:

- The first four projects address fueling of vehicles:

- o upgrading the existing gasoline and diesel fuel stations;
- o upgrading existing Company Compressed Natural Gas ("CNG") fueling stations;
- o the construction of one new CNG fueling station; and
- o installing electric vehicle charging stations at multiple sites.

- The fifth project is to replace the existing fleet vehicle management systems.

Q. Are these projects detailed in Exhibit __ (SSP-6)?

A. Yes, they are.

Fuel Station Projects

Q. How does the Company currently provide fuel for the vehicle fleet?

A. Currently, the Company has 12 gasoline/diesel fueling stations and eight CNG fueling stations. Generally, Company vehicles refuel at these locations using the Company-issued gas card system.

Q. Does the Company have an on-going program to upgrade these fuel stations?

A. Yes. As explained below, there is an on-going program to upgrade the gasoline/diesel stations and another program to upgrade the CNG stations.

Q. In addition to these two programs, does the Company have any other plans to address vehicle fueling?

A. Yes. The Company plans to add one new CNG station and develop electric vehicle charging stations.

Q. Is there a reason the Company is pursuing using alternate fuels?

A. The U.S. Department of Energy ("DOE"), as required under the Energy Policy Act of 1992 ("EPAct"), has developed a program aimed at reducing the Country's petroleum consumption through the use AFVs or other methods. This Alternative Fuel Transportation Program requires fleet owners and gasoline suppliers to purchase AFVs, such as CNG-powered, hybrid or plug-in vehicles, as replacements for a portion of its light-duty fleet. The fleet owner can meet its requirements based on either a Standard Compliance formula, which would require all new fleet vehicles under 8,500 pounds to be an AFV, or through an Alternative Compliance formula. The Company has decided to comply with the Alternative Fuel Transportation Program through the Alternative Compliance formula, which allows the Company to implement petroleum-reduction measures.

Q. How much petroleum is the Company required to reduce under the Alternative Compliance formula?

A. On an annual basis, we are required to submit a petroleum-reduction offset plan to the DOE for the next vehicle Model Year. It is based on projected use of alternative fuels such as CNG, plug-in electric power and bio-diesel fuel usage. For 2016, we estimate our DOE fuel offset requirement to be approximately 225,000 Gasoline Gallon Equivalent ("GGE"). The DOE annually calculates the fuel offset requirement for the subsequent model year. Our GGE for RY1 is unknown at this time.

Q. How is the Company meeting its EPAct petroleum reduction obligations?

A. We intend to meet this reduction through the continued use of Bio-Diesel fuel and the purchase of AFVs, which helps to reduce the amount if gasoline used.

Q. What AFV options are available in the marketplace for fleet vehicle purchases?

A. Based on marketplace availability, the Company purchases approximately 10-20 vehicles per year powered by CNG and another 5-10 light-duty electric-powered vehicles. Currently, the Company operates 312 CNG powered vehicles, 135 hybrid electric vehicles and 13 plug-in electric vehicles.

Q. Are there other benefits that result from using AFVs?

A. Yes. Purchasing and operating AFVs results in lower emissions, fewer toxic contaminants and contributes to lower "greenhouse gases." Expanding the Company's clean AFV fleet contributes to reducing negative impacts on the environment, air quality, global warming and public health.

Q. How will you address the fueling station projects?

A. We will discuss the gasoline and diesel fuel station project, followed by the CNG upgrade project and the CNG expansion project and complete the discussion with the plug-in vehicle project.

Gasoline and Diesel Fuel Project

Q. Please describe the fuel station upgrade project.

A. This project funds the replacement of deteriorating and aging equipment at the Company's twelve vehicle fueling stations that provide gasoline and bio-diesel fuel. The underground equipment at three of the stations is over 30 years old and the underground equipment at the remaining nine stations ranges from 20 to 25 years old. All of the stations will receive new fuel islands and dispensers. The Company is deploying a state-of-the-art card reading fueling authorization system which was discussed in the General Equipment section. In addition, the Company will replace existing underground fuel storage tanks and associated piping at three stations. Additional details

can be found in the Fuel Station Upgrades white paper in Exhibit __ (SSP-6).

Q. Is there a need to upgrade these stations?

A. Yes. Due to the obsolescence of the equipment at these locations, replacement parts are becoming difficult to obtain and, as a result, the stations are more subject to potential outages. In addition, a recent engineering study recommended, based on the age of the single wall tanks in Rye, Eastview and Yonkers that the tanks be replaced with double-wall fiberglass underground storage tanks that meet current fuel station regulations. This will also reduce the potential for an environmental incident resulting from a tank/component failure.

Q. Are there potential issues if even one of these stations was not available?

A. Yes. If a major failure were to occur at a station, the station could be out-of-service for a considerable amount of time until repairs are completed. This would impact the ability to fuel Company vehicles at the site, resulting in the use of more costly retail fueling sites. For example, after Superstorm Sandy, three of our stations were inoperable for two months, requiring crews to obtain fuel at other Company locations or other retail sites.

Q. What is the current status of this project?

A. As of December 31, 2015, the Company has completed the above ground upgrades (fuel dispensers, card readers, etc.) for eleven of the fueling stations. Of these eleven stations, two required complete tank, piping and associated equipment replacements which have yet to be completed. The remaining station, Eastview, requires both above ground upgrades and complete tank, piping and associated equipment replacements as well.

Q. What stations require additional renovations and what is their status?

A. Of the three stations that require additional renovations, the Rye and Yonkers locations only require complete tank, piping and associated equipment replacements, since the above ground work has already been completed. These stations will be completed in RY2.

The Eastview Station requires both above ground and complete tank, piping and associated equipment replaced. Work at Eastview will be performed contemporaneously with the CNG upgrade, which, as discussed next will be completed in 2016.

Q. What is the cost of this project?

A. The fuel station upgrade project will cost $15.7 million in total, of which $5.0 million has already been expended.

The project will be completed in RY1. The planned amounts are $6.4 million in 2016 and $4.3 million in RY1.

CNG Station Upgrade

Q. How many vehicles in the Company's fleet currently use CNG?

A. There are presently 312 CNG-fueled vehicles in the Company's fleet, and we plan to continue purchasing 10 – 20 CNG-fueled vehicles (as vehicle replacements) annually over the next several years.

Q. How are these vehicles fueled?

A. The Company currently has eight CNG fueling stations providing CNG for the Company fleet as well as outside customer fleets.

Q. Please explain the CNG Station Upgrade Project.

A. This capital project upgrades the existing stations, including replacing obsolete and deteriorating equipment and increasing the operating pressure. Additional details can be found in the CNG Fuel Station Upgrades white paper in Exhibit __ (SSP-6).

Q. What work will be performed at these stations?

A. The CNG fueling stations will receive new dispensers, storage vessels, piping, associated valving, control panels, electronic control units and card reader systems. As explained below, these upgrades will enable an increase to the pressure of the CNG provided to vehicles.

Q. Why do the Company's CNG stations need upgrades?

A. There are two primary reasons for these CNG upgrades. First, these CNG stations have been in-service over 20 years. Replacement parts are becoming obsolete and difficult to obtain and if a major failure were to occur at a station, it is possible the station would be out of service for a considerable amount of time until repairs could be made.

Second, in order to align with current automotive industry protocol for the operation and fueling of CNG vehicles, station operating pressures should be increased from 3,000 psi to 3,600 psi output. Current vehicle technology requires higher pressure to achieve the manufacturer's mileage ratings. This project will provide higher PSI output, resulting in additional vehicle range and increased throughput at our stations. The higher pressure and current technology will allow for increased use of CNGs.

Q. What is the current status of this project?

A. As of December 31, 2015, upgrades to two stations in Manhattan and one in Brooklyn have been completed, leaving five stations remaining to be upgraded.

Q. What stations remain to be completed?

A. The five stations that remain to be upgraded are Eastview, Rye, Astoria, College Point, and Van Nest.

Q. What is the status of each of these five upgrades?

A. The Rye, Eastview, and Astoria CNG stations are scheduled to be completed in 2016, and the College Point and Van Nest stations are scheduled for completion in RY1.

Q. What is the estimated cost of the CNG station upgrades?

A. The total project cost is $7.5 million, with approximately $1.4 million spent to date. The project will be completed in RY1, with $3.3 million to be spent in 2016 and $2.8 million in RY1.

New CNG Station Installation

Q. Please explain the new CNG station construction project at Bruckner Blvd.

A. This capital project funds the design and construction of a new CNG station located at the Bruckner Blvd. Service Center in the Bronx.

Q. Please explain why this CNG station is needed.

A. With the continued purchase of CNG vehicles (as replacement vehicles), this project will provide the Company with an additional necessary fueling station. As explained earlier, the Company uses CNG to help comply with the DOE’s EPAct requirements for offsetting petroleum usage.

In recent years, the Company has seen an increase in the public vehicles being fueled at the Van Nest station, which in addition to Eastview, are the only two Company-publicly

available CNG stations in the Bronx-Westchester areas. The public use of this station can sometimes slow down the Company use at the station. Since we expect to continue to grow the CNG fleet, building another station at this location would alleviate some of these congestion issues.

Q. What is the cost of this project and what is the anticipated in-service date?

A. The new CNG station is estimated to cost $5.0 million. The costs are $1.0 million in RY1, $1.5 million in RY2, and $2.5 million in RY3.

Electric Vehicle Charging Station Project

Q. Please describe the Electric Vehicle Charging Station Infrastructure Project.

A. This capital project funds the design and construction of infrastructure for new charging stations at nine locations throughout the service territory. These stations are required to re-charge plug-in vehicles.

Q. Please describe an electric vehicle charging station.

A. An electric vehicle charging station consists of multiple components such as electric service infrastructure, electric vehicle supply equipment (“EVSE”) units, metering devices, and ancillary equipment used to support all levels of charging station devices.

Q. Please explain why is it necessary to install electric vehicle charging stations at the nine locations?

A. In order to continue to expand our AFV strategy and to assist complying with EPAct regulations by reducing petroleum usage, we plan to replace 15 to 20 fleet vehicles annually with vehicles that include plug-in electric technology (“plug-in vehicles”). In addition, an ancillary initiative is to evaluate a Workplace Charging program that will allow employees to use the proposed charging infrastructure during hours where the chargers would otherwise not be used. Finally, it is important to have these charging stations operational as electric-powered vehicles are placed into service. Without the infrastructure to charge in place, we cannot purchase or use electric vehicles.

Q. Please describe the Company’s electric plug-in vehicle plan.

A. In 2016-2019, the Company’s plan includes the purchase of 15 to 20 vehicles per year that include plug-in electric technology. These vehicles will vary in size from light duty to medium-heavy duty trucks. In addition, the Company recently accepted delivery of eight bucket trucks with booms powered via plug-in technology.

Q. How many plug-in vehicles does the Company currently have?

A. The Company currently has 13 plug-in vehicles.

Q. How are these vehicles currently recharged?

A. These vehicles are recharged at three Company locations, 4 Irving Place, Astoria and Van Nest, utilizing two Level 2 chargers (described below) at each site.

Q. Where does the Company plan to locate the new charging stations?

A. The Company plans to locate these stations throughout its service territory – three in Manhattan (East 16th Street, West 28th Street and East 110th Street), two in Queens (College Point and Astoria), one each in Brooklyn (Third Avenue), Bronx (Van Nest), Staten Island (Victory Boulevard) and Westchester (Eastview).

Q. Are there different types of designs for these plug-in charging stations?

A. Yes. Each one of these nine stations will initially have five charging units installed, with the ability to add additional charging units. The charging units will provide the Company with the ability to charge the vehicles at three different charging levels. The charging levels are: Level 1 – (> 8 hrs.); Level 2 – (4 – 6 hrs.); and DC Fast Charger (< 1 hr.).

Q. What are the projected costs of this project and what are the anticipated in-service dates?

A. This project will cost $10 million as shown below:

- Astoria Site $1.10 million
- College Point Site $1.90 million
- Van Nest Site $0.90 million
- Third Avenue Site $1.95 million
- West 28th Street Site $0.85 million
- East 16th Street Site $0.70 million
- East 110th Street Site $0.75 million
- Eastview Site $0.85 million
- Victory Blvd. Site $1.00 million

Because of varying conditions at each location, the design and build time can vary between sites; however, we expect to complete three sites per year as follows:

- 2016 – West 28th Street, East 16th Street and East 110th Street for a total of $2.3 million
- RY1 – Victory Blvd., Third Ave. and College Point for a total of $4.85 million
- RY2 – Astoria, Eastview and Van Nest for a total of $2.85 million

Fleet Management System

Q. Does Transportation have another capital program to discuss?

A. Yes. Transportation intends to upgrade its existing Fleet Management system after performing a review of its existing systems and what systems are available.

Q. Please describe the current systems used for fleet management.

A. Transportation manages its fleet through primarily three systems:

- The core system is the Vehicle Management System, and is a mainframe COBOL-based system that was implemented in 1981;
- A user-friendly front end, EZ-VMS, was built in 1997 that has both a day-to-day transaction system and an administration system; and
- A separate system, AutoEase, is used to inventory and track vehicle parts.

Q. Is there an issue with continuing to use these three systems going forward?

A. Yes. The current systems have basic and limited functionality. While the system records vehicle inventory, repairs and associated labor data, they lack the ability to determine the optimal replacement schedule of vehicle classes, as well as specific vehicles. This work is currently done offline downloading data into spreadsheets.

Q Please continue.

A. Yes. The main system, EZ-VMS, is a custom program written by a small vendor that is staffed by two individuals and support for this product going forward is questionable. Additionally, functionality to produce fleet analytics and reporting is not readily available through the existing systems.

Q. Are there benefits associated with this project?

A. Yes. There are several. First, a commercial package system can integrate GPS data from vehicles, improve repair analytics, and cost analytics for vehicle parts.

Second, commercial package systems also integrate with our corporate systems such as the Oracle ERP Financial and Supply Chain system.

Third, the current front-end system, EZ-VMS, is maintained by the vendor that created it and requires significant upgrade efforts in order to work with supported versions of Windows operating systems and standardized middleware. A commercial package would provide regular releases that provide both functional improvements as well as keeping current with new versions of desktop and server technologies.

Q. What are the costs of this project and the anticipated completion date?

A. The Fleet Management Solution project will be completed in RY2 at a cost of $4.0 million in each of RY1 and RY2.

VI. CORPORATE SECURITY

Q. Please explain the responsibilities of Corporate Security.

A. Corporate Security's core mission is to develop a comprehensive security program that provides for a proactive partnership with both our operating and support organizations along with external law enforcement, and governmental and regulatory agencies.

To meet our mission, we have developed comprehensive security processes to protect critical infrastructure. These processes encompass a wide array of functional responsibilities including: policies and procedures, electronic security systems, physical security measures, central station monitoring, compliance with governmental and regulatory initiatives and standards, and security awareness training. We also provide oversight and guidance to both Facilities and operating organizations regarding their physical security measures and contract guard services at the various Company locations for which these organizations are responsible.

Q. What are the security-related projects that the Company is proposing?

A. The Company is continuing two capital projects and three O&M projects. The capital projects are: (1) an advanced security platform, and (2) the replacement of obsolete CCTV cameras throughout the Company.

The Company is proposing O&M program changes associated with: (1) the advanced security platform (explained in the capital section); (2) cyber forensic investigative laboratories; and (3) expanding the staff of cyber forensic investigators.

Q. What are the planned capital and O&M expenditure levels for Security programs?

A. For capital, the Company plans to spend approximately $7.7 million in RY1, $5.7 million in RY2, and $1.0 million in RY3. Planned O&M expenditures are approximately $1.1 million in RY1, and $1.4 million in each of RY2 and RY3, exclusive of escalation.

Q. Do you have exhibits entitled “Shared Services - Corporate Security White Papers” and “Corporate Security – Cyber Forensics” detailing these projects and programs?

A. Yes, we have.

Q. Were these exhibits prepared under the Panel’s direction and supervision?

A. Yes, they were.

MARK FOR IDENTIFICATION AS EXHIBITS __ (SSP-8, SSP-9)

Enterprise Security Platform

Q. Turning to the capital projects, please explain the advanced security platform, also known as the Enterprise Security Platform ("ESP").

A. Con Edison provides an important public service to New York City and Westchester County. To adequately safeguard its facilities, Con Edison continues to incorporate comprehensive security processes to protect the Company, its employees and its physical assets, such as generating stations and substations. Electronic physical security mitigation measures already implemented consist of CCTV, intrusion detection, card access and DVR equipment. We continue to add facilities where we have these systems into our SOC, where they are monitored 24x7. This provides a central point for coordinating response protocols for security events and alarms. Some of these mitigation measures are run on an independent system, which does not provide a completely accurate depiction of events as they transpire. To solve this problem, Corporate Security purchased an advanced ESP providing real-time monitoring of ingress and egress points within Con Edison facilities. This means operators at the SOC will be able to react to an emergent situation immediately.

Q. What does the system do?

A. The system incorporates Con Edison's current platforms including intrusion detection, video management, visitor management, access control, fire alarms, burglar alarms, and biometrics into one system for real-time monitoring on a system-wide basis.

Q. How will this enhance security at Con Edison?

A. This new technology will maximize the benefit of centralized security monitoring at the SOC. The integration of systems enables Con Edison to assess a security condition as it transpires to determine what type of response, if any, is needed.

Q. Why does the Company need this new ESP system?

A. There are several reasons. The first is that the old card access system, deployed in 2005, is designed for a smaller platform. Since 2005, we have increased our locations with card access by over 500%. The card systems now support 110 locations with 1,623 readers, whereas we initially started with 26 locations and 224 readers. In addition, some of the old software is no longer supported by the initial vendor, and although we have frequently upgraded the system, the old system's capabilities are limited.

As mentioned earlier, another reason for the new ESP is that the majority of our current physical security mitigation systems are independent and do not communicate

with each other. For example, approximately 1,400 cameras at 85 Company locations are monitored at the SOC, but they were not connected to the card access system. Without integration to access control, we lack the ability to provide a real-time, instant view of the physical security conditions at each facility, which can make it difficult for Security to react to an emergent situation.

Third, under NERC CIPv5 requirements, there are specific standards for certain facilities that must be met, which we could not meet without this new system. Under these requirements, utilities must meet standards for certain assets, among other items, including physically securing access to substations, enhancing physical security plans, securing data, and having an audit capability at those locations.

Q. What has been accomplished to date on the ESP?

A. We worked with IT and outside contractors to implement a security platform. This provides Con Edison with an integrated platform of access control, video management, and visitor management as the primary security tools for the entire Company.

Q. In addition to implementing a system, what other work has been completed on this as of year-end 2015?

A. At year-end 2015, ten locations were connected to the system's access control panels.

Q. What do you expect to complete during 2016?

A. By the end of 2016, we expect to have migrated an additional 44 of the 110 sites to the system's access control panels.

Q. After 2016, what work will remain to complete this project?

A. In 2017 and 2018, the remaining 56 sites will be migrated to the new access control panels. In addition, seven large Company locations currently without access control panels will be outfitted with this system.

Q. What are the projected capital costs for the ESP?

A. The projected capital cost is a total of $30 million.

Q. Can you please provide the annual amounts?

A. We expect to spend $7.9 million in 2016, $6.7 million in RY1, and $4.7 million in RY2. To date, $10.6 million has already been spent on this project.

Q. Please describe the O&M requested for the ESP.

A. The ESP will be supported through three components: (1) additional technical operators at the SOC to review incoming information, (2) an ESP support agreement with the manufacturer, and (3) ongoing technical support from IT.

Q. Please describe the need for contract security technical operators at the SOC.

A. As we implement the ESP, the amount of information to be reviewed in the SOC will increase, including adding additional sites and cameras for full-time monitoring. Correspondingly, the number of event triggering alarms will increase, as the systems communicate with each other. The number of contract security technical operators who currently monitor data and alarms at the SOC is two per shift, 24 hours per day, 365 days per year, which equates to six operators per 24 hours.

Q. What do these security technical operators do?

A. These security technical operators parse and analyze data, and communicate the information quickly so that any response, whether it requires law enforcement and/or internal forces, appropriately addresses the situation.

Q. Why will more security technical operators be needed?

A. As the ESP is implemented, it will be necessary to augment the SOC with two additional contract security operators per eight hour shift (which equates to an addition of six operators per 24 hours) for RY1, RY2 and RY3, for a total cost of $450,000 per year to meet the growing information that the ESP provides. In 2016, we expect to have one additional operator per eight hour shift (three employees) and have the remaining operator in RY1 (three employees).

Q. Please continue with the second category of ESP O&M costs.

A. The ESP will need a service support agreement with the vendor providing the Company with periodic software upgrades, a direct connection with vendor technical support, and 24/7 vendor support. We expect to spend $430,000 annually starting in RY2 after the initial warranty expiration. As explained in the IT testimony, service agreements are necessary to maintain systems like this one.

Q. What is the third O&M component for the ESP program change?

A. Corporate Security will require IT maintenance and support of the system. IT will need to dedicate resources to provide continual system availability, which includes the necessary support for any maintenance such as patching, reporting, upgrading, enhancing, and customizing. This support will begin in RY1 at a cost of $240,000 per year.

Q. What is the total O&M ongoing cost for these three programs?

A. Aggregating these three elements of expense, the O&M cost in support of the ESP is anticipated to be $700,000 in RY1, and $1.1 million in each of RY2 and RY3.

Company Wide Camera Rollout Program

Q. Please explain the second capital project being requested.

A. Corporate Security is systematically replacing outdated digital cameras with Internet Protocol (“IP”) cameras,

which will increase clarity and resolution for investigative purposes. The second capital project replaces old and obsolete CCTV cameras and increases the number of cameras at critical locations. Prior to the centralization of technical security at Con Edison, many of the organizations had CCTV cameras installed after September 2001, and some have had their cameras as far back as in the 1990s. Many of these cameras are outdated, parts are unavailable, and the equipment is no longer supported by their manufacturer.

Corporate Security is responsible for standardizing and providing subject matter expertise on the CCTV cameras to be installed. As cameras fail or require more servicing, they lose their capability of capturing quality video and even experience total video loss.

Q. Please continue.

A. Replacement of these cameras in an on-going program. We are replacing analog cameras with the more expensive, better functioning IP cameras, which results in about 60-65 cameras being replaced annually.

Q. Why are IP cameras more expensive?

A. IP cameras, which produce sharper quality images than previously utilized analog cameras, require a different, more expensive, type of cabling and switches. Both

internal and external labor associated with installing these new types of cameras are higher than for analog cameras.

Q. How many cameras did you replace in 2014-2015?

A. 126 cameras were replaced during that time frame.

Q. What are the projected costs for this program?

A. The projected capital cost for the replacement and/or enhancement of old/outdated CCTV cameras is $1 million annually in RY1, RY2 and RY3.

Cyber Forensics

Q. Please discuss O&M funding for Cyber Forensics.

A. In addition to the support for the ESP discussed earlier, Corporate Security is sponsoring two O&M program changes: (1) for the addition of two cybersecurity forensic investigators, and (2) for support necessary to maintain the investigatory tools and the education of the cyber forensic team.

Q. Do you have an exhibit explaining the addition of the cybersecurity forensic investigators and the support associated with these employees?

A. Yes. These programs are discussed in further detail in Exhibit __ (SSP-9). This Exhibit is submitted on a confidential basis so as not to compromise the Company’s cybersecurity efforts by potentially disclosing our

strategies to persons that may seek to do harm to the Company. These exhibits explain the need for additional resources and training for forensic cybersecurity experts.

VII. EMERGENCY MANAGEMENT

Q. Please provide a brief description of the EM organization.

A. EM's mission is to meet our Company's emergency response needs by partnering with our stakeholders to provide effective risk assessment, mitigation, preparedness, response, recovery, and communications. We strive to utilize effective emergency management principles that enhance the Company's ability to provide safe and reliable energy services, and its ability to communicate in times of emergency timely and accurate information to our customers, employees, and other stakeholders by:

- Implementing comprehensive emergency preparedness programs;
- Conducting effective risk assessments for operating and business functions;
- Developing appropriate prevention or risk mitigation strategies;
- Responding with appropriate resources to address the emergency;
- Recovering from events expeditiously; and

- Communicating with customers and other stakeholders with timely and accurate information using voice, internet, media, and other appropriate methods.

Q. Please describe the initiatives that EM is undertaking.

A. During RY1, RY2 and RY3, we propose to undertake four projects:

- Emergency Operation Center ("EOC") Incident Information Management System (capital);
- System Emergency Assignment ("SEA") Module Development (capital);
- SEA Software Annual Fee (O&M); and
- Enhancing New Risk Planning, Training, and Exercise Program (O&M).

Q. Have you prepared an exhibit entitled "Shared Services – Emergency Management White Papers" detailing these projects and programs?

A. Yes, we have.

Q. Was this exhibit prepared under your direction and supervision?

A. Yes, it was.

MARK FOR IDENTIFICATION AS EXHIBIT __ (SSP-10)

Q. How much does the Company intend to spend on these four initiatives?

A. For the two capital projects for EM, the Company plans to spend approximately $500,000 in each of RY1, RY2, and RY3. For the two O&M programs for EM, the Company projects to spend approximately $300,000 in each of RY1, RY2, and RY3.

Q. What steps does EM take to control costs?

A. EM controls costs by leveraging technology and its available resources to operate as efficiently as possible. EM and Supply Chain already have signed contracts with vendors that provide key services or other resources (*e.g.*, staging area/base camp services, hoteling, rental cars, electrical contractors to support mutual assistance needs, etc.) in the event of a large-scale incident response, achieving better pricing, response time, and terms than would be obtained otherwise.

EOC Incident Information Management System

Q. Please describe the capital program entitled EOC Incident Information Management System.

A. Over a decade ago, the Company implemented a document manager software program, called CERCdocs, for its EOC intended to record appropriate items during emergency response events. CERCdocs has been used for Corporate emergencies, when the Corporate Emergency Response Center (“CERC”) is opened because there is an on-going situation where there is a potential to have, or there may be, a

significant number of customers out of service. For example, CERC events have been declared for periods of extended heat in the summer as well as severe weather events, such as Tropical Storm Irene and Superstorm Sandy. During a CERC event, the Company establishes the CERC and staffs positions at the Center following the Incident Command System ("ICS") structure that includes an Incident Commander (the individual in charge of handling/responding to the event), and other appropriate Officers and senior management. This ICS structure is used because it provides an effective model to manage incidents of any size. CERCDocs is a shared-folder software to store event documents and information produced or collected by the ICS staff.

Q. Has the Company used CERCDocs in the past and, if so, what has been your experience?

A. Yes, we have. The system has been useful in past incidents. However, in benchmarking with other utilities as well as emergency response agencies, there are software programs available that provide a greater range of options. Our benchmarking has determined that CERCDocs has limited functionality and is obsolete when compared to the capabilities of today's EOC software. For example, CERCDocs is a tool to store documents, whereas today's

newer systems are comprehensive systems that help organizations manage emergencies.

Q. What do these newer systems include?

A. These software systems have the ability to manage workflow, including handling requests between organizations, provide event reporting, and improve communications among employees staffed at both internal and external operations centers. Having these capabilities will facilitate communications, responsibilities, and actions of ICS staff to develop, coordinate, and implement restoration efforts in response to events and emergencies. The enhancements to workflow, coordination, communications, and documentation retention will improve the information available and useable for after-action reviews and reporting.

Q. What is the Company’s plan for selecting such a newer system?

A. The Company is planning to evaluate, procure, and implement an emergency response EOC software product that not only has the up-to-date features and functionality necessary to meet our current incident management needs, but also has the ability to add or modify functions as needs may change or expand in the future.

Q. Has the Company identified any particular software?

A. The Company has identified several potential EOC software products and is evaluating which one would match our requirements.

Q. Will the Company need to customize this software?

A. Yes. To achieve the functionality needed and realize the synergies from the software, the Company will customize the software for items such as integrating its emergency response plans ("ERPs"), customized ICS positions, and multiple commodity organizational structure within this software.

Q. Please provide a cost summary for the EOC Software.

A. The capital cost associated with this project is approximately $125,000 in each of RY1 through RY3. This estimate includes customization costs.

SEA Program

Q. Turning to your next project, SEA Module Development, please explain what a SEA is and the Company's SEA program.

A. In order to most effectively and efficiently respond to an emergency event requiring a corporate response, such as Superstorm Sandy, the Company has developed a process whereby all employees are pre-assigned to SEA positions, to support the Company's event response when the need arises.

Q. Please provide examples of SEAs.

A. For example, employees may be moved from their normal jobs as accountants or attorneys to roles that may include: site safety, where employees secure the area around downed wires until the wires are addressed; damage assessment, where employees perform inspections and provide damage reports to the local control centers and/or Restoration Planning teams; and municipal liaison, where employees coordinate between local municipality officials and Company operating departments for road clearing and restoration.

Q. How do employees get notified to report to their SEA?

A. In the event that a SEA mobilization is implemented, the employees receive a notification from a callout system, which advises the employees to report to their SEA role.

Q. Are you looking to enhance the existing callout system used for the SEA program?

A. Yes. The current callout system sends notifications to employees by utilizing the Company's employee contact information and making automated phone calls to employees' designated phone lines (*e.g.*, home, work, work cell phone, or personal cell phone).

Q. What features does this software currently include?

A. Software features currently include:

- Warehousing employees' information;
- Creating and maintaining employees' storm roles; and

- Contacting employees via automated call-outs.

Q. Are there any drawbacks to the current system being used?

A. Yes. The current system has limited scheduling and reporting capabilities, and requires manual configuration of reports from different systems.

Q. What enhancements is the Company looking for?

A. The Company would like to enhance the current system to include the following functionalities:

- improve software graphics and functions to be more intuitive and user-friendly;
- develop a scheduling and callout structure for all ICS functions;
- develop and implement a callout to check on employees before, during, and after an event – creating an “Are you okay?” process;
- create interfaces for individual scheduling;
- create a mobile application for individual employee interface to all functions;
- create a real-time dashboard to provide real-time data on employees’ status; and
- enhance capabilities so that organizations can access their employees’ current status and location.

These enhancements will provide the Company with additional capabilities that generate real-time information for

organizations, and will provide senior management with information as to the SEA process.

Q. What are the costs associated with these software enhancements?

A. The planned software enhancements will be developed and implemented over the course of three years requiring capital expenditures of approximately $345,000 in each of RY1 though RY3.

Q. Is there an annual maintenance fee associated with the SEA software?

A. Yes. The software is a third-party, vendor-hosted service and a subscription/maintenance fee is required on an annual basis.

Q. How is the annual maintenance fee currently funded?

A. Thus far, the fee has been funded through the initial development project, which expires in March 2016. As noted in the IT portion of this testimony, maintenance fees are like licensing fees, and they must be paid or risk having the product miss updates.

Q. Please provide a cost summary for the SEA Software Annual Fee.

A. The ongoing annual maintenance fee commencing in 2016 is $69,000 and this amount will be needed in each of RY1-RY3.

Enhancing New Risk Planning, Training, and Exercise Program

Q. Turning to the next O&M program, please explain the Enhancing New Risk Planning, Training, and Exercise Program.

A. This project will improve the Company's emergency preparedness through a two-pronged approach. First, we intend to enhance our response plans to include newer non-weather type events. Second, we intend to modularize our plan into an overall "all-hazards" style plan.

Q. Please explain the first prong of the effort.

A. The first prong is to enhance preparedness planning, training, and exercise programs by further addressing newer, non-weather-related risks, like cyber attacks, physical attacks on utility infrastructure, loss of communications, and emerging public health crises. The Company has developed initial response plans to address such risks, but as these risks have evolved, the planning, training, and exercises associated with these newer risks need to be enhanced. These enhancements are in addition to the continuous improvements being made to the Company's existing response plans, and their associated training and exercises. For example, the Company needs to review, update, and/or enhance our initial response plans to address lessons learned, and incorporate corrective actions as new events/risks occur, such as cyber attacks that are

increasing in frequency, sophistication, and impact. Some enhancements may include creating new roles, procedures, and actions required to address these issues.

Q. Please describe the second prong of this effort.

A. The second prong will improve our emergency response plans through modularization. Currently, the Company develops response plans to address each risk on a stand-alone basis. As time has evolved, managing the process on a risk-by-risk basis has become cumbersome and inefficient since the number of risks is growing.

Q. What will you do to improve this?

A. The Company will work with consultants to take the existing and newly incorporated risks, and modularize them to be an “all-hazards” style plan that focuses on response actions rather than each risk.

Q. Please explain what you mean by modularized.

A. By modularized, we mean that the plan will address the different responses that each area would have to the differing risks. As time has passed and these plans have evolved, we have discovered that, in the end, there are only so many responses available and, while they may vary slightly from risk to risk, there are still only a limited number of actions that can be taken. For example, if there were a fire in the Company’s headquarters or a breakout of

the pandemic flu, the answer for many office workers may be the same, *i.e.*, work at an alternate work site, or stay at home and work remotely as best you can through remote access. By consolidating and reorganizing the plans in terms of responses by department or group, the Company and its employees will focus on the response, rather than the event categorization.

Q. Will this assist in the Company's emergency response?

A. Yes. Having a modularized response plan will make the response plans more usable, and the training more focused and sustainable. Additionally, this will allow the Company to more effectively conduct exercises since the focus will be driven by response actions rather than the risk.

Q. What is the overall program plan?

A. Over the subsequent years, the Company will work with consultants to review the impact and response of the newer risks mentioned above, and to reformat existing plans, such as the Electric Operations Emergency Response Plan and the Corporate Coastal Storm Plan, and incorporate newer risks into a modularized plan. Thereafter, the Company will enhance the training and exercises, using, but not limited to, eLearning courses, tabletop, functional, and full-scale exercises.

Q. Please explain what the Company will be doing in terms of enhancing training and exercises.

A. These efforts are intended to advance employee proficiency with the actions that they could/should be taking when responding to the more familiar risks, such as weather-related events, as well as the newer risks discussed above. The Company will increase the number of training exercises currently performed to include conducting one functional exercise, three tabletops, and three drills. Additionally, the Company also plans to incorporate different/new types of training into its training program, which may include the development of eLearning modules, checklists, practice sessions, job aids, and more just-in-time guides.

Q. Please provide a cost summary for these program enhancements.

A. The annual total O&M cost to enhance planning, training, and exercises is $175,000 in RY1, $200,000 in RY2, and $225,000 in RY3.

VIII. HUMAN RESOURCES

Q. What is the HR organization responsible for?

A. The HR organization consists of the following groups: Benefits, Compensation, Employee and Labor Relations, HR Support and Occupational Health (“OH”). The mission of HR is to “Advance workplace solutions, safety, and services

through our commitment to excellence, innovation, engagement and wellness." Our priorities of Ensuring Operational Excellence through Process Improvements, Productivity and Compliance and of Improving Safety support this mission and continue to be the basis for our initiatives, programs, services, and performance measures. HR is focused on the services and support these departments provide to the employees and retirees.

Q. What programs is HR sponsoring in this testimony?

A. HR is sponsoring one O&M program change: strike contingency. HR is also sponsoring three capital initiatives: (1) the OH Integrated Data Management Platform, (2) an upgrade to our existing HR Payroll application and (3) a PeopleSoft HR HelpDesk. In addition, HR is also requesting an additional resource to support Gas Operations, which is discussed in the "Support for Gas Operations Workforce" portion of the testimony.

Q. Do you have an exhibit titled "Shared Services - Human Resources White Papers" detailing these programs and their associated costs?

A. Yes.

Q. Was it prepared under your direction and supervision?

A. Yes, it was.

MARK FOR IDENTIFICATION AS EXHIBIT __ (SSP-11)

Q. What are the forecasted expenditure levels for the strike contingency O&M program change?

A. The Company plans to allocate $450,000 in each rate year for these costs.

Q. What are the forecasted expenditure levels for the three capital HR programs?

A. The Company plans to spend approximately $2.2 million in RY1, $330,000 in RY2 and $2.4 million in RY3.

Q. What steps does HR take to control costs?

A. HR controls costs by strengthening business processes through conducting self-assessments and employing technical solutions to replace manual processes as reflected in two of the HR capital projects.

Occupational Health System

Q. Please explain the current state of the OH Department electronic system.

A. OH currently uses paper records and an existing electronic system, the Occupational Health Administrative System ("OHAS"). OHAS has limited functionality, and has not been significantly updated since it was implemented over 15 years ago. As other Con Edison systems have been upgraded, such as HR Payroll, OHAS has been manually modified to provide essential data and information on qualified sick absences to payroll.

Q. Why does the OH Department require an Integrated Data Management Platform ("IDMP")?

A. In order to manage, and produce reports on, employee sick absences, fitness for duty, federal regulatory requirements of the Department of Transportation ("DOT") and OSHA, OH employees must match data across discrete systems and manually combine the information noted above related to an employee. For example, for nurses to manage a sick absence, they must complete several steps. First, the nurse reviews the employee's absence patterns in the Case Management System ("CMS"), then logs into the OHAS system to evaluate previous sick absence diagnoses, enter medical documentation from the current absence, and schedule a clinic appointment for the employee. After the clinic visit, OH employees must log back into OHAS to determine the outcome of the clinic visit, then log back into CMS to close the case. This process is unsustainable for reporting on regulatory requirements, handling quality reviews, and managing employee sick time.

Q. What will IDMP do?

A. IDMP will assist with a number of items. First, IDMP will provide better tracking of federal regulatory compliance requirements. Second, IDMP will improve OH's business processes through trend analysis and adherence to industry

best practices. Third, the platform will integrate data and reporting across existing legacy systems currently used to hold medical information and report on lost time.

Q. Why is the IDMP important to OH?

A. The IDMP platform will integrate paper medical records and the current legacy medical systems into one electronic occupational health record for each employee. This health record will keep all medical (such as sick absences, clinic visits) and occupational health (such as regulatory exams and random drug testing) information in one system with business intelligence capacities to produce reports and track projects that review employee health or other items, such as Hearing Conservation, Asbestos, Commercial Motor Vehicle drivers, and drug testing follow-up.

Q. What is the current status of IDMP?

A. The Company has performed a Phase 0 study and determined that an electronic system for managing health records is needed. This system will provide the Company with the ability to conduct more advanced analysis, identify trends and assist in sending and receiving medical information.

Q. What is the implementation timeline for IDMP?

A. This project will take four years to implement from 2016 to 2019. Full details of the timeline are included in Exhibit __ (SSP–11).

Q. What is the cost of implementing this system?

A. The implementation of the IDMP is projected to cost of approximately $1.9 million in total, broken down into approximately $725,000 in 2016, $745,000 in RY1, $325,000 in RY2 and $125,000 in RY3.

Q. What work will be done for this system in 2016?

A. In 2016, OH will select a vendor and work with the vendor to: (1) map the OHAS data to populate the new electronic record system with historical information; (2) develop and test interfaces between Con Edison systems (such as Employee Data Warehouse, eTrain, eHire, and HR Payroll) and external systems (labs, hospitals, and Short Term Disability vendor), and (3) develop and document new business rules and processes.

Q. What work will need to be completed during the rate years?

A. In RY1, the mapping of historical data, and the interface construction and testing will be completed. In RY2, the OH staff will be trained and begin using the system. In RY3, adjustments to the business rules and process will be made as needed and maintenance of the system will begin.

HR Payroll System

Q. Please explain the second capital project for HR, upgrading the HR Payroll System.

A. The second HR capital project addresses the need to upgrade the HR Payroll system. As explained earlier in the IT portion of this testimony, upgrading systems supported by venders are critical in staying current on security patches.

Q. What is the HR Payroll System?

A. The HR Payroll system is the application that manages personnel data, time and labor, payroll, and benefits for all active employees and retirees for both Con Edison as well as O&R.

Q. Can the Company continue to use the HR Payroll system without support?

A. As referenced in Exhibit __ (SSP-11), operating a payroll system without support is not recommended. Oracle will stop releasing Internal Revenue Service updates for an unsupported product version, which means the Company would not have the latest information for withholding payroll and other taxes. In addition, failure to upgrade would impact the Company’s ability to apply critical bug fixes and security patches.

Q. Are there two upgrades that need to be done and will you upgrade them at the same time to reduce the cost of the project?

A. There are two Oracle products that must be upgraded – one for the system itself and another for a supporting system. Upgrading both products at the same time will avoid duplication of work, such as software installation, analysis, build, and testing. For example, system testing is estimated to take 12 weeks for an upgrade project. By upgrading together, system testing can be done once for 12 weeks for both products instead of twice if the upgrade was done separately.

Q. What is the expected cost of this upgrade?

A. The cost of this upgrade will be $2.3 million and this upgrade will be undertaken and completed in RY3.

Human Resources Help Desk

Q. Please explain the third capital project, HR Help Desk.

A. Oracle PeopleSoft HR Help Desk is a system to support employee and retiree HR related requests, such as medical coverage information, disability information or employment information on subjects such as promotions or progressions. The HR Help Desk will replace the current manual process of tracking and updating employee records for both active and retired employees.

Q. Please describe the current process for employee and retiree requests.

A. The Human Resources Service Center ("HRSC") responds to calls and written requests from active and retired employees as well as from Human Resource professionals. The HRSC representatives respond to calls and written requests by initiating tasks, or communicating with the requestor, using Microsoft Outlook. This manual process relies on the HRSC representatives to initiate the task, complete the task, and document its completion. The HRSC handles approximately 26,000 requests annually.

Q. Are there issues associated with this manual system?

A. Yes. There are several issues. To begin, there is no transparency for the supervisors or customers to monitor the status of the requests. Additionally, there are no reports available to monitor the completion of the requests. Finally, under the Health Insurance Portability and Accountability Act ("HIPAA"), disclosure of Personal Health Information ("PHI") must be recorded in the event an employee or retiree requests such information. Currently, the disclosure log is maintained manually.

Q. What will the HR Help Desk do?

A. The HR Help Desk will apply automated workflow for tasks, inquiries, and requests for all of HR. Employee requests and questions can be routed to responsible departments and the status will be maintained within the system in real

time. The Help Desk will help HR comply with HIPAA, achieve productivity and cost savings, improve internal customer experiences and provide self-service for retirees and employees.

Q. Please explain how this system will achieve greater productivity.

A. The system will gather analytics to improve productivity and enable HR to proactively address employee and retiree concerns resulting in reduction of calls to the HRSC. Greater efficiencies can also be achieved for tasks and requests that need to be coordinated between multiple sections across organizations, resulting in the reduction of human resources needed to support the HRSC.

Q. Please explain how this savings will be achieved.

A. The implementation of this system is expected to result in a net savings of one management and two union employees in the HRSC. Staff reductions will occur when efficiencies gained by automating processes and procedures are established and stable. However, as noted in the Exhibit, the savings from staffing reductions will be used to offset the on-going maintenance costs associated with this system.

Q. Are there any other benefits associated with this system?

A. As noted above, the system will improve the internal processing of HR requests and provide self-service

functionality. Requests can be completed by the HRSC or routed to the various sections within HR, L&I and Payroll for more expeditious work processing. A Knowledge Base will be created that will assist in organizing information on policy and procedures and deliver self-service answers which will reduce the call volume. The self-service application will be available during off-hours and requests can be submitted at a time that is convenient for the employee and retiree. This project will also address the need for self-service functionality for retirees which will reduce calls and requests that require manual intervention. Additional details of the project scope and benefits are included in Exhibit __ (SSP–11).

Q. Is this system compatible with other PeopleSoft systems the Company currently uses?

A. PeopleSoft HR Help Desk shares the same architecture and technology with HR Payroll system so it will be integrated using existing PeopleSoft PeopleTools framework.

Q. What is the cost of the HR Help Desk and how long will it take to implement?

A. The cost of the HR Help Desk system is $4.2 million. In 2015, funding totaling $2.7 million was provided for this project through the Corporate Governance Optimization

process for hardware and software. The balance of $1.5 million for the project is planned to be expended in RY1.

Strike Contingency

Q. Please generally describe the Company's strike contingency efforts.

A. The Company and its two local unions, IBEW Local 3 and UWUA Local 1-2 employees, have collective bargaining agreements. Local 3's agreement will expire on June 24, 2017 and assuming a minimum three-year agreement with Local 1-2 is reached in June 2016, the collective bargaining agreement could expire as early as June 2019. In the event of a labor stoppage, the Company has a planned approach to provide for the continued safe operation of its facilities and its services.

Q. Are there costs associated with these preparations?

A. Yes. The Local 1-2 and Local 3 Contingency Programs are ongoing initiatives that traditionally implemented once every three or four years to align with the end of the collective bargaining agreement period. If a three year rate plan is developed, each of these contracts will potentially expire during the rate plan. As a result, and since recent contracts have been for four years, the annual cost for these initiatives is priced out at one-fourth of the estimated cost. The estimated cost for union contract

negotiations is $1.6 million for Local 1-2, and $200,000 for Local 3, or a total of $1.8 million as shown in Exhibit __ (SSP-11). This is based on our most recent experience with the contingency planning that occurred in 2012 for Local 1-2, and in 2013 for Local 3. One-fourth, or $450,000, will be included in each rate year. The Accounting Panel will address the proper allocation of these O&M costs among Electric, Gas, and Steam.

IX. LEARNING AND INCLUSION

Q. What is the L&I organization responsible for?

A. The L&I organization consists of three departments: (1) Talent Management, (2) TLC, and (3) Diversity and Inclusion. The L&I organization supports the Company's talent needs through a series of activities, including, talent acquisition, leadership development, technical and safety training, performance management, and succession planning. It is also responsible for EEO compliance and fostering a more diverse and inclusive culture throughout the Company.

Q. What programs are L&I sponsoring?

A. L&I is sponsoring one capital initiative to implement the PeopleSoft Recruitment Module. We also have one O&M program, the continued development of the EEO Compliance Corporate Training program. There is an additional O&M

program request from L&I to address the increase of training instructors needed to meet the training demand related to Gas Operations, discussed later in the "Support for Gas Operations Workforce" testimony.

Q. Do you have an exhibit titled "Shared Services - Learning and Inclusion White Papers" detailing these programs and their associated costs?

A. Yes, the exhibit was prepared for the one capital project and one O&M Program change discussed in this section.

Q. Was it prepared under your direction and supervision?

A. Yes, it was.

MARK FOR IDENTIFICATION AS EXHIBIT __ (SSP-12)

Q. Please summarize the overall capital costs and incremental O&M costs for rate years.

A. For PeopleSoft Recruiting Module implementation, the Company expects to spend $5.9 million over the 2015-2017 timeframe, with $3.1 million being expended in RY1.

For EEO Compliance Corporate Training Program, the Company expects to spend $1.5 million, which equates to $300,000 in each of RY1-RY3 as well as in 2016 and in 2020.

Q. What steps has Con Edison taken to control its training costs?

A. L&I mitigates costs in several ways.

First, the training staff is optimized through cross training and restructuring. This cross training effort allows instructors to be utilized across various disciplines and avoided an additional $345,000 in O&M expenditures in 2015.

Second, L&I utilized iPads for one of its leadership courses, The Business Academy. This allows a cost savings on purchasing books and printing materials for current and future offerings of this program. In 2015, we realized an $8,000 cost savings which we expect will compound to be $48,000 in five years.

PeopleSoft Recruitment Module Program

Q. Please explain the PeopleSoft Recruitment Module program.

A. The PeopleSoft Recruitment Module is a recruiting application that will increase efficiency, improve the overall hiring experience, and support compliance with the regulatory requirements for data collection, job posting, and external sourcing, such as those required by Equal Employment Opportunity Commission (“EEOC”) and Office of Federal Contract Compliance Programs (“OFCCP”). This solution offers managers and recruiters easy-to-use recruiting tools to search for candidates, including automatically screening resumes and matching candidates for jobs based on job descriptions. It will also provide

candidates with a personalized, intuitive, self-service interface that will improve their hiring experience. Lastly, it will provide recruitment process improvements, such as standardized workflows, automated screening, automated EEOC and OFCCP recordkeeping and tracking, and reduce the time to fill open positions.

Q. Please explain why the PeopleSoft module is needed.

A. The Company's existing recruitment system, eHire, lacks the agility necessary to meet the varying demands of our stakeholders. Further, the current process involves manual intervention, resulting in process inefficiencies. The PeopleSoft module will reduce the time to fill positions thereby allowing recruiters to focus on strategic activities. In addition, eHire is supported by several disparate systems that are costly to maintain and do not provide real-time business intelligence to effectively manage recruiting activities related to the screening of applicants, recruiting costs, and the time to fill vacancies. Further, eHire does not have a platform to support interactive technology, which could improve the applicant experience, and it has limited functionality for federal and state regulatory reporting, including OFCCP and EEOC compliance guidelines.

Q. What recruitment challenges does the Company face?

A. To begin, there is an accelerating pace of change in the utility industry. This includes changing demographics, increasing competition for technical and skilled workers, advancing technology as to how energy is distributed, increasing needs to effectively engage with applicants, and continued compliance requirements with federal and state rules and regulations, including OFCCP and EEOC compliance guidelines.

The lack of functionality in our current eHire system compounds the recruiting challenges for the Company. These challenges directly impact our ability to effectively attract and engage talent, screen and process applicants, and fill job openings in a timely manner.

Q. Are the Company’s recruiting challenges unique?

A. No. The Company’s recruiting challenges are not unique in either the utility industry or other industries.

Q. Will the PeopleSoft Recruitment Module help meet these challenges?

A. Yes. The PeopleSoft Recruitment Module will help us to meet our business needs, providing streamlined process and metrics to facilitate a more efficient and effective hiring process. The implementation of a robust recruitment application will eliminate existing administrative and transactional tasks and enable the Company to engage in

strategic hiring practices that include building a continuous talent pipeline that involves workforce planning, continuous sourcing, and onboarding. There are other significant advantages to adopting this application, including to:

- increase productivity;
- reduce time to fill vacancies;
- facilitate regulatory compliance with federal and state rules and regulations, including, but not limited to, EEO, affirmative action programs, and employment law;
- streamline recruitment process; and
- recruit higher quality candidates.

Q. Has the Company considered any other systems to perform this function?

A. Yes. A preliminary assessment of three recruitment software systems was conducted. The team looked at the strengths and weaknesses of the three systems and determined that an Oracle product best met the Company's needs.

Q. What are the benefits of the PeopleSoft Recruitment Module?

A. The benefits include integrated workflows to make the job opening process seamless, automated tools to screen out unqualified applicants and route qualified applications to the appropriate recruiter or hiring manager. The workflow

functionality saves time, reduces the administrative burden, and increases the speed of the hiring process. The candidate gateway provides applicants with an intuitive and easy to follow application process, and a platform to facilitate better communication with the candidate throughout the hiring process. PeopleSoft also provides seamless reporting and analysis to replace labor intensive ad-hoc report writing to satisfy reporting needs. These reporting capabilities will enhance our ability to effectively manage the recruitment process, from requisition to hire, revealing opportunities to continuously improve the overall hiring experience.

Q. What is the projected cost of this program?

A. The Company expects to spend $5.9 million for this project over the 2015-2017 timeframe, of which $324,000 was incurred in 2015, $2.5 million will be spent in 2016 and $3.1 million in RY1.

Equal Employment Opportunity Compliance - Corporate Training Program

Q. Please briefly describe the EEO Compliance - Corporate Training Program.

A. The EEO Compliance - Corporate Training Program will help the Company further its diversity & inclusion (“D&I”) strategy. Our D&I Strategy will foster a culture that

embraces diversity and advances inclusion through four key areas of focus:

(1) Advance Inclusion through Learning

(2) Connect Inclusion throughout the Organization

(3) Foster an Inclusive Environment

(4) Communicate & Engage

This program supports the Company's efforts to Advance Inclusion through Learning. The program will provide employees with a better understanding of the various federal, state and local discrimination laws applicable to them in the workplace.

Q. What is the goal of the D&I training?

A. The training goal is to reinforce our values of professionalism and mutual respect in the workplace in the following ways:

- Raise awareness about EEO laws and regulations, including those dealing with sexual harassment
- Identify protected classes
- Recognize employment practices and procedures regarding discrimination and harassment
- Familiarize employees with all aspects of anti-discrimination laws and policies
- Increase employee awareness of, and reinforce, the Company's policies

- Create self-awareness and personal accountability in fostering a culture of inclusion and mutual respect in the workplace and with our customers
- Develop cultural competence and a deeper understanding of the benefits and impact of equal treatment, and of diversity and inclusion for all stakeholders

Q. Why is the effort important?

A. In today's diverse marketplace and workplace, a well-trained workforce is imperative in order to remain competitive and to meet our customers' ever-changing needs and expectations. Developing a training plan is not just "nice to do." D&I training supports compliance with EEO laws which require that we maintain a workplace that is free from discriminatory and harassing behaviors. D&I training will support compliance with the EEO Laws.

Q. Are there additional outcomes that are anticipated as a result of this training?

A. In addition to meeting legal requirements, equipping our employees with the knowledge and skills necessary to prevent discriminatory behaviors and to build a culture of inclusion has many advantages. It helps us to avoid costly and unnecessary legal claims and challenges and helps to promote a more productive, team-oriented workplace. It

also helps to prevent employee turnover and low employee engagement.

Q. What information is conveyed in this training?

A. The Company intends to provide training that will be specific to an employee's role in the organization through a layered approach depending on the employee's level in the organization. For example:

- Leading Self – this training focuses on providing employees with the foundational competencies and skills needed to promote and foster an inclusive workplace. Employees will gain an understanding of their role and expectations so that their individual behavior is non-discriminatory, inclusive, and respectful of their colleagues.
- Leading Others – this training provides employees who supervise, manage, or lead teams with information to enhance their leadership competencies and develop a deeper understanding of the role of the leader. This class explains that the leader must set clear expectations for employee behaviors in support of an inclusive and productive workplace that values the individual contributions of every team member.
- Leading the Organization - This training takes a more in-depth look at developing leadership skill sets and

competencies to effectively lead teams for business productivity and organizational success.

Q. How will this training be conducted?

A. The Company has already commenced training in this area, but training must take place repetitively and over a long period of time to effectuate a shift in culture. For the three rate years, the training will be conducted by a training consulting firm with expertise in the area of diversity and inclusion and EEO laws and regulations.

Q. What is the expected cost of this training?

A. This training will begin in 2016 and extend over the next four years at a total cost of $1.5 million, $300,000 in each of RY1-RY3 and in 2016 and in 2020.

X. RESEARCH AND DEVELOPMENT

Q. Please describe the R&D organization.

A. The R&D organization conducts R&D efforts both for Con Edison and O&R, and is organized around the electric, gas, and steam systems. R&D, guided by corporate goals and objectives, consults with other Company organizations to determine priorities and develop the project portfolio.

Q. What is the purpose of Con Edison’s R&D program?

A. The purpose of Con Edison’s R&D program is to continue developing and demonstrating new processes/methods and cutting-edge energy delivery technologies that will improve

the Company's operating and business practices. The emphasis is on projects that integrate new technologies as well as reduce risk, enhance public and employee safety, and facilitate the incorporation of distributed energy resources.

Introduction of Project and Programs

Q. Why does Con Edison need to develop and demonstrate new technologies?

A. Con Edison's energy systems require continual modernization and reinforcement at all levels. When assessing new technologies, R&D projects consider the aspects that are unique to our system, such as the Company's significant urban population and geography and energy infrastructure density. Energy infrastructure density refers to the significant underground high-load density, large underground secondary network electric systems and the multi-layered underground infrastructure of gas and steam pipes. These features, when combined with their close proximity to other infrastructure, such as subways and telecommunications facilities, make system improvements or repairs complicated and time-consuming.

Q. Why must the Company itself undertake R&D?

A. It has been the Company's experience that manufacturers are not willing to unilaterally undertake technology

development related to the Company's main concerns, such as our underground infrastructure, that do not have broader market potential. Therefore, the Company needs to fund research, often through full-scale demonstrations and pilot programs, in collaboration with partners where possible, to prove feasibility for the Company and its customers.

Q. Are there other associated consequences to working in New York City streets that influence R&D projects?

A. Yes. New York City prefers that the Company limit street excavation to periods that are less impactful on pedestrians, bicyclists, and vehicles. This preference results in restrictive street access requirements from the City's Department of Transportation ("DOT"), including working at night or on weekends, and under heightened noise restrictions. Also, due to New York City's installation of bike lanes and expanded pedestrian areas, the reduction of available vehicular lanes puts even further limitations on the opening of streets to access the Company's distribution systems.

Q. Were documents, entitled "Shared Services – Research and Development White Papers" and "Research and Development Costs" prepared under your direction and supervision?

A. Yes, they were.

MARK FOR IDENTIFICATION AS EXHIBIT __ (SSP-13, SSP-14)

Overall R&D Expenditures

Q. What is Con Edison projecting for R&D expenditures for RY1, RY2, and RY3?

A. The projected R&D expenditure level for each of RY1, RY2, and RY3 is $12.9 million for Electric R&D. The projected R&D expenditure level for Gas R&D projects is $1.5 million. The total for Electric and Gas is accordingly $14.4 million annually in RY1, RY2 and RY3.

Q. Are you predicting additional R&D expenditure for work in the rate years over recent years?

A. Yes. Additional work will be done to allow for an appropriate focus on Electric REV-related projects with increased emphasis on modeling tools, smart inverter and other power converter technologies, configurable protection designs, communications technologies, researching and testing of Distributed Energy Resources (“DER”) technologies, and hiring additional staff to support these projects. We also intend to continue our strong focus on developing and deploying methane-sensing technologies and trenchless technologies. Regarding other funding for Electric and Gas, the general focus and program emphasis will be similar to prior years while increasing our emphasis on customer experience.

Q. Please explain why none of the projects included in the filing include project detail for RY3.

A. Due to the evolution of technology advances and technology needs, R&D's plan provides more detail by project level for the first two rate years. Because of the nature of R&D itself, while we provide an overall spending level, we did not attempt to predict project details for RY3.

R&D Projects/Programs

Q. How is the R&D portfolio developed?

A. The R&D portfolio is developed and prioritized in conjunction with the operating organizations. R&D's program is a combination of research undertaken collaboratively with external entities as well as projects developed and conducted internally. In addition to evaluating past successes and/or failures, the portfolio is continually refined to recognize new challenges to Company operations - for example, planning and operational needs for integrating DER.

Q. Please explain how Con Edison's R&D portfolio is established and managed.

A. R&D's goal is to match the needs of the Company's operations to opportunities for solutions using advanced technology. The first step in the process is to determine whether a project is considered R&D related, i.e., is it an

experiment, design, installation, construction or operation of a project reasonably related to existing or future Company business. An analysis of each potential project is undertaken, with expected advantages reviewed against financial resources required for successful project development. The analysis considers:

(1) The probability of achieving success in a reasonable time period;

(2) The benefits of conducting the project(s), both qualitative and quantitative; and

(3) The cost of deploying the project if the research is successful.

These and other factors, including the projects effect on public and employee safety and others, are used to select and prioritize projects. Electric, Gas, and Steam R&D activities, and their programs and budgets, are concurrently developed and reviewed to avoid possible duplications and to identify potential synergies with other R&D programs. There are, for example, potential synergies across commodities for EH&S tools, inspection techniques, damage assessment, weather impact, sensors and communications. Emphasis is placed on projects that show near and mid-term benefits as well as long-term solutions.

Once complete, the project list is then reviewed and approved by senior management.

Q. How often is the portfolio reviewed?

A. The R&D portfolio is reviewed on an annual basis to assess potential projects, both those already authorized and new concepts.

Q. Have there been successful R&D projects through the years?

A. Yes.

Q. Please describe some recent successful Electric projects conducted under the current program.

A. Recent successful Electric R&D projects include the following:

1. An Advance Leak Detection System (“ALDS”) for Slow Circulation and Static High Pressure Fluid Filled (“HPFF”) Transmission Feeders was successfully demonstrated on a pair of high voltage feeders. The ALDS simulation model was built using data collected on these feeders from year 2010 and 2011. In 2012, the model was tested by conducting a simulated field leak test on the feeders. The system detected the occurrence of a dielectric oil leak and also provided the proximity location of the leak. The next step is to commercialize the technology. The Static detection

portion of the project is partially funded by the Electric Power Research Institute ("EPRI").

2. The Company pilot tested an Automated Damage Assessment Process which provides efficient, timely and accurate damage assessment ("DA"). The process consists of a field assessment application loaded on a tablet to electronically capture damage information and transmit it to the local Control Center. A back office application displays the system map with all damaged assets highlighted. Pictures taken by damage assessors in the field can be viewed. A damage report which shows a map of the damaged area can also be printed. The process is fully integrated with our Outage Management System and is the new DA process.

3. Based on a New York State Grid Mitigation of Geo and Electromagnetic Events study, 14 transformers in our bulk power system were identified as being vulnerable to either overheat and fail, or cause voltage instability due to increased volt-ampere reactance ("VAR") consumption, which could result in system problems and/or equipment damage. In 2013, the Company developed and installed a new monitoring system on vulnerable transformers. This monitoring system provides information so that operators can

remove vulnerable transformers as needed. In 2014 and 2015, R&D work focused on developing, expanding, refining, and validating the computer model allowing calculation of geomagnetically induced currents ("GIC") in our transmission system, along with adjacent territory. Additionally, this work is required to satisfy new Transmission Planning Reliability Standard TPL-007 that was approved by the Federal Energy Regulatory Commission ("FERC") in 2014.

4. The "Characterization of Arcing Fault Signature" Electric R&D project demonstrated that arcing faults can be detected in networks based on electrical waveforms analysis. Observed manhole events have been correlated to arcing signatures detected by dedicated data recorders. In a few cases, due to this deployment, secondary network faults were found based on arcing detected, leading to their repair and potentially reducing manhole events. We have also successfully developed an algorithm that has been implemented in the network protector microprocessor relay and currently undergoing field demonstration.

Q. Please describe some recent successful Gas projects conducted under the current program.

A. Successful Gas R&D projects include the following:

1. Development of in-line inspection tools, referred to as pigs, such as EXPLORER, for pipeline integrity assessment. These robotic tools enable the inspection of previously un-piggable transmission mains without disruption in service. Un-piggable mains are those that are designed with plug valves and/or complex pipe bends that make the use of standard in-line inspection tools impossible. Without these new in-line inspection tools, the Company needs to excavate to conduct assessments and verify the condition of the pipe, which is costly. The development of these tools has been an ongoing collaborative process for 12 years.
2. Development of a prototype Emergency Main Shut-Off System (“EMSOS”) for a large diameter low-pressure metallic main serves as an alternate means to installing shut-off valves. The EMSOS stations will be placed in strategic locations in the distribution system to provide a lower cost alternative to installing isolation valves and will be available to provide for main isolation during emergencies.
3. Development of a large Cast Iron Sealing Robot (“CISBOT”) for the sealing of 16-inch to 36-inch cast iron joints in live gas mains. This is a trenchless

rehabilitation tool that will reduce the costs of sealing large diameter leaking cast iron joints.

Q Are all R&D projects successful?

A. No. Because of the nature of R&D, some projects do not result in a successful product. To address that challenge, most projects are conducted in phases to reduce the risk that would be otherwise associated with over committing in advance to work that reveals itself to be unfruitful at some point during the course of the project.

Q. You mentioned that the Company works collaboratively with others, please describe the Company's collaborative research efforts.

A. For projects where the Company shares a common interest with others in the industry, the Company works with various utilities, industry, government, academia, and private organizations to conceptualize and develop new products.

Q. Please explain some of the groups that the Company collaborates with in the electric area.

A. In the electric area, the Company works with EPRI, New York State Energy Research and Development Authority ("NYSERDA"), the Center for Energy Advancement through Technological Innovation ("CEATI"), the National Electric Energy Testing, Research & Applications Center ("NEETRAC"),

and the New York Battery and Energy Storage Consortium ("NY-BEST").

Q. Can you please further describe some of the mentioned organizations, such as EPRI, CEATI, NEETRAC and NY-BEST?

A. EPRI's work focuses on the generation, delivery and use of electricity for the public benefit. It is an independent, nonprofit organization that brings together scientists, engineers, experts from academia and the industry to address electric challenges.

CEATI is a collaborative user-driven organization committed to providing technology solutions to its electric utility participants, who act jointly to share and develop practical and applicable knowledge.

NEETRAC is a membership-based center within the School of Electrical and Computer Engineering at Georgia Tech, which focuses on electric energy delivery and provides a wide array of analytical, engineering, research and testing services to help improve electric grid reliability and efficiency.

NY-BEST positions New York State as a global leader in energy storage technology, including applications in transportation, grid storage, and power electronics. It serves as an important connector for all stakeholders including manufacturers, academic institutions, utilities,

technology and materials developers, start-ups, government entities, engineering firms, systems integrators, end-users, and policy makers encompassing all stages of energy storage product development and use.

Q. Please provide an example of collaborative research for the electric sector.

A. Con Edison initiated a project with EPRI in 2012 to establish an engineering approach that would lead to higher precision in the design of substation structures and foundations through the use of newly available fiber optic sensors. Through modeling, lab scale testing, and full scale testing, a new understanding of the dynamic response of substation equipment and foundations to short circuit forces major modifications to substation supporting equipment design have been developed. As a result of the information obtained by this test, more efficient designs for substations, with smaller footprints, are expected going forward.

Q. Please describe the Company’s collaborative research efforts in the gas sector.

A. Con Edison works extensively with three research collaboratives that include other gas companies in the U.S. and Canada. These collaboratives are NYSEARCH, which began in New York, and Operations Technology Development (“OTD”)

and Sustained Membership Program (“SMP”), which are both part of the Gas Technology Institute (“GTI”). NYSEARCH and OTD both consist of member gas companies, some of which are members of both groups like Con Edison. The Company works with the American Gas Association (“AGA”) as well as the United States Department of Transportation Pipeline of Hazardous Materials Safety Administration (“US DOT PHMSA”). In addition, R&D maintains regular contact with other utilities, gas trade groups, universities, and technology developers as a further source for new ideas.

Q. Please provide some examples of collaborative research for the gas sector.

A. Working collaboratively with NYSEARCH, fifteen utilities throughout the nation and several government agencies over a 12-year period, EXPLORER robots were developed for in-line inspection of gas transmission mains.

Q. Please describe the Company’s general internal R&D program.

A. Con Edison’s internal R&D program primarily focuses on problems that are unique to the Company’s system, as mentioned earlier. The program also focuses on the development of selected products that the Company may need to deploy in a timeframe that is earlier than that required by others in our industry, such as advanced methane detectors.

Q. Does the Company have internal programs for Electric and Gas?

A. Yes. Each area has a program that combines the collaborative groups as well as internal projects. We describe each internal program below.

Q. Please describe how internal project research for Electric is conducted as part of the current plan.

A. The internal Electric research program is broken down into five main research areas: (1) transmission, (2) distribution, (3) system operations, (4) substations, and (5) customer related projects that focus on the Company's priorities as discussed below:

1. Transmission R&D activities in the transmission arena include: developing techniques and equipment to expedite detection and location of dielectric fluid leaks in high-pressure, fluid-filled cables; examining the present and expected performance of 138-kV and 345-kV cable systems; and implementing state-of-the-art hardware and software to reduce O&M costs.
2. Examples of distribution R&D activities include developing contact voltage detection and mitigation; and technologies for manhole event mitigation; and developing a device to clear underground duct and

conduit obstructions without the need to excavate during cable repairs.

3. The System Operation R&D program is directed at automating manual processes that provide advanced analytic tools as well as integrating and exchanging data among a variety of different monitoring and control systems, and addressing physical and cyber security concerns.

4. Substation R&D projects include remote circuit breaker operation, Substation physical security and improving operator training. As an example, we are expanding the Geomagnetic Disturbance ("GMD") projects discussed earlier to include modeling of impacts of transmission facilities outside of the Company's system.

5. The Customer-related projects focus on proactive programs that allow for greater customer participation in DER programs. R&D activities include demonstrations of microgrid and storage technologies, streamlining processes for interconnecting DERs, and two-way communication technologies.

Q. Please describe the ongoing Electric R&D projects.

A. Some major projects planned for in the Rate Years include:

1. Arcing Fault Detection in Network Protector Relays Field Demonstration is a follow-up effort to the

Characterization of Arcing Fault Signature discussed earlier. Most manhole events develop over time and are caused when an electric arc burns the cable insulation. These arcing faults occur intermittently but have unique signatures for which we have developed recognition algorithms. This project modifies existing network protector relays using these algorithms to preemptively recognize arcing faults before they cause a manhole event. These algorithms will be evaluated for correlation to actual arc faulting events and the feasibility of using a network protector relay for arc fault detection and location will be evaluated. The Company plans to spend $50,000 in RY1 and $150,000 in RY2 on this project.

2. The Company is actively involved in the development of Solid State Fault Current Limiters for system fault current mitigation, area substation duty relief, area substation up-rating in existing footprint and the support of Distributed Generation (“DG”) and microgrids. This program involves a modular step-by-step development, at increasing voltage levels, to assure limited cost exposure. The manufacture of a single-phase 1,200 AMP, 15kV class prototype was completed and testing in an independent high-power,

high-voltage lab was performed. Next steps are the design, manufacture and testing of a 3-phase unit, with 4,000 Amp continuous rating. The Company plans to spend $100,000 in each of RY1 and RY2.

3. In conjunction with Electrovaya and NYSERDA, the Transportable Energy Storage System (“TESS”) will develop and demonstrate lithium ion battery technology. The TESS system will be housed in a custom-built 40-foot trailer and provide 800 kWhr of storage capacity. The system will be programmed to discharge at a fixed rate during the peak hours and will recharge during non-peak hours. The demonstration will include monitoring of the system performance and benefits for a period of 18 months. In addition, R&D is looking at pursuing other potential battery and energy storage technologies that are pre-commercial. We are planning a potential demonstration of liquid metal battery with Ambri and a Zinc-Air battery with EOS. The Company plans to spend $75,000 in each of RY1 and RY2.

4. Dielectric oil leaks are an environmental challenge for the Company. To eliminate dielectric leaks, the Company seeks to design and qualify a transition joint between HPFF and solid dielectric cable for an Extra

High Voltage (“EHV”) feeder in pipe. The transition joint will allow retrofitting existing EHV HPFF cable with water-cooled (which therefore does not contain oil) solid dielectric cable to be done in sections. The Company plans to spend $105,000 in RY1.

5. R&D has two on-going projects to reduce dielectric oil leaks that are related to underground pipe coating disbondment detection. The first project is the design and fabrication of a flexible guided wave transmitter and receiver that utilizes microwave range frequency to send a microwave frequency wave on the pipe coating surface to detect any coating anomalies. The Company completed Phase I in 2014. Phase II, which started in 2015, will validate the accuracy of the communication model. A launcher/detector of excavated Con Edison pipe in the laboratory environment will be built.

The second project will develop a Transmission Line Model to represent the soil/coating/metallic pipeline interface based on a deterministic, probabilistic approach. Phase I has been completed, which included developing the mathematical model based on AC impedance variance measurements for the detection of disbonded coating for buried steel pipes. Phase II,

which began in 2015, will validate the mathematical model by running the measurements using Con Edison pipe and coating in the laboratory environment. The Company plans to spend $185,000 in RY1 and $200,000 in RY2.

6. The Company is developing a machine to make live-end-caps (“LECs”) on medium voltage underground cable feeders in manholes, allowing assembly of a LEC without a splicer in the underground structure. During periods of adverse system conditions, time is of the essence, and the time required for traditional feeder processing and repair can contribute to the risk of cascading outages. A LEC machine will reduce feeder processing time because safety protection requirements for a machine will be less than for a splicer. The Company has engaged a team of vendors to produce a tabletop working model of a LEC machine to demonstrate feasibility. Initial component models were developed and demonstrated in 2015. The Company plans to spend $50,000 in RY1 to further demonstrate the proof of concept and produce a production version for use on the system.

7. The Company is working to develop and demonstrate new devices to clear obstructions in distribution

conduits. Obstructions that cannot be cleared must be excavated. In general, excavations are costly and time consuming. In this project, the Company will investigate the use of video to inspect conduits and ducts in order to gain accuracy in determining points of excavation. The Company also seeks to develop technology to perform the clearing functions from within a duct or conduit, eliminating the need for excavation and the associated costs. The Company plans to spend $100,000 in RY1 and $50,000 in RY2.

8. The Company has initiated a number of projects to address cyber and physical security of Company assets. They include evaluating state-of-the-art solutions in biometrics, surveillance, and sensor technologies; and studying and mitigating consequences of intentional electromagnetic interference (“IEMI”) on critical control infrastructure. IEMI is a man-made attack using radio frequency that could cause disruption or destroy operation of electronic equipment such as relays, computers, switches and communication devices potentially causing service disruptions to our customers. The Company projects to spend approximately $410,000 in RY1 and $485,000 in RY2.

9. The Company will engage in an engineering study with EPRI to support Con Edison's evaluation of some of the key design and protection requirements for three representative microgrid configurations: 1) Secondary network--Several customers carved out of an existing secondary network, 2) Overhead area--Customers in an overhead area, and 3) MV campus--A campus-style microgrid fed at 13 or 27 kV. The study will enhance current understanding of the distribution design, planning, and protection requirements to integrate and operate community microgrids within utility systems. Also, the type of DERs (for example, solar-PV, energy storage, microturbine, fuel cell systems, etc.) that are being considered have been in the form of inverter-based technology, as opposed to the more traditional rotating machine technology. Because inverter technology is relatively new, few models currently exist. The main objective is to utilize modeling and analysis to provide a better understanding of how to evaluate the performance of the overall microgrid system and DER assets. This will enable more accurate planning and interconnection studies by power system engineers. This project is part of the Company's EPRI portfolio of projects,

which is included in expenditures for EPRI on Exhibit __ (SSP-14).

10. Con Edison is working to develop new ergonomic technologies for use by Company employees. One of the projects is to test the use of a new lifting exoskeleton for possible adoption by departments with employees that engage in heavy work in their daily activities. Two novel exoskeleton devices have been identified. One provides feedback to encourage proper lifting technique and spine posture by engaging the torso and shoulders. The second project provides similar feedback along with a load transfer mechanism that shifts the load from the arms and back to the shoulders and hips. Con Edison will purchase some units for workers to test in various locations including Facilities and Field Services and Gas Operations. Additionally, there is a pilot under development on the use of a wearable analytics device. The wearable analytics device collects data that assesses the level of risk of injury in each lift or worker activity. The device can provide real-time feedback to the worker, post-activity analytics that can be used during a work shift and for worker training, characterization of our working conditions,

and possible insight before an injury or incident occurs. The Company plans to spend $50,000 in RY1.

Q. Please describe the areas of research conducted by the Company's ongoing Gas program.

A. The Gas research program is divided into two main research areas: distribution and transmission, and the Millennium fund program.

Q. Please describe each of these areas.

A. R&D activities in the distribution and transmission program include deployment and advancement of trenchless technologies, and development of techniques and equipment to expedite detection and pinpoint location of natural gas pipe leaks that migrate through the soil.

Q. Please describe what you mean by trenchless technology.

A. Trenchless technology refers to the repair or rehabilitation of the gas distribution infrastructure without the need to excavate a trench. An example of a trenchless technology is Cured-in-Place Lining ("CIPL"), which entails insertion of a collapsible polyurethane liner into an existing main via one or two small excavations, and pressurizing the liner so that it adheres against the host pipe and seals it from leaking. Another example is a service pulling tool, a machine that sits in a small excavation and pulls out an existing steel service while simultaneously pulling in from

another small excavation on the opposite end of the pipe of the same diameter or slightly larger diameter service. These technologies also support work in the electric and steam systems and avoid the social cost associated with open trench excavation which is related to reduced or lost pedestrian traffic for local businesses.

Q. Please continue by explaining the Millennium program.

A. The second research area is the Millennium program, which contains projects that are part of the gas distribution/transmission R&D program and funded through what is referred to as the Millennium Fund.

Q. What is the Millennium Fund?

A. In April 2000, the Commission approved a surcharge to be collected via the Monthly Rate Adjustment Surcharge to support long-term (greater than two years) gas distribution research that replaced funding previously supplied through a FERC surcharge. The Commission requires that over 80 percent of these funds be directed at collaborative research. Millennium activities include development of heat shields and processes to be used in conjunction with the use of CIPL, and researching and testing new in-line inspection technologies.

Q. Please describe the ongoing Gas R&D projects.

A. Some major projects planned for in the Rate Year include:

1. Testing the Picarro mobile methane sensor equipment to detect gas leaks. The Picarro methane sensor equipment utilizes a highly sensitive analyzer that utilizes Cavity Ring Down Spectroscopy ("CRDS") in combination with GPS equipment, anemometers, and a proprietary algorithm to detect and locate gas leaks much farther from the source when compared to traditional gas leak survey equipment. The Company projects to spend $145,000 in RY1 and $229,000 in RY2.
2. Development of plastic repair sleeves for use on the Company's polyethylene ("PE") gas distribution system that is leaking. There currently are no fittings available to repair a leaking PE pipe. Availability of a repair fitting will allow for a lower cost repair option compared to the current process that interrupts gas flow to remove the pipe section. The Company projects to spend $50,000 in each of RY1 and RY2.
3. The remote drip pot monitor project was conceived to allow for remote monitoring of a low pressure gas main drip pots for water accumulation. Water that accumulates in a drip pot can build up and stop the flow of gas to a customer's service, extinguishing pilot lights and requiring the Company to re-light the pilot of that home's appliances. The project will

deploy several field-ready monitoring units. Deployment of drip pot monitors will provide earlier notice that water is collecting in the main. The Company projects to spend $25,000 in each of RY1 and RY2.

Q. Please describe some of the more significant Millennium Fund efforts that are listed in Exhibit __ (SSP-14).

A. NYSEARCH and OTD each manage a multitude of these projects directed to the Company's needs. Each year, the Company participates in over 40 selected projects that are mid- to long-term in nature. These projects address problems in the areas of pipeline integrity assessment, facility locating, leak detection, pipe materials, repair and rehabilitation of pipes, third-party damage, gas interchangeability, and EH&S.

Schedule CE-G-1 of Exhibit __ (SSP-14) lists R&D projects that are underway and associated with the Millennium Fund, to demonstrate the types of projects being undertaken.

Q. What Millennium Fund projects is the Company involved in?

A. The following are examples of some of the more significant Millennium Fund projects included in the exhibit that are not part of the collaborative work with NYSEARCH or OTD:

1. Completion of various Explorer robots and their associated auxiliary equipment, such as bend sensors

and cleaning tools to be used for transmission pipeline assessment.

2. Methane quantification is a newer area of research and intends to reduce greenhouse gas emissions from leaks on the gas distribution system. The project seeks to develop technology that enables the quantification of the rate of leakage of natural gas from a type 3 gas leak. The characterization of leak rate could then be used to prioritize repairs by those type 3 leaks with the greatest emissions for earlier repair.

3. Development of non-destructive inspection technology that enables the Company to inspect new or existing plastic fusions in the gas distribution system. The project seeks to develop field ready fusion inspection technologies that can be used by field crews to provide for a non-destructive inspection of the fusion, which would be in addition to the current process of performing a visual inspection. The technology would provide an immediate pass/fail response.

4. Advancements in residential methane detector technology continue through multiple efforts in the OTD program by GTI. There is a need to evaluate technology that provides a means to protect our

customers from a gas leak. Although residential methane detector technology is commercially available, testing of existing technology identified a gap between when a consumer with a normal sense of smell detects odorized natural gas and the standards prescribing minimum alarm levels that currently available commercial technology are certified to. These R&D efforts seek to advance this technology to alarm at lower levels to provide a greater advance warning of a gas leak and perform testing to substantiate the performance of this technology in residential applications. Efforts include testing currently available commercial technology in a pilot program and creating new industry standards, such as Underwriter Laboratories, that enhance performance of the current commercial units. This will provide for such items as lower alarm limits and improvements in packing that enhance the safe application of the technology by consumers.

Q. How much funding does the Company provide to NYSEARCH and OTD?

A. In each of the rate years, Con Edison will provide $500,000 to NYSEARCH and $650,000 to OTD.

Reconciliation Mechanism

Q. Does the projected funding level for the Rate Years represent the total cost to develop and demonstrate these projects?

A. No. Many of the projects are multi-year and the amount only represents what will be spent during the Rate Year. In addition, these are estimates of Con Edison's share of the costs. In many cases, these represent only a portion of the total costs, with the rest being made up by co-funding, which we expect will be provided by New York State (and other) incubator labs, government, industry partners, or other collaborative partners. Should this expected funding not materialize as projected, we may need to adjust development schedules accordingly and shift the funding to different projects.

Q. Is R&D funding currently subject to a reconciliation mechanism?

A. Yes, under the current Gas Rate Plan, Gas R&D funding is subject to a downward-only reconciliation.

Q. Is the Company proposing that Gas R&D expenditures continue to be subject to reconciliation during the Rate Year?

A. No.

Q. Please explain why.

A. Primarily, the Company does not believe that there is a reasonable basis for subjecting this individual element of Company expense to reconciliation. It does not fall into any of the categories of expense discussed by the Accounting Panel for which a reconciliation mechanism is warranted.

Q. Didn't the Company propose, along with other signatory parties, reconciliation for Gas R&D expenses as part of the Joint Proposal made to the Commission in those prior rate cases?

A. Yes. As part of the give-and-take of the settlement process, the Company agreed to this provision as applicable to a multi-year plan.

Q. Why else do you believe that a reconciliation mechanism is not warranted in this proceeding?

A. There should be no expectation that the Company will materially underspend its Gas R&D budget in the Rate Year. Among other reasons, the Company expects that it will incur additional R&D expense in the near term based on a change in the definition of service termination points, which we believe is likely to require additional R&D projects to identify gas issues within buildings. Also, as described earlier, Con Edison is developing a means of quantifying greenhouse gas emissions from natural gas delivery systems.

Both of these issues may require expenditures that are not in the R&D budget reflected in the revenue requirement.

XI. SUPPORT FOR GAS OPERATIONS

Q. Will any of the Shared Services organizations be affected by the increased gas work and number of Gas Operations employees as explained by the GIOP?

A. Yes. The GIOP explains that the Company will be hiring approximately 500 additional Gas Operations employees over the next five years to enable a significant increase in work. This increase will require additional support personnel from several Shared Services organizations – HR (1), L&I (8) and Supply Chain (2) – to provide service to meet the needs of the growing workforce and to enable the gas work.

In addition, as the GIOP testified, these new employees will need equipment and tools to carry out the work they are performing. The XM budgets that were explained earlier include funding for additional equipment and tools.

Q. Have you prepared an exhibit that provides further information on the additional employees?

A. Yes. Additional information is shown in the exhibit titled "Shared Services – Support for Gas Operations."

MARK FOR IDENTIFICATION AS EXHIBIT __ (SSP-15)

Q. Was it prepared under your direction and supervision?

A. Yes, it was.

HR Gas Operations Support

Q. How does HR support Gas Operations?

A. The existing HR Professional ("HRP") team supporting Gas Operations performs a multitude of tasks for Gas Operations employees, including administering the union contract regarding sick days, benefits and discipline. The HRP advises managers regarding performance management and compensation, including performance review preparations for both management and union employees. The HRP also assists with conducting internal investigations for the Corporate Ombudsman, EEO and the Ethics Office.

Q. Please explain the need for one additional employee requested by HR, the employees position and the justification for this employee.

A. Initially, this new position would assist Gas with the hiring process for the additional employees, including answering potential employee inquiries and sourcing and selecting skilled employees to meet the workload requirements. After the initial hiring is completed, this employee would be assigned to handle the day-to-day work as a Gas HRP. The addition of one HRP will enable us to maintain our current ratio of one HRP to 450 employees.

Q. When will the Company hire the additional HRP?

A. The Company will recruit an individual in 2016 with the goal to have the HRP hired by January 2017.

Q. What is the cost associated with this additional staffing?

A. The cost of the additional HRP is $115,000 per year.

Learning and Inclusion Gas Operations Support

Q. How does L&I support Gas Operations?

A. Through TLC, L&I provides the training necessary for all employees, including Gas employees.

Q. Please explain the need for eight new employees for L&I.

A. L&I requires eight new full-time employees to meet Gas training, evaluation and operator qualification testing for the additional and existing Gas workforce.

Q. How did you determine that eight employees were necessary?

A. In reviewing the training and testing needs and the planned hiring levels, there will be a 50% increase in the number of gas employees requiring training and thus, an increase in the required training days needed.

Q. Please explain the training needs of gas employees.

A. Gas employee training differs from other technical training disciplines in that it requires an on-going training that continues after an individual is hired. Individuals who perform work on the gas system receive skills training, promotional testing and required operator qualification and requalification each year.

Q. Please explain the overall effect on staffing.

A. The chart below reflects the number of required training instructor days needed each year to meet the projected Gas training demand in 2016 and in RY1-RY3, based on the career path technical training and testing requirements, evaluation and ongoing Gas operator qualification and requalification testing required for Gas Operations employees as compared to the number of training days in 2014 and 2015:

Years:	2014	2015	2016	RY1	RY2	RY3
Required Training Days:	1338	1814	2941	2523	2276	2485

The number of Gas training days required in 2016 is 2,941, which is a 62% increase in the level of training that must be conducted as compared to 2015. The average annual number of training days required from 2016 through RY3 is 2,556 – a 41% increase compared to the 2015 training days provided.

Q. Has the Company started to hire these training employees?

A. Yes. The Company has hired three additional Gas training employees. The total number of employees is thirteen as of January 11, 2016. A fourth new training employee is scheduled to start on February 1, 2016. The Company expects to hire the remaining four in 2016.

Q. What is the cost of this increased number of employees?

A. The cost is $1.1 million for each Rate Year.

Supply Chain Gas Operations Support

Q. How does Supply Chain support Gas Operations?

A. Supply Chain supports Gas Operations by procuring construction services, pipes, valves, fittings and other materials and services used by Gas Operations and Construction Services. Supply Chain also manages the inventory of about 2,000 stock Gas items.

Q. Can you please explain the plan to hire two Procurement Specialists to support the increased gas work?

A. Supply Chain will need to hire two new employees to support the increased procurement of materials and services.

Q. How has the increase in workload for Gas Operations affected Supply Chain?

A. Annual contract spend for Gas Construction Services such as main replacement, oil to gas conversion work, leak repairs and gas transmission projects has increased year over year for the period from 2013 through 2015 and is expected to increase in 2016 and at least remain steady in RY1.

Q. Please continue.

A. Spending on contracts to support Gas Construction Services' activities in 2013 was $164 million, followed by $193 million in 2014 and $303 million in 2015. Based on

forecasted activity, Gas Construction contract spending is projected to increase by approximately 40 percent again in 2016 to $425 million.

Q. Is there additional work associated with the increased spending?

A. The number of contracts that support Gas has increased from 26 in 2013, to 50 in 2014, and to 82 in 2015. This number is expected to increase to 105 contracts in 2016. We expect the levels at least remain steady, if not increase, in RY1. In the past, one full-time Supply Chain employee procured and maintained approximately 50 Gas-related service contracts and supported other ongoing initiatives. At this time, one person is inadequate to handle this increased level of work. Employee activities to support each contract include:

- procuring, analyzing and negotiating several hundred unit price line items;
- modifying existing contracts to support new Gas requirements and mandates;
- preparing and issuing award recommendations; and
- monitoring contractor spend and performance.

In addition, as the number of contracts has increased, the Supply Chain employee needs to qualify new Gas vendors, benchmark with other utility companies for best practices

and potential process improvements, implement performance scorecards for each contract, and work with the local unions to establish training programs.

Q. As part of this increased Gas-related work, is the Company looking to use additional contractors to perform the needed work?

A. As described in the GIOP, Con Edison is also planning to accelerate the replacement levels of 12 inch-and-under unprotected steel and cast iron pipe in quantities sufficient to achieve the elimination of all unprotected steel and cast iron mains over the next 20 years. Con Edison currently engages approximately 40 construction companies, but these companies will not be able to meet this increased replacement target. Supply Chain, Construction Management and Gas Operations have been negotiating with new contractors in order to meet the accelerated replacement levels of leak prone pipe.

Q. What is the Company’s plan for new vendors?

A. Supply Chain has an on-going initiative to issue contracts with new high capacity, non-incumbent New York City contractors that can meet larger volumes of work to assist Gas in meeting their project-related goals, including the volumes associated with the accelerated main replacement projects.

Q. Please explain what you mean by high capacity vendors?

A. On average, a typical construction vendor has approximately 200-300 employees and annual revenues of approximately $25 to $50 million. High-capacity vendors have 750 to 1,000 employees and $500 million to $750 million in annual revenues (some exceeding $1 billion annually). The high-capacity vendors will supplement the current contractor resource pool and will be considered for large area type main replacement solicitations with the expectation that they will increase resources to support the workload. These vendors have the staff and financial capability to increase their workforce and are already mobilized and established in the New York City area.

To establish contracts with these new vendors, Supply Chain will need to undertake all the tasks noted above for each one of these high-capacity vendors, including obtaining and negotiating work scopes, terms and pricing with these new contractors as well as work with operations to qualify them.

Q. Are there any other items that Supply Chain is addressing to meet the increased Gas Operations' needs?

A. The Company has also increased spending on the 2,000 Gas stock items. There has been an increase in stock items expenditures for Gas in the last several years. In 2014,

Gas used $38.8 million worth of stock items, and in 2015, they used $43.5 million. Based on an analysis of the 2014-2015 expenditures, we project the use of these items to grow to $54.4 million in 2016. This is a 40 percent increase in volume. We project to at least maintain this level in RY1.

Q. What will Supply Chain need to do to meet this growth?

A. Supply Chain will need to expend time and resources to address the additional administrative burden that results from the increase in stock needed for Gas. For example, Supply Chain must continually forecast the level of inventory needed. In addition, as consumption increases, there are likely to be supplier issues experienced, such as manufacturing problems at the vendor end, when the manufacturer is unable to provide us with the product timely, and extended lead times. To address this, we have implemented scorecards, which have increased in number and detail, as well as holding supplier meetings on a more frequently to address issues and to plan for future requirements.

Q. Please continue.

A. Additional resources are being assigned the task of working with the Gas operating groups to project requirements in both the short- and long-term horizons. This effort is

intended to minimize supply chain interruptions that will negatively impact the ability of Company and third party resources to install Gas-related materials.

Finally, a process to more effectively address quality and delivery issues is being developed. These issues will be documented and tracked, and root cause analysis performed and the generation of a corrective action will be required of that vendor.

Q. How many employees are needed to support this additional work?

A. Two new full time positions are required.

Q. Has the Company started to hire these Supply Chain employees?

A. Yes. Since the Gas expansion work is currently underway, these two new employees will start in February 2016.

Q. What is the cost associated with this additional staffing?

A. The cost of the additional employees is approximately $200,000 per year.

Q. Is there any additional capital funding required to support this expansion?

A. Yes, the additional funding for the General Equipment necessary to support Gas Operations is discussed earlier, in the General Equipment portion of this testimony.

Q. Does this conclude this Panel’s testimony?

A. Yes, it does.